

	
Port of Tilbury London Limited	DP World London Gateway
Essex County Council	

9.113 Joint Position statement: Orsett Cock junction

1 Introduction

- 1.1 At Issue Specific Hearing 7 on 11 September 2023 the Examining Authority directed the Applicant and relevant local authorities to:
- 1.2 *“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.”* [Action Point 6 – [EV046e](#)]
- 1.3 The Applicant, Thurrock Council and Essex County Council met on 25 September 2023. Due to the relevance of the discussion to the Port of Tilbury London Limited (PoTLL) and DP World London Gateway (DPWLG), both of those parties were also invited and attended the meeting.
- 1.4 This meeting was considered by all parties to be a follow on to a previous meeting, held on 16 August 2023, with the exception of PoTLL to discuss the status of local traffic models being undertaken by National Highways. PoTLL were not a party to the 16 August 2023 meeting.

2 Review of current position

- 2.1 A review was undertaken of the actions set out by Thurrock Council , Essex County Council, and DPWLG arising from the meeting on 16 August. These actions were presented by Thurrock Council in Table 10.2 of their Deadline 4 submission titled Thurrock Council Comments on Applicant’s Submissions at Deadline 3 (D3) [[REP4-354](#)]. Only the actions relating to Orsett Cock were discussed, revised where appropriate, and a series of defined actions that focus on the Orsett Cock junction and the delivery of the agreed model outputs are set out at Annex A of this document.

3 Agreed forward modelling plan

- 3.1 A plan for further modelling of the A122 / A13 / A1089 junction including the Orsett Cock junction was agreed, which National Highways will proceed with on a 'without prejudice' basis as set out below in Table 5. This plan includes:
- (a) Seeking agreement on the changes requested to the Applicant's Orsett Cock junction forecast VISSIM model implementation plan (version 2 submitted at D1), including addressing latent demand within the model
 - (b) Updating the Applicant's Orsett Cock junction forecast VISSIM model for submission to the Examination as V3 of the model
 - (c) Taking findings from the Applicant's Orsett Cock junction forecast VISSIM model and including them into the LTAM model; and
 - (d) Sensitivity testing to address reassignment of traffic through Orsett village.

Refinement of the Applicant's Orsett Cock junction VISSIM model

- 3.2 The Applicant has considered the comments provided by Thurrock Council at Deadline 3 along with reviewing the VISSIM forecast model provided by Thurrock Council [\[REP3-207\]](#) and set out its position on whether the Applicant considers it appropriate for inclusion in an update of the Applicant's Orsett Cock junction forecast VISSIM model (Version 3). This position is provided as Annex A.
- 3.3 The Applicant proposes to prepare the VISSIM model (Version 3) based on the position set out in Annex B, and to issue this model, including an update to the outputs provided as Tables 4.5, 4.6, 4.7 and 4.8 in Localised Traffic Modelling [\[REP3-126\]](#) as well as network statistics on latent demand and delay.
- 3.4 The position of the Interested Parties on the Applicant's Orsett Cock junction VISSIM model (Version 3) are set out in Table 1.

Table 1 – All Party positions on the Applicant's Orsett Cock junction VISSIM forecast model

Interested Party	Position	Commentary
Thurrock Council	Matter not agreed	The Council reviewed the Orsett Cock forecast VISSIM model (V1) and provided their model audit at D3 [REP3-207] along with an updated VISSIM model that addressed the Council's model audit. The applicant has chosen not to

		<p>adopt the updated VISSIM model provided to them by the Council and instead is proposing to address some but not all of the comments provided by the Council and issue a Version 3 of the forecast model by 6 October.</p> <p>The Council has reviewed the comments provided by the applicant in Annex B and provided a response to the comments with a Red/Amber/Green status.</p> <p>The response provided by the applicant is accepted (green) for all issues except three, one of which is amber and the other two are red.</p> <p>With regards to the amber issue, clarification is required with regards to the use of VISVAP.</p> <p>The two red issues are critical and need to be addressed by the applicant:</p> <ul style="list-style-type: none"> - One of the 'red' issues is in relation to driver behaviour modelled by the applicant in the forecast VISSIM model in order to increase the throughput of the roundabout. The modelled driver behaviour should only be used where traffic is temporarily expected to accept reduced safety standards, which is not appropriate for Orsett Cock. <p>The other 'red' issue is in relation to the extended weave length in the model not being replicated in the general arrangement drawings</p> <ul style="list-style-type: none"> - – the general arrangement drawings need to be updated to align with the forecast model and submitted to the Examination. It should not be left to be resolved at detailed design.
Essex County Council	Matter not agreed	<p>ECC has no comments to make but reiterates its position that ECC notes the discussions that took place at Issue Specific Hearings and agrees with the submissions from Thurrock and both Ports that the junction must perform adequately. ECC has no comments on the current modelling because the cordons provided to us by the LTC modelling team do</p>

