

# **Lower Thames Crossing**

**Post Event Submissions for Issue Specific Hearings (ISH3 - ISH7) and  
Compulsory Acquisition Hearings (CAH1 & 2)**

**19 September 2023**

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

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## Document Control Sheet

**Project Name:** Lower Thames Crossing

**Report Title:** Post Event Submissions for Issue Specific Hearings (ISH3 – ISH7) and  
Compulsory Acquisition Hearings (CAH1 and CAH2)

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	<b>Name</b>	<b>Position</b>	<b>Signature</b>	<b>Date</b>
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# 1 Issue Specific Hearing 3 (ISH3) – Project Design

## Issue Specific Hearing 3 (ISH3) on Project Design

5<sup>th</sup> September 2023

### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council’s Oral Case

Note: these Post Hearing Submissions include a written summary of the Oral Case presented by the Council at ISH3. They also include the Council’s submissions on all relevant Agenda Items, not all of which were rehearsed orally at the ISH due to the need to keep oral presentations succinct.

The structure of the submissions follows the order of the agenda items but within each agenda item, the submissions begin by identifying the oral submission made at ISH3 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant were made by the Council at ISH3 these have been highlighted as **‘Requests’**. Where the Examining Authority (ExA) requested the Council provides further written evidence or further information has been provided in response to statements made by the Applicant during ISH3, this further information is included in Appendices and highlighted within this submission. These Appendices are, as follows:

Appendix A – Diagram illustrating inter-relationship between modelling and design challenges and concerns

Appendix B – DMRB Road Safety Audit Brief Template (GG 119 Revision 2)

Appendix C – Port of Tilbury Journey Time Analysis

Appendix D – Summary of Council’s LTC/A13/A1089 and Tilbury Link Road Option Appraisal

Appendix E – Effect of Missed Turns at LTC/A13/A1089 Junction

This submissions also include a response to the relevant Action Points arising from ISH3 [[EV-041g](#)].

ISH3 was attended by George Mackenzie on behalf of the Council. Also, in attendance at ISH3 on behalf of the Council were Kirsty McMullen, Adrian Neve, Dr. Colin Black, Chris Stratford, Mat Kiely and Sharon Jefferies.

Agenda Item	Thurrock Council’s Response
<b>1) Welcome, introductions, arrangements for the Hearing</b>	
<b>2) Purpose of the Issue Specific Hearing</b>	
<b>3) A2/M2/LTC Intersection</b>	No oral submission was made by the Council with respect to this agenda item.
<b>4) A13/A1089/LTC Intersection</b>	
<b>Oral Submission on Agenda Item 4 a) – c)</b>	

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	<p><b>Comments by Mr Mackenzie – ISH3 Transcript Page 63 <a href="#">[EV-041f]</a></b></p> <p>Mr Mackenzie, on behalf of the Council provided support to Mr Shadarevian on behalf of DPWLG that select link analysis model flow outputs for LTC to Orsett Cock should be shared with the Examination prior to ISH4.</p> <p><b>Comments by Mr Mackenzie – ISH3 Transcript Page 70 <a href="#">[EV-041f]</a></b></p> <p>Three points were main with regards to the visualisations presented by the Applicant for A13/A1089/LTC junction:</p> <ol style="list-style-type: none"> <li>1) First, can the Applicant explain precisely what they mean by the three different categorisations of connection types, i.e. strategic, major and local?</li> <li>2) Second, are the strategic connection types on the plans in relation to the extent of the strategic road network?</li> <li>3) Third, in relation to the visualisations, there has been no reference made to public transport and the way in which public transport will circulate around and through these junctions.</li> </ol> <p>With regards to access to the 3D models, the Council has considered the practical and wider concerns in relation to the dynamic models being before the Examination, but it would be helpful to have access to zoomable PDFs of the entire LTC route to understand the design of the scheme at a finer grain. At the moment zoomable PDFs have only been provided in relation to specific junctions. <b>Request: Zoomable PDF of the entire LTC scheme.</b></p>
	<p><b>Comments by Kirsty McMullen – ISH3 Transcript Pages 70-79 <a href="#">[EV-041f]</a></b></p> <p>The applicant covered all agenda item 4 at once, splitting down to the three elements of function and traffic movement, siting and land take and structures and design mitigation, which the Council responded to in a similar way. The juxtaposition and conglomeration of the junction design concerns and the modelled effects are illustrated within the diagram at <b>Appendix A</b> to this submission. These points are explained below:</p> <p><b><u>Function of the junction</u></b></p> <p>In terms of function of the junction, the Council is concerned that there has not been any mention of public transport or active travel to date and how road users, all road users, would be able to navigate through the junction safely and how they would be impacted both in terms of journey time reliability for public transport users as well as commercial viability for public transport given the queuing and delay that is shown within the localised modelling of the junction. <b>Request: the Council requests that the applicant provides clear evidence as to how all road users would use the junction.</b></p> <p>With regards to traffic routing through the junction, it is clear from the visualisations submitted by the applicant that LTC requires the use of Orsett Cock in order to function and Orsett Cock is part of the local not strategic road network. The applicant's modelling is showing that by 2045 there would be an increase in traffic using Orsett Cock of 14% in the AM peak and 19% in the PM peak hour.</p> <p>The Orsett Cock junction was recently upgraded as part of the A13 widening scheme to support economic growth in Thurrock, including at the two national Ports. The Council is concerned that LTC utilises that recently provided capacity and that, given the congested shown within the localised modelling, LTC would stifle rather than support growth within Thurrock, which is one of the objectives of the scheme, i.e. 'To support sustainable local development and regional economic growth in the medium to long term.'</p>

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	<p>Turning to other aspects of function, the Council has raised a number of very detailed road safety points with regards to the design of the scheme, none of which have been responded to by the Applicant. The safety issues with the junction are set out in Appendix C, Annex 2 of the LIR (<a href="#">REP1-284</a>).</p> <p>Two specific examples of the safety concerns that need to be raised are:</p> <ul style="list-style-type: none"> <li> <b>Short weave length and lack of alignment between modelling and design:</b> the short weaving length on the eastbound approach to the Orsett Cock junction requires vehicles leaving LTC to merge with traffic on the A13 eastbound off-slip. The two streams of traffic would seek to cross as they join the Orsett Cock circulation over this short 90m weaving length. Both links at that point are the subject of the national speed limit (electronic page 299 of Appendix C of the LIR (<a href="#">REP1-284</a>)). The microsimulation modelling shows significant congestion at this location and in order to resolve this the applicant extended the weave length from 90m to circa 200m within the model, which is still not sufficient to accommodate the queuing (electronic page 139 of Appendix C of the LIR (<a href="#">REP1-284</a>)). However, the design of the junction has not been updated to reflect the need for a much longer weave length.         </li> <li> <b>Duplicating existing bad gyratory design will result in toppling HGV incidents:</b> at present the A1089 northbound connects to A13 eastbound via a 270 degree gyratory. This alignment is a poor design and, as a consequence of HGV toppling incidents, National Highways introduced an advisory max 30mph speed limit for this section of the existing junction along with a plethora of warning signs, including warning of topping vehicles. Within the LTC/A13 junction design, the applicant has introduced another 270 degree gyratory with a tight radius in order to cater for LTC northbound movements routeing to A13 eastbound (Appendix C of the LIR (<a href="#">REP1-284</a>)). <b><i>Request: can the applicant explain what the design speed is for this part of the junction, whether this complies with DMRB standards and what alternative design configurations were considered.</i></b> </li> </ul> <p>One of the scheme objectives is <i>'to improve safety'</i> and the Council is concerned that the safety concerns that have been raised may not be able to be addressed within the Order Limits at the detailed design stage. The applicant's accident analysis shows that there is forecast to be 8 additional fatalities and 35 additional serious casualty incidents within Thurrock as a result of LTC. To our understanding this is the only National Highways scheme that actually increases accidents one the scheme is in place rather than reduces them.</p> <p><b><u>Relationship to the local road network</u></b></p> <p>With regards to the design of the junction in relation to the local road network, Orsett Cock is an integral part of LTC. The Council is concerned that the design of the LTC/A13/A1089 junction has been fixed and is not aligned with the localised modelling. The Council considered that there is still much work to do with the modelling, but the localised modelling and design need to be consistent. The Council requires the junction design to be updated to reflect the localised traffic modelling.</p> <p><b><u>Access to the two National Ports</u></b></p> <p>With regards to access to the two national Ports, in their Local Refinement Consultation (LRC) in May 2022, the applicant stated that <i>'the new operational access at Tilbury has been designed in consultation with key stakeholders, with possible future development in mind, helping to avoid potentially disruptive re-work at a later date....'</i></p>

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	<p>The applicant has sought to reassure the Council within the LRC that the operational and emergency access has been designed to cater for future possible traffic, but the Council has been provided with no evidence to demonstrate how that could happen in the future without a total redesign of the junction and slip roads.</p> <p><b><u>Siting and Land Take</u></b></p> <p>The Council considers that with regards to option testing and design evolution of the LTC/A13/A1089 junction, there is a relationship between Tilbury Link Road and the LTC/A13/A1089 junction and the ability for a Tilbury Link Road to mitigate some of the impacts and harm as a result of the junction design.</p> <p>The junction is extremely complex, and the Council has serious concerns with regards to the useability of the junction. In addition, the Council has significant concerns with regards to the land take of the junction. The Council has estimated that it takes up circa 112 hectares. The land take is shown on electronic page 117 of Appendix B of the LIR (<a href="#">REP1-283</a>). It is sometimes difficult to contextualise land areas so as a comparison, Junction 6 of the M6, otherwise known as Spaghetti Junction, takes up less than 20 hectares. The LTC/A13 interchange is therefore 6 times larger than Spaghetti Junction.</p> <p>The Council is in the position whereby the applicant's localised modelling is showing severe impacts that need to be addressed with further design iteration and potentially further land take. The Council is concerned that this may not be achieved within the Order Limits that have been defined by the applicant.</p> <p>The Council is not disputing that there has been an element of design evolution, which is summarised in the application documents as well as a summary from Mr. Hodge of the design evolution of this junction in May 2021. What the Council does assert is that the design of the junction was not predicated on option testing that considered a number of options for the function of the junction and tested these options against the scheme objectives supported by modelling. It is only once this has been done and the preferred function of the junction established should design evolution take place.</p> <p>Mr Roberts stated that there were 10 movements that have been accommodated out of the 16 potential movements at the junction. The Council has seen no evidence of why those 10 movements were selected, why that could not be more or less movements and how that has been tested using LTAM.</p> <p>In response to Section 9.6 of the Council's LIR (<a href="#">REP1-281</a>), the applicant stated that during the design of the LTC/A13 junction they used '<i>professional judgment informed by the traffic model, rather than undertaking a sequence of detailed models of all possible alternatives as proposed by the Council</i>' (<a href="#">REP2-063</a>). The Council has not asked for detailed micro-simulation modelling of all possible junction alternatives. The LTAM model could have been used to assess different options. This option testing has been requested by the Council for a long time and eventually the applicant agreed to assess a limited number of options. All of the options that were tested included the Tilbury Link Road but had different configurations of the LTC/A13/A1089 junction.</p> <p>The Council's analysis of this option testing is included in Appendix B of the LIR (<a href="#">REP1-283</a>). The results of this modelling show that there is no real difference in the relief to Dartford Crossing compared to the applicant's preferred LTC option. They all provide similar levels of relief to Dartford Crossing, but different levels of harm, land take and impacts.</p>

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	<p>It is the Council's view that:</p> <ul style="list-style-type: none"> <li>• There are alternative LTC/A13/A1089 junction designs with Tilbury Link Road that would better meet the scheme objectives; and,</li> <li>• These options should be developed and assessed as part of an 'integrated alternative option', including a package of supporting sustainable transport and behaviour change/demand management measures to promote more public transport use and active travel across the area.</li> </ul> <p><b><u>Relationship between junction and Baker Street</u></b></p> <p>Mr. Roberts on behalf of the applicant summarised the justification for the siting and land take of the junction and how that relates to Baker Street. Their design assumed that 10 of the 16 movements were required, but no evidence has been provided to support this assertion. Had there been a detailed comparative assessment that looked at various options and how they meet scheme objectives, the junction may have resulted in less land take and less harm to Baker Street.</p> <p><b><u>Comments by Chris Stratford ISH3 Transcript Page 80 [EV-041f]</u></b></p> <p>Significant construction impacts at Baker Street are summarised by the applicant in their Community Impact Report (<a href="#">APP-549</a>). Table 6.30 of the Community Impacts Report (<a href="#">APP-549</a>) makes it clear that Baker Street will be closed several times in different locations: for 5 years south of the A13 for road realignment; for 10 months (February – November 2026); utility modifications for 7 months; and, weekends for bridge works and for alignment changes. The applicant also intends to impose a range of access restrictions, traffic, bus, pedestrian and cycle diversions for various periods. Bus journey times would increase on affected routes. In addition, there would be noise and air quality and cultural heritage effects and significant visual effects and impacts that will seriously impact the health and wellbeing of residents.</p> <p>Two years ago, the applicant presented different ideas they might have for how to treat Baker Street after the construction in that area is completed. In the Council's view, they were interesting ideas including different/increased parking provision, enhanced pedestrian and cycle provision, landscaping, traffic calming, etc.</p> <p>The applicant has recently taken a unilateral and wholly inappropriate decision to do nothing. Furthermore, the applicant has confirmed that such mitigation measures cannot be included within any Designated Funds application (as legacy), as it would not meet the criteria.</p> <p>The approach set out by the applicant is unacceptable. A range of mitigation and legacy measures for Baker Street is necessary, which should explore measures in consultation with the Council and local residents on matters such as on-street parking, footpath improvements, provision for cyclists, traffic calming and bus stop improvements.</p> <p><b><u>Design Philosophy</u></b></p> <p><b><u>Comments by Kirsty McMullen – ISH3 Transcript Page 81 [EV-041f]</u></b></p> <p>Mr Roberts alluded to the fact that the design philosophy to the south of the river had been different to the approach taken to this junction and the Council do not consider that this difference has been explained by the applicant. <b><i>Request: for the Applicant to clarify what the difference was in design philosophy for junctions north and south of the river and specify this at D5.</i></b></p>

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<b>Further Written Submission on Agenda Item 4 a) – c)</b>	
<b>a) Review of Function and Traffic Movements</b>	
<p>i. 5) The ExA will ask the Applicant to explain the function of the proposed junction and the route paths through it that can be taken by traffic.</p>	<p><b><u>Increase in casualties as a result of the scheme</u></b></p> <p>Dr. Wright on behalf of the applicant stated that on a per km basis, there is a reduction in personal injury collisions (Page 91 of the ISH3 transcript (<a href="#">EV-041f</a>)). The Council set out in paragraph 7.3.6 of the LIR (<a href="#">REP1-281</a>) that the standard approach to accident analysis is to present an absolute saving in casualties and accidents rather than a rate per km. As far as the Council is aware, this is the only scheme to rely on a rate to justify its success against its safety objective and the only National Highways scheme with an increase in all casualty types with the scheme in place.</p> <p><b><u>Road Safety Audit</u></b></p> <p>Mr. Roberts stated at ISH3 (Page 91 of the ISH3 transcript (<a href="#">EV-041f</a>)) that an independent Stage 1 Road Safety Audit had been undertaken in accordance with GG 119 on Road Safety Audit (part of the Design Manual for Roads and Bridges). Mr. Roberts stated that the applicant shared the safety concerns raised by the Council on the LTC/A13/A1089 junction design with the safety auditors and confirmed to the ExA that the design of the junction was considered by the applicant to be satisfactory in audit terms and there is nothing more that the applicant would do to achieve satisfactory safety performance.</p> <p>The Council makes the following submissions with regards to the Applicant's statements:</p> <ul style="list-style-type: none"> <li>• NPSNN summarises the criteria for good design of national networks in paragraphs 4.28 – 4.35 and notes at paragraph 4.31 the requirement to mitigate adverse road safety impacts as part of good design. The Council continues to contend that the scheme design is replicating existing proven 'bad design' by implementing a 270 degree gyratory for northbound LTC traffic routeing to A13 eastbound (as shown in slide 9 of the Applicant's visual representations of the LTC/A13/A1089 junction (<a href="#">AS-146</a>)), which is similar to the existing A1089 northbound to A13 eastbound gyratory, which has experienced HGV toppling incidents and has had to be retrospectively mitigated by National Highways through speed reduction to 30mph, reduction from two to one lane and warning signs. It should be noted that the proposed gyratory for the LTC is two lanes and therefore should it need to be reduced to one lane it would need to be reflected in the VISSIM modelling. <b><i>Request: the Council requires a detailed response setting how the design has addressed this issue to avoid topping vehicle incidents.</i></b></li> <li>• GG 119 on Road Safety Audits provides a template for the audit brief within its Appendix C (which is reproduced as</li> </ul>



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	<p><b>Appendix B</b> to this submission). This includes provision of departures of standards including 'status details, i.e. approved/pending/rejected, and any design strategy records produced for improvements to existing trunk roads and motorways.' The Council was retrospectively provided with the Stage 1 Safety Audit and designers response by the applicant, but was not provided with the audit brief, including departures from standard and was not consulted on the audit, in spite of being the Overseeing Organisation for a significant part of the A13/A1089/Orsett Cock interchange. The process adopted by the applicant is not in accordance with GG119 and it is within the advice of GG119 at point 4.21 that the Overseeing Organisation can require a repeat Road Safety Audit.</p> <p><b><i>Request: the Council requires the applicant to provide the Stage 1 Audit brief for the LTC/A13/A1089 junction and the list of departures from standards that were provided to the Road Safety Auditing team at the time of the Audit.</i></b></p> <p><b>GG 119 'Road Safety Audit Brief Template' is included as Appendix B of these written submissions.</b></p> <ul style="list-style-type: none"> <li>• As set out by Mr. Roberts, the design is a preliminary design, and a Stage 1 Safety Audit has been undertaken at this early design stage. As set out in GG 119, there are four stages of safety audit with Stage 4 being post opening monitoring/audit. As such there are 3 further stages of safety audit to be undertaken for the scheme, so it is therefore surprising to the Council that Mr. Roberts asserted that there is nothing more the applicant would do to achieve satisfactory safety performance. This is further surprising when the applicant has indicated at points within the Designer's Response that further action would be taken at Detailed Design to seek to resolve Audit comments, which suggests that further action should be taken with regards to the safety within the interchange and the wider LTC project.</li> <li>• The Council is the Local Highway Authority for A13 east of A1089 and the Orsett Cock interchange. It is essential that the Council, as Overseeing Organisation for the safety of that network and as defined in GG119 must be a party to the Road Safety Auditing of the proposed interchange and the interface with the LRN.</li> <li>• It is noted that at the time of the initial Road Safety Audit 1, the applicant annotated its General Arrangement plans provided to the Audit team to the effect that the layout of Orsett Cock gyratory was not shown due to the proposed realignment of that junction (refer to NH Road Safety Audit provided at the Council's LIR Appendix C Sub-Annex 2.2 (<a href="#">REP1-284</a>)). It was therefore not possible for the Safety</li> </ul>

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		<p>Audit team to assess or comment on the interface between the proposals and the Orsett Gyrotory.</p> <p><b><i>Request: the Council requires the applicant to provide a written response to the Council's concerns with regards to the weaving interaction between LTC exit slip road and A13 eastbound off-slip at Orsett Cock. If the applicant deems that traffic interaction to be safe, as reported in ISH3, it must state that and substantiate its position with regards to design standards and professional appraisal having regard to the traffic movements at that point and also future congestion. The Council must be made aware of and be a party to any further Road Safety Audits that are carried out on the proposals that affect its network.</i></b></p>
ii.	6) The ExA will ask the Applicant to explain the function and design of the intersection in relation to the local road network.	No further submissions beyond the oral submission.
iii.	7) The ExA will ask the Applicant and the Ports for observations on the function and design of the intersection in terms of providing access to the Port of Tilbury, Tilbury 2 and London Gateway Port.	<p><b><u>Journey times to Port of Tilbury</u></b></p> <p>Dr. Wright on behalf of the applicant asserted that Port of Tilbury traffic would not route via LTC and would continue to route via M25 Junction 30 and A13 (Page 59 of the ISH3 transcript [<a href="#">EV-041f</a>]) due to the journey time saving LTAM is showing on A13 between M25 and A1089.</p> <p>The Council has also run journey time analysis using LTAM for traffic routing to/from the Port of Tilbury and does not concur with the applicant's findings. In summary, it shows that in 2045 the journey times northbound via LTC are circa 6 minutes faster than via the M25 and southbound the journey times via LTC are circa half a minute faster than via M25.</p> <p><b>The details of the journey time analysis to the Port of Tilbury via LTC and M25 are set out in Appendix C of this submission.</b></p> <p><b><u>Operations and Emergency Access</u></b></p> <p>Dr. Wright on behalf of the Applicant stated that it is not possible to design the operations and emergency access for future developments due to uncertainty in future growth of the Port (ISH3 Transcript Page 90 (<a href="#">EV-041f</a>))</p> <p>However, the Local Refinement Consultation in May 2022 (page 49 of the 'Guide to LTC') referred to the operations and emergency access being designed for '<i>possible future development</i>' and therefore it has been designed for future growth that is not currently certain, just 'possible'.</p>



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	<p>In the absence of the applicant providing any evidence of the ability of the operations and emergency access being able to accommodate future growth, as stated in the Local Refinement Consultation, the Council prepared its own assessment of the junction, which is provided in Appendix C, Annex 2.3 of the LIR <a href="#">[REP1-284]</a>. The Council's assessment of the junction demonstrates that:</p> <ul style="list-style-type: none"> <li>• The Council sought an interchange that would allow future access to local growth, facilitate strong connection for cross river public transport and to assist with Port of Tilbury /Freeport access;</li> <li>• The concept layout provided by the applicant does not allow sufficient capacity for forecast local growth, constrained particularly by the proximity to the tunnel portal and the ability to provide merge and diverge lanes to DMRB standard for the future traffic flows;</li> <li>• Capacity is only sufficient for local access to the Port of Tilbury and a limited connectivity to land to East Tilbury, anticipated to be public transport only;</li> <li>• The applicant's design does not allow for connections across LTC for active travel;</li> <li>• The limited capacity potential at the applicant's proposed interchange does not align with the stated submission to RIS3 for a Tilbury Link Road and so precludes that scheme's success and does not safeguard future connection;</li> <li>• The applicant's operations and emergency access design does little to assist in the possible rationalisation of the complex and land hungry A13/A1089/Orsett Cock interchange;</li> <li>• It fails to meet many of the Council's strategic consideration, except potentially limited access to Port of Tilbury and cross-river public transport access; and,</li> <li>• The proposal is over-engineered for the applicant's stated purpose – emergency vehicle and tunnel operations access but has not been designed to accommodate possible future developments as asserted by the applicant.</li> </ul> <p><b><i>Request: the Council requires the applicant to provide evidence to demonstrate how the access has been designed to accommodate 'possible future developments', including the future growth of Thurrock and Freeport proposals and 'avoid disruptive re-work at a later date', as set out by the applicant in the Local Refinement Consultation in May 2022 (page 49 of the 'Guide to LRC'). This should include demonstrating there is sufficient vehicular capacity as well as safeguarding for public transport and active travel access.</i></b></p>

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		<p><b><u>London Gateway Port Access</u></b></p> <p>The Council support's DPWLG concerns that the significant queuing and delay forecast at Orsett Cock could impact access to the port and journey time reliability. The design of Orsett Cock Roundabout must be updated to address the significant queuing and delay presented within the localised modelling.</p>
<b>b) Siting and Land Take</b>		
i.	8) The Applicant is asked to explain the rationale for the siting and land take for this intersection.	<p><b>In response to a request by Mr. Young at Page 81 of the ISH3 Transcript (<a href="#">EV-041f</a>) for the Council to set out in writing what their position is in terms of the LTC/A13/A1089 junction and Tilbury Link Road option testing, the Council's detailed analysis of the option testing is included in Appendix B of the LIR (<a href="#">REP1-283</a>) and a summary of the findings of the Council's assessment is provided in Appendix D of this submission.</b></p> <p>In summary:</p> <ul style="list-style-type: none"> <li>• The Council requested four alternative tests to be undertaken using LTAM to consider the implications of Tilbury Link Road with various configurations of the interchange at A13/A1089.</li> <li>• Scenarios included bi-directional connection through the Port of Tilbury and considered varied connections between LTC and A13/A1089.</li> <li>• The applicant provided summary outputs from that work which showed a range of outcomes. Different scenarios indicated minimal worsening of impacts in Thurrock; some improved connectivity between Thurrock and Kent (including enhanced access to employment markets); reductions in impacts to east of LTC; no diminution of use of LTC; and, possible improvement of relief at Dartford Crossing;</li> <li>• The outcomes merited further appraisal to understand the value to Thurrock and its communities, the Port of Tilbury and the wider Freeport; and, to opportunities to rationalise the complex interchange at A13/A1089/Orsett Cock.</li> <li>• Options demonstrated that sections of the A13/A1089/Orsett Cock interchange could be withdrawn with limited change in the use of LTC and relief to Dartford Crossing compared to the proposed applicant's scheme and with improved access to Port of Tilbury and Thurrock. A13/A1089/Orsett Cock junction design could be revised to reduce land take, cost and environmental harm.</li> </ul>
ii.	9) How did the relationship between this intersection and the settlements of Orsett	No further submissions beyond the oral submission.

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Agenda Item		Thurrock Council's Response
	and Baker Street come about?	
iii.	10) Are there any measures that could be taken to limit the effect of the proposed siting and design on the settlement of Baker Street, paying particular regard to the proposed loss of residential property and the proposed proximity of alignments and structures to residential and care home properties that are proposed to remain in situ?	No further submissions beyond the oral submission.
<b>c) Structures and Design Mitigation</b>		
i.	11) Have sufficient measures been taken to "meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts" in this location? (NNNPS paragraph 4.31)	No further submissions beyond the oral submission.
ii.	12) Is there sufficient design resolution for the structures proposed in this location?	No further submissions beyond the oral submission.
<b>13) M25/LTC Intersection</b>		
<b>Oral Submission on Agenda Item 5 a) – c)</b>		
<b>Comments by Kirsty McMullen – ISH3 Transcript Page 81 (<a href="#">EV-041f</a>)</b>		
<p>In response to Mr. Roberts comments on the approach to the weave design for the M25/LTC junction (Page 94 of the ISH3 Transport (<a href="#">EV-041f</a>)), the Council is concerned that there is a potential difference in design approach to the weave length for the M25/LTC junction compared to the weave length for the LTC/A13/A1089 junction, which the Council has raised safety concerns with as highlighted in the Council's submissions for Agenda Item 4.</p>		

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Agenda Item		Thurrock Council's Response
<p><b>Request: the Council requested the Applicant provide the Stage 1 Safety Audit brief and safety audit with designers response for M25/LTC junction as well as the safety audit brief for LTC/A13/A1089 junction alongside the departures of standards for both junctions that were provided to the safety auditors so that the Council can understand the difference in approach to design.</b></p>		
<p><b>14) Alignment Choices</b></p>		
<p><b>a) For each of the routes between:</b></p> <ul style="list-style-type: none"> <li>• the A2 / M2 and the southern tunnel portal at Thong</li> <li>• the northern portal at Tilbury and Baker Street / the A13</li> <li>• the A13 via Stifford, the Mardyke Valley, South and North Ockendon to the M25?</li> </ul>		
i.	<p>Have sufficient measures been taken to “meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts” in this location? (NNNPS paragraph 4.31)</p>	<p><b>Comments by Mr Stratford – ISH3 Transcript Page 118 [EV-041f])</b></p> <p>Two points were made:</p> <ul style="list-style-type: none"> <li>• Over the last 2-3 years the Council has raised concerns with the Tilbury Viaduct not being a Project Enhanced Structure. It is a large structure, which is visible over the Tilbury Loop line, it is near to future areas of housing and a number of other sensitive areas, not least of which is one of the Scheduled Monuments. Each time the Council has asked for the Tilbury Viaduct to be a Project Enhanced structure it has been refused by the applicant over the past 2-3 years.</li> <li>• The Council requests the applicant to confirm what guidance the Walking, Cycling and Horse rider facilities will be designed in accordance with DMRB or LTN1/20? The Council would require the routes to be designed in accordance with LTN1/20, as it is more current and is endorsed by Active Travel England. The Council has provided further detail on sustainable travel provision on the bridge crossings in Appendix C, Annex 2, Sub-annex 2.5 of the LIR (<a href="#">REP1-284</a>).</li> </ul>
ii.	<p>Is there sufficient design resolution for the structures proposed in these locations?</p>	<p>No oral submissions given.</p>
<p><b>b) The proposed M25 improvements</b></p>		
i.	<p>Have sufficient measures been taken to “meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse</p>	<p>No oral submissions given.</p>

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Agenda Item		Thurrock Council's Response
	impacts" in this location? (NNNPS paragraph 4.31)	
ii.	Is there sufficient design resolution for the structures proposed in these locations?	No oral submissions given.
<b>15) Design Resolution and Discharge</b>		
<b>a) The role of the Design Principles Document</b>		
i.	Do the references to the Design Principles Document [ <a href="#">APP-516</a> ] in Requirements 3 (Detailed design), 5 (Landscaping & ecology), 13 (Travellers' site in Thurrock) provide sufficient security for the delivery of good design?	This agenda item was not covered in ISH3.
ii.	Is there a case for the securing a design review process to assist the assessment of design outcomes during the discharge of requirements? If so, how should that be provided for? Or is it sufficient to reference the design review process in the certified Design Principles Document.	This agenda item was not covered in ISH3.
<b>16) Next Steps</b>		
	Response to Actions Points from ISH3 [ <a href="#">EV-041g</a> ]	Refer to response to Action Points from ISH3 from Thurrock Council set out below.

### Thurrock Council's Response to Action Points from ISH3 [\[EV-041g\]](#)

Action		Thurrock Council's Representation
1.	<p>Reflections on the Applicant's Additional Submissions – Visual Representations of Intersections for ISH3 Pursuant to Procedural Decision 37 by the ExA of 1 September 2023 [PD-033], on 5 September 2023 the Applicant introduced visual representations of the function of the three main proposed intersections A2/ M2/ LTC [AS-145], A13/ A1089/ LTC [AS-146] and M25/ LTC [AS-147]. Detailed written observations on that material is sought by Deadline 4.</p>	<p>The Council has reviewed the applicant's visual representations of the LTC/A13/A1089 junction <a href="#">[AS-146]</a> and makes the following comments:</p> <ul style="list-style-type: none"> <li>• It is unclear from the key what the definition of the bold lines are if the dashed lines are existing. It is assumed bold is 'new', but this needs to be confirmed by the applicant.</li> <li>• The definition of strategy, major and local needs to be provided, as it is unclear from the submission.</li> <li>• With regards to Orsett Cock, the slides illustrate that the scheme diverts traffic through the Orsett Cock that currently does not need to route through it and thereby utilising capacity of the junction that is intended for Thurrock growth and not LTC. This is shown in the following slides:             <ul style="list-style-type: none"> <li>– Slides 7 and 26: currently westbound traffic from A13 to A1089 southbound would stay on the A13 mainline and not route through the Orsett Cock junction. As part of LTC, this traffic would need to exit the A13 mainline at Orsett Cock and route to A1089 southbound.</li> <li>– Slide 32: LTC northbound traffic accessing the A1089 would be required to route via Orsett Cock to access the A1089 southbound.</li> </ul> </li> </ul>

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## **Appendix A: Orsett Cock Model and Design Challenges 230918**



# Appendix A: Diagram illustrating inter-relationship between modelling and design challenges and concerns

**1. Link congestion**

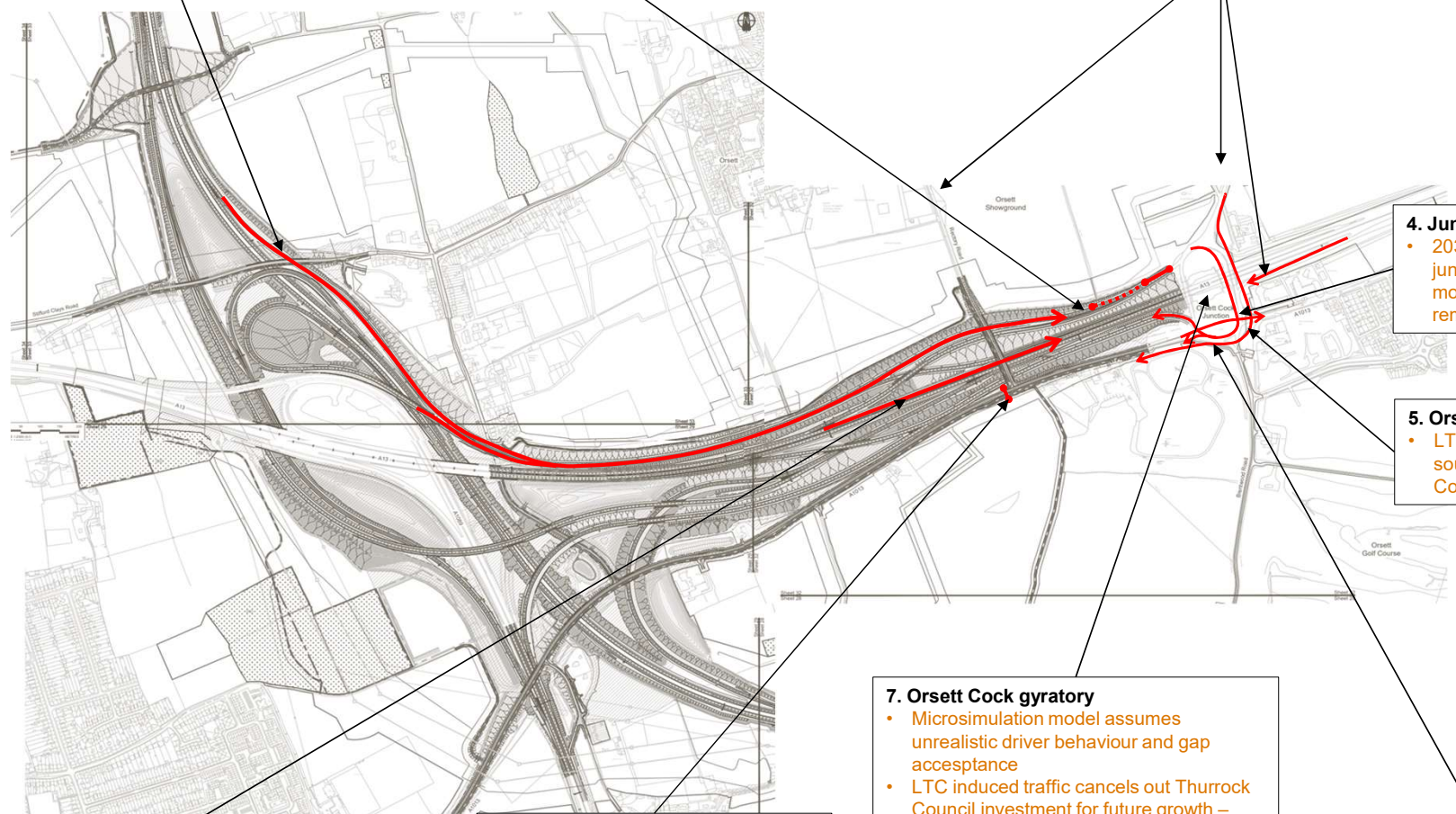
- Peak hour congestion on approach to Orsett Cock, blocking access to A13 eastbound – 2030 and 2045.

**2. Weaving length**

- Ineffective 90m weave length extended to 200m in model – **not reflected in LTC reference design and did not resolve queueing**
- Dangerously short weave (c90m) – A13 eastbound off-slip with LTC eastbound off-slip

**3. Peak hour traffic**

- Rectory Road 2045 southbound AM and PM peak hour queuing – significant impact on community
- Brentwood Road 2030 & 2045 DS AM and PM peak hour queuing northbound and southbound
- A13 westbound off-slip 2030 and 2045 PM peak hour queuing
- LTAM modelled flows unable to access peak hour microsimulation modelling – 2030 and 2045 (i.e. latent demand)



**4. Junction signals**

- 2030 & 2045 DS additional junction signals included in models not reflected in designs – remains unresolved impacts

**5. Orsett Cock U-turn**

- LTC to A1089 and A1013 southbound U-turn at LRN Orsett Cock

**9. A13 EB merge**

- Long queues from A13 EB merge point on A13 EB. Insufficient capacity.

**8. Pegasus crossing**

- Not reflected in DS model
- Proposal undeliverable as shown - constrained by adjacent junction and bus stop

**7. Orsett Cock gyratory**

- Microsimulation model assumes unrealistic driver behaviour and gap acceptance
- LTC induced traffic cancels out Thurrock Council investment for future growth – contrary to LT scheme objectives
- Current configuration and location not shown in DCO plans
- Submission design ends short of gyratory – no measures proposed

**6. Sustainable transport**

- No provision for active travel through junction
- No provision for bus advantage through junction

**Key to text:**

- Modelling – unresolved impacts
- Design concern / deficiency



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## **Appendix B: GG119 Road Safety Audit Brief Template**

## Appendix C. Road safety audit brief template

**Table C.1 Project Summary**

<b>Date:</b>	Insert date
<b>Document reference:</b>	Insert unique document reference
<b>Prepared by:</b>	Insert design organisation
<b>On behalf of:</b>	Insert Overseeing Organisation
<b>AUTHORISATION SHEET</b>	
<b>Project:</b>	Insert highway scheme name
<b>Report title:</b>	Include RSA stage
<b>PREPARED BY:</b>	
<b>Name:</b>	Insert author of brief
<b>Signed:</b>	
<b>Organisation:</b>	Insert design organisation
<b>Date:</b>	Insert date
<b>I APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION:</b>	
<b>Name:</b>	
<b>Signed:</b>	
<b>Organisation:</b>	Insert Overseeing Organisation
<b>Date:</b>	

Table C.2 General Details

<b>General details</b>				
<b>Highway scheme name and road number:</b>		Insert scheme title and road number/name		
<b>Type of scheme:</b>		e.g. new road scheme, smart motorway, junction improvement, traffic signs and road markings improvement, traffic calming scheme, etc.		
<b>RSA stage tick as appropriate.</b>		1	2	3
		Interim		4
<b>Overseeing Organisation details</b>			<b>Design organisation details</b>	
Insert details			Insert details	
<b>Police contact details</b>			<b>Maintaining agent contact details</b>	
(Required for stage 3 RSAs)			Insert details	
<b>RSA team membership</b>				
Insert details of the approved RSA team and any specialist advisors and observers where appropriate.				
<b>Terms of reference</b>				
Make reference to relevant DMRB documents and other guidance where appropriate.				

**Table C.3 Scheme Details**

<b>Scheme description/objective</b>
<b>General</b>
Define the extents of the RSA, include a brief scheme description, the scheme objectives, a start date for construction if known and a completion date. In addition, for stage 4 RSAs, confirm when all related traffic management has been removed.
<b>Design standards applied to the scheme design</b>
For example, DMRB.
<b>Design speeds</b>
Provide details of applied and/or existing design speeds.
<b>Speed limits</b>
State whether mandatory or advisory, available speed data.
<b>Existing traffic flows/queues</b>
To include current automatic traffic counter (ATC) data, up-to-date turning count and queue information etc.
<b>Forecast traffic flows</b>
Where available and relevant, provide future traffic flow data including vehicle proportions.
<b>Pedestrian, cyclist and equestrian desire lines</b>
Include details of pedestrian, cyclist and equestrian movements in the vicinity of the scheme and, when applicable the relevant walking, cycling and horse riding assessment and review reports GG 142 [Ref 7.]
<b>Environmental constraints</b>
Include all environmental constraints within the scheme extents, for example sites of special scientific interest (SSSI), conservation areas, listed properties etc.

**Table C.4 Locality**

<b>Description of locality</b>
Include all environmental constraints within the scheme extents, for example sites of special scientific interest (SSSI), conservation areas, listed properties etc.
<b>General description</b>
Include road network, road type, relevant land uses etc.
<b>Relevant factors which may affect road safety</b>
Factors known to the design organisation and considered as part of the design. This should also include anything that would not be immediately obvious to the RSA team – such as school crossing patrols and large events, for example.

**Table C.5 Analysis**

<b>Collision data analysis</b>
At stages 1, 2, and 3 provide a summary of road traffic collision data covering both the extent of the scheme and the adjoining sections of highway. As a minimum the most recent 36 months of data. At stage 4, provide 12 months of post-opening validated road traffic collision data. Raw data should be provided as an appendix.
<b>Departures from standards</b>
Include status details, i.e. approved/pending/rejected, and any design strategy records produced for improvements to existing trunk roads and motorways.
<b>Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions</b>
Attach previous reports to the RSA brief, or provide an explanation where these are not available.
<b>Strategic decisions</b>
Includes items outside the scope of this RSA which will not change irrespective of the RSA, for example route choice, junction type, approved departures from standard.
<b>List of included documents and drawings</b>
<b>Documents</b>
<b>Reference and revision..... Title..... Date.....</b>
For example: previous RSA reports; design responses; departures; road traffic collision data; walking, cycling and horse riding assessment and reviews. This could include any relevant operational data such as damage-only collision data or incident logs. This list could be included as an attachment to the RSA brief or a hyperlink to a shared electronic location where the RSA brief information has been collated.
<b>Drawings</b>
<b>Drawing no. and revision..... Title.....</b>
This list could be included as an attachment to the RSA brief or a hyperlink to a shared electronic location where the RSA brief information has been collated.

**Table C.6 Checklist**

<b>Tick all that are included and provide reasons for those that are not included</b>			
Site location plan		Scale layout plans	
Departures and relaxations from standards		Construction/ typical details	
Previous RSA reports		Previous RSA response reports and evidence of agreed actions	
Collision data and collision data analysis		Road traffic collision plot	
Traffic signal staging		Traffic counts	
Speed surveys		Pedestrian, cyclist and horse riding desire lines and volumes	
Walking, cycling and horse riding assessment and reviews		Items outside the scope of the RSA/ strategic decisions	
Other factors that may impact on road safety		Design speeds/ speed limits	
Design standards used		Adjacent land uses	

## Appendix C: Port of Tilbury Journey Time Analysis

### Introduction

Dr Wright on behalf of the applicant asserted that Port of Tilbury traffic would not route via LTC and would continue to route via M25 Junction 30 and A13 (Page 59 of the ISH3 transcript [EV-041f]) due to the journey time saving LTAM is showing on A13 between M25 and A1089.

Thurrock Council has also run journey time analysis using Baker LTAM for traffic routing to/from the Port of Tilbury and does not concur with the Applicant's findings.

### Port of Tilbury Journey Time Analysis

The Council has analysed a number of routes to/from the Port of Tilbury using results from the applicant's strategic model (CM45 and CS67). The journey time routes have been interrogated for the 2045 AM and PM peak period for the routes illustrated in Figure 1.1.

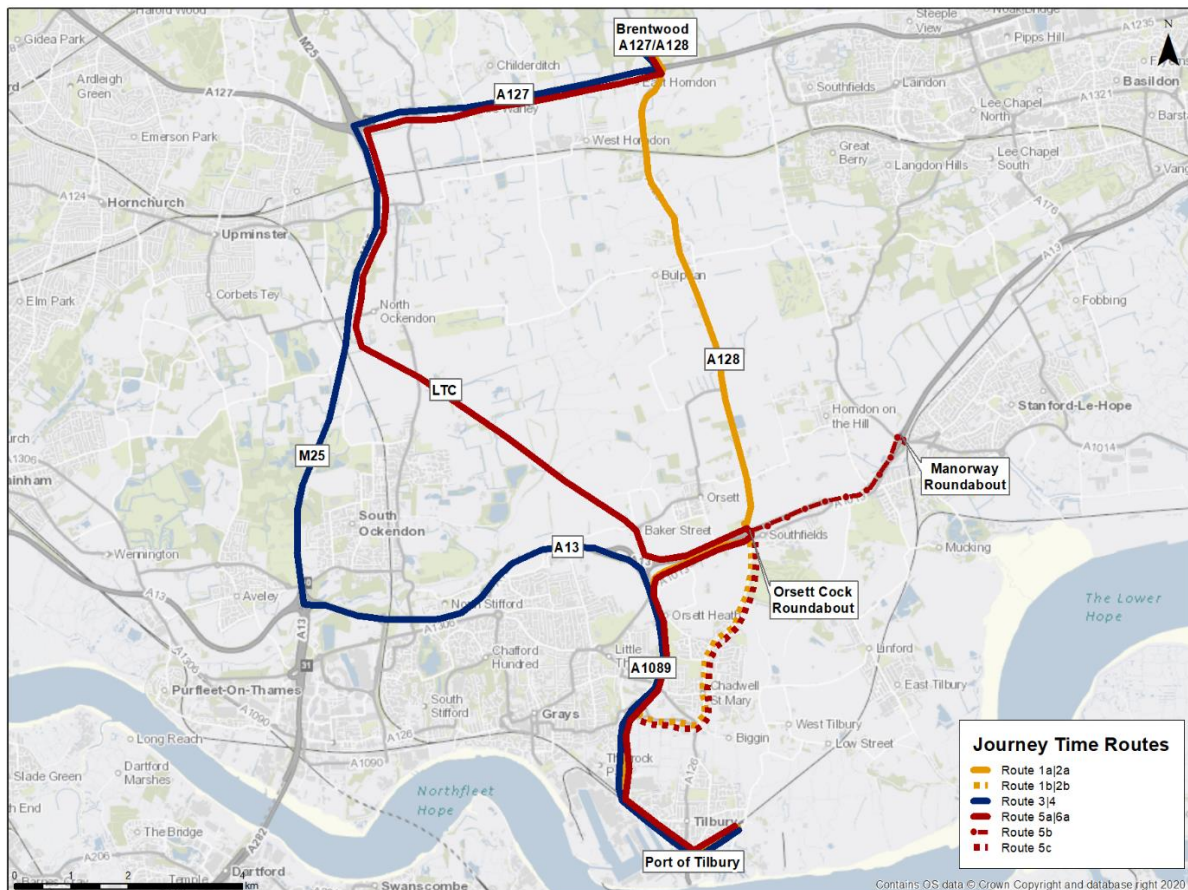


Figure 1-1 Thurrock Cordon Model Journey Time Routes

The following journey time routes are illustrated in Figure 1.1 for the following origin and destination locations:

- **Route 3 SB** – Brentwood (junction of A128/A127) to the Port of Tilbury **via M25** and A1089

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- **Route 4** NB – Port of Tilbury to Brentwood (junction of A128/A127) **via M25** and A1089
- **Route 5a** SB – Brentwood (junction of A128/A127) to Port of Tilbury **via LTC** and Orsett Cock
- **Route 6a** NB – Port of Tilbury to Brentwood (junction of A128/A127) **via LTC** and Orsett Cock

Table 1 and Table 2 below summarise the results of the journey time analysis for the analysed routes to/from the Port of Tilbury for AM and PM peak hours respectively.

Route ID		2045 DS		
		Journey Time (hh:mm:ss)	Average Speed (kph)	Distance (km)
4 NB	Via M25	00:35:10	44.19	25.6
6a NB	Via LTC	00:29:47	44.82	22.3
		Journey times from PoT via LTC are more than 5 minutes faster than via M25		
3 SB	Via M25	00:23:00	66.12	25.4
5a SB	Via LTC	00:22:50	67.88	25.8
		Journey times to PoT via LTC are similar to journey times via M25		

Table 1 AM Peak Journey Times

Route ID		2045 DS		
		Journey Time (hh:mm:ss)	Average Speed (kph)	Distance (km)
4 NB	Via M25	00:27:29	56.53	25.6
6a NB	Via LTC	00:21:18	62.56	22.3
		Journey times from PoT via LTC are nearly 6 minutes faster than via M25		
3 SB	Via M25	00:23:22	65.1	25.4
5a SB	Via LTC	00:22:48	67.98	25.8
		Journey times to PoT via LTC are half a minute faster than via M25		

Table 2 PM Peak Journey Times

In summary it shows that in 2045 the journey times northbound to Port of Tilbury via LTC are circa 6 minutes faster than via the M25 and southbound the journey times via LTC are circa half a minute faster than via M25.



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Based on the journey time analysis, the Council does not agree the statement made by the applicant that Port of Tilbury traffic would not route via LTC and would continue to route via M25 Junction 30 and A13. Northbound Port of Tilbury traffic accessing the port from LTC would therefore need to route via Orsett Cock to access the Port, which is more convoluted than the existing access arrangements for the port and puts more pressure on the Orsett Cock junction as a result of LTC.

## Appendix D: Summary to LTC\_A13\_A1089 and Tilbury Link Road Option Appraisal

### Introduction

In response to a request by Mr Young at Page 81 of the ISH3 Transcript ([EV-041f](#)) for the Council to set out in writing what their position is in terms of the LTC/A13/A1089 junction and Tilbury Link Road option testing, the Council's detailed analysis of the option testing is included in Appendix B of the LIR ([REP1-283](#)) and a summary of the findings of the Council's assessment is provided in in this appendix of the ISH3 written submissions.

### Options Tested by the Council

Table 1 summarises the limited number of options that were tested by the applicant on behalf of the Council using LTAM.

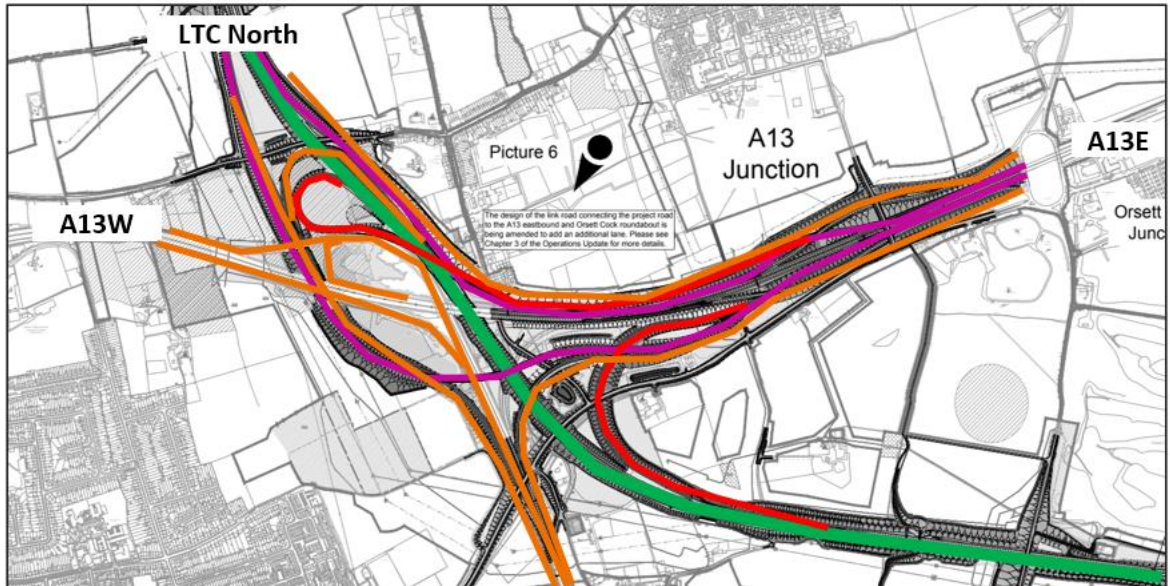
Table 1 – Summary of Alternative Options tested for LTC/A13/A1089 Junction Configuration with Tilbury Link Road

ID	Scenario Name / Description	Transport Schemes Included in Scenario ✓= Yes ✗ = No						Assessment Year
		LTC Scheme		TLR Scheme			South Ockendon Junction / Link	
		New LTC/A13 Junction	Asda Rdt Imprvmts	E. Tilbury Junction	TLR Link	Fort Rd Connectivity		
CS67	LTC Scheme Only	✓ With new A13 Orsett Cock to A1089 link	✗ Current Layout	✗	✗	✗	✗	2030
CTL1	LTC Scheme and Tilbury Link Road	✓ With new Orsett Cock to A1089 link	✗ Current Layout	✓ NH Half Cloverleaf	✓ Single CW	✓	✗	2030
CTL2	Alternative LTC Scheme and Tilbury Link Road with <b>No LTC/A13/A1089 Junction</b>	✗ Existing A13/A1089 Junction only	✗ Current Layout	✓ NH Half Cloverleaf	✓ Single CW	✓	✗	2030
CTL3	Alternative LTC Scheme and Tilbury Link Road with revised LTC/A13/A1089 Junction: <ul style="list-style-type: none"> <li>no direct connections between A1089 and LTC (North and South)</li> </ul>	✓ Removing A1089 to LTC North and LTC South	✗ Current Layout	✓ NH Half Cloverleaf	✓ Single CW	✓	✗	2030
CTL5	Alternative LTC Scheme and Tilbury Link Road with revised LTC/A13/A1089 Junction: <ul style="list-style-type: none"> <li>no direct connections between A1089 and LTC North / LTC South</li> <li>no direct connections between A13 East and LTC North</li> </ul>	✓ Removing A1089 to LTC North and A13 East to/from LTC North	✗ Current Layout	✓ NH Half Cloverleaf	✓ Single CW	✓	✗	2030

Each of the four options tested and compared against the LTC scheme (CS67) are illustrated in the series of figures below.

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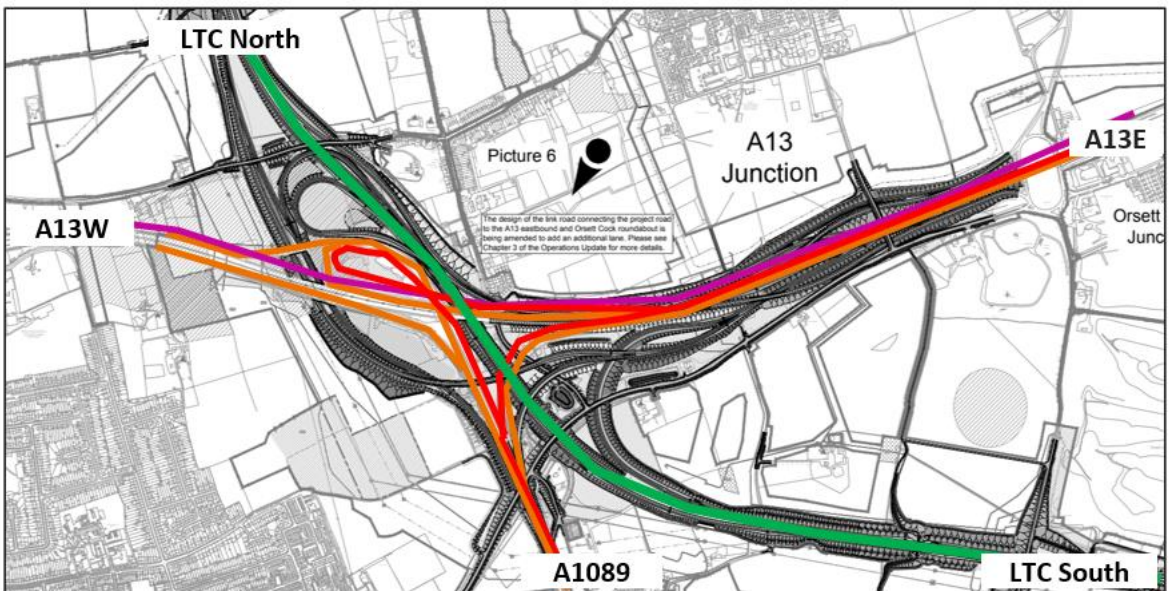
Figure 1 – Option CTL1 LTC plus Tilbury Link Road (retains current proposed LTC/A13/A1089 junction)



Key: Interchange links

- █ M2/A2 - M25N
- █ A13E - M25N
- █ A13E - M2/A2S
- █ A1089 - LTC & A13

Figure 2 – Option CTL2 LTC plus Tilbury Link Road (completely remove LTC/A13/A1089 interchange)



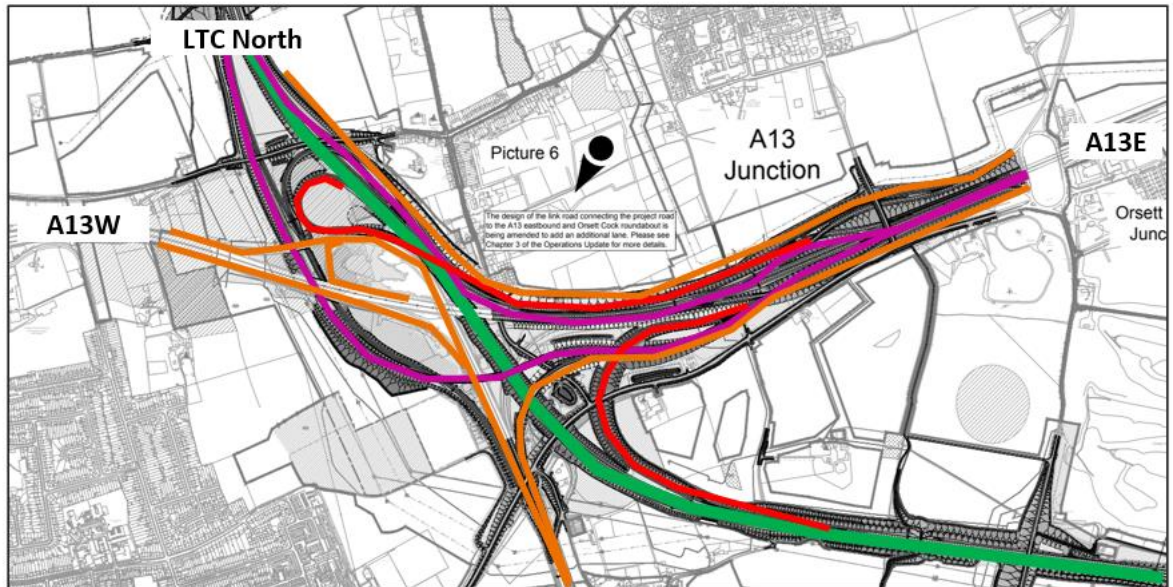
Key: Interchange links

- █ M2/A2 - M25N
- █ A13E - M25N
- █ A13E - M2/A2S
- █ A1089 - LTC & A13



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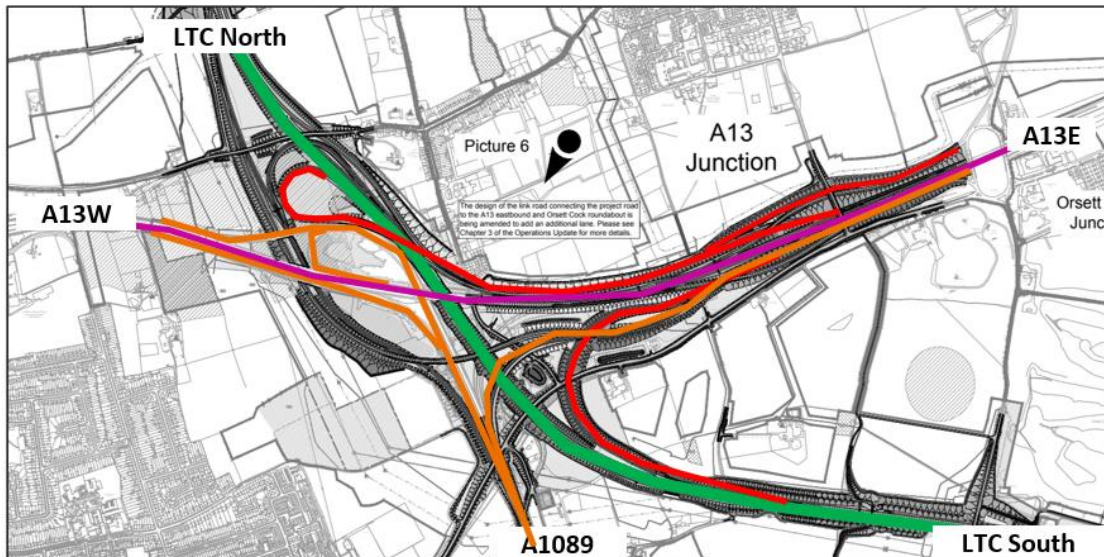
Figure 3 – Option CTL3 LTC plus Tilbury Link Road (remove direct A1089 links to LTC at LTC/A13/A1089 junction)



Key: Interchange links

- █ M2/A2 - M25N
- █ A13E - M2/A2S
- █ A13E - M25N
- █ A1089 - LTC & A13

Figure 4 – Option CTL5 LTC plus Tilbury Link Road (remove direct A1089 links to LTC and remove A13 east to/from LTC north links)



Key: Interchange links

- █ M2/A2 - M25N
- █ A13E - M2/A2S
- █ A13E - M25N
- █ A1089 - LTC & A13

## Summary of findings

The summary of the assessment of the options when compared with the LTC scheme is as follows:

- 1 **Option CTL01** (that adds the Tilbury Link Road to the LTC scheme) would deliver additional benefits to an LTC only configuration.
- 2 **Option CTL02** (that provides TLR and completely removes all connectivity to/from LTC at the LTC/A13/A1089) would dramatically reduce the physical scale of the LTC/A13 interchange and its associated local environmental impacts and harm in Thurrock. However, this option is forecast to route traffic through Tilbury (via A1089 and the TLR) and on local roads in West and East Tilbury potentially constraining growth and impacting on local communities. It is also forecast to have significant negative impacts on Thurrock's road network performance and could require junction improvements to M25 J30, LTC/TLR, A1089 Asda Rbt, Orsett Cock and the Manorway. At this stage it is not recommended that this option should be assessed further.
- 3 **Option CTL03** (that adds the TLR and only removes the A1089 links to LTC) to is not likely to provide sufficient further benefits or a large reduction in local harm compared to CTL01. It is not recommended that this option should be assessed further.
- 4 **Option CTL05** (that includes the TLR and reconfigures the LTC/A13/A1089 interchange to provide no Direct Access to LTC from A1089 or A13 East to/from LTC North) would again enable the physical scale of the LTC/A13 interchange and its associated local environmental impacts and harm in Thurrock to be significantly reduced whilst still providing strategic road network benefits at the Dartford Crossings, M25 approaches and A13 Corridor (west of LTC). CTL05 is forecast to significantly reduces traffic demand on A1089 and at Asda Roundabout, that alongside the benefits of the TLR, would provide more local movement capacity and connectivity to support growth in the Tilbury area and at the Port of Tilbury. Supporting improvements could be required at the M25 J30, A1089 Asda Roundabout, Orsett Cock and The Manorway (as with the LTC scheme).

Table 2 below provides a summary of the assessment findings and more detailed analysis is provided in Appendix B of the LIR ([REP1-283](#)).

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Table 2 – Summary of Strategic Option Assessment for LTC/A13/A1089 junction options with Tilbury Link Road

Case and Objectives		NH Do Minimum Scenario / No LTC	LTC Only LTC/A13: No Change (CS67)	LTC + TLR LTC/A13: No Change (CTL01)	LTC + TLR LTC/A13 : No Direct Connections from A1089 to LTC (CTL03)	LTC + TLR LTC/A13: No Direct Connections from A1089 to LTC AND A13E to/from LTC North (CTL05)	LTC + TLR LTC / A13: Remove all Interchange (CTL02)
STRATEGIC	Relief at the Dartford Crossing and M25 approaches	✗✗	✓✓	✓✓	✓✓	✓✓	✓✓
	Improve resilience of Thames crossings and SRN / MRN	✗✗	✓✓	✓✓✓	✓✓	✓✓	✓✓
	Improve safety	✗	✗	✗	✗	–	–
	Support regional economic growth	✗✗	✓✓	✓✓✓	✓✓✓	✓✓	✓✓
	Support sustainable local economic growth	✗✗	–	✓✓	✓✓	✓✓	✓✓
ECONOMIC	Road network performance	✗✗	✓	✓✓	✓✓	✓✓	✓
	Carbon emissions	✗	✗✗✗	✗✗✗	✗✗✗	✗✗	✗✗
	Socio-distributional impacts	✗	✓✓	✓✓	✓✓	✓✓	✓✓
	Local environment and wellbeing – air quality, noise, visual, land take	✗	✗✗✗	✗✗	✗✗	✗	✗
MANAGEMENT	Consent and construction time period	-	8 – 10 years	9 – 11 years	< 8 – 10 years	< 8 – 10 years	< 8 to 10 years
	Public and stakeholder acceptability	✗✗	–	✓	✓	–	–
FINANCIAL		-	LTC = £8.5bn	LTC = £8.5bn TLR = £0.2m–£0.3bn	LTC < £8.5bn TLR = £0.2m–0.3bn	LTC << £8.5bn TLR £0.2–£0.3bn	LTC << £8.5bn TLR = £0.2m–£0.3bn
COMMERCIAL		-		TLR funding opportunities from Freeport and developers			

Overall, it is concluded that LTC highway configuration options CTL01 and CTL05 have good additional benefits in comparison to the current LTC scheme and these options should be developed and assessed further. The main benefits of these options in comparison to the LTC are summarised in Table 2 above.

These options should be developed and assessed as part of an ‘integrated alternative option’ including a package of supporting sustainable transport and behaviour change/demand management measures to promote more public transport use and active travel across the area. These will be essential to help address the carbon emissions, local air quality and environmental disbenefits associated with all these LTC highway configuration options and to ensure sustainable port and local growth aspirations can be delivered.

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## **Appendix E: Effect of Missed Turns at LTC\_A13\_A1089 Junction**



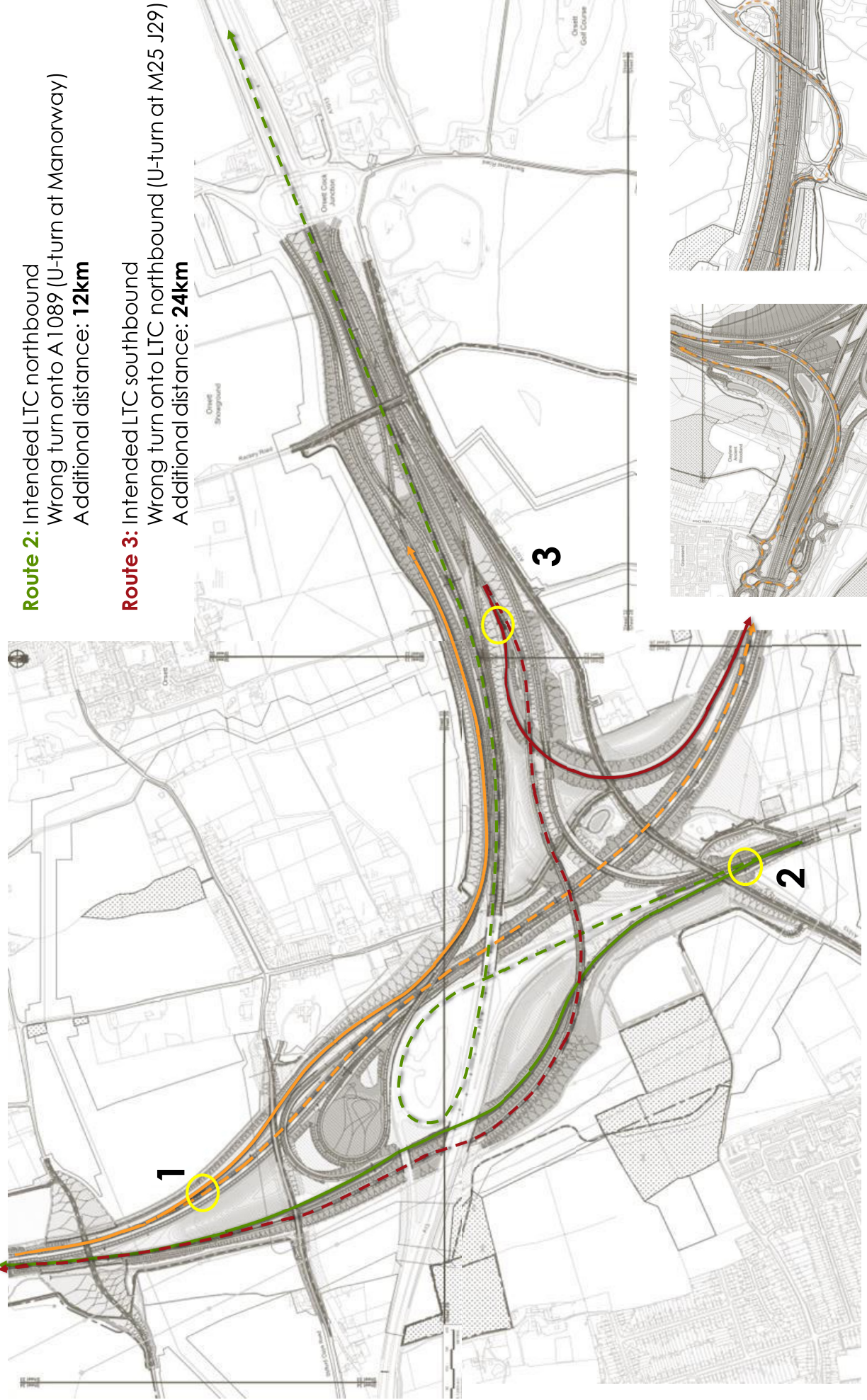
**Key:**

-  Intended Route
-  Mistaken Route

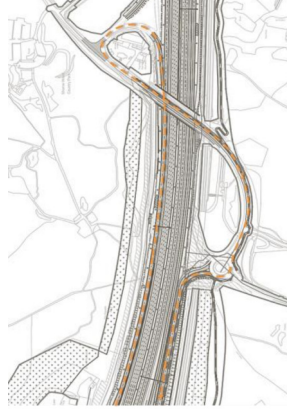
**Route 1:** Intended A13 eastbound  
 Wrong turn onto LTC southbound (U-turn at A2/M2/LTC junction or A2/Brewers Road junction)  
 Additional distance: **30km or 31km** respectively

**Route 2:** Intended LTC northbound  
 Wrong turn onto A1089 (U-turn at Manorway)  
 Additional distance: **12km**

**Route 3:** Intended LTC southbound  
 Wrong turn onto LTC northbound (U-turn at M25 J29)  
 Additional distance: **24km**



A2/M2/LTC junction



A2/Brewers Road junction



## 2 Issue Specific Hearing 4 (ISH4) – Traffic & Transportation

### Issue Specific Hearing 4 (ISH4) on Traffic and Transportation

6 September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of the Council's Oral Case

Note: these Post Hearing Submissions include a written summary of the Oral Case presented by the Council at ISH4. They also include the Council's submissions on all relevant Agenda Items, not all of which were rehearsed orally at the ISH, due to the need to keep oral presentations succinct.

The structure of the submission follows the order of the agenda items, but within each agenda item, the submissions begin by identifying the oral submission made at ISH4 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant were made by the Council at ISH4 we have highlighted these as '**Requests**'. Where the Examining Authority (ExA) requested the Council provides further written evidence or further information has been provided in response to statements made by the Applicant during ISH4, this further information is included in the following appendices.

#### Appendix A – Iterative Approach to Modelling

Annex A – Silvertown Tunnel, Monitoring and Mitigation Strategy, April 2017

Annex B – Technical Note: Sizewell C Vissim Traffic Model, December 2020

Annex C – Extract of ExA Report to SoS: A428 Black Cat: Traffic Modelling Methodology, May 2022

#### Appendix B – Review of the LTC to Orsett Cock Select Link Analysis (provided by Applicant at ISH4)

Annex A – Orsett Cock Select Link Analysis provided by the Applicant

#### Appendix C – Summary of Orsett Cock Latent Demand

#### Appendix D – Email from Applicant on Orsett Cock to Council, 27 April 2022

This submission also include a response to the relevant Action Points arising from ISH4 [\[EV-042f\]](#).

ISH4 was attended by George Mackenzie on behalf of the Council. Also, in attendance at ISH4 on behalf of the Council were Kirsty McMullen, Adrian Neve, Dr. Colin Black, Professor Phil Goodwin, Nadia Lyubimova, David Bowers, Matthew Kiely, Chris Stratford and Sharon Jefferies.

