

Lower Thames Crossing

Comments on Modelling Submissions at D6A

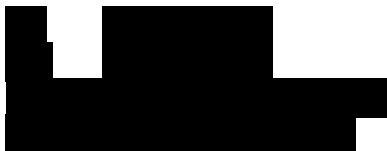
Lower Thames Crossing

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on behalf of DP World London Gateway*

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SJT/20491-05 Comments on Modelling
Submissions at D6a

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1.0 Introduction and Context

1.1 As has been confirmed in previous submissions, the fundamental concern raised by DPWLG (and other parties including Thurrock and Port of Tilbury) is the way that Orsett Cock has been modelled in the DCO submission. These concerns are separate but inter-related, and are summarised below:

- i. The applicant seeks to justify the DCO in terms of economic appraisal on the basis of the outcomes of the LTAM model.
- ii. They have separately presented a VISSIM model of Orsett Cock which supports the conclusions of previous representations by DPWLG (and others) that the junction cannot adequately accommodate the level of vehicles forecast to be seeking to use junction by LTAM.
- iii. The knock-on effect of this lack of capacity is that a proportion of those vehicles are very likely to seek alternative routes to Orsett Cock which in turn will impact on the Manorway Interchange to the detriment of London Gateway.
- iv. At present there is a clear (and significant) lack of convergence between the two modelling approaches on the basis that the outcomes of the LTAM and local junction modelling assessments conflict with and contradict each other. Given the findings of the local junction model, it is DTA's view (see Section 2.2 of D1 submission) that the LTAM (as a strategic model) is most likely in error.
- v. At this stage therefore, no weight can be given to the conclusions of the WebTAG assessment in terms of its findings regarding impacts, benefits or, indeed, mitigation. This therefore raises significant doubt and uncertainty in respect of the benefit/cost analysis undertaken by the Applicant and in reaching its benefit cost ratio (BCR) for the LTC application Scheme, which in any case is low.
- vi. In addition to this concern on the base assessment, the Applicant has provided no

robust response to the IP's concerns relating to Network Resilience as set out in Section 3 of the D1 submissions. Issues relating to incidents at Dartford (which are a daily occurrence) are not assessed in the application and that will, as demonstrated by previous submissions, likely have a significant and material impact on the outcome of any BCR assessment.

- vii. The Applicant has sought to address these concerns by updating the modelling using the agreed approach set out in the Joint Position Statement (REP5-084).
- viii. At D6, the Applicant submitted two principal modelling reports of relevance to DPWLG's objections to the scheme. These arose partly out of REP5-084) and are:
- REP6-056 – 9.15 Localised Traffic Modelling.
 - REP6-058 – 9.15 Localised Traffic Modelling Appendix C – Orsett Cock Forecasting report.
- ix. In addition to the above, the Applicant has provided DPWLG (and others) a further modelling note on 31st October 2023, which provides a further sensitivity test of the modelling outcomes, as set out and agreed in Action Points 9 and 10 of the Joint Position Statement (REP5-084). This is referred to below.
- x. Para 3.5 (e) of that document confirms an agreement by the applicant to provide a further document which would:
- “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.”*
- xi. At the time of drafting these representations that data has not been provided to DPWLG and is fundamental to the consideration of the proposals.