		not allow us to adequately investigate that junction, but we note the concerns raised by others. The junction is also not part of the Greater Essex network, Thurrock is the Highway Authority. We agree that this vital junction must perform adequately from day 1 of the Lower Thames Crossing operation and be capable of dealing with revised and increased traffic movements. Until there is consensus around this matter, we remain concerned.
Port of Tilbury London Limited	N/A	PoTLL has not to date provided comments on the VISSIM modelling inputs and does not intend to add to those of Thurrock Council.
DP World London Gateway	Matter not agreed	The Orsett Cock junction is complex in layout and operational terms and the detailed representation that is provided within VISSIM is far greater than can be achieved through a strategic model alone. The applicant's current VISSIM model clearly conflicts in terms of outputs with LTAM and includes significant latent demand, i.e., demand from the LTAM model which cannot enter the VISSIM model due to blocking back within the model. This must be addressed before the results, in particular delay, can be interpreted.
Applicant		<p>The Applicant maintains that the LTAM model is appropriate for the consideration of the benefits and impacts of the project. Nevertheless, the Applicant has agreed to make modifications to the VISSIM model to support the considerations of this matter through the Examination.</p> <p>The Applicant considers that the proposed position set out in Annex B to make modifications for VISSIM forecast model version 3 is appropriate and suitable.</p> <p>On the specific issue relating to the use of merging link behaviour, the Applicant does not accept the characterisation of either the description of the setting as reflecting a reduced safety standard, nor to the proposed limitation on usage of this setting, to where traffic is temporarily expected to accept reduced safety standards. The Applicant considers that the use of the urban (merge) setting is a function of the nature and location of the road network, and that use this behaviour is appropriate in this case.</p>

Incorporating the findings of the Applicant’s Orsett Cock junction VISSIM model into a run of the Lower Thames Area Model (LTAM)

3.5 The Applicant has proposed to undertake a run of the LTAM incorporating the findings of the Orsett Cock junction VISSIM model as follows:

- (a) National Highways to provide a comparison of turning traffic movements at Orsett Cock within the base VISSIM and LTAM models to demonstrate the traffic flows, and set out the basis for the difference
- (b) Change the signal timings in an LTAM run to the optimised signal timings developed in the Orsett Cock junction VISSIM model (version 3)
- (c) Calculate the delay difference between the LTAM run (with optimised signal timings) and the Orsett Cock junction VISSIM model (version 3) for each arm at the Orsett Cock junction
- (d) Insert the delay difference as a fixed time penalty in a further LTAM run
- (e) Report on the changes in flows, link times, delays, and V/C on the local and strategic road network for the fully modelled area of LTAM. A table of key journey times will be provided, setting out all the journey times to and from London Gateway Port and Port of Tilbury that were included in the updates to the Transport Assessment Appendices B and C provided at Deadline 4.

3.6 Subject to the successful agreement of the Orsett Cock junction VISSIM model (version 3), or a decision to proceed without agreement by 29 September 2023, these actions would be completed by 20 October 2023.

3.7 The positions of the Interested Parties on the Applicant’s proposed approach to reflecting the Orsett Cock junction VISSIM model findings in an LTAM run are set out in Table 2.

Table 2 – Party positions on the Applicant’s proposed approach to reflecting the Orsett Cock junction VISSIM model findings in an LTAM run

Interested Party	Position	Commentary
Thurrock Council	Matter not agreed	Thurrock Council set out it’s detailed response on model iteration within their Post-event submissions, including written submission of oral comments made at the hearings held w/c 4 and 11 Sept 2023 [REP4-352] (Appendix A of