Agenda Item	Thurrock Council's Response
<b>17) Welcome, introductions, arrangements for the Hearing</b>	
<b>18) Purpose of the Issue Specific Hearing</b>	

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<b>19) Traffic Modelling</b>	
<b>d) Traffic Modelling</b>	
<b>Oral Submission 3a) i)</b>	
<p>i) 20) Explanation and discussion of the Applicant's and DPLGW's transport work submitted at Deadline 1 [REP1-187 &amp; REP1-333] followed by a discussion about the potential impacts on Orsett Cock and Manorway junctions in light of the traffic reports and the Applicant's Response (see – Annex A Comments on WRs Appendix E – Ports [REP2-050]).</p>	<p><b>Comments by Mr Mackenzie – ISH4 Transcript Page 27 (EV-042e)</b></p> <p>With regards to the question posed by Mr. Young as to whether the Council considers LTAM to be in accordance with WebTAG, the Council's position is that it is <u>not</u> (refer to Section 7.8.10 of the LIR [REP1-281]).</p> <p><b>Comments by Kirsty McMullen – ISH4 Transcript Page 27 (EV-042e)</b></p> <p><b>Outdated <u>LTAM model</u></b></p> <p>LTAM is based on 2016 and is considered to be out of date by the Council, but also by the applicant themselves. The Council are aware that, at the time of the DCO submission, the applicant was updating the LTAM based model to inform the full business case for the scheme. Therefore, the DCO is based on the out of date LTAM model.</p> <p>The Council has set out in the LIR (<a href="#">REP1-281</a>) (Section 7.8, paragraphs 7.8.5 to 7.8.11) that there are changes that have happened in 2016 that have not been reflected such as the COVID-19 pandemic, Brexit, revised economic growth targets, rising fuel prices, etc. Professor Goodwin sets out further on this issue in the next agenda item on uncertainty and how the assessment of uncertainty is not in the spirit and letter of DfT's guidance on uncertainty.</p> <p><b>Modelling <u>status</u></b></p> <p>With regards to the modelling, the Council has set out the model status at Deadline 1 (Figure 9.1 of the LIR (<a href="#">REP1-281</a>)) and at Deadline 3 (Appendix E, Annex 1 of the Council's Comments on Applicant's Submissions at Deadline 1 and 2 (D1 and D2) (<a href="#">REP3-211</a>)).</p> <p>These model status diagrams demonstrate that:</p> <ul style="list-style-type: none"> <li>• <b>Asda roundabout:</b> the Council has now been provided with an Asda roundabout VISSIM model, which was submitted by the applicant at Deadline 3. Despite the Council raising concerns with impacts at this junction for a long time, this is the first time modelling of this junction has been provided. Therefore, that localised model within the status diagram will change from red to amber at Deadline 4, as the Council are now in receipt of localised modelling for the junction and the Council will provide a review of the modelling at Deadline 4.</li> </ul>

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	<ul style="list-style-type: none"> <li>• <b>East-west model:</b> the Council has been provided with East-west VISSIM modelling. Until the base model has been agreed the Council cannot move on to agreeing the forecast model, as forecast models are built from an agreed validated base model. At the moment, there are still issues to resolve with the base model.</li> <li>• <b>Manorway:</b> the applicant has not developed a base VISSIM model of this junction. The forecast VISSIM model that has been provided by the applicant is based on LTAM flows and not observed traffic conditions, which is required for a validated base model. The applicant has had ample opportunity to collect data and build a base model of the junction since the A13 widening works were complete from which to create a forecast model. This has not been undertaken and therefore the Council is in the process of developing a base VISSIM model of the junction that will be submitted shortly to the applicant in time for them to review the base model by Deadline 5. That will hopefully start to take the Manorway issues forward, though currently they have a red status.</li> <li>• <b>Five Bells:</b> the applicant submitted an ARCADY model of the junction at Deadline 3. Despite the Council raising concerns with impacts at this junction for a long time, this is the first time modelling of this junction has been provided. Unfortunately, the modelling does not address the concerns that it has been raising with the applicant for a long time. The Council will respond formally at Deadline 4 on the submitted modelling.</li> <li>• <b>Operations and emergency access:</b> as set out in ISH3, the Council requires the Applicant to provide evidence to demonstrate how the junction has been designed to cater for 'possible future development' and 'avoid disruptive re-work at a later date' as set out by the applicant in the Local Refinement Consultation in May 2022 (page 49 of the 'Guide to LRC'). To date no evidence has been provided by the applicant to demonstrate this assertion. The Council has submitted a capacity assessment of the junction, which is included in Appendix C, Annex 2.3 of the LIR (<a href="#">REP1-284</a>).</li> </ul> <p>Turning to Orsett Cock, the base VISSIM model has been agreed with the applicant, but the forecast model is yet to be agreed. Prior to submission of the DCO, the Council were provided with version 1.5 of the forecast VISSIM model. At Deadline 1 the applicant submitted a different version of the forecast model, which reflected a change in demand in LTAM. The Council has reviewed version 1.5 of the forecast VISSIM model of Orsett Cock and made updates to this model to address coding issues. This model has been issued to the applicant. The Council is aware that there are a number of residual issues that need to be addressed by the applicant,</p>

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	<p>which they have also identified, which include (but are not limited to):</p> <ul style="list-style-type: none"> <li>• <b>Latent demand:</b> this is the number of vehicles unable to enter the modelled network. The Orsett Cock forecast VISSIM model experiences significant latent demand on the approaches to the junction. The applicant is aware of this and they are seeking to extend the approaches to the modelled network to clearly determine the actual length of the queue and the journey time impacts through the junction.</li> <li>• <b>Updated forecast flows:</b> update the VISSIM model demand flows to reflect the latest LTAM CS72 flows.</li> <li>• <b>Sensitivity tests of Rectory Road:</b> the VISSIM model is showing significant queuing and delay on Rectory Road and one of the agreed model actions from the modelling meeting with the applicant on 16 August 2023 is for the applicant to undertake two sensitivity tests by first removing reassigned traffic on Rectory Road as a result of LTC and reallocate it back onto A128 Brentwood Road, which the traffic should be routing via; and, second, testing a bus only link on Rectory Road.</li> </ul> <p>It is therefore considered that there is more work to do on the modelling of Orsett Cock before the applicant and Council are able to make judgements on the impacts at the junction. It is important to note that this is not wider impacts: Orsett Cock is an integral part of the scheme. Any measures that are proposed to resolve the operational issues that can be seen to exist in the models must be deliverable within the DCO Order Limits.</p> <p>Finally, it is important to understand about the interaction between VISSIM and LTAM. It is common practice for there to be an iterative approach to modelling between micro-simulation and strategic modelling and this is set out in TfL's modelling guidance (details of TfL Modelling Guidelines version 4.0, the approach to model iteration and examples of it are provided in <b>Appendix B of the main D4 Submission</b>). What is required is that the parameters from the VISSIM model are input into LTAM to better reflect the queuing and delay shown in the VISSIM model. This is currently not reflected in LTAM. The applicant agreed to go through this process at the modelling meeting of 16 August 2023 to better align the models.</p> <p>The result of the iterative approach to the modelling would be to change the journey times within LTAM that the Transport Assessment and Business Case are based on.</p>

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	<p><b>Comments by Mr Mackenzie – ISH4 Transcript Page 31 [EV-042e])</b></p> <p>The Council have very serious concerns in respect of the extent of local operational modelling which the applicant has failed to carry out. This is an issue that has the capacity to render this Examination process, as well as the ultimate decision taken by the Secretary of State (SoS), unsafe and unlawful.</p> <p>The fundamental concern is that there is a real risk that even by the end of this Examination, the applicant will not have furnished to the parties and the Panel validated microsimulation models of local junctions and nor will they have fed the parameters and signalisation of these models into the LTAM. This is a long- standing area of concerns for the Council as will have been evident from the Council's LIR (REP1-281) and D3 submissions (REP3-211).</p> <p>The most obvious consequence of the information deficit which exists at the moment is that the ExA is being asked to make a determination on the merits of a scheme without an adequate set of local junction models, which means that the operational impacts of LTC on local junctions and local communities cannot be properly understood or appraised. It is also not possible, at present, to be sure that any mitigation that is required to remedy these adverse effects will be able to be delivered within the Order Limits and Rochdale Envelope. What that means is that it is not possible to determine it is lawful, in the sense of supported by adequate evidence, and so making decisions on these matters, at present, is impossible.</p> <p>It is no answer to this point to say that the LTAM should be used to assess these impacts and that the VISSIM microsimulation modelling should be discounted or disregarded. This is because LTAM is suited to inform LTC business case, economic appraisal and strategic effects assessment, but it is an inadequate tool to inform and understand the operational impacts of LTC on local junctions. The evidence base for LTAM (2016) is out of date, has not been validated at the level of local roads/junctions and uses the (contested) Strategic Road Network peak period (0700-0800), rather than the local road network peak (0800-0900). The Council are not aware of any other NSIPs that have been examined and consented in the absence of validated local operational modelling and where there was a major, and unexplained, friction between the strategic and local modelling with each model series telling a different story. It is proper practice for these frictions to be resolved, so that the full set of impacts can be understood.</p> <p>Taking a step back, the Council know (and indeed the applicant acknowledges) that there will be a range of major</p>

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	<p>adverse impacts on local junctions and in this context, it is necessary to understand precisely what these impacts are, how severe they will be, and what the appropriate mitigation for those effects is. Again, this can only be understood on the basis of adequate local microsimulation, i.e. in VISSIM.</p> <p>One example will suffice to demonstrate the importance of this local operational modelling. The Orsett Cock microsimulation (, Appendix C, Annex 1, Sub-Annex 1.3, Attachment 1.3.1 of the Council's LIR (<a href="#">REP1-284</a>)) has been provided (though to be clear there is still further work to be done) and this led to three provisional improvements to the junction, including modified lane markings and increasing the modelled length of the weaving section where traffic from LTC and the A13 merges on the A13 West approach, from 90m to 200m – though as yet this has not been incorporated into scheme design.</p> <p>The Council's position on this is clear and unambiguous. If the local modelling is not completed and validated, there will not be a legally acceptable basis on which to assess, and determine, the merits of LTC and this alone means that the project conflicts with the NPSNN paragraph 4.6 which states that:</p> <p><i>'Applications for road and rail projects should usually be supported by a local transport model to provide sufficiently accurate detail of the impacts of a project. The modelling will usually include national level factors around the key drivers of transport demand such as economic growth, demographic change, travel costs and labour market participation, as well as local factors... The modelling should be proportionate to the scale of the scheme and include appropriate sensitivity analysis to consider the impact of uncertainty on project impacts.'</i></p> <p>Please also refer to NPSNN paragraph 5.212, which refers to the need to develop schemes and options in the light of '<i>local models</i>'. Given the scale of the project the Council consider that it is obvious that local microsimulation is proportionate and therefore necessary in the context of policy. The lack of it is an area of policy conflict. In the absence of this information there is not a sufficient or reasonable evidence base for assessing the full range of scheme impacts and determining the appropriate mitigation.</p> <p>The second point concerns timing. Clearly, although the Council is calling loudly for this information to be produced, it is also very clear that it needs to be provided in good time so that it can be:</p> <ul style="list-style-type: none"> <li>• Digested and interrogated by us and others in a way which gives effects to our procedural rights; but also,</li> </ul>

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	<ul style="list-style-type: none"> <li>Used to inform any modifications to the scheme design and mitigation, which may in turn need to be subject to EIA and discussion.</li> </ul> <p>It is not clear that even if the information was produced in short order that the work streams flowing from the work appearing can be fairly accommodated in the context of the current timetable without giving rise to substantially prejudicial procedural unfairness.</p>
<p><b>Further Written Submissions 3 a) i)</b></p>	
<p><b><u>Outdated LTAM model</u></b></p> <p>Mr. Young stated at ISH4 that it is not part of the Council's case that LTAM is in any way defective (Page 25 of ISH4 Transcript (<a href="#">EV-042e</a>)).</p> <p>To be clear, it is the Council's position that LTAM is outdated and not compliant with WebTAG guidance as set out in Section 7 of the LIR (<a href="#">REP1-281</a>), in oral submissions at ISH4 and in answer to ExA question Q4.1.14, to be submitted at Deadline 4.</p> <p>In response to the Council's position that LTAM is outdated, Professor Bowkett stated at ISH4 that the applicant had purchased TomTom data and analysed it for 2016, 2019 and 2023 and is content that the model is robust. This evidence is not before the Examination and the Council had not been made aware of this analysis until ISH4. The Council is also aware that the applicant is updating LTAM to a 2019 base year. The Council would expect the applicant to report on the difference between the 2016 and 2019 models. <b><i>Request: the Council requests that the Applicant submits the TomTom data analysis to the Examination and to report on the difference between the 2016 and updated base LTAM model.</i></b></p> <p><b><u>LTAM and Localised Modelling</u></b></p> <p>As set out in the Council's response to ExA Question 4.1.13 to be submitted at Deadline 4, the applicant has relied solely on LTAM to inform the operational impacts of LTC within the DCO submission. This was reiterated by Dr. Wright at ISH4, when he stated that the applicant is satisfied that the DCO application that assessed the impacts of the scheme using LTAM is a robust tool for the assessment and making decisions (Page 19 of the ISH Transcript (<a href="#">EV-042e</a>)).</p> <p>However, Professor Bowkett seemed to contradict this position by stating at ISH4 that <i>'it is normal industry practice because in modelling, there are a variety of tools suitable to different purposes, and, making a big investment like this, it is very sensible to look at VISSIM model because it does give you different insights into how a junction would operate, so it would be common practice to use both tools together and take the insights from both'</i> (Page 19 of the ISH Transcript (<a href="#">EV-042e</a>)).</p> <p>The Council agrees that it is normal industry practice to use both strategic modelling and localised detailed modelling to understand the transport impacts of developments. Both have different purposes but should be aligned. The TfL Modelling Guidelines (Version 4.0) (included as Appendix B of the Council's D4 Submission 'Council's Comments on Applicant's Submissions at Deadline 3') provides a helpful summary of the various modelling tools, their purpose and relationship to each other as part of a tiered modelling hierarchy and that consistency between higher and lower tier models is good practice.</p> <p>The Council's position is that judgements on traffic impacts cannot solely be made based on LTAM. Judgements on local network operational impacts can only reliably and safely be made using the detailed localised model. Without an agreed set of localised junction models for the areas of the local highway network that have been identified using LTAM (refer to Figure 9.1 of the LIR (<a href="#">REP1-</a></p>	



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	<p><a href="#">281</a>)), it is not possible to make reliable judgements on local impacts and mitigation. In particular, modelling in VISSIM is essential to facilitate the development and testing of mitigation measures on the affected junctions in question, and as such it follows that before the ExA can be sure that any mitigation proposed is effective and also can be delivered within the DCO order limits, the relevant junctions must first be modelled in VISSIM.</p> <p><b><u>Orsett Cock</u></b></p> <p>Professor Bowkett stated at ISH4 (Page 16 of the Transcript <a href="#">[EV-042e]</a>) stated that the applicant had their own VISSIM model of Orsett Cock, which they had used during the design development but that the Council asked the applicant if they could build a fresh VISSIM model under the Council's direction through a series of workshops. Thurrock Council were not aware that there was an existing VISSIM model of Orsett Cock until Professor Bowkett stated this at ISH4. Had the Council been aware, they could have been provided with the model for review and sign off.</p> <p><b>Select Link Analysis</b></p> <p>At ISH4 the applicant provided the Council with select link analysis of LTC traffic leave LTC and routing through Orsett Cock. The review of the select link analysis data (as set out in <b>Appendix B</b> below) shows that there is a significant level of future baseline traffic that would be displaced by LTC traffic. That is, the level of traffic that would have routed through Orsett Cock in 2045 Do Minimum (without LTC), which is no longer able to route through Orsett Cock in 2045 Do Something (with LTC) as a result of the traffic originating from LTC routing through Orsett Cock.</p> <p>The displaced traffic is equivalent to 742 PCUs in the AM (0700-0800) and 1,065 PCUs in the PM (1700-1800) in 2045. It is the Council's position that mitigation at Orsett Cock should accommodate the traffic displaced by LTC, as well as the increase in growth forecast at Orsett Cock. It is not acceptable for LTC to displace such a significant level of future baseline traffic from Orsett Cock.</p> <p><b>The select link analysis data provided by the applicant is included in Appendix B along with the Council's review of the data.</b></p> <p><b>Latent Demand</b></p> <p>At ISH4 there was a discussion about latent demand within the VISSIM model of Orsett Cock, which needs to be resolved before the forecast model can be agreed.</p> <p>Latent demand in a VISSIM micro-simulation model refers to the number of vehicles that are unable to enter the modelled network by the end of the model simulation period due to congestion within the modelled network.</p> <p>Whilst it is essential and standard practice to report latent demand within forecasting reports, the applicant has failed to do so within any of the VISSIM forecasting reports submitted to the Examination, including the Orsett Cock Forecasting Report (<a href="#">REP1-189</a>). The analysis in <b>Appendix C</b> of these ISH4 Written Submissions summarises the significant level of latent demand, which if included in the network statistics would significantly increase the level of delay per vehicle. For example, Appendix C shows that in the AM peak hour of 08:00-09:00, the average delay per vehicle would increase from 59 to 126 seconds (+114% increase) if latent demand is considered within the network statistics.</p> <p>In summary, the Council is extremely concerned that the applicant is underestimating impacts of LTC at Orsett Cock by not reporting the significant level of latent demand and delay. <b>Request: the Council requests that all forecasting reports submitted by the applicant to date are updated to include latent demand statistics and that measures are taken by the applicant within the</b></p>



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	<p><b><i>modelling exercise to reduce the level of latent demand to a minimum so that the full extent of LTC impacts are reported and understood by the ExA.</i></b></p> <p><b>It is recognised that this is a technical issue and therefore, the Council has set out to provide an explanation of latent demand within Appendix C, as well as a summary of the extent of latent demand currently shown within the VISSIM model of Orsett Cock and why this needs to be resolved before the forecast model can be agreed by the Council.</b></p> <p><b>Rochdale Envelope</b></p> <p>The Council is concerned that the Applicant's VISSIM modelling is showing significant adverse impacts at Orsett Cock, which need to be addressed through mitigation. It may not be possible to address the impacts within scheme design changes and mitigation within the DCO Order Limits and Rochdale Envelope of the environmental assessment. This was also raised by the ExA at ISH4 (Page 44 of the ISH Transcript (<a href="#">EV-042e</a>)).</p> <p><b>Iteration between LTAM and VISSIM</b></p> <p>The Council, along with Essex County Council and DP World London Gateway (DPWLG), attended a workshop with the applicant on 16 August 2023 to focus on clarifying the work required in order to address substantial and critical issues identified with the LTAM modelling work in comparison to the VISSIM modelling work, particularly that which has recently been submitted for Examination relating to Orsett Cock. The actions arising from the modelling meeting were set out in Table 14.1 of the Council's Comments on Applicant's Submissions at Deadline 1 and 2 (D1 and D2) (<a href="#">REP3-211</a>) and the latest status of the actions is set out in Table 10.2 of the Council's D4 Submission 'Comments on Applicants Submissions at Deadline 3', which is included as part of the Council's Deadline 4 submissions.</p> <p>The review of the modelling has identified serious divergence between LTAM and VISSIM model of Orsett Cock that should normally have been resolved prior to DCO submission. All LHA and Interested Parties (IPs) were in agreement that the significance of divergence between the models is entirely inappropriate and does not conform with industry best practice.</p> <p>In this context, it was agreed with the applicant for the VISSIM parameters to be fed back into LTAM to reduce the divergence of the models and for LTAM to better reflect the significant queuing and delay that is shown in the Applicant's VISSIM model of Orsett Cock. The Council would require the same iterative process to be undertaken for the other junctions within Thurrock that the applicant is assessing with localised models.</p> <p>This iterative approach to modelling was discussed at ISH4 but incorrectly, the applicant asserted that the Council and the other highway authorities and Interested Parties were seeking complete convergence of the strategic and VISSIM models and for this convergence to be undertaken for most if not all junctions within the strategic model (Page 41 of ISH4 Transcript (<a href="#">EV-042e</a>)). Professor Bowkett stated that this level of convergence would take years. As set out in Table 1 below it is considered that a single iteration of the strategic / VISSIM modelling loop to better align the models with respect to Orsett Cock would take circa 3 weeks. It may require more than one iteration, but each further iteration is estimated to be circa 2 weeks.</p> <p>This is not what the Council or the other highway authorities and Interested Parties have requested. The Council has used LTAM to identify local junctions that they are concerned will be significantly adversely impacted by LTC, which are set out in Figure 9.1 of the LIR (<a href="#">REP1-281</a>). In addition to this, the Council is concerned about inappropriate reassignment of traffic through local communities as a result of LTC as set out in Section 9 of the LIR (<a href="#">REP1-281</a>). The VISSIM model of Orsett Cock is the most advanced of the VISSIM models being prepared by the applicant and is showing</p>

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	<p>significant divergence between VISSIM and LTAM, with the queueing and delay in VISSIM not reflected in LTAM. This level of divergence needs to be addressed by the applicant through model iterations. Should the other VISSIM modelling coming forward also show divergence between the models, the same process would need to be undertaken. This is standard industry practice and is necessary and proportionate.</p> <p><b>The Council has set out in Appendix A of this ISH4 submission, a detailed response to what is required with regards to LTAM/VISSIM model iteration and how this is in accordance with guidance and best practice, giving examples of this being undertaken. It also sets out the steps required for model development, iteration and mitigation design and provides an indicative programme for this work for Orsett Cock.</b></p> <p>At Deadline 4, the Examination has just over 13 weeks until close and the progress to date has taken a number of years. The Council has considered the remaining modelling and mitigation design tasks that are required to be undertaken by the applicant just for Orsett Cock based on the modelling process set out in Appendix A. The Council's view on the programme for Orsett Cock remaining tasks is summarised in Table 1 below. This is a high-risk indicative programme, which requires multiple steps to be undertaken concurrently rather than completion and agreement of each step sequentially. Even then it is considered to be impossible to undertake all of the required tasks for Orsett Cock prior to the end of the Examination.</p> <p>The ExA has required the applicant and local highway authorities (Action Point 10 of ISH7 (<a href="#">EV-046e</a>)) and, the Council assumes the two national ports, to hold a workshop and present a joint paper at Deadline 5, with respect to traffic modelling for Orsett Cock, with the focus being '<i>on narrowing the areas of disagreement specifically to reconcile identified differences between the LTAM and VISSIM modelling while recognising that there will always be a degree of divergence between different models.</i>' As part of that workshop the Council will seek to agree a detailed programme with the applicant setting out the tasks to be undertaken and associated timescale. The Council is concerned, given the experience to date of collaborating with the applicant on localised modelling, that the tasks may not be undertaken in accordance with the programme.</p> <p>It is entirely the ExA decision on how such matters might be progressed following the submission of the joint paper at Deadline 5, but, as the ExA is aware, there is the provision in Rule 17 of the Infrastructure Planning (Examination Procedure) Rules, 2010 that allows for a range of further information to be requested from the applicant and for the applicant to supply such requested information by the date and manner specified by the ExA.</p> <p>The Council understands that a similar Rule 17 request was made by ExA for the recent A428 Black Cat DCO. As a result of the local highway authorities' criticism of the applicant's (National Highways in this case) reliance on the strategic model, the ExA made a Rule 17 request of the applicant relating to sensitivity testing using observed local flows and VISSIM modelling for a local junction. The ExA were critical that the applicant had only relied on the strategic model and had failed to engage constructively with the LHAs. Extracts from the ExA Recommendation Report for A428 Black Cat with regards to traffic modelling are included as Appendix A, Annex C of this ISH4 Written Submission.</p>

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<b>Table 1 – Thurrock Council's considerations on a indicative programme for the remaining Orsett Cock modelling and mitigation design tasks</b>			
Step		Tasks	Timescale
1	Agree Base Year Models		Base VISSIM model agreed. Residual issues with LTAM as set out in LIR (REP1-281) and summarised at ISH4.
2	Agree forecast VISSIM models – Core Scenario (2030 & 2045)	<p>Based on the Council's Corrected model submitted at D3:</p> <ul style="list-style-type: none"> <li>- Address latent demand</li> <li>- Include Updated LTAM demand matrices (from CM49 and CS72) in VISSIM using demand flow</li> <li>- Address discrepancies between LTC design and the microsimulation model, e.g. extended weave length and Pegasus crossing.</li> </ul>	<p>The applicant has had sufficient time to complete these tasks following D3 submission.</p> <p>The Council would expect an updated forecast model to be issued to the Council directly on 19 September 2023 at D4, i.e. models should be provided direct to the Council to speed up the modelling programme.</p> <p>Subject to receiving the updated models on 19 September 2023 and the adequacy of those models, the Council would aim to agree the forecast VISSIM models by 13 October 2023.</p>
3	Align forecast LTAM and VISSIM at Orsett Cock – Core Scenario (2030 & 2045)	<ul style="list-style-type: none"> <li>- Input VISSIM network parameters (such as signal timings and saturation flows) into LTAM and run LTAM</li> <li>- Input LTAM demand into VISSIM model and run VISSIM</li> <li>- Continue the above iteration until models better align in terms of capacity constraints shown in VISSIM</li> </ul>	<p>The applicant could progress with this stage on 20 September 2023 at risk, in parallel to the Council reviewing the forecast models in Step 2.</p> <p>It is estimated that the first iteration would take around 3 weeks to complete with an estimated completion date of 11 October 2023.</p> <p>Each subsequent iteration will take around 2 weeks to complete. The number of iterations is unknown at this stage.</p> <p>The Council would expect to be provided with modelling results at each iteration stage for a discussion with the applicant. There is a lot of uncertainty with this step and it would require close cooperation between the applicant and the Council.</p>
4	Agree scope of mitigation	<p>Agree with the applicant the level of traffic to be mitigated, taking into account:</p> <ul style="list-style-type: none"> <li>- Displaced traffic at Orsett Cock</li> <li>- Reassign Rectory Road traffic back onto A128 (modelling)</li> </ul>	<p>Agreeing the approach to displaced traffic and Rectory Road reassignment should be able to be agreed within one meeting with the applicant and incorporated into microsimulation modelling by the applicant within two weeks from the meeting with an</p>

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		<p>action from 16 August 2023 meeting)</p> <ul style="list-style-type: none"> <li>- Alternative forecast scenarios to account for uncertainty in forecasting</li> </ul>	<p>estimated completion date of 31 October 2023.</p> <p>Agreeing and running Alternative Forecast Scenarios in LTAM and VISSIM would realistically take a number of months and would not be complete before the end of the Examination. However, in order to have some understanding of the potential range of impact at Orsett Cock prior to the close of the Examination, it would be possible to undertake a very simplified approach to uncertainty testing within the DCO programme by making broad assumptions about demand changes additional to the Core Scenario (for example, +/- 20%). This is not a TAG compliant approach and could not be relied on. Adopting this approach would likely to result in a completion date of 27 November 2023.</p>
5	Undertake mitigation scenario testing within the models	<ul style="list-style-type: none"> <li>- Workshop to agree mitigation testing to be undertaken with the use of VISSIM</li> <li>- applicant to undertake VISSIM mitigation testing based on the agreed mitigation scenarios.</li> <li>- applicant to feed VISSIM parameters and mitigation proposals into LTAM; iterate between the strategic and microsimulation models.</li> </ul>	<p>Mitigation design could be progressed on the Core Scenario during November and early December in parallel to alternative scenario forecast testing.</p> <p>Testing of mitigation with alternative forecast scenarios will extend this programme further and likely to not be achievable within the Examination programme.</p>
6	Incorporate mitigation into LTC design	Incorporate mitigation into the general arrangement drawings	Given the complexity of the junction design, incorporating mitigation into the general arrangement drawings may take a number of weeks, which would extend the programme beyond the end of the Examination.
7	Agree mitigation	Agree mitigation and how it is secured and delivered through the DCO.	Depending on whether the agreed mitigation is deliverable within the DCO order limits or not would influence the timescales for securing mitigation within the DCO.
<b>Oral Submission 3 a) ii)</b>			
ii)	21) Applicant to explain its approach to modelling uncertainties	<b>Comments by Professor Phil Goodwin – ISH4 Transcript Page 55 [EV-042e])</b>	

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<p>and whether any additional work is necessary in light of the recent publication of the "TAG Unit M4 - Forecasting and Uncertainty".</p>	<p>Note: the discussion presented at ISH4 on uncertainty is given in full in the Council's LIR (<a href="#">REP1-281</a>), especially Chapter 7 and the Council's Comments on Applicant's Submissions at Deadline 1 and 2 (D1 and D2) – Further Discussion on Scheme Appraisal: Treatment of Wider Economic Impacts and Evidence around Induced Traffic – Appendix C (<a href="#">REP3-209</a>).</p> <p>DfT, correctly, has come to understand increasingly that all forecasts and appraisals are uncertain, and it is therefore necessary to apply full and fair tests challenging the robustness of projects in a wide range of alternative futures and assumptions.</p> <p>The Council argues that the applicant's advocacy has not fully followed the spirit and letter of DfT's guidance on uncertainty in relation to the following critical areas.</p> <p><b>Changes in Conditions and Advice</b></p> <p>For months, the Council has been disagreeing with the applicant that the appraisal does not reflect changes in conditions, and DfT advice, since 2016, or since the project was designed, and even since the application was submitted. These changes relate to:</p> <ul style="list-style-type: none"> <li>• The impacts of Covid, Brexit and financial constraints;</li> <li>• Delay in the planned opening year ;</li> <li>• Revised trip rate forecasts by the DfT, which show a substantial reduction in car trip rate growth; and,</li> <li>• Recommendations by DfT for a significantly wider 'spread' between 'high' and 'low' possible future traffic growth.</li> </ul> <p>The Council acknowledge that in the last few days the applicant seems to have accepted all these points in principle (refer to <a href="#">REP3-145</a>). The Council and applicant now evidently agree that the starting point, rates of growth, central forecast and range of uncertainty in the original analysis all no longer apply.</p> <p>Now the applicant's only application of that, so far, is in a series of detailed tables of river crossing traffic, which we have not yet had time to assess in detail but will do so.</p> <p>But the more important test is to apply all those changes to the analysis of congestion and environmental impacts in the whole network, incorporating them in the analysis of benefits and costs overall, and value for money. These are also likely to be sensitive to any changes in the use of road capacity arising from Local Plans, and of course, design issues. If we are serious about the different scenarios, the Orsett Cock issue has to be solved for both the high traffic scenario and the low</p>

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	<p>traffic scenario and it is a serious matter if the conclusion is a solution which is either overdesigned or inadequate.</p> <p>The Council's assessment is that this will significantly further reduce the viability of the Project, already close to marginal.</p> <p><b>HGVs and LGVs</b></p> <p>In one respect the applicant has treated as certain, aspects whose certainty cannot be defended.</p> <p>The applicant asserts and attributes to DfT, wrongly that Heavy and Light Goods vehicles do not experience any variable demand, in other words their origins, destinations, numbers and total mileage are almost exactly the same with and without the Lower Thames Crossing. The probability that this could not be true was not even mentioned in the Uncertainty Log. The assertion is incompatible with:</p> <ul style="list-style-type: none"> <li>• The analysis of wider economic impacts;</li> <li>• DfT published empirical evidence;</li> <li>• With the project's strategic objectives; and,</li> <li>• The greatest irony, it contradicts the applicant's own reporting of companies supporting the project, who say they can expand their activities to make use of the Lower Thames Crossing.</li> </ul> <p>Therefore, the traffic impacts of increased goods vehicle traffic will have been underestimated, and, further, it is likely that the wider economic benefits, without which the scheme could not survive, will be overoptimistic.</p> <p><b>Carbon and Climate</b></p> <p>There is dismissive treatment of the traffic impacts of decarbonisation commitments, both in relation to electric vehicles, and of traffic reductions from Government announced policies and any other reasons for favourable changes in the public market.</p> <p>The DfT 'high' values of carbon have not been tested, or even mentioned, even in the most vital value for money sensitivity test. There is a failure to consider the implications of higher and earlier levels of climate change on the operating conditions and geographical constraints affecting travel.</p> <p><b>Wider economic impacts and reliability effects</b></p> <p>There is no recognition that wider economic impacts can be either benefits or costs, only the benefits are counted. The DfT's TAG guidance always and systematically is to assess both. Prima facie there is therefore an overestimate of the net outcome in terms of benefits.</p>

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	<p>In pursuit of this, the basis and derivation of Wider Economic Impacts are not explained. The Council's repeated requests for relevant input and output files to make our own assessment of the effects, have been ignored.</p> <p>The calculation of Reliability Benefits and their relation to travel speeds and times, is not tracked to the cost and benefit analysis (again information has been requested but not provided). There is a particular potential for double counting.</p> <p><b>Combined effects of these uncertainties</b></p> <p>Now, the problem is that these uncertainties are not randomly optimistic and pessimistic. Rather, in each case they have the effect of exaggerating the calculated benefits or underestimating the calculated costs.</p> <p>Partly this is just human nature and the Council understand the drive to align all analyses to demonstrate the project is a good one. But the fact is that the project is not nearly as good as it was assumed to be 10 years ago. As things stand, the project is faced with two unacceptable possibilities:</p> <ul style="list-style-type: none"> <li>• That the scale of the investment is unnecessary; or,</li> <li>• That it will fail to deliver the lasting improvements in travel times that are promised.</li> </ul> <p>It could be both.</p> <p>Therefore, the Council strongly recommend that further modelling and appraisal and sensitivity tests are undertaken to reflect the Council's comments in its Local Impact Report (<a href="#">REP1-281</a>) and to be in accordance with a genuine and unbiased application of the principles of DfT guidance on uncertainty.</p> <p><b>Request: in summary what the Council requests:</b></p> <ul style="list-style-type: none"> <li>• <b>Update baseline, trip rates and the DfT's Common Analytical Scenarios including revised 'high' and 'low' traffic growth tests and apply all these changes to every stage of the appraisal, including design, estimation of costs and benefits, value for money, and environmental impacts.</b></li> <li>• <b>Provide technical specifications, and input and output files, for assessment of wider economic impacts and assessment of reliability benefits.</b></li> <li>• <b>Undertake tests which allow for the probability and near certainty that future traffic volumes and patterns</b></li> </ul>



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		<p><i>by HGVs and LGVs will be different in the 'with' and 'without' LTC cases.</i></p> <ul style="list-style-type: none"> <li>• <i>Carry out Tests of the traffic implications of further electrification of vehicles and further implementation of the Government's declared policies, which would reduce car traffic.</i></li> <li>• <i>Report the effect of higher carbon values within the existing demand framework and the likely physical and transport effects in the Thames Corridor of further increases in global average temperature, for example the DEFRA recommendations of scenarios of 2 and 4 degrees global average temperature increase.</i></li> </ul>
<b>22) Wider Network Impacts Management and Monitoring</b>		
<b>a) Applicant's Approach to Mitigation</b>		
<b>Oral Submission</b>		
i)	NPSNN policy position in terms of wider mitigation of highway impacts.	<p><b>Comments by Mr Mackenzie – ISH4 Transcript Page 75 (<a href="#">EV-042e</a>)</b></p> <p>These submissions address the proposition that it is not necessary for an NSIP to address, by way of providing reasonable mitigation, adverse effects and impacts on the local road network (LRN) caused by the project. Clearly, the Council disagree with this proposition in the strongest terms and indeed do not shy away from the submission that it is absurd. In fact, <i>'The...mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development.'</i> This is set out clearly in paragraph 5.202 of the NPSNN, but was not referred to in Appendix F of the applicant's Transport Assessment (<a href="#">APP-535</a>).</p> <p>LTC is introducing major transport infrastructure into an area and is relying heavily on access to existing local junctions in order to deliver its scheme objectives and proper functionality. Indeed, it can fairly be said in relation to Orsett Cock that LTC is appropriating the capacity that was introduced into the LRN by the Council in order to support and drive its local growth ambitions. In that context it is counter-intuitive, indeed absurd, to say that LTC, which depends on utilising and indeed appropriating these junctions, and which will have knock on adverse effects on other junctions, in a way that damages the Council's growth ambitions, should not be required to provide any mitigation in respect of those matters.</p> <p>By way of context, the applicant recognises that there is a need to mitigate a wide range of impacts caused by LTC, such as landscape/visual, ecological, hydrological, impacts on heritage assets, noise and impacts arising during the construction phase. And yet, the applicant states that it is not for them to mitigate adverse operational effects on the LRN.</p>

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	<p>There is a logical gap there that is worth observing at this stage.</p> <p>The Council submits that the following passages from the extant NPSNN are relevant and amply demonstrate the proposition that mitigation of adverse traffic/transport effects is required by policy.</p> <ul style="list-style-type: none"> <li>• Paragraph 3.3 provides that 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.</li> <li>• Paragraph 4.3 bullet 2 refers to the need to take into account any adverse effects as well as any mitigation measures. There is no indication that adverse effects on the LRN network should not be considered or that mitigation measures in respect of the LRN should be ignored.</li> <li>• Paragraph 4.9 contains tests for DCO requirements. There is no reason in principle why these tests are incapable of being met in relation to LRN mitigation requirements. This is a further indication that mitigation for adverse operational effects on LRN are properly to be regarded as falling within the scope of a DCO and of course there are many DCOs which make comprehensive provision for mitigation of effects on LRN.</li> <li>• Paragraph 4.31 provides that good design should '<i>simultaneously minimise adverse impacts</i>' and again there is no indication that adverse impacts on LRN are excluded from the exhortation to minimise adverse impacts.</li> <li>• Paragraphs 5.201 – 5.202 set out a clear statement that the mitigation of transport impacts is something that the NPS expects NSIPs to deliver. Notably, but regrettably, these paragraphs do not appear in Appendix F of the applicant's Transport Assessment (<a href="#">APP-535</a>).</li> <li>• Paragraph 5.206 states that an ES should describe mitigating commitments in respect of SEEs on transport networks. Why, the Council asks rhetorically, would that be the case if in fact there was no expectation in the NPS that those effects would in fact be mitigated and those commitments would in fact be secured by way of DCO requirements?</li> <li>• Paragraph 5.211 refers to the need for '<i>due consideration</i>', which again is a clear, indeed it could not be clearer indication that LRN impacts are relevant considerations under the policy framework.</li> <li>• Paragraphs 5.215 – 217 provide guidance under the heading 'mitigation' which were dealt with in detail by Kent</li> </ul>

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	<p>CC and the Council agrees with and adopts those submissions.</p> <p>The guidance in the NPSNN is brief, perhaps, but it is enough. It expressly envisages that reasonable and proportionate mitigation in respect of adverse operational effects on the LRN should be put in place as part of an NSIP and that, if they are not, the corollary is that the project is contrary to policy. The Council adopts the submissions of Kent County Council in respect of the draft revised NPSNN and does not repeat them. The draft revised NPSNN is unambiguously clear that adverse effects on the LRN must be mitigated.</p> <p><b>Comments by Kirsty McMullen – ISH4 Transcript Page 81 (EV-042e)</b></p> <p>The applicant seeks to distance itself from other DCOs. Members of the Council team have recently been involved in Sizewell C, giving evidence on behalf of the applicant. There were very lengthy discussions with the highways authorities on impacts and mitigation. There was no expectation on either side that there was a requirement to mitigate all adverse impacts. That is not what policy says and it was not what the highways authorities were expecting. However, the applicant for Sizewell C did mitigate significant adverse impacts and the mitigation was very wide ranging in terms of safety, traffic calming through villages, investment in the A12 corridor improvements and improvements to other junctions. There was millions of pounds of investment in mitigation for those identified, known impacts. In addition to that, there was a recognition that there is uncertainty in models and that there was a recognition that there is uncertainty in models, and that models do not predict everything. Therefore, there was a contingency fund secured within the DCO that the Transport Review Group can draw down from through the monitoring. In order to quantify the contingency fund, there was a schedule of the types of mitigation and the locations where there might be these unforeseen impacts and money identified and safeguarded for those potential unforeseen impacts.</p> <p>The Council is not seeking for every adverse impact to be mitigated. The Council is seeking for significant adverse impacts to be mitigated. In addition, Orsett Cock is an integral part of the scheme, it is not a wider impact. The significant impacts at this junction need to be addressed now, not some time in the future.</p>
<p><b>Further Written Submissions 4 a) i)</b></p>	
<p>The applicant asserts that it does not need to mitigate highway impacts as LTC <i>'would not generate a substantial number of new trips'</i> and that the benefits on the road network would outweigh the adverse impacts (paragraph 1.1.1 of (APP-535) and repeated by Dr. Wright at ISH4 (Page 96 of ISH4 Transcript (EV-042e).</p> <p>In addition to the policy points raised orally by Mr. Mackenzie at ISH4 on the need to mitigate</p>	

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	<p>highway impacts, the Council make the following response:</p> <ol style="list-style-type: none"> <li>1. First, the minimum of six years of construction of the Project would generate new trips. This has been estimated by the applicant to be circa 3,000 additional passenger car units (PCUs) in the AM peak hour at peak construction (Table 8.28 of the Transport Assessment (<a href="#">APP-529</a>)). Despite the adverse impacts the construction traffic (<u>100% new trips</u>) will cause, no physical mitigation is proposed and the lack of controls on construction vehicles and workforce travel suggest that the construction traffic and impacts are likely to be higher than forecast.</li> <li>2. Second, the applicant's assessment shows that once operational LTC would induce car traffic and attempt to accommodate unconstrained traffic growth (noting that induced LGV and HGV traffic has incorrectly been omitted from the assessment as set out by Professor Phil Goodwin in response to Agenda Item 4a)ii)). This would change travel patterns, including increased vehicle mileage. Despite this, no consideration is given to the impact of traffic on the local road network and local communities within Thurrock and the applicant proposes no physical mitigation on the local highway network, even on those parts of the network, such as the Orsett Cock junction that is integral to the design of LTC and forecast to experience significant congestion.</li> <li>3. Third, with regards to the applicant's assertion that benefits outweigh disbenefits and therefore no mitigation of the local impacts is required, there is no policy basis for this position as set out in ISH4 and ISH7 by the Council and the other local authorities. In addition, even if that were to be the case, the Council has raised significant concerns with the assessment of benefits and disbenefits. In addition to the concerns set out in the Council's LIR (<a href="#">REP1-281</a>) and those by Professor Goodwin in response to Agenda Item 4a) ii) on uncertainty, the applicant's emerging localised microsimulation modelling results show queuing and delay at Orsett Cock that is significantly greater than shown in LTAM. The differences observed between the strategic model and the microsimulation model reinforce the Council's long-stated view that LTAM as a strategic model underestimates the impacts of LTC on Orsett Cock. Were the applicant to address the Council's concerns it would result in reduced journey time benefits and increased disbenefits of LTC. The estimated margin of benefit of LTC is now so low that even modest changes in the assessment would wipe out the net benefit entirely. The Council therefore contends that the applicant's reliance on benefits outweighing disbenefits as a reason not to mitigate local impacts is not valid both in policy and assessment terms.</li> </ol> <p>Furthermore, within paragraph 1.3.5 of (<a href="#">APP-535</a>) the applicant misquotes paragraph 111 of NPPF (which itself is not the prime policy document, which is the NPSNN) by omitting the key words to the paragraph of NPPF '<i>Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts (<b>on the road network</b>) would be severe</i>'. Clearly, '<b>on the road network</b>' was omitted and by doing so incorrectly concludes that there is no policy requirement in NPPF for 'intervention, mitigation, or refusal in relation to a loss of capacity or an increase in journey times.' (paragraph 1.3.5 of (<a href="#">APP-535</a>)). There is to our knowledge no precedent whereby National Highways has ever accepted this interpretation of policy with regards to any development likely to impact on the Strategic Road Network and it is a serious concern that the applicant appears to suggest it is appropriate to make their own special rules in this regard.</p> <p>National Highways frequently cites DfT Circular 02/2013 when considering the impact of developments on the Strategic Road Network. It is noted that paragraph 24 states '<i>Where appropriate, <b>conditions may be agreed to offset any unacceptable impacts that may be identified through the assessment process</b></i>' as justification for mitigating any local schemes that</p>

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	<p>may impact on the SRN. This approach sets important precedent, in that the applicant should agree conditions to offset impacts considered unacceptable by the Council. This approach carefully considered mitigation is further evidenced in paragraphs 34-36 and the general tone of the Circular. A consistent approach must be adopted across the highway networks.</p> <p>Paragraph 5.211 of NPSNN is clear that the <i>'Examining Authority and the Secretary of State should give due consideration to impacts on local transport networks'</i> - transport networks is plural here and therefore includes all modes, including highway capacity. It goes on to state that due consideration should be given to <i>'policies set out in local plans, for example, policies on demand management being undertaken at the local level.'</i></p> <p>The Council notes that the scheme is in direct conflict with local policy, namely:</p> <ul style="list-style-type: none"> <li>• Policy CSTP14 of <i>'Thurrock's Core Strategy and Policies for Management of Development', which seeks to deliver 'at least a 10% reduction in car traffic in Thurrock from forecast 2026 levels.'</i> LTC is incompatible with the Council's commitment to achieve this aim.</li> <li>• Policy PMD9 states that <i>'development will not be permitted where it impacts adversely on capacity and safety.'</i> LTC will impact both capacity and safety. The scheme both eliminates capacity and the Council's ability to resolve issues created by the applicant at Orsett Cock, which is a key intersection in Thurrock. Before the DCO is approved it must be established that there is a viable design solution to address capacity and safety issues and funding secured to deliver an acceptable scheme. Without this resolution, the Council becomes liable to design, to seek necessary permission from National Highways and fund a major road scheme upgrade. Equally, the Council requires suitable mitigation to address significant increases of traffic on local roads which will impact communities, businesses and sensitive receptors particularly educational and care facilities.</li> </ul>
<b>Further Written Submissions 4 a) ii)</b>	
<p>ii)</p> <p>Applicant will be asked to justify the approach in the WNIMMP specifically around the issue of mitigation.</p>	<p>The Council contends that Orsett Cock is an integral part of the LTC scheme and is not a wider impact. This was agreed by the applicant as set out in an email from Dr. Wright to the Council on 27 April 2022.</p> <p>The email from Dr. Wright to the Council is included as <b>Appendix D</b> of this submission for ISH4.</p> <p>Within the email Dr Wright states that:  <i>'We agree that due to the direct changes we are making to slips on and off the Orsett Cock roundabout, the Orsett Cock roundabout interface is part of the core scheme set out in the DCO. Recognition of this is also provided by the inclusion of the junction within the Order Limits.'</i></p> <p><i>.....The inclusion of the Orsett Cock junction is limited to the extent that we will seek to agree that the roundabout continues to function for traffic following opening of the Lower Thames Crossing.</i></p> <p><i>.....Reflecting the above, we are happy to remove the junction from the regular WNI [wider network impacts] discussions.....'</i></p>

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		<p>With regards to the approach taken by the applicant, the WNIMMP does not include any mitigation. It merely secures monitoring of traffic pre and post opening of LTC. Post opening traffic monitoring will only occur on the 1<sup>st</sup> and 5<sup>th</sup> anniversary of LTC opening. This is not acceptable to the Council.</p> <p>The approach proposed by the applicant sets an excessive time and financial burden on the Council to assess the impacts of LTC after its DCO has been granted and implemented, with no surety of receiving any funding to remediate the observed impacts. If impacts are forecast to arise as a consequence of LTC, mitigation must be secured through the DCO.</p> <p>The Council requires the following:</p> <ul style="list-style-type: none"> <li>• Mitigation to be secured within the DCO for <u>known</u> significant adverse transport impacts established through the assessment that is currently being examined. This should not be secured through the WNIMMP, as part of the post operation monitoring.</li> <li>• In addition, given the level of uncertainty within the assessment, the Council requires the potential for additional mitigation to be secured within the DCO (through the WNIMMP) for unforeseen significant adverse impacts established through the monitoring within the WNIMMP. Without this the monitoring is meaningless. A Silvertown Tunnel type approach to monitoring and mitigation for these unknown adverse impacts would be acceptable to the Council, with a model refresh secured within the WNIMMP prior to opening and mitigation triggers agreed now as part of the DCO and included in the WNIMMP.</li> <li>• The Council requires agreement of a clearly defined specification for data provision to ensure that the data is reported in an independent, transparent and non-bias manner. The Council's preference is for real time data to be provided both during construction and post operation to ensure that all LHA have access to live data, as is increasingly common on other major road construction projects.</li> </ul>
iii)	23) Precedents for and against the Applicant's approach.	Agenda item postponed to ISH7.
iv)	24) The effect of the LTC scheme routes between the M20 and M2 motorways, in	No oral submission was made by the Council with respect to this agenda item.



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	particular the A229 Bluebell Hill.	
v)	25) The Silvertown Tunnel Approach. Whether there is an alternative approach to wider impacts mitigation, for example, the approach taken in the made Silvertown Tunnel DCO?	Agenda item postponed to ISH7.

### 5) Construction Traffic Management

#### Oral Submissions

##### Comments made by Adrian Neve – ISH4 Transcript Page 103 ([EV-042e](#))

The construction period is at least six years, so it is not a temporary impact within Thurrock as the Council needs to ensure that robust processes are in place and there is a suite of documents that cover those control mechanisms. These cannot be dealt with in isolation. The outline Traffic Management Plan for Construction (oTMPfC) will subsequently be the Traffic Management Plans and it is necessary to determine how these plans co-ordinate across the suite of documents.

At the moment the Council's position is that the documents do not provide the robustness that is necessary - there are initiatives that are included within the documents, but they are not providing sufficient controls required as is required by the local highway authority.

So many aspects are pushed down the line beyond the DCO to enable the contractors to self-govern. From the Council's team's experience of working on DCOs there must be greater governance and commitments set out by the applicants at the DCO stage, which provides a robust framework for how the contractors will be required to adhere to the controls within the control documents.

There is also misalignment of the construction modelling and control documents, which needs to be resolved. An example is how movements in and out of compounds are managed. The modelling of the construction phase scenarios has been done differently to the way that the applicant is suggesting that they will commit their construction traffic to route. The modelling does not align with the construction routes. This modelling must be revised to provide a reliable and realistic basis from which to monitor and manage effects during construction.

From experience on other DCOs, including Thames Tideway, the process and due diligence that went on before the construction phase meant that the controls and governance were in place rather than allowing the contractor to determine their own solutions. Having restrictions fosters innovation in construction. Giving self-governance to the contractor will have the opposite effect.

Compliance control, performance targets, live monitoring data, dispute resolution and challenge are all critical and need to be in the control documents now. They are currently missing and if they are not in now then the likelihood of getting them into the documents post DCO is low.

##### Comments made by Chris Stratford – ISH4 Transcript Page 106 ([EV-042e](#))

The Council is not disputing the tried and tested method of a Traffic Management Forum. What the Council is concerned about is the need for more specificity regarding its governance, because the membership seems to have all the various authorities, but it is not clear who the chair is, for

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	<p>example, how disputes are resolved or how decisions are made to resolve issues. Furthermore, the local authorities and LHAs are not represented on the escalating forum – the Joint Operating Forum (JOF).</p> <p>For instance, when the Network Assurance team at Thurrock are trying to manage the network and the applicant wants priority on a particular closure or diversion that may have unintended consequences if LTC's requests are given priority, over and above other planned closures, what would the dispute resolution system be? There is no detail within the documents.</p> <p><b>Comments made by Adrian Neve – ISH4 Transcript Page 107 and 116 (<a href="#">EV-042e</a>)</b></p> <p>With regards to the Asda roundabout modelling received at Deadline 3, the Council have been reviewing this and this review is to be submitted as part of its Deadline 4 submission, but it is confirming our concerns that during the construction period there will be a significant impact on the network in this location. There is also confusion about which routes workers are using to access compounds in this area and if this is correctly reflected in the modelling. The applicant makes no commitments to resolve forecast impacts.</p>
<p>i) 26) Adverse impacts arising from specific construction routes and/or road closures.</p>	<p>The Council has recognised the complexity and variability of the phases of the construction of LTC and the many associated utilities works. It is therefore fundamental that robust control mechanisms are put in place to govern the construction phases across the many contracts and contractors. The applicant should set out clearly how it intends to respond effectively to likely impacts and at pace to those issues that will arise during construction. The applicant forecasts a period of at least six years that Thurrock's residents and networks will be the subject of construction impacts and disruption. Whilst flexibility is required to allow for programme, method and phase changes, the governance and control documentation must clearly guide, lead, co-ordinate, react to change and control the contractors throughout the establishments, construction and demobilisation periods. In the absence of sufficient clarity, the applicant is unable to satisfactorily demonstrate how it will manage adverse impacts arising from specific construction routes and/or road closures.</p> <p>To assist the applicant, the Council has reviewed the many corridors and communities that would be expected to be impacted by construction vehicles, worker travel and displaced other traffic. The Council has shared with the applicant a network of monitoring locations and a catalogue of the character, sensitivities and likely impacts that would need to be reviewed and managed by the applicant and its contractors.</p> <p>The network of monitoring points has been adopted into the oTMPfC at Plate 2.4. The applicant has committed to share the characterisation information with the contractors in due course. Reflecting the complexity of the controls and governance processes robust cross-linking is required within the CoCP, the oTMPfC and the FCTP and further enhancement and cross-linking to other control documents,</p>

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	<p>such as the oMHP and the oSWMP.</p> <p>The applicant has stated that it will require its construction traffic (goods and workforce vehicles) to observe agreed routing avoiding local roads (oTMPfC Sections 2.4.11g and 4.1.1). It estimated the number of vehicle movements to the works compounds by using the LTAM strategic model (oTMPfC Section 4.1.2d.). The applicant then prepared a series of impact modelling across 11 scenarios but did not apply the agreed routing for all of the construction traffic and workforce traffic within those models. The assessment of impacts is inaccurate as construction vehicles and workers are able to freely assign across the LTAM strategic model network, contrary to the applicant's assurances. This means that traffic generation predicted at critical junctions, such as A1089 Asda Roundabout, is underestimated.</p> <p>The Council is concerned by the applicant's refusal to define caps on vehicle movements to each compound. The applicant has no control over the impacts that the contractors would create at each compound and along each affected route. The applicant has set out 11 construction phasing scenarios but has not forecast or assessed the impacts during the periods of connecting the new infrastructure to the existing routes, including A13, A1089, A1013 and A127. The applicant must also set out in its oTMPfC the implications of contractors adopting different construction scenarios to those set out in its 11 phases.</p> <p>This concern has been raised with the applicant and through the Council's LIR (<a href="#">REP1-281</a>), specifically in Section 15.6.43. The applicant's response to date has been simply to state that caps on movements would stifle innovation. The Council contends that caps on movement are essential to ensure control and the provision of limits on movement would encourage rather than stifle innovation.</p> <p>The applicant has recognised that there will be impacts at the Asda Roundabout (including the local road network of Dock Road) and has only now at D3 provided to the Examination localised traffic modelling (<a href="#">REP3-212</a>). The applicant is unable to substantiate that impacts would be resolved by the mechanisms contained with the oTMPfC or other mitigation. It is noted that the Council's concerns on impacts on Asda Roundabout are shared by the PoTL, as expressed in its Written Representation at D1 (<a href="#">REP1-274</a>).</p> <p>The Council also shares the concerns of the PoTL over the management and use of the access corridor to the North Portal compound along St Andrews Road and Sub-station</p>

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		<p>Road. The applicant is unclear whether that corridor will or will not be used by the 1,968 workers projected to access the North Portal compound (FCTP (<a href="#">APP-546</a>) in Table 5.3). It is noted that responses to date from the applicant have given differing answers and the oTMPfC, the FCTP and WAR; and, the construction modelling suggest a range of options, including traffic passing through Chadwell St Mary, West Tilbury and East Tilbury, or access by walking and cycling along those corridors not being supported by the applicant; or, the shuttle bus service which only accesses Grays station and is beyond the defined access timing criteria. <b>Request: the Applicant should confirm whether workers would access the compound via St Andrews Road and Sub-Station Road or via St Andrews Road, Fort Road and Station Road or via other routes.</b></p> <p>Plate 4.7 of the oTMPfC indicates the routes that are proposed. The Council does not support workforce access through Chadwell St Mary, West Tilbury or East Tilbury and is concerned about the feasibility of the proposed shuttle service.</p> <p>The Council has also sought detail from the applicant on the forecast impacts on the junction of High Road / Stifford Clays Road (West). This is understood to be a busy access corridor to a number of compounds and the works themselves. The Council has not received any assurance that the effects on that junction and the wider impact on the North Stifford interchange would be mitigated.</p> <p>No localised modelling of the construction period has been provided to the Examination for this location. The oTMPfC identifies a traffic management scheme at that junction, as RNTM13, but does not specify what that might be. The Council has not seen or agreed any works at that point on its road network and has no certainty as to the impacts to expect at that point.</p>
ii)	27) Applicant asked to set out how the Traffic Management Plan would work in practice.	<p>The Council sets out its view on the oTMPfC in Section 15.6 of its LIR (<a href="#">REP1-281</a>) and has now provided a detailed response to ExA Question Q4.6.4, at D4, on the aspects that the Council considers must be adopted into the oTMPfC and other associated construction traffic control documents. In summary, it notes that the oTMPfC provides the basic framework for contractors to adopt, however, it does not clearly define the mechanisms for leadership by the applicant, guidance and governance and control. The oTMPfC does not stipulate whether a single TMP is to be prepared (e.g. oTMPfC Sections 2.1.4, 2.3.2, 2.4.6) or a co-ordinated set of TMPs to be developed by each contractor and maintained in line with changes during the construction period (e.g. oTMPfC Sections 2.4.9, 2.4.15).</p>

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		<p>Requirement 10 of the DCO stipulates that the Council will be a consultee to the TMP prior to approval by the SoS. This therefore only allows the Council a single opportunity post any DCO grant to influence the governance during construction.</p> <p>The oTMPfC must clearly state how the TMF will be governed and how disagreements will be resolved and how escalation to the Joint Operating Forum will allow acceptable resolution, given that the Council and other stakeholders are not represented on that Forum.</p> <p>It is the Council's strong view that the applicant must revise the oTMPfC to strengthen the framework and provide clear leadership on such aspects as:</p> <ul style="list-style-type: none"> <li>• How the contractor's fleet will be monitored and managed with caps on movements to and from compounds;</li> <li>• How non-compliance will be dealt with, when updates of the TMPs will be required;</li> <li>• How the TMF will be constituted and voting managed;</li> <li>• How innovation by the contractors will be actively encouraged where it brings about a reduction in impact and improvements on the environment; and,</li> <li>• How mitigation will be introduced during the construction period reflecting the changing nature of the works.</li> </ul> <p>Examples of innovative and progressive management should be specified within the framework, including the use of ANPR and GPS (API) linkage data and geo-fencing being used to control routing, reporting and compliance.</p> <p>The cross linkage to the Construction Logistics Planning (CLP) (required through the CoCP Section 6) must be captured to allow the Council to inform that planning where currently the CLPs are only agreed by the applicant without reference to the Council. Similarly, the TMPs must clearly show how it will co-ordinate with commitments to Workforce Travel Planning (including mode share targets and workforce parking management) and Materials Handling Plans (with an associated derogation management process).</p> <p>At present, the oTMPfC pushes too much of the specification of control to the contractor with inadequate control and management by the applicant, in collaboration with the Council and other stakeholders.</p>
iii	28) Mitigation, monitoring and compensation during construction phase.	<p>The Council has informed the proposals for the monitoring sites and needs to develop how monitoring will be carried out and which vehicles will be controlled, e.g. contractors' vehicles, workforce vehicles and rerouted other traffic.</p>

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		<p>The Council's serious concerns regarding the lack of governance and the need for clear and strong and management of mitigation is apparent from our response to the previous agenda items. The Council has provided further detail in its response at ExA Question Q4.6.4, submitted at Deadline 4, on the aspects of monitoring and control that must be adopted by the applicant into the construction Control Documents.</p> <p>The Council's requirements include:</p> <ul style="list-style-type: none"> <li>• A clear, co-ordinated and robust structure for the TMF and the resolution process for making decisions and areas of disagreement;</li> <li>• Stipulation of the consequences of non-compliance with TMPs;</li> <li>• Co-ordination and uniformity across the project and within TMFs (e.g. collaboration and learning by pursuing similarly effective initiatives across different contracts); and,</li> <li>• Council representation and influence on an independently arbitrated JOF.</li> </ul>
<b>6) Next Steps</b>		
	Response to Actions Points from ISH4 [ <a href="#">EV-042f</a> ]	Refer to response to Action Points from ISH4 from Thurrock Council set out below.

### Thurrock Council's Response to Action Points from ISH4 ([EV-042f](#))

Action	Thurrock Council's Representation	
2	<p>Made DCO Examples/ Precedents Please provide examples from made DCOs where NH provided local traffic modelling with the same level of convergence as that currently sought by Thurrock Council in respect of the Orsett Cock roundabout.</p>	Refer to <b>Appendix A</b> of this submission for the Council's response on model iteration.
3	<p>Local Road Network Impact Mitigation: Security Consider how the DCO/Wider Network Impacts Management and Monitoring Plan [APP-545] could be amended to secure mitigation at locations where monitoring</p>	<p>The Council's position on how the DCO/ Wider Network Impacts Management and Monitoring Plan (WNIMMP) (<a href="#">APP-545</a>) could be amended to secure mitigation at locations where monitoring shows that LTC traffic has caused unacceptable impacts on the local network that were not predicted in the Transport Assessment, i.e. the Orsett Cock roundabout, was set out at ISH7 and is summarised, as follows below.</p>



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Action	Thurrock Council's Representation
<p>shows that LTC traffic has caused unacceptable impacts on the local road network that were not predicted in the Transport Assessment i.e., the Orsett Cock roundabout.</p>	<p><b>Orsett Cock</b></p> <ul style="list-style-type: none"> <li>• Orsett Cock is an integral part of LTC and cannot be considered as part of wider impacts as set out by the applicant within Appendix D of this written submission for ISH4.</li> <li>• Orsett Cock is already a known significant adverse impact of LTC as evidenced in the VISSIM modelling. Therefore, the Council's position is that these known impacts need to be mitigated through scheme design changes and not post operational monitoring.</li> <li>• As set out at ISH3 and within Appendix B of the LIR (<a href="#">REP1-283</a>), the Council contends that there are alternative designs of the LTC/A13/A1089 junction that have not been considered by the applicant. It is the Council's view that delivery of the Tilbury Link Road could also enable the rationalisation of the applicant's currently proposed interchange between LTC, A13 and A1089. In turn enhancing connection to LTC for current and future communities in Thurrock, including the Port of Tilbury; relieving pressure on the A13 Orsett Cock roundabout; reducing land and severance impacts of the proposed convoluted LTC interchange; and, providing opportunities for effective cross-river connections for public transport services via the Tilbury Link Road.</li> <li>• Given these significant unresolved issues and that mitigation / redesign of the junction may not be achievable within the Order Limits and Rochdale Envelope, the Council's position is that mitigation of Orsett Cock post construction of LTC through provision in the DCO / WNIMMP is not acceptable.</li> </ul> <p><b>Wider Network Impacts</b></p> <p>With regards to the other local junctions that the Council requires an assessment to be undertaken with localised modelling (Figure 9.1 of the LIR (<a href="#">REP1-281</a>)), it is considered extremely unlikely that within the remaining 13 weeks of the Examination, it would be possible to complete and agree all of the required modelling stages identified in Appendix A of this ISH4 written submission. Notwithstanding this, the Council will continue to work with the applicant to seek to agree the modelling as a matter of urgency. In order to implement a Silvertown Tunnel type approach for LTC wider impacts, the modelling would need to be complete to be able to agree and incorporate mitigation thresholds within the WNIMMP that align with the modelling output (<a href="#">APP-545</a>).</p> <p>It is considered that it is highly likely that there will be an assessment gap by the end of the Examination to enable the ExA to understand the impacts of LTC on the local road network within Thurrock and for a mitigation thresholds to be agreed and incorporated into the WNIMMP (<a href="#">APP-545</a>), prior to the end of the Examination.</p>

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Action	Thurrock Council's Representation
	<p>However, and without prejudice, there is the opportunity available to the ExA to impose a Grampian condition requiring the applicant to:</p> <ul style="list-style-type: none"> <li>• Undertake an updated modelling assessment of the likely impacts of LTC before the project opens for public use (based on the modelling steps in Appendix A of these ISH4 written submissions);</li> <li>• In consultation with the TMF (details of governance to be included in the WNIMMP) develop a package of measures to mitigate the significant adverse impacts on the local road network (based on agreed mitigation triggers), which is to be approved by the Secretary of State; and,</li> <li>• Submit the package of mitigation to the Secretary of State for approval and deliver the complete package of mitigation prior to the opening of LTC.</li> </ul> <p>Further details of additional draft Requirements will be submitted by the Council at Deadline 5.</p>

## Appendix A: Iterative Approach to Modelling

### A.1 Introduction

- A.1.1. The Council, along with Essex County Council and London Gateway DP World, attended a meeting with the Applicant on 16th August 2023 to focus on clarifying the work required in order to address substantial and critical traffic modelling issues identified by the local highway authorities and Interested Parties. One of these issues was the level of divergence between LTAM and the Orsett Cock VISSIM model that should normally have been resolved prior to DCO submission. All local highway authorities and Interested Parties were in agreement that the significance of divergence between the models is entirely inappropriate and does not conform to industry standards.
- A.1.2. In this context, it was agreed with the Applicant for the VISSIM parameters to be fed back into LTAM to reduce the divergence of the models and for LTAM to better reflect the significant queuing and delay that is shown in the Applicant's VISSIM model of Orsett Cock. The Council would require the same iterative process to be undertaken for the other junctions within Thurrock that the Applicant is assessing with the use of localised models, should they show significant divergence.
- A.1.3. This iterative approach to modelling was discussed at ISH4 but incorrectly, the Applicant asserted that Thurrock Council and the other highway authorities and Interested Parties were seeking complete convergence of the strategic and VISSIM models and for this convergence to be undertaken for most if not all junctions within the strategic model (Page 41 of ISH4 Transcript [\[EV-042e\]](#)). Professor Bowkett stated that this level of convergence would take years. This is not what the Council or the other highway authorities and Interested Parties have requested. The process of model iteration is standard practice to ensure models align with each other and is both necessary and proportionate.
- A.1.4. This technical note seeks to summarise the following:
- The purpose of strategic and micro-simulation modelling and the relationship between the two types of models;
  - The standard industry practice of an iterative approach to modelling between the two types of models to ensure they are aligned;
  - Examples of the iterative approach to modelling; and
  - A summary of the model development, iteration and mitigation process.

### A.2 Relationship between strategic and micro-simulation models

- A.2.1. Strategic models provide a broad overview of the network operation and allow for cumulative effects of development and transport schemes across a wider area to be considered within a single model.
- A.2.2. Strategic models represent networks in lower detail than microsimulation model networks, which ensures that both strategic model development and run times are practical and do not limit the use of the strategic model.
- A.2.3. The strength of microsimulation modelling is that it represents networks in detail. Capacity constraint is accurately reflected and so one can have a higher degree of confidence in its outputs at a granular level.

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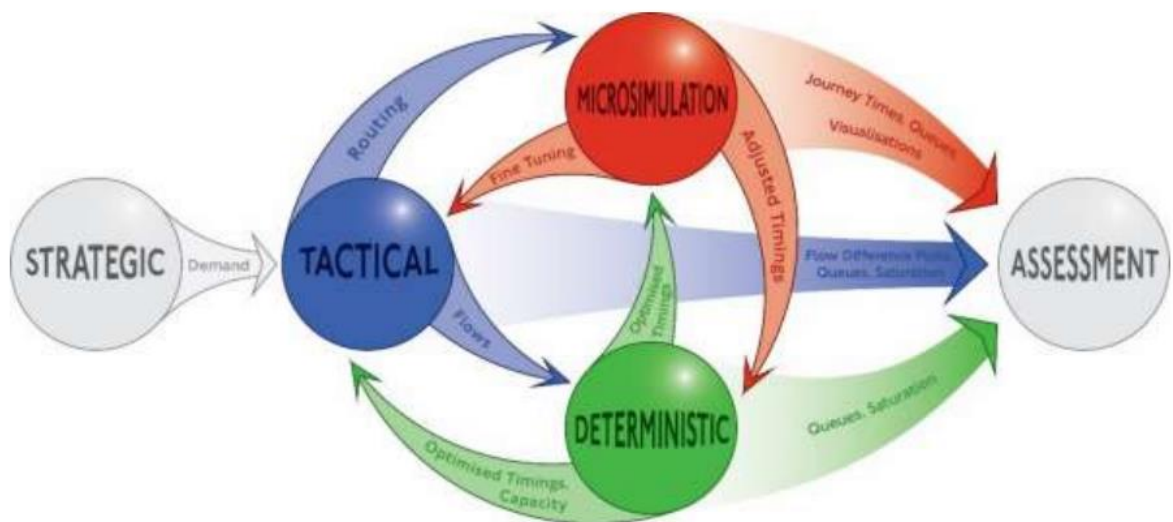
- A.2.4. The level of detail to which a micro-simulation model is developed limits the extent of model coverage that can be achieved and, as such, compliments strategic modelling by providing model detail in key areas where it is necessary to have a better understanding of network operation.
- A.2.5. A strategic model is relied upon to provide broad indications of change in travel patterns and microsimulation modelling is used to assess the effects of these changes, in detail, within a specific area of the network.

**A.3 Guidelines on Model Iteration**

- A.3.1. It is standard industry practice to ensure that there is a reasonable level of consistency between different types of models. The TfL Modelling Guidelines (Version 4.0), summarises this at section 3.4.5 as follows:

*‘Although each level of modelling can be carried out independently, in practice this is rarely the case when producing models for schemes in London. Information is usually shared between modelling levels in order to inform model development, share data and improve the reliability of the results. This is often an iterative process to ensure consistency in model data across different software platforms. As shown in Figure 4, there are a number of interactions involved in most modelling projects. The coloured components represent areas covered in these Guidelines.’* (the TfL Modelling Guidelines are included as Appendix B of Thurrock Council’s Comments on Applicant’s Submission at Deadline 3).

Figure 1: Extract from TfL Modelling Guidelines – Iteration between different types of models



**Examples of Model Iteration**

- A.3.2. Examples of model iteration are set out below.

**Silvertown Tunnel**

- A.3.3. Within the Silvertown Tunnel Monitoring and Mitigation Strategy it sets out the modelling refresh process that is required prior to opening. The complete Monitoring and Mitigation Strategy is included as Appendix A, Annex A of the ISH4 Written Submissions. The Monitoring and Mitigation Strategy includes the following references to model iteration:

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- Paragraph 2.2.1 states ‘iterative use of the strategic and local models to identify and optimise any localised mitigation that may be required as a result of the refreshed assessment.’
- Paragraph 2.3.7 states ‘*In developing any localised mitigation measures, TfL will iterate the outputs from the local and strategic modelling to ensure that the measures identified are fully optimised.*’

**Leicestershire County Council Modelling Framework**

A.3.4. As part of Leicestershire County Council’s recent invitation to tender (ITT) published in May 2022 to procure micro-simulation modelling services, one of the ITT questions was to describe how micro-simulation and strategic models could be iterated to link outputs from the models to influence demand matrices. The extract from the ITT is set out below.

1.4	Describe how you would link the outputs from the strategic model back into the microsimulation model and vice versa in order to influence demand matrices in future years.	8
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A.3.5. If it was not industry standard and proportionate to ensure that strategic models and microsimulation models align through an iterative process, it would not be something that was required to be answered within the ITT.

**Sizewell C Nuclear Power Station DCO**

A.3.6. The Sizewell C DCO Consolidated Transport Assessment included a technical note at Appendix 8A.3, which summarised the process undertaken to carry out a local area refinement of the 2015 base strategic model (VISUM) to achieve a better representation of the traffic conditions in the Woodbridge area and provide a more robust prediction of the future year impacts. This was required by Suffolk County Council, as local highway authority, before the strategic model output could be used to inform the VISSIM micro-simulation modelling of the A12 corridor between A14 and Martlesham, which routed through the Woodbridge area.

A.3.7. Prior to this strategic model refinement, Suffolk County Council were concerned that the base strategic model and VISSIM micro-simulation model were not sufficiently well aligned. Until the models were better aligned, the strategic model demand flows were not able to be used to provide forecast demand matrices for the VISSIM micro-simulation model. Following the strategic model refinement, the strategic model and VISSIM micro-simulation model were approved by Suffolk County Council and National Highways. The technical note summarising the strategic model local area refinement is included as Appendix A, Annex B of the ISH4 Written Submissions.

**Removal of Gyratory in Ilford, Redbridge**

A.3.8. Another example of model iteration between a strategic model and a micro-simulation model was for the removal of a gyratory in Ilford, Redbridge incorporating Chapel Road and Ilford Hill. This modelling process involved using TfL’s ONE strategic model and a VISSIM micro-simulation model with iteration loops between the ONE model and VISSIM models to ensure alignment between the models and inform highway intervention design. The modelling process balanced all of the competing bus, taxi and highway interests and was approved by TfL.

## **A.4 Model Development, Iteration and Mitigation Process**

- A.4.1. This section of the technical note summarises the modelling process from model development, iteration between strategic and micro-simulation modelling and mitigation design.

### **Step 1: Strategic and Micro-simulation Base Model Correspondence**

- A.4.2. Before any exercise is completed which seeks to iterate information between the strategic and microsimulation models it is important to establish that there is a good level of correlation between the two models. Where correlation is weak, any differences should be investigated and accounted for via subsequent stages of demand adjustments.
- A.4.3. It may be the case that, whilst a junction has been included within a strategic model, calibration checks may have been limited within the area of the junction. In such instances one would need to undertake further checks to establish if the base flows within the strategic model are representative of those observed on-street (and input to the microsimulation model) before any further action is taken to progress the model iteration.
- A.4.4. It should be noted that LTAM is validated on link flows only and not on junction turning counts, whereas the VISSIM model is validated based on observed turning counts.
- A.4.5. The VISSIM base model of Orsett Cock has been agreed by Thurrock Council. There are outstanding concerns with LTAM that have been raised by the Council and not addressed by the Applicant, which are set out in the Council's LIR [[REP1-281](#)].

### **Step 2: Forecast Models**

- A.4.6. The Council provided the Applicant with an updated set of forecast models for Orsett Cock at Deadline 3, which included coding changes to the Applicant's model. These models are yet to be agreed as they need to address a number of remaining concerns, including latent demand, updated LTAM flows and discrepancies between VISSIM and the junction design.

### **Step 3: Model Iteration to Align Forecast Models**

- A.4.7. Once the forecast VISSIM model has been agreed, the next step is to ensure that the strategic and micro-simulation forecast models have a reasonable level of correlation.
- A.4.8. The issue raised by the local highway authorities and Interested Parties is that LTAM is overstating the benefits of LTC through an over-prediction of capacity in the Orsett Cock part of the network when compared to the more detailed and accurate capacity results derived from the VISSIM modelling of the junction. Similar issues may be identified for other parts of the local road network once the other VISSIM modelling is further progressed.
- A.4.9. It is therefore required to input the network parameters from the microsimulation model into the strategic model. This step has not been undertaken by National Highways.
- A.4.10. Traffic forecasts within the strategic model are related to movement over a much larger area than those contained within a microsimulation model. The flows cordoned out of the strategic model account for these external factors (e.g. highway network changes and developments and sources of growth which lie outside of the microsimulation model area). The flows are input to the microsimulation model and then, following the microsimulation model run, delays and other constraints, such as optimised traffic signal timings, can be fed back into the strategic model and the effect on traffic flow reassignment established through updated strategic model runs. It is the network parameters (e.g. signal timings, saturation flows) that



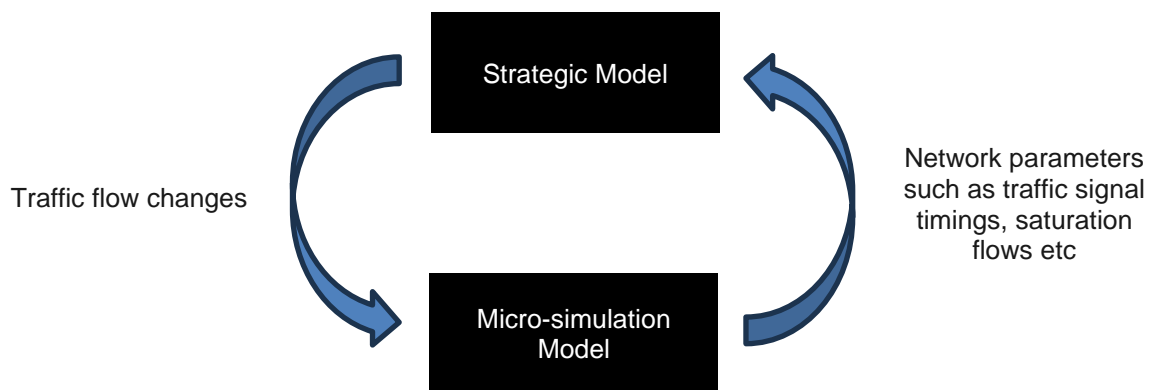
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need to be fed back into LTAM and not the VISSIM demand, as incorrectly stated by National Highways at ISH4, in order to undertake this iteration between the two models.

A.4.11. The potential for these iterations to continue ad infinitum is significant and so one should be cognisant of these risks when defining the criteria around the number of iterations. It may be sufficient for one full loop of the iteration to be completed, but this will depend on the initial level of convergence between the models. At each full loop of the iteration, the Applicant and local highway authorities and Interested Parties would need to review the model output and level of divergence to determine if a further iteration loop was required, or further investigation into the differences between the models or agreement could be reached that the models were sufficiently well aligned.

A.4.12. The model iteration process is illustrated as follows:

Figure 2 Strategic and Micro-simulation Iterative Data Loop



A.4.13. In summary, for any modelling exercise that involves interfacing between strategic and local models, and one as critical as Lower Thames Crossing, it is essential that the following model iteration steps are followed to ensure best modelling practices are adhered to:

- The initial LTAM demand should be fed into VISSIM to optimise the signal timings.
- These optimised signal timings and other micro-simulation model parameters should be fed back into LTAM to understand if this causes any reassignment.
- Revised LTAM demand should be fed back into the VISSIM models. This iteration may need to be undertaken a number of times until the demand and signal timings for LTAM and VISSIM become consistent. If there are significant discrepancies after a few iterations, it should be investigated as it could be as a result of erroneous coding or other modelling issues in LTAM (refer to Step 1 in terms of model correspondence).

**Step 5: Determine Scope of Mitigation**

A.4.14. Once LTAM is considered to be representing the local modelling parameters, the micro-simulation model can be used to determine if mitigation of impacts is required.

A.4.15. It has already been established through the micro-simulation modelling for Orsett Cock that LTC would have a significant impact on queuing and delay, which the Council considers needs to be mitigated. It is standard practice that micro-simulation modelling is used to design mitigation at a detailed level, which is then fed into the strategic model.



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- A.4.16. Prior to testing mitigation options, it will be important to agree the scope of the mitigation in terms of traffic flows to be mitigated.
- A.4.17. First, it is important to agree what traffic flows are to be mitigated. Based on the review of LTAM model output to date, the Council asserts that LTC will result in displacement of traffic away from the more strategic roads in Thurrock, including the A13, onto inappropriate routes through local communities. This concern has been highlighted in the Council's LIR [[REP1-281](#)] and includes concerns about LTC displacing traffic routing through Orsett Cock within the Do Minimum scenario (i.e. before LTC is operational).
- A.4.18. Appendix B of the ISH Written Submissions summarises the level of future baseline Orsett Cock traffic that is forecast to be displaced by LTC. It is not acceptable for LTC to displace such a significant level of future baseline traffic from Orsett Cock. Therefore, it is the Council's position that mitigation at Orsett Cock should accommodate the traffic displaced by LTC as well as the increase in growth forecast at Orsett Cock.
- A.4.19. Another aspect that was agreed by the Applicant to be tested at the modelling meeting of 16<sup>th</sup> August 2022, was to reassign the forecast Rectory Road traffic onto A128 southbound link, which is considered to be the route that this traffic should be using.
- A.4.20. Finally, there are a number of alternative forecast scenarios, which need to be tested using LTAM as discussed by Professor Goodwin at ISH4. Orsett Cock mitigation should be tested for these alternative forecast scenarios to determine the ability of proposed mitigation to accommodate alternative demand scenarios.

### **Step 6: Mitigation Design**

- A.4.21. Once the strategic and micro-simulation models have been aligned and the scope of the mitigation determined, the VISSIM model can be used to identify mitigation proposals at a detailed local level to accommodate the traffic growth/changes in flows identified through the strategic model cordoning process.
- A.4.22. Having identified the need for an intervention, a scheme may be designed within the micro-simulation model which will improve throughput and minimise delays within the model network.
- A.4.23. The mitigation scheme is then input to the strategic model network and used to determine if the relief provided by the capacity enhancement is likely to lead to increased levels of 'induced traffic'. This effect occurs where a scheme relieves queueing or congestion in an area and encourages traffic back on to routes which were previously being avoided.
- A.4.24. This is beneficial insofar as it deters rat running along inappropriate roads and should be encouraging traffic to remain on appropriate routes but it also may introduce problems if the level of reassignment is predicted to exceed the junction capacity. Iterating the scheme back into the strategic model and assessing the wider effects that the mitigation has on reassignment will allow for the potential for such occurrences to be established.

### **Indicative Programme for Orsett Cock Modelling and Mitigation**

- A.4.25. The Council has considered the remaining modelling and mitigation design tasks that are required to be undertaken by the Applicant just for Orsett Cock based on the process set out in this note. The Council's view on the programme for Orsett Cock remaining tasks is summarised in Table 1 below. This is a high-risk indicative programme, which requires multiple steps to be undertaken concurrently rather than completion and agreement of each

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step sequentially. Even then it is considered to be impossible to undertake all of the required tasks for Orsett Cock prior to the end of the Examination.

A.4.26. The ExA has required the applicant and local highway authorities and the ports to hold a workshop and present a joint paper at Deadline 5 with respect to traffic modelling for Orsett Cock, with the focus being to narrow the areas of disagreement between the parties. As part of that workshop the Council will seek to agree a detailed programme with the applicant setting out the tasks to be undertaken and associated timescale. The Council is concerned, given the experience to date of collaborating with the applicant on localised modelling, that the tasks may not be undertaken in accordance with the programme.

A.4.27. It is entirely the ExA decision on how such matters might be progressed following the submission of the joint paper at Deadline 5, but, as the ExA is aware, there is the provision in Rule 17 of the Infrastructure Planning (Examination Procedure) Rules, 2010 that allows for a range of further information to be requested from the applicant and for the applicant to supply such requested information by the date and manner specified by the ExA.

A.4.28. The Council understands that a similar Rule 17 request was made by ExA for the recent A428 Black Cat DCO. As a result of the local highway authorities' criticism of NH's reliance on the strategic model, the ExA made a Rule 17 request of NH relating to sensitivity testing using observed local flows and VISSIM modelling for a local junction. The ExA were critical that NH had only relied on the strategic model and had failed to engage constructively with the LHAs. Extracts from the ExA Recommendation Report for A428 Black Cat with regards to traffic modelling are included as Annex C of Appendix A of these ISH4 Written Submissions.

Table 1 – Thurrock Council's considerations on a indicative programme for the remaining Orsett Cock modelling and mitigation design tasks

Step	Tasks	Timescale
1	Agree Base Year Models	Base VISSIM model agreed. Residual issues with LTAM as set out in LIR (REP1-281) and summarised at ISH4
2	Agree forecast VISSIM models – Core Scenario (2030 & 2045)	<p>Based on the Council's Corrected model submitted at D3:</p> <ul style="list-style-type: none"> <li>- Address latent demand</li> <li>- Include Updated LTAM demand matrices (from CM49 and CS72) in VISSIM using demand flow</li> <li>- Address discrepancies between LTC design and the microsimulation model (e.g. extended weave length and Pegasus crossing)</li> </ul>
		<p>NH have had sufficient time to complete these tasks following D3 submission.</p> <p>The Council would expect an updated forecast model to be issued to Thurrock Council directly on 19/09/23 at D4 (i.e. models should be provided direct to the Council to speed up the modelling programme).</p> <p>Subject to receiving the updated models on 19/09 and the adequacy of those models, Thurrock Council would aim to agree the forecast VISSIM models by 13/10/23.</p>
3	Align forecast LTAM and VISSIM at Orsett Cock – Core Scenario (2030 & 2045)	<ul style="list-style-type: none"> <li>- Input VISSIM network parameters (such as signal timings and saturation flows) into LTAM and run LTAM</li> <li>- Input LTAM demand into VISSIM model and run VISSIM</li> <li>- Continue the above iteration until models better align in terms of capacity constraints shown in VISSIM</li> </ul>
		<p>NH could progress with this stage on 20/09 at risk, in parallel to Thurrock Council reviewing the forecast models in Step 2. It is estimated that the first iteration would take around 3 weeks to complete with an estimated completion date of 11/10/23.</p> <p>Each subsequent iteration will take around 2 weeks to complete. The number of iterations is unknown at this stage.</p>

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Step		Tasks	Timescale
			Thurrock Council would expect to be provided with modelling results at each iteration stage for a discussion with the Applicant. There is a lot of uncertainty with this step and it would require close cooperation between the Applicant and the Council.
4	Agree scope of mitigation	<p>Agree with NH the level of traffic to be mitigated, taking into account:</p> <ul style="list-style-type: none"> <li>- Displaced traffic at Orsett Cock</li> <li>- Reassign Rectory Road traffic back onto A128 (modelling action from 16<sup>th</sup> August meeting)</li> <li>- Alternative forecast scenarios to account for uncertainty in forecasting</li> </ul>	<p>Agreeing the approach to displaced traffic and Rectory Road reassignment should be able to be agreed within one meeting with NH and incorporated into microsimulation modelling by NH within two weeks from the meeting with an estimated completion date of 31/10/23.</p> <p>Agreeing and running Alternative Forecast Scenarios in LTAM and VISSIM would realistically take a number of months and would not be complete before the end of the Examination. However, in order to have some understanding of the potential range of impact at Orsett Cock prior to the close of the Examination, it would be possible to undertake a very simplified approach to uncertainty testing within the DCO programme by making broad assumptions about demand changes additional to the Core Scenario (for example, +/- 20%). This is not a TAG compliant approach and could not be relied on. Adopting this approach would likely to result in a completion date of 27/11/23.</p>
5	Undertake mitigation scenario testing within the models	<ul style="list-style-type: none"> <li>- Workshop to agree mitigation testing to be undertaken with the use of VISSIM</li> <li>- NH to undertake VISSIM mitigation testing based on the agreed mitigation scenarios.</li> <li>- NH to feed VISSIM parameters and mitigation proposals into LTAM; iterate between the strategic and microsimulation models.</li> </ul>	<p>Mitigation design could be progressed on the Core Scenario during November and early December in parallel to alternative scenario forecast testing.</p> <p>Testing of mitigation with alternative forecast scenarios will extend this programme further and likely to not be achievable within the Examination programme.</p>
6	Incorporate mitigation into LTC design	Incorporate mitigation into the general arrangement drawings	Given the complexity of the junction design, incorporating mitigation into the general arrangement drawings may take a number of weeks, which would extend the programme beyond the end of the Examination.
7	Agree mitigation	Agree mitigation and how it is secured and delivered through the DCO.	Depending on whether the agreed mitigation is deliverable within the DCO order limits or not would influence the timescales for securing mitigation within the DCO.

