

Appendix L – DfT Clarification Questions

LOCAL GROWTH FUND PORTFOLIO SCHEMES - CLARIFICATION QUESTIONS

SCHEME: Great Yarmouth Third Crossing

PROMOTER: Norfolk County Council

DATE: 26/08/20

#	Ref.	Comment on Report Finding / Areas for Clarification	Impact and RAG rating	Response from scheme promoter as 15/09/2020
1	LMVR	Please provide a map, or otherwise, showing where speed-flow curves have been used. If these have been used within the simulation area, please justify and convince that delays have not been double-counted, e.g. on the A47 through Great Yarmouth.	Amber	<i>JT validation on route 3 (A47 NB/SB) is within TAG criteria. Model vs observed profile is good for the route, notwithstanding the issues on the NB approach to Gapton rbt. The effect of speed flow curves has not double counted any delays.</i> <i>Plot showing location of speed flow curves has been produced and is included in Supporting Document 10 - Supplementary Modelling Report.</i>
2	LMVR	At key locations near the scheme there are MTCs but no ATCs. Please describe how these MTCs were checked/adjusted to ensure they are representative of two weeks' worth of data, i.e. not affected by short-term localised events. Please provide the factors used to adjust the counts for monthly/yearly variations. Please provide plots that show which counts have been used during calibration of the matrix and/or network, and which were reserved for independent validation.	Green	<i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
3	LMVR	It's not clear whether the HE Coding Manual standards were applied to new/updated junction coding only, or the whole simulation area. Please confirm coding standards have been applied consistently across the entire simulation area	Green	<i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i>

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		(notwithstanding localised adjustments during calibration). Please also provide a table showing the source and currency (i.e. date) of signal data at each signalised junction within the area of influence of the scheme.		
4	LMVR	Please provide evidence of the analysis of flow profiles near the scheme to confirm the modelled peak hours are appropriate	Green	<p><i>This is documented in section 3.5 of Supporting Document 5 – TUBA Methodology Technical Note which provides more information than the LMVR.</i></p> <p><i>The flow profiles on the A47(Acle straight, Breydon Bridge, S of Beaufort Way), Haven Bridge and South Denes Road were included with other counts to derive the peaks hours for the model. This is documented in section 3.5 of Supporting Document 5 – TUBA Methodology Technical Note.</i></p>
5	LMVR	<p>At the Breydon Bridge site the sample size of observed GVs (particularly HGVs) is very low and it was not deemed possible to blend with Traffic Master OD data. Given this bridge is close to the proposed third river crossing and serves local trips relative to the A47 Haven Bridge, please comment on the impact this weakness in the prior matrix may have on the scheme assessment.</p> <p>Please provide more information on the source and age of data in the 2008 matrix, and comment on any potential issues with using this as a source of data for more than half of the trips in the prior matrix.</p> <p>It would be useful to understand what proportion of trips that use the third river crossing are from observed data sources. Could this be analysed using select link analysis in an assignment of the prior matrix? If so please comment on the results and potential impact on the robustness of the scheme appraisal.</p>	Amber	<p><i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i></p>

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		Table 7.7 suggests that cross-river traffic is 60-70% observed in the prior matrix. With 2016 RSIs on both river crossing sites, why is it not closer to 100% observed (notwithstanding the low HGV sample size)? Please provide more details on the process of blending the observed and background matrices and how factors were derived.		
6	LMVR	There is no evidence of the validation of trips in the matrix at specific sites. Are there any large trip generators in the study area, particularly near the scheme? If so please provide analysis that demonstrates the trips in the prior matrix of these sites is reasonable.	Amber	<i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
7	LMVR	The impact of matrix estimation, particularly at the cell level, is quite large with R2 values much lower than TAG targets. Does this point to a poor quality prior matrix? Perhaps an XAMAX=5.0 allowed the matrix to change more than necessary? Please provide an explanation and justification for the large changes. Are they in significant locations relative to the scheme? What is the potential impact this could have on the scheme assessment?	Amber	<i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
8	LMVR	Please provide the prior matrix validation performance (i.e. against screenlines) and comment on whether the validation is sufficient to proceed to matrix estimation. Please confirm whether any screenlines were reserved for independent validation. If not, or just one as indicated in Figure 10.4, provide justification.	Amber	<i>Further details are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
9	LMVR	It's surprising how good the validation of the prior matrix is, given how much the prior is changed by ME. Please provide comments on this apparent discrepancy.	Amber	<i>Results are provided in Supporting Document 10 - Supplementary Modelling Report.</i>