	<p>ISH4 written submission). This summarised the industry best practice for model iteration to ensure a reasonable level of consistency across different modelling software platforms. Currently LTAM is significantly underestimating delays forecast within the VISSIM modelling of Orsett Cock.</p> <p>It should be noted that this is not just an Orsett Cock specific issue and LTAM should have a reasonable level of alignment with other VISSIM models being prepared by the applicant for key junctions within Thurrock. Orsett Cock has been identified, as the VISSIM modelling is the most progressed for this junction.</p> <p>There is not sufficient time within the Examination for the applicant to undertake the industry best practice approach to model iteration. Therefore, it was agreed at the Joint Workshop for the applicant to undertake the steps set out in paragraph 3.5. Whilst it is not industry best practice, the Council considers that the proposed steps provide a simplistic way of reflecting the delays forecast in VISSIM at Orsett Cock within LTAM in the short timescales available.</p> <p>It is unfortunate that the Council is in the position of needing to accept sub-standard modelling practices as a result of the applicant's lack of adherence to best practice during the model development phase pre-DCO submission.</p> <p>The same process as set out in paragraph 3.5 should also be undertaken for the other junctions being assessed by the applicant (i.e. The Manorway, A13 westbound on-slip at Five Bills, Daneholes, Marshfoot and Asda roundabout).</p> <p>The updated LTAM modelling will result in reassignment of traffic away from congested junctions in Thurrock and put additional pressure on other junctions that are operating close to or at capacity. The Transport</p>
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		Assessment [REP4-148], Combined Modelling and Appraisal Report [APP-518] and Benefit-Cost Ratio (BCR) will need to be updated to reflect the revised LTAM modelling. Without this, the modelling steps set out in paragraph 3.5 are meaningless.
Essex County Council	Matter not agreed	ECC has no comments to make but reiterates its position that ECC notes the discussions that took place at Issue Specific Hearings and agrees with the submissions from Thurrock and both Ports that the junction must perform adequately. ECC has no comments on the current modelling because the cordons provided to us by the LTC modelling team do not allow us to adequately investigate that junction, but we note the concerns raised by others. The junction is also not part of the Greater Essex network, Thurrock is the Highway Authority. We agree that this vital junction must perform adequately from day 1 of the Lower Thames Crossing operation and be capable of dealing with revised and increased traffic movements. Until there is consensus around this matter, we remain concerned.
Port of Tilbury London Limited	Matter agreed	The above tasks are not extensive and should be completed by the applicant in a shorter timeframe.
DP World London Gateway	Matter not agreed	<p>The alignment of the models is essential to understand the operation of the A13 corridor and Port access. The performance of the Orsett Cock network reported with the detailed VISSIM model should be appropriately reflected in the LTAM model (or vice versa). This must include both the gyratory and the Rectory Road junction given that the route through Orsett village appears to be under-constrained relative to the VISSIM.</p> <p>The applicant has suggested that there is a risk that the LTAM model will be over-constrained as an iterative approach is required to reach convergence. This is within their gift to reframe the test (e.g., not apply the full delay, address through iteration or sensitivity test).</p>
Applicant		The Applicant has set out its position on this exercise in the response to Appendix A of Thurrock Council's submission [REP4-352]

		<p>which is provided in 9.115 Applicant's Responses to IP's post-event submissions at Deadline 4.</p> <p>With specific regard to the transfer of signal timings from VISSIM to LTAM, the Applicant does not agree that this is appropriate, for reasons set out in the referenced submission. Without prejudice to this position, the Applicant has agreed to implement this into this run, to reduce the areas of disagreement.</p>
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Sensitivity testing on Orsett Cock VISSIM model

- 3.8 Thurrock Council have advised that they have concerns relating to the use of Rectory Road by traffic seeking to avoid the Orsett Cock junction. This concern relates to historic work (the A13 widening) and future traffic flows with and without the project. As a consequence, Thurrock Council are considering potential future interventions in Orsett village. Thurrock Council have therefore requested two sensitivity analyses be undertaken using the Applicant's Orsett Cock junction VISSIM model to reflect two different scenarios:
- (a) Test 1 – reflect a scenario where a traffic restriction is placed in Orsett village to prevent traffic other than local traffic from using Rectory Road
 - (b) Test 2 – reflect a scenario where a traffic restriction is placed in Orsett village to prevent traffic other than public transport and active travel from using Rectory Road
- 3.9 The Applicant has agreed to prepare models to test the two scenarios, with the proposed implementation being as follows:
- (a) Test 1 – as a proxy for a traffic limitation, the Applicant will restrict traffic using Rectory Road to the level reported in the 2016 baseline. Any additional demand for that road will be re-routed to use the A128 southbound onto the Orsett Cock junction, or the A1013 eastbound onto the Orsett Cock junction.
 - (b) Test 2 – the Applicant will prevent traffic using Rectory Road, re-routing all demand for that road to use the A128 southbound onto the Orsett Cock junction, or the A1013 eastbound onto the Orsett Cock junction.
- 3.10 The Applicant will prepare these models following the issue of the Orsett Cock junction VISSIM model (version 3). Subject to the successful agreement of the Orsett Cock junction VISSIM model (version 3), or a decision to proceed without

agreement by 29 September 2023, these works would be completed by 20 October 2023.

3.11 The positions of the Interested Parties on the Applicant’s proposed approach to undertaking further sensitivity testing using the Orsett Cock junction VISSIM model are set out in Table 3.

Table 3 – Party positions on the Applicant’s proposed approach to sensitivity testing on Orsett Cock VISSIM model

Interested Party	Position	Commentary
Thurrock Council	Matter not agreed	<p>The commentary provided by the applicant at paragraph 3.8 is misleading. In discussions with the applicant, the Council has shared its recent experience of traffic re-routing through Orsett village during the A13 improvement works, which required extensive traffic management at Orsett Cock. This information was shared with the applicant purely to demonstrate the sensitivities of this part of Thurrock’s network, but it is not the justification for the sensitivity tests as purported by NH.</p> <p>The Council continues to be concerned that the forecast delays at Orsett Cock will result in traffic reassigning through Orsett village. The sensitivity tests effectively seek to reassign traffic back onto appropriate routes (i.e. from Rectory Road to A128 southbound) to determine the impact at Orsett Cock without additional reassignment of traffic.</p> <p>The scope of the sensitivity tests is agreed by the Council. However, the Council has consistently raised the need for interventions to be provided by the applicant to mitigate the effect of traffic reassigning through Orsett village as a result of increased queuing and delay at Orsett Cock caused by LTC. It is considered that mitigation needs to be in the form of mitigation at Orsett Cock to reduce the forecast level of queuing and delay as well as measures in Orsett village and on Rectory Road to reduce the level of reassigned traffic. The sensitivity tests are not an end in themselves, they need to be used to inform appropriate</p>