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Hearings  
Lower Thames Crossing

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## **Annex A: Silvertown Tunnel Monitoring and Mitigation Strategy**

# SILVERTOWN TUNNEL

Volume 8

## 8.84 Monitoring and Mitigation Strategy

### TR010021

Revision +2

April 2017

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## Silvertown Tunnel

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# Monitoring and Mitigation Strategy

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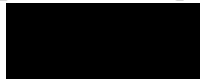
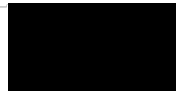

Planning Act 2008

Infrastructure Planning

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)  
Regulations 2009

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# 1. INTRODUCTION

## 1.1 Purpose of this document

1.1.1 The purpose of the Monitoring and Mitigation Strategy (M&MS) is to set out the approach to:

- monitoring the traffic, air quality (including carbon), noise and socio-economic impacts of the Silvertown Tunnel scheme (the Scheme) in operation; and
- determining and implementing appropriate mitigation for any localised traffic and traffic-related impacts which arise as a result of the Scheme, both prior to and after Scheme opening.

1.1.2 The Strategy provides a detailed explanation of how TfL will comply with Requirement 7 (monitoring and mitigation) of the Silvertown Tunnel Development Consent Order (DCO).

1.1.3 The approach set out in this Strategy has been developed with regard to feedback received from the local boroughs throughout the DCO examination.

## 1.2 Relationship between the Monitoring and Mitigation Strategy, Charging Policies and Procedures and Bus Strategy

1.2.1 The M&MS interacts with the Charging Policies and Procedures document and the Bus Strategy.

1.2.2 Schedule 2 of the DCO provides that TfL must comply with the M&MS in respect of monitoring the impacts of the Scheme and bringing forward any mitigation to address adverse Scheme impacts that are identified. Article 52 of the DCO requires TfL to exercise the user charging power in accordance with the Charging Policies and Procedures and Schedule 2 of the DCO requires bus services through the tunnel to be planned and provided in accordance with the Bus Strategy.

1.2.3 A failure by TfL to comply with the commitments in these documents would amount to a breach of the terms of the DCO.

1.2.4 The main functions of the three documents are as follows:

- **Charging Policies and Procedures** – sets out the principles according to which TfL must set and vary the user charges and the procedures that apply when doing so.

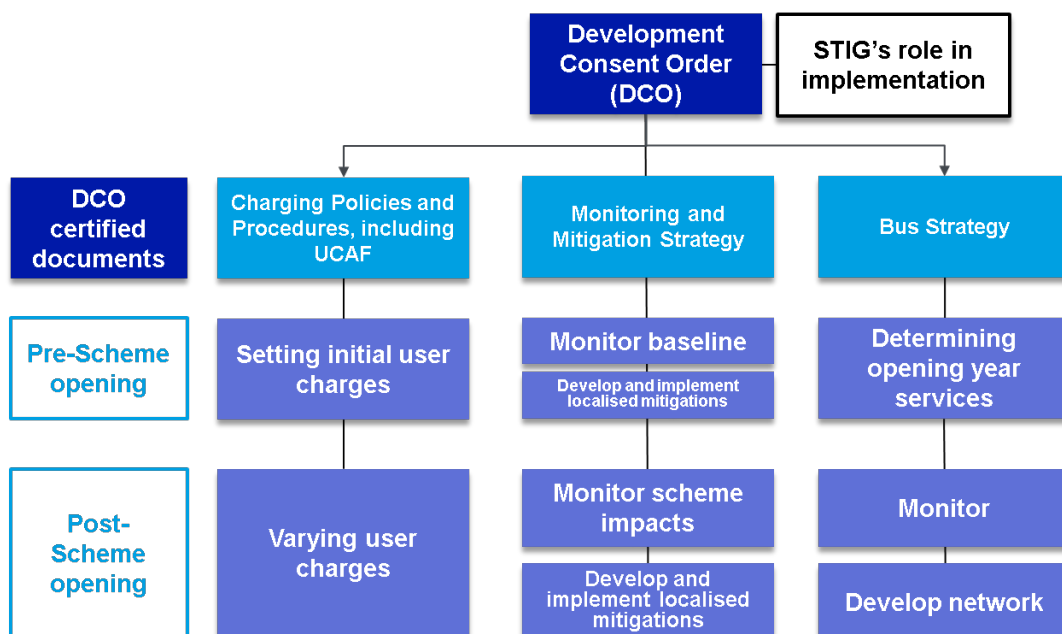
- **Monitoring and Mitigation Strategy** – sets out the scope of monitoring of Scheme impacts that TfL will undertake and the processes for determining and implementing appropriate mitigation for any localised traffic and traffic-related impacts.
- **Bus Strategy** – sets out the commitments which TfL will fulfil in developing bus services prior to Scheme opening and in reviewing and modifying services.

1.2.5 Compliance with the obligations in each of these documents is secured by requirements in Schedule 2 of the DCO and, in the case of the Charging Policies and Procedures document, by Article 52 of the DCO.

1.2.6 The DCO provides a role for members of the Silvertown Tunnel Implementation Group (STIG) in relation to the operation of each of these documents. The role and responsibilities of STIG is explained in each of these documents.

1.2.7 The functions of the three documents and the role of STIG are summarised in Figure 1-1 below.

**Figure 1-1: The relationship between the Charging Policies and Procedures, Monitoring and Mitigation Strategy and the Bus Strategy**





1.2.8 The M&MS applies from not later than three years prior to the Scheme opening for public use and for three years following the Scheme opening for public use, with the potential for the M&MS to be extended by a further two years<sup>1</sup>. The Bus Strategy and the Charging Policies and Procedures apply for the life of the Scheme.

### **1.3 Structure of this document**

1.3.1 This document is structured as follows:

- Chapter 2 explains the purpose of the refreshed assessment of Scheme impacts and the process for identifying and implementing localised traffic mitigations in advance of Scheme opening.
- Chapter 3 describes the monitoring programme, including the geographical area that will be covered and the timeframes for monitoring baseline conditions and Scheme impacts.
- Chapter 4 explains the processes for reviewing the monitoring data and identifying and implementing any mitigation measures identified as being necessary after the Scheme is operational.
- Chapter 5 provides an overview of the types of mitigation measures which could be implemented, both pre- and post-opening of the Scheme.

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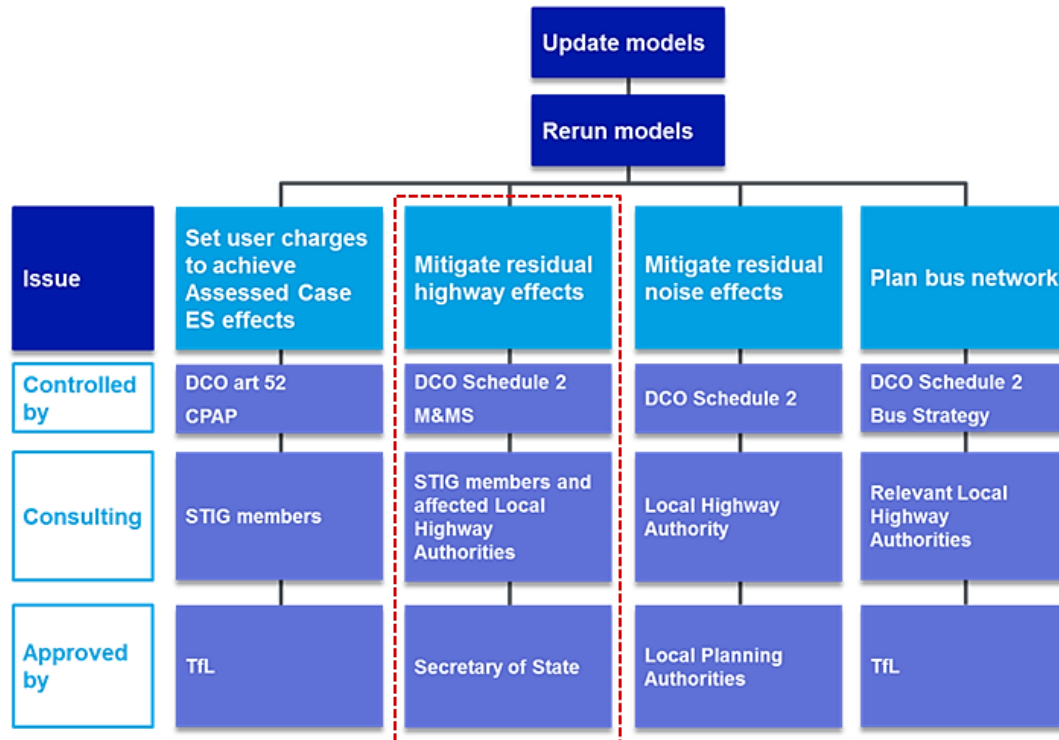
<sup>1</sup> With the possible exception of air quality monitoring, which may continue for a longer period as set out in paragraph 3.7.5.

## 2. PRE-OPENING MITIGATION

### 2.1 Overview of the refreshed assessment

- 2.1.1 Prior to the Silvertown Tunnel opening for public use, TfL must refresh its assessment of Scheme impacts, in order to:
- Set the opening user charges;
  - Define the requirement for and form of localised mitigation for residual effects; and
  - Specify the bus network through the Silvertown Tunnel that will operate on opening.
- 2.1.2 For this process TfL will update the relevant transport and environmental models, rerun those models, and develop its proposals for each element in conformity with the commitments, policies and procedures set out in the relevant certified documents and any DCO requirements. The assessment will incorporate a wider range of analyses than the modelling alone.
- 2.1.3 Because there are interactions between each of these elements, TfL must ensure that they are developed and considered in light of one another.
- 2.1.4 Figure 2-1 below summarises the elements of the process and the governance arrangements applying to each.

Figure 2-1: Elements comprising the refreshed assessment (pre-scheme opening)



2.1.5 This approach ensures that opening user charges, mitigation measures and the opening bus network are based on the most up to date information that is available before the Scheme opens.

2.1.6 This will result in a better outcome than specifying these aspects of the Scheme now, for the following reasons:

- The Scheme is still a number of years from implementation, with an expected opening date of 2023;
- Significant growth is expected across east and south-east London over the next few years, which could materially change background conditions (there is an inherent degree of uncertainty regarding the pace of this growth). As set out in Chapter 5 of the Transport Assessment [APP-086], across the Silvertown Tunnel host boroughs (Greenwich, Newham and Tower Hamlets) the forecast growth rate in population and employment in the period to 2021 is more than double the London average;
- Linked to this growth, the road network in this part of London is especially dynamic and will change and evolve between now and Scheme opening (with several schemes in the vicinity of the tunnels)

being actively considered although not presently committed; for example, Cycle Superhighway 4 and the Bow Vision scheme).

- 2.1.7 The refreshed assessment will not 'replace' the assessment which was used to identify the likely significant effects of the Scheme in the Environmental Statement. Rather, it will enable TfL to have the benefit of the most up-to-date data when setting the initial user charges and identifying and implementing any mitigation measures that are necessary before the Scheme opens.
- 2.1.8 This Monitoring and Mitigation Strategy concerns the mitigation of residual traffic-related local effects identified as part of the refreshed assessment process that will be undertaken prior to Scheme opening (the process outlined in red in Figure 2-1). If, through the refreshed assessment, the need for localised traffic-related mitigation measures is identified, TfL will develop these measures in consultation with STIG and submit them to the Secretary of State for Transport for approval. TfL must then implement the approved measures before the Silvertown Tunnel opens for public use, or provide funding for the relevant local highway authority to implement them.
- 2.1.9 Any measures required to mitigate residual noise impacts will be submitted for the approval of the local planning authority in accordance with requirement 12 of the DCO.
- 2.1.10 The data from the refreshed assessment will be used by TfL when setting the initial user charges. As these charges will have a direct bearing on the extent and scope of any mitigation measures required, it is important that any mitigation for residual effects is set in the context of these charges.
- 2.1.11 It should be noted that this M&MS relates to the Scheme in operation. The monitoring and mitigation of construction impacts is governed by the Code of Construction Practice.

## **2.2 Scope of the refreshed assessment**

- 2.2.1 The refreshed assessment will incorporate the following elements:
- Collection of up-to-date traffic count data and the latest available origin and destination data, as part of the monitoring programme.
  - Updating of the strategic transport modelling with new travel data and any new committed relevant transport schemes or major developments that will be implemented prior to scheme opening (i.e. schemes that are not currently included within the Assessed Case but

which are committed at the time of the refreshed assessment).  
Updating of environmental modelling in parallel with transport modelling.

- Development of an updated Reference Case for the scheme opening year.
- Testing of user charge scenarios in the context of updated Reference and Assessed Cases.
- Assessment of likely traffic, air quality, noise, and socio-economic impacts of scenarios at strategic level and identification of charges which meet the requirement of Policy 8 in the Charging Policies and Procedures document.
- Assessment of the demand for bus services, to inform the planning of the bus network in line with the Bus Strategy and ensure the appropriate level of service is provided at the time the Scheme opens for public use.
- Identification of likely location and magnitude of any localised impacts including the ~~development and~~ development of local traffic models as required, to enable more detailed consideration of Scheme impacts on the highway network.
- Iterative use of the strategic and local models to identify and optimise any localised mitigation that may be required as a result of the refreshed assessment. The process for identifying the need for mitigation is set out in the following section.

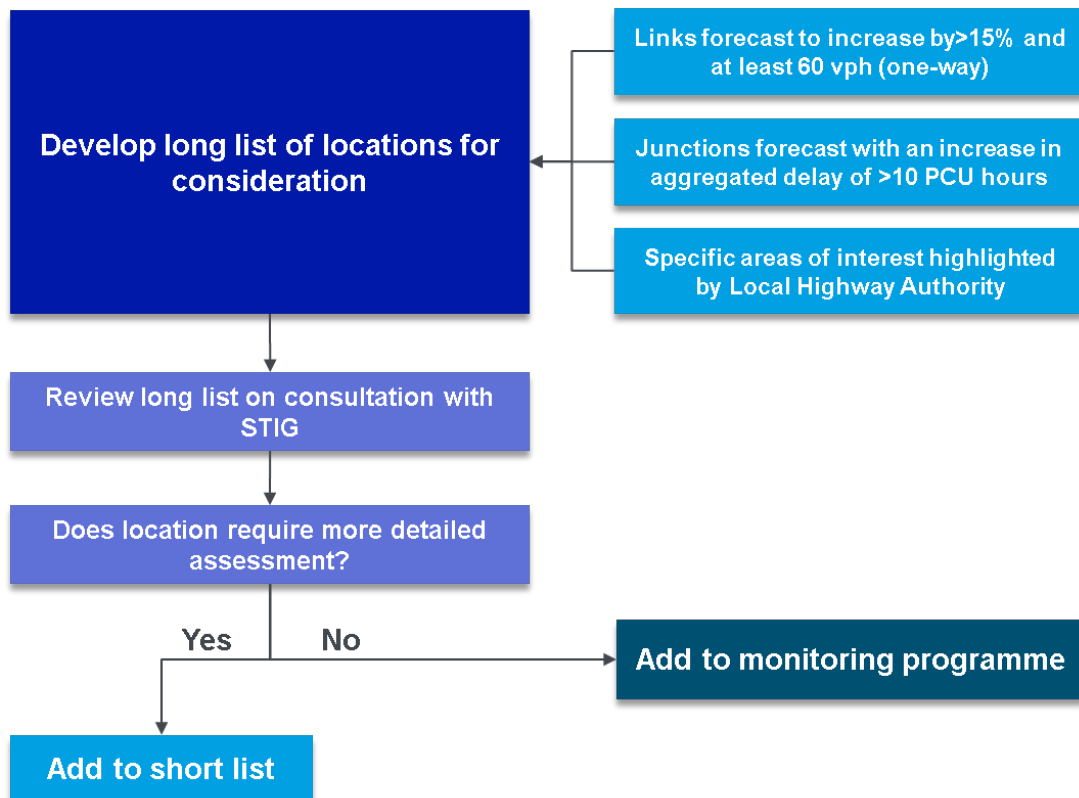
2.2.2 TfL will engage with STIG members on the approach to completing the refreshed assessment, including aspects that are of particular interest to host boroughs such as the collection of origin and destination data and users' values of time (including stated preference surveys).

2.2.3 The refreshed assessment will be undertaken using the most appropriate industry standard modelling tools available within TfL's suite of strategic and local models at the time. This will allow TfL to take advantage of any innovations or model enhancements made over the next few years. The latest air quality and noise modelling software will also be used.

## 2.3 Identifying the need for and form of localised mitigation

- 2.3.1 The Scheme is expected to have a significant positive overall impact on the transport network, as set out in the Transport Assessment [APP-086]. TfL's assessment is that, in a limited number of cases, the Scheme could lead to moderate localised deteriorations in road network performance on some parts of the road network, principally as a result of previously queued cross-river traffic being released at peak times due to the increased capacity provided by the tunnel.
- 2.3.2 TfL will adopt a methodical approach to identifying the need for mitigation and developing measures through its refreshed assessment, building on the process described in Appendix C of the Transport Assessment [APP-087].
- 2.3.3 TfL will first establish a 'long list' of locations for consideration of the localised impacts of the Scheme and the need for mitigation, including:
- all links where one-way traffic flows are forecast to increase by more than 15% and by at least 60 vehicles per hour; or
  - all junctions that are forecast to experience an increase in aggregated delay of greater than 10 passenger car unit (PCU) hours; or
  - areas where local highway authorities have flagged a potential concern that are included in the initial traffic monitoring plan and/or within the 'area of influence' or wider 'buffer zone' identified in Figure 3-1.
- 2.3.4 Once the long list has been populated this will be reviewed in consultation with the members of STIG and TfL will make a decision on which locations will be included within a 'short list' to be assessed further using local modelling. As part of this process a detailed review of the outputs from the strategic transport modelling will be undertaken for each location. Any long-listed locations not subject to further assessment and not already being monitored will be added to the monitoring programme. Figure 2-2 shows the approach that will be followed in determining which locations will be subject to local modelling.

Figure 2-2: Establishing focus locations for local modelling



### ***Further assessment and development of localised mitigation***

- 2.3.5 For locations on the short list, further assessment of Scheme impacts will be undertaken using local modelling. A range of local and micro-simulation modelling packages will be used, depending on the location and type of junction in question.
- 2.3.6 The purpose of the local modelling is two-fold; firstly, to enable a more detailed consideration of Scheme impacts and provide further insights into the need for localised mitigation measures, and secondly to test the effectiveness of any measures that are identified to address adverse impacts.
- 2.3.7 In developing any localised mitigation measures, TfL will iterate the outputs from the local and strategic modelling to ensure that the measures identified are fully optimised.



- 2.3.8 In assessing the need for localised mitigation for locations in the short list, TfL will take into account views from the affected local highway authority (or authorities should the location affect more than one borough). Input will also be sought from TfL Area and Corridor Managers, for instance to determine whether the location is subject to other proposals that could have a bearing on the need for or form of mitigation required.
- 2.3.9 On the basis of this assessment, TfL will make a decision on whether a localised mitigation measure is necessary in order to address an adverse impact caused by the Scheme. Key considerations will be the nature and scale of the impact, as well as the potential for the impact to be effectively mitigated.
- 2.3.10 If TfL determines that localised traffic mitigation is required at a given location, TfL will make a preliminary assessment as to the form of mitigation and the programme for its implementation. This preliminary assessment will be presented to the relevant local authorities for consideration and review. TfL and the local authorities may wish to engage with other potentially affected parties as part of this process (for instance user groups, local landowners etc.). TfL will then undertake detailed design of the mitigation measure and produce a detailed cost estimate, having regard to feedback received from the local highway authority.
- 2.3.11 In determining the form of pre-opening mitigation, TfL and the affected local highway authority/ies will give consideration to both the benefits and any potential adverse impacts that a mitigation measure could have including at locations elsewhere. Such considerations may have a bearing on the form of mitigation adopted.
- 2.3.12 In instances where physical changes to the streetscape are required, TfL will ensure the measures developed are sympathetic to the existing streetscape and take account of relevant guidance (including for instance TfL's *Streetscape Guidance* and the *London Cycling Design Standards*).
- Secretary of State approval**
- 2.3.13 TfL will work closely with affected local authorities to identify and develop the package of localised traffic mitigation to be implemented pre-opening. Once the proposed package of localised traffic-related mitigation measures has been finalised, TfL will submit details of the package to the Secretary of State for Transport for approval.
- 2.3.14 The details must include the following information:

- A description of each mitigation measure, accompanied by a plan (where appropriate) and a reasoned justification for why the measure is deemed necessary;
- A description of the process undertaken to develop the package of measures, including locations investigated by TfL but not taken forward for mitigation;
- The local authorities' responses to consultation on the proposed mitigation measures and programme for implementation-;
- Costs estimates for the proposed measures; and
- The proposed programme for implementation of the measures.

2.3.15 If the Secretary of State intends to approve mitigation measures with material modifications, the Secretary of State must consult the relevant highway authority on the proposed modifications and take into account responses to the consultation by the authority.

## **2.4 Funding and delivery of pre-opening mitigation**

2.4.1 The cost of implementation all pre-opening mitigation measures approved by the Secretary of State will be met by TfL as part of the overall implementation of the Silvertown Tunnel scheme.

2.4.2 TfL will expedite the delivery of pre-opening mitigation measures (for instance through allocating designated resources for design and implementation, and ring-fencing funding), so as to ensure that all pre-opening mitigation measures will be implemented by TfL before opening of the Scheme (or sufficient opportunity provided to the local highway authority/ies to implement measures on the local road network), with the exception of the circumstances explained in paragraphs 2.4.4 and 2.4.5. Any necessary consultation will be completed in line with normal procedures prior to implementation.

### ***Measures on the TLRN***

2.4.3 Where mitigation measures can be implemented under TfL's statutory powers (e.g. measures on roads for which TfL is the highway authority (the Transport for London Road Network (TLRN) or changes to signal timings) TfL will be responsible for implementing the mitigation.

2.4.4 In limited circumstances where it may not be feasible or appropriate to complete implementation prior to Scheme opening, TfL will consult with the relevant borough on the programme for its implementation and include a justification for this programme in the submission to the Secretary of State (where applicable). Examples of where mitigation identified through the refreshed assessment could be implemented post-opening include where a separate major scheme was being delivered on a part of the network on which a localised mitigation was required; in such cases, provided the proposed programme for implementation is approved by the Secretary of State, the mitigation may be implemented as part of the major scheme but funded by TfL as a Silvertown Tunnel measure.

### ***Measures on borough roads***

2.4.5 Where TfL is not able to implement an approved measure under its statutory powers, (e.g. junction modifications on roads for which TfL is not the highway authority), TfL may seek agreement with the relevant highway authority under section 8 of the Highways Act 1980 for TfL to implement those measures to an agreed timescale. Alternatively, the highway authority may be responsible for implementation of the mitigation, with the necessary funding provided by TfL and secured via a bilateral agreement. In these circumstances, TfL will apply the same timescale for identifying and agreeing the works but the timing for the implementation of these works will be a matter for the relevant highway authority.

2.4.6 A highway authority may choose to implement an alternative mitigation to the measure approved by the Secretary of State following the usual process of scheme planning, design, consultation and implementation. The alternative mitigation must provide a broadly comparable level of value in addressing the Scheme impact. TfL will contribute towards the cost of the mitigation up to the estimated cost of the original measure approved by the Secretary of State, or less if the alternative mitigation is of lower cost. If the highway authority wishes to take the opportunity to implement supplementary measures at its own cost (for instance to tie the mitigation in with wider streetscape improvements) it will be able to do so.

## **2.5 Indicative timeline**

2.5.1 The refreshed assessment will be undertaken sufficiently in advance of Scheme opening to ensure there is time to complete the process described above and implement any necessary mitigation. An indicative timeline for completion of the refreshed assessment and implementation of resulting mitigation is set out in Table 2-1. In practice some of the activities set out in

the table may commence earlier than listed, if this is necessary to ensure the activity is completed on time.

- 2.5.2 Collection of the data required to inform the refreshed assessment represents the first step in the process. Monitoring of baseline conditions pre-opening will commence no later than three years prior to the expected date of Scheme opening, and any data that is required to inform the refreshed assessment (for example traffic counts) will be collected as part of this process. The finalised scope of the monitoring programme will be presented to STIG members for review approximately six months before the commencement of traffic-related monitoring (i.e. around three and a half years prior to Scheme opening).

**Table 1-1: Indicative time for refreshed assessment and implementing pre-opening mitigation**

<b>Years prior to scheme opening</b>	<b>Indicative date (based on current programme)</b>	<b>Activity</b>
3.5	Q1 2020	Agree monitoring programme
3	Q3 2020	Commence monitoring
2.75	Q4 2020	Update strategic modelling to include latest available data
2.5	Q1 2021	Test and refine user charges, including assessment of traffic, air quality, noise and socio-economic impacts
2.25	Q2 2021	Develop local modelling and identify localised mitigation measures required
2	Q3 2021	Consult STIG on proposed mitigation measures

1.75	Q4 2021	Submit package of mitigation to Secretary of State for approval
1.5	Q1 2022	Implement localised mitigation measures
1.5	Q1 2022	TfL Board to approve initial user charges by reference to the Charging Policies and Procedures

2.5.3 The timeline above allows around 18 months for delivery of mitigation measures identified through the refreshed assessment. This is considered to be a sufficient timescale for implementation of localised mitigation prior to Scheme opening, taking account of the considerations set out in section 2.4.

## 3. MONITORING PROGRAMME

### 3.1 Overview

- 3.1.1 This chapter explains the monitoring programme (including timeframes for carrying out monitoring) and how its results will be disseminated. The following chapter then explains how the findings of the monitoring will be used to identify any post-opening mitigation measures required.
- 3.1.2 As well as being used to identify any post-opening mitigation requirements, monitoring of the impacts of the Scheme in operation will also be used to inform decisions around setting and varying the user charges, and this process is set out in the Charging Policies and Procedures document. Where variations to the user charge are considered within the period of monitoring, data collected through the monitoring programme will input to the User Charging Assessment Framework (UCAF).
- 3.1.3 The monitoring of construction impacts is governed by the Code of Construction Practice.

### 3.2 Topics covered

- 3.2.1 The monitoring programme will comprise the following topic areas:
- Traffic monitoring
  - Air quality and carbon monitoring
  - Noise monitoring
  - Socio-economic monitoring.
- 3.2.2 The monitoring programme focuses on the four topics listed above as these have potential to be affected by the operation of the Scheme including changes to the user charges. Each of these topics is discussed in further detail in this chapter, and detailed monitoring plans for the first year of monitoring can be found in Appendices A to D.
- 3.2.3 Information on a range of different metrics will be collected for each of the topic areas. These metrics will be collected using various data collection methods, potentially including new data collection methods emerging as a result of recent technological innovations (for example using mobile phone data to estimate transport demand).

3.2.4 As a general rule TfL will make use of existing sources of data collection where possible. These will be supplemented with the installation of new monitoring equipment and with bespoke data collection exercises to fill any gaps.

3.2.5 The data collected through the monitoring programme will be reported in monitoring reports which will be provided to members of STIG.

### **3.3 Principles underlying the monitoring programme**

3.3.1 The traffic, environmental and socio-economic monitoring will comply with the following principles.

- Monitoring shall describe and characterise the main effects of the Scheme in operation, through comparison with the baseline collected prior to opening.
- Monitoring shall enable unexpected or unanticipated effects to be identified.
- Monitoring shall seek to understand, as well as to measure, by employing a range of quantitative and qualitative research techniques in a complementary manner to enable a comprehensive understanding of the Scheme's wider potential effects, including travel behaviour.
- Monitoring shall provide Best Value, employing techniques that are appropriate and proportionate to the expected scale, extent and importance of the expected changes.

3.3.2 The monitoring programme will be of sufficient scope to provide a sound understanding of the impact of the Scheme in operation. Nonetheless, TfL recognises the value of monitoring undertaken by others and hence in addition to the data collected through the monitoring programme, TfL will take into account monitoring data collected by local authorities and other bodies where it is relevant and appropriate to do so.

### **3.4 Timing and duration of monitoring**



- 3.4.1 The monitoring programme will commence no later than three years prior to the expected date of Scheme opening and continue for three years post opening<sup>2</sup>. The duration of the post-opening monitoring will be reviewed and TfL will consult the members of STIG on whether it is appropriate to extend this period by up to an additional two years. The monitoring programme is time limited because the most significant effects are expected to materialise within around a year of the Scheme opening and it will become increasingly difficult to distinguish the effects of the Scheme from other projects over time.
- 3.4.2 Following the three to five year monitoring post-opening, the collection of monitoring data will revert to TfL's general network performance monitoring programme.
- 3.4.3 The data collected prior to the opening of the Scheme will form the baseline against which a comparison will be made following the Scheme's implementation.
- 3.4.4 As this baseline period will coincide with the Scheme's construction, data from locations affected by construction traffic will be compared with previous years' data and regional trends, and in light of data from the Contractor appointed to build the Scheme regarding construction traffic behaviour, to ensure that a fair and representative baseline is used.

### **3.5 Geographical scope of the monitoring**

- 3.5.1 The geographical area encompassed by the monitoring programme will vary for each topic, but in all cases will cover an area of sufficient spatial scope to fully capture the expected material impacts of the Scheme in operation. For example, the noise impacts resulting from the Scheme are expected to be limited to a localised area in the vicinity of the Scheme itself whilst the traffic impacts may occur over a much wider area.
- 3.5.2 The monitoring area can be seen in Figure 3-1. The 'area of influence' is the area where changes are most marked, and represents the area in which the monitoring is focused; this covers the majority of the three host boroughs (Greenwich, Newham and Tower Hamlets), the three nearest adjacent crossings (Woolwich Ferry, Rotherhithe Tunnel and Tower Bridge) and parts

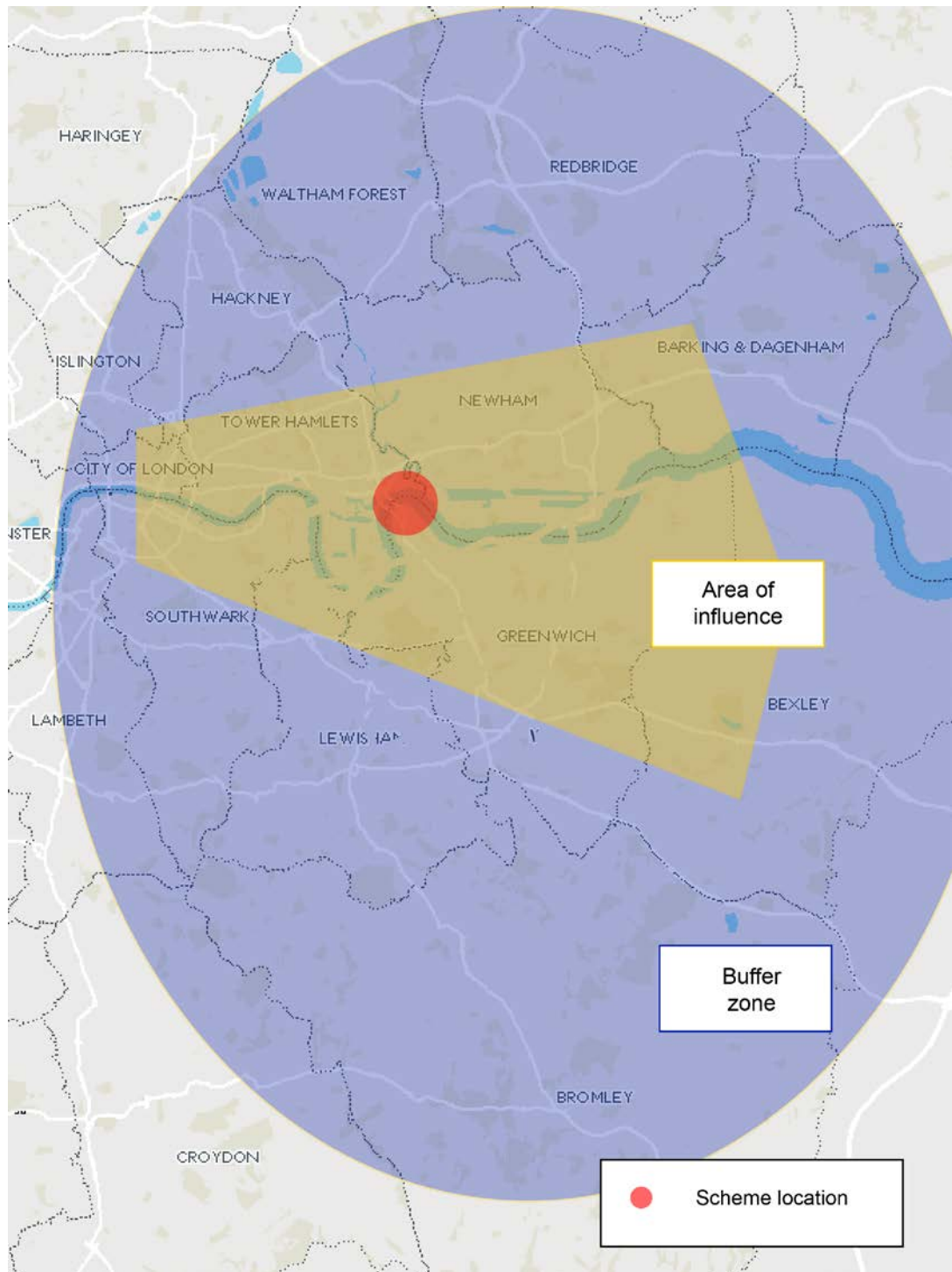
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<sup>2</sup> With the possible exception of air quality monitoring, which may continue for a longer period as set out in paragraph 3.7.5.

of other boroughs in the vicinity of the Scheme where Scheme impacts are reasonably foreseeable. Additional traffic monitoring locations are included in the wider 'buffer zone', which covers a large part of east and south-east London.

- 3.5.3 The geographical scope of the monitoring will be reviewed at the time when TfL is undertaking its refreshed assessment of Scheme impacts. Should this refreshed assessment identify potential Scheme impacts at locations not identified in current modelling, the scope of the monitoring programme will be extended to ensure these locations are included in the monitoring programme. If justified by the refreshed assessment, the monitoring of Scheme impacts could be undertaken over a much wider area through TfL's wider monitoring programmes.

**Figure 3-1: Monitoring area**



3.5.4 Once the Scheme is operational, should a member of STIG identify potential impacts that they consider may be a result of the Scheme at a location not being monitored under the Scheme's monitoring programme at that time (for instance using TfL's publically available wider data set), this can be brought

to TfL's attention for further consideration and possible inclusion in the monitoring programme going forward.

### **3.6 Traffic monitoring**

- 3.6.1 There are a range of traffic metrics that can provide information on the traffic impacts of the Scheme. Whilst the type of information to be collected is defined, the method by which this data is collected is not prescribed by this monitoring programme and a range of monitoring techniques could potentially be employed. This is because traffic data collection is an area of rapid development and new data collection methods are emerging as a result of continued technological innovation.
- 3.6.2 The key metric considered is traffic flows. Monitoring traffic flows and changes in flows at river crossings, their approaches and diversionary routes is fundamental to the monitoring programme for the Scheme. It provides the means by which any localised delays and or network performance issues which are noted following its implementation may be identified. It also provides context for the monitoring of environmental and socio-economic impacts.
- 3.6.3 A range of other traffic-related metrics will also be monitored including journey times and journey time reliability, junction performance, traffic composition, bus performance and road safety. The monitoring programme will take account of the relevant impacts of the Scheme on all highway users including motorists, bus passengers, pedestrians and cyclists.
- 3.6.4 The proposed locations for data collection, data collection methods and the geographical scope of the traffic monitoring are set out in Appendix A. The scope of the monitoring has been informed by the expected impacts of the Scheme as set out in the Transport Assessment [APP-086]. In addition to the locations listed in Appendix A, data will be collected at control sites to enable differentiation of the impacts of the Scheme from those attributable to other unconnected changes on the network. The control sites used for comparison will be presented to STIG members and specified within the monitoring reports. Where a control sites is within a borough that is a member of STIG, details of the control site will be sent to the relevant local authority for comment.
- 3.6.5 To aid the process of identifying any unexpected impacts of the Scheme on the highway network once operational, a range of traffic-related triggers have been set. These triggers will be based on the monitoring data collected and

reported within the monitoring reports. Further information on the triggers can be found in section 4.2 and Appendix E of this document.

### **3.7 Air quality and carbon monitoring**

- 3.7.1 Three years prior to Scheme opening TfL will install a network of diffusion tubes and, where appropriate, automatic air quality monitors to collect air quality data for a continuous period of at least twelve months to establish an up-to-date baseline. This will provide a picture of the actual concentrations at a point closer to the Scheme opening. In addition, the results of monitoring undertaken by relevant local authorities and Defra will be utilised by TfL to provide additional baseline information.
- 3.7.2 The air quality monitoring will be undertaken for the measurement of NO<sub>2</sub> only. The rationale behind this decision is that the current baseline monitoring for other pollutants (PM<sub>10</sub> and PM<sub>2.5</sub>) show that they are achieving compliance with the Air Quality Strategy (AQS) Objectives/EU Limit Values. The assessment also indicates that the Scheme has a negligible impact on particulates. It must also be noted that the Greater London Urban Area is compliant in relation to the EU Limit Value for PM<sub>10</sub>.
- 3.7.3 The geographical scope of the air quality monitoring is detailed in Appendix B. This has been informed by the likely air quality impacts of the Scheme as reported in the Environmental Statement and Updated Air Quality and Health Assessment.
- 3.7.4 NO<sub>2</sub> monitors will be sited in areas:
- a) where the Scheme is forecast to bring about a change in air quality in excess of 0.4 µg/m<sup>3</sup> where annual mean concentrations are above the national air quality objective value;
  - b) where the Scheme could lead to traffic diverting to alternative routes which were not foreseen in the original assessment; and
  - c) to ensure the monitoring locations are representative of relevant exposure at sensitive receptors.
- 3.7.5 Once the Scheme is operational the air quality monitoring must continue for three years, or until the monitoring shows there is no exceedance of the annual national air quality objective for NO<sub>2</sub> monitored at locations where the Scheme results in a worsening of air quality, whichever is the longer.

- 3.7.6 The air quality monitoring data will be reported in the annual monitoring report which must be reviewed as soon as reasonably practicable by a firm of air quality experts appointed by TfL in consultation with STIG members. The expert review must determine whether or not there has been a material worsening of air quality as a result of the Scheme (as detailed in section 4.4 of this document).

### **Monitoring the carbon impacts<sup>3</sup>**

- 3.7.7 Carbon Dioxide (CO<sub>2</sub>) emissions will also be calculated as part of the monitoring programme. As carbon dioxide is a greenhouse gas, it has an impact on a global scale, rather than producing any measurable adverse localised impacts. As such the Scheme's impact on CO<sub>2</sub>, must be assessed at a total emissions level.
- 3.7.8 In order to accurately calculate the carbon impact of the Scheme, the calculation will be based on the observed traffic flows obtained through the traffic monitoring, and will use established relationships to estimate the CO<sub>2</sub> impact of traffic change. The carbon impact will be calculated by reference to the traffic using the Blackwall and Silvertown tunnels.

## **3.8 Noise monitoring**

- 3.8.1 The noise impacts of the Scheme are a function of the volume of traffic flows, which may change over time. Monitoring traffic flows therefore provides a means by which any localised traffic noise issues which may arise from the Scheme in operation can be identified. Prior to the commencement of any construction activity associated with the Scheme TfL will install a network of noise monitors to collect data for a continuous period of at least twelve months to establish an up-to-date baseline. This will provide a better picture of the background noise environment closer to the Scheme opening.
- 3.8.2 The approach to data collection and the geographical scope of the noise monitoring is detailed in Appendix C. The monitoring of noise will be limited
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<sup>3</sup> CO<sub>2</sub> is not usually considered within air quality assessments as it is a greenhouse gas and does not directly affect human health, although it does need to be controlled to mitigate the health and environmental impacts of climate change. The EU Ambient Air Quality Directive (2008/50/EC) lists which pollutants are considered as air quality pollutants (Benzene, 1,3 Butadiene, Carbon monoxide, Lead, NO<sub>2</sub>, PM<sub>10</sub> / 2.5, Sulphur Dioxide), and excludes CO<sub>2</sub>. This has been transposed in to English law.

to the area around the Silvertown Tunnel portals; monitoring is not proposed, nor considered necessary, outside of this immediate area having regard to the noise modelling undertaken and reported in the Environmental Statement. Secure locations will be used for noise monitoring to ensure the equipment is not at risk to theft or damage.

- 3.8.3 Noise monitoring will be undertaken using a number of permanently installed type 1 “Live  $L_{Aeq}$ ” remote access data logging sound level meters recording noise within the vicinity of the Tunnel on a 24 hours a day, seven days a week basis during the monitoring period.
- 3.8.4 In assessing noise levels, and subject to agreement with the data owners, where available TfL will have regard to any long term noise monitoring undertaken by the local authorities or other statutory bodies within the local area of influence, or in the vicinity of the tunnel portals where appropriate and representative.
- 3.8.5 Once operational, the noise monitoring will continue for a minimum of three years. Before the end of that period, TfL will consult STIG members on whether it is appropriate to extend this period by up to an additional two years.
- 3.8.6 The noise monitoring data collected post-opening will be presented within the annual monitoring reports.

### **3.9 Socio-economic monitoring**

- 3.9.1 In the three year period prior to Scheme opening TfL will collect and collate socio-economic data on an annual basis. This will include analysing secondary data related to business activity and employment, as well as collecting primary data on cross-river movement by residents and businesses<sup>4</sup>. This will provide the baseline for comparison with data collected post-opening also collected on an annual basis.
- 3.9.2 The approach to data collection and the geographical scope of the socio-economic monitoring is detailed in Appendix D. The geographical scope of the monitoring needs to be sufficiently large to fully capture the discrete

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<sup>4</sup> This will include data from the London Travel Demand Survey (LTDS), a continuous household survey of the London area that captures information on households, people, trips and vehicles. This will allow usage of crossings and the types of travel making use of the crossings to be assessed.



socio-economic impacts of the Scheme, and will include the local authorities where impacts are expected to be most significant as identified in the Regeneration and Development Impact Assessment (part of the Business Case [APP-102]).

### **3.10 Reporting of monitoring data**

3.10.1 TfL will produce annual monitoring reports of the impacts of the Scheme and will present these to members of STIG for review. The reports will enable the impacts arising as a direct effect of the operation of the Scheme to be identified.

3.10.2 The annual monitoring reports will include the following contents:

- Summary of any mitigation measures implemented since the previous monitoring report
- Summary of any wider changes in background patterns or trends, for example environmental changes brought about by the impacts of new developments or meteorological influence
- Traffic monitoring outputs
- Traffic-related triggers
- Air quality monitoring and predicted carbon emissions outputs
- Noise monitoring outputs
- Socio-economic monitoring outputs
- Reasoned recommendations where appropriate for any changes to the monitoring programme for the coming year

3.10.3 For the first year after the Silvertown Tunnel opens for public use, TfL will produce and submit to STIG interim monitoring reports on a quarterly basis to help ensure that any impacts can be identified promptly. These reports will be less detailed than the annual monitoring reports but will include data collected to date and a high level analysis of the results.

3.10.4 Certain types of data to be collected as part of the monitoring programme are available on a 'live' basis, and it is likely that these will become increasingly available over time. Whilst all data will be reported in the monitoring reports, wherever possible TfL will aim to make the monitoring

data available to members of STIG via online data platforms (for example the TfL Data Store).

### **3.11 Review of monitoring data**

3.11.1 The annual monitoring reports will be produced by TfL and sent to STIG members within two months of data collection. STIG will be responsible for:

- Reviewing the findings presented in the monitoring reports
- Considering the need for and type of any mitigation measures that might be required to address Scheme impacts, in line with the process set out in Chapter 4 of this document
- Reviewing the monitoring programme and make recommendations to TfL for changes where appropriate

3.11.2 Proposals for changes to the monitoring programme can be made by any member of STIG in the interest of enabling future impacts to be fully captured. Aspects on which STIG members may request changes include the monitoring locations, metrics considered and data collection methods. In updating the monitoring programme, TfL shall have regard to any recommendations made by STIG.

3.11.3 STIG will also be able to request changes to the contents of the monitoring reports including the addition of new topics and removal of existing topics if considered appropriate. TfL will remain responsible for the final content and structure of the monitoring reports.

## 4. POST-OPENING MITIGATION

### 4.1 Overview

- 4.1.1 This chapter explains the process for identifying and implementing after the Silvertown Tunnel has opened for public use any measures required to mitigate any adverse Scheme impacts which were not foreseen and mitigated at the pre-opening stage.
- 4.1.2 The need for any mitigation following the Scheme's opening will be identified through review of the monitoring reports containing the data collected through the monitoring programme. Different processes will apply to different Scheme impacts, as follows:
- The traffic data (including the triggers) will be reviewed by STIG. If TfL concludes (having regard to the views of STIG members) that traffic conditions have materially worsened as a result of the Scheme, or a trigger has been activated, TfL will investigate to determine whether localised mitigation is required to address these impacts. This could include measures to address any noise-related impacts caused by changes to traffic conditions.
  - The socio-economic data will be reviewed by members of STIG. If TfL consider, having regard to the views of STIG members, that the Scheme has had a material adverse socio-economic impact, TfL will consider whether localised mitigation is required to address these impacts.
  - The air quality data will be reviewed by a firm of experts appointed by TfL in consultation with the members of STIG. If in the view of the experts there has been a material worsening in air quality as a result of the Scheme, TfL must develop a scheme of mitigation and submit this to the Mayor of London for approval (see section 4.4 below).
- 4.1.3 The process for reviewing each element of the monitoring data is described in further detail below, split into traffic impacts, socio-economic impacts, air quality impacts and noise impacts. The approach to developing and implementing mitigation for all impacts identified as a result of the Scheme in operation is then set out.

## **4.2 Traffic impacts**

- 4.2.1 TfL will produce monitoring reports of the impacts of the Scheme in operation and present these to members of STIG for review and consideration. In considering the impacts of the Scheme, TfL and the members of STIG will be able to draw on all information and data that is set out within the monitoring reports, including the mitigation triggers. Particular focus will be given to whether there has been a change in traffic flows. In response to the monitoring reports, STIG members may request that TfL considers the need for mitigation at any locations within their borough where they consider the Scheme may be having an adverse impact.
- 4.2.2 By reviewing the observed monitoring data collected once the Scheme has opened, and comparing this against the observed baseline data collected prior to opening, it will be possible to identify the traffic-related impacts arising as a direct effect of the Scheme in operation. It should be noted that changes observed between the pre- and post-opening monitoring data will not necessarily be a result of the Scheme.

### **Key considerations**

- 4.2.3 Where having reviewed the monitoring data and taking into account the views of the members of STIG TfL concludes that any adverse changes in traffic metrics are a consequence of the Scheme in operation, TfL will consider the appropriate form of mitigation in consultation the highway authority on whose roads the measures may be required.
- 4.2.4 It is important that any changes to the metrics caused by non-Scheme factors, such as changing background trends or other developments, are taken into account when considering the need for mitigation. This will be done by comparing the traffic monitoring data to control sites and overall London-wide and sub-regional data, as well as assessing the impacts that other developments (including changes to land uses and changes to the highway network) may be having on the various metrics.
- 4.2.5 The duration of the change also needs to be taken into account. If the change identified is temporary or short-term in nature, for example the change is only observed for a matter of weeks immediately following Scheme opening, long-term mitigation may not be required as the change is likely to be a result of initial fluctuations in traffic flows as users adapt to the Scheme. Many such fluctuations would be expected to settle down over time.

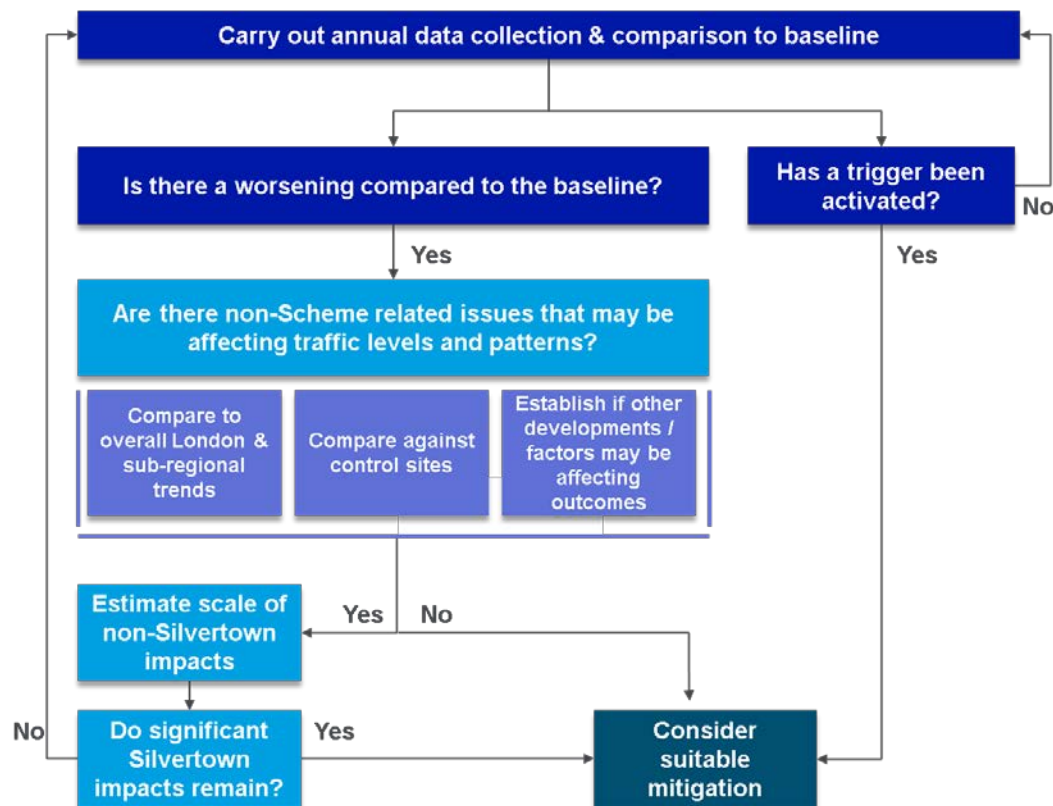
### **Traffic-related triggers**

- 4.2.6 The triggers will provide a means of assisting with the determination of whether any traffic-related changes that may have occurred as a result of the Scheme require mitigation. The triggers consider whether a level of change observed after the Scheme has opened differs from what was anticipated, and are designed to provide an alert if these levels are breached. If a trigger is activated, TfL must consider if mitigation is required.
- 4.2.7 The triggers are intended to indicate whether observed Scheme impacts (based on data collected through the monitoring programme) are materially different from those forecast in the Assessed Case and set out in the DCO application, over a prolonged period of time. By basing the triggers on the expected change caused by the Scheme, the triggers will remain applicable if background conditions across the network (for instance growth in the number of highway trips across the network) were different from those currently forecast.
- 4.2.8 A detailed set of triggers has been developed based on discussions with stakeholders and these can be found in Appendix E. The triggers will be reviewed in light of the refreshed assessment prior to Scheme opening and if necessary updated in agreement with STIG members to ensure they remain fit for purpose in light of future changes to road network performance and conditions.

### **TfL investigation of the need for mitigation**

- 4.2.9 The process for establishing the traffic-related Scheme effects, based on both the review of the monitoring data and the traffic-related triggers, is summarised in Figure 4-2.

**Figure 4-1: Establishing the traffic-related Scheme effects post-opening**



4.2.10 Following a request from any member of STIG in response to the monitoring reports, or if a trigger is activated, TfL will consider whether mitigation is necessary. Key considerations will be the nature and scale of the impact, as well as the potential for the impact to be effectively mitigated.

4.2.11 As part of this appraisal TfL will consider any committed interventions, and input from TfL Area and Corridor Managers will be sought to determine whether the location is subject to other proposals that could have a bearing on the need for or form of mitigation required. TfL’s appraisal of all requests for mitigation to be considered will be shared with the other STIG members for consideration.

4.2.12 In the event of a trigger being activated, TfL will investigate the nature of the impact and its cause. If TfL determines that mitigation is not required it will provide the members of STIG with a clear justification for this.

### 4.3 Socio-economic impacts

4.3.1 It is acknowledged that it will be difficult to isolate the precise impact of the Scheme on most changes in the socio-economic characteristics of east London. For example, changes in business performance and the labour

market will be driven primarily by the strength of the UK and London economy, as wide range of other factors, with the Scheme playing a relatively minor role.

4.3.2 For this reason, TfL will monitor the socio-economic characteristics of cross-river travellers, as well as wider socio-economic trends, in order to understand the Scheme's contribution.

4.3.3 Where TfL determine that a socio-economic impact is directly attributable to the Scheme, TfL will consider the best way to mitigate the impact. This may include the provision of new or enhanced bus routes, funding local-led business or labour market support, support to help businesses adjust to the user charge or changes to the charging regime for particular groups.

#### **4.4 Air quality impacts**

4.4.1 It is acknowledged that differentiating between effects on air quality as a direct result of the operation of the Scheme and effects arising from other, unrelated activities is likely to be a complex process which will require expert input. TfL will therefore appoint an independent air quality expert to review the air quality monitoring data set in the annual monitoring reports. TfL will consult with STIG members regarding the expert to be appointed.

4.4.2 Just relying on air quality monitoring data will not differentiate between effects resulting from the Scheme and those arising from other, unrelated activities. In coming to a view on the air quality impacts of the Scheme, consideration will therefore need to be given to other data sources including London wide local authority monitoring data, traffic flows, composition or speeds as well as outputs from strategic and local traffic modelling and/or air quality modelling. The Scheme is unlikely to have a material impact on air quality without also having an impact on traffic beyond what was predicted in the refreshed assessment.

4.4.3 If the annual review carried out by the appointed firm of experts concludes that the authorised development has materially worsened air quality beyond the impacts predicted within the Environmental Statement at locations where there are exceedances of national air quality objectives, TfL must consult the relevant air quality authorities on a preliminary scheme of mitigation including a programme for its implementation within three months of the review. Following that consultation, TfL must prepare a detailed scheme of mitigation and submitted this to the Mayor of London for approval. Before considering whether to approve the scheme of mitigation, the Mayor must

consult the relevant air quality authorities and take into consideration any responses received.

- 4.4.4 TfL then must implement or secure the implementation of the scheme of mitigation in accordance with the programme approved by the Mayor of London.
- 4.4.5 A 'material worsening' of air quality will be deemed to have arisen if, after the annual monitoring review, the Scheme is shown to have resulted in a 'significant impact' following the approach set out in Interim Advice Note (IAN)174/13.

#### **4.5 Noise impacts**

- 4.5.1 In respect of noise, a 25% change in traffic flow is required to bring about a noticeable 1dB change in noise in line with the DMRB thresholds. A traffic-related trigger would be activated if traffic flows at the Blackwall and Silvertown Tunnels changed to a much smaller degree than this ( $\pm 3\%$  from forecast level of change). Accordingly, consideration of localised mitigation measures would be triggered by changes in traffic flow numbers considerably below the levels which could give rise to noticeable noise impacts.
- 4.5.2 Notwithstanding this, to ensure noise impacts are properly understood, TfL will appoint an independent noise expert to carry out an annual review the noise monitoring data presented within the annual monitoring reports. TfL will consult STIG members regarding the expert to be appointed.
- 4.5.3 It is acknowledged that differentiating between effects on noise from the Scheme in operation and those arising from other, unrelated activities is likely to be complex. Just relying on noise monitoring data will not differentiate between noise effects resulting from the Scheme and other unrelated activities. Therefore, in conjunction with the noise monitoring data presented within the annual monitoring report, the flows, composition (including the percentage of heavy vehicles) and speed of the traffic through the tunnels will be considered by the independent noise specialist.
- 4.5.4 To fully appreciate the effects of changes in any, or all of these parameters on the road traffic noise levels through the tunnels, the traffic monitoring data will be used by the noise expert to calculate a "Basic Noise Level" in accordance with the guidance of the Calculation of Road Traffic Noise (DfT, 1988). This will allow noise resulting from changes in each of the total flow,



percentage of heavy vehicles and speed to be appropriately accounted for and reported.

- 4.5.5 If the annual review carried out by the independent noise expert concludes that the difference in calculated Basic Noise Level values between the predicted flows and measured flows through the Blackwall and Silvertown Tunnel is greater than 1dB (and that the difference is attributable to the Scheme), TfL will consider the need for localised noise mitigation measures in consultation with the relevant local authorities.

## **4.6 Development of post-opening mitigation**

- 4.6.1 Where it is identified that mitigation is required to address an adverse Scheme impact post-opening, TfL will determine the form of mitigation to be implemented in consultation with the relevant highway authority. Mitigation could take a number of forms, and it may be that a package of different measures is deemed necessary to address the identified impacts. Further detail on the range of mitigation measures which could be implemented can be found in Chapter 4 and Appendix F.
- 4.6.2 Should a change to the user charges be identified as a form of mitigation, the process set out in Charging Policies and Procedures for varying the user charges will apply. This includes the use of the User Charging Assessment Framework (UCAF) and a consultation with STIG members.
- 4.6.3 In the event of a change to the bus network being identified as form of mitigation, for instance to address a socio-economic impact, the process set out in the Bus Strategy will apply.
- 4.6.4 Where localised mitigations are identified on the highway network to address localised effects, for example an adverse traffic-related impact at a particular junction, a similar process for identifying pre-opening localised mitigations will be followed (as set out in Chapter 2). TfL will first complete a preliminary assessment as to the form of localised mitigation and the programme for its implementation. This preliminary assessment will then be presented to the relevant local authority for consideration and review within three months of the need for mitigation being identified.
- 4.6.5 TfL and the local authority may wish to engage with other potentially affected parties as part of their review (for instance user groups, local landowners etc.). TfL will then undertake detailed design of the mitigation where necessary, having regard to feedback received from the local highway authority.

4.6.6 In determining the form of post-opening mitigation, TfL and the affected local authority will need to give consideration to both the benefits and any potential adverse impacts that a mitigation measure could have including at locations elsewhere. Such considerations may have a bearing on the form of mitigation adopted.

4.6.7 In instances where physical changes to the streetscape are required, TfL will ensure the measures developed are sympathetic to the existing streetscape and take account of relevant guidance (including for instance TfL's *Streetscape Guidance* and the *London Cycling Design Standards*).

#### **4.7 Funding and delivery of post-opening localised mitigation**

4.7.1 TfL will meet the cost of implementing all post-opening mitigation measures identified as being necessary in relation to impacts attributable to the Scheme.

4.7.2 TfL will expedite the delivery of post-opening localised mitigation measures (for instance through allocating designated resources for design and implementation, and ring-fencing funding). The intention will be to implement the mitigation measure as soon as reasonably practicable. Any necessary consultation will be completed in line with normal procedures prior to implementation.

##### ***Measures on the TLRN***

4.7.3 Where mitigation measures can be implemented under TfL's statutory powers (e.g. measures on roads for which TfL is the highway authority (the Transport for London Road Network (TLRN)), or changes to single timings), TfL will be responsible for implementing the mitigation.

##### ***Measures on borough roads***

4.7.4 Where TfL is not able to implement a mitigation measure under its statutory powers, (e.g. junction modifications on roads for which TfL is not the highway authority), TfL may seek agreement with the relevant highway authority under section 8 of the Highways Act 1980 for TfL to implement those measures. Alternatively, the highway authority may be responsible for implementation of the mitigation, with the necessary funding provided by TfL and secured via a bilateral agreement. In these circumstances, TfL will apply the same timescale for identifying and agreeing the works but the timing for the implementation of these works will be a matter for the relevant highway authority.

- 4.7.5 A highway authority may choose to implement an alternative mitigation to the measure proposed by TfL following the usual process of scheme planning, design, consultation and implementation. The alternative mitigation must provide a broadly comparable level of value in addressing the Scheme impact. TfL will contribute towards the cost of the mitigation up to the estimated cost of the measure proposed by TfL, or less if the alternative mitigation is of lower cost. If the highway authority wishes to take the opportunity to implement supplementary measures at its own cost (for instance to tie the mitigation in with wider streetscape improvements) it will be able to do so.

## 5. INDICATIVE MITIGATION MEASURES

### 5.1 Introduction

- 5.1.1 Indicative mitigation measures to address the impacts of the Scheme have been identified and are set out at Appendix F. The mitigation measures are capable of addressing a range of impacts that may be identified as being caused by the Scheme including air quality, noise and socio-economic impacts.
- 5.1.2 The list of indicative measures demonstrates that there are a range of measures available that could be implemented within reasonable timescales by TfL and/or the local highway authorities under their existing powers to address a variety of traffic and associated impacts.

### 5.2 Indicative measures

- 5.2.1 A range of potential measures will be explored when developing any mitigation, in order to ensure that the measures are tailored to the cause, locality and extent of any potential impacts. Appendix F sets out a range of potential mitigation measures, the effect that each measure is likely to have and where appropriate the statutory powers for delivering that mitigation measure. It should be noted that this list is not exhaustive and other measures could also potentially be considered.

#### **Changes to the user charge**

- 5.2.2 In addition to physical measures, changes to the Silvertown and Blackwall Tunnel user charges could also be used as a mitigation measure in certain circumstances. The approach to setting the initial user charges and making subsequent variations is set out in the Charging Policies and Procedures.
- 5.2.3 Variations to the user charges could potentially take a number of forms, meaning that this is a highly flexible form of mitigation. It could include for example:
- adding or removing discounts and exemptions, or changing the criteria for these;
  - changing the hours at which the charges apply or the types of vehicles to which they apply; and
  - changing the charge levels.

- 5.2.4 For air quality and noise impacts, once physical mitigation measures (for example noise barriers) have been implemented prior to Scheme opening, the most likely mitigation measure post-opening would be to vary the user charge.

#### **Mitigation at adjacent crossings**

- 5.2.5 If a significant adverse impact was identified on an adjacent river crossing as a result of the Scheme, either on completion of the refreshed assessment (pre-opening) or observed through the monitoring data (post-opening), TfL would in the first instance consider a range of potential traffic management measures to mitigate the impact on the crossing (including the potential for adjustments to the user charges at the Blackwall and Silvertown tunnels to address the issue).
- 5.2.6 The implementation of a user charge at adjacent crossings would subsequently be considered as a potential mitigation if such management measures were deemed to be insufficient for mitigating the impact or otherwise not appropriate. The legal powers necessary to implement any user charge, as well the potential need for any amendments to existing legislation, would be duly considered as part of this process.

#### **Support for sustainable transport measures**

- 5.2.7 In the unlikely event that mitigation measures implemented to address an adverse Scheme impact have not proved sufficient to directly and fully mitigate it, residual impacts may remain. In these circumstances, if in the opinion of TfL and the affected local authority these residual impacts are sufficient to justify offsetting by strategic or local measures to encourage the take up of sustainable and active travel, TfL would consider implementing or making available support to the affected local authority to implement these measures as appropriate.
- 5.2.8 Such measures could range from enhancements to pedestrian and cyclist infrastructure on the local highway network, to the provision of additional cycle parking, travel planning for residents, schools and businesses and other 'soft' measures. These offsetting measures would be proportionate to the scale of the residual impacts remaining and could be delivered by the relevant local authority subject to agreement with TfL.

## List of Abbreviations

ANPR	Automatic Number Plate Recognition
AQS	Air Quality Strategy
ATC	Automatic Traffic Counts
CO <sub>2</sub>	Carbon Dioxide
Defra	Department for Environment, Food and Rural Affairs
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
DVLA	Driver and Vehicle Licensing Agency
ES	Environmental Statement
EU	European Union
LCAP	London Congestion Analysis Project
MSOA	Middle Level Super Output Area
NML	Noise Monitoring Location
NO <sub>2</sub>	Nitrogen Dioxide

PM <sub>10</sub>	Particulate Matter (typically less than or equal to 10micron)
SCOOT	Split Cycle Offset Optimisation Technique
STIG	Silvertown Tunnel Implementation Group
TfL	Transport for London
TLRN	Transport for London Road Network

## Glossary of Terms

AM peak	The morning peak hours when traffic is busiest. In the context of the Silvertown Tunnel scheme this applies to the hours between 6:00 and 10:00 in the northbound direction.
Assessed Case	Scenario adopted for assessment of likely effects of the proposed scheme, in the context of central forecasts of transport conditions and with user charges set so as to balance the Scheme's traffic, environmental, socio-economic and financial objectives.
Blackwall Tunnel	An existing road tunnel underneath the River Thames in east London, linking the London Borough of Tower Hamlets with the Royal Borough of Greenwich, comprising two bores each with two lanes of traffic.
Carbon	'Carbon' is used as short hand to refer to the basket of six greenhouse gases (GHGs) recognised by the Kyoto Protocol. GHGs are converted to carbon dioxide equivalents (CO <sub>2</sub> e) based on their global warming potential per unit as compared to one unit of CO <sub>2</sub> .
Development Consent Order	This is a statutory order which provides consent for the project and means that a range of other consents, such as planning permission and listed building consent, will not be required. A DCO can also include provisions authorising the compulsory acquisition of land or of interests in or rights over land which is the subject of an application.  <a href="http://infrastructure.planninginspectorate.gov.uk/help/glossary-of-terms/">http://infrastructure.planninginspectorate.gov.uk/help/glossary-of-terms/</a>
Excess Wait Time	The time waited in excess of the average scheduled wait time e.g. when waiting for a bus service.
Host Boroughs	The Royal Borough of Greenwich, and the London Boroughs of Newham and Tower Hamlets where the existing Blackwall Tunnel and proposed Silvertown Tunnel are situated.