2.0 Response to REP6-056 – 9.15 Localised Traffic Modelling

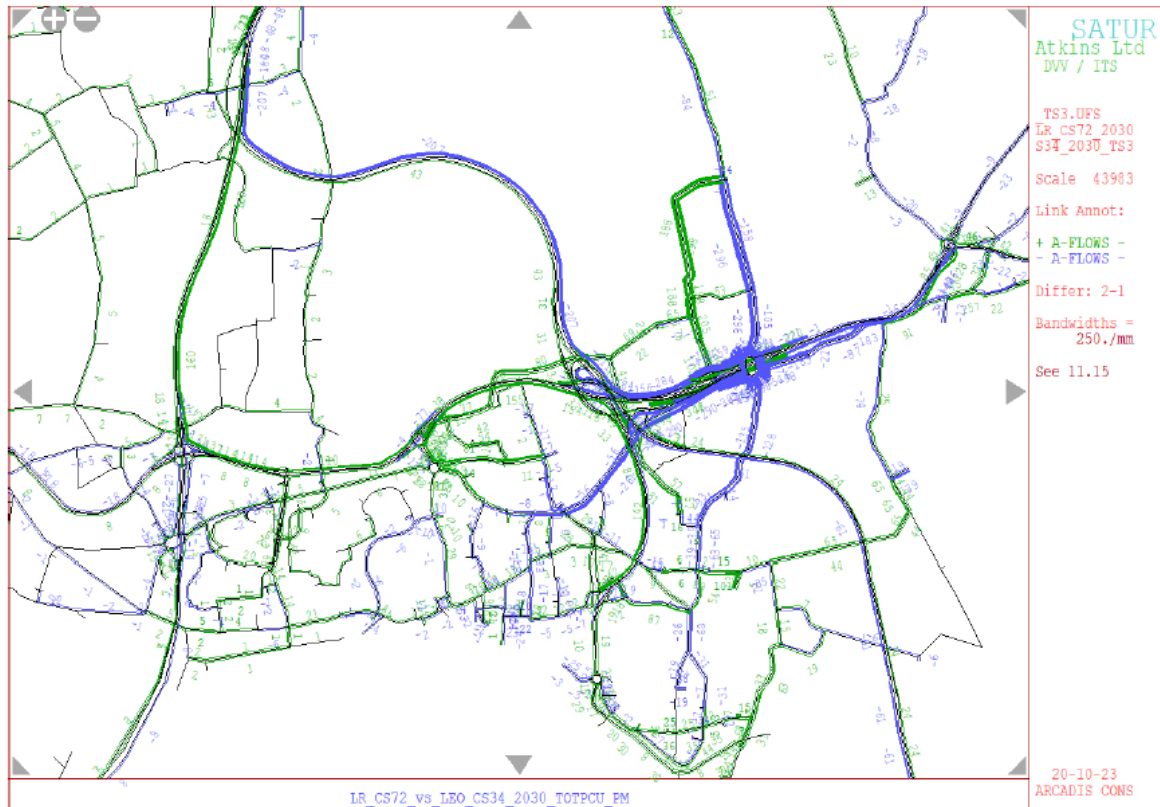
- 2.1 The majority of the context of the main text of the report is the same as submitted at **REP1-189** and therefore DPWLG have responded to these in their D2 submissions [**REP3-154**] – all of which remain valid and unanswered by the Applicant.
- 2.2 Tables 4.5 onwards are a reproduction of comparisons between LTAM and VISSIM as originally provided at REP1-187. As set out in DPWLG’s D3 submission, this information was (significantly) lacking comparison on key journeys and in particular excluded a comparison of movements the A13 eastbound to Tilbury or the A1013. Comparison of these movements are of specific concern given the forecast queuing on the approach to the Orsett Cock. These are still omitted from the modelling outputs and therefore no reliance can be placed on the conclusions that the two models appropriately converge.
- 2.3 Overall the report agrees that there are differences in the modelling and confirms at 4.2.5 that:
- “The differences in journey times between the two models is greatest when the overall volume of traffic using the junction is higher. The degree of variability between the two modelling approaches is sensitive to the settings of the signal controls and lane markings. Refinements would be made during the detailed design stage, and with the collaboration of Thurrock Council in the early operational phase, to modify traffic light layout, timings and sequencing to optimise flows.”*
- 2.4 It is DPWLG’s position, as previously highlighted, that more fundamental work is required to address this imbalance and a requirement to secure the design and implementation of an appropriate scheme has been submitted as **REP6-163** (Appendix 4).
- 2.5 Appendix B of REP6-056 reports on the outcome of incorporating VISSIM model findings into LTAM. That process has resulted in a substantial and significant reduction in the level of traffic able to use Orsett Cock. This is consistent with the position previously put forward by DPWLG. The affects are highlighted below using 2030 PM Peak as an example.

2.6 Plate B6 shows significant reductions in traffic flows using Orsett Cock. Because the models have been subject to Variable Demand modelling, the changes in flow could be for the following reasons (in order of the likely impact):

- Re-routing;
- Trip re-distribution (change in trip origin and/or destination);
- Mode shift; and
- Trip suppression.

2.7 Assuming that re-routing is the key changing factor, these flows appear to be reassigning to either J30 or to local roads around Thurrock including most substantially Orsett Village itself. The reassignment back to J30 is of concern given the purported benefits provided to DPWLG in terms of journey times (as set out in Appendices B and C of the TA provide at D4) which were dependent on the removal of congestion issues at J30 (see also Appendix A2 of Appendix E of 9.53 at Deadline 2 (REP2-050)).

Plate B.6 2030 PM plots VISSIM delays hard coded into SATURN, Thurrock



- 2.8 This in turn has an impact on The Manorway Interchange which experiences increases on the A1013 arm and three out of four slip roads – see Plate B8. This change in flows, in itself, is material and highlights the specific concerns made in DPWLG written representations that congestion at Orsett Cock would result in diversion of trips to The Manorway. The impact of this is not assessed by the Applicant in the revised assessments.
- 2.9 In addition to this, the impact of what is a significant change in flows through the Orsett village has not been modelled by the Applicant in terms of environmental impacts. It is unlikely to be acceptable and therefore, mitigation to address this would be required if the conclusions of the ES were to remain robust.
- 2.10 This issue was pre-empted by all parties and **REP5-084** specifically included for a further assessment to assess the impacts. The further modelling report issued on 31st October considers the implications of closing the through route in Orsett to through traffic. This model run is undertaken in VISSIM only. This shows very significant increases in traffic congestion at the junction with (for example) the 2045 PM summary extracted below.