		mitigation measures for Orsett Cock and Orsett village.
Essex County Council	Matter not agreed	ECC has no comments to make but reiterates its position that ECC notes the discussions that took place at Issue Specific Hearings and agrees with the submissions from Thurrock and both Ports that the junction must perform adequately. ECC has no comments on the current modelling because the cordons provided to us by the LTC modelling team do not allow us to adequately investigate that junction, but we note the concerns raised by others. The junction is also not part of the Greater Essex network, Thurrock is the Highway Authority. We agree that this vital junction must perform adequately from day 1 of the Lower Thames Crossing operation and be capable of dealing with revised and increased traffic movements. Until there is consensus around this matter, we remain concerned.
Port of Tilbury London Limited	N/A	PoTLL has not, and does not, request the sensitivity testing. Therefore PoTLL has no position on the approach proposed.
DP World London Gateway	Matter agreed	<p>The assignment through Orsett should be critically assessed to ensure that it is either realistic, and each route can accommodate the assigned demand, or it is not and the model is over assigning onto unsuitable routes (which are under-constrained in the models)</p> <p>If the models are not under constrained and significant traffic will re-route from principal roads to minor roads then the modelling assessment must also reflect and consider a reasonable response from the local highway authorities on operational, safety and/or environmental grounds. This is necessary to understand the operation of the A13 corridor and Port access.</p>
Applicant		The Applicant has agreed to undertake this sensitivity test, without prejudice to its position, to reduce the areas of disagreement.

4 Forward plan to discuss alignment of the LTAM and VISSIM v3 models, once the modelling work is completed

4.1 The position of the Applicant and Interested Parties on any forward plan is set out in Table 4.

Table 4 – Positions on any Forward Plan

Party	Position
Thurrock Council	<p>The Council response to Q4.1.10 and Q4.1.13 in the Responses to ExQ1 submitted at D4 [REP4-353] and Appendix A of ISH4 written submissions [REP4-352] set out why the Council, as local highway authority, requires there to be an agreed forecast VISSIM model for Orsett Cock and a reasonable level of alignment between VISSIM and LTAM to enable impacts and mitigation to be understood and agreed during the Examination.</p> <p>This Joint Paper has set out the modelling steps required to reduce the level of <u>technical</u> disagreement between the applicant and the local highway authorities and the Ports. However, the proposed simplistic modelling steps set out in this Joint Paper to better align VISSIM and LTAM (paragraph 3.5) will result in changes to traffic impacts in Thurrock compared to those reported by the applicant within the Transport Assessment [REP4-148], Combined Modelling and Appraisal Report [APP-518] and will require these assessments and the BCR to be updated to reflect the revised LTAM modelling. Without this, the modelling steps agreed within this Joint Paper are meaningless.</p> <p>Likewise, the purpose of agreeing the forecast VISSIM model for Orsett Cock and undertaking the sensitivity testing for Rectory Road is to understand the impacts at Orsett Cock and develop appropriate mitigation to cater for the forecast demand as well as mitigation for Orsett village. The mitigation at Orsett Cock needs to also include bus priority and safe crossing facilities for cyclists and pedestrians. Without this, the modelling steps for the VISSIM forecast model agreed within this Joint Paper are meaningless.</p> <p>The applicant’s position that no further work is required beyond the modelling steps set out in this Joint Paper is not acceptable.</p>
Essex County Council	<p>ECC has no comments to make but reiterates its position that ECC notes the discussions that took place at Issue Specific Hearings and agrees with the submissions from Thurrock and both Ports that the junction must perform adequately. ECC has no comments on the current modelling because the cordons provided to us by the LTC modelling team do not allow us to adequately investigate that junction, but we note the concerns</p>

Party	Position
	raised by others. The junction is also not part of the Greater Essex network, Thurrock is the Highway Authority. We agree that this vital junction must perform adequately from day 1 of the Lower Thames Crossing operation and be capable of dealing with revised and increased traffic movements. Until there is consensus around this matter, we remain concerned.
Port of Tilbury London Limited	Forward plan should focus on identifying suitable mitigation measures and securing these in the DCO.
DP World London Gateway	Only once the modelling work has been carried out can appropriate measures to protect access to the Ports be assessed.
Applicant	The Applicant maintains that the LTAM run used to inform the application and set out in the Combined Modelling and Appraisal Report [APP-518] is an appropriate model to determine the impacts of the project and to inform the planning decision. The Applicant does not consider there to be a need to “reconcile identified differences between the LTAM and VISSIM modelling”. As the Applicant has set out in Annex A.5 of the Post-event submission for ISH4 [REP4-180], the two different models are developed for different purposes, and the degree of alignment between the models is normal.