Inter peak	The time period between the AM peak and the PM peak when traffic levels are lower. In the context of the Silvertown Tunnel scheme this refers to the hours between 10:00 and 16:00.
Mitigation	Measures including any process, activity, or design to avoid, reduce, remedy or compensate for negative environmental impact or effects of a development.
PM Peak	The evening peak hours when traffic is busiest. In the context of the Silvertown Tunnel scheme this applies to the hours between 16:00 and 19:00 in the southbound direction.
Rotherhithe Tunnel	An existing road tunnel underneath the River Thames in east London, linking the London Borough of Tower Hamlets with the London Borough of Southwark, comprising a single bore with two lanes of traffic. Pedestrian and cycle access is permitted.
The Scheme	The construction of a new bored tunnel with cut and cover sections at either end under the River Thames (the Silvertown Tunnel) between the Greenwich peninsula and Silvertown, as well as necessary alterations to the connecting road network and the introduction of user charging at both Silvertown and Blackwall tunnels.
Transport for London (TfL)	<p>A London government body responsible for most aspects of the transport system in Greater London. Its role is to implement transport strategy and to manage transport services across London.</p> <p>These services include: buses, the Underground network, Docklands Light Railway, Overground and Trams. TfL also runs Santander Cycles, London River Services, Victoria Coach Station and the Emirates Air Line.</p> <p>As well as controlling a 580km network of main roads and the city's 6,000 traffic lights, TfL regulates London's private hire vehicles and the Congestion Charge scheme.</p>

The Tunnel, Silvertown Tunnel	Proposed new twin-bore road tunnels under the River Thames from the A1020 in Silvertown to the A102 on Greenwich Peninsula, East London.
Tunnel Portal	A structure created which defines the end of a section of tunnel.
User Charging	The charge to be paid by users of the Silvertown Tunnel and Blackwall Tunnel that is to be imposed in order to manage traffic demand and help pay for the Scheme.
Woolwich Ferry	<p>The Woolwich Ferry links Woolwich (Royal Borough of Greenwich) and North Woolwich (London Borough of Newham). It also links two ends of the inner London orbital road routes; the North Circular and South Circular.</p> <p>It runs every 5-10 minutes throughout the day, from Monday to Friday and every 15 minutes on Saturdays and Sundays. It carries pedestrians, cyclists, cars, vans and lorries. The ferry is operated by Briggs Marine and Environmental on behalf of TfL.</p>

## Appendix A Traffic Monitoring Plan

### A.1 Traffic monitoring plan

**Table A-1 Initial traffic monitoring plan**

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
<b>River crossings</b>			
Blackwall Tunnel & Silvertown Tunnel crossing performance	Hourly traffic crossing flow (including vehicle type & assessment of volume to capacity ratio)	Blackwall Tunnel & Silvertown Tunnel northbound & southbound	Continuous, subject to data collection methods
	Peak hour traffic crossing delay	Blackwall Tunnel & Silvertown Tunnel northbound & southbound approaches	AM peak, inter peak & PM peak data to allow establishment of trends over time
Performance of adjacent crossings: Woolwich Ferry	Hourly traffic crossing flow (including vehicle type)	Woolwich Ferry northbound & southbound	Continuous, subject to data collection methods

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
	Queue lengths	Woolwich Ferry northbound & southbound approaches	AM peak, inter peak & PM peak data to allow establishment of trends over time
Performance of adjacent crossings: Rotherhithe Tunnel	Hourly traffic crossing flow (including vehicle type & assessment of volume to capacity ratio)	Rotherhithe Tunnel northbound & southbound	Continuous, subject to data collection methods
	Peak hour traffic crossing delay	Rotherhithe Tunnel northbound & southbound approaches	AM peak, inter peak & PM peak data to allow establishment of trends over time
Performance of adjacent crossings: Tower Bridge	Hourly traffic crossing flow (including vehicle type & assessment of volume to capacity ratio)	Tower Bridge northbound & southbound	Continuous, subject to data collection methods
	Peak hour traffic crossing delay	Tower Bridge northbound & southbound approaches	AM peak, inter peak & PM peak data to allow establishment of trends over time

Outcome	Metric	Location	Duration
<b>Key corridors</b> (see Figure A-1 for a map highlighting these locations)			
Performance of key corridors: A2 (incl. A102)	Vehicle journey times	GLA boundary to Blackwall/Silvertown Tunnel diverge northbound & southbound	Continuous, subject to data collection methods
	Vehicle journey time reliability	GLA boundary to Blackwall/Silvertown Tunnel diverge northbound & southbound	Continuous, subject to data collection methods
	Hourly traffic flow (including vehicle type & assessment of volume to capacity ratio)	GLA boundary to Blackwall/Silvertown Tunnel diverge northbound & southbound	Continuous, subject to data collection methods
Performance of key corridors: A12	Vehicle journey times	Redbridge Roundabout to Blackwall Tunnel portal northbound & southbound	Continuous, subject to data collection methods
	Vehicle journey time reliability	Redbridge Roundabout to Blackwall Tunnel portal northbound & southbound	Continuous, subject to data collection methods

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
	Hourly traffic flow (including vehicle type & assessment of volume to capacity ratio)	Redbridge Roundabout to Blackwall Tunnel portal northbound & southbound	Continuous, subject to data collection methods
Performance of key corridors: A13	Vehicle journey times	Aldgate to Renwick Road eastbound & westbound	Continuous, subject to data collection methods
	Vehicle journey time reliability	Aldgate to Renwick Road eastbound & westbound	Continuous, subject to data collection methods
	Hourly traffic flow (including vehicle type & assessment of volume to capacity ratio)	Aldgate to Renwick Road eastbound & westbound	Continuous, subject to data collection methods
<b>Other strategic &amp; local links</b> (see Figure A-1 for a map highlighting these locations)			
Performance of other strategic & local links: Albert Road (east)	Traffic flow (including assessment of volume to capacity ratio)	Pier Road to Woolwich Manor Way northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Albert Road (west)	Traffic flow (including assessment of volume to capacity ratio)	Connaught Bridge to Pier Road/Albert Road junction eastbound & westbound	Hourly data for a typical weekday & weekend day

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of other strategic & local links: A1261 Aspen Way	Traffic flow (including assessment of volume to capacity ratio)	A13 East India Dock Road to Leamouth Circus eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Cassland Road	Traffic flow (including assessment of volume to capacity ratio)	A102/Cassland Road/Wick Road junction to Cassland Road/B113 junction eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Charlton Way	Traffic flow (including assessment of volume to capacity ratio)	Shooters Hill Road to Vanburgh Park eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Connaught Bridge	Traffic flow (including assessment of volume to capacity ratio)	N Woolwich Road to Victoria Dock Road northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A200 Creek Road	Traffic flow (including assessment of volume to capacity ratio)	A2209 Deptford Church Street to Greenwich Town Centre eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A20 Eltham Road	Traffic flow (including assessment of volume to capacity ratio)	Kidbrooke Park Road to Burnt Ash Road eastbound & westbound	Hourly data for a typical weekday & weekend day

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of other strategic & local links: Homerton High Street	Traffic flow (including assessment of volume to capacity ratio)	Kenworthy Road to Ponsford Street eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Jamaica Road	Traffic flow (including assessment of volume to capacity ratio)	Lower Road to Tower Bridge eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Kenworthy Road	Traffic flow (including assessment of volume to capacity ratio)	A102/B112 junction to A102/Cassland Road/Wick Road junction northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Limehouse Link	Traffic flow (including assessment of volume to capacity ratio)	Eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Lower Lea Crossing	Traffic flow (including assessment of volume to capacity ratio)	Leamouth Circus to Tidal Basin Roundabout eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A200 Lower Road / Evelyn Street	Traffic flow (including assessment of volume to capacity ratio)	Rotherhithe Tunnel Roundabout to A2209 Deptford Church Street northbound & southbound	Hourly data for a typical weekday & weekend day



<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of other strategic & local links: Maze Hill	Traffic flow (including assessment of volume to capacity ratio)	Trafalgar Road to Vanburgh Terrance northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A11 Mile End Road / Bow Road	Traffic flow (including assessment of volume to capacity ratio)	A13 to Bow Roundabout eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A2 New Cross Road / Blackheath Hill	Traffic flow (including assessment of volume to capacity ratio)	A2/A207 junction to Old Kent Road eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A1020 Nth Woolwich Road	Traffic flow (including assessment of volume to capacity ratio)	Tidal Basin Roundabout to Connaught Bridge northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A2 Old Kent Road	Traffic flow (including assessment of volume to capacity ratio)	New Cross Road to Tower Bridge Road eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Royal Albert Way	Traffic flow (including assessment of volume to capacity ratio)	Gallions Reach Roundabout to Connaught Bridge / A1020 / A112 junction eastbound &	Hourly data for a typical weekday & weekend day

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
		westbound	
Performance of other strategic & local links: Royal Docks Road	Traffic flow (including assessment of volume to capacity ratio)	A13/A406 Interchange to Beckton Roundabout northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A1011 Silvertown Way	Traffic flow (including assessment of volume to capacity ratio)	Tidal Basin Roundabout to Canning Town Roundabout northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A205 South Circular	Traffic flow (including assessment of volume to capacity ratio)	Woolwich Ferry Roundabout to A20 Sidcup Road northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Stockwell Street/Crooms Hill/General Wolfe Road	Traffic flow (including assessment of volume to capacity ratio)	A206 to A2 northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links:	Traffic flow (including assessment of volume to	A100 Tower Bridge to Limehouse Link eastbound	Hourly data for a typical weekday & weekend day

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
A1203 The Highway	capacity ratio)	& westbound	
Performance of other strategic & local links: Tower Bridge Road	Traffic flow (including assessment of volume to capacity ratio)	Tower Bridge to Old Kent Road northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A206 Trafalgar Road / Romney Road	Traffic flow (including assessment of volume to capacity ratio)	Greenwich Town Centre to A102	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: B207 Trundley's Road / Sanford Street	Traffic flow (including assessment of volume to capacity ratio)	Bestwood Street to New Cross Road northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Tunnel Avenue	Traffic flow (including assessment of volume to capacity ratio)	Blackwall Tunnel Southern Approach to Blackwall Lane northbound & southbound	Hourly data for a typical weekday & weekend day

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of other strategic & local links: Victoria Park Road	Traffic flow (including assessment of volume to capacity ratio)	Victoria Park Rd/Wick Road junction to Harrowgate Road/Victoria Park Road junction eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Wick Road	Traffic flow (including assessment of volume to capacity ratio)	A12 junction to Well Street/B113 junction eastbound & westbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: Woolwich Manor Way	Traffic flow (including assessment of volume to capacity ratio)	A13 Newham Way to Gallions Roundabout northbound & southbound	Hourly data for a typical weekday & weekend day
Performance of other strategic & local links: A206 Woolwich Road	Traffic flow (including assessment of volume to capacity ratio)	A102 to Woolwich Ferry Roundabout northbound & southbound	Hourly data for a typical weekday & weekend day
<b>Junctions</b> (see Figure A-1 for a map highlighting these locations)			
Performance of junctions: A100 Tower Bridge Road / Grange Rd / Bermondsey St	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A100 Tower Bridge Road / A1203 E Smithfield / A1210 Mansell St	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A1011 Silvertown Way / Tidal Basin Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A102 Kenworthy Road B112 Marsh Hill	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A102 / A206 Woolwich Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A1020 Lower Lea Crossing / Tidal Basin Roundabout	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A1020 Royal Albert Way / A1020 Royal Docks Road / Sir Steve Redgrave Bridge / Gallions Roundabout	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A1020 North Woolwich Road / Connaught Bridge	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A112 Connaught Road / Connaught Bridge	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A112 Connaught Road / A1020 Royal Albert Way / Connaught Bridge	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A112 Prince Regent Lane / Victoria Dock Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A112 Prince Regent Lane / A124 Barking Road / A112 Greengate Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A12 Blackwall Tunnel Northern Approach / Devas Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A12 Blackwall Tunnel Northern Approach / A13 East India Dock Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A12 / A11 Bow Roundabout	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A1206 Preston's Road Roundabout / Cotton Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A1261 Aspen Way / Upper	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Bank Street			
Performance of junctions: A1261 Aspen Way / A1261 W India Dock Rd / A1203 Limehouse Link	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A13 Alfreds Way / Renwick Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A13 Eastbound diverge at A1020 junction	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A13 / A117 High Street South / A117 Woolwich Manor Way	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A13 / A112 Prince Regent Lane	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday



<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A13 / Canning Town Gyratory	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A13 Newham Way / A406 North Circular Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Blackheath Hill / Greenwich South Street / Lewisham Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Blackheath Hill / Hyde Vale	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Deptford Bridge / Greenwich High Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Deptford Bridge / Deptford Church Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A2 / A2213 / Kidbrooke Interchange	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Shooters Hill Road / Charlton Way	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 Shooters Hill Road / Prince Charles Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 / A102 / A207 / Sun in the Sands Roundabout	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 / A205 Westthorne Avenue	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A2 New Cross Road / Pagnell Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A20 Lee High Road / A2212 Burnt Ash Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A20 Lewisham Way / Dixon Rd	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A20 Sidcup Rd / B263 Green Lane / Southwood Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A200 Creek Road / Deptford Church Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A200 Evelyn Street / Deptford High Street	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A200 Evelyn Street / Oxestalls Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A200 Lower Road / Surrey Quays Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A200 Lower Road / Bush Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A200 Lower Road / A200 Jamaica Road / Rotherhithe Tunnel	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A205 / A206 / Woolwich Ferry Roundabout	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A205 South Circular Road / A207 Shooters Hill Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A205 South Circular Road / / A208 Well Hall Road / Rochester Way	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A205 South Circular Road / A21 Rushey Green	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A205 South Circular Road / / A210 Eltham Road / A210 Eltham Hill	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A205 South Circular Road / A2212 Burnt Ash Hill	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A206 / Blackwall Lane / Vanbrugh Hill	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A206 / A200 / Greenwich Town Centre	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A206 Plumstead Road / Burrage Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: A206 Romney Road / Park Row	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A206 Woolwich Road / Anchor & Hope Lane	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A206 Trafalgar Road / Maze Hill	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A21 Bromley Road / Bellingham Road / Randlesdown Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: A210 Eltham High Street / A208 Well Hall Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: B210 Charlton Way / Maze Hill / Prince Charles Road	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Performance of junctions: B212 Lee Road / B220 Lee Terrace	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
Performance of junctions: Bugsby's Way / Anchor and Hope Lane	Junction delay, degree of saturation, journey time	-	AM peak and PM peak for a typical weekday
<b>Buses and other public transport</b>			
Performance of cross-river bus routes via Blackwall Tunnel & Silvertown Tunnel	Bus journey time, speed	Relevant sections of cross-river bus routes on key approaches to Blackwall & Silvertown Tunnels	Continuous, subject to data collection methods
	Excess wait time	Entire route of all cross river bus routes using Blackwall & Silvertown Tunnels	Continuous, subject to data collection methods
Performance of bus routes on the network adjacent to the crossings	Bus journey time, speed	Relevant sections of bus routes on key approaches to Blackwall & Silvertown Tunnels	Continuous, subject to data collection methods

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
	Excess wait time	Entire route of relevant bus routes using approaches to Blackwall & Silvertown Tunnels	Continuous, subject to data collection methods
Bus patronage levels	Bus patronage data	Entire route of all cross river bus routes using Blackwall & Silvertown Tunnels	Continuous, subject to data collection methods
Cycle Shuttle service	Patronage data	Entire route (note: route is to be confirmed)	Continuous, subject to data collection methods
Rail patronage levels	Rail patronage data	Jubilee line between Canning Town and North Greenwich  Docklands Light Railway between Island Gardens and Cutty Sark  Docklands Light Railway between King George V and Woolwich Arsenal	Continuous, subject to data collection methods



Outcome	Metric	Location	Duration
<b>Road safety</b>			
Changes in patterns of road accidents, especially those involving vulnerable road users	Accident data	Key corridors, other strategic & local links & junctions set out earlier in this table	Full annual records
<b>Pedestrian &amp; cyclist indicators</b>			
Impact of Scheme related changes in traffic flow on severance and the ability of pedestrians and cyclists to use/cross the roads	Traffic flow data  Pedestrian & cyclist indicators such as crossing wait times etc.	Albert Road/Connaught Road between Hartmann Road and Pier Road	Traffic flow:  24-hour data for a typical week and weekend  Pedestrian & cyclist indicators: AM peak and PM peak for a typical weekday
		Bugsby's Way between John Harrison Way and Peartree Way	
		Connaught Bridge between Connaught Roundabout and Connaught Road	
		Lower Lea Crossing between Leamouth Circus and Tidal Basin Roundabout	

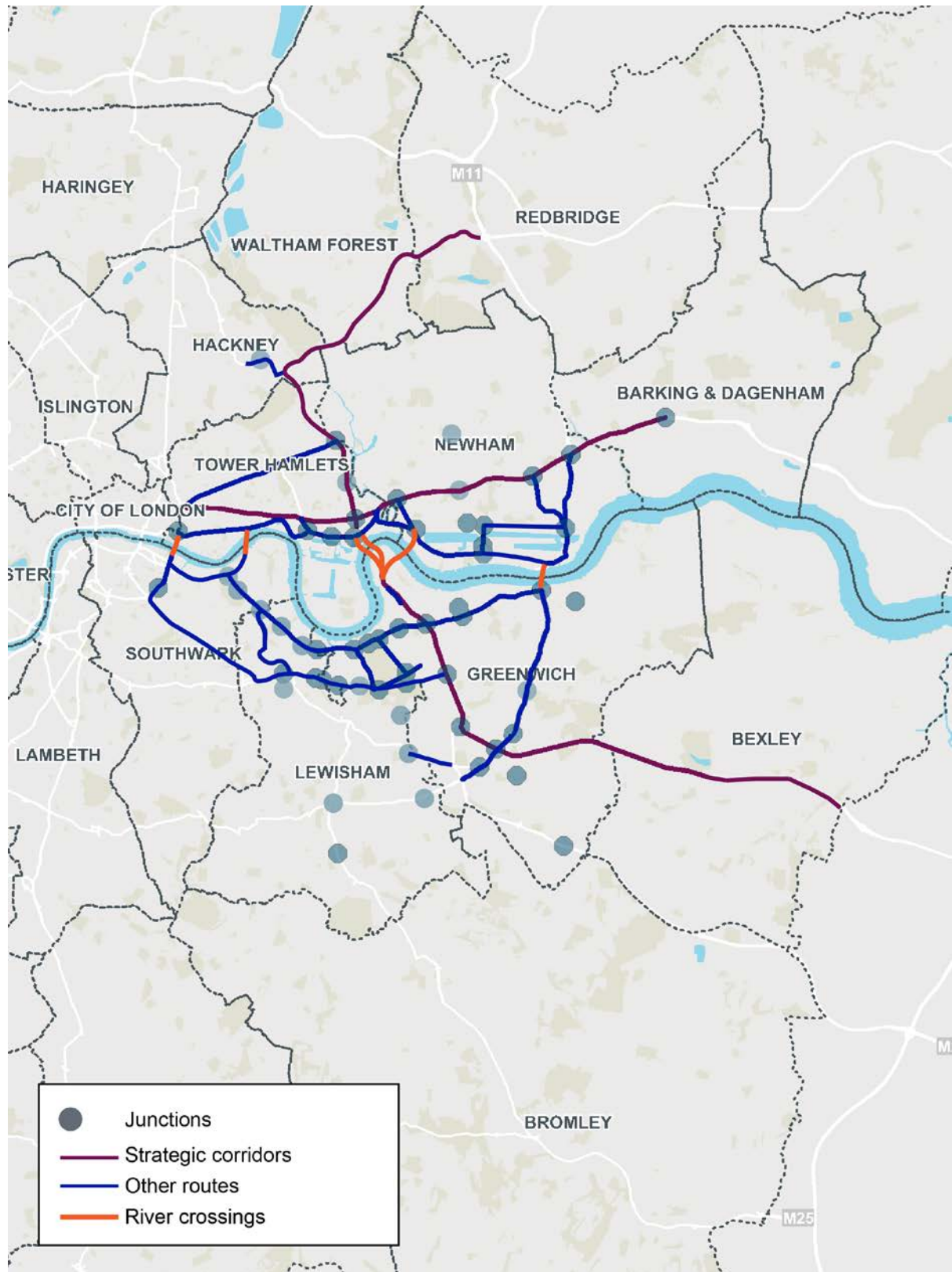
Outcome	Metric	Location	Duration
		Millennium Way between Edmund Halley Way and John Harrison Way	
		A206 Nelson Road/Trafalgar Road between Greenwich High Road and Blackwall Lane	
		North Woolwich Road between Silvertown Way and North Woolwich Roundabout	
		Prince of Wales Road between A2 Shooters Hill and South Row	
		Prince Regent Lane between A13 and Victoria Dock Road	
		Silvertown Way between A13 and North Woolwich Road	

Outcome	Metric	Location	Duration
		Victoria Dock Road between Caxton Street North and Connaught Roundabout	
		West Parkside/Pilot Busway between Edmund Halley Way and John Harrison Way	
		A206 Woolwich Road between Blackwall Lane and Anchor and Hope Lane	
Use of local roads by cyclists and pedestrians	Pedestrian & cyclist numbers	Boord Street footbridge	24-hour data for a typical weekday and weekend
		Lower Lea Crossing	
Use of Emirates Air Line as pedestrian & cyclist crossing	Pedestrian & cyclist numbers	Emirates Air Line	24-hour data for a typical week and weekend

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
Impact of mitigation measures on pedestrians & cyclists	Pedestrian & cyclist numbers, wait times etc.	Locations where mitigations are being implemented as a result of this strategy	24-hour data for a typical weekday and weekend
<b>Travel behaviour</b>			
Changes in travel behaviour of Blackwall Tunnel & Silvertown Tunnel users and the local population	Survey data including stated and revealed preference for users of different modes and vehicle types	No fixed geographic location	Every two years during a neutral month
<b>Control sites</b>			

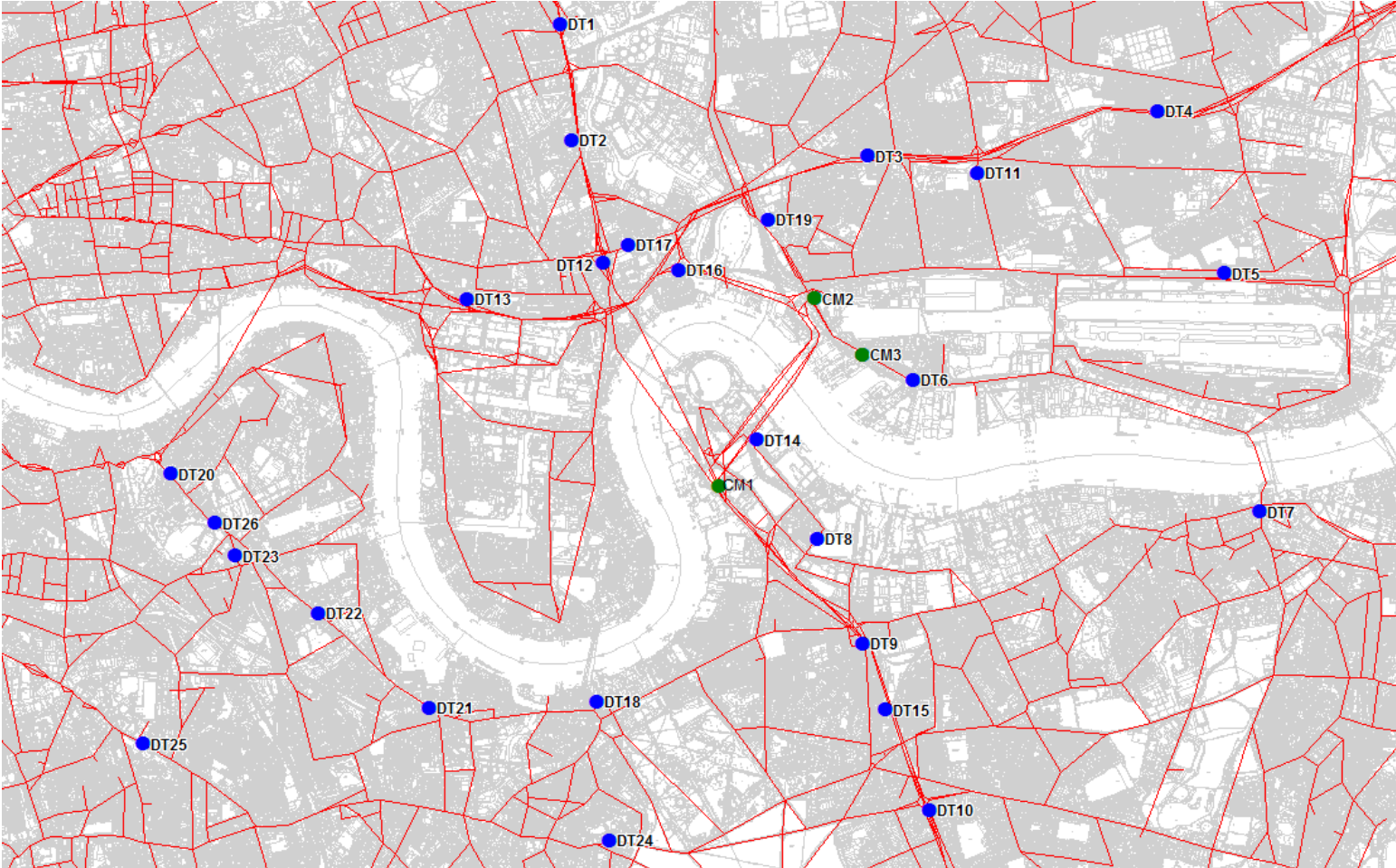
Outcome	Metric	Location	Duration
Changes in travel patterns and trends independent of the Scheme	Vehicle journey times Vehicle journey time reliability Traffic flow (including assessment of volume to capacity ratio) Junction delay Degree of saturation Bus speed Accident data	Making use of TfL's existing and ongoing data collection programme	Making use of TfL's existing and ongoing data collection programme
<b>Additional traffic data to update the strategic traffic model</b>			
To update the strategic traffic model in advance of Scheme opening	Traffic flows, vehicle journey time routes, origin & destination pairs	As required to update the model	As required to update the model

Figure A-1 Traffic monitoring locations

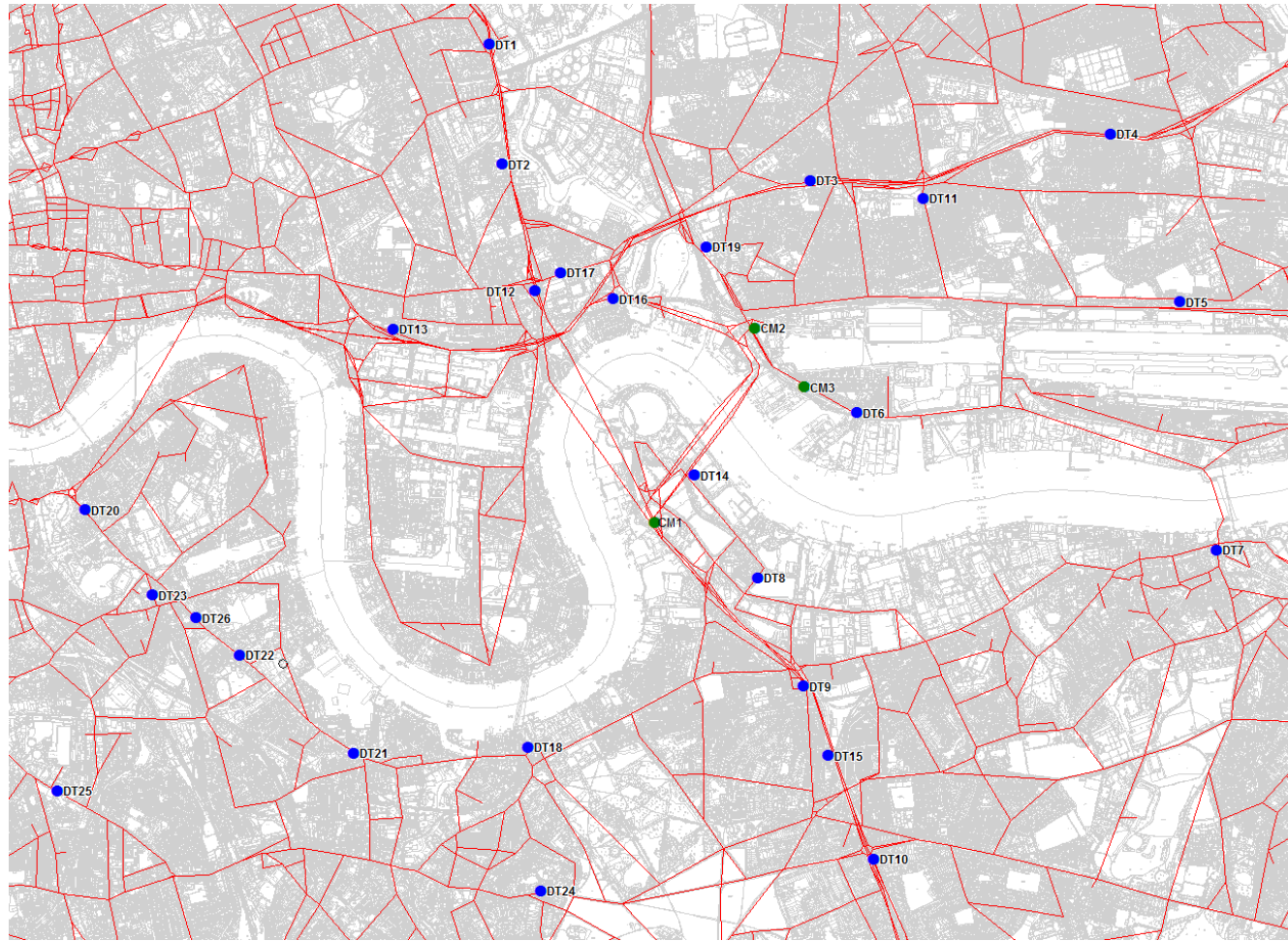


## Appendix B Air quality monitoring plan

### Figure B-1 Air quality monitoring locations







**Table B-1 Initial air quality monitoring plan**

B.1.1 The exact location of the air quality monitoring sites will be agreed with the relevant local authority at the time of installation.

Location	X co-ordinate	Y co-ordinate	Diffusion Tube (DT) or Continuous Automatic Monitoring (CM)
Silvertown Tunnel Southern Portal, Greenwich Peninsula	539168	179338	CM1
Hoola Development, Royal Victoria	539908	180728	CM2
Dalemain Mews, West Silvertown	540257	180314	CM3
Washington Close, Bromley-By-Bow	538034	182752	DT1
Tevoit Street, Bromley-By-Bow	538127	181888	DT2
Douglas Road	540302	181769	DT3
Newham Way, Beckton	542427	182102	DT4
Campion Close, Cyprus	542911	180913	DT5
North Woolwich Road, West Silvertown	540633	180133	DT6
John Wilson Street, Woolwich	543174	179161	DT7

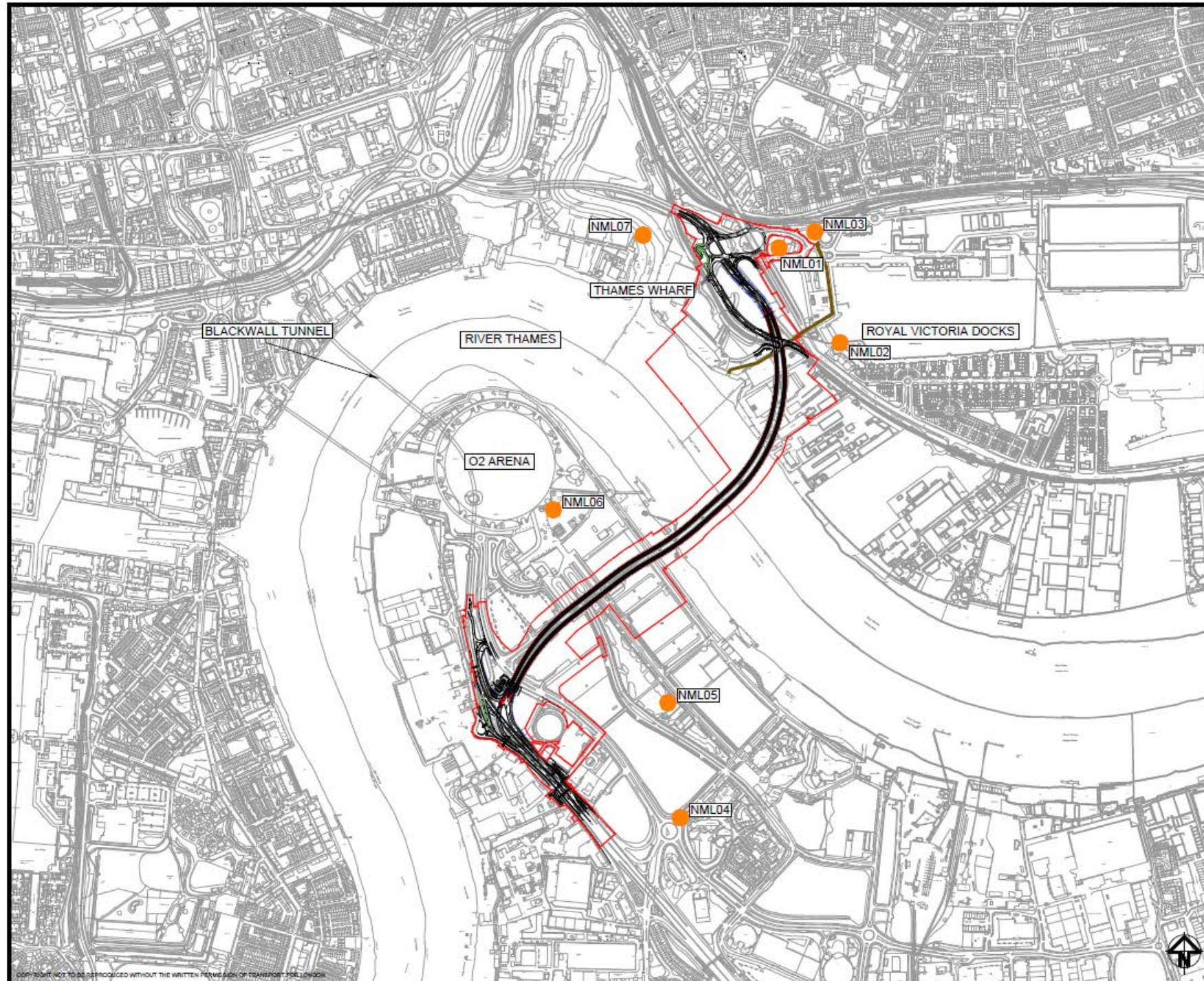
Location	X co-ordinate	Y co-ordinate	Diffusion Tube (DT) or Continuous Automatic Monitoring (CM)
Southern Way, Millennium Village	539926	178964	DT8
Westcombe Hill, Westcombe	540254	178196	DT9
Sun-in-the-Sands, Greenwich	540756	176970	DT10
Prince Regent Lane, Custom House	541098	181646	DT11
Robin Hood Lane, Poplar	538356	180991	DT12
Ming Street, Poplar	537347	180722	DT13
East Parkside, Greenwich Peninsula	539482	179687	DT14
Siebert Road, Westcombe	540423	177707	DT15
Switch House, East India	538908	180936	DT16
East India Dock Road, Poplar	538545	181129	DT17
College Approach, Greenwich	538306	177768	DT18
Silvertown Way, Canning Town	539566	181301	DT19

Location	X co-ordinate	Y co-ordinate	Diffusion Tube (DT) or Continuous Automatic Monitoring (CM)
Lower Road, Canada Water	535179	179438	DT20
Evelyn Street, Deptford	537066	177726	DT21
Evelyn Street, Deptford Park	536258	178418	DT22
Rotherhithe Old Road, Rotherhithe	535648	178839	DT23
Blackheath Hill, Blackheath	538394	176750	DT24
Old Kent Road, Peckham	534977	177458	DT25
Lower Road, Rotherhithe	<u>535498942</u>	<u>1790778694</u>	DT26



## Appendix C Noise monitoring plan

Figure C-1 Noise monitoring locations



**Table C-1 Initial noise monitoring plan**

C.1.1 The exact location of the noise monitoring sites will be agreed with the relevant local authority at the time of installation.

<b>Monitoring Location</b>	<b>Location Description</b>	<b>Approximate National Grid Reference</b>	<b>Monitoring Regime</b>
NML01	Residential properties within the southern extent/façade of the Hoola mixed use/residential development	TQ 39909 80728	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML02	Residential properties in the vicinity of the existing Western Beach Apartment block	TQ 40093 80452	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML03	Residential properties within the southern extent/façade of the Pump Tower residential development	TQ 40014 80774	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML04	The Millennium School educational facility	TQ 39667 79082	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML05	Residential properties	TQ 39614	Continuous monitoring

<b>Monitoring Location</b>	<b>Location Description</b>	<b>Approximate National Grid Reference</b>	<b>Monitoring Regime</b>
	in the vicinity of the Pilot Public House	79381	using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML06	The Ravensbourne College educational facility	TQ 39275 79961	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods
NML07	The Faraday School educational facility	TQ 39521 80744	Continuous monitoring using Calibrated Type 1 Data logging Sound Level Meter quantifying at minimum $L_{Aeq}$ , $L_{A10}$ and $L_{Amax}$ parameters in hourly periods

## Appendix D Socio-economic monitoring plan

### D.1 Residents

D.1.1 TfL will commit to undertaking a residents survey and behavioural survey to monitor the impact of the Scheme on London's socio-economic groups. At least 1,000 people will be surveyed across east and south-east London on an annual basis, stratified by location, age, gender and income to ensure it is representative of the area's population.

D.1.2 Table D - 1 sets out an indicative range of metrics that will be collected from the survey to help inform whether mitigation is required for specific socio-economic groups. This list is not intended to be exhaustive and will be finalised in consultation with STIG members. All of the following will be analysed by income band (to identify the impacts on lower income groups), location (to identify the impacts on specific regeneration areas) and socio-economic classification including age, gender, disability and ethnicity.

**Table D - 1 Initial socio-economic monitoring plan - residents**

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
The number of residents that cross the River to reach their place of work - highway	Residents Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that cross the River to reach their place of work – public transport	Residents Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that cross the River to reach retail and social infrastructure - highway	Residents Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that cross the River to reach retail and social infrastructure - public transport	Residents Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that cross the River for social purposes -	Residents Survey	Borough and LSOA level	Continuous over an



highway			annual period
The number of residents that cross the River for social purposes - public transport	Residents Survey	Borough and LSOA level	Continuous over an annual period
The frequency of cross-river trips by residents, by journey purpose - highway	Residents Survey	Borough and LSOA level	Continuous over an annual period
The frequency of cross-river trips by residents, by journey purpose - public transport	Residents Survey	Borough and LSOA level	Continuous over an annual period
The time of day of cross-river trips by residents, by journey purpose - highway	Residents Survey	Borough and LSOA level	Continuous over an annual period
The time of day of cross-river trips by residents, by journey purpose – public transport	Residents Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that reassigned their journey to other crossings over the past year and the reason for this switch, by journey purpose	Behavioural Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that redistributed to an alternative destination over the past year and the reasons for this, by journey purpose	Behavioural Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that switched mode over the past year and the reasons for this, by journey purpose	Behavioural Survey	Borough and LSOA level	Continuous over an annual period
The number of residents that	Behavioural	Borough and	Continuous

retimed their trips over the past year and the reasons for this, by journey purpose	Survey	LSOA level	over an annual period
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D.1.3 In addition to the metrics set out above, the surveys will also allow further exploration of the reasons why changes in travel behaviour may have taken place for particular socio-economic groups. This will include:

- Whether the cost of the Scheme has had any impact on particular socio-economic group's ability to cross the river, to access employment opportunities or for social reasons, and the behavioural responses to this.
- Whether the reduction in congestion, or improvement in journey time reliability, has had any impact on a particular socio-economic group's ability to cross the river.
- Whether the impact of the bus services has had any impact on a particular socio-economic group's ability to cross the river.

D.1.4 In addition to the residents and behavioural surveys, TfL will continue to collect and analyse a significant amount of data on the travel patterns of east and south-east London residents as part of its annual London Travel Demand Survey (LTDS). This will be used to understand how cross-river travel behaviour may have changed within the context of changing travel behaviour within the wider area. TfL will also use socio-economic monitoring data from local authorities where available.

## D.2 Businesses

D.2.1 TfL will commit to undertaking a business survey to monitor the impact of the Scheme on London's businesses. At least 500 businesses will be surveyed across east and south-east London on an annual basis, stratified by location, size and sector to ensure it is representative of the area's business mix.

D.2.2 Table D - 2 sets out an indicative range of metrics that will be collected from the survey to help inform whether mitigation is required for specific types of businesses. This list is not intended to be exhaustive and will be finalised in consultation with STIG members. All of the following will be analysed by business size, sector and location.

**Table D - 2 Initial socio-economic plan – businesses**

<b>Outcome</b>	<b>Metric</b>	<b>Location</b>	<b>Duration</b>
The number of cross-river trips made to visit potential customers	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of potential customers that visit the business from the other side of the River	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of employees that travel to the business from the other side of the River	Business Survey	Borough and LSOA level	Continuous over an annual period
The frequency of cross-river trips by businesses, by journey purpose - highway	Business Survey	Borough and LSOA level	Continuous over an annual period
The frequency of cross-river trips by businesses, by journey purpose – public transport	Business Survey	Borough and LSOA level	Continuous over an annual period
The time of day of cross-river trips by businesses, by journey purpose - highway	Business Survey	Borough and LSOA level	Continuous over an annual period
The time of day of cross-river trips by businesses, by journey purpose – public transport	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of businesses that reassigned their journeys to other crossings and the reason for this switch, by journey purpose.	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of businesses that redistributed to an alternative destination and the reasons for	Business Survey	Borough and LSOA level	Continuous over an annual

this, by journey purpose			period
The number of businesses that switched mode and the reasons for this, by journey purpose	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of businesses that retimed their trips and the reasons for this, by journey purpose	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of time critical deliveries missed as a result of crossing the River	Business Survey	Borough and LSOA level	Continuous over an annual period
The degree to which staff are late for work/miss meetings as a result of crossing the River	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of times unpredictable events when crossing the river have impeded business operations	Business Survey	Borough and LSOA level	Continuous over an annual period
The number of businesses taking part in the Business Transition Scheme and views on this	Business Survey	Borough and LSOA level	Continuous over an annual period

D.2.3 In addition to the metrics set out above, the survey will also allow further exploration of the reasons why changes in travel behaviour may have taken place for particular business types. This will include:

- Whether the Scheme has enabled the business to grow or invest and the reasons for this
- Whether the business has taken on more staff, or lost staff, as a result of the Scheme and the reasons for this
- The impact of any changes in reassignment, redistribution or mode shift on the operation and profitability of the business

- The impact of any changes in congestion and journey time reliability on the operation and profitability of the business

#### D.2.4 Other secondary data

D.2.5 In addition to the primary data that TfL will collect through surveys, TfL will also monitor wider socio-economic characteristics to identify the impact of the Scheme within its wider context.

D.2.6 Table A - 3 sets out the additional range of secondary data that will be monitored. Again, this list is not intended to be exhaustive and will be finalised in consultation with STIG members.

**Table A - 3 Secondary socio-economic data**

<b>Outcome</b>	<b>Source</b>	<b>Location</b>	<b>Duration</b>
Unemployment rate, split by age and gender	JSA Claimant Count	Borough and LSOA level	For each month over an annual period
Indices of Multiple Deprivation	DCLG	Borough and LSOA level	Every four years
The number of business operating, by size and sector	Business Register and Employment Survey	Borough and LSOA level	Annually
The number of employees, by size and sector	Business Register and Employment Survey	Borough and LSOA level	Annually
Rental levels for commercial and industrial floorspace	Commercial agents/Costar database	Borough and LSOA level	Annually
The number of pupils who attend schools outside of their home Borough	Boroughs	Borough	Annually

## Appendix E Mitigation Triggers

### E.1 Overview of Trigger Process

- E.1.1 Mitigation triggers are proposed as a means of assisting the identification of any unexpected traffic-related impacts of the scheme on the highway network following opening of the scheme (likely impacts identified ahead of opening are subject to their own mitigation procedure). Triggers refer to levels of change post scheme opening which exceed the level of change anticipated, and are designed to provide an alert if these levels are breached.
- E.1.2 Trigger levels are ranked using a RAG (Red, Amber, Green) system. Green represents the expected change (based on the difference between modelled scheme and modelled reference case, with forecasting range / variability and measurement error taken into account as necessary); amber is the first level of warning and would warrant an investigation into mitigation if deemed necessary by STIG; and red always warrants an investigation into whether mitigation is needed. If TfL determines that mitigation is not required following a trigger activation it will provide the members of STIG with a clear justification for this.
- E.1.3 The triggers will cover the 'area of influence' identified in Figure 3-1 which represents the geographical area where anticipated changes (in terms of traffic conditions) are most marked. Specifically, the triggers will cover changes in traffic-related metrics at the following locations:
- The Blackwall and Silvertown tunnels;
  - Other river crossings;
  - Strategic corridors<sup>5</sup>; and
  - Local roads.

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<sup>5</sup> Strategic corridors include the strategic radial and orbital corridors outlined in the Mayor's Transport Strategy (MTS corridors), the Transport for London Road Network (TLRN) and Strategic Road Network (SRN). These are key links that carry the highest volumes of traffic and the majority of TfL bus routes.

- E.1.4 Monitoring undertaken in the area of influence will cover all of the most marked impacts of the Scheme. Should additional monitoring be undertaken in the wider buffer zone, for instance at the request of STIG, it is possible that additional triggers could be set for locations outside the Area of Influence if there is a demonstrable need for doing so.
- E.1.5 Triggers will be reviewed prior to scheme opening and if necessary updated in consultation with STIG to ensure they remain fit for purpose. It should be stressed that STIG can have regard to any information set out in the monitoring reports in forming a view on the impacts of the scheme; a trigger doesn't have to be breached for STIG to explore a potential scheme effect, in the same way that activation of a trigger does not necessarily mean that mitigation is required. Similarly, the triggers do not in any way restrict STIG's ability to apply professional judgement when considering the monitoring reports. Indeed, it is expected that the collective experience of STIG would be put to good use in interpreting the monitoring reports and the triggers.

## **E.2 Proposed Metrics**

- E.2.1 Triggers will be set for the following traffic-related metrics:
- a. Traffic Flows - This metric considers changes in traffic flows as a result of the Scheme. It is proposed that triggers based on traffic flows will form the principal mitigation triggers for the Scheme. The primary source of data for measuring average traffic flow is Automated Traffic Counts (ATCs), of which there are currently approximately 350 located at various sites across London. Traffic flows are considered the primary metric for assessing unanticipated scheme impacts.
  - b. Vehicle Composition (HGVs) - Triggers for HGV usage are given as increases to the current observed proportion of HGVs (that is the flow of HGVs as a proportion of all traffic) in each geographic area. There is expected to be no background growth in the proportion of HGVs using the assessed roads. Vehicle composition can be determined from data derived from Automatic Number Plate Recognition (ANPR) cameras combined with records from the Driver & Vehicle Licensing Authority (DVLA).
  - c. Journey Time Reliability - The current methodology for assessing JTR involves scaling journey lengths, on the corridors of interest, to a "30 minute standard journey" and then counting the percentage of trips which take more than 5 minutes longer than the expected time. The primary source of data for assessing the impact of the scheme on

journey time reliability is ANPR data, captured continuously as part of the London Congestion Analysis Project (LCAP).

- d. Queues extending beyond a certain point - The primary source of data for assessing the scheme impact at Woolwich will be usage data. In addition, surveys of vehicle queuing will be undertaken to provide an indication of impacts on the adjacent road network. The ferry approaches present a unique situation, with the total queue length having a high degree of variation and thus not likely to be a true indicator of actual road operation. The methodology proposed has therefore been developed to capture and compare the amount of time per day that the queued ferry traffic extends to a point on the highway network that impacts on through (non-ferry) traffic. This methodology can be consistently replicated each year to enable like-for-like comparison.
- e. Bus Reliability (EWT) - Bus reliability can be measured using excess wait time<sup>6</sup> data derived from TfL's iBus monitoring system. Note that TfL are currently investigating the use of bus journey time reliability as a metric for monitoring buses. If this becomes the standard metric for bus evaluation, then it may be appropriate to adopt this metric for the trigger. The routes and start/end points would be agreed nearer to the time of Scheme opening once the bus network to be in place on opening of the Scheme has been agreed.
- f. Road Safety - The key metric for road safety is the number of KSIs. Further it is suggested that rather than the number of KSIs directly, the number of incidents which result in a KSI are used to assess the impact of the scheme at Blackwall/Silvertown.
- g. Junction Performance - There is potentially scope for additional triggers to be set based on the performance of certain specific junctions, for example if the monitoring reveals a Scheme-related effect in the vicinity of a junction that is not included within an LCAP link. As junction performance varies significantly, it is expected that individual triggers

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<sup>6</sup> Excess wait time is a key indicator of bus reliability, which is a measure of how much time passengers had to wait above the time they would be expected to wait if every service ran to schedule.



would need to be set for each junction considered nearer to the time of Scheme opening based on outputs from the refreshed assessment.

### E.3 Overview of Data Constraints

- E.3.1 Trigger levels will be set based on expected changes due to the scheme derived from outputs of the modelled scheme. The intention is that the triggers will tell us whether observed scheme impacts are materially different from those forecast in the Assessed Case, over a prolonged period of time. The intention is not that a freak or unusual event causes a trigger, but that a trigger is activated if there is a sustained deviation from expected scheme outcomes.
- E.3.2 By appropriately reflecting the expected change caused by the scheme, the triggers thresholds would remain applicable if background conditions across the network (i.e. the Reference Case) were different from those currently forecast. Setting the trigger thresholds based on absolute values is not considered appropriate because changes in background conditions, which are not a result of the scheme, could render the triggers irrelevant. A trigger based on an absolute traffic flow of x at a certain location, for instance, may not be breached even if the scheme was having an unforeseen effect if background growth across the network was lower than forecast. Similarly, if background growth was higher than forecast, the trigger could be breached purely by traffic growth regardless of the scheme's effect.
- E.3.3 Were background conditions observed to be notably different in practice to those forecast, this would be identified as part of the pre-scheme monitoring and the refreshed assessment of scheme impacts undertaken prior to opening. TfL would then take appropriate steps so that to ensure the impacts of the scheme is not likely to give rise to were not materially new or materially different environmental effect to worse than those assessed in the Environmental Statement, for example through adjustments to user charging and the implementation of localised mitigation. The post-opening triggers in effect provide an additional level of surety that unanticipated scheme effects can be identified and addressed post scheme opening.
- E.3.4 Due to the need for sustained change to be distinguished from expected variation in flows (over a given time period) the trigger thresholds cannot be based on variance from the forecast scheme impacts alone. This is particularly the case for triggers based on traffic flows, but could also apply to a lesser degree for triggers based on other metrics (for example journey time reliability).

E.3.5 Currently there is high variability in daily traffic flow across the network – in a given week, for example, flows may vary by  $\pm 20\%$  so a trigger which simply looks for a 5% difference in expected flow will trigger frequently but may not actually pick up a sustained trend in the change in traffic flow. Although considering data on a quarterly basis will help to reduce the level of variability, significant variability remains. Similarly and as explained above, the method for a trigger to be activated needs to take into account growth, as otherwise background growth may cause a trigger to activate rather than an unexpected scheme effect.

#### **E.4 Overview of Data Analysis**

E.4.1 The means of accounting for variability and growth will be agreed at a later date. There are two potential methods for doing this. The first involves building in allowance for variability and growth based on observed data collected through the monitoring programme (in order to determine exactly what these allowances should be, consideration of the acceptable number of false positives is required). The second involves isolating the scheme impacts from background growth and variability using regression to look at the expected difference in the level of flow pre- and post- Scheme opening. The host boroughs have expressed a preference for adopting this approach.

E.4.2 Where other metrics follow a similar pattern of variability an adaptation of the chosen method will be used to set the appropriate trigger thresholds. Where no variation is expected trigger levels will be set without reference to day to day variation.

E.4.3 In slightly more detail, the considerations which have to be taken into account over the monitoring period, are as follows:

- Background growth
- Measurement error
- Initial fluctuations in flow
- Temporal fluctuations

E.4.4 For background growth, the first method outlined about above involves including a fixed percentage in the trigger level to account for this. The second method using regression explicitly takes this into account.

E.4.5 For measurement error, this reflects the fact that the methods used to count traffic are not 100% accurate. Including a small allowance for measurement

error in the metrics that are based on traffic counts (incorporated within the forecasting range/variability allowance) is one method of addressing this.

- E.4.6 For initial fluctuations in flow, it is likely that it will take time for the drivers to become used to the Scheme being in place and, as such, there may be significant variation in usage patterns in the initial period. It is possible that these will be above and beyond what might be expected due solely to day to day variation in daily traffic flow, and this should be given due consideration for any trigger activations within the first year after Scheme opening.
- E.4.7 For the temporal fluctuations, in order to account for seasonal variations it is planned that, for the purpose of the triggers, the monitoring data will be aggregated and compared quarterly to the same quarter in the baseline. This will help to minimise the likelihood of thresholds being triggered by general variability experienced across the network and not attributable to the Scheme, and fits with reporting cycles for the annual monitoring reports that will be produced for STIG.
- E.4.8 It is planned that the triggers will be based primarily on all day (24 hour) weekday flows. However, it is recognised that the Scheme could have different impacts across different periods of the day and accordingly triggers will also be set for peak periods for the traffic flow, vehicle composition and journey time reliability metrics.
- E.4.9 In the case of the AM peak period this will be defined as 6am to 10am (rather than 7am to 10am) as the Blackwall Tunnel generally experiences traffic building up earlier than other parts of the network, whilst the PM peak will be defined as 4pm to 7pm. Consideration of peak periods rather than peak hours will ensure that the worst case impacts are captured as well as any peak contraction that may occur (as is expected as a result of the Scheme).

## **E.5 Initial mitigation triggers**

- E.5.1 The initial mitigation triggers are set out in Table A-4.
- E.5.2 It is planned that the triggers will be reviewed by TfL in consultation with STIG members in the light of the refreshed assessment undertaken prior to scheme opening, at a point when the opening year bus network has been confirmed. It will then be possible to specify the bus routes to be covered by the triggers and any triggers relating to junction performance, as well as agree the approach for dealing with variability and growth.

- E.5.3 As part of this review, it may be appropriate to amend the trigger metrics or thresholds for other reasons (for instance because of a change in the way data is collected or reported, or a notable change in background conditions). In such instances TfL will set out a rationale for any amendments it considers necessary and share this with STIG members for approval.
- E.5.4 Similarly, it is planned that the triggers will be reviewed post-opening of the Scheme as part of the first annual monitoring report to ensure they are fit for purpose and performing their intended function. Where potential changes are identified, TfL will set out a rationale for any amendments it considers necessary and share this with STIG members for approval.

**Table A - 4: Initial mitigation triggers**

Metric	Location	Blackwall / Silvertown	Blackwall Tunnel	Silvertown Tunnel	Rotherhithe Tunnel	Tower Bridge	Woolwich Ferry	MTS corridors	Local roads	Notes
Traffic flows	Red alert	+4%	82%	32%	+8%	+7%	+5%	+7%	+7%	Change from baseline. Forecast change is based on change between Ref and Assessed Case.  The individual triggers for Blackwall and Silvertown are based on the proportion of traffic flow at each crossing relative to the combined traffic flow.
	Amber alert	0%	78%	28%	+4%	+3%	+1%	+3%	+3%	
	Forecast range/variability	-1%	77%	27%	+3%	+2%	0%	+2%	+2%	
	Forecast change in flow	-3%	75%	25%	+1%	0%	-2%	0%	0%	
	Forecast range/variability	-5%	73%	23%	-1%	-2%	-4%	-2%	-2%	
	Amber alert	-6%	72%	22%	-2%	-3%	-5%	-3%	-3%	
	Red alert	-10%	68%	18%	-6%	-7%	-9%	-7%	-7%	
			Based on proportion of flow relative to combined flow							
Vehicle composition (HGVs)	Red alert	0%				+7%	+7%	+7%	+7%	Change from baseline. Forecast change is based on change between Ref and Assessed Case.
	Amber alert	-4%				+3%	+3%	+3%	+3%	
	Forecast range/variability	-5%				+4%	+4%	+2%	+2%	
	Forecast change in HGVs	-7%				2%	2%	0%	0%	
	Forecast range/variability	-9%				0%	0%	-2%	-2%	
	Amber alert	-10%				-1%	-1%	-3%	-3%	
Red alert	-14%				-5%	-5%	-7%	-7%		
Journey time reliability	Forecast JTR	TLRN mean	TLRN mean	TLRN mean	TLRN mean	TLRN mean		TLRN mean		Change from TLRN average, on the basis that currently JTR at Blackwall Tunnel is significantly worse than average.
	Amber alert	-3%	-3%	-3%	-3%	-3%		-3%		
	Red alert	-6%	-6%	-6%	-6%	-6%		-6%		
Queues extending beyond a certain point	Amber alert - north side						16%			% of time queues extend beyond a predefined point on the highway network, based on current conditions. North side point = entry to waiting area, south side point = Woolwich Church Street.
	Red alert - north side						20%			
	Amber alert - south side						9%			
	Red alert - south side						13%			
Bus reliability (EWT)	Forecast EWT	EWT mean	EWT mean	EWT mean				EWT mean	EWT mean	Change from London-wide average, on the basis that currently bus reliability at Blackwall Tunnel is significantly worse than average.
	Amber alert	-2%	-2%	-2%				-2%	-2%	
	Red alert	-5%	-5%	-5%				-5%	-5%	
Road safety	Amber alert - SI	1-2	1-2	1-2						Absolute numbers of KSIs.
	Red alert - SI	>2	>2	>2						
	Amber alert - Fatal	>0	>0	>0						
	Red alert - Fatal	>1	>1	>1						
Junction performance	Forecast DoS							Tbc	Tbc	Change from baseline. Forecast change will be determined based on baseline conditions.
	Amber alert							Tbc	Tbc	
	Red alert							Tbc	Tbc	

## Appendix F Potential mitigation measures

### Potential mitigation measures, delivery mechanisms and impacts covered

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Variation of the user charge	Varying the user charge can be used as a tool to manage traffic demand on the network. An effective charge ensures efficient flow of traffic and reduced adverse environmental impacts.	TfL would administer this through the Charging Policy and Procedures document (CPAP)	✓	✓	✓	
Changes to charging regime for particular groups	The user charge can be varied for specific vehicle types or users.	TfL would administer this through the Charging Policy and Procedures document (CPAP)	✓	✓	✓	✓
Discount on user charge for low income users	Reduce the cost of the user charge and therefore increase the net-benefits for low income users	TfL would administer this through the Charging Policy and Procedures document (CPAP)				✓
Introduction or alteration of emissions based charging	To encourage the cleanest vehicles and/or discourage the dirtiest vehicles	TfL would administer this through the Charging Policy and Procedures document (CPAP)		✓		

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Introduction of a user charge at adjacent crossings	A user charge could be introduced at adjacent river crossings. This would provide a mechanism for managing demand at other river crossings.	<p>TfL would administer this through its existing powers under section 295 of, and Schedule 23 to, the Greater London Authority Act 1999.</p> <p>In the case of the Woolwich Ferry it would be necessary to repeal or amend the Metropolitan Board of Works Act 1885.</p>	✓	✓	✓	

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Improvements to Woolwich Ferry vehicle waiting areas, including potential reconfiguration	Improvements to the waiting areas could lead to more efficient utilisation of available space and reduce the likelihood of traffic queuing to use the service impacting on the local highway network	<p>Within TfL's or the boroughs' remit where changes are implemented within the existing highway boundary.</p> <p>TfL has power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.</p>	✓			
New or enhanced bus routes	Adjusted/implemented routes can re-route bus traffic in a more efficient manner, and relieve noise and AQ problem spots	This would be delivered as per the approach set out in the Bus Strategy	✓	✓	✓	✓
Concessions on cross-river public transport	Discounts or exemptions on particular public transport routes could be applied to encourage mode shift and mitigate against potential socio-economic impacts of the user charge	TfL would administer this through the Charging Policy and Procedures document (CPAP) and the Bus Strategy				✓



Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Use of low emission buses	Using low emission buses only to cross the river can help mitigate harmful AQ effects. This can be useful if traffic is in congested conditions.	This would be delivered as per the approach set out in the Bus Strategy		✓	✓	
Technology to encourage take up of low emission vehicles	To encourage the cleanest vehicles and/or discourage the dirtiest vehicles	Dependent on technology utilised		✓		
Change in existing signal timings to manage localised congestion, air quality and/or noise impacts.	By re-distributing the length of total green time received by each arm, more green time can be given to the arm experiencing an increase in flow and/or delay in order to smooth the operation of the junction. Where operational, SCOOT will respond automatically to fluctuations in traffic flow through the use of on-street detectors embedded in the road.  Changes in signal timings can also serve to reduce severance and improve crossing opportunities for pedestrians and cyclists.	In relation to all roads in London, functions in respect of traffic signals under sections 65, 73, 74 and 75 of the Road Traffic Regulation Act 1984 are vested in TfL. See section 275 Greater London Authority Act 1999.	✓	✓	✓	

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Introduction of new signals to manage localised congestion, air quality and/or noise impacts.	<p>The introduction of signals at priority junctions, or additional signals at part-signalised junctions can aid in smoothing traffic flow and thereby reduce delay where it is problematic.</p> <p>The introduction of new signals can also serve to reduce severance and improve crossing opportunities for pedestrians and cyclists.</p>	In relation to all roads in London, functions in respect of traffic signals under sections 65, 73, 74 and 75 of the Road Traffic Regulation Act 1984 are vested in TfL. See section 275 Greater London Authority Act 1999.	✓	✓	✓	
Minor junction or geometry changes to manage localised congestion, air quality and/or noise impacts.	<p>Minor changes to junctions or links (e.g. small scale widening, changes to turning movements, flare lengths, crossing locations) can add capacity to a link or junction where constraints and hence delay are being experienced.</p> <p>Such changes can also serve to improve road safety at those locations and to reduce severance for pedestrians and cyclists.</p>	<p>Within TfL's or the boroughs' remit where changes are implemented within the existing highway boundary.</p> <p>TfL has power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.</p>	✓	✓	✓	

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Traffic management measures to manage localised congestion, air quality and/or noise impacts.	To control and restrict traffic by direction, time of day and/or vehicle class/type to mitigate localised environmental impacts.	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓	✓	✓	
Priority measures for different user groups e.g. bus lanes to manage localised congestion, air quality and/or noise impacts.	To improve journey times for particular user groups to ensure they are not adversely affected.	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓	✓	✓	
Adjust speed limits to manage localised congestion, air quality and/or noise impacts.	A reduction in speed limit can smooth traffic flows and reduce congestion. A change to speed limits may also influence journey times and consequently traffic flows, potentially leading to localised environmental improvements.  Adjusting speed limits can also serve to improve road safety.	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓	✓	✓	

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Pedestrian (and cyclist) crossings to reduce severance and/or improve road safety.	Where an increase in flow creates severance problems, the introduction of different types of pedestrian crossings can improve crossing opportunities for pedestrians (and cyclists) and improve road safety.	TfL has power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.				✓
HGV bans to manage localised congestion, air quality and/or noise impacts.	Banning HGVs from using certain roads can help to manage any adverse displacement of HGV traffic and concentrate HGV traffic on strategic routes, able to accommodate these movements.	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓	✓	✓	
Noise barriers to manage localised noise impacts.	Noise barriers can be effective in reducing the impact of traffic noise on receptors.	TfL has the power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.			✓	

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Low noise surfacing to manage localised noise impacts.	Low noise surfacing can be effective in reducing the impact of traffic noise on receptors.	TfL has the power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.			✓	
Business Transition Scheme	Help businesses to plan their movements in the most cost-efficient way and to act as a potential brokerage service for new opportunities	TfL would fund the Scheme, elements of which would be administered by boroughs				✓
Funding local-led business/labour market support	Concessions can be given for local residents, workers, and businesses for crossing the river.					✓
Freight and servicing management in local centres	Local coordination of freight and servicing trips can help to reduce the number of these trips on the local network.		✓	✓		✓

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Engagement with schools	Work with schools to raise awareness about air pollution and the measures that can be taken to reduce emissions e.g. Supporting schools to implement travel plans.			✓		✓
Public realm improvements, including improvements to facilities for pedestrians and cyclists	Public realm improvements to improve conditions for road users including pedestrians and cyclists.	TfL has the power to carry out works within or adjacent to a GLA road for the improvement or maintenance of the highway. The relevant borough has the same power in relation to any roads for which it is the highway authority.		✓	✓	✓
Designate Air Quality focus / management areas	Liaison with communities can help identify areas to be safeguarded and maintained as cleaner air spaces.			✓		✓

Mitigation	Effect	Delivery	To address these impacts:			
			Traffic	AQ	Noise	Other
Controlled parking zones and parking management	Better control of on-street parking, which can help to improve network performance and conditions for pedestrians and cyclists	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓			✓
Improvements to signage and wayfinding	Improved signage could help to improve network performance and aid wayfinding by road users	TfL's or the boroughs' existing powers under the Road Traffic Regulation Act 1984.	✓			
Measures to encourage mode shift from private vehicles to public transport, walking and cycling, for example improvements to pedestrian and cyclist facilities, travel planning and associated measures	Increased take up of sustainable and active travel in local areas impacted by the Scheme, potentially to offset residual impacts not addressed by other measures	Delivered by boroughs or TfL under existing powers	✓	✓	✓	✓

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

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## **Annex B: Sizewell C Model Iteration Example**



APPENDIX 8A.3

Model LMVR Addendum



# TECHNICAL NOTE: SIZEWELL C VISUM TRAFFIC MODEL

<b>DATE:</b>	02 December 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Base Model LMVR Addendum – Woodbridge Refinement		
<b>PROJECT:</b>	50400326	<b>AUTHOR:</b>	Sally Powell
<b>CHECKED:</b>	Diana Murungi	<b>APPROVED:</b>	Nick Cottman

## 1. INTRODUCTION

### Background

1.1. WSP was instructed by EDF Energy (EDFE) to develop a highway assignment traffic model for the purposes of assessing the potential traffic impacts of Sizewell C (SZC) on the surrounding highway network during the project's construction phase, in the first instance, as well as operational phases.

1.2. 2015 base year VISUM transport models have been developed, to represent seven modelled hours as follows:

#### **Main three hours:**

- 08:00-09:00
- 15:00-16:00
- 17:00-18:00

#### **Remaining four hours:**

- 06:00-07:00
- 07:00-08:00
- 16:00-17:00
- 18:00-19:00

1.3. The development, calibration and validation of the base models is described in the Local Model Validation Report (LMVR) and subsequent addendums, which were provided in **Appendix 8A** of the **Transport Assessment** (Doc Ref. 8.5(A)) [[AS-017](#)].

### Woodbridge area refinement

1.4. The model forecasting undertaken to inform the DCO application (May 2020), highlighted a local weakness around the heavily congested stretch of the A12 at Woodbridge. In the 2015 base year situation, the A12 stretch at Woodbridge carries a high level of weekday traffic demand in both directions during the hours 07:00-09:00 and 16:00-18:00, such that the road is operating close to capacity in the both directions during 08:00-09:00 and 17:00-18:00 hours. Delays are occurring due to the single-lane section of the A12 at Woodbridge as well as the junction with the B1079 Grundisburgh Road (in the northbound direction).

1.5. The modelled capacity of this single-carriageway stretch of road is 2,010 passenger car units<sup>1</sup> (PCUs) per hour in each direction, which was based on 'COst Benefit Analysis' (COBA) software developed by TRL. The modelling indicates that this single-carriageway stretch of A12 at Woodbridge is already at capacity in the 2015 base year and, because the VISUM model is a fixed-demand highway assignment model, any increase in traffic demand in future years must either "sit in a queue" (i.e. excess demand over capacity), or choose an alternative route through the network within the hour. The modelling indicates that as more traffic demand is added to the A12 corridor in future years, some traffic would be displaced onto the B1438 through Woodbridge.

1.6. The amount of traffic which is displaced onto the B1438 will actually be dependent upon the relative attractiveness of that route, which provides an alternative to the A12. Thus if existing conditions on the B1438

<sup>1</sup> Equivalent car units e.g. one HGV = 2.3 PCUs

do not accurately represent existing delays there is a risk that the attractiveness of the B1438 as a viable alternative to the A12 may be over or under-estimated.

- 1.7. Through discussion with SCC and AECOM it was agreed to investigate this part of the model and carry out a local area refinement of the 2015 base model, to achieve a better representation of the traffic conditions in this area and provide a more robust prediction of the future year impacts.
- 1.8. This technical note describes the additional data collected, refinements that have been made in the Woodbridge area and the resulting calibration and validation statistics from these updated base year models. The updates that have been applied will be carried through to the forecast year modelling as a refinement which will be submitted as part of the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad).

## 2. MODEL REFINEMENT – INPUTS

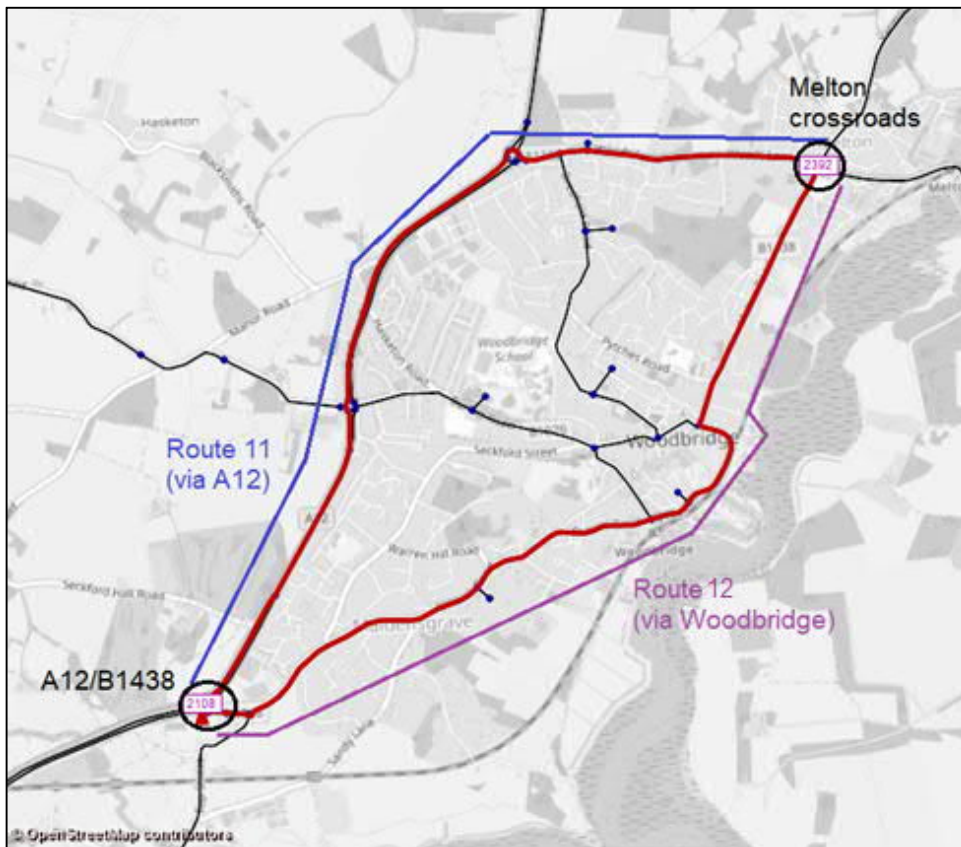
### ADDITIONAL OBSERVED JOURNEY TIME DATA

2.1. Observed journey time data was obtained for the two alternative routes between the A1152/B1438 Melton crossroads and the A12/B1438 roundabout, shown in Figure 1:

- Route 11: via A1152 and A12
- Route 12: via B1438.

2.2. The routes have been labelled '11' and '12' for continuity with the original ten validation routes.

**Figure 1 – Journey time routes between A12/B1438 and Melton crossroads**



- 2.3. The observations were derived from TomTom data provided by Streetwise Services Ltd for the month of May 2015 (excluding school holiday periods), to be consistent with the original survey data.
- 2.4. The summary observed journey times for Routes 11 (via A12) and 12 (via B1438), in each direction and each modelled hour, are shown in Table 1. It should be noted that Route 12 passes the rail station in Woodbridge so it is expected that the journey times may be affected by vehicles dropping off or picking up as they travel through the B1438.

**Table 1 – 2015 observed journey times – Routes 11 and 12**

Route	Dir	MODELLED HOUR						
		6-7 am	7-8 am	8-9 am	3-4 pm	4-5 pm	5-6 pm	6-7 pm
Route 11	NB	04:17	04:38	05:20	05:11	05:41	05:42	04:19
	SB	04:02	04:30	06:01	04:54	04:59	04:54	03:43
Route 12	NB	07:50	06:37	07:50	08:26	09:45	09:31	07:42
	SB	05:36	07:31	07:27	08:55	07:27	08:35	05:19

- 2.5. Initially, a comparison was made of the current 2015 base model journey times on these routes, which is shown in Table 2. This demonstrated that the model was under-predicting travel times on the B1438 through Woodbridge, which could result in an over-estimation of the attractiveness of this route, and the amount of displaced traffic it could attract in future years.

**Table 2 – Validated base model comparison – Routes 11 and 12**

Hour	Route	Dir	OBSERVED	VALIDATED MODEL	
			Observed Time (mm:ss)	Modelled Time (mm:ss)	Within 15% (or 1 minute) of Observed?
6-7 AM	Route 11	NB	04:17	04:10	✓
		SB	04:02	03:40	✓
	Route 12	NB	07:50	06:30	✗
		SB	05:36	05:46	✓
7-8 AM	Route 11	NB	04:38	04:41	✓
		SB	04:30	04:44	✓
	Route 12	NB	06:37	06:35	✓
		SB	07:31	05:50	✗
8-9 AM	Route 11	NB	05:20	04:55	✓
		SB	06:01	06:28	✓
	Route 12	NB	07:50	06:37	✗
		SB	07:27	06:32	✓
3-4 PM	Route 11	NB	05:11	05:57	✓
		SB	04:54	04:23	✓

Hour	Route	Dir	OBSERVED	VALIDATED MODEL		
			Observed Time (mm:ss)	Modelled Time (mm:ss)	Within 15% (or 1 minute) of Observed?	
4-5 PM	Route 12	NB	08:26	06:50	x	
		SB	08:55	05:51	x	
	Route 11	NB	05:41	06:32	x	
		SB	04:59	05:12	✓	
	Route 12	NB	09:45	06:53	x	
		SB	07:27	05:55	x	
	5-6 PM	Route 11	NB	05:42	05:56	✓
			SB	04:54	04:26	✓
Route 12		NB	09:31	06:53	x	
		SB	08:35	05:55	x	
6-7 PM	Route 11	NB	05:05	04:48	✓	
		SB	04:22	03:57	✓	
	Route 12	NB	09:04	06:34	x	
		SB	06:15	05:48	✓	

2.6. As part of this model refinement, to improve the modelled traffic conditions on the B1438 through Woodbridge, a number of network changes were applied to better reflect the attractiveness of this corridor:

- Reduced speed to 20mph, and reduced capacity to 1,000 PCUs/hour, on the B1438 from the A1152 (Melton crossroads) to Sandy Lane;
- Signal control applied at the junction of Quay Side / Hamblin Road car park, which was previously not modelled, with approximated signal timings;
- Reduced free-flow speeds from 60mph to 50mph on A1152 between Melton and Leiston, to reflect on-site conditions (bends, inclines, narrow road widths etc.);
- Moved the northern zone connector for zone 340 further north, to reflect the propensity for traffic from this area to join the A12 at Ufford rather than travelling south through Melton;
- Adjusted connector weights on zone 345 (Woodbridge) to reflect use of car park on Quayside; and
- Adjustments to demand traffic flows for origin-destination pairs traversing the A12 at Woodbridge, to calibrate delays on the single-lane section.

2.7. The results of these revisions are discussed in section 3.

### 3. MODEL REFINEMENT – RESULTS

#### MODEL CONVERGENCE RESULTS

3.1. The resulting 'Car' assignment convergence values are reported in Table 3.

**Table 3 – Model Convergence Results**

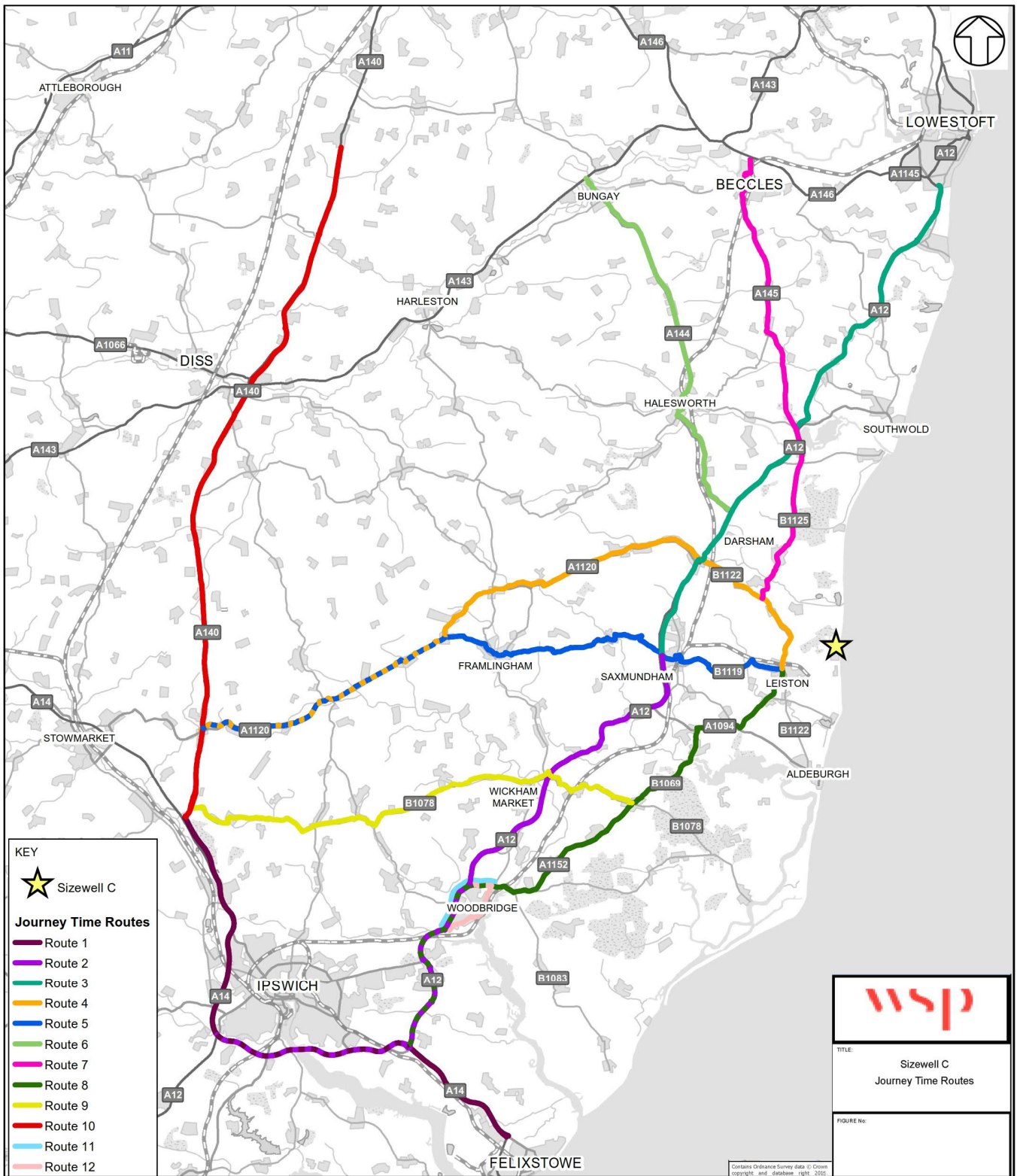
Hour	Number of iterations	DUALITY GAP	MODEL STABILITY 'P' ON FINAL ITERATIONS			
			n-3	n-2	n-1	n
6-7 AM	6	0.00000282461	0.992	0.995	0.997	1
7-8 AM	8	0.00000323468	0.991	0.996	0.998	0.998
8-9 AM	26	0.00000997210	0.992	0.994	1	0.999
3-4 PM	19	0.00000319274	1	0.999	0.995	0.998
4-5 PM	30	0.00000969366	1	1	0.998	1
5-6 PM	60	0.00000439297	0.998	0.997	0.998	0.999
6-7 PM	13	0.00000942063	0.998	0.998	0.998	0.983

3.1. The above results demonstrate the WebTAG convergence criteria is met in all cases indicating that the model is sufficiently stable overall.

#### JOURNEY TIME VALIDATION

3.2. A comparison of the journey time validation routes including the additional two Woodbridge routes is presented, for each of the seven modelled hours, in Table 4 to Table 10. The routes are shown graphically in Figure 2.

Figure 2 – VISUM journey time validation routes







**Table 4 – Journey Time Validation Statistics – 6-7am**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	19:12	18:29	✓	18:27	✓
	WB	18:30	18:35	✓	18:35	✓
Route 2	NB	27:41	27:26	✓	27:25	✓
	SB	28:41	27:36	✓	27:36	✓
Route 3	NB	27:13	25:31	✓	25:31	✓
	SB	24:51	25:36	✓	25:36	✓
Route 4	EB	43:11	38:40	✓	38:40	✓
	WB	38:08	38:24	✓	38:24	✓
Route 5	EB	45:55	37:15	✗	37:15	✗
	WB	42:12	36:42	✓	36:42	✓
Route 6	NB	23:03	22:38	✓	22:38	✓
	SB	24:32	22:00	✓	22:00	✓
Route 7	NB	26:44	26:49	✓	26:49	✓
	SB	26:29	27:26	✓	27:26	✓
Route 8	NB	35:57	30:10	✗	30:36	✓
	SB	33:32	29:50	✓	30:19	✓
Route 9	EB	27:34	26:44	✓	26:44	✓
	WB	28:16	26:49	✓	26:49	✓
Route 10	NB	31:43	30:11	✓	30:11	✓
	SB	32:12	30:17	✓	30:17	✓
Route 11	NB	04:17	04:10	✓	04:08	✓
	SB	04:02	03:40	✓	03:40	✓
Route 12	NB	07:50	06:30	✗	08:36	✓
	SB	05:36	05:46	✓	07:50	✗
<b>Total Routes</b>				<b>21</b>		<b>22</b>
				<b>88%</b>		<b>92%</b>



**Table 5 – Journey Time Validation Statistics – 7-8am**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	19:14	19:59	✓	19:59	✓
	WB	18:50	20:09	✓	20:10	✓
Route 2	NB	29:17	29:16	✓	29:14	✓
	SB	31:26	30:12	✓	29:55	✓
Route 3	NB	26:59	25:45	✓	25:45	✓
	SB	27:22	26:06	✓	26:06	✓
Route 4	EB	42:07	38:53	✓	38:53	✓
	WB	40:37	38:44	✓	38:44	✓
Route 5	EB	44:03	37:23	✗	37:23	✗
	WB	43:16	37:02	✓	37:01	✓
Route 6	NB	22:59	22:55	✓	22:55	✓
	SB	24:53	22:18	✓	22:18	✓
Route 7	NB	30:42	27:06	✓	27:06	✓
	SB	25:47	27:43	✓	27:43	✓
Route 8	NB	35:16	31:06	✓	31:25	✓
	SB	36:16	31:31	✓	31:37	✓
Route 9	EB	27:24	26:52	✓	26:52	✓
	WB	29:18	27:06	✓	27:06	✓
Route 10	NB	33:25	31:07	✓	31:07	✓
	SB	33:10	31:32	✓	31:32	✓
Route 11	NB	04:38	04:41	✓	04:31	✓
	SB	04:30	04:44	✓	04:22	✓
Route 12	NB	06:37	06:35	✓	08:45	✗
	SB	07:31	05:50	✗	07:57	✓
<b>Total Routes</b>				<b>22</b>	<b>22</b>	
				<b>92%</b>	<b>92%</b>	



**Table 6 – Journey Time Validation Statistics – 8-9am**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	21:38	21:04	✓	21:06	✓
	WB	20:03	20:26	✓	20:35	✓
Route 2	NB	31:20	30:19	✓	30:23	✓
	SB	36:02	32:24	✓	32:58	✓
Route 3	NB	27:16	25:55	✓	25:55	✓
	SB	27:37	26:08	✓	26:08	✓
Route 4	EB	42:10	39:00	✓	39:00	✓
	WB	43:17	38:56	✓	38:57	✓
Route 5	EB	44:27	37:34	✗	37:35	✗
	WB	45:31	37:16	✗	37:17	✗
Route 6	NB	21:58	23:07	✓	23:07	✓
	SB	25:19	22:20	✓	22:20	✓
Route 7	NB	29:51	27:30	✓	27:31	✓
	SB	26:46	27:44	✓	27:44	✓
Route 8	NB	35:43	31:33	✓	31:48	✓
	SB	41:01	33:31	✗	34:18	✗
Route 9	EB	31:08	26:56	✓	26:57	✓
	WB	30:21	27:20	✓	27:22	✓
Route 10	NB	34:36	31:26	✓	31:26	✓
	SB	33:36	32:07	✓	32:07	✓
Route 11	NB	05:20	04:55	✓	04:40	✓
	SB	06:01	06:28	✓	06:48	✓
Route 12	NB	07:50	06:37	✗	08:50	✓
	SB	07:27	06:32	✓	08:34	✓
<b>Total Routes</b>				<b>20</b>	<b>21</b>	
				<b>83%</b>	<b>88%</b>	



**Table 7 – Journey Time Validation Statistics – 3-4pm**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	19:21	20:11	✓	20:14	✓
	WB	18:31	19:49	✓	19:49	✓
Route 2	NB	32:57	31:01	✓	31:10	✓
	SB	31:57	29:57	✓	29:56	✓
Route 3	NB	29:28	26:14	✓	26:14	✓
	SB	28:58	25:59	✓	25:59	✓
Route 4	EB	44:02	38:55	✓	38:55	✓
	WB	47:32	38:36	✗	38:36	✗
Route 5	EB	43:51	37:33	✓	37:33	✓
	WB	48:45	36:58	✗	36:58	✗
Route 6	NB	26:42	23:13	✓	23:13	✓
	SB	26:09	22:17	✓	22:17	✓
Route 7	NB	30:20	27:15	✓	27:15	✓
	SB	27:10	27:55	✓	27:55	✓
Route 8	NB	38:14	32:45	✓	33:05	✓
	SB	35:55	31:10	✓	31:33	✓
Route 9	EB	29:30	26:52	✓	26:52	✓
	WB	28:27	26:55	✓	26:56	✓
Route 10	NB	38:26	30:50	✗	30:50	✗
	SB	34:09	31:00	✓	31:00	✓
Route 11	NB	05:11	05:57	✓	05:48	✓
	SB	04:54	04:23	✓	04:18	✓
Route 12	NB	08:26	06:50	✗	08:49	✓
	SB	08:55	05:51	✗	07:58	✓
<b>Total Routes</b>				<b>19</b>		<b>21</b>
				<b>79%</b>		<b>88%</b>



**Table 8 – Journey Time Validation Statistics – 4-5pm**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	18:43	21:05	✓	20:58	✓
	WB	18:56	21:02	✓	21:05	✓
Route 2	NB	32:52	32:08	✓	32:32	✓
	SB	33:37	31:42	✓	31:35	✓
Route 3	NB	32:22	26:29	✗	26:31	✗
	SB	28:50	25:56	✓	25:57	✓
Route 4	EB	42:06	39:03	✓	39:03	✓
	WB	44:27	38:43	✓	38:43	✓
Route 5	EB	43:29	37:43	✓	37:43	✓
	WB	45:55	37:02	✗	37:03	✗
Route 6	NB	27:03	23:20	✓	23:22	✓
	SB	25:17	22:13	✓	22:13	✓
Route 7	NB	29:38	27:11	✓	27:11	✓
	SB	28:16	27:50	✓	27:50	✓
Route 8	NB	39:08	33:17	✓	33:40	✓
	SB	37:45	32:08	✓	32:24	✓
Route 9	EB	29:40	27:01	✓	27:04	✓
	WB	29:14	27:16	✓	27:16	✓
Route 10	NB	34:32	31:04	✓	31:04	✓
	SB	34:20	31:49	✓	31:49	✓
Route 11	NB	05:41	06:32	✗	06:28	✓
	SB	04:59	05:12	✓	04:57	✓
Route 12	NB	09:45	06:53	✗	08:50	✓
	SB	07:27	05:55	✗	08:12	✓
<b>Total Routes</b>				<b>19</b>		<b>22</b>
				<b>79%</b>		<b>92%</b>

**Table 9 – Journey Time Validation Statistics – 5-6pm**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	18:53	20:57	✓	20:59	✓
	WB	19:34	20:40	✓	20:36	✓
Route 2	NB	32:51	31:24	✓	32:06	✓
	SB	32:04	30:12	✓	29:59	✓
Route 3	NB	28:17	26:22	✓	26:22	✓
	SB	28:40	25:51	✓	25:51	✓
Route 4	EB	41:46	38:59	✓	38:59	✓
	WB	41:38	38:39	✓	38:38	✓
Route 5	EB	42:13	37:40	✓	37:40	✓
	WB	43:33	37:02	✓	37:01	✗
Route 6	NB	26:42	23:12	✓	23:12	✓
	SB	24:56	22:14	✓	22:14	✓
Route 7	NB	29:32	27:07	✓	27:07	✓
	SB	28:25	27:49	✓	27:49	✓
Route 8	NB	38:44	32:45	✗	33:37	✓
	SB	36:12	31:19	✓	31:25	✓
Route 9	EB	29:39	27:01	✓	27:02	✓
	WB	29:25	27:13	✓	27:10	✓
Route 10	NB	37:41	30:54	✗	30:54	✗
	SB	32:51	31:18	✓	31:19	✓
Route 11	NB	05:42	05:56	✓	06:16	✓
	SB	04:54	04:26	✓	04:11	✓
Route 12	NB	09:31	06:53	✗	08:50	✓
	SB	08:35	05:55	✗	08:10	✓
<b>Total Routes</b>				<b>20</b>		<b>22</b>
				<b>83%</b>		<b>92%</b>

**Table 10 – Journey Time Validation Statistics – 6-7pm**

Route	Dir	OBSERVED	VALIDATED MODEL	FINAL BASE MODEL		
		Observed Time (mm:ss)	Modelled Time (mm:ss)	Within Limits of Observed	Modelled Time (mm:ss)	Within Limits of Observed
Route 1	EB	17:42	19:18	✓	19:18	✓
	WB	17:28	19:02	✓	19:02	✓
Route 2	NB	29:51	29:00	✓	29:06	✓
	SB	29:05	28:18	✓	28:14	✓
Route 3	NB	26:52	25:50	✓	25:50	✓
	SB	26:44	25:41	✓	25:41	✓
Route 4	EB	41:40	38:45	✓	38:45	✓
	WB	42:28	38:28	✓	38:28	✓
Route 5	EB	42:09	37:21	✓	37:21	✓
	WB	41:57	36:48	✓	36:48	✓
Route 6	NB	25:56	22:47	✓	22:47	✓
	SB	24:11	22:06	✓	22:06	✓
Route 7	NB	28:55	26:57	✓	26:57	✓
	SB	28:03	27:36	✓	27:36	✓
Route 8	NB	36:55	31:11	✗	31:35	✓
	SB	32:46	30:22	✓	30:45	✓
Route 9	EB	28:26	26:51	✓	26:51	✓
	WB	29:26	26:55	✓	26:55	✓
Route 10	NB	32:36	30:26	✓	30:26	✓
	SB	32:12	30:38	✓	30:38	✓
Route 11	NB	05:05	04:48	✓	04:38	✓
	SB	04:22	03:57	✓	03:52	✓
Route 12	NB	09:04	06:34	✗	08:42	✓
	SB	06:15	05:48	✓	07:55	✗
<b>Total Routes</b>				<b>22</b>	<b>23</b>	
				<b>92%</b>	<b>96%</b>	

3.3. The tables above demonstrate that the refinements to the Woodbridge area improve the validation of journey times on Routes 11 and 12, whilst retaining the overall level of validation achieved on other routes. On Route 12 in 06:00-07:00, 07:00-08:00 and 18:00-19:00 hours, the modelled journey times are actually slightly slower than observed; this is due to the methodology applied to constrain speeds through Woodbridge in the model which also applies to these hours, though in reality vehicles may travel more quickly through this section during these time periods. The main concern however, of the model previously over-estimating attractiveness of this route as an alternative to the A12, is addressed in the updated model.