Table 16 Traffic conditions, 2045, PM peak 17:00 - 18:00

Junction	Approach	Run ID 3.6 Core Scenario						Run ID 3.11 Sensitivity Test 2					
		Flow (veh)		Avg. Delay per veh [s]		Mean Max. Queue [m]		Flow (veh)		Avg. Delay per veh [s]		Mean Max. Queue [m]	
		DM	DS	DM	DS	DM	DS	DM	DS	DM	DS	DM	DS
Orsett Cock	A128 Brentwood Rd (North)	798	890	356	117	1,061	182	1,091	904	264	564	1,166	1,647
	A13 (East)	1,018	501	78	230	131	144	1,016	508	65	242	113	139
	A1013 Stanford Rd (East)	696	514	192	159	326	175	697	508	301	136	503	108
	Brentwood Rd (South)	571	647	107	171	117	191	580	652	209	238	264	227
	A1013 Stanford Rd (West)	1,040	887	63	127	83	131	1,130	651	94	437	424	866
	A13 (West)	765	2,163	47	318	39	2,257	764	2,365	43	232	39	1,706
A1013 Stanford Road / Rectory Road	Rectory Rd	269	366	445	121	347	134	1	1	50	51	0	0
	Stanford Rd (East)	1,044	914	12	10	44	65	1,007	908	8	5	2	11
	Stanford Rd (West)	1,127	976	7	6	-	-	1,127	652	21	240	-	-

- 2.11 Clearly queuing on the A128 Brentwood Road (North) i.e. southbound, would increase substantially as will delay. Given the findings of **REP6-056** as discussed above that reductions in capacity at Orsett Cock will have the affect the diverting traffic to J30 and The Manorway Interchange in the Core Scenario, this further substantial change is likely to impact further with, in DTA’s expectation., even larger number of vehicles re-assigning to J30 and The Manorway Interchange.

2.12 Two key conclusions can be drawn:

- i. This updated modelling clearly substantiates DPWLG concerns in their Written Representations that there is likely to be a significant impact at The Manorway Interchange which has still to be properly assessed. This is essential in order to properly understand the impacts on the operation of DPWLG. In my opinion, this work would confirm the conclusions of DPWLG in their Written Representations (REP1-333 Annex A) that vehicle movements at The Manorway Interchange would be likely to increase by a significant level and mitigation will be required to accommodate it. That mitigation would likely be of the scale suggested at Appendix H of RE1-333 Annex A.
- ii. If there is to be a significant diversion of traffic 'back' to J30 (from that originally assumed by LTAM) it puts into doubt the overall wider journey times claimed by the applicant. Until this is properly assessed by the applicant the validity of the journey time savings purported by the applicant to result from the LTC are unfounded and not supported by a robust evidence base.

3.0 Response to REP6-058 – 9.15 Localised Traffic Modelling Appendix C – Orsett Cock Forecasting report

3.1 As set out in representations made by Thurrock (who have undertaken a more detailed review of the VISSIM model itself) the outcome of the VISSIM model now appears to be showing (in their view) artificially low levels of capacity in the DM when compared with the DS.

3.2 As set out in previous representations, concern has been raised that notwithstanding inconsistencies in the published VISSIM modelling with the LTAM, there was significant latent demand in the VISSIM model. The revised model appears to have resolved most of the Latent Demand issues. However, there remain some significant levels of latent demand in the model.

Table 4.13 Latent demand [veh]

Scenario	AM 7-8	AM 8-9	PM 17-18
DM 2030	3	23	3
DS 2030	64	2	2
DM 2045	82	458	166
DS 2045	79	48	88

3.3 The overall conclusions of the modelling report are that:


“5.1.4 Overall delays and queueing are forecast to increase at the junction with the implementation of the Project in 2030 and 2045, particularly in the PM peak period with an increase in delays and queues in the 2045 DS scenario on most of the approaches except Brentwood Road (South) approach.

5.1.5 Analysis of the traffic conditions at the A1013 Stanford Road/ Rectory Road junction shows that Rectory Road is over-saturated in the DM scenarios and the delays and queues are predicted to decrease in the DS scenarios.”

3.4 The impact on Rectory Road in particular needs specific consideration. The fact that the modelling suggests congestion will decrease here implies that vehicles are diverting elsewhere and this is confirmed in REP6-056 as discussed above. This clearly supports the concerns raised by DPWLG (and others) about the propensity for such a phenomenon to occur more generally.

3.5 Changes in vehicle times through the junction will remain significant, particularly in the PM peak. The A13 eastbound shows a queue of 700m in 2030 rising to over **2km** in 2045. Journey time increases of at least 60 seconds are forecast in 2030 and 200 – 300 seconds in 2045. There is no reported queue on the A128 southbound which conflicts with the conclusions of the Applicant’s Linsig and LTAM modelling.

3.6 This remains in conflict with the LATM outputs. The figure below was provided by the applicant on 29/09/23 and shows a zoomed in version of Table 7.27. It can be seen that whilst the nodes are shown as being of moderate impact, there is no reference to the A13 eastbound approach or A128 southbound approach.



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