5 Parties position on Action Point

5.1 The position of the Applicant and Interested Parties on this Action point are set out in out in Table 5.

Table 5 – Positions on the Action Point

Party	Position
Thurrock Council	<p>The Council set out it’s detailed response on model iteration within their Post-event submissions, including written submission of oral comments made at the hearings held w/c 4 and 11 Sept 2023 [REP4-352] (Appendix A of ISH4 written submission). This summarised the industry best practice for model iteration to ensure a reasonable level of consistency across different modelling software platforms. The industry best practice for model iteration set out by Thurrock Council is a matter that specialist transport consultants representing Thurrock Council, Essex County Council, and the two national ports (PoTLL and DPWLG) are all in agreement on.</p> <p>The same process as set out in paragraph 3.5 should also be undertaken for the other junctions being assessed by the applicant (i.e. The Manorway, A13 westbound on-slip at Five Bills, Daneholes, Marshfoot and Asda roundabout).</p>

Party	Position
	<p>The local highway authorities and ports are also in agreement that the lack of alignment between the Orsett Cock forecast VISSIM models (and potentially the other VISSIM models) and LTAM needs to be addressed and, following this, that the Transport Assessment [REP4-148], Combined Modelling and Appraisal Report [APP-518] and BCR will need to be updated to reflect the revised LTAM modelling.</p> <p>This Joint Paper sets out the modelling steps required to finalise the VISSIM forecast model for the junction by 20 October. There are two 'red' critical items that have not been addressed by the applicant that are required for the forecast VISSIM model to be agreed.</p> <p>The agreed forecast VISSIM model should then be used to inform mitigation proposals for Orsett Cock and Orsett village to be secured within the DCO.</p>
Essex County Council	<p>ECC has no comments to make but reiterates its position that ECC notes the discussions that took place at Issue Specific Hearings and agrees with the submissions from Thurrock and both Ports that the junction must perform adequately. ECC has no comments on the current modelling because the cordons provided to us by the LTC modelling team do not allow us to adequately investigate that junction, but we note the concerns raised by others. The junction is also not part of the Greater Essex network, Thurrock is the Highway Authority. We agree that this vital junction must perform adequately from day 1 of the Lower Thames Crossing operation and be capable of dealing with revised and increased traffic movements. Until there is consensus around this matter, we remain concerned.</p>
Port of Tilbury London Limited	<p>The completion of the above modelling (3.2 to 3.7) will provide adequate alignment of the differing modelling approaches and enable a more informed judgement in identifying suitable mitigation measures.</p>
DP World London Gateway	<p>Access to Ports is of strategic importance for commerce and it is reasonable to understand the operational implications of changes in the transport system. Here the detailed VISSIM model reports significantly more operational stress than the strategic LTAM model. Given the degree of variance it is appropriate to refine the strategic LTAM model. This will give confidence in the LTAM model as a whole.</p>
Applicant	<p>The approach to incorporating the findings of a VISSIM model into a strategic model such as Saturn is not in accordance with any guidance and does not constitute normal practice. This is set out in the Post-event submission for ISH4 [REP4-180], both at</p>

Party	Position
	<p>agenda item 3(a)(i) and within Annex A.3. Application of this technique to a single junction will create an imbalance across the model, as the delays input at the Orsett Cock junction may disproportionately impact traffic using that junction. The process of preparing the Orsett Cock VISSIM model took account of different traffic counts, and aspects of driver behaviour. Similar aspects would not be included at other junctions along the A13, the A128, the A2 and wider network. As stated at ISH4, the process of preparing localised models for all junctions, and then reflecting the model delays back into LTAM, is not standard practice, and would extend the modelling period substantially beyond the requirements of the guidance and so would be disproportionate.</p> <p>Notwithstanding this, the Applicant recognises the concern set out by Interested Parties during Issue Specific Hearing 4, that flows across the road network may be sensitive to delays at the Orsett Cock junction. The Applicant has therefore agreed to undertake this modelling exercise on a without prejudice basis, and to provide this information to Interested Parties in order to support the conversation.</p>

	
Port of Tilbury London Limited	DP World London Gateway

Annex A – Agreed Action list

Action ID	Related Thurrock Council	LHA /IP action description	Action owner	Planned timeline
Developing an agreed VISSIM model of the A122 / A13 / A1089 junction, including Orsett Cock roundabout				
1	2	Applicant to share version control for all modelling going forward and model log summarising changes that are made between versions.	NH	Completion by 29 September 2023
2	11	Thurrock Council to provide Applicant with comments on the VISSIM model shared in 2022.	TC	Completed at Deadline 3
3	12	Applicant to review and address Thurrock's comments documented in [REP3-207] (Thurrock's review of changes made in Model Version 2 in comparison with Model Version 1), Appendix E, Annex 3 and provide explanation of changes made to the model	NH	Completion by 6 October 2023
4	12	Applicant to review Thurrock Council's comments on VISSIM model V1 and incorporate / provide a reason for not incorporating	NH	Completed on 26 September 2023
5	--	Thurrock Council to provide as-built drawings of the Orsett Cock junction and will provide as soon as they are available	TC	Completion by 29 September 2023
6	--	All parties to comment on Applicant's Joint Paper for Orsett Cock and confirm agreement / disagreement	All	Completion by 29 September 2023