3.4. The journey time graphs for each route, direction, and modelled hour, are presented in Appendix A.2.

## TRAFFIC FLOW CALIBRATION AND VALIDATION

3.5. The traffic flow calibration and validation summary statistics of the final base model, with the refinements to the Woodbridge area, are shown in Table 11 to Table 17 for each of the seven modelled hours. These tables compare the summary statistics of the validated models and the final base models.



**Table 11 – Traffic Flow Calibration and Validation Statistics – 6-7am**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	103	104	14	14
Flow Criteria Met	108	108	14	14
% GEH or Flow Criteria Met	96%	96%	88%	88%
GEH>10	1	1	0	0
Total Traffic Count	21,391	21,313	2,477	2,425
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	8	8	2	2
% GEH<4	80%	80%	100%	100%
GEH>10	0	0	0	0

**Table 12 – Traffic Flow Calibration and Validation Statistics – 7-8am**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	95	98	14	14
Flow Criteria Met	98	98	14	14
% GEH or Flow Criteria Met	87%	86%	88%	88%
GEH>10	7	4	0	0
Total Traffic Count	47,501	47,452	6,070	6,007
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	8	8	1	1
% GEH<4	80%	80%	50%	50%
GEH>10	0	0	0	0



**Table 13 – Traffic Flow Calibration and Validation Statistics – 8-9am**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	93	96	13	13
Flow Criteria Met	95	99	14	15
% GEH or Flow Criteria Met	86%	89%	88%	94%
GEH>10	5	3	0	0
Total Traffic Count	54,277	55,209	6,658	6,658
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	9	10	1	1
% GEH<4	90%	100%	50%	50%
GEH>10	0	0	0	0

**Table 14 – Traffic Flow Calibration and Validation Statistics – 3-4pm**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	100	99	12	12
Flow Criteria Met	101	103	12	14
% GEH or Flow Criteria Met	89%	90%	75%	88%
GEH>10	2	1	0	0
Total Traffic Count	50,628	51,011	6,997	7,034
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	8	10	1	1
% GEH<4	80%	100%	50%	50%
GEH>10	0	0	0	0





**Table 15 – Traffic Flow Calibration and Validation Statistics – 4-5pm**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	99	100	11	11
Flow Criteria Met	101	103	13	14
% GEH or Flow Criteria Met	90%	91%	81%	88%
GEH>10	3	2	0	0
Total Traffic Count	56,368	56,970	7,615	7,637
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	9	8	1	1
% GEH<4	90%	80%	50%	50%
GEH>10	0	0	1	0

**Table 16 – Traffic Flow Calibration and Validation Statistics – 5-6pm**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	104	104	11	12
Flow Criteria Met	100	102	14	14
% GEH or Flow Criteria Met	92%	95%	88%	88%
GEH>10	3	2	0	0
Total Traffic Count	55,388	55,033	7,051	6,729
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	7	7	1	1
% GEH<4	70%	70%	50%	50%
GEH>10	0	1	1	0

**Table 17 – Traffic Flow Calibration and Validation Statistics – 6-7pm**

	CALIBRATION		VALIDATION	
<i>INDIVIDUAL COUNTS (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	114	114	16	16
GEH<5	101	100	12	12
Flow Criteria Met	106	104	13	14
% GEH or Flow Criteria Met	93%	92%	81%	88%
GEH>10	3	2	0	0
Total Traffic Count	42,279	42,429	5,415	5,343
<i>SCREENLINES (TOTAL VEHICLES)</i>				
	VALIDATED MODEL	FINAL BASE MODEL	VALIDATED MODEL	FINAL BASE MODEL
Counts	10	10	2	2
GEH<4	8	8	1	1
% GEH<4	80%	80%	50%	50%
GEH>10	1	1	1	0

3.6. The tables above demonstrate that the refinements to the Woodbridge area have little impact on the overall validation of the traffic models, but do improve the representation of traffic conditions in the local area around Woodbridge both on the A12 and the B1438 route through the town. The full model calibration and validation results for the ‘Final Base’ model are provided in Appendix A.1.

## 4. SUMMARY

- 4.1. This technical note documents the calibration and validation results of a local area refinement carried out on the 2015 base model, to improve the validation of journey times and representation of traffic conditions in the Woodbridge area, on the A12 and B1438.
- 4.2. The ‘Final Base’ model test show that these updates improve the validation of journey times around the Woodbridge area, and have little impact on traffic flows, routing and journey times on other parts of the model, thus maintaining the overall robustness of the 2015 base model whilst providing a more realistic representation of base year traffic conditions in this local area.
- 4.3. All seven modelled hours have been rerun with these updates. Detailed traffic flow comparisons are provided in Appendix A.
- 4.4. The updates that have been applied to the base model, including the traffic demand matrices, will be carried forward to the forecast year scenarios.

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

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## **Annex C: A428 Black Cat ExA Recommendation Report on Traffic Modelling**

- 4) Operational phase traffic effects at existing junctions on the local network;
- 5) Operational phase traffic effects at existing junctions on the strategic road network;
- 6) Operational phase traffic effects at proposed junctions and links
- 7) Provision for NMUs; and
- 8) Other Matters

## **Traffic modelling methodology**

- 6.4.2. This section of Highways and Traffic Matters reports on the concerns raised by LHAs regarding the reliability of the Applicant’s traffic modelling methodology to assess the likely traffic effects of the Proposed Development, particularly on the Local Road Network (LRN).
- 6.4.3. The traffic modelling methodology adopted by the Applicant is provided in TA Part 1 [APP-241], TA Part 2 [APP-242] and Combined Modelling and Appraisal Report [APP-250].
- 6.4.4. LHAs were satisfied and in agreement with the methodology adopted by the Applicant relating to strategic level modelling informing the wider, high-level analysis of the Proposed Development [REP1-045] [REP1-048] [REP1-055]. However, from the start and throughout the Examination, CCC and CBC raised concerns in terms of whether the modelling presented a reliable picture of the likely effects of the Proposed Development at specific junctions and sections of road. The concerns were that base year models had not been created at certain junctions, both within and outside of the Order limits and why observed survey data, including turning movements, had not been used in the process of deriving forecast demand and effects of usage, but rather traffic flows extracted from the Strategic Model with little local validation undertaken [REP1-051] [REP1-055] [REP4-055] [REP4-062] [RE8-035] [REP8-038] [EV-033] [EV-038] [EV-069] [EV-074].
- 6.4.5. The Campaign for the Protection Rural England (CPRE) [REP1-056] also raised queries with regard to the adequacy of traffic modelling given the perceived increase in remote working. This matter is reported in Chapter 5 of this Recommendation Report.
- 6.4.6. In response to the concerns of CCC, CBC and the ExA’s, the Applicant provided a Junction Modelling Technical Note [REP1-030] where the Applicant explained its approach to modelling differed depending on how it considered the Proposed Development to affect the relevant junction [REP1-030, Figure 6-1], the modelled junctions were separated in to three main categories:
- 1) Scheme Junctions, described as those which do not exist in the base year or for which there would be fundamental changes in layout;
  - 2) Existing Junctions with no calibrated or validated base models, described as junctions that exist in the base year and are not significantly changed by the Proposed Development, but where no base models were developed; and

3) Existing Junctions with calibrated or validated base models, described as junctions that do exist in the base year, but where observed data was available and base models were developed.

- 6.4.7. The Applicant explained that Base Year models were not developed for those junctions described as Scheme Junctions as the layout and operation of the junction would change so significantly as a result of the Proposed Development. Therefore, the Applicant explained that the junctions were tested with flows extracted from the Strategic Model rather than observed survey data.
- 6.4.8. The Applicant explained that Junction modelling included base year models using ARCADY, PICADY or LinSIG packages to assess the impacts of the Proposed Development where junctions were not proposed to change [APP-241] [APP-242] [APP-243]. However, the flows used were extracted from the Strategic Model. The Applicant explained the rationale for this being that it was not considered necessary to obtain and use survey data to calibrate or validate these junctions as the junctions would either see a significant improvement in capacity or the junctions were predicted to operate well below capacity as a result of the Proposed Development [EV-033] [EV-038].
- 6.4.9. VISSIM models were developed for two junctions in the wider area, M11 Junction 13 and Buckden where the strategic model flow changes indicated further assessment was necessary, as such observed survey data was used in the modelling assessments [REP1-030].
- 6.4.10. The Applicant also explained that the results of any further surveys would likely be unreliable given the uncertain effects of COVID-19 on demand for travel being experienced at the time of the Examination. Moreover, undertaking additional surveys at that stage would be impracticable to deliver within the Examination period.
- 6.4.11. The ExA requested the Applicant and LHAs submit a joint position statement on modelling methodology and on the scope for sensitivity testing to occur in locations identified in LIRs, using observed data that was readily available to the Applicant or LHAs. The ExA identified three locations given their importance to the functioning of the local road network and their existing capacity issues: Wyboston Roundabout, St Neots, Caxton Gibbet Roundabout and the A1/A603 Roundabout, Sandy [EV-032].
- 6.4.12. CCC developed an options report, [REP3-043], [REP10-057, Appendix 1] detailing how the matter could be taken forward, proposing two options. Option 1 would have required the collection of new data and new base models being created. Option 2 would not involve the creation of new base models, but rather validation where locally held recently observed data would be used to derive future years flows, rather than direct use of strategic model flows in the models.
- 6.4.13. The Applicant submitted a scope based on CCC's Option 2 for the requested junction model sensitivity testing [REP3-029], explaining what sensitivity testing work it intended to undertake and rationale for not

undertaking further work at specific locations. The joint position statement [REP3-024] was also provided as requested and subsequently updated by the Applicant [REP5-005]. The Applicant explained that whilst the results of the sensitivity modelling [REP5-018] did show a difference in the results between the two approaches, LHAs agreed that it generally showed a marginal worsening in queuing compared with the original modelling rather than a fundamental difference in results [EV-069] [EV-074].

- 6.4.14. The LHAs agreed that subsequent to the sensitivity modelling being undertaken, the findings were adequate to provide a reliable and accurate picture of the Proposed Development's likely traffic effects. The exception to this being the Great North Road approach to the Wyboston Roundabout where the Applicant did not undertake modelling of the likely effects on side roads accessing the link.
- 6.4.15. Discussion of the outputs of the modelling at specific junctions are reported later in this Chapter of this Recommendation Report.
- 6.4.16. In addition to the wider concerns regarding the methodology underpinning the modelling described above the Applicant also undertook additional modelling work and testing in response to issues raised by CCC at specific locations where, errors and anomalies had been identified in that previously provided or further information was considered necessary, including at Coton, [REP3-008], Girton [REP4-040] and at School Lane, Cambourne [REP4-041]. In addition, the Applicant provided further analysis of A428 Eltisley junction, A428 Toseland Road Abbotsley Road junction, B1046 Potton Road Junction and A428 Wyboston and Barford Road Junctions [REP8-022].
- 6.4.17. Additional VISSIM modelling was provided relating to M11 Junction 13 [REP8-019] further to the concerns of CCC relating to the traffic loading of the North West Cambridge development, specifically that the development zone was modelled in the incorrect location. The modelling was updated to reflect the development zone being accessed via Eddington Avenue.
- 6.4.18. Further to the apparent errors and anomalies identified by CCC, the ExA queried the level of confidence that should be given to the Applicant's overall modelling of likely traffic effects. The Applicant explained [REP4-037] that irrespective of the issues identified that a high level of confidence should be placed on the Strategic Model in relation to the supporting analysis as presented in the Case for the Scheme [APP-240]. The Applicant was also clear [REP4-037, Q2.11.1.1a] that strategic models are typically less suited to modelling flows on local minor roads, since they are primarily designed to assess and capture area-wide impacts on the more major and strategic routes.
- 6.4.19. Further to the additional sensitivity testing and modelling work undertaken throughout the course of the Examination, agreement has been largely reached with the LHAs on the likely operational traffic effects of the Proposed Development. The exception being Great North

Road, St Neots leading to the Wyboston roundabout, this disagreement being based on the absence of additional sensitivity testing being undertaken as opposed to the results of such testing, this matter is reported later in this Chapter of the Recommendation Report.

### **ExA's reasoning**

- 6.4.20. The ExA considers that the likely traffic effects of the Proposed Development should be considered at both the strategic level and the local level. LHAs have a statutory responsibility under the TMA 2004 to ensure that their network operates expeditiously and neighbouring Highway Authorities (HAs), such as the Applicant have a duty to not compromise the ability of another HA to fulfil their duty.
- 6.4.21. Whilst the ExA notes that BBC was content that the modelling presented a likely picture of the traffic effects in their Borough, the ExA considers the request of LHAs for more detailed modelling, based on observed flow data at key locations identified in LIRs was wholly appropriate for them to be able to better gauge the likely traffic effects of the Proposed Development.
- 6.4.22. The need for additional traffic modelling to assess the effects on the local highway network is supported by the fact that the Applicant explained that the use of traffic flows extracted from the strategic model was less accurate than utilising observed survey data.
- 6.4.23. The ExA considers it would have been reasonably expected for the Applicant to have undertaken collaborative working with the LHAs and sensitivity testing far earlier in the application process, particularly as it would appear that concerns were raised previously by CCC at the pre-application stage. The ExA considers that the Applicant should have involved LHAs earlier in the sharing and validation of the traffic modelling, as significant time would have been saved during the Examination.
- 6.4.24. The ExA agrees with the LHAs that local intelligence is valuable in understanding likely traffic effects. The ExA also welcomes the input of LHAs to ensure that the further testing was vital for the Applicant, relevant LHA and the ExA to understand existing traffic behaviour at key points on the surrounding road network both within, and beyond the Order limits of the Proposed Development.
- 6.4.25. Notwithstanding the above, the ExA is satisfied that the Applicant has responded to the need for better local validation, through sensitivity testing, incorporating data held by LHAs in that exercise where appropriate, as the use of observed traffic count data could have had an impact on the modelled traffic flows.
- 6.4.26. The ExA is satisfied that the need for sensitivity testing, proposed by CCC, was a proportionate response to undertaking the necessary testing of the modelling because the LHAs had not provided substantive evidence to consider that the modelling undertaken was fundamentally flawed, albeit local anomalies and errors had been identified.

- 6.4.27. The ExA considers that the sensitivity testing undertaken throughout the course of the Examination has provided a more accurate picture of likely traffic effects of the Proposed Development as it has been based on observed data rather than flows taken from the Strategic Model. Moreover, the ExA is satisfied that the results of the sensitivity testing do not constitute a fundamental divergence from that originally provided and more importantly the ExA is satisfied that the Applicant's methodology remains adequate and sound.
- 6.4.28. As such the ExA is persuaded that the modelling provided by the close of the Examination adequately demonstrates the likely construction and operational traffic effects of the Proposed Development on the local network and is therefore sufficient for the purposes of the Examination.

### **Construction phase traffic effects**

- 6.4.29. This section deals with construction phase traffic effects, both in terms of the effect of traffic serving the Proposed Development and traffic diverting to avoid network disruption associated with its construction. The Examination of construction traffic effects was covered under the following areas:
- 1) effects of traffic re-routing on the local road network during construction;
  - 2) construction vehicle routes; and
  - 3) workers travel plan.
- 6.4.30. The OCTMP [APP-244] was updated throughout the Examination further to comments from IPs and the final version [REP10-019] is secured through R11 of the dDCO [AS-026]. In accordance with R11, the referred to Traffic Management Plan (TMP) for the Proposed Development would be substantially based upon the OCTMP. The Applicant's approach to dealing with construction phase traffic effects is split between the likely effects of construction traffic itself, defined as the traffic moving to or from the construction compounds and worksites for each works section and, the effects of existing traffic re-routing as a result of the construction of the Proposed Development seeking to avoid delays associated with roadworks.

### **Effects of traffic re-routing on the local road network during construction**

- 6.4.31. Given the OCTMP [APP-244] and given it forms the substantive mitigation for construction traffic effects, the ExA sought confirmation from LHAs that they were content with the scope and content of the document. The ExA also sought confirmation of likely access arrangements for residents, businesses and emergency services during road closures.
- 6.4.32. CBC raised concerns regarding the need to monitor traffic re-routing during the construction period and had particular concern regarding the use of Station Road, Tempsford as a construction route for the Proposed Development [REP1-054, Q1.11.7.2]. CBC also requested that temporary



## Appendix B: Review of Applicant’s Select Link Analysis for Orsett Cock

### B.1 Introduction

B.1.1. This technical note summarises the following information with regards to forecast demand through the Orsett Cock junction:

- Total increase in demand through Orsett Cock in the 2045 Do Something scenario compared to the 2045 Do Minimum scenario;
- Total demand from LTC routing through Orsett Cock, based on select link analysis provided by the applicant; and
- Total future baseline demand (i.e. Do Minimum scenario) displaced by LTC demand routing through Orsett Cock.

### B.2 Increase in total traffic through Orsett Cock

B.2.1. Based on the Applicant’s LTAM modelling, Table 1 below summarises the increase in total traffic forecast through Orsett Cock in 2045 as a result of LTC (i.e. Do Something less Do Minimum flows).

Table 1: Increase in total traffic through Orsett Cock as a result of LTC

	2045	
	AM	PM
Orsett Cock junction throughput ‘without LTC’ (CM49) PCUs actual flow	5,204	5,222
Orsett Cock junction throughput ‘without LTC’ (CM49) PCUs actual flow	5,925	6,198
Change in Orsett Cock throughput due to LTC (PCUs)	721	976
<b>% Change in Orsett Cock throughput due to LTC</b>	<b>14%</b>	<b>19%</b>

B.2.2. The Applicant’s strategic LTAM modelling shows that the 2045 Do Something scenario is forecast to increase total traffic through Orsett Cock by:

- 14% (721 passenger car units (PCUs)) in the AM peak (07:00-08:00), and
- 19% (976 PCUs) in the PM peak (17:00-18:00), in comparison with the Do Minimum scenario.

B.2.3. This additional demand due to LTC results in the performance of Orsett Cock to significantly deteriorate with LTC in place, with high levels of delays and long queues forecast on the junction approaches.

### B.3 LTC traffic routing through Orsett Cock

B.3.1. National Highways provided select link analysis to Thurrock Council and DPWLG at ISH4 showing the forecast movements leaving LTC and routing through Orsett Cock. The raw data is provided as Annex A and is summarised in Table 2 below for 2030 flows and in Table 3 for 2045 flows.

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Table 2: 2030 Select Link Analysis of LTC movements through Orsett Cock provided by National Highways at ISH4

Movements from LTC through Orsett Cock		AM (07:00-08:00)		PM (17:00-18:00)	
From	To	2030 Flow (veh)	%	2030 Flow (veh)	%
LTC	A128 NB	185	15.7%	97	5.7%
	A13 EB - Orsett Cock & Manorway	0	0.0%	0	0.0%
	A1013 EB	291	24.7%	582	34.5%
	A128 SB	244	20.7%	489	29.0%
	A1013 WB	150	12.7%	183	10.8%
	A1089 SB	245	20.8%	309	18.3%
	A13 WB - West from Orsett Cock	63	5.3%	28	1.6%
	B1007 NB	0	0.0%	0	0.0%
	A1014 EB	0	0.0%	0	0.0%
	DP World	0	0.0%	0	0.0%
	A13 EB - east from The Manorway	0	0.0%	0	0.0%
<b>Total</b>		<b>1,178</b>	<b>100%</b>	<b>1,688</b>	<b>100%</b>

Table 3: 2045 Select Link Analysis of LTC movements through Orsett Cock provided by National Highways at ISH4

Movements from LTC through Orsett Cock		AM (07:00-08:00)		PM (17:00-18:00)	
From	To	2030 Flow (veh)	%	2030 Flow (veh)	%
LTC	A128 NB	271	18.6%	140	6.9%
	A13 EB - Orsett Cock & Manorway	0	0.0%	0	0.0%
	A1013 EB	314	21.5%	645	31.6%
	A128 SB	281	19.3%	534	26.2%
	A1013 WB	176	12.0%	223	10.9%
	A1089 SB	327	22.4%	433	21.3%
	A13 WB - West from Orsett Cock	89	6.1%	62	3.1%
	B1007 NB	0	0.0%	0	0.0%
	A1014 EB	0	0.0%	0	0.0%
	DP World	0	0.0%	0	0.0%
	A13 EB - east from The Manorway	0	0.0%	0	0.0%
<b>Total</b>		<b>1,458</b>	<b>100%</b>	<b>2,037</b>	<b>100%</b>

B.3.2. Based on the select link analysis, Table 4 below summarises the proportion of Orsett Cock traffic that is forecast to originate from LTC in 2045.

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Table 4: 2045 Proportion of Orsett Cock Traffic that originates from LTC

	2045	
	AM	PM
Total LTC traffic routing from LTC through Orsett Cock	1,458	2,037
Orsett Cock total traffic in 'Do Something with LTC' (CS72) PCUs	5,925	6,198
<b>Traffic from LTC to Orsett Cock as a proportion of total traffic through Orsett Cock</b>	<b>25%</b>	<b>33%</b>

B.3.3. The analysis demonstrates that in 2045, a total of 1,458 PCUs in the AM peak and a total of 2,037 PCUs in the PM peak of Orsett Cock traffic will be originating from LTC and routing through Orsett Cock. This is equivalent to 25% and 33% of the total Orsett Cock traffic in the AM and PM peaks.

#### B.4 Orsett Cock Displaced Traffic

B.4.1. Table 5 summarises the level of displaced traffic at Orsett Cock as a result of LTC. That is, the level of traffic that would have routed through Orsett Cock in 2045 Do Minimum (without LTC in place), which is no longer able to route through Orsett Cock in 2045 Do Something (with LTC) as a result of the traffic originating from LTC routing through Orsett Cock.

Table 5: 2045 Proportion of Orsett Cock Traffic that originates from LTC

	2045	
	AM	PM
Total LTC traffic routing from LTC through Orsett Cock (refer to Table A1.5)	1,458	2,037
Change in Orsett Cock throughput due to LTC (PCUs) (refer to Table A1.1)	721	976
Future baseline traffic displaced traffic from Orsett Cock	737	1,061

B.4.2. The analysis in Table A1.5 shows that the volume of LTC traffic forecast to route via Orsett Cock (1,458 and 2,037 PCUs in the AM and PM) is more than double than the total increase in traffic forecast to route through Orsett Cock in the Do Something scenario (721 and 976 PCUs in the AM and PM). This suggests a significant level of future baseline traffic would be displaced by LTC. This displaced traffic is equivalent to 737 PCUs in the AM (0700-0800) and 1,061 PCUs in the PM (1700-1800) in 2045.

B.4.3. It is the Council's position that mitigation at Orsett Cock should accommodate the traffic displaced by LTC as well as the increase in traffic demand at Orsett Cock as a result of LTC. It is not acceptable for LTC to displace such a significant level of future baseline traffic from Orsett Cock.

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**Annex A: Select Link Analysis of LTC to Orsett Cock provided by the Applicant**

Link	2030								2045							
	AM				PM				AM				PM			
	DM	DS	DS - Originating on LTC	DS-DM	DM	DS	DS - Originating on LTC	DS-DM	DM	DS	DS - Originating on LTC	DS-DM	DM	DS	DS - Originating on LTC	DS-DM
A128 NB from Orsett Cock	1,235	913	185	-322	807	674	97	-133	1,225	1,095	271	-130	852	675	140	-177
A13EB on-slip from Orsett Cock	994	773		-221	1,013	805		-208	999	731		-267	1,090	777		-313
A1013 EB from Orsett Cock	409	620	291	211	729	1,170	582	441	460	715	314	256	727	1,252	645	525
A128 SB from Orsett Cock	228	383	244	156	658	896	489	238	236	432	281	196	745	971	534	226
A1013 WB from Orsett Cock	1,019	832	150	-187	929	920	183	-9	1,091	895	176	-195	1,075	982	223	-93
A13 WB on-slip from Orsett Cock	913	1,056	63	143	672	711	28	39	1,119	1,233	89	113	662	840	62	178
A1089 SB on-slip	483	695	245	212	253	538	309	285	490	761	327	271	297	666	433	369
Total	5,281	5,272	1,178	-8	5,062	5,713	1,688	652	5,620	5,863	1,458	243	5,448	6,163	2,037	716
	2030	2030			2030	2030			2045	2045			2045	2045		
	AM	AM			PM	PM			AM	AM			PM	PM		
	CM49	CS72			CM49	CS72			CM49	CS72			CM49	CS72		

\* DM scenario is CM49. DS scenario is CS72. Flows are actual flows in pcus.

\* A1089 SB on-slip: in the DM this is from the A13 WB, in the DS this is from Orsett Cock

## Appendix C: Latent Demand at Orsett Cock

### C.1 Introduction

C.1.1. This technical note summarises what is meant by latent demand within micro-simulation models, the extent of latent demand within the Orsett Cock VISSIM model and the implications for this.

### C.2 Latent Demand

C.2.1. Latent demand in a VISSIM micro-simulation model refers to the number of vehicles that are unable to enter the modelled network by the end of the model simulation period due to congestion within the modelled network.

### C.3 Orsett Cock Latent Demand

C.3.1. Contrary to industry's best practice the applicant has not presented the level of latent demand in its reporting. The analysis completed by the Council for the VISSIM model of Orsett Cock submitted at D3, shows the following levels of latent demand and resultant latent delay for Orsett Cock.

Table 1: Latent Demand in Orsett Cock VISSIM model (submitted by Thurrock Council at D3)

	2030 Do Something Latent Demand		
	AM (0700-0800)	AM (0800-0900)	PM (1700-1800)
Latent demand (veh)	279	534	1,303
Ave delay per veh without latent demand (sec)	34	59	143
Ave delay per veh with latent demand (sec)	52	126	287
Increase in average delay per vehicle if latent demand is considered within network statistics	+53%	+114%	+101%

C.3.2. It can be seen from Table 1 that the level of latent demand currently within the 2030 forecast model of Orsett Cock ranges between 279 and 1,303 vehicles (i.e. these vehicles cannot enter the modelled network by the end of the evaluation period due to the level of congestion). This is a significant level of latent demand, which if included in the network statistics would significantly increase the level of delay per vehicle. For example, Table 1 shows that in the AM peak hour of 08:00-09:00, the average delay per vehicle would increase from 59 to 126 seconds (+114% increase) if latent demand is considered within the network statistics.

### C.4 Implications of Latent Demand

C.4.1. Network Performance Statistics in VISSIM reported by the applicant within the Orsett Cock Forecasting Report ([REP1-189](#)) do not include vehicles observed as latent demand in the analysis. This is the same for other VISSIM forecasting reports submitted to the Examination by the applicant, such as the Asda roundabout Forecasting Report ([REP3-128](#)).

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- C.4.2. It is standard practice to report the latent demand and corresponding latent delay statistics associated with vehicles unable to enter the model network during the simulation period as it is an important Network Statistic to inform how much demand did not enter the model and is therefore not included in the model results being reported.
- C.4.3. The Council is extremely concerned that the applicant is underestimating the impacts of LTC at key junctions on the Thurrock network, such as Orsett Cock, by not reporting the significant level of latent demand and to date has not taken measures to reduce the level of latent demand within the models.
- C.4.4. Reducing the level of latent demand so that it is kept to a minimum is standard practice and essential to ensure that the full level of impact of a scheme is understood and mitigated for.
- C.4.5. The applicant raised latent demand at Orsett Cock at the modelling meeting of 16<sup>th</sup> August as an issue that they needed to resolve. The applicant is therefore aware of the issue but to date has not reported any information on latent demand to the Examination.
- C.4.6. The Council understands that the applicant is extending the links at the edge of the model so that the full extent of delay on the approaches to Orsett Cock can be reported. The applicant needs to make the updated model available to the Examination as well as an updated forecasting report, which reports on latent demand.
- C.4.7. **In summary, the Council is extremely concerned that the applicant is underestimating impacts of LTC at Orsett Cock by not reporting the significant level of latent demand and delay. The Council requests that all forecasting reports submitted by the applicant to date are updated to include latent demand statistics and that measures are taken by the applicant within the modelling exercise to reduce the level of latent demand to a minimum so that the full extent of LTC impacts are reported and understood by the ExA.**

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**Appendix D: Email from Dr Wright agreeing that Orsett Cock is an  
integral part of LTC**



**From:** Tim Wright <[REDACTED]>

**Sent:** 27 April 2022 10:06

**To:** [REDACTED] Simon Weaver <[REDACTED]>;  
Poulomee Basu <[REDACTED]>; Callum Brown  
<[REDACTED]>

**Cc:** Jefferies, Sharon <[REDACTED]>; 'Black, Colin' <[REDACTED]>;  
[REDACTED]; 'LTC-Stantec' <[REDACTED]>; 'Blades, Nick'  
<[REDACTED]>; LocalGov <[REDACTED]>

**Subject:** RE: Orsett Cock Roundabout

Chris, Colin,

We agree that due to the direct changes we are making to slips on and off the Orsett Cock roundabout, the Orsett Cock roundabout interface is part of the core scheme set out in the DCO. Recognition of this is also provided by the inclusion of the junction within the scheme Order Limits. This logically aligns with the specific workstream to provide micro-simulation models, and that this should be addressed as such within the Statement of Common Ground.

LTC is not the only change being planned that will impact upon the Orsett Cock Roundabout. Local development such as Dunton Hills Garden Village will impact upon this junction, and, as such, there may continue to be a need to discuss this junction in multiple forums with different parties in the context of other impacts on the roundabout. The inclusion of the Orsett Cock junction is limited to the extent that we will seek to agree that the roundabout continues to function for traffic following opening of the Lower Thames Crossing. As such, we are not proposing to take permanent acquisition rights, nor to provide any additional provision beyond changes required to manage traffic flows as a result of the modified connections we are making.

Reflecting the above, we are happy to remove the junction from the regular WNI discussions and will amend the meetings accordingly going forward.

Kind regards,  
Tim

**Tim Wright** Head of Consents  
Development – Lower Thames Crossing

[REDACTED]

**Highways England Customer Contact Centre**  
**0300 123 5000**  
[www.highwaysengland.co.uk](http://www.highwaysengland.co.uk)

### 3 Issue Specific Hearing 5 (ISH5) – Tunnelling

#### Issue Specific Hearing 5 (ISH5) on Tunnelling

7<sup>th</sup> September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council’s Oral Case

Note: these Post Hearing Submissions include a written summary of the Oral Case presented by Thurrock Council at ISH5. They also include the Council’s submissions on all relevant Agenda Items, not all of which were rehearsed orally at the ISH due to the need to keep oral presentations succinct and due to the changes to the order of the agenda on the day.

The structure of the submissions follows the order of the agenda items, but within each agenda item, the submissions begin by identifying oral submissions made at ISH5 by Thurrock Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant are made by the Council at ISH5 the Council has highlighted these as **‘Requests’**.

These submissions also include a response to the relevant Action Points arising from ISH5 [\[EV-044a\]](#). ISH5 was attended by Douglas Edwards KC on behalf of Thurrock Council. Also, in attendance at ISH5 on behalf of the Council were Adrian Neve, Chris Stratford, with Catherine Copping, Chris Hudson, David Burgess, Mubassir Malik and Sharon Jefferies attending virtually.

#### 3. Limits of Deviation

a)	PINS Description	Thurrock Council Statement
i	The Applicant is asked to justify the limits of deviation.	No response from the Council
ii	Vertical limits of deviation including consideration of protection zones, dredging, and scour protection.	No response from the Council
iii	Economic and social effects related to the potential effects on river traffic.	No response from the Council
iv	Monitoring, remedial works and future maintenance.	No response from the Council

#### 4. Tunnel Boring Methodology

Item	PINS Description	Thurrock Council Statement
a)	<b>Tunnel boring Methodology</b>	
i	To what extent should the DCO allow for flexibility in terms of the tunnel construction methodology:	

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Item	PINS Description	Thurrock Council Statement
	<ul style="list-style-type: none"> <li>Should the type of Tunnel Boring Machine (TBM) be secured through the DCO.</li> <li>Should the DCO allow for the potential use of either a single or 2 TBMs and the associated impacts of these approaches.</li> </ul>	
<b>Oral Submission on Agenda Item 4 a) i</b>		
<b>Further Written Submission on Agenda Item 4 a)</b>		
<p><b>Headline: the Council would require that the DCO requires the applicant and the tunnelling contractor to confirm prior to the start of tunnelling which of the two options that have been appraised are to be adopted and the tunnelling programme that is being followed</b></p> <p>The Council made representation at ISH5 that, irrespective of the option adopted by number of TBMs or type of TBM, there would be residual harm on Thurrock during construction of the tunnel and associated infrastructure that requires a comprehensive and rigorous response to the movement of plant, machinery, people and equipment by non-road transport and, with reference to worker travel, using active travel and public transport. That robustness would be provided for through adjustments and fuller alignment and consistency across the project Control Documents including the CoCP (<a href="#">REP1-157</a>), the oMHP (<a href="#">APP-338</a>), the oTMPfC (<a href="#">REP3-120</a>), the oSWMP (<a href="#">APP-337</a>) and the FCTP (<a href="#">APP-546</a>). To avoid repetition of an expansive list of the Council's required changes they are not repeated here but are set out in its response to the Examining Authorities Question Q4.6.4, which is submitted to the Examination by the Council at Deadline 4.</p> <p>The applicant has asserted that the effects of the TBM options have been assessed through existing evidence as a reasonable worst case scenario using the two-TBM option and that the effects of the type of TBM option would rest within the Rochdale Envelope for the project.</p> <p>The Council acknowledges that position, however, Sections 20.1.4 to 20.1.6 of the Council's submission at D3 (<a href="#">REP3-211</a> Section 20) sets out a comparison of the matters raised by the Council in regard to the One-TBM option introduced by the applicant through the Minor Refinements Consultation (MRC).</p> <p>Table 20.1 of the Council's response at D3 (<a href="#">REP3-211</a>) indicates whether the applicant has provided suitable evidence to resolve those points. That section shows there are concerns that have not been satisfactorily resolved or responded to but are applicable to the tunnelling operation irrespective of the option adopted. In summary, unresolved points are:</p> <ul style="list-style-type: none"> <li>That the Council wishes to have much greater clarity and commitments by the applicant to move plant, equipment and material by non-road based transport, irrespective of the adopted tunnelling method, including the TBM and associated infrastructure.</li> <li>The assessment of the effects of the changed profile of workforce travel on the Asda roundabout and clear corridor routing to Compound 5/5A (North Portal and Station Road) must be resolved and mitigation provided accordingly.</li> <li>The unsubstantiated claim that the one TBM option would save 38,000 tonnes of CO2e must be substantiated.</li> <li>A secured commitment that excavated non-hazardous material would remain within the North Portal compound for use and not removed from site and that tunnel segments will be cast</li> </ul>		

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		<p>within the North Portal compound.</p> <ul style="list-style-type: none"> <li>• Strengthening of the control documents including the oMHP, oTMPfC, the FCTP and the CoCP, as encapsulated in the Council's LIR (REP1-281) in Sections 15.6.1 to 15.6.72.</li> <li>• The Council must be engaged in the Emergency Preparedness planning along with the Emergency Services.</li> </ul> <p>Through its responses in its LIR to the oMHP (<a href="#">APP-338</a>) and the Code of Construction Practice (CoCP) (<a href="#">REP1-157</a>), the Council has set out its opinion on the tunnel methodology. That is primarily in relation to the applicant's absence of strong commitments to moving materials, plant and equipment by non-road transport, i.e. in excess of the Baseline commitment (set out in the oMHP <a href="#">APP-338</a>) and to include not just bulk aggregates to the North Portal compound.</p> <p>The Council's concerns relating to that aspect are provided at ISH5 Agenda item 7 below.</p> <p>It is important to the Council that the tunneling option selected by the applicant and its contractor does not extend the construction programme, however, contractions in the programme or materials use must also not worsen impacts and should be explored by the Contractor in consultation with the Council. The contraction in programme could create an increase in peak impacts, which would exceed the Rochdale Envelope and generate greater harm and impact on Thurrock, with particular reference to the transport network, severance, noise and air quality.</p> <p>The Council supports fully the requirements of the emergency services and so it is fundamental that the selected tunneling option includes a commitment to ensure safe and convenient access and movement to the emergency services to the tunnels and associated workers during construction. This must reflect the complexity of access to the tunnel bore when boring from south to north under the one TBM option, where access to that bore would be better / more rapidly covered from Kent rather than Thurrock and as such the emergency planning would be include Kent County Council and Gravesham Borough Council, as well as the Council.</p> <p><b>Summary</b>, the Contractor and the applicant must assure the Council that the method of tunneling and type of TBM has no worse environmental and local impact than that which has been assessed through the DCO evidence; and, that any approved Control Documents are strengthened to reflect the Council's concerns that mechanism to strengthen the control documentation is set out in considerable detail in the Council's response to the Examining Authorities Question Q4.6.4. The DCO and control documents should set the clear parameters of management of the tunnelling approach and the strategy for mitigation of impacts.</p>
b)	Water resource management	
i	The approach to water resource management.	
<b>Oral Submission on Agenda Item 4 b) i</b>		
<p><b>Comments by Mr Burgess – ISH5 Transcript Pages 84 (EV-044a)</b></p> <p>The Council sets out its view on water resource in its LIR (<a href="#">REP1-281</a>) in Section 10.8.1 to 10.8.19 – Water Resources. It is noted that most points have been concluded between the Council and the applicant. An updated flood risk model has been requested but is noted to have a possible minor effect on attenuation storage requirements.</p> <p>The tunnelling operations in particular present additional challenges with flood risk and drainage,</p>		

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		<p>as well as managing impact on ground water. Whilst some of the detail of the temporary works may be deferred to future stages, the Council requires clarification that proposed temporary measures to manage flood risk and drainage impacts during the construction phase may reasonably be accommodated within the Main Works Compound:</p> <p>The applicant describes the Construction Phase measures in Section 12 of the Environmental Statement Appendix 14.6 - Flood Risk Assessment - Part 8, <a href="#">[APP-467]</a> and Flood Risk Assessment Part 6 <a href="#">[REP1-170]</a>. This states that the Contractor will be responsible for site specific flood risk assessment, specification of temporary works, surface water management and compensatory flood storage.</p> <p>Temporary works information is included within the Temporary Works Plans Volume B <a href="#">[AS-035]</a>. However, these do not show diversion of drains, watercourses, flood compensatory storage areas, or proposed treatment and discharge locations.</p> <p>The temporary measures for managing and treating water (including wastewater from dewatering), may have significant land take, as such the Council seeks clarification that broad allocation of these areas may be achievable.</p> <p>The Council requests a concept/ strategy for locating the proposed temporary measures (storage, treatment and discharge) across the project area such that it can be demonstrated that this can be contained within the Order Limits. In the case of tunnelling, additional considerations should be given to proposed pumping, treatment and discharge of groundwater seepage.</p>
		<b>Further Written Submission on Agenda Item 4 b) i</b>
		The Council makes no further written submission on this item of the agenda.
ii	Mitigation, monitoring and remedial actions.	
		<b>Oral Submission on Agenda Item 4 a) ii</b>
		The Council made no oral submission on this agenda item
		<b>Further Written Submission on Agenda Item 4 b) ii</b>
		<p>The Council requires clarification on unresolved points with the applicant over the protections from contamination, which are set out in its LIR (<a href="#">REP1-281</a>) section on Geology and Soils Sections 10.9.1 to 10.9.10 regarding its points within the emerging SoCG and Evidence base. The Council is seeking further assurances over the ground investigations and associated protections / remediation.</p> <p>The Council has sought for an additional Requirement to ground conditions and ground stability. Concerns are set out at Table 10.8 with regards to the management and monitoring of erosion and destabilisation set out in section 10.9.15 to 10.9.28.</p> <p>The Council sets out in its LIR (<a href="#">REP1-281</a>) Section 10.9.28 the further work it considers is required with regards to Geology and Soils, particularly uncertainty over stability and contamination management.</p>

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c)	<b>Dewatering</b>	
i	The approach to dewatering associated with the construction of the tunnel.	
<b>Oral Submission on Agenda Item 4 c) i</b>		
The Council made no oral submission on this agenda item		
<b>Further Written Submission on Agenda Item 4 c) i</b>		
<p>The Council sets out its view on water contamination control in its LIR (<a href="#">REP1-281</a>) at Section 10.9 – Geology and Soils and note that the control of dewatering/water protection is to be led by the Environment Agency.</p> <p>As part of its Geology and Soils topic reviews, the Council needs clarification of the management and processing of excavated material and dewatering of slurry for deposition. LIR (<a href="#">REP1-281</a>) Section 10.9.24-25 and Table 10.8 sought clarification as to whether that material is to be controlled under an Environmental Permit or other system and how the impacts are mitigated. Furthermore, assurances are required of the controls on erosion and stability of features, such as the river frontage and how these are impacted but the tunnelling methodology (LIR (<a href="#">REP1-281</a>) Section 10.9.28). Within the Technical Note on Earthworks Quantification (<a href="#">REP2-076</a>) the applicant states in Section 4.1.2 that waste materials will be regulated under the Environmental Permitting Regulations. That commitment must be secured within the DCO control documentation.</p> <p>The drainage catchment for the proposed north portal ramp and surrounding area is discharged via a pumped system. Clarification is required on the discharge proposals for this catchment.</p> <p>The proposed drainage is shown on the Drainage Plans (Volume B) (<a href="#">APP-048</a>). Sheet 20 shows the catchment serving the north portal ramp and surrounding area and the proposed pumping station located in the central reservation at the lower point of the ramp.</p> <p>The document 6.3 Environmental Statement Appendix 14.6 - Flood Risk Assessment - Part 7 (<a href="#">APP-466</a>); describes the discharge of the pumped system to be towards the Basins within the North Portal Junction. However, this is contradictory to the drawing - Drainage Plans (Volume B) (<a href="#">APP-048</a>), Sheet 20, which suggests the discharge is directly to the River Thames.</p> <p>The Council requests clarification on the proposed discharge location for this catchment and for this to be reflected in updated Drainage Plans (Volume B) (<a href="#">APP-048</a>).</p> <p>Clarification is required on the treatment proposals for the North Portal Junction and North Portal Ramp catchments.</p> <p>The proposed drainage is shown on the Drainage Plans (Volume B) (<a href="#">APP-048</a>). Sheet 20 shows the catchment serving the north portal ramp, a containment feature is shown near to the pumping station to collect contaminated water at the lower end of the ramp.</p> <p>The Council would like clarification on whether the proposed containment feature will provide sufficient treatment prior to discharge and if the capacity of the containment feature is sufficient to manage the design storm scenarios.</p>		

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		<p>The design principles for pre-treatment are described in the document 6.3 Environmental Statement Appendix 14.6 - Flood Risk Assessment - Part 7 (<a href="#">APP-466</a>). The design principle is generally to use sedimentation forebay and/or vortex separators located upstream of the attenuation ponds/basins,</p> <p>However, this should be clarified in relation to the Basins within the North Portal Junction, as it is not clear on the drawing (Drainage Plans (Volume B) (<a href="#">APP-048</a>), Sheet 20, where the sedimentation forebay would be located.</p> <p>The Council request that the proposed treatment required for both the North Portal Junction and the North Portal Ramp catchments is indicated on updated plans: Drainage Plans (Volume B) (<a href="#">APP-048</a>).</p>

## 5. Monitoring

Item	PINS Description	Thurrock Council Statement
a)	<b>Monitoring</b>	
i	The approach to monitoring, reporting and remediation.	
<b>Oral Submission on Agenda Item 5 a) i</b>		
<b>Comments by Mr Neve – ISH5 Transcript Pages 91 (<a href="#">EV-044a</a>)</b>		
Mr. Neve made a brief statement that further to submission made earlier in the hearing the Council requires that the applicant revisits its construction control documents to provide much stronger guidance to its contractors on what will be measured and monitored, which will need to include the quantity and type of material and how that material is moved.		
<b>Further Written Submission on Agenda Item 5 a) i</b>		
The Council makes no further submission on the approach to monitoring, reporting and remediation of water management.		
ii	The approach to risk management with particular regard to dealing with unexpected incidents.	
<b>Oral Submission on Agenda Item 5 a) ii</b>		
<b>Comments by Mr Stratford (ISH5 Transcript Pages 94 [<a href="#">EV-044a</a>])</b>		
Mr. Stratford spoke briefly in support of the position of the emergency services on emergency preparedness planning and to state that the Council must also be a party to that planning and incident management as specified at Section 6.9.1 of the CoCP ( <a href="#">REP1-157</a> ).		
<b>Further Written Submission on Agenda Item 5 a) ii</b>		
The Council makes no further written submission on this agenda item.		



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## 6. Unexploded Ordnance

Item	PINS Description	Thurrock Council Statement
a)	<b>Unexploded ordnance</b>	
i	Whether the approach to dealing with unexploded ordnance is sufficient.	
<b>Oral Submission on Agenda Item 6 a) i</b>		
<b>Comments by Mr Edwards – ISH5 Transcript Pages 91 (<a href="#">EV-044a</a>)</b>		
<p>Mr. Edwards stated that the Council shares exactly the same concerns that have been submitted by Gravesham BC and that the approach that Mr. Bedford (on behalf of Gravesham BC) has set out is the right one. The areas of risk have been identified, including those of medium levels of risk. The route is known and therefore it would not be onerous, so far as the applicant is concerned and its contractor to carry out the level of planning and preparedness that Mr. Bedford identified. And so, so far as that process is concerned, given the potential level of disruption, it would be appropriate for a commitment to be given that the local authority, who are involved in the preparation of emergency preparedness plan, could assist and would have some interest and degree of involvement, certainly in temporary accommodation plans.</p>		
<b>Further Written Submission on Agenda Item 6 a) i</b>		
<p>The Council sets out its view on Unexploded ordnance in its LIR (<a href="#">REP1-281</a>) in Sections 10.9.2 and 15.6.17 – Geology and Soils. It is noted that there is a significant risk of unexploded ordnance that must be managed. A comprehensive emergency and evacuation plan must be prepared by the applicant and its contractors. That would be reflected in the Emergency Preparedness plan. It is noted that Gravesham BC in its LIR (<a href="#">REP1-228</a>) Sections 10.9 – 10.12, states that because of the likely presence of unexploded bombs there is a need for clear evacuation plans and temporary accommodation plans to be in place for affected areas. This evacuation planning must be secured within the DCO within either the REAC or as a Requirement. That Plan must reflect the different requirements for emergency access and evacuation that would be used depending on the TBM strategy adopted, i.e. whether evacuation to the southern portal would be included under a one TBM strategy and the emergency services and local authorities that would assume responsibility during that period.</p>		

## 7. Construction Compound Matters

Item	PINS Description	Thurrock Council Statement
a)	<b>Construction compound matters</b>	
i	Whether the approach to waste and material management is appropriate.	
<b>Oral Submission on Agenda Item 7 a) i</b>		
<b>Comments by Mr Edwards (ISH5 Transcript Pages 111 (<a href="#">EV-044a</a>))</b>		
<p>Mr. Edwards introduced the Council's submission on this point regarding the use of the river for transportation. He noted that there are certain parts of the construction project that are so remote from the river that would not make it feasible or realistic to use the river as a means of transport. However, both the Council and indeed reflected in writing by the Port of London Authority (PLA), are</p>		



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		<p>concerned that the use of the river for the purposes of the importation of plant machinery and materials, relating to the tunnelling operation, and that, in terms proximity to the river, does not give rise to the same disbenefits that would arise when talking about the use of the river for constructing materials further to the north of the alignment. That point has been raised in writing, and that the applicant has not properly responded to, or given a reason why it cannot give a greater degree of commitment than it has done so far, consistent with its general policy and objectives in terms of delivering pathfinder projects.</p>
		<p>In responding to the question by Mr. Taylor, regarding what the Council would wish to see the applicant do, Mr. Edwards stated that the Council sees this being resolved by a greater degree of commitment, given in the outline Materials Handling Plan (oMHP).</p>
		<p>Mr. Smith interjected to ask that if one is specifying that additional particular measures about tunnelling planned movement are to be planned for as river movements in a way that they are not specifically at present, then there are some contingent questions. For example, is temporary wharfage needed? If temporary wharfage is needed, can that be sited on land within the proposed Order Limits or does that imply a need for additional land, and if so, how will that additional land be procured and brought into this process, because it can be relatively easy to talk about the broad-brush benefits of an additional river freight approach? But, given where we currently are in the process, if we start to need more land, then we are tight up against the need to actually describe what that land is, and then think about how it might be brought into the process.</p>
		<p>Mr. Edwards raised the Joint Technical Note that had been provided to the applicant some time before DCO submission and it committed to provide a more detailed written submission, which had been undertaken but without any further commitments.</p>
		<p><b>Comments by Mr Neve (ISH5 Transcript Pages 112 <a href="#">[EV-044a]</a>)</b></p>
		<p>Mr. Neve added to Mr. Edwards submission by confirming that the Council's Local Impact Report (REP1-281) and the joint response that was provided with the Port of London Authority, sets out in significant detail where those parties think that the project should look at, and the types of movement, the types of materials, and the types of plant, even to the aspects of moving welfare potentially. He referred the Hearing back to this point about the status of the 'Pathfinder' project. There are opportunities that could be taken with better rigor on how to move different elements of the project, primarily around the tunnelling compound. But there are also opportunities, once the Tilbury Viaduct is in place, to start to move materials within the trace as well. The applicant may wish to concentrate on the tunnelling aspect, but it does not mean to see it cannot look to the broader points.</p>
		<p><b>Further Written Submission on Agenda Item 7 a) i</b></p>
		<p>The Council sets out its view on waste and material management in its LIR (<a href="#">REP1-281</a>) at Section 10.10 – Materials and Waste. The Council accepts the broad principles set out in the applicant's oSWMP (<a href="#">APP-337</a>), however, that document does not reflect the complexities of the scheme's physical extent and duration of construction on the management of the wastes and excavated materials produced and the potential for this to create regulatory impact uncertainties. The Council recognises that refined detail will be developed by the Contractors as the project develops, but the oSWMP should provide a robust basis for the development of the SWMP and a framework for tracking and recording the variations in the assumptions of wastes generated and their management throughout the scheme's lifetime.</p>
		<p>The outline Materials Handling Plan (<a href="#">APP-338</a>) Table 7.1) and the Excavated Materials Assessment (<a href="#">APP-435</a>) indicate estimates of material to be generated by the project across the contracts and how that material would be used within the project. The explanation of how the materials and waste</p>

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		<p>balance has been established to determine these estimates has now been provided by the applicant in its Technical Note on Earthworks Quantification (<a href="#">REP2-076</a>). The Council acknowledges that position at its D3 submission (<a href="#">REP3-211</a>) and notes the soundness of the preliminary assessments. However, the applicant does not commit to those estimates as being maxima. There is no mechanism to ensure that the contractors do not fundamentally change their approaches and export large quantities of material by road, where that material is not suitable and import significant quantities of material to replace that exported amount. The assessment within the Transport Assessment (<a href="#">APP-529</a>) provides indications of construction phase scenarios, but does not set specific ceilings for movements to and from each compound, making it unfeasible to monitor and measure performance at compounds and on the surrounding network.</p> <p>Commitments must be included within the DCO and Control Documents to provide a suitably tight Rochdale Envelope in which the contractors must operate. This may be best achieved through amending REAC MW011, so that the commitment is made in terms of a maximum quantity of excavated material exported from site rather than a % of the total arisings.</p> <p>The Council believes that the DCO commitments to delivering the waste hierarchy can and should be improved through the strengthening of the following REAC commitments:</p> <p>The Council believes a more robust commitment could be made within MW007 along the lines of <i>'All reasonable endeavours will be made to ensure that the Authorised Works comply with the waste hierarchy and that disposal of waste is reduced, where materials are recovered or disposed of it should be evidenced that no practicable alternative management route was available.'</i></p> <p>Within MW013 the target set applies to the entirety of the wastes generated, the Council believes that the applicant should setting individual, material-level targets for re-use and recycling (combined with the additional MW007 drafting) would more effectively incentivise compliance with the waste hierarchy.</p> <p>The Council is seeking to limit the number of road vehicles and the vehicle travel distances in the interests of safety, network operations and environmental impact. That opinion is consistent across whichever approach is adopted to tunnelling. With regards to commitments and strategy for materials handling, the Council, responds to the oMHP in Section 15.6.61 to 15.6.72 of its LIR (<a href="#">REP1-281</a>), the CoCP (<a href="#">REP1-157</a>) at Section 15.6.1 and to the One TBM option at its D3 submission (<a href="#">REP3-211</a>) in Sections 20.1.4 to 20.1.6.</p> <p>The Council has provided within its LIR (<a href="#">REP1-281</a>) in Appendix C Annex 4 its joint Technical Note on materials handling that it has prepared with the PLA. That note and other comments seeks to progress the plant, equipment and materials handling commitments and to clarification as to the reasoning for excluding the use of the existing jetties at Tilbury for marine activities. Those jetties could be used to extend the use of marine transport for the project, such as movement of other bulk materials directly to or from the Order Limits. The applicant's statements do not clearly and reliably substantiate why the use of those jetties are excluded from the construction process. It states their use by Tideway and Silvertown tunnels which will have ended by the time of construction (LIR paragraph 15.6.65 (<a href="#">REP1-281</a>)). The Council therefore considers that the jetties should be investigated for use by the project, or a revised statement of reasons provided as to justifying why not. In fact during the Accompanied Site Inspection on Wednesday 13 September, IVL revealed that their jetty is still receiving 1,500t barges at 3 per tide or 6 per day for their current land raising.</p> <p>Whichever option is selected a robust derogation process must be set out in a revised oMHP showing how derogations are defined, reported, determined and managed for departures from the applicant's commitments. However, no processes are defined and the contractors are allowed to</p>

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		<p>self-regulate under a series of 'exception' criterion (oMHP Section 6.2.12 (<a href="#">APP-338</a>)). That derogation process would replace the 'exceptions' section and must cross refer to the CoCP. The applicant should confirm to commit to the management of excavated materials in the maxima quanta, type and locations as set out in Table 7.1 of the oMHP (<a href="#">APP-338</a>). It is noted that movement of excavated materials between compounds and between contracts will be classified as waste material and will need to be controlled as such. This classification and use of the excavated material is not clear within the evidence including the oMHP (as raised through LIR (<a href="#">REP1-281</a>) Section 10.10 and Table 10.9).</p> <p>Furthermore, the tunnelling contractor must be required through the oMHP to set out the phasing and processes of waste and material management prior to commencing work. That information must indicate the locations of waste deposition and import origins and how that strategy aligns with the local waste and materials markets and how that impacts on other major projects at that time. This should all be clearly and robustly secured through the DCO within the oMHP, oSWMP and the oTMPfC.</p> <p>The primary submission evidence currently appears to have assumed a flat material generation and use profile (Excavated Materials Assessment (<a href="#">APP-435</a>) Section 2.1.35 and noted at the Council's LIR (<a href="#">REP1-281</a>) in Section 10.10.7), however, the Technical Note on Earthworks Quantification (<a href="#">REP2-076</a>) assumes a peaked profile across earthworks seasons. The profile of excavated material production and handling must be clarified throughout the MHPs and that document should show how the refined projection accords with and does not exceed the DCO evidence and control documents, Environmental Statement and Transport Assessment. The development of a robust EMP2, CLP, TMP and MHP in accordance with the required changes proposed by the Council, prior to construction of the tunnel would contain the greater detail on the management of materials and associated transport (road, marine and rail). That coordinated suite of documents must set out the projection for materials handling and be maintained as current throughout the life of the project. The Council and other associated stakeholders must be engaged in the preparation of those documents and the monitoring and updating as required.</p> <p>The DCO and control documents (including the CoCP, oSWMP and oMHP) should set the clear parameters of management of the tunnelling approach and the strategy for mitigation of impacts, which would be adopted into the consent documents, e.g. EMP2, SWMP and MHP. This should include: the volumes/quantities of materials, plant and equipment; how those forecasts align with the ES, TA and broader DCO evidence; the means of transporting them; the profile and projections of when and where those movements would occur; and, how those movements are to be managed and controlled.</p> <p>Currently, if the DCO is granted, the Council is only able to feedback on those aspects through the Traffic Management Forum and is only a consultee to the Environmental Management Plan 2 (dDCO Requirement 4), Traffic Management Plans (dDCO Requirement 10) and Construction Travel Plans (dDCO Requirement 11).</p> <p><b>Request: the Council requires the applicant to revisit the oMHP and commit to using marine or rail transportation to move tunnel related materials, plant and equipment as well as other materials, plant and equipment for other aspects of the project – perhaps using the trace and new rail crossing to facilitate movements within the trace and minimising impacts on local communities and the transport network.</b></p>

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ii	The effect of noise, vibration and other disturbance on the local community.	
<b>Oral Submission on Agenda Item 7 a) ii</b>		
This agenda item was not reached.		
<b>Further Written Submission on Agenda Item 7 a) ii</b>		
<p>The Council sets out its view on noise and vibration in its LIR at Section 10.3 – Noise and Vibration. Within Chapter 12 Noise and Vibration <a href="#">[APP-150]</a> it is noted that construction activities at the Northern tunnel compound are likely to impact receptors Gravel Pit Cottages, Station Road (CN 47), Buckland, Station Road (CN 43) and Willows, Station Road (CN 48) during the daytime with unmitigated noise levels exceeding the Significant Observed Adverse Effect levels (SOAEL)</p> <p>Whilst mitigation measures are proposed, these measures are very high level and non-specific. They include commentary, such as up to 10 dB reduction in noise due to screening, up to 20 dB reduction in noise from static plant. However, there are no specific noise reduction calculations for specific receptors or account being taken of what are the façade/heights of the receptors. Subsequently there is a risk that noise reduction levels being mentioned are not achievable.</p> <p>The Council expects additional assessments to be provided for specific receptors to confirm how these mitigation measures will reduce noise levels to be below the SOAEL.</p>		
iii	The effect of the proposed onsite accommodation and related management of potential socio-economic impacts.	
<b>Oral Submission on Agenda Item 7 a) iii</b>		
This agenda item was not reached.		
<b>Further Written Submission on Agenda Item 7 a) iii</b>		
<p>The Council sets out its view on worker accommodation and socio-economic impacts in its LIR <a href="#">(REP1-281)</a> in Section 13.5.2 (f), 'Skills Employment and Legacy'. It is the Council's view that on-site accommodation used as a permanent legacy could help to alleviate pressure on the local housing market and a long-term benefit. The applicant has not responded to the Council's requests to develop the strategy for Worker Accommodation and a resultant legacy. This is indicated in the Council's submission at D3 <a href="#">(REP3-211)</a> in Sections 18.12.6-18.12.10. The applicant has further committed to the provision of a note expanding on the assumptions behind the Worker Accommodation Helpline and WAWG and the impacts on local facilities such as Health Facilities (D3 submission 18.12.08) that are designed to manage and limit impacts on the local housing market. This Technical Note was promised by the applicant at D3 and remains outstanding.</p>		

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**Thurrock Council's Response to Action Points from ISH5 ([EV-044a](#))**

No	Party	Action	Thurrock Council response
1	Applicant	<p><b>Type of Tunnel Boring Machine(s)</b> Please provide a commentary on the scope of the types of Tunnel Boring Machine(s) (TBM(s)) that the dDCO would/should allow to be utilised. This should include a summary of the source(s) and volume(s) of process water required.</p> <p>Having regard to the assumptions made within the relevant assessments, should the dDCO (and/or the Code of Construction Practice, First Iteration of Environmental Management Plan (<a href="#">REP-157</a>), limit the type to the family of Closed Faced TBM(s)?</p>	<p>The Council sets out its view on the specification of the type of TBM at its submission under Agenda Item 4a) i and the management of water at Agenda Item 4b) i.</p>
2	Applicant & Port of London Authority	<p><b>Impact on the navigation of river traffic</b> Please provide an update on the outcome of the ongoing discussions on Limits of Deviation, and construction, operation, monitoring, mitigation and remediation which could affect the navigation of river traffic on the River Thames.</p> <p>Cross referencing to discussion at ISH7 (the dDCO), this should include any proposed alterations to the relevant Protective Provisions within the dDCO and/or other alterations to the dDCO and related Certified Documents. Any remaining areas of disagreement should be set out with associated justification/reasoning for each party's position.</p> <p>This could be provided within the updated Statement of Common Ground (SoCG) and/or the Principal Areas of Disagreement (PADS).</p>	<p>The Council makes no representation on this action point.</p>

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No	Party	Action	Thurrock Council response
3	Applicant	<p><b>Code of Construction Practice – update to allow for the use of a single or 2 TBM(s)</b> Please update the Code of Construction Practice, First Iteration of Environmental Management Plan <a href="#">[REP-157]</a> to reflect any differences in the controls necessary where a single, or 2 TBM(s) are used.</p>	<p>The Council has set out its position with regards to adjustments that should be made to the CoCP, the oMHP and the oTMPfC in relation to the controls during construction that should be applied to the tunnelling operation and the management of contractors, materials handling and the movement of plant and equipment.</p>
4	Applicant	<p><b>Update on workforce commuting figures</b> Provide details of the methodology/ assumptions that informed the increase in the workforce commuting figures which would affect the ASDA roundabout.</p>	<p>The applicant must confirm the access routing for workers travelling to and from the North Portal and Station Road compounds. This information does not correlate across the evidence base between the oTMPfC (Plate 4.2) and Construction Information – Figure 2.5, the Temporary Works Plans Regulation 5(2)(j) Sheet 2, and assumptions of workforce access via Chadwell St Mary as applied within the Construction Modelling LTAM scenarios. The PoTL has further expressed concerns relating to the use of the St Andrews Road and Sub-Station Road for workforce access, through the active Tilbury 2 Port.</p>
5	Applicant	<p><b>Emergency Preparedness Procedures (UxO)</b> Applicant to provide commentary in respect of the Emergency Preparedness Plan within the Code of Construction Practice <a href="#">[REP-157]</a> for unexploded ordnance. This should include:</p> <ul style="list-style-type: none"> <li>• Commitments and timing for having evacuation plans identified;</li> <li>• The authorities/services who should be notified/consulted in respect of the response procedures; and</li> <li>• Notification/ consultation commitments for the emergency procedures with the authorities.</li> </ul>	<p>The Council sets out its view on Emergency Prepared Plans and evacuation plans at Agenda Item 5a) ii and 6a) i.</p>



## 4 Issue Specific Hearing 6 (ISH6) – Mitigation, Compensation & Land Requirements

### Issue Specific Hearing 6 (ISH6) on Mitigation, Compensation and Land Requirements

15<sup>th</sup> September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council's Oral Case

Note: these Post Hearing Submissions include a written summary of the Oral Case presented by Thurrock Council at ISH6. They also include the Council's submissions on all relevant Agenda Items, not all of which were rehearsed orally at the ISH due to the need to keep oral presentations succinct and due to the changes to the order of the agenda on the day.

The structure of the submissions follows the order of the agenda items, but within each agenda item, the submissions begin by identifying oral submissions made at ISH6 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant are made by the Council at ISH6 the Council has highlighted these as '**Requests**'. Where the Examining Authority (ExA) requested the Council provides further written evidence or further information has been provided in response to statements made by the Applicant during ISH6, this further information is included in Annexes and highlighted within this submission.

Annex A – Hole Farm Community Woodland Planning Statement, July 2023

These submissions also include a response to the relevant Action Points arising from ISH6 [[EV-046e](#)]. ISH6 was attended by Douglas Edwards KC on behalf of Thurrock Council. Also, in attendance at ISH6 on behalf of the Council were Steve Plumb and Chris Stratford.

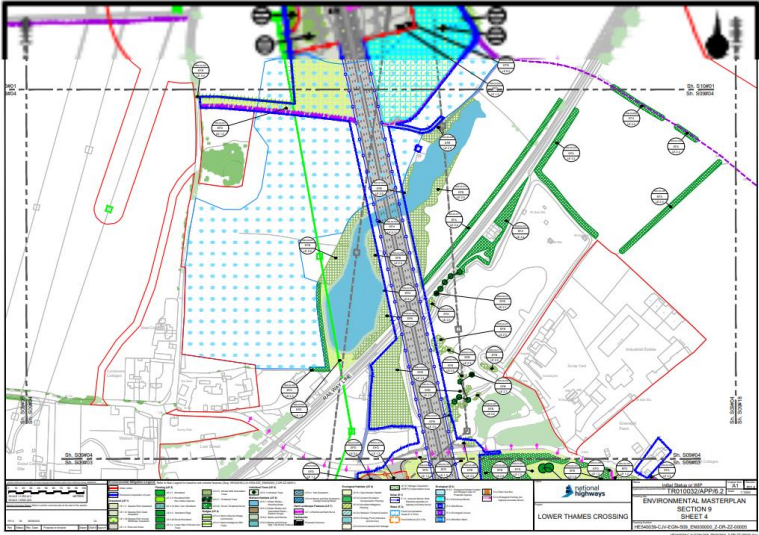
Agenda Item		Thurrock Council's Response
<b>3</b>	<b>Mitigation, Compensation and Enhancement</b>	
<b>a)</b>	<b>Distinctions between Mitigation, Compensation and Enhancement</b>	
<b>i</b>	The ExA would like to understand how the three terms have been applied to the EIA biodiversity assessment and whether the assessment is explicitly clear about the amount and location of mitigation, compensation and enhancement areas proposed.	During ISH6 it was agreed by all parties that there was a lack of clarity as to what constituted mitigation or compensation and whether any provision could be considered enhancement. The Council supports the requirement for a Mitigation Route Map to be prepared using a format agreed with Natural England.
<b>ii</b>	Are there any notable disparities in the application material around what constitutes mitigation, compensation	The Council shares the concerns raised at the hearing as to the function of Hole Farm within Brentwood BC. This relates specifically to determining what constitutes mitigation and compensation provision within an area that was acquired originally by the applicant as a legacy project (that was then not

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Agenda Item	Thurrock Council's Response
<b>3 Mitigation, Compensation and Enhancement</b>	<p>or enhancement that could have implications for the ExA's assessment?</p> <p>part of the Order Limits and now is) with the intention of providing landscape and ecological enhancements.</p> <p>The Planning Statement (which is appended as <b>Annex A</b>) for the current planning application being considered by Brentwood Borough Council for parts of the Hole Farm Community Woodland scheme, as referenced at ISH6 by Thames Crossing Action Group, confirms that the initial capital costs for developing the scheme were funded through National Highways Designated Funds and that running costs will be funded by Forestry England, which will be managing the site in the long term.</p> <p>The Planning Statement goes on to say that the Community Woodland would also deliver 2.9ha of replacement 'Special Category Land', 75.2ha of habitat for Nitrogen Deposition compensation and 26ha of woodland planting to compensate for ancient woodland losses.</p> <p>While the Council does not have in principle objections to the proposed scheme for Hole Farm it seeks clarification about which elements of Hole Farm project are still considered to be Legacy (enhancement) as originally proposed and what is now mitigation/compensation (and if this relates to nitrogen deposition or another aspect of mitigation). Does this also impact on how the site was acquired?</p>
<b>b) Extent and Type of Landscaping</b>	<p><b>i</b> There is a "landscape scale" strategy proposed for mitigating and compensating the loss of habitats, but the ExA would like to explore if this is the most appropriate method for mitigating and compensating for impact.</p> <p>The Council is supportive of the landscape-scale approach as it results in more robust and resilient mitigation. This is particularly important in the areas around the North Portal through to Coalhouse Fort, where there are nationally significant assemblages of invertebrates and links to other similar habitat outside the Order Limits.</p> <p>The Council has previously raised concerns at the limited connectivity of habitat provision around the Tilbury Viaduct, which would lessen connectivity for invertebrates and bats in particular. There is little new habitat or landscape enhancement being provided in the area around the base of the viaduct as shown on EMP Section 9 Sheet 4 (<a href="#">REP2-021</a>). There are additional areas including existing scrubby woodland, grassland wetland and farmland within the Order Limits, which have not been acquired a part of the ecological and landscape mitigation measures. These areas provide additional opportunities to achieve landscape and ecological mitigation by providing new features such as hedges as well delivering better management of other retained habitat. The main opportunities include:</p> <ul style="list-style-type: none"> <li>• Enhancement of the grassland north of Station Road. Measures could include boundary hedge creation.</li> </ul>



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Agenda Item	Thurrock Council's Response
<p><b>3 Mitigation, Compensation and Enhancement</b></p>	
	<ul style="list-style-type: none"> <li>• Management of the scrubby woodland that is developing mainly to the east of the proposed viaduct.</li> <li>• New boundary hedgerow planting around the flood compensation land, on the west side of the viaduct and to the east of residential properties at Low Street within the West Tilbury Conservation Area</li> <li>• It is not clear if the flood compensation area would be retained as arable farmland.</li> </ul>  <p>The Council requests that these areas are permanently acquired to able the additional landscape and ecological mitigation measures to be delivered and the applicant is requested to respond to this key request.</p>
<p>ii Whilst the type of species planting will be developed between all relevant parties during the development of the Landscape and Ecology Management Plan post consent, the Applicant will be asked to explain where it proposes to use non-native species and why this decision has been taken, especially if it includes designated/protected areas?</p>	<p>The Council accepts that, with climate change and the range of plant diseases that are affecting many native species, there will be a need to use some suitable non-native species where appropriate to increase future resilience. The applicant has committed not to include these within designated sites or landscapes. No relevant designated sites are affected within Thurrock.</p>

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Agenda Item	Thurrock Council's Response
<b>3</b>	<b>Mitigation, Compensation and Enhancement</b>
<b>c)</b>	<b>Biodiversity Net Gain (BNG) – BNG calculation is in APP-417 – Natural England in its SoCG has agreed the methodology and overall approach</b>
<b>i</b>	<p>The Applicant will be asked to explain why, albeit not policy at present, it cannot commit to a minimum of 10% net gain.</p> <p>The Council has questioned the failure to achieve the 10% BNG target. The applicant explained while the initial calculation demonstrated that the target had been exceeded, that the figure had been lowered due to the need to mitigate the loss of ancient woodland and other habitats with high-risk multipliers. This lowers the number of units that can be achieved. While it is recognised that providing significant new planting to mitigate for the loss of the ancient woodland is appropriate, this will impact the scoring. The Council has asked that the amount of land available for mitigation should be increased to enable the 10% target to be met. The applicant's response is that as it is enhancement rather than mitigation, they cannot increase the amount of land available to achieve this aim.</p> <p>The BNG calculation submitted with the DCO (ES Appendix 8.21 – Biodiversity Metric Calculations (APP-417) for the North of the Thames gave the following headline results:</p> <ul style="list-style-type: none"> <li>• Area +9%,</li> <li>• Hedgerows -18%</li> <li>• Rivers/streams -7%</li> </ul> <p>The BNG calculation report does say that there will be an overall increase in lengths of hedges and watercourses, but the risk multipliers reduce the score. While hedgerow planting might not be appropriate for some habitat types being delivered as part of the landscape and ecological mitigation, the applicant has not provided a detailed justification as to why additional hedgerows cannot be achieved elsewhere. The Council has sought to work with the applicant to consider opportunities for achieving additional BNG but was told that as it was enhancement rather than mitigation and therefore it could not be justified.</p> <p>At the Hearing the Council presented an example where land within the Order Limits below the proposed Tilbury Viaduct, which are detailed in 3b) i above f). The measures outlined would make some contribution towards the BNG assessment score.</p>
<b>ii</b>	<p>Following comments from IPs, can the Applicant provide an update on whether it is considering a greater percentage of BNG, and what the implications are for increasing the BNG, e.g. to the land requirements, to</p> <p>The Council appreciates that BNG will not be mandatory for NSIPs until November 2025; however, many developers are already committing to meeting BNG targets of at least 10% ahead of the requirement being mandatory as part of good practice and to demonstrate an environmental commitment. As one of the largest developments in the UK, it is unclear why the applicant cannot make a similar commitment given the large-scale environmental impacts of the scheme.</p>

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Agenda Item		Thurrock Council's Response
<b>3</b>	<b>Mitigation, Compensation and Enhancement</b>	
	the scheme cost, etc?	
<b>iii</b>	Can the Applicant clarify if when calculating BNG it included in the metric any biodiversity mitigation proposed for this Project or that is currently in place for any other development (thus double counting)? Furthermore, do any of the change requests made by the Applicant so far impact the BNG calculations?	The lack of clarity regarding what constitutes mitigation, compensation or enhancement as discussed under Agenda Items 3 a) i. and ii. means that there is no certainty that there has not been double counting.
<b>iv</b>	The Applicant will be requested to discuss whether the metric used for BNG could be re-run using the latest metric (4.0) as requested by Natural England.	No commentary from the Council.

Agenda Item		Thurrock Council's Response
<b>4</b>	<b>Green Bridges</b>	
<b>a)</b>	<b>Purpose of Green Bridges</b>	
<b>i</b>	What is the overall purpose of the Green Bridges in this Project and what determined their location?	<p>There are three green bridges proposed in Kent and four within Thurrock. The discussions at ISH6 highlighted the difference in their purpose within Kent and Thurrock. The green bridges within Thurrock are aimed to provide ecological connectivity and a degree of landscape mitigation particularly for WCH users. The bridges are on routes where there are existing hedges or tree lines running through predominately arable farmland. The Council considers it is important to ensure that there are corridors through the landscape that reconnect the hedges due to the lack of alternative corridors within these areas.</p> <p>The bridges at North Road and Muckingford Road are close to existing settlements and provide links to nearby WCH routes. Green Lane is a public bridleway and Hoford Road is a green lane within areas containing limited alternative routes. It is considered vital therefore that all four bridges are provided.</p>

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Agenda Item		Thurrock Council's Response
<b>4</b>	<b>Green Bridges</b>	
		<p>The green bridges in Kent are proposed to mitigate impacts to Ancient Woodland and the AONB therefore it is vital that their scale is commensurate to mitigate these effects.</p> <p>The Council does not have significant concerns about the proposed width of the planting on the green bridges in Thurrock as it corresponds to the existing habitat features connecting to the bridges. This is significantly different context to those within Kent.</p>
<b>ii</b>	The ExA wants to understand what best practice design guidance has been used to inform the size, design and functionality of the green bridges and whether that guidance has been effectively deployed to this Project.	The initial focus for green bridges was provided for the large structure at Thong Lane. The guidance and rationale for the smaller structures within Thurrock were never shared with the Council. While the Council has not raised concerns regarding the width of the vegetation strips of the green bridges in Thurrock, it has requested that a bus priority corridor be provided at Muckingford Road bridge crossing to facilitate future bus priority improvements (LIR <a href="#">REP1-281</a> Section 9.7.4).
<b>iii</b>	What is the target species for each of the green bridges and how are they specifically provided for?	The green bridges on Green Lane and Hoford Road would benefit bats in particular by avoiding severance of the hedge/tree lines along these routes. For the other green bridges, the aim was to ensure some degree of connectivity given the route divides the whole Borough for bats, reptiles, amphibians and small mammals. The green component of the bridges in Thurrock are relatively narrow and comprises hedges, trees and some associated grassland. This has not been raised as a significant issue due to the narrowness of the habitat corridors which they connect.
<b>b)</b>	<b>Maintenance and Monitoring</b>	
<b>i</b>	The ExA needs to understand how realistic the longevity/robustness of the planting is on the green bridges for biodiversity purposes given the restriction on landscaping growth and the proximity of vehicles.	No detailed design information has been provided although relevant design principles set out the specific aims. The successful establishment of trees and hedges will be dependent on sufficient substrate and water being available. At the Hearing the applicant acknowledged that species choice for tree and shrub planting on the structures would need to reflect the soil depths that were possible so larger growing specimens could not be planted. This is not considered to be an issue for the Thurrock bridges.
<b>ii</b>	What monitoring is expected to occur / be required and by whom to determine the effectiveness of the Green Bridges for biodiversity enhancement purposes and how is this secured in the DCO?	<p>It is assumed that the oLEMP would be the means of securing the successful establishment of the planting overseen by the Advisory Board.</p> <p>The Ecology Chapter of the ES (<a href="#">APP-146</a>) paragraph 8.8.3 identifies the requirement for wildlife monitoring of the green bridges as they establish however no mention of this appears within the oLEMP. The Council requests that the applicant</p>

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<b>4</b>	<b>Green Bridges</b>	
		signpost whether this requirement has been included in any control documents.

Agenda Item		Thurrock Council's Response
<b>5</b>	<b>Ancient Woodland Impact</b>	
<b>a)</b>	<b>Methodology</b>	
<b>i</b>	What criteria is used to determine whether a tree is classed as veteran or ancient and are the criteria used robust?	<p>The standard definitions can be summarised: An <u>ancient tree</u> is one that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species. <u>Veteran</u> is a term describing a tree with habitat features such as wounds or decay. A veteran tree is a survivor that has developed some of the features found on an ancient tree, not necessarily as a consequence of time, but of its life or environment. There is an element of professional judgement in determining veteran trees in particular. This is not an issue in Thurrock as LTC has very limited effects on potential veteran or ancient trees.</p>
<b>ii</b>	The ExA would like clarity on whether physical surveys of woodland have been completed to show the full extent of affected habitat or has the level of importance assigned to trees been based on an agreed methodology with Natural England.	<p>In Thurrock only Rainbow Shaw has been confirmed as Ancient Woodland within the Order Limits. The site was not included on the Ancient Woodland Inventory but is designated as a Local Wildlife Site as a likely fragment of Ancient Woodland. The LTC surveys have confirmed its status.</p> <p>The main question relates to establishing if the southern section of The Wilderness constitutes ancient woodland. This point is considered separately below.</p>
<b>iii</b>	The ExA will ask the Applicant to explain how it intends to create the replacement for lost ancient woodland, noting issues such as the benefits of translocating soils, and whether it has considered how success would be monitored and any deficiencies addressed.	<p>The ES Chapter 8 (<a href="#">APP-146</a>) identifies 1.57ha of ancient woodland would be lost north of the Thames of which Rainbow Shaw comprises 1.2ha (it is not clear which other ancient wood north of the Thames would have a loss of area as none is shown in Fig8.33 Ancient Woodland Impacts (<a href="#">APP-294</a>)). A total of 32ha of new woodland planting is to be provided. It is not made clear in the ES what proportion of this is explicitly for loss of ancient woodland at Rainbow Shaw and what is for loss of other woodland. A large portion of the replacement woodland planting would be in Hole Farm. The Council wishes the applicant to explain why this is considered appropriate.</p>

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5	Ancient Woodland Impact	
b)	The Wilderness	
i	<p>There is some conflict over whether The Wilderness should be regarded as ancient woodland. The ExA would like to hear from the Applicant and relevant IPs who have a view on this and what evidence they have to support their case either way.</p>	<p>The Wilderness was not included on the Ancient Woodland Inventory prepared by Nature Conservancy Council in the 1980s (despite being over 2ha in size). It has not been identified as a Local Wildlife Site during any of the Local Wildlife Site Reviews. Ancient woods would be automatically designated irrespective of their size. It is not shown on the 1777 Chapman and Andre map but is shown on the 1<sup>st</sup> Edition OS map. The Council has recently seen a copy of an estate map from 1767, which shows an established woodland belt listed as Wilderness in the southern part of the existing wood. A recent site visit recorded some coppiced trees present, but not at a scale typical of an ancient managed wood. There are small numbers of ancient woodland indicators including Bluebell, spindle and small-leaved lime. However, the survey was at a sub-optimal time for woodland flora. The southern section contains a lot of elm suckers and therefore it is likely that most of old tree would have died from Dutch Elm Disease, possibly up to 50 years ago, which makes it difficult to establish its past management.</p> <p>The historic maps and site survey confirm that the northern part of the wood is definitely not ancient, however, it is possible that the southern section, which would be directly impacted by LTC could be a remnant ancient woodland shelter belt.</p> <p>The Council requests the details of survey results undertaken for the Wilderness, which can help confirm the extent of ancient woodland indicators recorded in the southern part of the wood. The whole wood is shown on the 1<sup>st</sup> Edition OS map and therefore it would meet the emerging designation of Long Established Woodland, as defined in Defra's Keepers of Time: ancient and native woodland and trees policy in England. On the Gov website Long Established Woods are defined as:</p> <p><i>'Long established woodland has been present since at least 1893. While not ancient, these woodlands are still very important. They have had many decades to develop rich biodiversity and they often contain important old-growth features and deliver a range of ecosystem services'.</i></p> <p><b>Request: the applicant to provide details of the survey results undertaken for the Wilderness.</b></p> <p>The Council recognises that Long Established Woodland has not yet been adopted as a formal designation, however, it does provide recognition that older woods are likely to have a significant landscape and ecological value in its own right.</p> <p>The Council considers the argument as to whether the site is ancient or not to be a distraction, as it does not address the</p>



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5	Ancient Woodland Impact
	<p>value of the habitats on the site that would be impact and avoids considering the rationale for realigning the original route through the wood.</p> <p>The site has a high amenity value and supports a range of habitats in addition to lowland deciduous woodland. It supports breeding populations of a range of protected species. The Bat Survey Report (ES Appendix 8.8 (<a href="#">APP-397</a>) and ES Figure 8.23 – Woodland Assessment Locations and Bat Tree Survey Results – (<a href="#">APP-284</a>) identified 31 trees in the Order Limits with moderate to high bat roosting suitability with a mean number of pass per night of 250. This is despite the lack of connectivity to other suitable habitats. The Breeding Bird Surveys (ES Appendix 8.8 (<a href="#">APP-396</a>) recorded Red list species Song Thrush and Starling breeding within the Order Limits area. There are local reports of Barn Owl, Tawny Owl, Red Kite, Adders being observed using the site. Until recently the site has been used for environmental education.</p> <p>It is proposed to retain the northern part of the woodland, however, there are likely to be indirect effects on the ecological value of this remnant given the proximity of the new road and impacts on the underlying hydrology.</p> <p>The applicant has confirmed in the 2020 Supplementary Consultation (<a href="#">APP-085</a>) that the reason for the route realignment to extend into the wood was solely to avoid the former landfill site to the south. This was due to the concerns regarding its potential for contamination or suitability for construction. No detailed technical evidence has been presented to demonstrate that was any actual issues with the original alignment over the landfill. It is assumed therefore this was undertaken as an easy way to reduce potential risks.</p> <p>Given the landscape and ecological value of The Wilderness the Council requests the applicant provides the details of the technical site assessments that it undertook on the landfill site to confirm that it is unsuitable for taking the road. Otherwise, the Council believes the rationale for destroying an area of established woodland to avoid a landfill site cannot be justified. If there is not an adequate justification for the alignment through the wood (beyond expediency) that the Council wishes to see this long established wood retained.</p> <p><b><i>Request: the Council requires the applicant to provide the details of the technical site assessments that it undertook on the landfill site to confirm that it is unsuitable for taking the road.</i></b></p>
ii	<p>Clarity is to be provided by the Applicant on the decision</p> <p>The Wilderness slopes down towards the route of LTC. Even in September the ponds within the site are full and there is a</p>

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<b>5</b>	<b>Ancient Woodland Impact</b>	
	<p>process to introduce a retaining wall to the south of this area and its potential impact to the area during construction and during the operation period?</p>	<p>stream flowing through the wood. It is clear that there is a significant flow of water through the site.</p> <p>The Council requests more clarity regarding the impacts of the retaining wall on the water flow and how it will be managed if the existing course is cut. This should include details of the likely flow rate of the channel.</p> <p><b><i>Request: the applicant needs to provide clarity on the impacts of the retaining wall on the water flow and how it will be managed if the existing course is cut. This should include details of the likely flow rate of the channel.</i></b></p>
	<b>Calculation of Replacement Woodland</b>	
<b>i</b>	<p>What guidance was/should be followed in relation to the quantity, form and location of ancient woodland replacement?</p>	<p>The applicant has not provided an explicit calculation for the rate of compensation that has been provided across the scheme. The Council requests that this is provided.</p>

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<b>6</b>	<b>Nitrogen Deposition Compensation</b>	
<b>a)</b>	<b>Mitigation Hierarchy and Site Selection</b>	
<b>i</b>	<p>The ExA needs to understand how the Nitrogen Deposition compensation approach aligns with the mitigation hierarchy?</p>	<p>Note: within the Natural England SoCG the Nitrogen Deposition methodology and mitigation us a Matter Agreed now.</p>
<b>ii</b>	<p>The Applicant will be asked to clarify how the size of the Nitrogen Deposition compensation area(s) has been determined and what their criteria were for selecting sites?</p>	<p>The Council has previously sought clarification of justification for using Hole Farm for mitigation and compensation as the site was originally acquired as a Legacy project. This is the reason that development works have already commenced on site in advance of the DCO. This matter has been addressed above in 3a ii.</p>
<b>iii</b>	<p>What site surveys have been carried out on the proposed Nitrogen Deposition compensation sites to determine their suitability?</p>	<p>The Council has raised the suitability of Buckingham Hill Landfill Site as a tree planting site. It is restored landfill and the soil depths are unknown and have not been tested. While the Council is not opposed to the use of Buckingham Hill as a Nitrogen Deposition compensation site, it is concerned that there is insufficient understanding about the site to be able to be 'primarily woodland' has stated in Section 6.11 of the oLEMP (<a href="#">APP-490</a>). While a lower % of tree planting may be</p>



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		appropriate in ecological terms for this site, it is not clear how this reduction in woodland cover would affect the habitat balance on other sites, if the aim is for an overall 70% woodland cover on the compensation sites. At the ISH6 Hearing, other than a general assertion, the applicant failed substantively to address this matter at all.
iv	The Applicant will be asked to set out where and why areas of land for Nitrogen Deposition have been reduced.	Does not relate to sites in Thurrock.
v	The ExA would like to hear from Stakeholders about whether the Applicant's approach to Nitrogen Deposition is robust	The approach was agreed with Natural England. North of the Thames the location of the compensation sites complements other existing habitats and proposed mitigation and there are no concerns in principle, however, there is concern about the potential for double counting at Hole Farm.
<b>b) Habitat Make-Up</b>		
i	It is reported that the mosaic of habitats for nitrogen deposition sites is expected to achieve a ratio of approximately 70% woodland to 30% other associated habitats. Is this approach well founded?	Whilst, in principle, the Council does not object to sites being predominately wooded, however, it has raised concerns about how feasible this would be for Buckingham Hill. While the applicant has said it is overall 70/30% split, this would mean some sites having higher percentage. At ISH6 the applicant acknowledged that there could be other constraints to planting, for example, as a result of archaeological remains. While the applicant did not appear to consider that these constraints would significantly impact the objective of delivering an overall 70% area of new woodland, it has not provided any evidence that this can be achieved. The concern is that some sites might require more than 70% planting to achieve the overall target. Such density of woodland will limit the scope to provide glades, rides, wetland and other important habitat features.

Agenda Item		Thurrock Council's Response
<b>a) Delivery, Maintenance, Management and Monitoring</b>		
i	How will/should mitigation, compensation and enhancements be secured in the DCO?	Measures are currently in Design Principles, oLEMP and EMP, which are control documents. While the overall approach is considered broadly acceptable, the Council has concerns regarding its delivery and the involvement that Councils will have in ensuring management is appropriate.
ii	Who will be responsible for implementing maintenance, monitoring and management (short or long term) of the range of	The roles and responsibilities of the different parties are summarised in the oLEMP. The applicant will be responsible for maintenance once the initial establishment period undertaken by the appointed Contractor ends. Paragraph 2.1.5 states that this will be for a period of 5 years or such

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
 Hearings  
 Lower Thames Crossing

Agenda Item	Thurrock Council's Response
<b>a) Delivery, Maintenance, Management and Monitoring</b>	<p>measures along the length of the Proposed Development and how will associated funding for the responsible authority be secured? The ExA is of a view that the person or people involved should be suitably qualified in maintenance of species.</p> <p>period as may be specified in the LEMP. The Council has a number of questions:</p> <ul style="list-style-type: none"> <li>• Does the 5-year maintenance period run from the end of the main construction or from the delivery of the separate elements?</li> <li>• How will landscape and ecological mitigation measures delivered in advance of the main construction be maintained until the long-term maintenance contract commence?</li> <li>• What controls are in place to ensure that if this initial maintenance is for longer than 5 years that contractors with appropriate experience will be in place to ensure appropriate management is undertaken?</li> </ul> <p>The Council would require the oLEMP Advisory Group to have an active role in appointing the contractors as there must be confidence over their suitability.</p> <p>Kent CC raised an issue at ISH6 regarding maintenance of the green bridges and identified potential for conflicts between the maintenance responsibilities for the carriageway by the Local Highways Authority and of the vegetation by the applicant's contractors. If the LHA wanted vegetation on the bridge cut back because of perceived safety concerns, but the oLEMP Advisory Group disagreed on ecology grounds, it is unclear how this would be resolved.</p> <p>The oLEMP states that NH will appoint a suitable third party to undertake maintenance, but no details have been provided as to what would constitute suitable. The Council agrees that it is essential that those responsible for management/maintenance should have appropriate skills to ensure appropriate management regimes are followed. This will be particularly important for less common habitat features such as open mosaic habitat which require small-scale inputs. The Council would wish to see landscape contractor(s) with proven experience of managing ecological sensitive sites.</p> <p>The oLEMP Terms of Reference (<a href="#">APP-491</a>) Section 1.6 refers to Dispute Resolution. It is not clear, however, how a matter is address if the Advisory Board unanimously agrees to a point, but the applicant does not. How would this be dealt with? Is the final position the group is only advisory? This could be significant for example if additional resources are considered necessary to adequately deliver the necessary management and monitoring, but the applicant does not. More clarity and certainty should be included in the oLEMP.</p>

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

Agenda Item	Thurrock Council's Response
a) <b>Delivery, Maintenance, Management and Monitoring</b>	
	<p><b><i>Request: can the applicant provide examples of similar arrangements for other schemes? What will be the Advisory Group's role in scrutinising the potential contractors to ensure that they have the appropriate experience? The applicant to provide more clarity in the oLEMP.</i></b></p>

Agenda Item	Thurrock Council's Response
b) <b>Post Consent Surveys</b>	
<p>i</p> <p>The EIA sets out a number of surveys which are to be undertaken post consent but prior to construction, to inform the level and design of biodiversity mitigation.</p> <p>There are concerns raised about the time delay between surveys being undertaken, construction commencing, mitigation being delivered and in some cases mitigation maturing to a level of being effective. The ExA wants to explore the implications of this with the Applicant and relevant IPs</p>	<p>The Council agrees that ensuring mitigation is provided early enough to enable it to mature will be vital to avoid loss of habitat in the short term. BNG scores more highly when delivered in advance of development.</p> <p>As species surveys are only normally valid for 12-24 months depending on species it will be essential that new surveys are undertaken prior to any works (including site clearance) being carried out to determine if there are changes in mitigation requirements. CoCP 1<sup>st</sup> Iteration of the Environmental Management Plan alludes to providing mitigation, but not to updating surveys. Therefore, the Council requests that the applicant confirm that all necessary protected species assessments are updated where appropriate prior to any site clearance or construction works commencing and identify where this commitment is secured in control document.</p> <p>In the event there is a significant increase in protected species being recorded which could require a change in what mitigation is required can NH confirm what the timescale would be to enable the LEMP and EMP to be revised?</p> <p><b><i>Request: the applicant confirm that all necessary protected species assessments are updated where appropriate prior to any site clearance or construction works commencing and identify where this commitment is secured in control document.</i></b></p>
<p>ii</p> <p>The ExA also wants to explore the potential risks of a harmful effect being discovered in post consent surveys that cannot be mitigated or there is a requirement for mitigation which would be beyond the</p>	<p>Within most of Thurrock it is not considered that there is any risk of significant harmful effects. There could be some potential for very rare invertebrates to be recorded (e.g. Distinguished Jumping Spider). However, these species usually are not explicitly protected, being covered by Section 41 of NERC Act. It is expected that the habitat requirements for any new species that were recorded would be similar to</p>

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

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<b>Agenda Item</b>	<b>Thurrock Council's Response</b>
<b>b) Post Consent Surveys</b>	
worst case scenario assessment in the EIA or even beyond the order limits.	those for which the proposed mitigation has been designed and therefore additional mitigation is likely not to be required.

Post Event Submissions for Issue Specific (ISH3-7) and Compulsory Acquisition (CAH1 & 2)  
Hearings  
Lower Thames Crossing

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**Appendix A: 23\_00862\_FUL PLANNING\_STATEMENT - 1014338**

## Hole Farm Community Woodland Planning Statement

Document no: Project no. 678279CH  
Revision no: 03

Forestry England



Hole Farm Community Woodland  
7 July 2023

## Hole Farm Community Woodland Planning Statement

**Client name:** Forestry England  
**Project name:** Hole Farm Community Woodland  
**Client reference:** NA  
**Project no:** 678279CH  
**Document no:** Project no. 678279CH  
**Project manager:** EH  
**Revision no:** 03  
**Prepared by:** CS & SG  
**Date:** 7 July 2023  
**File name:** Hole Farm Planning Statement - 07 July 2023  
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## Document history and status

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01		Planning Statement	CS/SG	SC		
02		Planning Statement	CS/SG	DA	CS	
03	20.06.2023	Planning Statement	CS/SG	DA	CS	SC


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# Hole Farm Community Woodland Planning Statement

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## 1 Introduction

- 1.1 This Statement has been prepared by Jacobs on behalf of Forestry England ('the Applicant'). It supports a hybrid planning application and associated Listed Building consent for the creation of a community woodland facility comprising: vehicular access into a 94-space car and coach park with Electric Vehicle (EV) charging points and overflow area; substation; an open sided visitor shelter; a modular café with covered outdoor seating area, bin store, cycle parking and WC facilities; demolition of a grain store and development of a community building including staff welfare and office facilities, and outdoor terrace; staff and disabled car parking; demolition of an agricultural machinery store and construction of a Forestry England barn; service yard and vehicle turning circle; surfaced and unsurfaced woodland paths; creation of six new ponds; countryside heritage and interpretation boards and informal natural play areas ('the Project') at Hole Farm Lane, Great Warley, Brentwood, Essex CM13 3JD ('the Site').
- 1.2 Full planning permission is sought for the majority of the above but approval in outline, excepting certain design details, is sought for the following elements as their final design has yet to be determined:
- Substation
  - Open-sided visitor shelter
  - Modular café with covered outdoor seating area, bin store, cycle parking and WC facilities
- 1.3 Listed building consent is required for certain elements of the Project, as requested by Brentwood Council's planning and heritage officers, due to their location within the historic curtilage of the Grade II listed farmhouse. This is located outside the Project boundary on adjacent land.
- 1.4 The Application Site is owned by National Highways but the Community Woodland would be leased and managed on a long-term basis by Forestry England (FE). It would create an asset for the local community and add to the network of woodlands comprising the Thames Chase Community Forest. In this regard it is proposed to plant a new community woodland including a mosaic of wildlife-rich habitats and rides and glades species rich grassland linking into the wider Thames Chase Community Forest. The planted elements of the community woodland do not require planning permission. This is clearly set out in paragraphs 1.13-1.18 below.
- 1.5 The site is included within the Project Order Limits of the Development Consent Order application for the Lower Thames Crossing (LTC) (Nationally Significant Infrastructure Project (NSIP) Ref. TR010032). Its purpose is to deliver replacement 'Special Category Land' to compensate for the permanent acquisition of land used as public open space, habitat creation compensation for the potential impacts of nitrogen deposition (NDep) from vehicles using the LTC and woodland planting as compensation for ancient woodland which would be lost due to construction of the Project. Further details are provided in paragraphs 1.19 –1.30 below.
- 1.6 The initial capital costs for developing the Hole Farm Community Woodland scheme are expected to be funded by National Highways, through discretionary

funding, regardless of whether the LTC Project proceeds. Ongoing running costs for the Community Woodland will be funded by Forestry England using income generated from the activities on site, such as the car parking and café.

- 1.7 If required, the Project could potentially be delivered in phases, with key elements required to enable the site to function as a community woodland being delivered first, including those elements required to provide an income stream to FE to fund the ongoing maintenance of the site. Phasing is further discussed in Section 3 of this Planning Statement.
- 1.8 The purpose of this Statement is to:
- Set out the consenting approach;
  - Describe the site and surroundings;
  - Detail the proposed Project elements;
  - Summarise the stakeholder and public consultation process and feedback and address the issues raised;
  - Set out the relevant national and local planning policy, including the National Planning Policy Framework (NPPF), the adopted Brentwood Local Plan 2016-2033, and any other policy, guidance or material considerations;
  - Summarise the findings of the various environmental and other submitted reports;
  - Provide a robust planning justification to demonstrate that the Project represents an acceptable and sustainable development.

### The Applicant, landowner and user groups

- 1.9 National Highways purchased Hole Farm in April 2021. Its established agricultural use ceased in September 2022. In addition to the elements of the community woodland that require planning permission, Forestry England propose a new community woodland including a mosaic of wildlife-rich habitats and rides and glades species rich grassland, linking into the wider Thames Chase Community Forest.
- 1.10 Although National Highways own the site, the new community woodland would be leased to, and managed by, Forestry England on a long-term basis. It is anticipated that the lease will be agreed this financial year (2023/24). This planning application is in respect of the buildings and hard landscaping infrastructure and engineering operations needed for the new community woodland.
- 1.11 The anticipated user groups for the proposed facility include:
- **Forestry England (FE)** - The Applicant and future long term lessee. FE currently have a Forestry Commission licence, in advance of the lease agreement, to allow for 5 hectares of tree planting. Planting of an area in the south east of the site adjacent to Codham Hall Lane was initiated in December 2022 with a community planting day. To date some 14,500 trees have been planted within this 5ha area. On 12 June 2023 FE submitted an Environmental Impact Assessment (EIA) for consideration by the Forestry Commission (EIA Ref. 2023-0285), in respect of the planting for the rest of

the woodland. It is anticipated that up to 150,000 trees could be planted in total. FE would manage the woodland in perpetuity, including felling and replanting as appropriate. Hole Farm will become part of Forestry England's Thames Beat woodlands which are managed by the Forestry England team based at the Thames Chase Forest Centre office. This site team is headed up by the Beat Manager who will be responsible for the day-to-day maintenance and management of the site. The Thames Beat woodlands are currently subject to weekly site and facility inspections. Through this, the team is able to monitor the sites and respond to any maintenance work that needs doing. Hole Farm will be incorporated into this management regime. There is likely to be one FE full time (FTE) staff member visiting daily for inspections between 8am –5pm and infrequent visits from other staff members.

- **National Highways** –NH is the landowner of the Application Site. Planting on part of the site will provide compensation for the loss of ancient woodland and replacement public open space for Folkes Lane Woodland as a result of the LTC Project. NH may temporarily utilise part of the site as a tree nursery to grow on trees for planting on the wider Lower Thames Crossing highway scheme.
- **Thames Chase Trust** –The Trust was established in 1990 to improve landscapes in East London and South Essex. It has helped facilitate an increase in woodland and open spaces available to the public for informal recreation including improvements to cycleways, bridleways and footpaths. Landscape and biodiversity improvements have created new opportunities for nature conservation and access to the countryside. The proposals will add to this community resource. Thames Chase Trust staff and volunteers will be on site to manage the tree nursery.
- **Community/visitors** –Aside from the community tree nursery which will be staffed and maintained by volunteers, the local community and visitors will be able to utilise the site for informal recreation including walking, running, cycling and horseriding. An all abilities trail will provide access for the less abled visitors which will also incorporate a play trail and sensory sculpture trail. There will be a café, visitor shelter, informal play and heritage trails and a community room, managed by FE, that can be used by groups to learn about the natural world, sustainability and conservation. A range of other activities are also proposed from facilitating self-led exploration, to guided walks, physical activity sessions such as yoga, and more. All activities will be linked to the four key themes of the recreation, environment, heritage/archaeology, and wellbeing. Activities will be designed with local community groups and will target a wide range of audiences, from adventurous young families, to those seeking relaxed days out.

### The consenting approach

- 1.12 The Application Site red line boundary area is 99.14 hectares and therefore constitutes major development as defined by The Town and Country Planning (Development Management Procedure) (England) Order 2015. The Application Site boundary is shown on the Planning Application Boundary plan that forms part of this submission.
- 1.13 There are elements of the Project that do not require planning permission, eg. the creation of new woodland, other planting, and rides and glades species rich grassland, and some elements that do. The application site red line boundary

includes all elements of the proposed Community Woodland to demonstrate how the project as a whole would appear and operate once complete. The proposed planting areas that do not require planning permission, are subject to a separate EIA process for afforestation which is considered by the Forestry Commission.

- 1.14 The elements in the description of development (paragraph 1.1 above), all need permission under the Town & Country Planning Act 1990 (TCPA). The EIA Woodland Creation Design Plan within the DAS, submitted with the application, shows the proposed planting and rides and glades species rich grassland areas for illustrative purposes (see also paragraphs 1.17-1.18 below for additional detail).
- 1.15 In addition, Essex County Council’s Heritage Officer has advised that Buildings 1 and 2 are within the curtilage of a listed farmhouse (discussed further in the sections that follow) and that listed building consent will be required for any works to them.
- 1.16 For clarity, the following Table 1 sets out the various elements of the Project and indicates, for each, whether planning permission under the TCPA 1990 is required or not, whether planning permission is sought in full or outline and whether listed building consent is required.

**Table 1: Elements of the Project at Hole Farm and planning requirements**

Project Element	Planning Requirements
Construction of a new vehicular access from Great Warley Street and a 94-space, pay and display visitor car park with lockable, height restriction barrier including: <ul style="list-style-type: none"> <li>• Seven blue badge spaces (two of which are EV)</li> <li>• 14 Electric Vehicle EV charging points (including two blue badge EV spaces) and associated infrastructure</li> <li>• One coach parking space</li> <li>• Cycle parking</li> <li>• Bin store</li> <li>• Unsurfaced overflow car parking area</li> <li>• Landscaping</li> </ul>	Planning permission required
Substation with a maximum GEA of 50sqm. and height of 2.7m.	Planning permission required (details to be reserved, excepting floorspace and height)
An open sided wooden visitor shelter of maximum floor area of 50sq.m. and maximum 4.5m ridge height.	Planning permission required (detailed design to be reserved, excepting floorspace, height and materials)
Modular, timber clad, single storey, ‘Grab & Go’ café, seating area and visitor toilets with maximum GEA of 110sq.m. and maximum 4.5m ridge height.	Planning permission required (detailed design to be reserved, excepting floor area)
Network of woodland access paths comprising:	Planning permission required

Project Element	Planning Requirements
<ul style="list-style-type: none"> <li>• An 'all-abilities' access trail</li> <li>• Multi-user tracks for walking, cycling, horse riding, maintenance vehicles</li> <li>• Unsurfaced routes</li> </ul>	
Creation of 6 ponds	Planning permission required
Demolition of Building 1, former grain store, and construction of a community building with staff welfare and offices including: <ul style="list-style-type: none"> <li>• A community room for educational or recreational use</li> <li>• WC facilities</li> <li>• Kitchen</li> <li>• Office</li> <li>• Equipment store</li> <li>• Sheltered walkways connecting to adjacent storage barn</li> </ul>	Planning permission and listed building consent required
Demolition of an existing agricultural machinery store and construction of a barn for use by Forestry England.	Planning permission and listed building consent required
Six car parking spaces for staff at the building cluster and two surfaced and accessible spaces for staff or visitors	Planning permission required
Countryside heritage and interpretation boards and informal natural play	Planning permission required
Site signage boards	Planning permission required
Leaky dam water features	Planning permission not required
External community tree nursery	Planning permission not required
Tree planting (afforestation) including external planting on areas for seedlings/saplings	Planning permission not required. (Assessment required under the EIA (Afforestation) Regulations where there are likely significant effects)
Creation of rides and glades species grassland	Planning permission not required

1.17 The proposals for Hole Farm are split across different consenting regimes. National Highways and Forestry England have worked closely with consenting authorities and stakeholders to agree a strategy for the site that meets statutory requirements.

1.18 In this regard, the tree planting proposals require a Forestry Commission EIA decision under the Environmental Impact Assessment (Forestry) (England and Wales) Regulations 1999, as amended. This was submitted separately by Forestry England on 12 June 2023 (EIA Ref. 2023-0285) to determine whether the planting proposals constitute a relevant project, within the meaning of the aforesaid Regulations, and would therefore require the Commission's consent



to proceed. If there are no objections within 28 days the Forestry Commission can determine that the tree planting is not likely to have a significant effect on the environment. Stage 2 consent would not then be required prior to planting.

## Relationship to Lower Thames Crossing Proposal

1.19 As stated above, the Application Site is included within the Project Order Limits relating to the application for development consent for the Lower Thames Crossing (LTC) Nationally Significant Infrastructure Project (NSIP) (Ref. TR010032) as shown in Figure 1 below. The requirement to provide compensatory environmental works is set out in the Draft Development Consent Order Volume 3, Schedule 1, work no's. E50 –E52 which state:

*“Work No. E50—as shown on sheets 46 and 47 of the works plans and being the implementation of environmental mitigation works to create a site for ancient woodland planting, including the construction of new ecological ponds.*

*Work No. E51—as shown on sheets 46 and 47 of the works plans and being the implementation of environmental mitigation works to create a site for protected species, including the construction of new ecological ponds.*

*Work No. E52—as shown on sheets 46 and 47 of the works plans and being the implementation of environmental works to create a compensatory habitat site for nitrogen deposition.”*

1.20 Its purpose is to provide compensation for the impacts of the LTC NSIP. Specifically, to provide compensation for ancient woodland loss, habitat creation compensation for the potential impacts of nitrogen deposition (NDep) generated by vehicles using the LTC and replacement ‘Special Category Land’ to compensate for the permanent acquisition of land used as public open space.

1.21 The initial capital costs for developing the Hole Farm Community Woodland scheme are expected to be funded by National Highways, through discretionary funding, regardless of whether the LTC Project proceeds. Ongoing running costs for the Community Woodland will be funded by Forestry England using income generated from the activities on site, such as the car parking and café.

1.22 In this regard the Community Woodland would deliver:

- Approximately 2.9ha of replacement ‘Special Category Land’ (SCL) in exchange for the permanent acquisition of land and rights over land at Folkes Lane Woodland, to the west of the M25 (Works No OSC12) (this is the grey/green hatched L-shape in the NW corner of the plan in Plate 1);
- Approximately 75.2ha of habitat creation, including six new and five existing ecology ponds, as compensation for the potential impacts of nitrogen deposition from vehicles using the LTC, on designated ecological sites (Works No E52). The site is considered appropriate for nitrogen deposition compensation because it would link with existing woodlands that form part of the habitat network in this area (this is the green crossed area –eastern half of the plan in Plate 1);
- Approximately 26ha of woodland planting to compensate for ancient woodland which would be lost due to construction of the LTC (Works No E50) as well as utilities works (Work Nos G10 and MU92) and working areas (Work No ULH01) (this is the green hatched area –western half of the plan in Plate 1);

- Eleven ecology ponds to provide habitat mitigation as illustrated in the landscape drawings accompanying this application. All of the five existing ponds on site would be retained and the proposal includes for the creation of six new ponds. The retained and new habitats would be taken into account in the BNG metric for the LTC project.

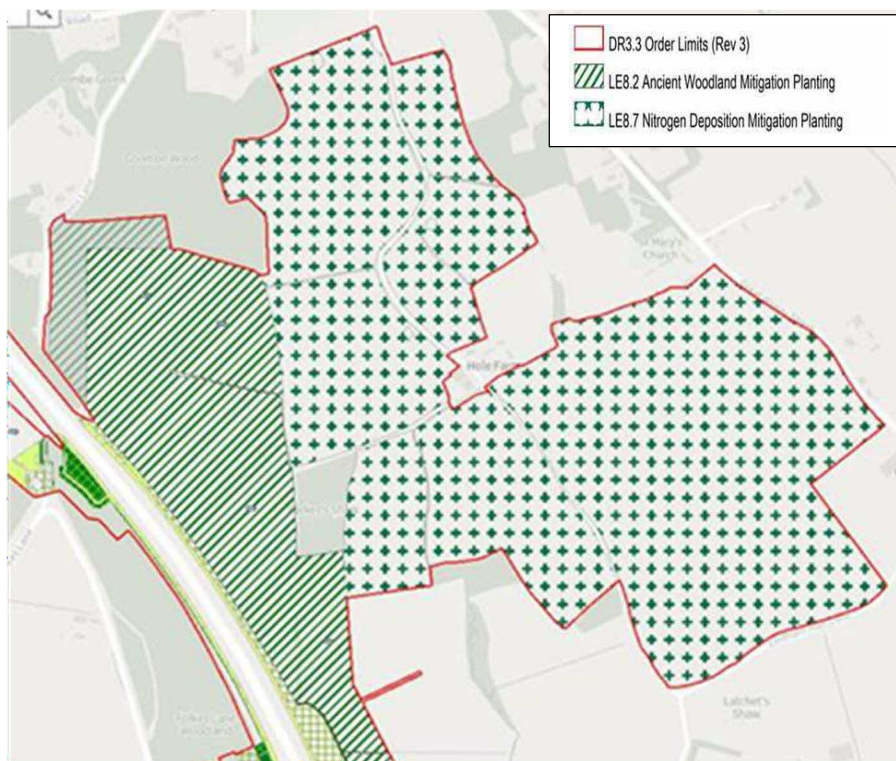


Figure 1: Hole Farm community woodland, compensatory areas and the A122 Lower Thames Crossing Order limit

- 1.23 Joint workshops have been held between National Highways, Forestry England and Natural England to discuss and agree the design and ongoing maintenance of the soft landscape elements of the community woodland. The workshops included discussion on how the development of new habitats would deliver against the LTC Project objectives for compensation for nitrogen deposition impacts and loss of ancient woodland.
- 1.24 Schedule 1 to the draft Development Consent Order (dDCO) for the LTC includes some of the works now proposed at Hole Farm, namely environmental mitigation works to create a site for ancient woodland planting and protected species, including the construction of new ecological ponds. Of these works, which include planting and creation of rides and glades species rich grassland, only the ponds require planning permission. Schedule 2 states the 'Requirements' pertaining to these works in respect of where relevant, environmental management, landscaping, ecology, groundwater, protected species and surface water drainage. In delivering the works for which planning permission is being sought including the new ponds, there would be a commitment to comply with the relevant measures prescribed by these Requirements within the DCO. This includes any applicable commitments set out in the register of environmental actions and commitments (REAC) prepared by National Highways in the context of its LTC DCO application, as secured by Requirement 4 in Schedule 2 to the dDCO.



- 1.25 The ancillary hard infrastructure associated with the community woodland, including: a community building, Forestry England barn with service yard and turning circle, car/coach parking, café, open sided shelter, substation and routes through the site for use by walkers, cyclists and horse riders, are not included in the LTC Development Consent Order (DCO) application.
- 1.26 The creation of new woodland at the site is not development and does not need planning permission. Planting has begun in part and will be undertaken in accordance with the Environmental Impact Assessment (Forestry) (England and Wales) Regulations 1999. The environmental assessments, presented in the Environmental Statement, for the LTC Project, acknowledge the opportunity to deliver up-front environmental compensation at Hole Farm, ensuring that planting is in place and has begun to establish prior to, or early in, the construction programme for the LTC NSIP.
- 1.27 The proposals would form part of, and integrate with, Forestry England's masterplan for the wider area, and therefore, will become part of the Thames Chase Forest. Delivering the Project in advance of the grant of development consent for the LTC will not only allow for the early establishment of environmental mitigation but will have significant biodiversity and community benefits in accordance with the shared objectives of National Highways, Forestry England and Thames Chase Forest.
- 1.28 Although, once developed, the Community Woodland can be funded and managed by Forestry England as a standalone project, should the LTC NSIP be approved, the DCO will require a management regime in perpetuity, which aligns with the principles set out in this application.
- 1.29 The provision of this Project does not need to be tied to the timetable of the LTC. In this regard, this twin track approach to secure the delivery of early mitigation including the principle of certain elements of DCO Projects being undertaken through other consenting mechanisms, in advance of the granting of the DCO, has already been established.
- 1.30 Notably and recently, case law (specifically that of *Girling vs East Suffolk Council* in October 2020 (CO/5052/2019)) relating to the development of Sizewell C nuclear power station, centred around the claimant's argument that East Suffolk Council's approval of plans for the construction of a visitor centre, training centre and associated car parks was premature, there being no need for the development as the DCO for Sizewell C had not yet been consented. The judge found in favour of East Suffolk Council and a further legal attempt to oppose the plans through the Court of Appeal also failed. In this case, the determination of the 'need' for the project was considered to be a matter of judgement for the local planning authority, which had relied upon reduction in delay to the completion of the project as the need for the advance works.

### **Planning application documents**

- 1.31 The documents listed below comprise the planning application submission. They accord with the requirements of Brentwood Council's validation checklist for applications for full planning permission, outline planning permission and Listed Building Consent.

### Forms and certificates

- Completed Planning Application and Listed Building Consent Form (signed and dated)
- Land Ownership Certificates and Agricultural Land Declaration
- Total planning application fee of **£5,544.00** based on the new gross floorspace to be created of 800sq.m. added to the fee relating to the site area of the outline elements of the proposals which is 0.0578ha. A full explanation is included in the covering letter to this planning application. The fee has been calculated in accordance with The Town and Country Planning (Fees for Applications, Deemed Applications, Requests and Site Visits) (England) Regulations 2012 (the Fee Regulations) and agreed with Brentwood BC planning officers. The respective areas are shown in the Fee Calculation Plan 375-FP-00-ZZ-DRG-A-000054 Rev. P04

### Drawings

Drawing Title	Drawing number	Revision	Scale
General Arrangement: Fee Calculation Plan	375-FP-00-ZZ-DRG-A-000054	P04	1:2500@A1/1:5000@A3
Planning Application Boundary	HE540039-CJV-VGN-GEN-DRA-LAP-08385	P04	1:6000 @A3
Location Plan	375-FP-00-ZZ-DRG-A- 000001	P05	1:5000@A1/1:10000@A3
Existing Site Plan	375-FP-00-ZZ-DRG-A- 000002	P06	1:2500@A1 / 1:5000@A3
Existing Buildings Cluster Site Plan	375-FP-00-ZZ-DRG-A- 000010	P07	1:250@A1 / 1:500@A3
Existing Buildings 1 & 2 Ground Floor Plan	375-FP-00-ZZ-DRG-A- 000012	P06	1:100@A1 / 1:200@A3
Existing Buildings 1 & 2 Roof Plan	375-FP-00-ZZ-DRG-A- 000013	P04	1:100@A1 / 1:200@A3
Existing Buildings 1 & 2 East & South Elevations	375-FP-00-ZZ-DRG-A- 000020	P06	1:100@A1 / 1:200@A3
Existing Buildings 1 & 2 West & North Elevations	375-FP-00-ZZ-DRG-A- 000021	P05	1:100@A1 / 1:200@A3
Existing Building Cluster Demolition Plan	375-FP-00-ZZ-DRG-A- 000040	P05	1:250@A1 / 1:500@A3
Proposed Overall Site Plan	375-FP-00-ZZ-DRG-A- 000050	P07	1:2500@A1 / 1:5000@A3
Proposed Buildings Cluster Site Plan	375-FP-00-ZZ-DRG-A- 000051	P07	1:250@A1 / 1:500@A3
Proposed Buildings Cluster Development Areas	375-FP-00-ZZ-DRG-A- 000052	P06	1:250@A1 / 1:500@A3

## Hole Farm Community Woodland Planning Statement

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Drawing Title	Drawing number	Revision	Scale
Proposed Site Plan	375-FP-00-ZZ-DRG-A- 000053	P07	1:2500@A1 / 1:5000@A3
Proposed Community Building, FE Barn & tree nursery setting - Ground Floor Plan	375-FP-00-ZZ-DRG-A- 000060	P08	1:100@A1 / 1:200@A3
Proposed Community Building, FE Barn & tree nursery layout - Ground Floor Plan	375-FP-00-ZZ-DRG-A- 000061	P06	1:50@A1 / 1:100@A3
Proposed Community Building Mezzanine Floor Plan	375-FP-00-ZZ-DRG-A- 000062	P04	1:50@A1 / 1:100@A3
Proposed Community Building, FE Barn & tree nursery setting - Roof Plan	375-FP-00-ZZ-DRG-A- 000063	P04	1:100@A1 / 1:200@A3
Proposed Community Building, FE Barn & Tree nursery - East & West Elevations	375-FP-00-ZZ-DRG-A- 000070	P07	1:100@A1 / 1:200@A3
Proposed Community Building - North & South Elevations	375-FP-00-ZZ-DRG-A- 000071	P07	1:100@A1 / 1:200@A3
Proposed FE Barn - North & South Elevations	375-FP-00-ZZ-DRG-A- 000072	P04	1:100@A1 / 1:200@A3
Proposed Community Building, FE Barn & Tree nursery - Sections	375-FP-00-ZZ-DRG-A- 000080	P06	1:100@A1 / 1:200@A3
Proposed Community Building - Cross Sections	375-FP-00-ZZ-DRG-A- 000081	P06	1:50@A1 / 1:100@A3
Proposed Community Building - Long Section F-F	375-FP-00-ZZ-DRG-A- 000082	P06	1:50@A1 / 1:100@A3
Proposed Forestry England Barn - Sections	375-FP-00-ZZ-DRG-A- 000083	P05	1:50@A1 / 1:100@A3
Proposed Community Building - Long Section J-J	375-FP-00-ZZ-DRG-A- 000084	P05	1:50@A1 / 1:100@A3
Proposed Car Park Location Plan	375-FP-00-ZZ-DRG-A- 000100	P07	1:500@A1 / 1:1000@A3
Proposed Modular Cafe and Open-sided Visitor Shelter Location Plan [OUTLINE PLANNING]	375-FP-00-ZZ-DRG-A- 000110	P07	1:250@A1 / 1:500@A3

## Hole Farm Community Woodland Planning Statement

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Drawing Title	Drawing number	Revision	Scale
Proposed Modular Café Plan [OUTLINE PLANNING]	375-FP-00-ZZ-DRG-A- 000111	P08	1:100@A1 / 1:200@A3
Proposed Modular Café Elevations [OUTLINE PLANNING]	375-FP-00-ZZ-DRG-A- 000112	P05	1:50@A1 / 1:100@A3
Proposed Modular Café Sections [OUTLINE PLANNING]	375-FP-00-ZZ-DRG-A- 000114	P03	1:50@A1 / 1:100@A3
Proposed Substation Elevations [OUTLINE PLANNING]	375-FP-00-ZZ-DRG-A- 000115	P04	1:100@A1 / 1:200@A3
Pathways Design Plan	EFD-HLF PATHWAYS DESIGN PLAN 03-02-2023		1:7500 @A3
Hole Farm Catchment Plan	HE540039-CJV-HDG-SZP_DC000000_Z-DR-CD-00	R01	1:2500@A1/ 1:5000@A3
Hole Farm Proposed Drainage Plan	HE540039-CJV-HDG-ZZZ_DN000000_Z-DR-CD-000	R01	1:2500@A1/ 1:5000@A3
Hole Farm - Car Park layout	6314_101	C	1:750 @A3
Proposed T-bay south	Hole-Farm_Highways.001	R02	1:250 @A1
Proposed highway works at building cluster	Hole-Farm_Highways.002.3	R02	1:250 @A1
Proposed car park bell mouth	Hole-Farm_Highways.003.2	R02	1:500 @A1
Proposed Highways Masterplan	Hole-Farm_Highways.004	R01	1:1250 @A1
Proposed Forest Management Access Route	Hole-Farm_Highways.005.1	R01	1:1000 @A1

### Documents

Title of Document	Document Date	Author
Planning Statement	July 2023	Jacobs
Design and Access Statement	May 2023	Ferreday Pollard
Transport Statement	May 2023	Jacobs
Road Safety Audit	April 2023	Jacobs
Designers Response to Stage 1 Road Safety Audit	May 2023	Jacobs

## Hole Farm Community Woodland Planning Statement

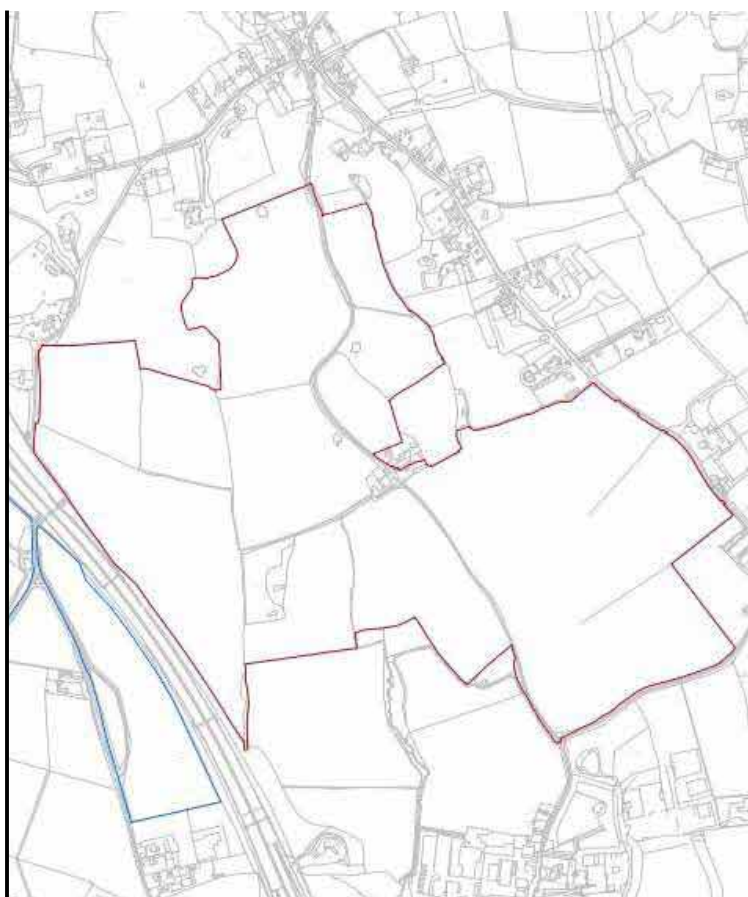
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Title of Document	Document Date	Author
Sustainability Statement	April 2023	Arcadis
Equality Impact Assessment	April 2023	Forestry England
Health Impact Assessment	May 2023	Jacobs
Consultation Report	November 2022	LUC
Arboricultural Impact Assessment and Method Statement	March 2023	TR33 Limited
Archaeological Desk-based Assessment	April 2023	Place Services
Heritage Statement and Impact Assessment	April 2023	Oxford Archaeology
Interpretation Strategy	April 2023	Forestry England
Flood Risk Assessment	April 2023	Jacobs
Drainage Strategy Report	April 2023	Cowi
Bat Survey Report	November 2022	Atkins
Badger Survey Report (CONTAINS CONFIDENTIAL INFORMATION NOT TO BE MADE AVAILABLE TO THE GENERAL PUBLIC)	November 2022	Atkins
Ecological Impact Assessment	April 2023	Jacobs
Preliminary Ecological Appraisal Survey	June 2021	Sonar Ecology
Great Crested Newt Survey	July 2022	SureScreen Scientifics
Waterbody Concept Plan	January 2023	Forestry England
Security Plan	March 2023	Forestry England
Structural Survey Report	December 2022	Imperium Engineering
Asbestos Survey Report	November 2022	Imperium Engineering

## 2 Area and site description

### Area description

- 2.1 The Application Site is delineated in red in Figure 2 below and nearby land in the ownership of the applicant is shown in blue.
- 2.2 Linked by a footbridge over the M25, land to the west in the ownership of the Applicant (FE) is delineated in blue. This land is part of the Thames Chase Community Forest.
- 2.3 The site is located in the London Borough of Brentwood to the north east of central London, adjacent to the outer edge of the M25 motorway. The town of Brentwood is 3 miles to the north east.



**Figure 2: Site Location Plan**

- 2.4 The village of Great Warley is located to the north of the application site. The majority of Great Warley village is a designated Conservation Area. It is an attractive and unspoilt village centre in a wooded setting on a hilltop with mainly timber-framed and plastered houses in a vernacular or Arts and Crafts style, clustered around a green in the centre of a busy crossroads. The Church of St Mary the Virgin is located around 60 metres north east of the site on Great Warley Street and is a Grade I listed building. Its Lych Gate is Grade II listed.
- 2.5 The site is bounded by the M25 to the west, north of junction 29. To the north is Beredens Lane, the designated ancient woodland and Local Wildlife Site of Coombe Wood and open land. At the northernmost point of the site, the boundary joins an unnamed track leading through trees and past residential



properties to Warley Road in the centre of Great Warley. To the east is privately owned garden and hotel grounds with agricultural land and the separate residential properties of Hole Farm farmhouse and cottages. The site boundary runs in a north easterly direction from Hole Farm to meet Great Warley Street. With the exception of the Old Pump Works and LCC Support Services land, the site's southern boundary follows Codham Hall Lane to its junction with an unnamed track leading to Hole Farm. The southern boundary continues across agricultural fields and forested areas to meet the M25.

- 2.6 In landscape terms the site is within the wider Great Warley Wooded Farmland Character Area - an area of strongly undulating wooded farmland and hills scattered amongst a small-scale (predominantly arable) field pattern.
- 2.7 The area has a strong, recognisable sense of place provided by open views across the M25 road corridor over the Thames Chase to London and North Kent.

### Site description

- 2.8 Hole Farm farmhouse is a Grade II listed building (Hole Farmhouse (1250606)). The farmhouse and two 1930's semi-detached cottages adjacent to the farmhouse (Hole Farm Cottages) are and will remain in residential use, although the cottages are currently vacant. The Farmhouse and Cottages are adjacent to but excluded from the red line area as is a small brick built stable building and an open fronted barn.
- 2.9 In planning policy terms the site lies within both the Metropolitan Green Belt of London and Thames Chase Community Forest area as shown on the adopted Brentwood Local Plan Proposals Map (2016-2030). Parker's Shaw Wood within the south-west corner of the site is a designated Local Wildlife Site. The site is within Flood Zone 1, where there is less than a 0.1% chance of flooding.
- 2.10 The land within the site boundary has historically been managed as arable farmland until September 2022, with access tracks, remnant boundary features and a few small woodland copses. The Agricultural Land Classification is Grade 3 –good to moderate quality.
- 2.11 The existing buildings and hard standing areas with access tracks which are located within the site boundary, to the west of Hole Farmhouse are illustrated on Drawing no. 375-FP-01-ZZ-DRG-A-000010 Rev. P07 Existing Buildings Cluster Site Plan. They include:

Existing Building Cluster	GEAsq.m.	GIA sq.m.
Building 1	362	348
Building 2	532	514

- 2.12 Buildings 1 and 2 are surrounded by a concrete apron –294sq.m. and a gravel track and service yard of 483sq.m.
- 2.13 Essex County Council's Heritage Officer has advised that Buildings 1 and 2 are within the curtilage of the listed farmhouse and that listed building consent will be required for any works to them. An application for Listed Building Consent accompanies this application.
- 2.14 The site is largely bounded by trees and hedgerows which form former or current field boundaries. This is only interrupted by the line of the M25 to the

west, where the replacement boundary is extant but juvenile in nature, and to the south-east where a modern field boundary exists. The site has a natural incline sloping upwards towards the north-west and Great Warley in the north. It slopes southwards towards Parkers Shaw and other areas of historic woodland beyond.

- 2.15 The site can be accessed by car from Junctions 28 and 29 of the M25 and the A127 and, from Brentwood, via Great Warley Street. The access road for Hole Farm, from Warley Road in the north, traversing the site to Codham Hall Lane in the south, has been extant since 1840 and is a private road. Similarly, the western section of the footpath, linking the former Bereden farmstead with Hole Farm and Warley Elms, is still in existence. There is one public right of way – a footpath which passes through Hole Farm west to east from a footbridge over the M25, through the building cluster and on to join Great Warley Street via an access to a small sewage works. Anglian Water has vehicular access rights to the sewage works along an unmade track leading from Great Warley Street to the east. A bridleway meets the southern site boundary before running south. Essex County Council has recently provided notice of two new proposed lengths of bridleway along Hole Farm Lane, this designation will be complied with if/when submitted.
- 2.16 There are existing bus stops on Great Warley Street which service bus route 269 from Grays to Brentwood. Buses arrive once every two hours in each direction.

### **Planning history**

- 2.17 A review of Brentwood Borough Councils' online planning register has indicated that there are no planning history records of relevance for this application on the site.
- 2.18 The site has operated as an arable farm for over ten continuous years, without constraint, or the benefit of planning consent. Since its agricultural use ceased in September 2022, following its purchase by National Highways, the site has not been in any particular use.



## 3 The proposals

### Management interests

- 3.1 As key delivery partners for the Thames Chase Community Forest and as custodians of the nation's forests, Forestry England (FE) has extensive experience in woodland creation and community forest management. Forestry England wish to ensure that Hole Farm is developed and managed to a high standard of sustainable forest management. All Forestry England's woodlands are independently audited to ensure that they meet the UK Woodland Assurance Standard (UKWAS), this means they are certified by the Forest Stewardship Council® (FSC®) and by the Programme for the Endorsement of Forest Certification (PEFC).
- 3.2 FE relies on income generated by timber, recreational activities (events, car parking), permissions and rents to meet the costs of caring for the nation's forests. In developing and managing Hole Farm Community Woodland, it will be necessary to match the operational costs with the income potential to fund that ambition.
- 3.3 The capital costs of creating Hole Farm Community woodland and the associated recreational facility infrastructure are expected to be met by National Highways Designated Funds but the long-term management and maintenance costs will be met by FE as leaseholders. New woodlands managed by the FE Thames Chase team operate at a number of different levels of facility provision and engagement, supported by endowments, funding or recreational income (primarily car parking).
- 3.4 Experience from Jeskyns Community Woodland (a similar FE project opened in 2006 in North Kent) tells us that visitor growth, even when undertaken by specialist consultants, is very difficult to predict for sites on the fringes of the large population of London. Much depends on the site offer with surfaced trails (a key draw at Jeskyns), play, refreshment and toilet facilities all adding to the attractiveness of a site, particularly whilst the new woodland develops. Initial desk-based analysis, undertaken by FE's commercial modelling team, would suggest that Hole Farm would attract between 50,000 and 150,000 economic visitors per year.
- 3.5 FE's objectives for the site are to increase biodiversity, increase public access to the landscape for informal recreation and ensure that the site is financially sustainable to support long-term management as a community woodland.
- 3.6 NH may temporarily utilise part of the site as a tree nursery to grow on trees for planting on the wider Lower Thames Crossing highway scheme. Following this, the area would be planted as per the plans for the community woodland and passed back to FE to manage.

### Project elements

- 3.7 The lead architect has produced a Design and Access Statement (DAS) which is submitted with the application. It outlines the existing site and surrounds, including the legislative context of the project, ecology, heritage and physical constraints, also describing how the consultation process has influenced and shaped the design proposals.

- 3.8 The Design section of the DAS describes the iterative design development process and presents the design principles including the scale, layout, use and appearance of the design to assist in illustrating the vision for the spaces and how they are experienced by the future users. It also provides more technical insight into the BREEAM assessment for the new Community Building and the targeted Excellent rating and the environmentally responsible, low carbon, low energy, sustainable strategy that has crafted the form and servicing of the building.
- 3.9 The Access section provides a break-down of transport access points and movement through and around the site by different user groups for different operations of the site. There is also information on the security considerations, the accessibility of the site and the buildings, the signage and interpretation and the spatial considerations of waste and refuse.
- 3.10 The elements of the Project are described below.

### **Car/coach park**

- 3.11 Construction of a new vehicular access from Great Warley Street and construction of a pay and display visitor car and coach park with lockable, height restriction barrier, chip and tar vehicle surfacing, prime aggregate footpath and loading bay for delivery trucks and bin lorries to drive back out after visiting the café. The car park location is shown on the Proposed Car Park Location Plan 375-FP-00-ZZ-DRG-A- 000100 Rev. P07 with further detail on the Car Park Layout Plan 6314\_101 Rev. C.
- 3.12 The car park would provide:
- 94 car parking spaces
  - Seven blue badge spaces (two of which are EV)
  - 14 EV charging points and associated infrastructure
  - One coach parking space
  - Cycle parking
  - Bin store
  - Grassed overflow car parking area, for occasional summer use
  - Landscaping and footpath diversion
  - A pole mounted CCTV camera.
- 3.13 There would be capacity to expand the number of EV charging points to 22 at a later date.
- 3.14 The car park would offer people the opportunity to visit, connect with and benefit from the forest environment, whether through facilitated informal access or engaging in events and activities supported by Forestry England Rangers and partners.
- 3.15 Gated access will be provided onto the Public Right of Way (PRoW), which runs along the car park's northern edge, at its interface with the site. This will be wide enough for pedestrians, bicycles and wheelchairs. Appropriate consent will be

applied for to facilitate the gateway, the purpose of which is to deter motorcycles and quad bikes from entering the site.

### **Electrical substation**

- 3.16 Permission in outline is sought for an electrical substation adjacent to the car park area in the east of the site to provide a power supply to the car park (EV charging spaces), modular café and other facilities. It is positioned in this location as there is an existing overhead line which goes below ground in this area. The substation design will be subject to UKPN requirements.
- 3.17 The applicant is agreeable to the floorspace being limited to 50sq.m. and the height to 2.7m. It is not currently possible to submit the design details of this element of the proposals as the structure and finish of the substation enclosure would need to be agreed at a later date during consultation with UKPN and subsequently agreed with the planning authority. It will be screened from the main car park with vegetation, as far as reasonably practicable.

### **Open sided visitor shelter**

- 3.18 An open sided wooden structure for visitors to gather, eat lunch or retreat to in bad weather is proposed. This element of the proposals is necessarily submitted in outline only as it is intended to either work with students to design the shelter or hold a competition for its design. However Forestry England are agreeable to the following parameters being conditioned as appropriate:
- The proposed shelter location
  - Maximum 50sq.m. floorspace
  - Maximum ridge height of 4.5m
  - Open sided construction to at least 70% of structure
  - Fixed seating beneath shelter to accommodate up to 30 adults
  - Palette of materials: timber
- 3.19 Examples of shelters including those from other FE sites are included in the DAS submitted with the application.

### **Modular 'Grab and Go' café and visitor toilets**

- 3.20 The proposed modular café adjacent to the proposed car park is submitted in outline for the reason that a contractor cannot be determined at this stage and each contractor supplies a different modular design. However, the following parameters are suggested and could be conditioned as appropriate:
- Café/W.C. site location
  - Maximum GEA of 110sq.m.
  - Maximum ridge height of 4.5m
  - Single storey
  - Timber cladding

- 3.21 The design and access statement includes examples of this type of café at other greenspace locations and the proposed location is shown on the Proposed Modular Cafe and Open-sided Visitor Shelter Location Plan 375-FP-00-ZZ-DRG-A- 000110 Rev. P07. Indicative plans, sections and elevations are also submitted for indicative purposes only. These are: Proposed Modular Café Plan 375-FP-00-ZZ-DRG-A- 000111 Rev. P08; Proposed Modular Café Elevations 375-FP-00-ZZ-DRG-A- 000112 Rev. P05; and Proposed Modular Café Sections 375-FP-00-ZZ-DRG-A- 000114 Rev. P03.
- 3.22 The ‘Grab and Go’ cafe refreshment offer would likely include hot and cold drinks and snacks (e.g. soup, paninis, bacon rolls, pastries etc). The unit would include a minimum of two accessible toilets for visitors; staff welfare facilities including toilet, lockers, small kitchen and eating area; outdoor covered seating area, a bin storage area for café waste; and a delivery bay for lorries and bin collection.
- 3.23 The Café unit design would be in keeping with the forest environment, FE branding/ethos, and surroundings with a wood clad finish likely and of a scale relative to the potential demand with the flexibility to expand over time subject to future demand. A secure and robust design would be created to deter break-ins and vandalism.

### **Access**

- 3.24 Visitors to the Community Woodland could use the proposed 94 space car park off Great Warley Street. Coaches would also use this car park and could drop off and then park in the designated space. A grassed area adjacent to the car park provides space, if required, for overflow car parking at busy times.
- 3.25 The existing access track, which runs approximately north to south through the site from Great Warley to Cobham Hall Lane, will be resurfaced in tarmac with a tar and chip finish of natural coloured angled stone chip. The design and specification will make the track suitable for cars, cycles, horses, non-HGV delivery and maintenance vehicles.
- 3.26 Residents of Hole Farm and the Farm Cottages will utilise the part of this track leading south from Great Warley village to the building cluster while all non-HGV vehicle users specifically requiring access to the building cluster of the Community Woodland facility will use the part of the track leading to and from Codham Hall Lane. This will include any disabled visitors to the building cluster, staff, bin lorries servicing the building cluster, non HGV service vehicles and FE vehicles.
- 3.27 Infrequent HGVs for forestry operations would access the site through the car park off Great Warley Street and use the shared use element of the all abilities track. FE would manage these activities regarding the interface between vehicles and other users when there is a need to use the track. Bin collections for and deliveries to the modular café would also utilise the car park access.

### **Network of woodland access paths**

- 3.28 The proposed path network is illustrated in the Pathways Design Plan EFD-HLF 03-02-2023. It includes:
- A circular ‘all-abilities’ access trail from the car parking area surfaced in prime aggregate with a wearing course of tar and chip, grey granite finish suitable for all abilities.

- Multi-user tracks for walking, cycling, maintenance vehicles will wind through the existing and proposed woodland planting blocks. Surfaced with unsealed prime aggregate with compacted 6mm to dust, grey granite finish.
- Unsurfaced routes –grass tracks will also wind through the trees across the site.
- The existing PRoW from Great Warley Street will not be altered. Where the PRoW interfaces with the site a gate is proposed which will allow access for pedestrians, bicycles and wheelchair users. An application to facilitate this will be made at the appropriate time to the Essex County Council's PRoW team.

### **Ponds and water features**

- 3.29 The creation of ponds or earthworks remodelling of existing water bodies is an engineering operation which will require planning permission.
- 3.30 There are five existing ponds within the site, which will be enhanced and retained. Six new ponds are also proposed as shown in the Waterbody Concept Plan. The ponds will provide increased diversity of wildlife habitat creation, connecting a site wide network with the dual function of natural flood water mitigation. The ponds will include:
- 10 seasonal wildlife ponds with seasonal cascade
  - One pond for dog use
- 3.31 There will also be a leaky dam to site drainage channels and a 150m reedbed for water filtration.

### **Demolition of grain store –Building 1**

- 3.32 An external structural survey found significant defects with building 1 including:
- Steel frame structure including corrosion on the steel column and rust on the steelwork.
  - Defects with the corrugated wall panels including broken sections and the presence of moss and lichen.
  - Gutter defects including leaks, cracking and vegetation growth.
  - Defects with the rainwater downpipes including loose connections, leakage, moss and vegetation growth and not discharging into the required drain
  - Vegetation and plant growth including excessive internal plant growth and the presence of trees.
- 3.33 The structure is in poor condition overall. Lack of access to the interior has meant its condition could not be fully assessed, however because of the extent of the exterior defects it has been deemed to be unsuitable for retention.
- 3.34 The corrugated wall panels were also found to be asbestos and their removal would be managed under the appropriate licences.

### **Demolition of Agricultural Machinery Store –Building 2**

- 3.35 An external structural survey found significant defects in building 2 as follows:
- The timber frame including the presence of damp timber, timber rot and disconnected structural members.
  - Defects with the blockwork including cracking, damp, lack of lateral restraint straps, perishing mortar joints and the presence of vegetation and trees.
  - Vegetation and plant growth including excessive internal plant growth and the presence of trees.
- 3.36 Although the structure could be repaired, based on the degree of damage to the whole structure, it is recommended that it be demolished.
- 3.37 An asbestos survey of this building also found that the rainwater goods and corrugated sheeting contained asbestos and their removal would be managed under the appropriate licences.

### **Development of new community space with staff welfare and office**

- 3.38 The proposed 310sq.m. GEA Community Building (271sq.m. net ground floor and 47sq.m. mezzanine) will provide a multi-function, indoor space for community groups and schools, situated at the heart of the woodland and providing facilities to host presentations and workshops.
- 3.39 The building will be constructed largely on the site of the demolished building 1. It will contain a lobby leading to the community room off which there would be a community kitchen and store. Unisex toilets and a separate accessible toilet are included for use by visitors. To the rear of the community room, sliding glass doors will open onto an external patio/picnic area and lawn. The building will also accommodate an office for FE staff, a staff kitchen, staff toilet and shower room and additional store. Forestry England plan to manage the Hole Farm site through its team based at Broadfields (RM13 4NS), with Rangers visiting Hole Farm daily for facility inspections, volunteering, activities and events.
- 3.40 To the north of the building external covered walkways surround the proposed community nursery area and provide sheltered passage to the proposed FE storage barn to the north. There are external handwashing facilities attached to the northerly side of the community building for those working in the community nursery.
- 3.41 The proposed building will be timber clad with glazed sliding doors to the external patio area. It will be located mainly within the footprint of the existing grain store. Its highest point at tower ridge height will be 8.6m, compared to the highest point of the existing grain store at 12.1m. The main proposed ridge height would be 6.1m. The proposed ground floor plan, proposed elevations – east and south and west and north and proposed Sections, 1 of 2 and 2 of 2, provide further design detail, as does the Design and Access Statement.
- 3.42 Externally eight car spaces are proposed for staff including two disabled parking spaces. This area would have accessible surfacing for wheelchair and buggy users. All staff cars (and any disabled staff or visitor cars) will access the community building via the access track to the south which leads to Codham Hall Lane.



- 3.43 Foul drainage would be provided through a new stand-alone system, as detailed in the Design and Access Statement.
- 3.44 The power supply to the buildings cluster will be determined during consultation with UKPN.
- 3.45 A BREEAM Excellent rating of 73.86%, is targeted and considered to be achievable, with 8.98% identified as potential additional credits which could increase the targeted score to 82.84%.
- 3.46 It is anticipated that the community room would be open 8am-5pm Monday – Sunday as a maximum. This is however unlikely to be every day. There may be days when it is open until 9pm but this is likely to be infrequent.

**Construction of a FE barn**

- 3.47 The proposed 420sq.m. GEA (406sq.m. net) building is for use by FE and will be constructed largely on the site of the demolished agricultural machinery store. It will include areas for FE storage, community storage (accessed externally), a waste/refuse store (accessed externally) and a barn with sliding full height doors allowing vehicles, tools and equipment to be stored inside.
- 3.48 The building has a distinct pure agricultural form. It would be clad in timber with full height timber clad doors. The ridge height would be 6.5m compared to the ridge height of the existing building which is 6.9m.
- 3.49 To the west and rear of the barn building is a service yard with access road into it and a lorry turning circle for large logging vehicles in unsealed prime aggregate. The service yard will accommodate a timber stacking area for future forest management operations.
- 3.50 The external and internal site areas of the buildings, existing and proposed, are listed in Table 2.
- 3.51 The two existing building footprints total 894sq.m. The proposed building footprints total 730sq.m. (this excludes the mezzanine level).

**Table 2: Building Cluster Floor Areas**

<b>Building Cluster Development Areas</b>	<b>GIA m<sup>2</sup></b>	<b>GEA m<sup>2</sup></b>
<b>Existing</b>		
Building 01	348	362
Building 02	514	532
Concrete Apron		294
Gravel Track and Service Yard		483
<b>TOTAL</b>	<b>862</b>	<b>1,671</b>
<b>Proposed</b>		
Community Building Ground Floor	271	310
Community Building Mezzanine Level	47	
Forestry England Barn	406	420
Paved Building Surrounds		411

Building Cluster Development Areas	GIA m <sup>2</sup>	GEA m <sup>2</sup>
Service Yard and Vehicle Turning Bay		690
<b>TOTAL</b>	<b>724</b>	<b>1,831</b>

### Thames Chase Trust Community Tree Nursery

3.52 Although not requiring planning permission the Project will incorporate a new community tree nursery between the two new buildings, (approximately 131sq.m.) in partnership with Thames Chase Trust (TCT). This will provide a facility for local volunteers to collect and propagate local seeds on-site, while offering new skills and woodland based learning opportunities. The community building provides supporting facilities for visitors to the nursery.

3.53 Forestry England has a long-established relationship with the TCT and work in partnership to realise the vision for the Thames Chase Community Forest . They jointly manage the Forest Centre site at Broadfields, which includes a small existing nursery.

3.54 The community nursery will include:

- Raised beds with a larger square lower bed for storage of plants awaiting distribution
- Compost bays
- Good drainage with paths
- Irrigation
- Electricity and water supply with an outdoor sink
- Access to toilets
- Sheltered space with work benches for school activities or taking lunch breaks.

### Site security

3.55 The residential properties and access would be separated as far as possible from the Hole Farm Community Woodland buildings to avoid conflicting use and keep members of the public away from the residential area, yet still allowing the residents right of access along Hole Farm Lane to the north.

3.56 The Site Security Plan outlines the proposals for security and access points to reduce any chances of anti-social behaviour on site. This document has been created in correspondence with Essex Police who will continue to be consulted with as the site develops.

3.57 The document identifies two key zones: the central building cluster and the new car park area. Within these two areas the operational hours and usage is explained, and the potential security risks are outlined with suggested mitigation strategies. The central building cluster proposal comprises of a site office, community room, community tree nursery and an operations barn and yard space. The measures needed to keep these facilities secure include the provision of lockable facilities and security lighting. The car park area proposals comprise of a 94-space car park, café, and toilet facilities. Security cameras and



lighting have been proposed here, along with secure casing for the car parking payment machines and EV charging points.

- 3.58 There will be nine different access points to site, including both vehicle and non-vehicle access. Vehicle access points will be secured with lockable gates. Non-vehicle access points will have the relevant infrastructure installed, such as kissing gates and horse step-overs to allow the movement of people through the site without allowing access to unwanted vehicles. This document details the type of infrastructure required at each of these points. All access codes to gates will be provided to the emergency services so they can easily access the Site as required.

### **Landscape concept**

Hole Farm is currently an agricultural holding with low levels of biodiversity. The aim of this project is to deliver a significant uplift in biodiversity and quality. In relation to the specific developments requiring planning permission there are opportunities through landscaping to provide biodiverse habitats such as hedgerows and native species planting.

#### *Planting*

- 3.59 The FE Interpretation Strategy and FE Woodland Masterplan detail the planting proposals. The masterplan for the woodland, provided for information only, has been created by FE and as forementioned is subject to a separate Environmental Impact Assessment for afforestation application.
- 3.60 The planting and areas of species rich grassland do not require planning permission but a description of the concept and layout is included for completeness and because of its relevance to the proposed buildings.
- 3.61 While utilising existing hedges, trees and shrubs, natural regeneration will be encouraged, alongside a proposal for planting 67 hectares (approximately 70% of the site) of predominantly native species, with some non-native species and a small proportion of conifers. Rides and glades species rich grassland will also be created for landscape appreciation, biodiversity and recreation. The overall aim is to create a productive woodland to primarily maximise carbon sequestration as well as meet objectives for habitat creation whilst creating a site for recreation for local communities.
- 3.62 The planting will also serve a further purpose of screening the surrounding road network from the site and helping exclude users of vehicles such as quad bikes which would not be permitted in the woodland.

#### *Countryside heritage and interpretation areas and informal natural play*

- 3.63 The interpretation strategy identifies existing and proposed new features of the site which will be of most importance and interest to visitors and sets out the proposed communicative methods for facilitating physical and intellectual access to these. Methods of interpretation include proposals for signage, wayfinding, trails, view, and activities. The four key themes of interpretation will be: environment, recreation, heritage, and wellbeing.
- 3.64 The objectives of the Interpretation Strategy are:
- To enhance the landscape and heritage setting, enabling improved access to the widest range of people.

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- To deliver and increase awareness of the value to society of access to green space.
- To increase awareness of the positive impact of the new and existing habitats on the climate and biodiversity.

- To promote and signpost connectivity to the wider network of green spaces.
- To create a sense of place and convey cultural authenticity by responding to the heritage and knowledge of the local area.
- To support the financial sustainability of the site.

3.65 To achieve these objectives, the interpretation strategy sets out plans for interpretative signage, trails, and activities across the site. It is proposed wayfinding and information signage is installed to aid navigation and convey meaningful information about the site and surrounding area. Within the interpretation panels there will be reference to the historic landscape including the neighbouring Grade I listed church, alongside explanations of the new habitats being created on site.

3.66 A range of activities are proposed for Hole Farm, from facilitating self-led exploration, to guided walks, physical activity sessions such as yoga, and more. All activities will be linked to the four key themes of recreation, environment, heritage/archaeology, and wellbeing. Activities will be designed with local community groups and will target a wide range of audiences, from adventurous young families, to those seeking relaxed days out.

3.67 Across Hole Farm there will be walking and running routes of varied length to enhance enjoyment and appreciation of the landscape. Trails will be signposted by information panels, maps, and waymarkers. An all-abilities access track has been designed to form a 1km loop in the south-eastern section of the site, linking to the car park and visitor facilities. On this loop a play trail and sensory sculpture trail will be created.

### **Environmental sustainability**

3.68 This has directed building design throughout the process including:

- Low embodied carbon
- Passive heating & cooling systems
- Daylight & balancing solar gain
- Low energy space and water heating
- Rainwater harvesting and water recycling
- Sustainable energy sources
- Package treatment tanks for foul waste water
- Building design life cycle of 75 years
- Building adaptability
- Reuse & recycling of construction materials

3.69 These elements are further detailed in the Design and Access Statement and Sustainability Statement.

### **Secure by Design**

- 3.70 Security for the occupants, visitors and assets of Hole Farm has been considered throughout the design process. The design team have liaised with Essex Police and have met on site to discuss how best to design out crime.
- 3.71 The form of different access points to the site for different users has been carefully considered. The access gates are designed to allow pedestrians, cyclists, dog walkers and horse-riders through. Signage, and where possible design of gates, aims to prevent motorbikes, motor-cross and quad bikes from entering the site.
- 3.72 Other proposed security measures are:
- The car park and facilities will be open in daylight hours with the gates locked after dusk
  - Lighting to bike storage and to the car park will be motion detection only to mitigate the impact on wildlife and generally avoid urbanisation of this natural setting.
  - The buildings are to be locked at night.
  - Natural surveillance has also been incorporated into the Project where possible.
- 3.73 The potential security risks of the Project have been identified and mitigation measures are in place with the aim of reducing risk. These include:
- Secure casing for the Electric Vehicle charging points.
  - Secure doors/shutters for overnight and lighting for lockups in the winter for the office and community building.
  - Providing cover over the bike storage while maintaining visibility, and the provision of lighting.
  - Securely locking the barn when not in use, provision of a locked gate into the yard area.
  - Lockable storage at the community tree nursery so all equipment and tools can be locked away when not in use.
  - To mitigate antisocial behaviour, lighting around the building for secure lock up after dark will be installed, sensor lighting will also be provided in the car park area for use after hours, and implementation of a lone working policy for FE staff.
  - Emergency services access has also been considered in the design and layout.
  - Hole Farm will become part of FE's Thames Beat woodlands and thus will be inspected on at least a weekly basis to check the condition and security of the site.
- 3.74 The Hole Farm Security Plan accompanies this application.

### Phasing

- 3.75 It is anticipated that the community woodland will develop incrementally as the planting matures over time. Initially the trees will be immature, although faster growing species such as Poplar have been selected to be planted in areas of high footfall, such as near the car park and on the all abilities route, to help create a woodland feel earlier on; however, it will take time for a sense of place to develop across the whole site and for ecosystems to establish. It is anticipated that visitor demand will initially be low and will build over time; development of the entirety of the proposals at the outset will not be feasible.
- 3.76 The planting, ponds, pathways and car parking areas are likely to be laid out in the first instance with any related service requirements such as the substation, modular cafe and visitor WC facilities, to both attract visitors and provide FE with a source of income to maintain the site. Other elements will be built as visitor demand increases and to meet the needs of FE in relation to site presence and storage of machinery and other equipment.

## 4 Consultation overview

4.1 Full details of the consultation undertaken with the public, Local Authorities and Technical Consultees, up to November 2022, are set out in the Consultation Report (November 2022) submitted with the planning application. This section of the Planning Statement summarises the Report and updates the consultation activity since November 2022 leading to submission of the planning application. Many of the comments relate to elements of the proposals that do not require planning permission however they have been included for completeness.

4.2 At the outset of the Project, Forestry England (FE) held a stakeholder mapping session in November 2021 with local authorities and the local community to identify who would be involved in collaborating on the Hole Farm project.

### Questionnaire

4.3 A printed questionnaire was sent out to stakeholders and a webpage was set up with more information and details on how to get in touch and submit a questionnaire response.

4.4 The following key points from the responses are summarised as follows with the corresponding Applicant response in relation to the detailed design.

Stakeholder Response	FE Response
Positively, over half of the respondent's thought they would visit the facility several times a month or more.	Supportive of usage of proposed woodland
There was a preference locally for lower intensity uses, less development and preservation of the natural landscape including woodland, mature trees, hedgerows, water, habitats and wildlife.	The masterplan includes all of these elements
Existing walking and horse riding on the site, which has occurred over many years on informal paths/bridleways, was highly valued. The retention of such routes was welcomed.	The design masterplan has been developed in consideration of this feedback. Walking and horseriding routes are provided for within the site including a multi user surfaced track.
It was strongly felt that the existing horse riding and cycle routes in the wider area should link up to the wider network.	Links with the wider path network have been included in the masterplan
Some concerns about conflicts between walkers, cyclists and horse riders were voiced.	The path network has been designed to minimise pinch points and conflict between users.
There was a wish that far-reaching views should be preserved.	Views of St Mary the Virgin Church and the surrounding listed buildings have been preserved as far as possible.

Stakeholder Response	FE Response
Some people mentioned the need to preserve the listed buildings on the site.	There are no listed buildings within the red line boundary. A Heritage Statement and Impact Assessment addresses the demolition of buildings within the curtilage of the listed Hole Farmhouse.
The most common concern was over-development of the site with buildings/paths/car parking/activity. A few people were keen for more extensive facilities (visitor centre/environmental education) but most preferred a limited number of facilities (small café, toilets).	A range of facilities would be provided to enable the Woodland to be used for recreation but also as an educational purposes serving school and community groups. The new buildings will be situated largely within the footprint of existing buildings. Overall internal floorspace will be reduced compared to that existing. In the car parking area the only new structures will be the small café/kiosk and toilet facilities for visitors. All buildings will use natural cladding materials and be designed to be sensitive to their rural location.
Concerns about visitor road traffic were discussed in the workshops.	<p>Convenient, well-designed connections between routes on site and the wider PROW network and the bus stop have been designed to help facilitate other means of accessing the site.</p> <p>The Transport Statement concludes that the Project would have a marginal impact on the local highway network during traffic peaks and that the existing and proposed transport infrastructure is adequate to serve the new facilities.</p> <p>It will be a number of years before the site matures and becomes a destination for visitors.</p>

## Stakeholder engagement workshops

4.5 A series of planned workshops were then held to enable members of the public and other stakeholders to add to their questionnaire feedback and discuss their views with others and the Applicant. The workshops were planned around four key considerations:

- Community and Recreation - 22nd February 2022
- Traffic and Access - 3rd March 2022
- Design and Delivery Approach - 8th March 2022
- Biodiversity Approach Workshop - 16th March 2022

4.6 Feedback was taken and participants were invited to send any further information about their views to FE. In addition to individual views, responses

were also received from a number of organisations. Details of the questions set, and summarised responses are set out in the aforementioned Consultation Report.