Action ID	Related Thurrock Council	LHA /IP action description	Action owner	Planned timeline
7	5, 14	Applicant to prepare and issue VISSIM model version 3 (subject to agreement at action 5)	NH	Completion by 6 October 2023
Incorporating VISSIM model findings into the LTAM				
8	13, 17, 19	Applicant to incorporate signal timings and junction arm delays into the LTAM, and provide model outputs showing changes to flows, delays and V/C (Volume over Capacity) on the local road network and strategic road network for the entire LTAM area	NH	Completion by 20 October 2023
Further sensitivity analysis of the A122 / A13 / A1089 junction, including the Orsett Cock junction				
9	15a	Run a sensitivity test reallocating a proportion of Rectory Road traffic to A128 (i.e. limit to local traffic through Orsett) and understand implications on the Orsett Cock junction Test 1: Assume 2016 base traffic through Orsett village remains and all other traffic reallocated onto A128.	NH	Completion by 31 October 2023
10	15b	Run a sensitivity test reallocating a proportion of Rectory Road traffic to A128 (i.e. limit to local traffic through Orsett village) and understand implications on the Orsett Cock junction Test 2: Rectory Road closed to all traffic except public transport and active travel.	NH	Completion by 31 October 2023

	
Port of Tilbury London Limited	DP World London Gateway

Annex B – Applicants and Interested Parties positions on Thurrock Council’s comments on the VISSIM forecast model version 1

Applicant’s context

VISSIM Forecasting Model Versions

In the lead up to the DCO examination, two versions of the Orsett Cock forecasting model were issued by National Highways (NH) to Thurrock Council.

The VISSIM forecasting model versions that have been issued by NH to Thurrock Council are:

1. Version 1 (NH version no. 1.5) issued to Thurrock in September 2022
2. Version 2 (NH version no. 2.4) issued, to Thurrock in July 2023 (at Deadline 1)

Since version 1 was issued to the Council the main change in version 2 of the VISSIM forecasting model was the updating of the forecast traffic flows used in the model and taken from LTAM.

The LTAM forecast year model runs used as the basis for the VISSIM model matrices were:

- Version 1 used forecasted traffic flows from LTAM run ID CM45 for the Do Minimum scenario and LTAM run ID CS67 for the Do Something scenario; and
- Version 2 used forecasted traffic flows from LTAM run ID CM49 for the Do Minimum scenario and LTAM run ID CS72 for the Do Something scenario.

It should be noted that the LTAM forecast year matrices are not used directly in the VISSIM model but are used in the preparation of the future year matrices used in VISSIM, which are based on one day 2016 turning counts at the Orsett Cock junction.

Version 2 also included these additional changes:

- a) Updated the edges to a total of 36 edges in the DM scenario and 37 in the DS scenario.
- b) Amended speeds with Desired Speed Decision (DSD) on two slip roads.
- c) Added a route closure to prevent vehicles using the A13 WB off slip – Orsett Cock – A13 EB on slip.

Version 2 of the model was used to produce the results presented in the Orsett Cock Forecasting Report and the Localised Modelling Report.

Comments and responses

Thurrock Council provided comments on the microsimulation (VISSIM) forecast modelling of Orsett Cock Interchange within Annex 5, of Appendix E of the Thurrock Council Comments on Applicant’s Submissions at Deadline 1 and 2 [\[REP3-207\]](#)

The table in this Annex provides a summary of these comments, the Applicant’s position on these comments, and the response to that position from Thurrock Council, along with a RAG rating provided by Thurrock Council as characterised below.

It should be noted that the comments received from the Council relate to version 1 of the VISSIM.

Some of the comments made by the Council (on model version 1) had already been addressed by National Highways in version 2 of the VISSIM forecasting model.

Thurrock Council’s Comments on National Highways’ Responses

The Council’s comments on version 1 of the VISSIM forecasting model together with NH’s responses, are shown in the table on the next page.

National Highways are currently producing version 3 of the VISSIM forecasting model which is based on version 2, with amendments to address some of the issues raised by Thurrock.

Thurrock Council has reviewed the comments provided by NH and their response is provided next to the National Highways’ comments in the table on the next page. Each comment provided by Thurrock Council has been assigned a Red/Amber/Green (RAG) status based on the criteria in the table below.