4.7 Key comments and responses which are in addition to those above are set out in the following table.

Comments raised	FE Response
Generate community cohesion through opportunities for volunteering, forestry walks and talks, tree nursery.	A community tree nursery, orchard and coppicing areas will open up the opportunity for volunteering. The Thames Chase Trust and Forestry England volunteer groups could help broaden the diversity of users beyond those in the immediate vicinity.
Concern that ancient woodland and trees are not removed	The Project will result in ecological and biodiversity benefits. No Ancient Woodland will be removed and only limited tree removal will take place to enable the construction of the building cluster, car park and lorry turning area.
Will this still go ahead if LTC is not consented	Yes, the Project is not dependent on LTC.
Safe and equal non-vehicular access for the local area as well as beyond Brentwood, including to other local FE sites.	The Project includes the provision of five dedicated pedestrian entrance points. Entrance 1 is located by an existing footbridge that connects the Project to Folkes Lane Woodland on the other side of the M25.
Accessibility of parking including the cost and ability to park horse boxes.	The Project will provide a 94-space car park with a provision for coach parking and an overflow area. This includes 14 Electric Vehicle (EV) charging points, as well as 7 blue badge spaces, 2 of which will have access to EV charging points. The car park would be pay-and-display.
Collaboration when creating the woodland including with the community, the Great Warley Conservation Society and Essex Wildlife Trust. Regular community updates.	Two dedicated engagement sessions have been held with the Great Warley Conservation Society which have contributed towards the design of the Project. Community tree planting days were held in December 2022 and more will be held in the future.
Opportunity to design in wet features such as ditches as well as species to encourage repopulation.	The Project has incorporated ponds and water features throughout the site. The Project would also enhance the existing waterbody on site.



Comments raised	FE Response
Safeguard and enhance current biodiversity by expanding hedgerows, ensuring planting is both herbaceous and woody, establish scrubby areas and wildflower meadows.	Retaining mature trees and hedgerows, providing additional native planting and adding bird boxes will also help enhance the Site's biodiversity. The landscape-led design approach will include new hedgerows, shrub borders to the tree planting blocks and rides and glades species rich grassland that would safeguard and enhance current biodiversity.

### Drop in sessions

- 4.8 Drop in sessions were also held over two days at Folkes Lane engaging with the local community and other interested parties on the Woodland Design Plan. Attendees were also given a tour of Hole Farm. In addition, FE conducted tours of the site with local MPs, Natural England staff, Essex Bridleways association, Thames Chase Trust volunteers, residents and neighbouring community members, Essex County Council staff, Trailnet, Conservationists, local walking groups, horse riders and cyclists.
- 4.9 The following key questions were raised at the drop in days, excluding comments already made above.

Questions raised	FE Response
What impact will this have on local traffic?	A transport assessment has been carried out and the Transport Statement concludes that the Project would have a marginal traffic impact on the local highway network during the traffic peaks, and that the existing and proposed transport infrastructure is adequate to serve the new facilities.
How can the site be accessed by public transport, walking or cycling?	The woodland path network has been designed to connect with existing footpaths and bridleways outside the site. A new entrance point has been positioned by the local bus stop on the B186. Brentwood train station is approximately a 30 minute walk away from Great Warley via pavement.
Can trees be planted and paths put in for public access asap. Can faster growing trees be planted across the site?	Fasting growing species such as Poplar has been selected to be planted in areas of high footfall which are faster growing than other species. This planting will help create a woodland feel earlier on.
Can there be more conifers to give greenery during the winter months?	A small proportion of Scots pine has been planted across the site to provide

Questions raised	FE Response
	greenery and cover during the winter months.
Could there be a community orchard?	A community orchard has been included in the design masterplan.
Will pathways be multi-use?	Yes.
Preference for environmentally friendly infrastructure and use of materials as opposed to tarmac.	Natural materials are proposed to be used wherever possible. The material palette for the site is primarily timber or timber cladding. Timber construction is comparatively low-carbon and does not have high embodied energy expenditures of concrete and steel. Tarmac is proposed to be used for some of the hard-standing areas with coloured surface dressing of natural angled stone chip.
Could there be a 3 mile loop for horse riders, small provision of horse box parking and higher barriers on the M25 footbridge crossing?	orse riders will be welcome to ride at Hole Farm utilising the grass ride network and accessing the site via existing bridleways

### Great Warley Conservation Society

- 4.10 Sessions have also been held with Great Warley Conservation Society in March and June 2022.
- 4.11 In general there was agreement with the planting plan and tree selection but concerns about traffic generation, the location of the access and cumulative built infrastructure in the area. Traffic generation is addressed above, the access from Great Warley Street has been moved and the only additional building will be the modular café and toilets which are small in scale and are basic amenities to enhance the visitor experience.

### Stakeholder roundtable

- 4.12 In July 2022 FE hosted a stakeholder roundtable to review the design and discuss how to maximise the opportunities in and around Hole Farm. Attendees included Essex County Council, Brentwood Borough Council, National Highways and the Thames Chase Community Forest.
- 4.13 Feedback not addressed above included the following.

Feedback point	FE response
Active travel and electric vehicles should be reflected in the design	The design has incorporated multi-user surfaced tracks which are appropriate for walkers, cyclists and horse riders. The proposed car park includes 14 EV charging points, as well as 7 blue badge

Feedback point	FE response
	spaces, 2 of which will have access to EV charging points
The educational offering should be aimed at all levels of education and development. Non-academic skills should be promoted through learning with opportunities to engage with local educational institutions and community organisations	A community room has been designed that will provide a space for educational institutions and community organisations to hire out for activities.
Consider the importance of disabled access and create a sensory walk	The car park design incorporates seven blue badge spaces (two of which are EV). The nine access points to the site offer access to a range of user types including wheelchairs and mobility scooters. The informal parking adjacent to the community building has two blue badge spaces. The spaces within the community building have been designed to far exceed Building Regulations for wheelchair users, and gradients to landscaping are for unaided wheelchair users. The new main entrance area will offer a starting point to the woodland walk.  The all-abilities trail will incorporate a sensory sculpture walk.
How will potential anti-social behaviour be addressed?	A site Security Plan has been developed to address potential anti-social behaviour.

## Final public consultation

4.14 The final public consultation was undertaken over two drop in days on 2 and 3 September 2022 hosted by FE. In addition display boards and brochures were left in the Thames Chase Visitor Centre for comment and on the Hole Farm FE webpage with an email for comments.

4.15 Feedback not addressed above included the following.

Feedback point	FE response
Concern that Codham Hall Lane and other roads could be used by users to park for free.	There is the potential that some users may choose not to park on site to avoid the parking charges.
Retain views from Folkes Lane Woodland to Landon Hills.	Tree planting will have no immediate effect on views from the site. In the medium to long term tree and shrub growth will restrict the open character of the site. Key long distance views from the northern boundary of the site looking across the community forest and towards the estuary,

Feedback point	FE response
	and from west to east at certain points will be maintained.
The proposed car park is too large.	<p>The assumption on parking provision has been based on existing parking demand at the nearby Thorndon Country Park that attracts over 100,000 visitors per year and has 145 spaces. This is similar to the levels expected at Hole Farm. In this location parking demand requires 100 spaces. The overflow area could accommodate overspill of up to 100 spaces. It will remain grassed.</p> <p>ECC Highways recommended that the car park and overflow area should provide for a total of 200 spaces.</p>
Can horses access the multi user track for horse riding and how is access gained?	Horse riding routes have been designed across the site to connect the two existing bridleways to the west and south of Hole Farm.
Will the M25 air pollution affect the Woodland?	Traffic on roads such as the M25 can lead to increased levels of nitrogen deposition on habitats adjacent to them which can result in nutrient enrichment. Hole Farm is being designed and would be managed to maximise its biodiversity and landscape value through the range of woodland and grassland species proposed. This active management would help maintain the species diversity across the site.
Could fruit trees or allotments be included to compensate for loss of agricultural land?	<p>A community orchard that will host a range of fruit trees has been included in the design masterplan.</p> <p>The agricultural land will be replaced by forestry. The new buildings will be constructed on the footprint of existing buildings and hardstanding. The proposed car parking and café area will be the only part of the site where new hardstanding will be created that does not already exist.</p>

### Local authorities and technical consultees

- 4.16 There has been ongoing consultation with the Local Planning Authority initially and also with technical consultees, including other teams within Brentwood Council and Essex County Council. Full details are included in the aforementioned consultation report however the following table summarises the key points raised by consultees and how the Applicant has responded in preparing the final Project proposals.

Key points raised by consultees	FE response
<b>Brentwood Borough Council Planning Officer written comments</b>	
Ponds and water features should be considered as development.	Planning permission is sought for this aspect of the Project.
Some permitted development rights require prior notifications.	No elements of the Project require prior approval.
Requirement to consider policies relating to energy, water efficiency and low carbon generation.	These policies have been considered in this Planning Statement, the Sustainability Statement and the SuDS Report. A BREEAM Assessment is also being conducted where best practice and polices are considered in relation to credit achievement for energy, carbon and water credits.
No objection to contemporary typologies in relation to any new buildings. This can help limit their impact on the countryside.	The design of the replacement buildings has been carefully considered in relation to their setting and the proximity of the listed farmhouse. A simple material palette has been developed consisting of timber cladding and zinc standing seam roofs to compliment the rural character of the setting.
Any hot food provision should include appropriate deodorising equipment.	The proposed modular café will serve both hot and cold food. The café will not be cooking food on site. Hot food will consist of heating pre-prepared food items.
Concern raised re the potential for noise and amenity impacts on adjacent occupiers in relation to the proposed use of the existing access onto the B186 and use of land for car parking. An access to the south would address the concerns.	This concern relates to early stages of design when an alternative to use the existing Anglian Water access track onto B186 was considered as access to the car park. Following consultation and design iterations, the proposed access is now 110m south of the existing bell mouth and therefore no impact on the adjacent property to the north of the site boundary (the Hermitage) is expected.
The proposed car park appears urban in nature. A more rural approach should be followed with no or minimal lighting. The number and location of car charging points should be shown.	These points have been addressed in the design which includes blocks of groundcover and tree planting within the car park to help integrate into the surrounding woodland setting.  EV Charging zones and spaces have been shown on the drawings.
Create and retain important vistas when considering tree planting blocks (non-planning, but LPA offered advice).	As part of the consultation process, key vistas have been identified and will be retained through the design masterplan.

Key points raised by consultees	FE response
<b>Historic England written comments 17.06.22</b>	
A Forestry Commission EIA decision is required for the proposed afforestation, which exceeds 50ha.	FE secured consent to deliver 5ha of planting in 2022 and will be submitting an EIA (for afforestation) to cover the remainder of the proposed planting.
The sinuous woodland blocks do not reflect existing blocks in the landscape which have straighter edges. Aligning the proposed blocks with historic hedgerows or field boundaries would be more in keeping with local landscape character, with scalloping of edges along internal woodland rides.	As with all FE woodland creation sites, FE follow the best practice and guidance set out by UKFS, and this includes the consideration for historic landscape character. Whilst Hole Farm is not a protected or designed landscape, efforts have been made to ensure the planting mixes and design of the woodland will be visually consistent and in character with the adjoining areas of woodland and the predominantly wooded ridge to the north. The planting design with its mosaic of open habitat and tree planting has been informed by the existing and historic field boundaries and landform. Additionally, existing hedgerows will be either retained as features, or allowed to naturally regenerate into shrubby wildlife corridors, allowing for these features to be traced and understood into the future.
Existing or historic hedgerows should be retained as freestanding elements or edges for woodland blocks.	Existing hedgerows will be either retained as features, or allowed to naturally regenerate into shrubby wildlife corridors, allowing for these features to be traced and understood into the future.
Re-creation of a wood pasture/parkland by reducing planting, on the arable field in the NW of the Project site (west of the lane to Hole Farm and north of the public footpath) akin to patterns of historic land use.	The northwest part of the site has been identified as key areas for natural regeneration and rides and glades species rich grassland that will retain the views from the high point of the site.
<b>Historic buildings and conservation advice 15.6.22</b>	
Need to draw on the contribution of the historic environment on the character of the place. Heritage interpretation of Hole Farmhouse and St Mary's Church required; permissive access to the War Memorial; permissive parking for church visitors; retain sightlines to Hole Farmhouse in planting layout.	The following have been incorporated into the proposals: <ul style="list-style-type: none"> <li>• An interpretation panel in the car park relating to local history and the St Mary the Virgin Church.</li> <li>• Retention of the view of the church spire from location TQ 5815 8988 within the wood.</li> </ul>

Key points raised by consultees	FE response
	<ul style="list-style-type: none"> <li>• Pathways will make it possible for people to use the car park and visit the Church.</li> <li>• An information board about the post medieval farmstead at Hole Farm (sited near farm).</li> <li>• A series of self-led themed walks through the woodland are proposed including:               <ul style="list-style-type: none"> <li>- Sensory Trail, incorporating sculptures to encourage the appreciation and understanding of the landscape.</li> <li>- Natural play trail to encourage children to explore their natural surroundings.</li> </ul> </li> </ul>
Any hard landscaping to remain rural in character and permeable. Any signage relating to access must be appropriate for the heritage environment.	Timber signage will be sustainably sourced and follow FE's branding.
Modification of barn and grain store and addition of tree nursery gives opportunity to enhance the setting of the listed farmhouse.	The dilapidated barn and grain store require demolition and will be replaced by a sympathetic design proportionate to the existing and clad in natural materials.
Opportunity to signpost access from the woodland, to the conservation area for pedestrians.	Wayfinding and information signage to aid navigation and convey meaningful information about the site and surrounding area is proposed. Information on the nearby St Mary the Virgin Grade I listed church and nearby Conservation Area will be provided. There will also be reference to the historic landscape, alongside explanations of the new habitats being created on site.
<b>Essex CC Archaeology 13.06.22</b>	
Recommend a programme of archaeological mitigation on any areas, eg. the new ponds, that will result in below-ground disturbance (carried out post determination) as part of a condition. The likely below-ground impact of the Project should be provided in the revised DBA with the planning application	The Archaeological Desk-based Assessment has been updated and included in the planning application.
Require the likely below-ground impact of the development to be	The updated Archaeological Desk-based Assessment identifies the risk of below-



Key points raised by consultees	FE response
assessed in any revised Desk Based Assessment.	ground impact on archaeology within the proposed areas of development. It recommends further investigation within these areas that could involve geophysical surveys and trial trenches prior to construction.
<b>Essex County Council Highways written comments 08.07.22</b>	
Recommendation to use the existing access by The Hermitage or from the south, not from Great Warley Street, being a minimum of 5.5m wide with a separate 2m footway for pedestrian access. Visibility splays of 2.4m x 120m are required in both directions.	Residents of Hole Farm and the Farm Cottages will utilise the existing track leading south from Great Warley village while other users of the Community Woodland facility including staff, deliveries and FE vehicles will use the existing track leading north from Codham Hall Lane. Visitors and coaches will access the new car park from the B186. Access to the car park has been designed 7m wide + 2m footpath. Full Stopping Site Distance (SSD) is ensured in accordance with DMRB CD123 considering a 70kph design speed - minimal vegetation clearance is envisaged for the bell mouth construction and SSD requirements (circa 50m linear veg clearance).
Due to the status of the road, any new or improved vehicle access would require a Stage 1 Road Safety Audit.	A Road Safety Audit has been provided in relation to the creation of a new vehicular access into the proposed car park from Great Warley Street.
Recommended that the existing access from Great Warley to the north should have restricted use.	Use of this track will be restricted to residents of Hole Farm and the Farm Cottages.
Footpaths to be kept separate from motorised vehicles; various signage suggested; PRow to remain open at all times.	The PRow will remain open throughout the construction period and thereafter. Should there be an unexpected reason the PRow could not be open, then a diversion route would be created as is required.
Area to be designated for overflow parking of @ 100 vehicles; cycle parking to be conveniently located, secure and covered.	A grassed area adjacent to the car park to accommodate around 100 vehicles has been included as shown on the Car Park Layout plan (drawing reference 6314_101). Covered cycle parking has been located adjacent to the modular café (at the main entrance) as shown on the Modular Café Plan (drawing reference 375-FP-02-ZZ-DRG-A-000111 Rev. P08).
The TS should provide as much detail as possible on trip generation by all	The Transport Statement considers all means of access to the Community



Key points raised by consultees	FE response
modes; detail the times of operation of the site; Highway capacity assessments are unlikely to be necessary if most trips will be off peak.	Woodland. The forecast traffic impact on the highway network and car parking demand is supported by new traffic surveys which shows that the majority of trips generated for this type of Project occur in off-peak hours when the highway network is less sensitive to increased traffic demands. The junction capacity assessment shows that the junction is forecast to operate within capacity in both peaks in 2023, with very little delay to the operation of the B186 Great Warley Street.

### Post November 2022 consultations

4.17 Since November 2022 following design changes, consultation with the following statutory consultees has also taken place.

Key points raised by consultees	FE response
<b>Essex County Council Development and Flood Risk, Waste and Environment written comments 12.01.23</b>	
The principles of the drainage scheme are acceptable. Change the climate change allowance from 25% to 45%.	The Environment Agency's Climate Change Allowances have been incorporated into the drainage design. The current design is based on upper end allowance of climate change of 45%.
The flood risk assessment should consider all forms of flood risk and it should be considered how any existing flood risk will interact with the proposed development drainage scheme.	The FRA has considered all sources of flood risk. There was deemed to be potential for surface water and groundwater flooding, albeit a precautionary approach was taken.  A number of mitigation measures have been incorporated into the design which largely resolve the risk. Residual flood risk would be managed by establishing a planned, risk-based maintenance programme and establishing overland flow paths from the retention ponds away from sensitive receptors.
Surface water run-off should be disposed of in line with the discharge hierarchy.	Surface water run-off will be managed sustainably. Due to the abundance of clays in the bedrock and the grey soils present in the superficial deposits, the use of SuDS methods incorporating infiltration techniques is not appropriate for site drainage. Hence, SuDS such as swales and detention basins have been proposed

Key points raised by consultees	FE response
	for conveyance and attenuation with outfall into existing ditches.
Rainwater re-use should be considered, in line with the updated 2020 Essex County Council SuDS Design Guide. If not proposed a clear explanation as to why this is not a viable option should be provided.	Rainwater butts have been proposed near tree nursery for rainwater storage and reuse.  It may be possible to incorporate rain water harvesting at the modular café and public loos. This would need to be assessed at detailed design, once a supplier has been identified to work with their proprietary modular building system.
Confirm whether infiltration is proposed and conduct the appropriate ground investigation/groundwater and infiltration testing.	Due to the abundance of clays in the bedrock and the grey soils present in the superficial deposits, the use of SuDS methods incorporating infiltration techniques is not appropriate for site drainage.
Ensure the site discharges at a suitable rate and that appropriate permission are in place if discharge to a watercourse or sewer is proposed.	The drainage design proposes to discharge attenuated run-off in a secondary/ tertiary river.
Peak flow –if infiltration is found to be not feasible on site, discharge should be limited to the Greenfield 1 in 1 year rate for all storm events.	Greenfield run-off has been calculated for 1 year return period using ICP SuDS (see Appendix D of Drainage Strategy). The outflow from networks have been limited to greenfield run-off for 1 year return period or 1lps whichever is higher.
It should be demonstrated how surface water up to the 1 in 100 year plus climate change event is managed within the development. Detailed calculations considering a range of summer and winter storms should be submitted for storage requirements.	Detailed micro-drainage result summary for the proposed drainage networks have been produced in Appendix F of the Drainage Strategy Strategy.
There should be water quality treatment in line with Chapter 26 of the CIRIA SuDS Manual C753 for all areas of the site. The pollutant risk depends on traffic movements. Trapped gullies and catch pits are generally not considered appropriate forms of mitigation.	The SuDS proposal is sufficient to mitigate the pollution hazard posed by the development (based on Simple Index Approach of Assessment) and hence the water quality of the receiving watercourse would not be worsened.
It should be ensured that surface water is managed so there is no flooding in a 1 in 30 year storm event and no internal flooding in a 1 in 100	The proposed drainage network does not flood for rainfall of 1 in 30 year return period. The detention basins have been designed to allow for 300mm freeboard for

<b>Key points raised by consultees</b>	<b>FE response</b>
year, inclusive of climate change storm event.	the rainfall of return period 100 year and 45 percent climate change.
A maintenance plan should be provided. Adoption by FE to be discussed at a later stage, Anglian Water adopt SuDS schemes in this region.	The Drainage Strategy sets out how the SuDS will be maintained. The on-site drainage will be managed by FE which will be responsible for maintaining any on-site services including drainage.
At some point during the planning stage, you would need to show how surface water will be managed during the construction phase.	This will be addressed at the appropriate design stage.
You would also need to demonstrate how surface water impacts on the drainage system before and after development, and how the new development improves existing land drainage or surface water management.	The proposed drainage system intercepts and conveys the overland flow through swales which eventually flow through detention basins to discharge at a rate lower than the existing condition.
Under Section 23 of the Land Drainage Act (1991) any proposed structure that impacts on the cross-sectional area of a watercourse will require Ordinary Watercourse consent to be sought from Essex County Council. Such applications are separate from and are required in addition to the planning process.	The current proposal retains the existing watercourse without any cross-sectional modifications.
<b>Essex County Council Place Services written response 02.02.23</b>	
A requirement for a conditioned programme of archaeological evaluation;	FE is agreeable to an appropriate condition relating to further evaluation and recording.
Requirement for an updated desk-based assessment to be submitted with the application;	This has been included.
Only a requirement for building 3 (small brick stable) to be recorded;	Building 3 now sits outside of the Project's red line application boundary.
Heritage Impact Assessment required including assessment of impact on Hole Farmhouse;	A Heritage Statement and Impact Assessment and Archaeological Desk-based Assessment are included with the planning application submission.
Any required archaeological evaluation work would be pre-commencement or during construction.	FE is agreeable to an appropriate condition relating to further evaluation and recording.
<b>Brentwood Borough Council Planning written response 08.03.23</b>	

Key points raised by consultees	FE response
Requirement for a two-vehicle width access, a hardened access to a distance back from the highway to avoid loose material tracking onto the highway.	A carriageway width of 7m has been provided leading to the car park. The bell mouth cross section is designed to cater for the simultaneous egress and ingress of 2 standard Rigid Vehicles (FTA Design LG Rigid Vehicle - 7m long). The car park access is proposed to be a tarmac surface as shown on the Car Park Layout drawing (reference 6314_101) and shown in detail on the proposed car park bell mouth drawing (reference Hole_Farm_Highways.003.2).
No objections in principle to buildings. Green Belt argument to be tweaked	The Planning Statement demonstrates that the Project is an appropriate use within the Green Belt and will not be detrimental to its openness nor conflict with the purposes of using land within it.
Preference for kiosk, shelter and substation to be in full rather than outline to judge their impact on the openness of the Green Belt.	Parameters are provided for the modular café, visitor shelter and substation including locations and maximum floorspaces and heights. These elements could be conditioned as appropriate. The openness of the Green Belt would not be compromised by these ancillary uses which will be screened from view as the woodland matures. The reason for applying in outline is detailed in the Planning Statement.
Informal car/coach parking appears tight and unworkable. Why is this needed in addition to the field car park?	The car parking at the building cluster has been formalised. Coaches will no longer park in this area. This is needed for FE staff and for disabled staff or visitors attending the building cluster.
Clarification needed in respect of how works not requiring permission are referred to.	This has been clarified.
<b>BBC Ecology Officer, March 2023</b>	
Clarity required regarding the extent of the existing boundary hedge requiring removal in the car park to create the new access and appropriate visibility splay.	Minimal vegetation clearance is envisaged for the bell mouth construction and SSD requirements (circa 50m linear veg clearance).
<b>BBC Historic Buildings Officer, March 2023</b>	
To minimise negative impacts on the setting of the listed building, the car park should have a natural (ie. not	The Project is thoughtfully designed and considerate of any issues that may impact the surrounding heritage. In the car park,

Key points raised by consultees	FE response
bituminous) permeable wearing course. Lighting must not detract from the character of the rural setting or contribute to light pollution.	the main vehicle circulation area consists of tarmac with a coloured surface dressing of natural angled stone chip, with the parking bays formed of unsealed prime aggregates with compacted 6mm to dust grey granite finish. There will be no external lighting provided as the car park will be closed after dark. Security lighting, on a sensor and timeclock will be provided around the modular cafe for employee's locking/unlocking and at the entrance to the site. Lighting at the entrance will provide enough light for the ANPR/CCTV systems to recognise vehicles entering and leaving the car park in low light.
Materials for the open sided visitor shelter should be renewable and of agricultural character.	The principles of location, scale and materiality have been outlined in this planning application and will be subject to reserved matters when the final design is completed. The open sided visitor shelter will be of timber construction.
If the Café is a permanent structure, materials should be renewable and of agricultural character.	The principles of location, scale and materiality have been outlined in this planning application and will be subject to reserved matters when the final design is completed. The materiality of the modular café will be timber cladding.
Paths should have a natural (ie. not bituminous) permeable wearing course. Any path lighting must not detract from the character of the rural setting or contribute to light pollution.	The surfacing for the all access abilities pathway will be prime aggregate with a wearing course of tar and chip, grey granite finish. The surfacing of the multi-user pathway and path from the bus stop will be unsealed prime aggregate, with compacted 6mm to dust, grey granite finish.  The external lighting across the site is to be limited as far as practicable in order to restrict any urbanisation of the site and to mitigate any impact upon wildlife.
Strongly objects to demolition of the Stable.	Building 3 (small brick structure) is now outside of the Project's red line boundary and will not be demolished.
Supports demolition of the open fronted shed conditional upon demarcation of its outline in hard or soft landscaping to acknowledge the scale of the former historic courtyard.	Building 4 (open fronted shed) is now outside of the Project's red line boundary and will not be demolished as it houses a maternity roost of bats.

Key points raised by consultees	FE response
<p>Footprint and massing of new community building and FE Store should not exceed that extant today. Materials should be renewable and of agricultural character.</p>	<p>The proposed new buildings within the building cluster makes use of the existing development areas and reduces built footprint and volume from that existing. The buildings are sited on the existing footprints yet are elongated into rectangular plan forms.</p> <p>The material palette for the buildings and for the site in general, as a community forest, is primarily timber. Timber construction with timber framing and roof trusses is also in direct reference to the historical architecture of agricultural barns on the site.</p>
<p>Informal car and coach parking should have a natural (ie. not bituminous) permeable wearing course. Any lighting must not detract from the character of the rural setting or contribute to light pollution.</p>	<p>The informal car parking (adjacent to the community building) will consist mainly of unsealed prime aggregate with two blue badge parking bays and access road formed of tarmac with coloured surface dressing of natural angled stone chip. There will be no external lighting provided as the car park will be closed after dark. Security lighting, on a sensor and timeclock will be provided around the community building and Forestry England barn to ensure staff safety and security. Lighting at the entrance will provide enough light for the ANPR/CCTV systems to recognise vehicles entering and leaving the informal car park in low light.</p>
<p>Signposting and heritage interpretation should be provided to inform visitors of the Conservation Area and St Mary's Chapel.</p>	<p>It is proposed wayfinding and information signage is installed to aid navigation and convey meaningful information about the site and surrounding area. Information on the nearby St Mary the Virgin Grade I listed church and nearby conservation area will be provided. Within the interpretation panels there will be reference to the historic landscape, alongside explanations of the new habitats being created on site.</p>
<p>The significance of any other agricultural structures should be assessed and the existence of a natural pond should be protected</p>	<p>The Heritage Statement and Impact Assessment has considered the significance of the buildings and structures at Hole Farm. The Project would also enhance the existing waterbodies on site.</p>
<p>Requests that the planning officer consider how the applicant could fund appropriate enhancement of Hole</p>	<p>The Project will enhance awareness and community engagement with features of historic interest at both Hole Farm and</p>

Key points raised by consultees	FE response
Farmhouse or otherwise enhance the heritage setting for public benefit.	Great Warley. It is considered that the creation of a community woodland will have an overall positive impact on Hole Farm, its setting, and Great Warley Conservation Area.



## 5 Planning policy and guidance

- 5.1 Section 38(6) of the Planning and Compulsory Purchase Act 2014 requires that applications be determined in accordance with the Development Plan unless material considerations indicate otherwise.
- 5.2 Accordingly, the relevant policies in the National Planning Policy Framework 2021 (NPPF) and Brentwood Council Local Plan (2016-2033) are set out below. Section 7 of this Planning Statement addresses how the proposals comply with policy, taking into account all material considerations.
- 5.3 Other documents considered include:
- Essex Green Infrastructure Strategy 2020
  - Essex Green Infrastructure Standards –Technical Guidance (undated)
  - The Essex Design Guide 2018
  - Essex Development Management Policies –Highways 2011
  - Public Health England: Improving Access to Greenspace 2020

### NPPF 2021

- 5.4 The presumption in favour of sustainable development underpins the NPPF. This is set out in Paragraph 11. which states that for decision-taking this means “*approving development proposals that accord with an up-to-date development plan without delay*”. Where proposals may depart from a development plan, local planning authorities (LPA’s) may approve the application “*but only if material considerations in a particular case indicate that the plan should not be followed*”.
- 5.5 Chapter 8 of the NPPF states that planning decisions should aim to achieve healthy, inclusive and safe places which:
- Promote social interaction
  - Are safe and accessible
  - Enable and support healthy lifestyles eg. through the provision of *inter alia* accessible green infrastructure and layouts that encourage walking and cycling.
- 5.6 Positive planning for sport and recreation means that “*access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change*” (paragraph 98.).
- 5.7 The NPPF also states the importance of protecting and enhancing public rights of way and access, including “taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks” (paragraph 100.)
- 5.8 In all developments the promotion of sustainable transport modes is key, thus prioritising pedestrian and cycle movements both within and outwith Schemes and facilitating access to public transport. Safe and suitable access to the site



for all users and the design of parking areas should accord with current national guidance.

5.9 A transport statement is submitted in support of the planning application as required by paragraph 113 of the NPPF.

5.10 With particular relevance to the Project, the NPPF promotes the effective use of land. In this respect, planning decisions should inter alia:

*“a) encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside;*

*b) recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production”* (paragraph 120)

5.11 In addition to the Essex Design Guide 2018, the site and building design has been cognisant of the policy advice in Chapter 12 of the NPPF in relation to function, visual attractiveness, layout and landscaping. The proposals also take account of the nearby and more distant listed buildings.

5.12 In terms of the existing and proposed trees, paragraph 131 states that appropriate measures should be put in place to *“secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible”*.

5.13 The views of the community and LPA *et al* that emerged from the early and ongoing consultation process have helped shape the site and building layout and design. In this regard, NPPF paragraph 132 states *“applications that can demonstrate early, proactive and effective engagement with the community should be looked on more favourably than those that cannot”*.

5.14 The Application Site is located within the Metropolitan Green Belt. Section 13 of the NPPF that addresses the requirements to protect Green Belt land. In this regard paragraph 137 states *“the fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open”*.

5.15 Paragraph 138 sets out five purposes for the Green Belt:

*“a) to check the unrestricted sprawl of large built-up areas;*

*b) to prevent neighbouring towns merging into one another;*

*c) to assist in safeguarding the countryside from encroachment;*

*d) to preserve the setting and special character of historic towns; and*

*e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land”*.

5.16 The NPPF states that inappropriate development in the Green Belt should not be approved except in very special circumstances. Authorities are directed to ensure substantial weight is given to any harm to the Green Belt in the consideration of planning applications. *““Very special circumstances” will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations”* (paragraph 148).

- 5.17 Although the construction of buildings is inappropriate in the Green Belt, there are a number of exceptions, as listed in paragraph 149. These include, of potential relevance, either directly or contextually:
- “a) buildings for agriculture and forestry”* –although the Project is not for commercial forestry, the northern-most building is required for woodland management purposes by Forestry England;
  - “b) the provision of appropriate facilities (in connection with the existing use of land or a change of use) for outdoor sport, outdoor recreation, cemeteries and burial grounds and allotments; as long as the facilities preserve the openness of the Green Belt and do not conflict with the purposes of including land within it”* –this is of particular relevance as the proposed scheme will provide outdoor recreational opportunities for the local community.
- 5.18 Other forms of development are not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. Of relevance to the Project, this includes:
- “b) engineering operations;*
  - e) material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds)”* (paragraph 150).
- 5.19 With respect to the natural environment, paragraph 174 states that planning decisions should contribute to and enhance the natural and local environment by:
- “a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
  - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services –including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
  - d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
  - e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability”*.
- 5.20 Paragraph 145 encourages local planning authorities to plan positively to enhance the beneficial use of designated Green Belts, by *“looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land”*.
- 5.21 The proposed Community Forest will sit within the wider Thames Chase Community Forest, and in this respect paragraph 146 states *“Community Forests offer valuable opportunities for improving the environment around towns and cities, by upgrading the landscape and providing for recreation and wildlife”*. Also that *“an approved Community Forest Plan may be a material consideration in...deciding planning applications”* although it is recognised that development

proposals within Community Forests in the Green Belt should be subject to the normal policies for controlling development in Green Belts.

- 5.22 When determining applications, Local Authorities are required to support development whose primary objective is to conserve or enhance biodiversity.
- 5.23 The Grade II listed Hole Farmhouse and its curtilage is adjacent to the Application Site. When considering the impact of a proposed development on the significance of a designated heritage asset, the NPPF states that great weight should be given to the asset's conservation. Any harm from development, either to the building or its setting, should require clear and convincing justification. Substantial harm to or loss of grade II listed buildings should be exceptional.
- 5.24 Paragraph 202 states "*where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal.*"
- 5.25 The Government recently consulted on a relatively minor re-draft of the NPPF, with the public consultation period closing on 2<sup>nd</sup> March 2023. The changes proposed are likely to be of limited relevance to the Project, due to the nature of what is proposed, with the increased emphasis on visual attractiveness being of particular note.

### **Brentwood Council Local Plan (2016-2033) adopted in 2022**

- 5.26 The site lies entirely within the jurisdiction of Brentwood Borough Council. The statutory development plan is the Brentwood Local Plan (2016-2033), adopted in March 2022. The site has three designations: Green Belt and the Thames Chase Community Forest cover the whole site while Parker's Shaw Wood is designated as a Local Wildlife Site.
- 5.27 One of the Local Plan's strategic aims is to "*ensure that proposals demonstrate how outcomes will deliver healthy communities on multiple levels*" (paragraph 3.3). The Plan's strategic objectives are *inter alia* to promote a landscape-led design approach which will help to "*protect and enhance areas of environmental and heritage value; creates spaces that encourage social interaction, sustainable connectivity and mobility and healthy active lifestyles*" (paragraph 3.9) and deliver a biodiverse, clean and functional natural environment, to "*provide net gains for, the borough's natural environment and biodiversity; and where our natural heritage is protected, and ecosystem services are restored, enhanced and.....opportunities are pursued for securing measurable net gains for biodiversity*" (paragraph 3.11).
- 5.28 Strategic Policy MG02 (Green Belt) directs that the Green Belt will be preserved from inappropriate development so that it continues to maintain its openness and serve its key functions. In this regard, "*planning permission will not be granted for inappropriate development in the Green Belt other than in very special circumstances*". All development proposals will be considered and assessed in accordance with national policy.
- 5.29 The Council will however "*seek to enhance the beneficial use of the Green Belt to provide and improve access to it; to provide and enhance opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; and to improve damaged and derelict land*". Development proposals in the Green Belt will therefore be expected to include measures to achieve these objectives as far as possible.

- 5.30 Policy MG04 (Health Impact Assessments (HIAs)) requires the provision of an HIA with applications for non-residential developments of 1,000m<sup>2</sup> or more to assess the positive and negative health implications of proposed schemes.
- 5.31 Strategic Policy NE01 (Protecting and Enhancing the Natural Environment) applies to the designated Local Wildlife Site: Parker's Wood, where development proposals should protect and enhance the quality of the natural environment and where possible *"incorporate measures to secure a net gain in biodiversity, protect and enhance the network of habitats, species and sites (both statutory and non-statutory) and avoid negative impacts on biodiversity and geodiversity"*.
- 5.32 Further, development proposals that are likely adversely to affect locally designated sites, including their functional status within any identified ecological network, will only be permitted where *"the applicant can demonstrate that the ecological coherence of the site and any local ecological network is maintained; and it can be demonstrated that the benefits of the development clearly outweigh the loss"*.
- 5.33 The Project will contribute to Brentwood's Green and Blue infrastructure network (GBI) where Policy NE02 directs development to *"enhance or restore existing GBI provision and/or create new provision on site that connects to the wider GBI network. Its design and management should also respect and enhance the character and distinctiveness of the local area"*. Maintenance plans are also required for the lifetime of the development.
- 5.34 Policy NE04 (Thames Chase Community Forest) states *"development proposals which fall within the Thames Chase Community Forest Area should not prejudice the implementation, aims and objectives of the Thames Chase Plan"*. This Plan provides a green infrastructure framework, *"to support and guide applications in enhancing the local environment, through landscaping, conservation works and upgrading of footpaths or bridleways"*. It is noted that such benefits are welcome, providing uses are consistent with Green Belt policy.
- 5.35 With regard to the adjacent listed Hole Farmhouse, Policy BE16 (Conservation and Enhancement of Historic Environment) states, *"great weight will be given to the preservation of a designated heritage asset and its setting"*. Development proposals potentially affecting a listed building are required to *inter alia*:
- sustain and where possible enhance the significance of the asset and its setting;
  - be supported by a Heritage Statement;
  - provide clear justification for any works that would lead to any harm to the asset.
- 5.36 Policy BE12 (Mitigating the Transport Impacts of Development) highlights that *"developments must not have an unacceptable impact on the transport network in terms of highway safety, capacity and congestion"*. The policy requires the provision of a Transport Assessment or Statement, as appropriate, with applications, in line with the Essex County Council Development Management policies, which are discussed further below.
- 5.37 Policy BE13 (Parking Standards) requires vehicular and cycle parking to be provided in line with the latest Essex Parking Standards, which have been

adopted by Brentwood Borough Council as a Supplementary Planning Document. Parking numbers will need to be justified through reference to the accompanying Transport Assessment or Statement.

- 5.38 Strategic Policy BE09 (Sustainable Means of Travel) promotes sustainable transport, seeking to prioritise cyclist and pedestrian movement and access to public transport within new development and to safeguard existing walking and cycling routes. The policy also highlights the need to have regard to the adopted Essex County Council Development Management Policies or successor documents, to which reference is made below.
- 5.39 Strategic Policy PC10 (Protecting and Enhancing Community Facilities) states that *“new facilities should be easily accessible by public transport, cycling and walking”* and that *“development proposals should make best use of land, including, where possible, the co-location of different forms of community facilities and the rationalisation or sharing of facilities”*.
- 5.40 Policy BE11 (Electric and Low Emission Vehicles) requires that, where possible, all development proposals should maximise the provision of electric vehicle charging/plug in points and/or the space and infrastructure required to provide them in the future.
- 5.41 In terms of the water environment, Policy BE05 (Sustainable Drainage) states *“all developments should incorporate appropriate Sustainable Drainage Systems (SuDS) for the disposal of surface water, in order to avoid any increase in surface water flood risk or adverse impact on water quality”*. The Site is in Flood Zone 1 where Strategic Policy NE09 (Flood Risk) requires that all new development in flood zone 1 which is greater than 1ha in size will be required to prepare a site specific Flood Risk Assessment (FRA).
- 5.42 In relation to the overall scheme design, Strategic Policy BE14 (Creating Successful Places) requires development proposals *“to meet high design standards and deliver safe, inclusive, attractive and accessible places”*, with the policy setting out a detailed list of design criteria. The supporting text to the policy (paragraph 5.123) also highlights that designs should make reference the Essex Design Guide 2018 and other design guidance, such as Secured by Design. The strategic policy is supported by Policy BE15 (Planning for Inclusive Communities) that requires inclusivity to be integral to scheme designs.
- 5.43 Of relevance to the landscape proposals, Policy NE03 (Trees, Woodlands, Hedgerows) seeks the retention of existing trees, woodland and hedgerows on site where possible where they make a positive contribution to landscape, biodiversity and/or amenity.
- 5.44 Strategic Policy BE01 (Carbon Reduction and Renewable Energy) requires all major development *“to achieve at least a 10% reduction in carbon dioxide emissions above the requirements of Part L Building Regulations”* and that all new non-residential development *“achieve a certified ‘Excellent’ rating under the BREEAM New Construction (Non-Domestic Buildings) 2018 scheme, or other equivalent standards”*.
- 5.45 The policy further requires that *“wherever possible, applications for major development will be required to provide a minimum of 10% of the predicted energy needs of the development from renewable energy”*. If this is not possible on site, then the policy allows for this to be provided through ‘allowable solutions contributions’ or ‘off-site provision’.



5.46 The policy also requires that applications for major development “*should be accompanied by a Sustainability Statement outlining their approach to the following issues:*

*a. adaptation to climate change;*

*b. carbon reduction;*

*c. water management;*

*d. site waste management;*

*e. use of materials”.*

5.47 Policy BE02 (Water Efficiency and Management) requires new non-residential development to achieve the BREEAM Excellent rating in category Wat 01 and requires all major development “*to provide more substantial water management measures such as rain/ and grey water harvesting*”. The policy also seeks to ensure there is suitable wastewater infrastructure capacity, requires the inclusion of water saving measures and seeks to protect and improve water quality.

5.48 Policy BE04 (Managing Heat Risk) outlines the necessity for development proposals to consider the potential for internal heat gain/overheating as a result of rising temperatures.

### **Other documents**

5.49 Other material documents which have been considered in the design of the Project include:

#### **Essex Green Infrastructure Strategy 2020**

5.50 The Strategy’s purpose is to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex and to identify opportunities for delivery.

5.51 The role of the planning system in delivering green infrastructure is recognised. All developments are directed to consider a number of guiding principles in the provision of green infrastructure. It is suggested that:

- *“Planning and design of green infrastructure results in a coherent, meaningful and practical network of open green spaces.*
- *Create connectivity to ensure there are good accessible links for all between urban, rural areas and green infrastructure widening the green infrastructure network.*
- *Deliver and enhance multifunctionality to provide multiple benefits (i.e. recreation, flood management), creating synergies, while reducing conflicts and trade-offs.*
- *The benefits of Green Infrastructure can be improved through the recognition of the value of ecosystem services.*
- *Green infrastructure is designed to enhance, create and protect local landscape character and heritage.*

- *Deliver social inclusive processes that are open to all and incorporate the knowledge and needs of diverse parties.*
- *That results in safe and accessible green spaces designed to respond to changing population needs.*
- *Site management plans and funding for any development proposals should incorporate the long-term management and maintenance of green infrastructure and that these arrangements are agreed and secured alongside planning permissions to ensure that assets maintain their functions and benefits". (page 68)*

### **Essex Green Infrastructure Standards –Technical Guidance (undated)**

- 5.52 The Guidance sets out nine Principles and corresponding Standards to ensure the successful development of high quality Green Infrastructure.

### **Essex Design Guide 2018**

- 5.53 The online document provides guidance on a range of relevant design considerations, including parking, landscaping and greenspace and sustainable drainage systems. This document has been taken account of in the design.

### **Essex Development Management Policies –Highways 2011**

- 5.54 The policies, which have been adopted as supplementary guidance by Essex County Council, seek to ensure the appropriate consideration of transport-related issues in new development schemes.

- 5.55 Of particular relevance are:

- Policy DM1: General Policy, which seeks to “*protect the highway network for the safe and efficient movement of people and goods by all modes of travel*”, requiring the design of suitable site accesses and careful consideration of highway safety in all proposals.
- Policy DM4: Other Routes, which requires that “*new access points will be designed and constructed in accordance with the current standards*” and states that improvements will be sought to existing substandard accesses.
- Policy DM7: Application of Design Standards, which requires the use of specific design standards for accesses and internal roadways.
- Policy DM8: Parking Standards, which requires that parking in schemes complies with Essex County Council’s latest parking standards.
- Policy DM9: Accessibility and Transport Sustainability, which seeks to minimise trips by private vehicles and encourage the use of more sustainable modes of transport.
- Policy DM11: Public Rights of Way, which seeks to protect existing Public Rights of Way.
- Policy DM13: Transport Assessments, which requires the provision of a Transport Assessment or Transport Statement with applications, where relevant.

- Policy DM14: Safety Audits, which requires a Stage 1 Road Safety Audit to be provided where the planning application seeks to materially alter the existing highway.
- Policy DM15: Congestion, which seeks to ensure that there will not be any detrimental effect on the existing highway from the scheme.
- Policy DM20: Construction Management, which seeks to prevent detrimental effects on the highway from the construction of the scheme and requires the provision of construction traffic management information as part of planning applications.

### **Public Health England: Improving Access to Greenspace 2020**

- 5.56 This report highlights that local green and blue infrastructure should be considered as “critical assets for maintaining and supporting health and wellbeing in local communities” (p.57), with access to greenspace associated with a range of positive health and social outcomes.

### **Policy summary**

- 5.57 Planning policy necessitates development proposals to accord with the development plan unless material considerations outweigh this presumption.
- 5.58 Proposals for recreational facilities, that prioritise walking and cycling, support social interaction, accessibility for all and healthy lifestyles are supported at national, regional and local policy levels. The delivery of benefits for nature, biodiversity, the green and blue network and climate change also meet the need for development to be sustainable.
- 5.59 The effective use of land to achieve multiple benefits is also promoted by the NPPF, such as habitat creation, access to the countryside, carbon storage and production of materials, while policy at all levels seeks to safeguard and enhance the natural environment, biodiversity and built heritage.
- 5.60 The NPPF and Local Plan policy allow for exceptions in terms of new buildings and other forms of development in Green Belts for the provision of appropriate facilities (in connection with the existing use of land or a change of use) for outdoor sport and recreation and for engineering operations where such buildings or facilities preserve the openness of the Green Belt and do not conflict with the purposes of including land within it.
- 5.61 Further, the NPPF encourages local planning authorities to plan positively to enhance the beneficial use of designated Green Belts including looking for opportunities to *inter alia* provide access, outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity. It also recognises that Community Forests offer valuable opportunities for improving the environment around towns and cities, by upgrading the landscape and providing for recreation and wildlife.



## 6 Supporting reports

- 6.1 In addition to the Design and Access Statement, a number of supporting reports have been prepared and are submitted with the application package. They have advised the design of the Scheme and any mitigation required. The following paragraphs summarise their respective findings.

### Transport Statement & Road Safety Audit

- 6.2 The Transport Statement submitted with the application demonstrates that the site can be satisfactorily accessed by all relevant modes of transport and will have a marginal traffic impact on the local highway network during the traffic peaks.
- 6.3 A new access will be formed connecting the car and coach park to Great Warley Street. The car park will have EV charging points and a parking overflow area. A car park accumulation assessment shows that the peak parking demand for the site would be 100 spaces. The site provides 94 formal and around 100 overspill parking spaces and could therefore easily accommodate the forecast demand.
- 6.4 Once the facility is established in future years, the estimated movements at the proposed vehicular access to the car park would be 35 vehicles arriving and 20 departing in the AM peak hour, with 18 vehicles arriving and 21 departing in the PM peak hour. The peak traffic increase as a result of the development would be less than one vehicle per minute. The Transport Statement concludes that there will be a marginal traffic impact on the local highway network during the traffic peaks.
- 6.5 The proposals will provide additional pedestrian access points on Great Warley Street and would link existing footpaths and a bus stop on Great Warley Street. In addition, a network of access paths with links to surrounding public rights of way comprising a network of routes that include multi-user tracks suitable for walking, bicycle and horse riding and an all abilities access trail suited for mobility impaired visitors, would improve permeability through the site for pedestrians and cyclists.
- 6.6 A Stage One Road Safety Audit (RSA) for the proposed access from Great Warley Street has been undertaken to provide an independent review of the road safety implications of the proposed access arrangements. The highway plans provided as part of this application take into account the findings of the RSA. The Designer's Response has been prepared and accepted by the Road Safety Auditor. This is also included within the submission.

### Sustainability Statement

- 6.7 The Sustainability Statement reports sustainable opportunities from a project delivery and engineering perspective in line with related policy in the Brentwood Local Plan 2016-2033. It outlines a Sustainability Strategy which sets out the approach, objectives and targets for the Project. This includes sustainable energy and carbon reduction measures - more specifically, the expected building performance standards, how the Project will balance solar gain against overheating risk, the approach to minimising energy demand through careful building design, efficient heating solutions and the renewable energy supply.

6.8 The Statement also describes how the Project will adapt to climate change, this applies to both the built and external environments and how they interact. Site waste management, use of materials, biodiversity and ecological improvements, health and wellbeing improvement measures as well as mitigation measures for both air quality and noise are also detailed.

### Equality Impact Assessment

6.9 An Equality Impact Assessment (EqIA) has been conducted to understand the potential impact that the project will have on people. The EqIA process is designed to ensure Forestry England promotes an inclusive environment and meets its obligations under the Equality Act 2010.

6.10 The EqIA considers people who may be impacted by the Project, how any negative impacts could be reduced, and the opportunities for positive benefits for people. It reviews the available demographic information, including census data, and considers any potential impacts on each of the protected characteristic groups, indicating any modifications needed to address the impacts of the project where necessary.

6.11 The Project will help to meet FE's general equality duty, to:

- eliminate discrimination, harassment, victimisation or any other prohibited conduct;
- advance equality of opportunity; and
- foster good relations –by tackling prejudice and promoting understanding.

6.12 The outcome from the assessment is to “*continue the policy*” as no significant negative impacts were identified. Engagement with local communities and users will continue beyond the planning phase of the project to continue to capture feedback and informing plans where possible.

### Health Impact Assessment

6.13 The Health Impact Assessment (HIA) provides a high-level evaluation of the Project against the ten determinants of health including: access to education; access to work and training; access to health and social care services and other social infrastructure; access to open space and nature; accessibility and active travel; housing and home design; access to healthy food; social cohesion and inclusive design; crime reduction and community safety; and environmental sustainability.

6.14 The Project is assessed against each of these determinants and evidence is provided as to whether there is a positive, neutral or negative impact as a result of the Project, including identifying where any mitigation is required. The HIA concludes that the Project has a positive impact on all the determinants of health (excluding housing and home design which is not applicable), and a neutral impact on access to healthy food.

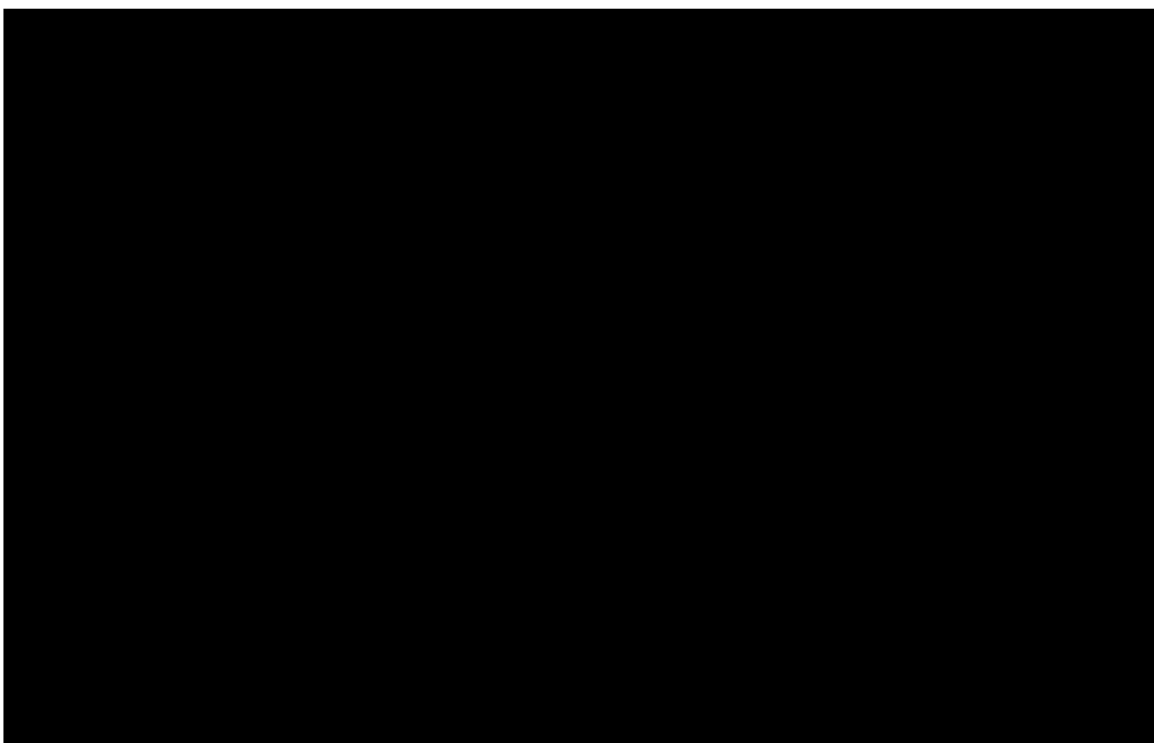
### Ecological Impact Assessment

6.15



6.16

6.17



### **Arboriculture**

6.18 Elements of the Project may have the capacity to generate construction impacts including the formation of new, or replacement, hard surfacing, the installation of gate posts and fencing, and the installation of underground services and utilities.

6.19 Five trees would need to be removed in the vicinity of the existing and proposed building cluster to facilitate demolition, construction, and an increased level of occupancy. This would include three low-quality category C trees and two very low-quality category U trees in poor physiological condition and terminal decline.

6.20 Three trees and an estimated 37m long section of hedge would be removed in the proposed car park to facilitate construction and for reasons of sound arboricultural management. A low-quality category C tree would be removed to facilitate construction of the proposed electrical substation. A 37m long section of very-low quality category U hedge would be removed to facilitate vehicular access from the car park to the B186 Great Warley Street.

6.21 There is no foreseeable requirement for tree pruning. However, if a requirement arose it would be assessed by a competent and suitably experienced arboriculturist in accordance with the appropriate British Standards.

6.22 A specification and construction methodology would be compiled which avoids significant adverse impacts. This would include:

- Routing new hard surfacing, underground services and utilities outside the root protection area (RPA) wherever practicable.
- Retention and reuse of any existing sub-base where practicable or where not, using a minimal dig design.

- Excavation of foundations for gate posts and fencing using hand tools only and relocation of the gate/fence in instances where tree roots over 25mm diameter cannot be severed without detriment to a tree.

### **Desk Based Archaeological Report**

- 6.23 The archaeological desked-based assessment was carried out to inform the potential for, and significance of, heritage assets at Hole Farm and identify any Project constraints.
- 6.24 The report assesses the potential for below ground archaeology within the Site and its immediate environment and considers and potential impacts. Built heritage assets were also reviewed to inform archaeological potential but are otherwise not considered in the assessment. Other methods of assessment included a review of the Essex Historic Environment Record, consultation of online resources, a search for conservation areas, locally listed historic buildings or structures of interest and archaeological priority areas. The potential for and significance of known, and any as yet unknown, archaeological remains to survive within the Site was also assessed. OS maps, historic maps, aerial photography and lidar sources were all referred to in the assessment.
- 6.25 No designated heritage assets were identified within the Site, and there is no evidence of activity on the Site until the Site was used as agricultural land associated with Hole Farm from the medieval period. No pre-historic or Roman features were found. Evidence of Anglo-Saxon activity was identified at Hobbs Hole, south of the site, and there is evidence of medieval exploitation of the landscape. Within the Site a range of historic field boundaries, routeways, lynchets and ponds were identified from the site walkover and aerial and LiDAR survey. There are also numerous historic trees on site, but the landscape has experienced 20<sup>th</sup> century boundary loss.
- 6.26 Hole Farm farmhouse is a Grade II listed property that sits outside the application site boundary. There are two non-designated heritage assets within the Site. These comprise the post-medieval farmstead of Hole Farm and a bomb crater at Tooks Farm.
- 6.27 The report concludes that the Grade II listed building at Hole Farm comprises the most sensitive designated heritage asset within the environs of the Site and must be considered in the development. Additional investigations to further assess the need to mitigate any impact of the development proposals on the historic environment may be needed in the areas proposed for development where there is the potential to impact below ground remains.
- 6.28 In this regard, as part of any initial assessment of the site, a programme of geophysical survey and trial trenching would potentially be required in advance of development.

### **Heritage Statement and Impact Assessment**

- 6.29 The principal aim of the Heritage Statement is to assess the impact of the creation of a community woodland and the demolition of some of the buildings at Hole Farm on the Grade II listed farmhouse and its setting.
- 6.30 The site was visited on 14th December 2022 during which the wider setting and the Conservation Area were assessed as well as the site of Hole Farm. A photographic survey was undertaken at Hole Farm and at the nearby site of the

Grade I listed Church of St Mary the Virgin. The assessment has been prepared in accordance with national guidance and advice. Essex Record Office, Census records, Victoria County History, and various online resources were consulted for information on the site.

- 6.31 The document concludes that the project is thoughtfully designed and considerate of any issues that may impact the heritage of the site and its setting. Indeed, it will enhance awareness and community engagement with features of historic interest at both Hole Farm and Great Warley. It is considered that the creation of a community woodland will have an overall positive impact on Hole Farm, its setting, and Great Warley Conservation Area.

### **Interpretation Strategy**

- 6.32 The interpretation strategy identifies the existing and proposed new features of the site which will be of most importance and interest to visitors and sets out the proposed communicative methods for facilitating physical and intellectual access to these. Methods of interpretation include proposals for signage, wayfinding, trails, view, and activities. The four key themes of interpretation will be: environment, recreation, heritage, and wellbeing.

- 6.33 The objectives of the Interpretation Strategy are:

- To enhance the landscape and heritage setting, enabling improved access to the widest range of people.
- To deliver and increase awareness of the value to society of access to green space.
- To increase awareness of the positive impact of the new and existing habitats on the climate and biodiversity.
- To promote and signpost connectivity to the wider network of green spaces.
- To create a sense of place and convey cultural authenticity by responding to the heritage and knowledge of the local area.
- To support the financial sustainability of the site.

- 6.34 To achieve these objectives, the interpretation strategy sets out plans for interpretative signage, trails, and activities across the site. It is proposed wayfinding and information signage is installed to aid navigation and convey meaningful information about the site and surrounding area. Within the interpretation panels there will be reference to the historic landscape including the neighbouring Grade I listed church, alongside explanations of the new habitats being created on site.

- 6.35 A range of activities are proposed for Hole Farm, from facilitating self-led exploration, to guided walks, physical activity sessions such as yoga, and more. All activities will be linked to the four key themes of the recreation, environment, heritage/archaeology, and wellbeing. Activities will be designed with local community groups and will target a wide range of audiences, from adventurous young families, to those seeking relaxed days out.

- 6.36 Across Hole Farm there will be walking and running routes of varied length to enhance enjoyment and appreciation of the landscape. Trails will be signposted by information panels, maps, and waymarkers. An all-abilities access track has

been designed to form a 1km loop in the south-eastern section of the site, linking to the car park and visitor facilities. On this loop a play trail and sensory sculpture trail will be created.

### **Flood Risk**

- 6.37 The Flood Risk Assessment (FRA) has considered all potential sources of flood risk relating to the site and proposed development. The site lies wholly within Flood Zone 1 where the risk of fluvial flooding has been assessed as negligible. The surface water flood risk for the design flood (1 in 100-year event) has been assessed and the risk is relatively minor, however the inclusion of ponds across the site would further mitigate the potential for surface water flooding.
- 6.38 There is some potential for groundwater flooding across the western part of the site which may also extend further east. Site investigation would however be undertaken prior to construction of above ground facilities to provide further information on groundwater levels. Mitigation in the event of potential groundwater flooding would include lining ponds, basins and swales to ensure that system storage capacity is not compromised by groundwater intrusion.
- 6.39 There are no water mains or sewers in the vicinity of the site and in this regard the risk of flooding as a result of any of these assets becoming blocked, overwhelmed, damaged or burst is considered to be negligible. The site is not in an area at risk from reservoir flooding.
- 6.40 Flood mitigation measures embedded into the drainage design include climate change allowances, ensuring that the level of impermeable surfaces are high enough to allow drainage under gravity, a 300mm freeboard on the detention basins which is able to accommodate the upper end peak rainfall intensity allowance for the design flood (1 in 100 year event), and incorporating SuDS features wherever possible and practicable. Watercourse flood mitigation measures include ensuring that watercourse connectivity is retained in the site drainage network, and the use of culverts would only be included where unavoidable. Subject to the results of additional groundwater information, if mitigation for groundwater inundation is required then ponds, basins and swales which form part of the drainage system would be lined to ensure that system storage is not compromised by groundwater intrusion.
- 6.41 The FRA has identified two residual flood risks following mitigation ie. in the event of a severe storm event or blockage. To further mitigate the residual risk, a planned, risk-based maintenance programme would be established. Planning maintenance interventions would ensure efficient operation of the drainage network.
- 6.42 The second residual flood risk identified is the overtopping of the retention pond in event of a severe storm, which would be mitigated by establishing overland flow paths to manage any overtopped flows, where appropriate, and locating the pond away from sensitive receptors to avoid potential risks resulting from residual impacts.

### **Sustainable Drainage System**

- 6.43 Similar to the existing drainage arrangement which drains the run-off through a combination of ditches and basins, the Project would be drained through a combination of swales, pipes and detention basins, which would help attenuate the outflow to allowable rates and provide mitigation for any pollution from the



site along with tying into the surrounding landscaping and building proposal to provide biodiversity benefits. All the drainage assets have been designed in accordance with guidance laid out in Sustainable Drainage Systems Design Guide (Essex County Council, February 2020), The SuDS Manual (CIRIA C753).

- 6.44 The scheme extent has been sub-divided into three catchment areas, based on ground topography and proximity to outlets, the drainage network for which discharges to existing ditches and tertiary or secondary rivers at greenfield discharge rates corresponding to a one year return period. Discharge through infiltration could not be proposed due to existing ground conditions shown by preliminary soil investigation. Rainwater butts are proposed to store some rainwater for re-use in the tree nursery and modular cafe. In the event of higher than design return period rainfall, the flooded water would follow the natural ground slope to flow towards the existing watercourse at the southwest of the site.
- 6.45 Preliminary water quality assessments, using the Simple Index Approach, have been undertaken which show that the SuDS proposal is sufficient to mitigate the pollution hazard posed by the development and hence, the water quality of the receiving watercourse would not be worsened.
- 6.46 The on-site drainage would be managed by FE who would be responsible for maintaining any on-site services including drainage in accordance with Table 7.1 of The SuDS Manual (CIRIA C753) as modified to suit the Project.
- 6.47 The current SuDS proposal is preliminary, based on available existing site information and the current design and will be developed through the detailed design stage in accordance with agreed standards.

### Security Plan

- 6.48 The Security Plan outlines the proposals for security and access points to reduce any chances of anti-social behaviour on site. This document has been created in correspondence with Essex Police who will continue to be consulted with as the site develops.
- 6.49 The document identifies two key zones: the central building cluster and the new car park area. Within these two areas the operational hours and usage is explained, and the potential security risks are outlined with suggested mitigation strategies.
- 6.50 The central building cluster proposal comprises of a site office, community room, community tree nursery and an operations barn and yard space. The measures needed to keep these facilities secure include the provision of lockable facilities and security lighting.
- 6.51 Within the car park area off Great Warley Street, security cameras and lighting are proposed, with secure casing for the car parking machines and EV charging points.
- 6.52 There would be nine different access points to site, including both vehicle and non-vehicle access. Vehicle access points would be secured with lockable gates. Non-vehicle access points would have relevant infrastructure installed, such as kissing gates and horse step-overs to allow the movement of people through the site without allowing access to unwanted vehicles.

- 6.53 The Site Security Plan document details the type of infrastructure required at each of these points. All access codes to gates will be provided to the emergency services so they can easily access the Site as required.



## 7 Planning assessment

### Introduction

- 7.1 The Hole Farm Community Woodland proposal aspires to become an inspiring place for the local community to enjoy and explore. The scheme seeks to transform previously biodiversity poor agricultural land into a biodiversity rich outdoor space providing recreational and educational opportunities to assist with improving people's health and wellbeing. The buildings proposed have been designed to be sympathetic to the local landscape and heritage features and with sustainability in mind.

### The Need for the Project

- 7.2 The Project meets a range of needs in contributing towards local and national government objectives regarding habitat creation, climate mitigation and improving public health and wellbeing through the provision of new green infrastructure in line with aspirations of the Thames Chase Plan.
- 7.3 The Project also meets the need of providing suitable mitigation and compensation for the LTC scheme; however, it is highlighted that the Project will proceed whether or not the Development Consent Order for the LTC scheme is granted.

### Policy Compliance

#### Green Belt

- 7.4 The Project is located within the Green Belt. Strategic Policy MG02 seeks to protect the Green Belt from inappropriate development "*so that it continues to maintain its openness and serve its key functions*". The policy highlights that proposals will be assessed in accordance with the provisions of national planning policy, as set out in the NPPF.
- 7.5 Paragraph 149 of the NPPF sets out exceptions to the general rule that the construction of new buildings is inappropriate in the Green Belt. The proposed buildings that form part of the project, ie. the community building, FE barn, café, open sided shelter and substation, would provisionally fall within the exception provided in paragraph 149. b) in that they comprise the provision of appropriate facilities (in connection with the existing use of land or a change of use) for outdoor sport and recreation.
- 7.6 Similarly, paragraph 150 of the NPPF highlights other forms of development that may also not be inappropriate in the Green Belt. With regards to the Project these include 150. B) engineering operations –the construction of six new ponds and also 150. E) a material change in the use of land (such as changes of use for outdoor sport of recreation).
- 7.7 In order to meet these policy criterion however, paragraphs 149 and 150 stipulate that it must be shown that such buildings or facilities preserve the openness of the Green Belt and do not conflict with the purposes of including land within it.
- 7.8 Paragraph 137 of the NPPF highlights that "*the fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the*

*essential characteristics of Green Belts are their openness and their permanence*". Paragraph 138 sets out the five purposes of the Green Belt:

- a) to check the unrestricted sprawl of large built-up areas;*
- b) to prevent neighbouring towns merging into one another;*
- c) to assist in safeguarding the countryside from encroachment;*
- d) to preserve the setting and special character of historic towns; and*
- e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land*".

- 7.9 The Project is in keeping with the fundamental aim and purposes of the Green Belt in ensuring that the land will be permanently open. The two largest new buildings proposed –the FE barn and the community building –are broadly on the footprint of existing buildings and hardstanding on the site and have a smaller footprint than the two buildings to be demolished as part of the scheme. The other structures proposed on the site are small, sympathetically designed to blend into the landscape and ancillary to the proposed outdoor recreational use; they are vital in providing funding for the maintenance of the site going forward, enabling the site to continue in an open outdoor use. The structures on the site are well screened with appropriate planting and will primarily be screened from the outside by the new woodland.
- 7.10 Cognisance should also be given to paragraphs 145. and 146. of the NPPF which are particularly relevant to the proposals. Paragraph 145. encourages local planning authorities to plan positively to enhance the beneficial use of designated Green Belts including looking for opportunities to *inter alia* provide access, outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity.
- 7.11 The proposals would provide access to almost 100ha of land which was not previously open to the public, other than a single PRoW passing through it. The Community Woodland would provide opportunities for various types of physical activity and play including walking and dog walking, cycling, horse riding, children's play and learning, community learning and volunteering, multi-user pathways and sensory areas. The landscape, visual amenity and biodiversity would be enhanced, and managed in perpetuity, by the associated extensive woodland/hedgerow planting, rides and glades species rich grassland and pond creation. The Project would provide a positive outcome for wildlife and biodiversity.
- 7.12 NPPF paragraph 146. also recognises that Community Forests offer valuable opportunities for improving the environment around towns and cities, by upgrading the landscape and providing for recreation and wildlife. It states, "*an approved Community Forest Plan may be a material consideration in preparing development plans and in deciding planning applications*". The proposed Community Woodland would be managed by FE and form part of the Thames Chase Community Forest which extends over land west of the M25 (Folkes Lane Woodland) west of the application site and also extends east of the site at Warley Place and Warley Gap and the country parks beyond. The proposed woodland would bridge the gap between these two areas and has been designed in alignment with the Thames Chase Plan (2014).

- 7.13 Strategic Policy MG02 (Green Belt) states that *“the Council will seek to enhance the beneficial use of the Green Belt to provide or improve access to it; to provide or enhance opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity and; to improve damaged and derelict land”*. The Project will provide significant benefits in this regard.

### Transport and highways

- 7.14 The site can be accessed through the public highway and it links well with existing open spaces and the PRoW network, which is encouraged through national planning policy (NPPF Paragraph 100). Local and national planning policy, including BCC Policy BE09, seeks to prioritise travel by cycling, walking and public transport where possible. The network of routes within the site has been designed to encourage travel to the site other than by private vehicle. The route network within the site links up with existing PRoW around the site and likely access points for pedestrians, cyclists and horse-riders. Cycle parking is provided on site. One pedestrian access is also proposed adjacent to the bus stop on Great Warley Road, which provides public transport access to the site, albeit with limited frequency due to the site’s rural location.
- 7.15 A Transport Statement and Road Safety Audit accompanies this application, in line with local planning policy requirements, particularly BCC Policy BE12, which seeks to ensure that developments do not have *“an unacceptable impact on the transport network in terms of highway safety, capacity and congestion”*. The highway designs that form part of this application, and in particular the proposed new vehicular access from the public highway, have been subject to a Stage 1 Road Safety Audit and take into account its recommendations. The Transport Statement finds that most vehicular movements associated with the Community Woodland will occur at off-peak times; it finds there to be a marginal traffic impact on the local highway network during the traffic peaks.
- 7.16 A 94-space car park, with the provision for further grassed overflow parking for busy periods such as bank holidays, is included as part of the Project, with design and space provision in line with Essex Parking Standards and the recommendations of both the Transport Statement (in line with BCC Policy BE13), assessments of visitor parking needs from other FE sites and the recommendation of Essex Highways, details of which are set out in preceding sections of this Planning Statement. Provision of sufficient parking on site will avoid visitors seeking to park on surrounding roads.
- 7.17 To support the transition to electric vehicles, the car park includes 14 EV charging points and associated infrastructure (car parking spaces and substation), in line with local planning policy aspirations in BCC Policy BE11.
- 7.18 Access proposals are set out in further detail in the Design and Access Statement that accompanies this application.

### Heritage

- 7.19 This application is for Listed Building Consent, in addition to planning permission, due to the potential impacts of the scheme on the setting of the Grade II listed Hole Farmhouse that lies on land adjacent to the Application Site.
- 7.20 A Desk-Based Archaeological Report and a Heritage Statement and Impact Assessment have been produced to evaluate potential effects on heritage

assets as a result of the development of the Project, in line with local and national policy requirements. The Grade II listed Hole Farmhouse is noted to be the most significant heritage asset on the site.

- 7.21 The Heritage Statement evaluates the potential effect of the Project on heritage assets –in particular the Grade II listed Hole Farmhouse, the Great Warley Conservation Area and the nearby Grade I listed Church of St Mary the Virgin and listed Lye gate as its entrance. It finds that: the changes to the setting as a result of the Project will have a low to neutral impact on the site of Hole Farm; the removal and replacing of the modern farm buildings will have an overall positive impact on the listed farmhouse and the site; the changes to the site will have a positive impact on the Great Warley Conservation Area; and the changes to the setting of the listed church and the listed Lye gate will have a positive impact.
- 7.22 The Heritage Statement concludes that *“the project is thoughtfully designed and considerate of any issues that may impact the heritage of the site and its setting. Indeed, it will enhance awareness and community engagement with features of historic interest at both Hole Farm and Great Warley. It is considered that the creation of a community woodland will have an overall positive impact on Hole Farm, its setting, and Great Warley Conservation Area”*.
- 7.23 Heritage is one of the four key themes promoted through FE’s Interpretation Strategy. Signage and interpretation boards are proposed that will highlight historic landscape features and key local heritage assets, such as the Grade I listed Church of St Mary the Virgin. Heritage-related interpretation boards will be located at relevant points throughout the site and in and around the proposed community room. Heritage-related trails and activities, guided walks and events are also proposed as part of the Project.
- 7.24 Overall, in line with BCC Policy BE16, the Project is likely to have a positive impact on the setting of the Grade II listed Hole Farmhouse and other local heritage assets, and local heritage and the historic landscape actively promoted as part of the Project.

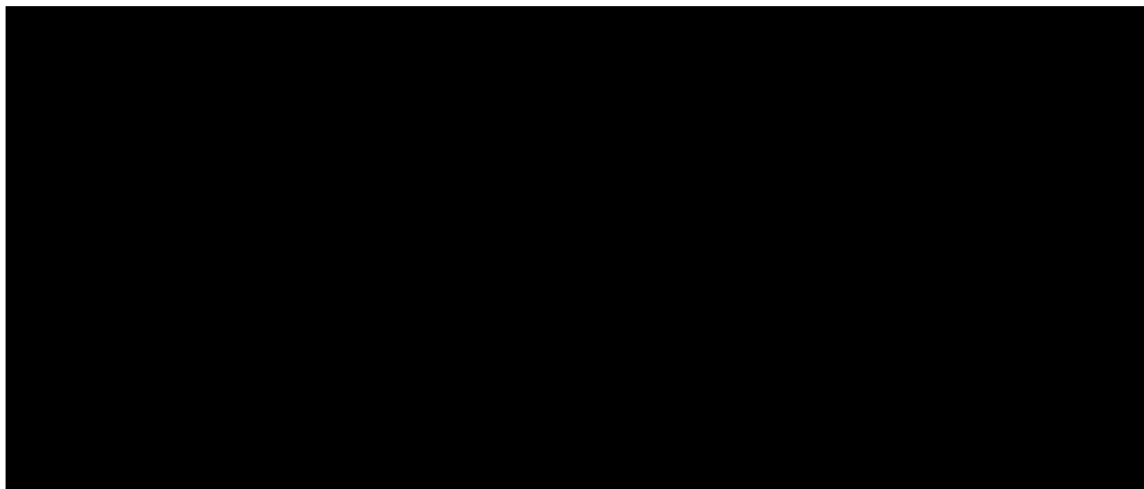
### **Blue and green infrastructure**

- 7.25 Although the Project’s woodland and rides and glades species rich grassland creation is outside the scope of this Planning application, the Project will contribute to and connect with Brentwood’s Green and Blue infrastructure network (GBI), in line with BCC Policy NE02.
- 7.26 In accordance with BCC Policy NE03, the Project seeks to retain existing trees, woodland and hedgerows on site, recognising their positive contribution to landscape, biodiversity and amenity; the only exception to this is a small section of hedgerow removal required to form the new access to the car park from the public highway.

### **Biodiversity**

- 7.27 Strategic Policy NE01 seeks to protect and enhance the quality of the natural environment, including the designated Local Wildlife Site of Parker’s Wood that is located within the site boundary. The policy states that, where possible, measures should be incorporated *“to secure a net gain in biodiversity, protect and enhance the network of habitats, species and sites (both statutory and non-statutory) and avoid negative impacts on biodiversity”*.

7.28



7.29 The Interpretation Strategy highlights that wildlife and woodland management will be promoted to visitors, including through interpretation boards, walks and events.

7.30 Overall the Project will generate an increase in habitat. The mitigation strategy for the species on site demonstrates that the Project will provide a positive outcome for wildlife and biodiversity at the Hole Farm site.

### **Sustainable design and construction**

7.31 Sustainability has been at the heart of the project design. A Sustainability Statement accompanies this application in line with the requirements of BCC Strategic Policy BE01 in relation to major development. In accordance with the policy requirements, the Sustainability Statement outlines the approach taken with regard to: adaptation to climate change; carbon reduction; water management; site waste management; and use of materials. This is further supported with design details set out in the Design and Access Statement.

7.32 BCC Policy BE01 also requires that all new non-residential development *“achieve a certified ‘Excellent’ rating under the BREEAM New Construction (Non-Domestic Buildings) 2018 scheme, or other equivalent standards”* utilising the most recent version of BREEAM. The only building suitable for assessment under the BREEAM methodology is the Community Buildings, which meets the criteria for a Simple Building assessment; the FE Barn is mainly for storage and so not suitable for assessment and Modular Café is too small in scale to be capable of meaningful assessment. The most recent version of BREEAM New Construction (Non-Domestic Buildings) is being used to assess the Community Building –Version 6. A BREEAM rating of ‘Excellent’ has been targeted for the building; further details are provided in the Design and Access Statement that accompanies this application.

7.33 With regard to sustainable water management, BCC Policy BE02 requires new non-residential development to achieve the BREEAM Excellent rating in category Wat 01 and requires all major development *“to provide more substantial water management measures such as rain/ and grey water harvesting”*. The policy also seeks to ensure there is suitable wastewater infrastructure capacity, requires the inclusion of water saving measures and seeks to protect and improve water quality. The Design and Access Statement that accompanies this application states that the BREEAM Excellent rating is being sought in category Wat 01 and highlights the use of grey water and rainwater recycling within the Project to reduce mains water use. Waste water is



to be treated in new package treatment tanks on site and then discharged into the drainage swales, rather than the buildings being connected to the foul sewer system. Both the foul water system and surface water drainage system have been designed to avoid negative impacts on water quality and are further detailed in the Design and Access Statement.

- 7.34 In terms of the wider water environment, a Flood Risk Assessment and Drainage Strategy have been provided for the Project, in line with BCC Policies NE09 and BE05. The site is in Flood Zone 1 for fluvial flooding. The Sustainable Drainage Systems (SuDS) proposed for the disposal of surface water, which consist of swales and detention basins, seek to avoid any increase in surface water flood risk, taking into account the effects of climate change, and to prevent adverse impact on water quality.
- 7.35 With carbon dioxide being a major contributor to climate change, carbon reduction is sought through BCC Strategic Policy BE01; this requires all major development “*to achieve at least a 10% reduction in carbon dioxide emissions above the requirements of Part L Building Regulations*”. This is being sought through the inclusion of a range of energy efficiency measures including a passive heating and cooling strategy to minimise energy requirements for heating and cooling and the utilisation of heat pumps to meet residual heating and hot water requirements. These are further detailed in the Design and Access Statement.
- 7.36 The project is currently targeting a BREEAM score of 73.86%, ‘Excellent’, with 8.98% identified as potential additional credits which would increase the targeted score to 82.84%. The targeted credits have been agreed as achievable by the design team and there is a commitment to ensure an ‘Excellent’ rating will be achieved.
- 7.37 The Design and Access Statement also sets out how the buildings have been designed to manage the potential for internal heat gain and overheating from rising temperatures associated with climate change, in line with BCC Policy BE04; measures include building orientation and passive and mechanical ventilation.
- 7.38 BCC Policy BE01 also states that “*wherever possible, applications for major development will be required to provide a minimum of 10% of the predicted energy needs of the development from renewable energy*”. The Design and Access Statement highlights the inclusion of solar photovoltaic panels on the roofs of the proposed Community Building and Forestry Barn, which are expected to generate approximately 36,750 kWh/m<sup>2</sup>/year. This will provide power to the electrical requirements of the building, with any excess stored in batteries on site or feed back into the grid.

### **High-quality, inclusive, attractive and sustainable design**

- 7.39 Designs that are high quality, inclusive, attractive and sustainable are promoted by both national and local planning policy. Issues such as accessibility, security, health and wellbeing, visual appearance and sustainability have been integral considerations in the development of the Project.
- 7.40 In relation to the overall scheme design, Strategic Policy BE14 (Creating Successful Places) requires development proposals “*to meet high design standards and deliver safe, inclusive, attractive and accessible places*”, with the policy setting out a detailed list of design criteria. The supporting text to the

policy (paragraph 5.123) also highlights that designs should make reference to the Essex Design Guide 2018 and other design guidance, such as Secured by Design. Chapter 12 of the NPPF sets out policy advice in relation to function, visual attractiveness, layout and landscaping. BCC Strategic Policy BE14 is supported by Policy BE15 (Planning for Inclusive Communities) and national planning policy that requires inclusivity to be integral to scheme designs.

- 7.41 With regard to health and wellbeing for all, the woodland, parking and buildings have been designed for inclusive access, with key inclusive features identified in the Design and Access Statement. A range of trails are available on site to encourage healthy outdoor activities, including walking, cycling and horse riding, including an all-abilities access track with a play trail and sensory trail; these are detailed in the Design and Access Statement and FE's Interpretation Strategy, which has recreation and wellbeing as key themes.
- 7.42 The positive impacts of the Project on health and wellbeing are highlighted throughout the Health Impact Assessment (HIA), which is provided in line with BCC Policy MG04. The HIA assesses the Project against ten determinants of health, including social cohesion and inclusive design, access to education and access to open space and nature; the scheme scores positively against the relevant determinants. An Equality Impact Assessment was also undertaken to ensure inclusivity.
- 7.43 To ensure site visitors feel safe on site and that the buildings and wider site remain secure, FE have produced a Site Security Plan, developed in conjunction with Essex Police. Measures include the provision of access gates, lighting, CCTV and secure storage. Public safety and security measures are supported by BCC Policy BE14 and the NPPF, which recognises the importance of designing schemes to minimise opportunities for crime, which improves both actual and perceived public safety.

### Stakeholder Engagement

- 7.44 The involvement of stakeholders in project design is encouraged through national and local planning policy. The Design and Access Statement and Consultation Report accompanying this application highlight the evolution of the Project design and the input into it from a wide range of stakeholders to ensure the production of a high quality scheme that meets both FE's practical operational requirements and local design aspirations. The process has resulted in an aesthetically appealing design that sits well in the rural landscape. The views of the community and LPA *et al* that emerged from the early and ongoing consultation process have helped shape the site and building layout and design. In this regard, NPPF paragraph 132 states "*applications that can demonstrate early, proactive and effective engagement with the community should be looked on more favourably than those that cannot*".

### Beneficial site use

- 7.45 Although the woodland, and rides and glades species rich grassland, that form the Hole Farm Community Woodland are outside the scope of this planning application, the ancillary buildings and infrastructure here proposed enable the site to be utilised by the wider public as an outdoor recreational space, with associated health and wellbeing benefits, and provide ongoing funding for FE's management of the site. The Project will help to meet the aims and objectives of the Thames Chase Plan, which are supported through BCC Policy NE04 regarding the Thames Chase Community Forest.

- 7.46 The NPPF supports positive planning for sport and recreation, highlighting that *“access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change”* (paragraph 98.).

### **Benefits and Opportunities**

- 7.47 In summary, the benefits and opportunities afforded by the Project include:

- Community health and wellbeing benefits associated with an outdoor recreational use and exposure to nature, which are promoted through national and local policy.
- The high-quality, inclusive, attractive and sustainable design.
- The provision of improved walking, cycling and horse-riding paths and 14 new electric vehicle charging points.
- Significant habitat creation and opportunities for the public to learn about wildlife and woodland management.
- Positive impact on the setting of local heritage assets, including the Grade II listed Hole Farmhouse, and the promotion of local heritage to visitors.

### **Potential Impact and Mitigation**

- Traffic generation, with marginal traffic impact on the local highway network during the traffic peaks.
- Temporary construction-related impacts, minimised through the use of best practice construction methodologies.
- Visual impact of new structures –mitigated by the FE planting outside of the scope of this planning application.

### **The Planning Balance and Conclusion**

- 7.48 Although the woodland, and rides and glades species rich grassland, on the site are consented through separate non-planning application processes, this hybrid planning application seeks planning permission for key elements of the Project that are vital to supporting the outdoor recreational use of the site and to FE’s ability to generate an income to support the ongoing management of the Project. Full planning permission is sought for the majority of planning elements of the Project, including the provision of a visitor car park and the demolition of two existing farm buildings that are in poor structural condition and their replacement with a Community Building and FE Barn; outline permission is sought for the Modular Café, Open-sided Visitor Shelter and the substation as it not possible to finalise the detailed designs for these elements at this point.
- 7.49 The Hole Farm Community Woodland has significant social and environmental benefits. The Project accords with relevant planning policy and supports many of the community and environmental aspirations set out in local and national policy. It is therefore requested that the Project be granted full and outline planning permission, as relevant and set out above, in line with the presumption in favour of sustainable development set out in paragraph 11 of the NPPF.



- 7.50 It is also requested that Listed Building Consent be granted in recognition of the positive impact of the Project on the setting of the Grade II listed Hole Farmhouse and other local heritage assets, as set out in the Heritage Statement, Design and Access Statement and this Planning Statement.

## 5 Issue Specific Hearing 7 (ISH7) – Draft Development Consent Order

### Issue Specific Hearing 7 (ISH7) on draft Development Consent Order

11<sup>th</sup> September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council's Oral Case

Note: these Post Hearing Submissions include a written summary of the Oral Case presented by Thurrock Council at ISH7. They also include the Council's submissions on all relevant Agenda Items, not all of which were rehearsed orally at the ISH due to the need to keep oral presentations succinct and due to the changes to the order of the agenda on the day.

The structure of the submissions follows the order of the agenda items, but within each agenda item, the submissions begin by identifying oral submissions made at ISH7 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant are made by the Council at ISH7 the Council has highlighted these as '**Requests**'.

These submissions also include a response to the relevant Action Points arising from ISH6 [\[EV-046e\]](#). ISH6 was attended by Douglas Edwards KC on behalf of Thurrock Council. Also, in attendance at ISH6 on behalf of the Council were Ben Standing and Chris Stratford, with Steve Plumb attending virtually.

#### Agenda item 3a – changes proposed to the dDCO since ISH 2

Agenda Item		Thurrock Council's Response
Item	Article	Subject
1	Schedule 2, Requirements 2 and 4	<p><b><u>Time Limits</u></b></p> <p>As explored in its previous submissions, the Council is concerned about the concept of preliminary works. They have been included so as to satisfy the requirement to 'begin' rather than 'commence' the DCO within 5 years (requirement 2). The effect of this is to preserve the DCO with minimal works. Indeed, as set out in the hearing by Gravesham BC's KC, preliminary works can be so minor as to include the erection of temporary means of enclosure or vegetation clearance.</p> <p>This provides greater uncertainty, as if consented, the longer it takes the NH to develop the scheme, the greater the time the uncertainty created by the Order will impact residents.</p> <p>As referred to during the hearing, the Tidal Lagoon (Swansea Bay) plc v Secretary of State for Business, Energy and Industrial Strategy and others [2022] EWCA Civ 1579 case (the 'Swansea Bay Case') considers the difference between obligations relating to when a development 'begins' or 'commences'. As clearly explored and held in that case, and equally applicable in this situation, the underlying purpose of the time limits provided for in the Planning Act 2008 (Sections 154 and 155) is to prevent a DCO surviving for a lengthy period of time without being progressed. The Council's concern in relation to the drafting in the DCO at present is that by</p>

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		<p>seeking to satisfy the requirement to 'begin' works within five years, the applicant could preserve the DCO with very minor preliminary works being undertaken which is contrary to the purpose and intention being the primary legislation. This will have a long-term impact on planning matter for the Council, as well as creating uncertainty for residents within the local area.</p> <p>Furthermore, and again as held in the Swansea Bay Case, there is need to consider the powers and timescales for the compulsory acquisition of land alongside the period in which the DCO can be preserved. The Council's view is that the time periods must be consistent and aligned, and this is reflected in the Swansea Bay Case, where (at paragraph 41) it is stated '<i>It would have been illogical and dysfunctional to create inconsistent arrangements for the period of operation of the DCO on the one hand, and the draconian power to acquire land compulsorily on the other.</i>' Such an illogical and dysfunctional outcome would be seen here if the drafting remains as it is at present and the Applicant is able to satisfy the requirement to 'begin' works by undertaking very minor preliminary works only.</p> <p>The current arrangement in the DCO, which would allow the DCO power to ensure for an indefinite period without being materially progressed is not acceptable, essentially for the reasons indicated by the Court of Appeal, relating to the uncertainty which would thereby be allowed to persist.</p> <p><b><u>Construction and handover environmental management plans</u></b></p> <p>In addition, we have not been consulted on this document (ES Appendix 2.2, Annex C). In our opinion the proposed preliminary works could have quite significant environmental effects (they involve vegetation clearing). If they were part of the EMP (Second Iteration) we would have to be consulted, and so we consider the protects offered by this approach to be less.</p> <p>These comments were raised by the Council in both its LIR (<a href="#">REP1-281</a>) in Sections 15.1.4 and 15.6.54 and in its Deadline 3 submission (<a href="#">REP1-211</a>) within the Executive Summary (paragraph 42) and Section 13.</p>
2	Schedule 2 Requirement 10	<p><b><u>Traffic Management</u></b></p> <p>During the hearing the Council listened to the arguments in relation to Requirement 10.</p> <p>Requirement 10(2) states that '<i>no part of the authorised development is to commence until a traffic management plan for the construction of that part which is substantially in accordance with the outline traffic management plan for construction has been submitted...</i>'</p> <p>Whilst the applicant maintained that the provision is required to give sufficient flexibility, others set out that 'substantially in accordance' is ambiguous.</p>

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		<p>It is the Council's position that a significant amount of flexibility has already been built into the DCO. It is reasonable to expect the traffic management plan to be in accordance with the outline traffic management plan for construction. By using the word 'substantially' significant deviations from the approved outline plan could be made, undermining the examination process.</p> <p>The Council is requesting that the word 'substantially' be removed.</p> <p>The Council's position is supported by the <a href="#">ExA's recommendations</a> in the Examination of the M25 J28 project. Paragraphs 9.2.33 and 9.3.23 state:</p> <p><i>'9.2.22. However, as also discussed below, the ExA does not agree with the Applicant that such wording is appropriate. While the detailed design stage may well result in some refinement of the mitigation, the ExA is of the firm view that the CEMP, secured by Requirement 4 of the Recommended DCO must not be allowed to depart from the outline CEMP other than in terms of minor changes. The ExA considers that allowing the CEMP to only be 'substantially' in accordance potentially allows for a significant departure from it, as 'substantially' is not defined in the final Draft DCO [REP9-012]. Furthermore, allowing the measures in the CEMP to 'reflect' with the REAC also fails to adequately tie the Applicant to the commitments.</i></p> <p><i>9.3.23. As set out in Tables 9.2 and 9.3 below, the ExA is recommending that all of these imprecise and ambiguous terms are removed. We have recommended that outline documents must be "in accordance with" its outline counterpart. The Applicant has not evidenced that such wording would cause it difficulty'</i></p>

**Agenda item 3b – changes not yet submitted but under consideration**

Agenda Item		Thurrock Council's Response
Item	Article	Subject
1.	Schedule 14 and Article 10	<p><b><u>Anticipated protective provisions, defect period and construction and maintenance of new, altered or diverted streets and other structures</u></b></p> <p>Article 10 of the DCO sets out the responsibility for streets and other structures created as part for LTC. However, whilst Article 10(2) provides for highways to be completed to the reasonable satisfaction of the relevant local highways authority before transfer, no provisions have been made for a defect correct period.</p> <p>The need for a defect period has been a request of the Council since first sight of the original dDCO in 2020.</p>

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Agenda Item		Thurrock Council's Response
		<p>The Council therefore very much welcomes the applicant's proposal, as confirmed in the Hearing, to include in the DCO protective provisions for the benefit of local highway authorities, which will include a requirement for the applicant to remedy defects in a 12-month period.</p> <p>The Council looks forward to having the opportunity to review the proposed drafting and reserves its right to raise further comments on this once the applicant has shared an updated version of the DCO with parties.</p> <p>For completeness, the Council wishes to note that there has been ongoing engagement with the applicant on the Side Agreement relating to the Detailed Local Operating Agreement (DLOA) and technical comments have been provided to the applicant in relation to this. As raised in the Hearing, the LB Havering previously submitted draft protective provisions at D2 (<a href="#">REP2-087</a>) in July 2023, which had been considered by all five Local Highway Authorities, but not commented on by the applicant.</p> <p>The Highway Authorities, including the Council, all agree in principle to both (i) the need for protective provisions; and, (ii) the need for provisions that are stronger than those currently part of the respective draft Side Agreements.</p> <p>As set out in its Deadline 3 submission (<a href="#">REP3-211</a>), the Council remains keen to strengthen the provision and ensure that the provisions of the currently negotiated DLOA are enshrined legally within either a strengthened Side Agreement or Protective Provisions. The Council remains willing to engage on this matter and hopes that these considerations and discussions are reflected in the updated Protective Provisions that the applicant will be sharing for review and comment. To echo comments made by the LB Havering, receiving the draft Protective Provisions as soon as possible would be appreciated.</p> <p>The Council will review the drafting proposed by the applicant as soon as it is received.</p>

**Agenda item 3c – dDCO matters arising from other ISH**

Agenda Item		Thurrock Council's Response
Item	Article	Subject
1.	Article 10 (3)	<p><b><u>Maintenance of green bridges</u></b></p> <p>As set out above, Article 10 sets out the responsibility for streets and other structures created as part of LTC. Article 10(3) sets out that:</p> <p><i>'In the case of the bridge constructed under this Order to carry a highway (other than a trunk road or special road) over a trunk road or special road –</i></p> <p><i>a) The highway surface (being those elements over the waterproofing membrane) must, unless otherwise agreed in writing with the local</i></p>

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Item	Article	Subject
		<p><i>planning authority, from completion be maintained by and at the expense of the relevant local highway authority,</i></p> <p><i>b) the remainder of the bridge, including the waterproofing membrane and structure below, must be maintained from its completion by and at the expense of the undertaker'.</i></p> <p>Concern was raised at the Hearing regarding the maintenance of green bridges and the applicant confirmed that the intention was that the vegetative part of the green bridges would not be considered the highway surface (even if it was over the waterproofing membrane). It is important that this is clarified to avoid future uncertainty.</p> <p>The Council suggests that the drafting is amended so as to specifically exclude vegetation on green bridges being maintained by the local highway authority.</p>
2.		<p><b><u>Mitigation of unacceptable impacts caused by LTC on the local road network</u></b></p> <p>During the Hearing, a number of the interested parties discussed the potential for commuted sums to be paid to mitigate unacceptable impacts on the local highway network. The applicant responded strongly against this principle for the following reasons:</p> <ul style="list-style-type: none"> <li>• National Highways is only responsible for the strategic road network, not the local road network, which is the responsibility of the local highways authorities; and,</li> <li>• National Highways needs to exercise its functions to ensure efficiency and value for money. Accordingly, it <i>'does not consider it appropriate for a public sector body, delivering nationally significant infrastructure which will have significant economic benefits, to be liable for payment of commuted sums ongoing maintenance costs'</i></li> </ul> <p>This approach was universally disagreed with by the interested parties present at the Hearing.</p> <p>The Council's firm view is that the applicant does have a duty and clear role to play, in mitigating impacts to the local highway network, and cannot simply maintain this does not fall within their remit. Indeed, the NPSNN expressly recognises the need to consider local impacts, at paragraph 5.212 stating: <i>'Schemes should be developed and options considered in the light of relevant local policies and local plans, taking into account local models where appropriate, however the scheme must be decided in accordance with the NPS except to the extent that one or more of sub-sections 104(4) to 104(8) of the Planning Act 2008 applies'</i>.</p> <p>Indeed, the NPSNN further goes on to expressly consider mitigation and places an expectation that mitigation measures <i>'may relate to the design, lay-out or operation of the scheme'</i> (paragraph 5.217).</p>

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		<p>On the basis that the Council firmly are of the view that the applicant should be mitigating unacceptable impacts on the local highway network, it is critical that the concerns relating to Orsett Cock (the intersection between the A13 and A1089) are addressed, recognised and mitigated for. This may require additional Requirements to be included in the DCO.</p> <p>These were briefly addressed at the Hearing, but the Council formally requests that they are involved in a workshop specifically focussed on Orsett Cock.</p> <p>In particular, the Council have concerns about current elements of the design work and adequacy of mitigation work around the Orsett Cock roundabout and have identified that additional land may be required to deliver the current proposals and/or it would not be capable of being developed within the existing order limits. The Council expressed their view at the Hearing that there are alternative designs of the intersection that could minimise the land take and harm currently proposed and still deliver the scheme objectives.</p> <p>This may require the production of an 'Output Paper' and new drafting to include a new Requirement for Orsett Cock and/or indeed also for more general mitigation provision. The Council views this matter as critical and are also conscious of timing and the work required, as well as the logistics of convening all required attendees, and would therefore appreciate if the applicant can convene this workshop as a matter of urgency to allow constructive engagement to explore possibilities. The applicant has suggested dates that are being discussed with stakeholders and the Council has required terms of reference for the meeting in advance, but the applicant has not yet responded.</p> <p>In addition to the specific concerns on Orsett Cock, the Council supports the inclusion of monitoring and mitigation strategy, similar to that contained within Requirement 7 of the Silvertown DCO 2018. The Council would be happy to engage in any workshop to discuss what this requirement would look like.</p>
3.		<p><b><u>Asda &amp; Orsett Cock</u></b></p> <p>During the hearing, there were submissions from the Port of Tilbury raising concerns around the construction on the Asda Roundabout and requesting that the applicant brings the roundabout within the Order Limits, given the likely impacts.</p> <p>The Council supports this position on the basis that it has similar concerns in relation to Orsett Cock, which are more fully explored above.</p>

**Agenda item 3d – any other matter related to the dDCO**

The Council have multiple concerns regarding the draft DCO, as recorded in our [SoCG \(REP3-092\)](#) and LIR ([REP1-281](#) and [REP1-290](#)). The Council have been working hard to narrow the differences



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between it and the applicant. For example, we have agreed since our last submissions the following aspects of the draft DCO with National Highways:

- The words ‘adjoining or sharing a common boundary’ in Article 3;
- The timescales and process in Article 15;
- Article 56 (planning permissions); and,
- The Generation Plan in Schedule 2, Requirement 15.

However, the applicant has not addressed a number of the key concerns of the Council. The Council sets out the most important of these below. Whilst these were not raised during ISH7, the Council consider it appropriate to highlight these concerns at this juncture.

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1.	6(3)	<p><b><u>Limits of Deviation</u></b></p> <p>The need for flexibility in the DCO has been raised by the applicant on multiple occasions. The Council accepts that the provision of flexibility is not a new or novel concept; indeed, it is considered directly in paragraph 17 of Advice Note 15. Importantly paragraph 17.1 of Advice Note 15 states <i>‘any provisions in the draft DCO that allow for flexibility must be thoroughly justified within the explanatory memorandum and assessed within the ES’</i>.</p> <p>The Council therefore accept that there should be Limits of Deviation (LoD). The Council’s concern is around Article 6(3) and the ability for the Secretary of State to extend the LoD, including outside the current Order Limits, if the SoS is satisfied that the deviation would not give rise to any materially new or materially different environmental effects, in comparison with those reported in the Environmental Statement. When making a decision, the applicant would have consult with the relevant planning authority.</p> <p>The effect of this provision is to effectively remove the non-material amendment procedure as set out in Planning Act 2008 (Schedule 6)). This is because the Government guidance on changes to development consent orders (December 2015) (‘the 2015 Guidance’) refers to non-material amendments being those changes that would not require an updated Environmental Statement to take account of new, or materially different, likely significant effects on the environment.</p> <p>Para 13 of the 2015 Guidance refers to new effects which are entirely environmentally positive. It states that in <i>‘these cases, an updated environmental statement will still be required in the application will need to be treated as a material change in order that the regulatory requirements of the Environmental Impact Assessment are met’</i>.</p> <p>The definition of <i>‘materially new or materially different environmental effects’</i> means that positive environmental effects are no considered materially new or materially different environmental effects.</p>



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		<p>The impact of this from the Council's perspective it that less consultation and publication of potential amendments will need to be carried out (when compared with the procedure in the Planning Act 2008).</p> <p>Accordingly, the Council's primary concerns are:</p> <ul style="list-style-type: none"> <li>Residents not taking part in this Examination process as they are outside of the Order Limits, only to find they are later impacted, but not consulted.</li> <li>Planning permission effectively being granted outside of the Order Limits by the SoS without following due planning process.</li> <li>The Council needs clarity over what is included within '<i>environmental effects</i>'. Is that everything in the Environmental Statement or just certain things? When considering things like business impact, how are new business treated? How do we know what the impacts are considering the limited publication/consultation requirements?</li> </ul> <p><u>The Council suggests that Article 6(3) is amended, so that the flexibility to limited to within the Order Limits, if no new materially new or materially different environmental (when compared with ES) effects as agreed by the SoS.</u></p> <p>This means that there is significant flexibility for National Highways, but also adequate certainty for those potentially impacted. This is because it is clear that if you are within the Order Limits you may be impacted and can take part in this Examination. Outside the Order Limits the usual statutory procedure for non-material amendments should be followed, which means that those potentially impacted are adequately consulted.</p>
2.	9 plus 12	<p><b><u>Application of NRSWA</u></b></p> <p>The Council's key point is in relation to the timing of works on the local road network.</p> <p>Article 9(3) disapplies Section 56 of the New Roads and Street Works Act 1991 ('NRSWA'). Section 56 allows for timings of works.</p> <p>The Council remains concerned that a project of this size, without largely following the unmodified permitting scheme, is going to have a significant negative effect on the operation of the local highway network.</p> <p>The Council is close to agreeing for support officers to be provided, which would assist the Council in processing applications. Before being able to agree to this provision, the Council does need to understand the terms of reference for the Traffic Management Forum, and how in certain circumstances this could delay LTC construction work briefly to ensure that the local road network continues to function safely and effectively.</p> <p>Key issues:</p>

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		<ul style="list-style-type: none"> <li>What happens in event of conflict between what has already been authorised by the Council in terms of works to the local road network, and the desired works by the applicant?</li> </ul> <p>The Council accepts that some modifications may be required to ensure the provisions of the permitting scheme are not expressly conflicting with the provisions of the DCO (for example, the provisions of Article 9(9)). However, before complete comments can be provided on this matter, the Council requires sufficient details to be provided on the traffic management forum, and how it is intended to operate. The Council would welcome further details on this as a matter of urgency.</p>
3.	10	<p><b><u>Construction and maintenance of new, altered or diverted streets and other structures</u></b></p> <p>Key issues:</p> <ul style="list-style-type: none"> <li>Defect correct period [<i>please see comments above on this</i>]</li> <li>Article 10(4) – bridges not included in the 'constructed to our reasonable satisfaction provisions'</li> <li>Article 10(5) – why private roads to be maintained by street authority</li> </ul> <p>Article 10(2) sets out that the Council does not have to take reasonability for a piece of infrastructure unless it has been completed to its reasonable satisfaction. However, this does not apply in relation to certain bridges (Article 10(4)). This needs to be addressed.</p> <p>In relation to Article 10(5) there appears to be a drafting error. Streets which are not intended to be a public highway should not be maintained by the street authority.</p>
4.	27 plus 30	<p><b><u>Time periods</u></b></p> <p>Whilst the applicant can cite examples where the time limit for use of powers has been accepted at 8-years, the time limit in the vast majority of DCOs is 5 years. Any attempt to seek a longer period needs to be justified and in this situation, it has not been.</p> <p>Matters arising:</p> <ol style="list-style-type: none"> <li>Having regard to the fact that the applicant is already benefiting from a 2-year delay affected parties will, if 5 years were accepted, be blighted for 7 years. The revised proposal is for an 8-year window running from the end of the legal challenge period/determination of any challenge – rather than the DCO order date. This provision differs from other DCOs, yet those DCOs face the same potential for challenge;</li> <li>Given the need to undertake detailed design before construction commences there can be no justification for this extended period;</li> <li>The above ground, linear nature of this project means that a significant amount of land to be acquired will be acquired at commencement. The applicant is in control of its own programme and will know which areas</li> </ol>

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		<p>might not be required until later in the project and has the ability to ensure acquisition on a timescale that strikes a fairer balance between the project and those affected by it; and,</p> <p>4. The Council's position is that, insofar as an extended period could be justified on a plot per plot basis, that this approach would satisfy its concerns. The applicant has previously rejected this on the basis that there are no precedents for this approach, but, of course, until a precedent is set there is no precedent. This, of itself, is not a reason to not adopt the extended time limit on a plot-by-plot basis, nor is the wording to achieve this complicated.</p> <p>The Council therefore seeks justification from the applicant on a plot-by-plot basis as to why 8-years is considered reasonable and/or for the drafting to revert to a five year period to minimise uncertainty for residents.</p> <p>It is the Council's considered opinion that in general the time period should be reduced to 5-years.</p>
5.	28(6) & 30	<p><b><u>Acquisition of totality of affected party's interest - CPO</u></b></p> <p>It has been a long-established principle in compulsory purchase that in limited circumstances where an affected party's interest in land is subject to material detriment, then that affected party can serve a counter notice requiring the authority to acquire the totality of the affected party's interest.</p> <p>The applicant has failed to engage properly with this point saying that they do not consider that the 'material detriment' provisions are relevant to the acquisition of subsoil.</p> <p>That does not create a reason to disallow the provisions – Parliament clearly envisaged occasions, albeit limited, when a counter notice was appropriate and there can be no justification for the applicant in seeking to re-write the law in this respect.</p> <p>The Council's position therefore is that the drafting in the dDCO should be amended, and this provision should <u>not</u> be disappled.</p>
6.	35	<p><b><u>Temporary use of land for carrying out the authorised development</u></b></p> <p>The Council accepts that there are instances where temporary possession is appropriate, however, the Council has a number of concerns regarding the provisions in relation, in particular, to the Ron Evans Memorial Field (REMF). For background, the REMF is a large area of POS in the Borough, which has an under provision of POS generally. The loss of any POS will have adverse implications for the residents of the Borough.</p> <p>The Council's concerns include:</p> <ul style="list-style-type: none"> <li>• A 28 day notice period. Whilst it is acknowledged that in many DCO the notice period for temporary possession is only 14 days there is precedent for a 3-month period (Lowestoft) – a timeline which matches that for permanent acquisition. The applicant is in control of its own</li> </ul>

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		<p>programme and will know well in advance when temporary possession will be required. The Council's position is therefore that the drafting in the dDCO should be amended, and this time period should be 3-months;</p> <ul style="list-style-type: none"> <li>• The applicant has given no indication as to when land will be subject to temporary possession, for how long it is required, on how many occasions it will be subject to temporary possession or provisions for hand back (either in terms of notice period or condition). The Council has long recognised the need for flex in programming and considers that the applicant should be well capable of addressing this points and providing a legal undertaking that it will use best/reasonable endeavours to adhere to them. It would be good forward planning and prudent financial management to provide affected parties with an early indication as the nature and extent of possession. The Council is seeking an express commitment in either the drafting of the dDCO addressing this point; and,</li> <li>• Lack of re-provision. The law is clear that in instances of permanent acquisition that POS should be replaced with POS that is of no lesser amenity. Regardless of whether there exists a legal obligation on the applicant to re-provide land occupied temporarily (which itself could be a substantial period) it must be the case, particularly having regard to the deficit, that a moral obligation exists. The Council requests that the drafting in the dDCO is amended to reflect this concern and place an express obligation on the applicant.</li> </ul> <p><i>Side agreement</i></p> <p>The Council has spent a considerable amount of time discussing and agreeing a detailed document on potential land take (temporary and permanent) of the Council's land. The Council is asking for the applicant to use reasonable endeavours to comply with this, as it helps provide greater certainty about how we utilise public land.</p>
7.	40	<p><b><u>Special Category land</u></b></p> <p>It is well established law that where Special Category Land is to be permanently acquired the Acquiring Authority needs to re-provide to no lesser amenity. In relation to the Ron Evans Memorial Field, the applicant is seeking to permanently acquire 82,670m<sup>2</sup> (20.4 acres) and re-provide 92,124m<sup>2</sup> (22.8 acres). However, and this is crucial, the applicant only 'anticipates'<sup>1</sup> that this re-provision will be available up to 5-years after the permanent acquisition of the Special Category Land. The applicant is not committing to a time period and it could be longer. The applicant further notes that, even when the re-provided POS is made available, some of it will remain fenced off for longer to allow planting to mature.</p> <p>Matters arising:</p>

<sup>1</sup> Para D.7.31 a. of Appendix D to 7.2 Planning Statement

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		<ul style="list-style-type: none"> <li>The proposal to acquire land but not re-provide for at least 5-years is excessive and disproportionate;</li> <li>The applicant considers that the 5-year time gap is off set by the larger area (as set out in Table 7.4 of the SoR) (<a href="#">REP3-081</a>), but fails to explain how it has arrived at this conclusion (noting that the applicant reached the same conclusion in relation to Tilbury Green, where the re-provided area is only 2.5% larger than the area acquired). A child could experience its formative years without access to a meaningful area of POS, knowing that younger children might have a larger area is no comfort to that child;</li> <li>It is unclear, save in respect of operational land, why the applicant is unable to re-provide POS prior to permanent acquisition; and,</li> <li>Notwithstanding the third point above, it is unclear why the applicant requires at least 5-years to lay out POS.</li> </ul> <p>The Council has requested justification for the above positions and in the absence of a reasonable explanation for the current position adopted, the Council seeks drafting in the dDCO confirming that there can be no vesting of POS, until the replacement land has been provided.</p>
8.	62	<p><b><u>Certification of documents</u></b></p> <p>The Council has a particular concern about which drawings are approved and therefore must be complied with. The key issue is that not all 'certified documents' (as listed in Schedule 16 of the DCO and which is in accordance with Paragraph 11 of the PINS Advice Note 15 (AN15)) appear to be control documents, as they are not secured within the DCO.</p> <p>The Council would like further explanation for not having as control documents or other mechanism for securing of the following, or a signposting of the explicit securing mechanism of these following documents:</p> <ul style="list-style-type: none"> <li>Structures plans</li> <li>Works and Temporary Works Plans</li> <li>Special Category Land Plans</li> <li>Engineering Drawings</li> <li>Drainage Plans</li> <li>All Transport-related Plans</li> <li>Hedgerows and Trees Preservation Order Plans</li> </ul>
9.	Schedule 2, requirement 3	<p><b><u>Detailed design – tailpiece provision</u></b></p> <p>The authorised development must be designed in detail and carried out in accordance with the Design Principles document and the preliminary scheme design shown on the Engineering drawings and sections and the General Arrangement drawings <b>unless</b> otherwise agreed in writing by the</p>

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		<p>Secretary of State following consultation with the relevant planning authority and, in respect of the authorised development comprising highways other than a special road or trunk road, the relevant local highway authority on matters related to their functions, provided that the Secretary of State is satisfied that any amendments those documents showing departures from the preliminary scheme design <u>would not give rise to any materially new or materially different environmental effects in comparison with those reported in the environmental statement.</u></p> <p>The Council is conscious of the case law relating to tailpiece provisions, specifically the <i>Midcounties Co-Operative Ltd, R (on the application of) v Wyre Forest District Council [2009] EWHC 964 (Admin)</i>. This case concerned the development of a new supermarket and a condition attached to the planning permission allowing discretion for the Council to approve a significant amount of additional floorspace. Caselaw has drawn a distinction between unlawful tailpiece provisions that allow major changes that would allow a developer to exercise a permission that was wholly or materially different from the permission originally applied for or assessed; and lawful tailpiece provisions that allow only minor variations to what has been assessed and permitted.</p> <p>The effect of the provision in the dDCO is to effectively remove the non-material amendment procedure as set out in the Planning Act 2008. This is because the Government guidance on changes to development consent orders (December 2015) ('the 2015 Guidance') refers to non-material amendments being those changes that would not require an updated environmental statement to take account of new, or materially different, likely significant effects on the environment.</p> <p>Paragraph 13 of the 2015 Guidance refers to new effects which are entirely environmentally positive. It states that in <i>'these cases, an updated Environmental Statement will still be required in the application will need to be treated as a material change in order that the regulatory requirements of the Environmental Impact Assessment are met'</i>.</p> <p>The definition of <i>'materially new or materially different environmental effects'</i> means that positive environmental effects are not considered materially new or materially different environmental effects.</p> <p>The impact of this from the Council's perspective is that less consultation and publication of potential amendments will need to be carried out (when compared with the procedure in the Planning Act 2008).</p> <p>Accordingly, the Council's concerns are:</p> <ul style="list-style-type: none"> <li>• There needs to be clarity over what is included within <i>'environmental effects'</i>. Is that everything in the Environmental Statement, or just certain things? When considering things like business impact, how are new business treated? How do we know what the impacts are considering the limited publication/consultation requirements?</li> </ul>

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Agenda Item		Thurrock Council's Response
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		<ul style="list-style-type: none"> <li>Is this provision appropriate, considering the fact that there is a procedure in the Planning Act 2008.</li> </ul> <p>It is the Council's position that there needs to be further analysis of why this is needed. The exclusion of the procedure in the Planning Act 2008 seems to be to just remove the need to consult and publicise changes. This reduces transparency and the ability of those impacted to comment on the proposals (so that the impact upon them can be better understood). Furthermore, there needs to be clarity and transparency around what is meant by 'environmental effects' to ensure that the provision itself is not unlawful as a result of the amount of variation that flow from an agreed change that has not been properly assessed to considered as part of this process.</p>
10.	General – Discharging authority	<p><b><u>Discharging authority for Requirements</u></b></p> <p>Key points:</p> <ul style="list-style-type: none"> <li>Council is best placed to discharge majority of Requirements</li> <li>Council will need to be consulted anyway, so why then add another layer and give to the Secretary of State, adding in delay and cost</li> <li>There is an appeal route to the Secretary of State that can be used in event of disagreement</li> <li>Concern that consultation periods are not going to be adequate.</li> </ul> <p>The applicant is strongly of the view that the DCO Requirements (currently set out in Schedule 2 of the draft DCO) should largely be discharged by the Secretary of State. It is the Council's position that Requirements 3 (detailed design), 4 (Construction and Handover EMPs), 5 (landscaping and ecology), 6 (contaminated land), 8 (surface and foul water drainage at a local level (with the Environment Agency responsible for those elements not at a local level), 9 (historic environment), 10 (traffic management), 11 (construction travel plans), 12 (fencing), 14 traffic monitoring, 16 (carbon and energy management plan) and 17 (amendments to approved details) should be discharged by the relevant local planning authority, with any appeal going to the Secretary of State.</p> <p>Whilst it is not uncommon for transport DCOs to have the Secretary of State as the discharging authority, it is by no means universal (there are at least four other transport DCOs where this is not the case). In addition, the Council are not aware of any other Secretary of State (for example DHLUC, DEFRA or BEIS) being the discharging authority in connection with non-transport DCOs. In relation to this scheme, the Council is the local highways authority for 70% of the route. Accordingly, the applicant's concerns regarding co-ordinated discharge of functions is not well founded in relation to this LTC scheme.</p> <p>In the Council's view, locally elected local authorities, who are experienced in discharging similar planning conditions, should be the discharging authority. It is precisely because of the complexity of the project that a</p>



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		<p>detailed understanding of the locality, including the local highway network, is required.</p> <p>It is accepted that changes to local highway sections will need to consider the impact of those changes on trunk road sections (and vice versa), and accordingly it is suggested that the relevant planning authority will discharge requirements in consultation with relevant parties, such as the applicant and other key stakeholders. The current proposal, of the Secretary of State being the discharging authority, after consulting the Council, is likely to lead to unnecessary expenditure as the relevant local planning authority will have to commit significant resources to explaining to the Secretary of State the impact of proposals.</p> <p>A number of the Requirements (as currently drafted) refer to consultation with the relevant planning authority. There are no details in the draft DCO as to how long this consultation will be or how it will take place. However, it is understood from the applicant verbally that the consultation period will be four weeks, with the ability to extend to 6 weeks.</p> <p>Accordingly, the Council contends that the setting of 8-week discharge period for the Secretary of State and then only allowing only 4-6 weeks for consultation with local planning authorities is not appropriate or fair, as it does not take into account the complexities of the individual matters being discharged.</p>

**Thurrock Council's Response to Action Points from ISH5 ([EV-046e](#))**

Agenda Item		Thurrock Council's Response	
No	Party	Action	Deadline
1	Local Authorities	<p><b>Swansea Bay Judgement</b></p> <p>Can the local authorities provide a copy of the Swansea Bay case judgement in the Court of Appeal and cite the relevant parts it seeks to rely upon in any submissions in respect of the definition of 'begin' in the dDCO.</p>	D4
<p><b>Thurrock Response</b></p> <p>The Swansea Bay case (Tidal Lagoon (Swansea Bay) plc v Secretary of State for Business, Energy and Industrial Strategy and others [2022] EWCA Civ 1579) is appended to these submissions.</p> <p>The Council invited the ExA to consider the judgement in full. Subject to that, the main elements of the judgement are at paras:10 and 39-45.</p> <p>Paragraph 10 states:</p> <p><i>'10. We have concluded in broad terms that the judge was right and the Company's appeal should be dismissed. We do not, however, condone the imprecise use of language in the DCO (and in the model provisions) where it does indeed appear that the words 'begin' and 'commence' are used</i></p>			



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	<p><i>interchangeably. We were initially attracted by the Company's argument that, when the DCO took the trouble to define what 'commence' meant and set a time limit for commencement that was different from the time limit for the development to be 'begun' under section 154(1), it must have been intended to create two different time periods: one to decide when the DCO lapsed under section 154(2) and the other to decide the time by which the development had been commenced. Ultimately, however, we concluded that this argument proves too much. It creates a dysfunctional planning situation that has never been intentionally created either in infrastructure development projects or in planning permissions more generally. No other development consent order that we have been shown had a similar effect. Even the National Infrastructure Planning Handbook 2015 (written, with others, by Mr Michael Humphries KC, counsel for the Company) did not go so far as to suggest that two time limits were appropriate. The consequences of the construction proposed by the Company would be undesirable. DCOs could be left on the stocks for years, inhibiting future development and placing landowners at potential risk of delayed compulsory purchases. The DCO used loose language, 'equiparating' the words 'begin' and 'commence'. It was, however, sufficiently clear that the terms of the DCO had been intended to make use of both section 154(1)(b) and section 120(5) to specify another time period within which development had to be begun before the DCO would lapse and to modify the material operations that could be considered as triggering both the beginning and the commencement of development. There was no need for the use of these amending provisions to be signposted in the DCO itself. In the result, the Company's failure to undertake the necessary material operations to 'commence' development within Requirement 2 meant that the DCO had, pursuant to section 154(2), ceased to have effect when the time limit, which Requirement 2 set, expired on 30 June 2020'.</i></p>		
3	<b>Applicant and Local Highways Authorities</b>	<b>Commuted Sums</b> Provide examples from made DCOs where commuted sums have been paid to Local Highway Authorities in response of the maintenance of new structures.	<b>D4</b>
<p><b>Thurrock Response</b></p> <p>Two examples of where the Applicant has paid a local authority a commuted sum for the maintenance of a new structure are:</p> <ol style="list-style-type: none"> <li>1. <a href="#">A303 Sparkford to Ilchester project (National Highways)</a> – Schedule 8, Part 4, Section 50(4)</li> <li>2. <a href="#">M25 Junction 28 project (National Highway)</a> – Schedule 9, Part 7, Section 73</li> </ol> <p>These DCOs expressly required the payment of commuted sums by the undertaker to the relevant authority.</p> <p>Three further examples of where the applicant has been responsible for the payment of maintenance costs include:</p> <ol style="list-style-type: none"> <li>a) <a href="#">Port of Tilbury DCO, 2019</a> [Developer – Port of Tilbury London Ltd]: places responsibility on the undertaker/company to maintain the streets for 12 months following completion, and the bridges for 24 months following completion before maintenance becomes the responsibility of the street authority. Article 10.</li> <li>b) <a href="#">Silvertown Tunnel DCO, 2018</a> [Developer – Transport for London]: places responsibility on TfL to maintain the streets for 12 months following completion before maintenance becomes the responsibility of the street authority. Article 8.  <a href="#">Thames Tideway Tunnel DCO, 2014</a> [Developer – Thames Water]: places responsibility of the undertaker to maintain the streets for 12-months following completion, and the bridges for 24 months following completion before maintenance becomes the responsibility of the street authority. Article 12.</li> </ol>			

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Agenda Item		Thurrock Council's Response	
<b>4</b>	<b>Local Highway Authorities</b>	<p><b>Article 10 of the dDCO</b></p> <p>Provide submissions in respect of the wording of Article 10 of the dDCO and to what extent this could/should include the verges/landscaping. Provide clarity on ownership responsibilities between National Highways and the LHA.</p>	<b>D4</b>
<p><b>Thurrock Response</b> See submissions above.</p>			
<b>7</b>	<b>Port of Tilbury, DP World, Thurrock Council and Applicant</b>	<p><b>Orsett Cock Roundabout</b></p> <p>Without prejudice, Provision of draft wording for an additional DCO requirement relating specifically to the modelling, monitoring and if necessary, mitigation of the Orsett Cock roundabout.</p>	<b>D4</b>
<p><b>Thurrock Response</b></p> <p>Progress is being made in negotiation of agreed additional DCO Requirements, with wording being circulated between the Port of Tilbury, DP World, the Council and the Applicant. However, the Council respectfully requests that the final wording for this element be allowed to be submitted by D5 or D6, to allow the parties to reach an agreed position.</p>			
<b>10</b>	<b>Applicant and relevant local authorities</b>	<p><b>Workshop (Orsett Cock)</b></p> <p>Undertake a workshop and then present a joint paper in respect of the traffic modelling for this junction. The focus should be on narrowing areas of disagreement specifically to reconcile identified differences between the LTAM and VISSIM modelling while recognising that there will always be a degree divergence between different models. Local Highway Authorities should not insist on an unreasonable degree of convergence which goes beyond that normally achieved in respect of other large road schemes.</p>	<b>D5</b>
<p><b>Thurrock Response</b></p> <p>The Council will work with the applicant and other relevant local authorities in relation to arranging this meeting, although the Council has requested terms of reference in advance from the applicant.</p>			

## 6 Compulsory Acquisition Hearing 1 (CAH1) – The Applicant’s Strategic Case

### Compulsory Acquisition Hearing 1 (CAH1) on the Applicant’s Strategic Case

15<sup>th</sup> September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council’s Oral Case

Note: These Post Hearing Submissions include a written summary of the Oral Case presented by Thurrock Council at CAH1. They also include the Council’s submissions on all relevant Agenda Items, not all of which were rehearsed orally at the CAH, due to the need to keep oral presentations succinct.

The structure of the submissions follows the order of the agenda items but within each agenda item, the submissions begin by identifying the oral submission made at CAH1 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant were made by the Council at CAH1 or subsequently, the Council has highlighted these as ‘**Requests**’.

In providing a summary we have identified points put by the Applicant in response to points made by the Council and addressed them further

CAH1 was attended by Douglas Edwards KC on behalf of the Council. Also, in attendance at CAH1 on behalf of the Council were Henry Church and Will Gullett and Chris Stratford attended virtually.

Agenda Item	Thurrock Council’s Response
<b>29)</b>	<b>Welcome, introductions, arrangements for the Hearing</b>
<b>30)</b>	<b>Purpose of the Compulsory Acquisition Hearing</b>
<b>31)</b>	<b>The Applicant’s Case for the Compulsory Acquisition (CA) and Temporary Possession (TP) of Land and Rights</b>

Item	PINS Description	Thurrock Council Statement
a)	<b>The relationship between the design approach, the extent of land sought and the applicant’s initial CA &amp; TP request</b>	
i	The extent of land sought to be subject to CA	<p>The Council is generally content in terms of the extent of the acquisition and the justification given for that acquisition. The Council’s concerns relate to:</p> <ul style="list-style-type: none"> <li>• Timings of the implementation of Compulsory Acquisition (CA) and Temporary Possession (TP) – without a binding agreement the Council is unclear what land will be subject to CA and when, leading to unreasonable and unnecessary uncertainty.</li> <li>• To the same effect there is a lack of binding commitment from the applicant clarifying the condition in which the land will be returned and the timings for the return of land not required permanently.</li> </ul>

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Item	PINS Description	Thurrock Council Statement
		<ul style="list-style-type: none"> <li>The lack of information, as summarised above, means that the Council cannot proactively update its residents regarding the project. The lack of information is unhelpful given that the applicant is in a position to provide details as to what is required but seeks to avoid specificity in relation to implementation. The Council sees no justification for not providing indicative timescales for acquisition. The latest spreadsheet provided to the Council (after several previous iterations) was sent on 5 July 2023, but the Council is unsure if it is up-to-date.</li> </ul> <p>In his comments (<b>CAH1 Transcript Page 19</b> (<a href="#">EV-047d</a>)) Mr. Church explained further the Council's long standing request for a legal agreement, noting that a draft had long been promised but had failed to materialise. On 8 September 2023 a draft Memorandum of Understanding (MoU) was produced, notwithstanding that it is not legally binding it offers little comfort.</p> <p>In response to a question by ExA (CAH1 Transcript Page 19 et seq (<a href="#">EV-047d</a>)) Mr. Church confirmed that he was not aware that any Thurrock land had been acquired in advance and noted that the applicant had, failed to make an offer for land it wishes to acquire. Mr Edwards, speaking for the Council (<b>CAH1 Transcript Page 25</b> (<a href="#">EV-047d</a>)) expressed surprise at the applicant's suggestion that the applicant had not sought to acquire land and that this was because the Council had failed to make an express request to be bought out. The duty was on the applicant, seeking powers of compulsory acquisition, proactively to seek to acquire land by private agreement and not for a landowner to pursue the applicant. The Council confirmed (<b>CAH1 Transcript Page 26</b> (<a href="#">EV-047d</a>)) that the Council remains open to a meaningful dialogue.</p>
ii	<p>Whether statutory tests for CA are met on all land;</p> <ul style="list-style-type: none"> <li>Whether the purpose for which the compulsory acquisition (CA) powers are sought comply with s122(2)</li> <li>Whether the 'compelling case in the public interest' test under 122(3) is met on all land sought</li> </ul>	<p>Although this agenda item was dealt with in detail in CAH2, it is covered here for completeness.</p> <p>The applicant has at meetings, between it and the Council indicated some areas are to be acquired compulsorily, but then handed back. The Council has identified at Section 14.2.3 on page 211 of its Local Impact Report (<a href="#">REP1-281</a>) four instances where it was advised this would happen. There can be no justification for seeking to take land permanently if the applicant intends to use it only temporarily and where temporary possession is possible.</p> <p>The applicant indicated that some of these plots were highway and otherwise that, following precedent, it was not possible for the applicant to take land using TP powers and hand it back physically altered. This response is not tenable in the context of highway land. The condition of such operational land can be expected to change over time and as such, the fact that works may be carried out on such land pursuant to powers given by the DCO does not justify permanent acquisition.</p>

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Item	PINS Description	Thurrock Council Statement
		<p>Furthermore, certainty as to what was taking place, when, etc., could have been sensibly addressed by way of the requested legal agreement and by reference to the spreadsheet detailing works which the applicant has completed (to give the Council comfort), but does not wish to be bound to (thereby not giving the Council comfort).</p> <p><b>Request: the applicant set out best estimate as to which plots it requires, at what date, for what purpose and, in respect of:</b></p> <ul style="list-style-type: none"> <li>• Land identified for TP, when it is to be returned and in what condition; and,</li> <li>• Land identified as replacement POS, when it will be provided.</li> </ul> <p>The Council is concerned that, in relation to Section 122(2)(c) of PA2008, the requirement is that the land is '<i>replacement land which is to be given in exchange for the order land under section 131 or 132</i>'. In this context there is no proposal to exchange land, rather that the applicant seeks to take Public Open Space (POS) (the Ron Evans Memorial Field) compulsorily, but not provide replacement Open Space for a period of not less than 5 years. Please refer to Paragraph D.5.39 <i>et seq</i> on page 27 <i>et seq</i> and Plate D.5 on page 31 and Plate D.6 on page 33 of 7.2 Planning Statement Appendix D Open Space (Clean Version) (<a href="#">REP3-108</a>). It is manifestly not an '<i>exchange</i>', nor does the applicant's proposals amount to '<i>replacement land</i>', as defined in the PA 2008 as, in terms of timing of delivery, it is not '<i>no less advantageous</i>' to the open space to be taken. For context, the Council's 'Core Strategy and Policy for Management of Development' document, adopted in 2015 confirms that all parts of Thurrock are categorised as deficient in terms of Public Open Space. Consequently, the applicant's proposal to acquire a portion of the Council's Open Space before re-providing is not acceptable, as it puts greater pressure on an already scarce local public asset. The Council requests that, the area of re-provision is established to the Council's satisfaction, prior to the permanent and/or temporary acquisition of existing Open Space to reduce the impact on residents.</p> <p>For completeness, the loss of POS on a temporary (but unknown) period significantly disadvantages residents within the Borough, particularly those in the dense housing (including multi storey developments) adjacent to the POS and re-provision of this is considered essential by the Council.</p>
iii	Consideration of reasonable alternatives to CA	<p>The Council has long promoted a legal agreement between it and the applicant which sets out the rights and responsibilities to each party. This could, indeed should, have covered sale by private treaty. However, in spite of repeated assurances that a draft would be issued none has been provided and, recently, the applicant has suggested that a Memorandum of Understanding is suitable. It is not.</p>

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Item	PINS Description	Thurrock Council Statement
		<p>The applicant has given a clear commitment to a legal agreement and resiled from that position. Instead on 8 September 2023, the applicant produced a draft Memorandum of Understanding. Notwithstanding that it is not legally binding the draft offers little comfort. The Council would expect to see reference to the information previously provided to the Council by the applicant detailing works and undertakings to use best endeavours to follow that; and, for there to be regular updates with the applicant undertaking to have demonstrable regard to the Council's concerns.</p> <p><b>Request: the Applicant provide a draft legal agreement detailing works and an undertaking to use best endeavours to follow the works programme.</b></p> <p>Guidance on the use of compulsory purchase encourages those seeking powers to enter into discussions with affected parties to both better understand the impacts and to seek to agree terms for the acquisition of land interests by private treaty (the use of compulsory powers being last resort). The applicant has failed to make an offer for the land it wishes to acquire and the Council requests that the applicant confirms when they intend to genuinely engage with the Council in respect of discussions to acquire the land.</p>
iv	The extent of land sought to be subject to TP	<p>The applicant has advised which parcels of land it anticipates requiring on a temporary basis and why, but has failed to advise when, for how long, when it might be returned and in what condition.</p> <p>As discussed at a iii (above) the Council has long promoted a legal agreement between it and the applicant, which sets out the rights and responsibilities to each party in respect of all land interests including those required temporarily. This could, indeed should, have covered occupation under licence/lease. However, in spite of repeated assurances that a draft would be issued none had been provided until a draft Memorandum of Understanding was issued on 8 September 2023. This provides no comfort to the Council. The issues that the Council requires the applicant to address in a binding legal agreement are set out at Section 18.13.16 on page 119 of the Council's D3 submission that provided comments on the Applicant's Submissions at Deadline 1 and 2 (<a href="#">REP3-211</a>). The spreadsheet (referenced in Table 18.2 on page 117 of the Council's D3 submission that provided comments on applicant's submissions at Deadline 1 and 2 (<a href="#">REP3-211</a>), which sets out the parcels to be acquired, why and when ought to form the basis for the applicant providing the Council with a commitment.</p>
v	The justification for land sought to be subject to TP	The Council made no submissions on this point.



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Item	PINS Description	Thurrock Council Statement
<b>b)</b>	<b>Requests by the Applicant for additional land and/or rights</b>	
i	Additional land or rights sought under the change request notified as <a href="#">[AS-083]</a> and the application of the Infrastructure Planning (Compulsory Acquisition) Regulations 2010	The Council made no submissions on this point.
ii	Whether the statutory condition and policy on additional land is met?	The Council made no submissions on this point.
iii	Progress on project design – are there any likely additional land requests over and above that of which the ExA is already aware?	The Council made no submissions on this point.
<b>c)</b>	<b>Land and rights no longer required</b>	
i	Land or rights originally sought but in respect of which change requests notified as <a href="#">[PD-023]</a> , <a href="#">[PD-024]</a> , <a href="#">[AS-082]</a> , <a href="#">[AS-083]</a> and <a href="#">[AS-090]</a> seek to exclude	The Council made no submissions on this point.
<b>d)</b>	<b>The purpose and adequacy of the funding statement (FS)</b>	
		The Council made no submissions on this point
<b>f)</b>	<b>Whether there is a compelling case in the public interest for the compulsory acquisition and temporary possession provisions overall?</b>	
		The Council made no submissions on this point.

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Item	PINS Description	Thurrock Council Statement
<b>4. Special Provisions, Land &amp; Rights</b>		
<b>a)</b>	<b>Statutory Undertaker's land and rights</b>	
i	The Applicant's current position in respect of PA20008 s127 and s138 including progress on negotiations and those remaining which have not been withdrawn?	The Council made no submissions on this point.
ii	The condition of negotiations, and whether there are unresolved concerns relating to statutory undertaker's land, rights and apparatus	The Council made no submissions on this point.
<b>b)</b>	<b>The Crown</b>	
i	The need for and progress towards consent under PA2008 s135	The Council made no submissions on this point.
<b>c)</b>	<b>Commons, open spaces etc.</b>	
i	The condition of negotiations, and whether there are unresolved concerns relating to PA2008 ss 131, 132 and/or 139?	<p>The applicant has advised which parcels of land it anticipates requiring on a temporary basis and why but has failed to advise when, for how long, when it might be returned and in what condition.</p> <p>The Council has long promoted a legal agreement between it and the applicant which sets out the rights and responsibilities to each party in respect of temporary land. This could, indeed should, have covered occupation under licence/lease. However, in spite of repeated assurances that a draft would be issued none has been provided and, recently, the applicant has suggested that a Memorandum of Understanding is suitable. It is not.</p> <p>The Applicant has given a clear commitment to a legal agreement and resiled from that position. Instead on 8 September 2023 the applicant produced a draft Memorandum of Understanding. Notwithstanding that it is not legally binding the draft offers little comfort. The Council would expect to see reference to the information previously provided to the Council by the applicant detailing works and undertakings to use best endeavours to</p>



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		<p>follow that and for there to be regular updates with the applicant undertaking to have demonstrable regard to the Council's concerns.</p> <p>It is trite law that where Special Category Land is to be permanently acquired the Acquiring Authority (AA) needs to re-provide to so as to be no lesser advantageous to the public. In relation to the Ron Evans Memorial Field, the applicant is seeking to permanently acquire 82,670sqm (20.4 acres) and re-provide 92,124sqm (22.8 acres). However, the applicant only '<i>anticipates</i>' that this re-provision will be available 5-years after the permanent acquisition of the Special Category Land. The applicant is not committing to a time period, and it could be longer than 5 years. The applicant further notes that, even when the re-provided POS is made available, some of it will remain fenced off for longer to allow planting to mature.</p> <p>Matters arising:</p> <ol style="list-style-type: none"> <li>1. The proposal to acquire land but not re-provide for at least 5 years is excessive and disproportionate;</li> <li>2. The Planning Act 2008 requires that replacement POS be provided; '<i>in exchange</i>' – in relation to the Ron Evans Memorial Field, the applicant is proposing to acquire the land and re-provide in no less than 5 years later. This manifestly is not exchange, rather taking and replacing at a later date;</li> <li>3. The Planning Act 2008 requires that the replacement POS be '<i>...no less advantageous than it was before...</i>', whilst the area to be replaced is proposed to be larger and may be of acceptable quality the fact that it will not be provided for at least 5 years means, by its absence for that period, that it is manifestly not '<i>..no less advantageous...</i>';</li> </ol>

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		<p>4. The applicant considers that the 5-year time gap is off-set by the larger area but fails to explain how it has arrived at this conclusion (noting that the applicant reached the same conclusion in relation to Tilbury Green, where the re-provided area is only 2.5% larger than the area acquired). A child could experience its formative years without access to a meaningful area of POS, knowing that younger children might have a larger area is no comfort to that child;</p> <p>5. It is unclear, save in respect of operational land, why the applicant is unable to re-provide POS prior to permanent acquisition; and,</p> <p>6. Notwithstanding the point at 4 (above) it is unclear why the applicant requires at least 5-years to lay out POS.</p> <p>In addition, whilst it might be the case that there is no legal obligation to re-provide public open space that is subject to temporary possession. Given the significant area of the land to be impacted (both in gross terms and as a percentage of the POS available) and how long temporary possession is required for, it is considered that there is a moral obligation to re-provide – for the better health of the residents of the Borough.</p> <p><b>Request: the applicant to propose re-provision of the POS taken temporarily in a nearby location and of a commensurate quality.</b></p>
<b>5. Human Rights and Equalities</b>		
a)	<b>The Human Rights Act (ECHR)</b>	
b)	<b>The Public Sector Equality Duty (PSED)</b>	
i	In respect of both the Human Rights Act and the PSED:	The Council made no submissions on this point.

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Item	PINS Description	Thurrock Council Statement
	<ul style="list-style-type: none"><li>• Circumstances within which these might be engaged;</li><li>• Measures undertaken and/or in process to address possible engagement</li></ul>	

## 7 Compulsory Acquisition Hearing 2 (CAH2) – Objections

### Compulsory Acquisition Hearing 2 (CAH2) on Objections

15<sup>th</sup> September 2023

#### Post Hearing Submission made by Thurrock Council including written summary of Thurrock Council’s Oral Case

Note: These Post Hearing Submissions include a written summary of the Oral Case presented by Thurrock Council at CAH2. They also include the Council’s submissions on all relevant Agenda Items, not all of which were rehearsed orally at the CAH, due to the need to keep oral presentations succinct.

The structure of the submissions follows the order of the agenda items but within each agenda item, the submissions begin by identifying the oral submission made at CAH2 by the Council and then turn to more detailed matters. Where requests for further information / clarification from the Applicant were made by the Council at CAH2 or subsequently, the Council has highlighted these as ‘**Requests**’.

In providing a summary we have identified points put by the applicant in response to points made by the Council and addressed them further

CAH2 was attended by Douglas Edwards KC on behalf of the Council. Also, in attendance at CAH2 on behalf of the Council were Henry Church and Will Gullett and Chris Stratford attended virtually.

Agenda Item	Thurrock Council’s Response
<b>32)</b>	<b>Welcome, introductions, arrangements for the Hearing</b>
<b>33)</b>	<b>Purpose of the Compulsory Acquisition Hearing</b>
<b>34)</b>	<b>Individual Site Specific Representations</b>

Item	PINS Description	Thurrock Council Statement
<b>a</b>	<b>Thurrock Council</b>	
<b>i</b>	Scope of Objections In its LIR <a href="#">[REP1-281]</a> at Chapter 14 and Appendix H <a href="#">[REP1-289]</a> , Thurrock Council extensively objects to CA and TP powers. The ExA needs to understand the basis for the objections as they are partially expressed as objections to	The Council appreciates that both Compulsory Acquisition (CA) and Temporary Possession (TP) powers are required to deliver the project. Its concerns are, as follows: <ol style="list-style-type: none"> <li>1. Whilst the applicant has been able to populate a spreadsheet detailing why each plot is required and when it is anticipated they will be required, either permanently or temporarily. It is unwilling to bind itself to use either best or reasonable endeavours to adhere to the timescales or the intended uses of the land,</li> <li>2. The Council has identified at Section 14.2.3 on page 211 of its Local Impact Report (<a href="#">[REP1-281]</a>), four instances where it was advised during meetings between the Council and</li> </ol>

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Item	PINS Description	Thurrock Council Statement
	<p>compensation, which in principle are not within the scope of an Examination under PA2008</p>	<p>NH that land was to be taken permanently but returned. It is unclear why the applicant is seeking powers to CA, when it could be subject to TP. This raises questions as to the</p> <ul style="list-style-type: none"> <li>a. Proportionality;</li> <li>b. Reasonableness; and,</li> <li>c. Timing</li> </ul> <p>of seeking greater powers than are required. When land is taken temporarily there is uncertainty as to how long it will be required for, how often it might be subject to temporary possession, when it will be returned and in what condition it will be in on return.</p> <p>The applicant indicated (refer to CAH2 Transcript Page 14 <b>(EV-049d)</b>) that some of these plots were highway and otherwise that, following precedent, it was not possible for the applicant to take land using TP powers and hand it back physically altered. Given the uncertainty the Applicant undertook to clarify further on permanent acquisition and temporary possession. This response is not tenable in the context of highway land. The condition of such operational land can be expected to change over time and as such, the fact that works may be carried out on such land pursuant to powers given by the DCO does not justify permanent acquisition.</p> <p><b>Request: the applicant set out best estimate as to which plots it requires, at what date, for what purpose and, in respect of:</b></p> <ul style="list-style-type: none"> <li>• <b>Land identified for TP, when it is to be returned and in what condition; and,</b></li> <li>• <b>Land identified as replacement POS, when it will be provided.</b></li> </ul> <p>Furthermore, certainty as to what was taking place, when, etc., could have been sensibly addressed by way of the requested legal agreement and by reference to the spreadsheet detailing works which the applicant has completed (to give the Council comfort), but does not wish to be bound to (thereby not giving the Council comfort).</p> <p>The Council raised two points in relation to compensation:</p> <ol style="list-style-type: none"> <li>1. Compensation is a measure of the effect arising from the dispossession, the lesser the effect, the more likely it is that the compensation will be reduced. Uncertainty is likely to cause additional losses as the opportunity to mitigate cannot be maximised.</li> <li>2. Compensation deals with financial loss. The loss of POS, either permanently or temporarily, simply cannot be monetised.</li> </ol>

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Item	PINS Description	Thurrock Council Statement
ii	<p>Non-Statutory relief to the extent that Thurrock Council seeks a non-statutory relief including a hardship scheme and a need to sell scheme, to what extent and in what circumstances is it seeking such schemes? Does it seek relief for itself or on behalf of CA &amp; TP Stakeholders more broadly?</p>	<p>In limited circumstances a party which is directly impacted by CA can apply to the Acquiring Authority (AA) to have its interest acquired ahead of CA using the statutory blight policy. There are no circumstances where a party significantly affected, but not within Order Limits, can force an AA to acquire its property. This means that many parties significantly affected by a scheme spend years suffering the ill effects.</p> <p>This is a highly unsatisfactory for those affected, a situation that has been recognised by the promoters of a number of large infrastructure schemes. The Council considers that the applicant should offer non-statutory relief schemes to all affected parties, in line with the non-statutory relief schemes offered on other projects including:</p> <ul style="list-style-type: none"> <li>• <b>Thames Tideway</b> <ul style="list-style-type: none"> <li>○ Exceptional Hardship Scheme</li> <li>○ Non-statutory off-site mitigation and compensation policy (which dealt with construction related impacts on those without land take).</li> </ul> </li> <li>• <b>Heathrow Third Runway</b> <ul style="list-style-type: none"> <li>○ Interim Property Hardship Scheme, and</li> <li>○ Bond Scheme.</li> </ul> </li> <li>• <b>HS2</b> <ul style="list-style-type: none"> <li>○ Express Purchase Scheme</li> <li>○ Exceptional Hardship Scheme</li> <li>○ Need to Sell Scheme</li> <li>○ Voluntary Purchase Scheme</li> <li>○ Rent Back scheme, and</li> <li>○ Rural Support Zone (Cash Offer Scheme)</li> </ul> </li> </ul> <p>The schemes that the Council requires the applicant to put in place should acknowledge both permanent and temporary impacts of scheme delivery, recognising tension between the benefits of powers secured to the applicant and the disbenefits to those impacted.</p> <p>The applicant has:</p> <ul style="list-style-type: none"> <li>• Made reference to the Statutory schemes which it has produced booklets for;</li> <li>• Sought to suggest that its funding mechanism (being public) prevented it from offering an enhanced/non-statutory schemes, notwithstanding that HS2 is also publicly funded; and,</li> <li>• Sought to differentiate the position it took as arising from the use of the Highways Act.</li> </ul>

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		<p>It remains the case that the Noise Insulation Regulations applies to post scheme effects, not those arising from/during construction and, in any event the qualifying criteria are very significant.</p> <p><b>Comments by Mr Church – CAH2 Transcript Page 21 (<a href="#">EV-049d</a>)</b></p> <p>This scheme takes c10% of the area of the Borough, which is very significant and means that a very significant number of people will be affected during the protracted construction period and with no respite or compensation.</p> <p>It is submitted that the absence of any non-statutory relief could leave those needing, for example, to sell to be caught in a trap not of their own making and from which there is no obvious escape.</p>
iii	<p>Statutory tests and guidance to the extent that Thurrock Council asserts that statutory tests and guidance relevant to CA and/or TP has not been followed or are not met, the ExA wishes to test that case</p>	<p>An Order granting development consent may include provision authorising the compulsory acquisition of land if the Secretary of State is satisfied that the following conditions are met.</p> <ol style="list-style-type: none"> <li>1. that the land: <ol style="list-style-type: none"> <li>a. is required for the development to which the development consent relates; and,</li> <li>b. is required to facilitate or is incidental to that development, or is replacement land which is to be given in exchange for the order land under Section 131 or 132 of the PA2008, and,</li> </ol> </li> <li>2. That there is a compelling case in the public interest for the land to be acquired compulsorily.</li> </ol> <p>The Council has set out concerns in Section 14.2 (page 211) of its Local Impact Report (<a href="#">REP1-281</a>) that:</p> <ul style="list-style-type: none"> <li>• In many instances the applicant has not sought to justify the requirement for the area identified (in each instance), much less any attempt to justify the extent of the area identified. The applicant has produced a spreadsheet detailing what interests are required from the Council, why and when but refuses to be bound by it.</li> <li>• As advised above (agenda item a i) that the applicant is seeking to take land permanently then return it. This is surprising given the potential for taking temporary possession of land and, <i>de facto</i>, there is no compelling case to acquire the land permanently. Furthermore, there is no commitment to return land, a timescale for the return nor commitment as to condition of land at return. It is unclear why the applicant is seeking powers to CA when it could be subject to TP. This raises questions as to the</li> </ul>

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Item	PINS Description	Thurrock Council Statement
		<p>a. Proportionality;            b. Reasonableness; and,            c. Timing            of seeking greater powers than are required.</p> <p>The Applicant maintains that it has to return land in an unaltered state and that much (but not all) of the land proposed to be returned will be highway and altered by the works. Therefore, TP is not possible. Also, refer to comments in 3 a I above.</p> <p><b>It is unclear why, at this late stage, the Council</b> is still seeking to understand what is happening with its land, when and why.</p> <p>The Planning Act 2008 requires that replacement POS be provided:</p> <ul style="list-style-type: none"> <li>• ‘<i>in exchange</i>’ – in relation to the Ron Evans Memorial Field the applicant is proposing to acquire the land and re-provide in no less than 5 years later. This manifestly is not exchange, rather taking and replacing at a later date; and,</li> <li>• Requires that the replacement POS be ‘...no less advantageous than it was before...’. Whilst the area to be replaced is proposed to be larger and may be of higher quality, the fact that it will not be provided for at least 5 years means, by its absence for that period, that it is manifestly not ‘...no less advantageous...’.</li> </ul> <p><b>Comments by Henry Church - CAH2 Transcript Page 10 et seq (<a href="#">EV-049d</a>)</b></p> <p>By reference to Plate D.5 on page 31 and Plate D.6 on page 33 of 7.2 Planning Statement Appendix D Open Space (Clean Version) (<a href="#">REP3-108</a>) the Council explained:</p> <ul style="list-style-type: none"> <li>• The land to be lost by CA;</li> <li>• The land to be lost due to TP; and,</li> <li>• The land to be provided as replacement POS.</li> </ul> <p>The Council fails to understand why the land on which the replacement POS is to be provided cannot be acquired at an early stage and why the POS will take at least 5 years to layout.</p> <p>The Applicant explained that the land on which the replacement POS is, in fact, being subject to TP to facilitate scheme delivery only to be subject to CA to and be used for replacement POS once that earlier user has completed. It should be further noted that the applicant noted (see CAH2 Transcript Page 16 (<a href="#">EV-049d</a>)) that only 6870sqm of land was</p>



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Item	PINS Description	Thurrock Council Statement
		<p>required temporarily from a total of 198,000sqm. This is incorrect by a factor of 10 (ten) - Plots 29-03 and 29-04 total 69,514sqm.</p> <p><b>Request: for land identified for TP, identify when it is to be returned and in what condition.</b></p> <p>This appears to the Council as the applicant seeking to avoid the cost of acquiring additional land and enjoying the benefit of the delay. What is clear from the applicant's position is that the 5 year delay is not about time taken to establish POS, rather the use of some of the land identified for use as replacement POS for another purpose. Part will, first, be used as a Works compound and second, subject to temporary possession for utility works. It is unclear as to timing of the applicant's temporary uses, but it could be feasible that the replacement POS be provided then, almost immediately, subject to temporary possession extending further the time when the replacement POS is not available. Without a timetable for works the Council cannot be sure as to when or whether this might happen.</p> <p><b>Request: the applicant set out best estimate as to which plots it requires, at what date, for what purpose and, in respect of</b></p> <ul style="list-style-type: none"> <li>• <b>Land identified as replacement POS, when it will be provided, which must be before permanent and temporary acquisition is taken of the existing POS.</b></li> </ul> <p><b>Furthermore, as the statutory test cannot be met, and the arrangement proposed becomes one of provision of replacement land simply because the applicant has arranged to use the intended replacement land temporarily for another purpose. The applicant should provide the replacement land before both permanent acquisition and temporary possession is taken. The applicant should reorganise work site or acquire additional and for these sites if required or provide temporary replacement POS provision, until the permanent replacement land become available.</b></p> <p>Furthermore, the applicant maintains that the disbenefit of the time delay in re-provision is outweighed by the provision of a larger area of POS. As was noted by the applicant (see CAH2 Transcript Page 16 <i>et seq</i> (<a href="#">EV-049d</a>)) the temporal replacement of the POS is a factor in determining whether the re-provided land is no less advantageous. However, as Mr. Church noted there appears to be no quantitative or qualitative assessment which allows this to be measured</p> <p>This is, as the Council noted (see <b>CAH2 Transcript Page 18</b> (<a href="#">EV-049d</a>)), to the disbenefit of those residents in higher</p>

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Item	PINS Description	Thurrock Council Statement
		<p>density development to the west of the existing POS who rely on the existing provisions.</p> <p>Having reviewed the application subsequently it is clear that:</p> <ol style="list-style-type: none"> <li>1. The Applicant was erroneous in suggesting that the land on which both areas of POS would be replaced will be required for works compounds. Only part of the more southerly area of replacement land is required for a works compound. The remainder of the southerly area and the totality of the more northerly parcel identified for replacement POS appear to not be required for another purpose prior to being used for replacement of POS</li> <li>2. There is no indication of a compound shown at       <ol style="list-style-type: none"> <li>a. sheet 19 of 40 in the General Arrangement (<a href="#">AAP-017</a>) or</li> <li>b. sheet 19 of 40 in the Special Category Land Plans (<a href="#">APP-014</a>). This plan shows the land identified as replacement POS.</li> </ol> </li> <li>3. At page 19 of 40 of 2.17 Temporary Works Plans (Volume C) (Sheets 21 to 49) (<a href="#">APP-052</a>), the plan shows part of the southerly POS being identified for Earthworks storage       <ol style="list-style-type: none"> <li>a. At page 24 of 45 in 2.6 Works Plans (Volume C) Composite (Sheets 21 to 49) (<a href="#">APP-20</a>) there is a dotted green line round both areas of POS, whilst the more southerly block is partly within a dashed orange line for 'Construction Area – Main Works Compound'</li> <li>b. The more northerly block of replacement POS is not, contrary to what the Applicant stated at CAH2, being shown as being used temporarily at any time.</li> </ol> </li> <li>4. On pages 25 and 26 of 6.2 Environmental Statement, Figure 7.8 - ZTV - 5km DTM Analysis of Main Construction Compounds (1 of 2) (<a href="#">APP-204</a>) part of the land to be offered as replacement POS is identified as 'Long Lane Compound B'.</li> <li>5. Part of the land is identified as being required temporarily in connection with utility diversions and the applicant needs to identify exactly which part. It might be that this occurs after the land's use for the Long Lane Compound B and this may further delay provision of POS.</li> </ol> <p><b>Request: the Council requires the applicant to clarify exactly what areas are needed for what purpose and when and for how long in the area around and including the REMF.</b></p> <p>On the information available (which is not entirely clear), what was claimed for the applicant does not seem to be correct in</p>

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Item	PINS Description	Thurrock Council Statement
		terms of temporary use of the proposed replacement land, as set out in 1 above and within the Council's request below.
b)	<b>Birketts LLP obo Kathryn Homes Ltd, Runwood Homes Ltd and Runwood Properties Ltd re Whitecroft Care Home, Stanford Road, Orsett</b>	
i	<p>Scope of objections At OFH2, Emma Dring of counsel for these IPs <a href="#">[REP1-366]</a> to <a href="#">[REP1-373]</a> raised concerns that the effect of the proposed development on these businesses would be to render them inoperable for a substantial period, and or would lead to unacceptable operating and living conditions for vulnerable care home residents. These are not directly CA objections at present. The ExA will consider whether they should be considered as such or whether any other action outside the CA process could be appropriate.</p>	<p>Comments by Mr Edwards KC (<b>CAH2 Transcript Page 35 (EV-049d)</b>)</p> <p>The Council is very concerned about the adverse health impact arising on vulnerable residents within the Whitecroft Care Home (WCH) and supports Kathryn Homes Ltd, Runwood Homes Ltd and Runwood Properties Ltd in respect of the concerns expressed on their behalf my Mr Michael Bedford KC.</p> <p>The Council would like to confirm the following in respect of Whitecroft Care Home:</p> <p>The Whitecroft Care home has been discussed on a number of occasions with the applicant over the past 2-3 years and in the responses the Council has provided on the applicant's HEqIA. The Council has identified that there are noise and traffic impact concerns (particularly during construction) and these may have a subsequent impact on the health and wellbeing of residents in the home. These concerns were identified in the Council's D3 submission (<a href="#">REP3-211</a>) in Sections 18.9.15 – 18.9.17 and in Section 18.9.78.</p> <p>The Council's input during the pre-application stage of the DCO process has been largely around ensuring it is identified as a receptor, but also to flag some concerns on health and wellbeing impact; with the average length of stay being relatively short, it would mean potentially whole periods of this phase in a residents life could be disrupted affecting their quality of life. In addition, we note that this home, besides short stays, also offers respite stays, which can be a lifeline for unpaid carers, so there could be a consequential impact here.</p> <p>Clearly, the Council would want to have early sight of the amended air quality and noise assessments for our independent analysis, particularly and specifically in relation to locations around The Whitecroft. The latest AQQHIA (that is reviewed in the Council's D4 submission in Section 3.7 does not specifically reference the WCH, neither does the HEqIA submitted at Deadline 3 (<a href="#">REP3-119</a>).</p> <p>The Council do place residents in the Whitecroft Care Home as a residential care home only, which is a 56-bedded provision. In fact, since 2018 the Council has made approximately 300 referrals to the Whitecroft altogether, but the annual frequency would differ, as the WCH generally do not have many vacancies (and have a waiting list as well) and closures during Covid-19 would have made an impact on figures.</p>

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		<p>If were the Council to lose beds from this facility then its capacity would make it difficult for us to place and people may have to be placed outside of the Borough. This would make visiting for relatives problematic and could lead to the person feeling isolated at what is already a difficult time for people as just going into a care home can be daunting. Another factor to be considered is that out of Borough placements are generally more expensive, so the Council would be under a greater financial burden as well.</p> <p>Finally, the proximity of the proposed LTC to the home would cause concerns as people often spend their last days in a care home and the noise and traffic impacts both during construction and potentially operation would severely impact people's ability to spend these days peacefully; and working in such an environment would probably have a negative effect on staff morale.</p>
ii	CA and / or TP are there any circumstances in which the businesses might be made subject to CA and or TP for the duration of works?	The Council made no submissions on this point.
iii	Non-statutory relief to the extent that these IPs seek non-statutory relief which might including a hardship scheme and / or a need to sell scheme, to what extent and in what circumstances might they seek such schemes?	The Council supports Kathryn Homes Ltd, Runwood Homes Ltd and Runwood Properties Ltd in noting that that the statutory relief schemes do not accommodate residents of the home.
iv	Human Rights and Equalities Duty are relevant Human Rights Act (ECHR) rights and / or the Public Sector Equalities Duty (PSED) engaged and if so, what are the consequences of that engagement?	The Council made no submissions on this point.

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<b>c)</b>	<b>Lawson Planning Partnership (LPP) for an Affected Person (Mrs J Carver)</b>	
i	Scope of Objections Concerns in relation to land take and related questions about mitigation [RR-0753], [REP1-389], [REP1-390], [REP2-107].	The Council made no submissions on this point.
ii	Statutory tests and guidance to the extent that LPP asserts that statutory tests and guidance relevant to CA and / or TP and Human Rights have not been followed or met, the ExA wishes to explore these.	The Council made no submissions on this point.
<b>d)</b>	<b>Norton Rose Fulbright (NRF) and Centro for an Affected Person (Glenroy Estates Ltd)</b>	
i	Scope of Objections Concerns in relation to land take and related questions about mitigation [REP1-347].	The Council made no submissions on this point.
ii	Statutory tests and guidance to the extent that NRF/ Centro asserts that statutory tests and guidance relevant to CA and / or TP and Human Rights have not been followed or met, the ExA wishes to explore these.	The Council made no submissions on this point.
<b>4) Next Steps</b>		
<b>5) Closing</b>		