Thurrock Council’s RAG Review Categorisation

RAG Category	Description
Comments	Findings noted as part of the model audit process that may require consideration and amendment however not deemed to have a material impact on the overall operation or outputs derived from the model.
Recommendations /Additional Information required	These observations constitute of suggested recommendations as part of the model audit process and request for supporting evidence made by the reviewer to provide assurance that best modelling practice has been adhered to and therefore the modelling outputs are reliable.
Critical Issues	Issues in the model that require corrective action as these are deemed to have an impact on the operation of the model and associated outputs.

The table on the next page is focused on addressing National Highways' comments on Thurrock's review of Orsett Cock VISSIM model version 1.5 (Version 1). For the model to be acceptable, the Council also requests that National Highways addresses Thurrock's comments documented in [\[REP4-352\]](#) (Post-event submissions, including written submission of oral comments made at the hearings held w/c 4 and 11 Sept 2023). This has specifically requested changes to the model to address discrepancies between LTC design and the microsimulation model in the Do Something model, e.g. extended weave length. This issue was discussed at the Joint Workshop held on 25 September and has been included in the table below to set out the positions on this matter.

Summary of Thurrock Council’s comments with the positions of the Applicant and Thurrock Council

Thurrock Council’s comments on **version 1** of the VISSIM forecasting model together with NH’s responses and Thurrock Council’s position, are shown in the table below.

The Applicant is currently producing **version 3** of the VISSIM forecasting model which is based on version 2, with amendments to address some of the issues raised by Thurrock.

No	Scenario	Thurrock proposed change to VISSIM version 1 model	Thurrock more detailed description of proposed change	National Highways response	Thurrock Council Response													
1	DM, DS	Orsett Cock edge closures	Version 1 contains too many edges. This can be reduced to 36 in DM and 37 in DS	Already included in NH version 2., and will be included in version 3	National Highways’ resolution is accepted.	Green												
2	DM, DS	A1013 EB approach	Reduce flare length to more accurately reflect available road space	<p>We coded the flares following TfL’s standard practice to extend the link of the flare as necessary to allow diverging at the correct location on the link, as vehicles do not change lane immediately when they enter a link representing a flare. These changes are small and not all of the flares reduce in length:</p> <table border="1"> <thead> <tr> <th>Location</th> <th>v1 & 2</th> <th>Thurrock's Comments</th> </tr> </thead> <tbody> <tr> <td>A1013 W</td> <td>40.03m</td> <td>38.81m</td> </tr> <tr> <td>A1013 E</td> <td>59.31m</td> <td>58.63m</td> </tr> <tr> <td>A128 S Brentwood Rd</td> <td>53.04m</td> <td>53.63m</td> </tr> </tbody> </table> <p>Additionally, the model was originally built while the Orsett Cock junction was under construction. Now the works are complete the flare lengths can be adjusted if required to match the junction as built, if we are provided with an ‘as-built’ drawing., but these are small as shown above. Otherwise, version 3 will retain the same dimensions as versions 1 & 2</p>	Location	v1 & 2	Thurrock's Comments	A1013 W	40.03m	38.81m	A1013 E	59.31m	58.63m	A128 S Brentwood Rd	53.04m	53.63m	<p>National Highways’ resolution accepted.</p> <p>It should be noted that NH has already been provided with the ‘for construction’ drawings of the Orsett Cock improvement scheme that was recently implemented.</p> <p>Thurrock Council has requested the ‘as built’ drawings’, which will be provided when available.</p>	Green
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3	DM	Lane use in circulatory carriageway	Lane allocation should be changed to match the as-built lane allocation between the A13 EB off-slip and Brentwood Road now the roundabout has been built.	At the time of model development, no as-built drawings were available. We agree to change this lane allocation in version 3 with southbound traffic to Brentwood Rd (S) using the left (nearside) lane, if we are provided with an 'as-built' drawing.	NH has already been provided with the 'for construction' drawings. The as-built lane allocation for the southbound circulatory can also clearly be seen on aerial mapping. The Council has re-provided the 'for construction' drawings and has requested the 'as built' drawings', which will be provided when available. The Council accepts NH proposed resolution of this issue.	Green
4	DM, DS	Change link behaviour	Change link behaviour from urban(merge) to urban(motorised)	The Urban (merge) behaviour was applied to allow smoother and more co-operative lane change behaviour between vehicles on the circulatory, and to avoid vehicles waiting for unrealistically long times to change lane. NH do not agree to changing the link behaviour.	Changing link behaviour to 'merging' is not accepted to be good practice in the circulatory, and it should only be used where traffic is temporarily expected to accept reduced safety standards, e.g. when joining the motorway from a slip road. This is a temporary behaviour and should not be used as a standard way of practice to increase the throughput of the roundabout. 'Advanced merging' or 'Cooperative lane change' could be considered, which are parameters on the Lane Change tab of the driving behaviour. Proposed resolution not accepted.	Red
5	DS	Change merge locations	Change merge locations between new LTC network and the A13	This is a difference in VISSIM coding style. The coding currently allows a merging behaviour for vehicles to merge in turn which is judged to be representative of driver behaviour in this area. NH do not agree with this change.	Thurrock Council considers that the applied VISSIM coding may underestimate throughput at the merges and may highlight issues with the model which would not happen when built. Despite differences from the recommended approach, National Highways resolution is accepted.	Green
6	DS	Change diverge locations	Change entry diverge locations within the model	The slight difference in diverge locations is due to the coding style referred to above. NH do not agree with this change.	Thurrock Council considers that the applied VISSIM coding may underestimate cooperation and throughput at the diverges and may highlight	Green

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					issues with the model which would not happen when built. Despite differences from the recommended approach, National Highways resolution is accepted.	
7	DS	Change reduced speed areas on slip roads	Change reduced speed areas on slip roads	The speeds on two slip roads were amended in version 2 of the model – the speed from LTC S (NB) to A13 EB (Orsett Cock) was changed from 40mph to 30mph and the speed from A1089 to LTC S from 70mph to 50mph, with Desired Speed Decision (DSD). NH do not agree with Thurrock that the slip road from the A1089 to LTC (S) should be 30mph as the advisory speed limit is 50mph.	National Highways' resolution is accepted.	Green
8	DS	Change signals timings	Change signal timings to VISVAP (vehicle activated) signal control which is dependent on traffic demand	NH do not agree with this. Fixed signal timings maintain signal coordination of the stop lines on the circulatory.	National Highways' comment on the application of signal timings contradicts the practice followed by National Highways on the released Version 2 models. While the 2030 DM and DS models are using fixed time, the 2045 DM and DS models use VISVAP. National Highways is required to explain this approach.	Amber
9	DS	Link resolution and accuracy	Change links to match as built design across whole model	These are very minor discrepancies which would have no impact on the performance of the junction in the model. NH can change in version 3 of the model if necessary following receipt of the as-built drawings.	National Highways' response is accepted.	Green
10	DS	Extend length of A13 approach link	Extend A13 EB approach by 700 metres	Agreed – this addresses the latent demand issue as the entire length of any queue would appear in the model.	National Highways' resolution is accepted. In order to determine if the latent demand issue has been sufficiently resolved by V3 of the forecast model, the applicant is required to include latent demand and delay results within the model outputs submitted to the Examination.	Green

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				The entry links at Rectory Road and the A128 N approach will also be extended for the same reason in version 3.		
11	DS	Change A13 WB – LTC NB merge coding	Change merge coding	This is a difference in VISSIM coding style. The coding currently allows a merging behaviour for vehicles to merge in turn which is judged to be representative of driver behaviour in this area. NH do not agree with this change.	Thurrock Council considers that the applied VISSIM coding may underestimate cooperation and throughput at this merge and may highlight issue with the model which would not happen when built. Despite differences from the recommended approach, National Highways resolution is accepted.	Green
12	DM, DS	Change length of reduced speed areas (RSA)	Reduce RSA lengths to avoid them running through connector start or end points	This occurs at the A128 N, A1013 E and A128 S entries to the roundabout, with minor impacts. Agree to update RSA lengths in version 3.	National Highways' resolution is accepted.	Green
13	DS	Add diverge to node 119	Node 119 did not include a diverge point	Agree to add diverge to node 119 in version 3.	National Highways' resolution is accepted.	Green
14	DS	Add nodes to diverge points	Not strictly required but add nodes to 9 diverge points	Agree to add nodes to 9 diverge points in version 3	National Highways' resolution is accepted.	Green
15	DS	Add route closure to prevent vehicles using A13 WB off slip – Orsett Cock – A13 EB on slip	Prevents vehicles using A13 WB off slip – Orsett Cock – A13 EB on slip	Already included in NH version 2 and will be included in version 3	National Highways' resolution is accepted.	Green
	DS	Extended weave length	As set out in Thurrock Council's LIR [REP1-281] and reiterated at ISH3	The Applicant has set out its position on the detailed design process. In recognition of the concern	The Council considers that the general arrangement drawings submitted with the DCO	Red

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		for traffic coming off LTC and weaving with A13 EB off slip	<p>[REP4-352] there is a discrepancy between the VISSIM forecast model and 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 over just 90m. The forecast VISSIM model 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. However, the design of the junction has not been updated to reflect the need for a much longer weave length.</p>	<p>expressed by Thurrock Council, the Applicant has set out a proposed Requirement in relation to the operation of Orsett Cock junction, which is discussed in 9.114 Wider Network Impacts Update. The Applicant considers that the VISSIM model design is appropriate.</p>	<p>application need to be updated to reflect the extended weave length shown to be required by the VISSIM forecast modelling. The updated general arrangement drawings need to be submitted by the applicant as part of the Examination. The weave length would need to be extended by more than 100m, which is not insignificant and could have consequential effects on other aspects of the junction design. This issue should not be left to the detailed design stage to be resolved.</p> <p>The Council does not accept National Highways' position.</p>