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		<p>Figures 10-4 to 10-6 show modelled flow against observed flow. However they only seem to show a handful of the 177 calibration and 57 validation counts. And they do not provide an indication of whether the difference is significant compared to the total flow on each link. Please provide maps that clearly illustrate the validation performance against all relevant counts in the study area, by plotting difference and %difference, or GEH (if GEH show whether it's higher or lower than observed). Clearly indicate whether the count is an ATC or an MCC.</p> <p>Please also provide diagrams illustrating the validation against turn counts at key junctions within the area of influence.</p>		
10	LMVR	<p>On Route 3 NB there is around 2 minutes observed delay in AM and PM that the model does not capture. It's around 4-5km into the route so could be the A47/William Adams Way roundabout that the scheme ties in to. Please comment.</p>	Green	<p><i>This is the A47 NB approach to Gapton rbt (A47 / Gapton Hall Road / Pasteur Road). This is one of the main areas of delay on the GY network and can be influenced by the pedestrian crossing on the northern exit arm. The pedestrian crossing can lead to blocking back into the circulatory carriageway creating large delays. It was difficult to replicate such delays in a strategic highway assignment model without affecting flow validation on alternative routes.</i></p> <p><i>The modelled time is quicker than observed on this section, so any benefits of the scheme itself will be underestimated.</i></p>
11	LMVR	<p>Figure 10.1-10.3 show flows on a selection of roads but does not allow an assessment to be made of traffic flows in the vicinity of the scheme. Please provide updated diagrams of modelled traffic flows using flow bandwidths with flows clearly labelled and higher quality background mapping. If necessary provide more than one zoom level so traffic flows in the vicinity of the scheme can be assessed.</p>	Amber	<p><i>Plots are provided in Supporting Document 10 - Supplementary Modelling Report.</i></p>

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12	Demand	<p>4.2.5 implies the base year PA and validated OD matrices are 100% compatible. Please provide the evidence to support this.</p> <p>Please provide the PT mode shares by purpose, to justify the use of fixed costs for PT in the model.</p> <p>Please explain how base PT trip matrices were obtained, for use in the pivot point model.</p> <p>Please describe how the PT costs are updated for the forecast years. For example, what assumptions, implicit or explicit, are made about growth in PT times and fares?</p>	Amber	<i>Further detail is provided in Supporting Document 10 - Supplementary Modelling Report.</i>
13	Demand	Please describe how the components of generalised cost for car (except car IVT) and PT have been calculated.	Green	<i>Further detail is provided in Supporting Document 10 - Supplementary Modelling Report.</i>
14	Demand	4.3.2 states that car trips external to the area of influence are fixed. 2.3.2 says that Caister-on-Sea to the north, Acle to the west, and Lowestoft to the south are included, but the sector boundaries in Figure 1 extend beyond these towns. The simulation area (as shown in Figure 4.1 in the LMVR) covers Caister-on-Sea but does not extend to Acle or Lowestoft. Please clarify the area of influence that is subject to VDM response and the rationale to support this. If this area is wider than the simulation area, please provide the evidence that changes in costs outside the simulation area are good enough to support a VDM response.	Amber	<i>VDM is simulation area only. Further detail is provided in Supporting Document 10 - Supplementary Modelling Report.</i>
15	Forecasting 3.3, 6.1.2 and 8	For the fixed demand forecasts please clarify whether you have applied fuel and income factors.	Green	<i>Fuel and income factors have not been applied.</i>
16	Forecasting 4.3 6.9	Please clarify why RTF2018 was not used for the growth in LGV and HGV traffic.	Amber	<i>At the time of forecasting (June 2018) RTF15 was the latest forecast. RTF18 was not issued until September 2018. LGVs account for 12-18% of total vehicles in the</i>

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		Please clarify the additional development included or excluded from the Low and High growth scenarios.		<p>matrix, HGVs 4-8% of total vehicles in the matrix (Table 16, Section 6.8 of TFR).</p> <p>LGV growth from base (to years 23/38/51) 13%/48%/76%, HGV growth from base 5%/20%/35%.</p> <p>Using RTF18 this would be LGV 7%/28%/44%, HGV 0%/4%/9%</p> <p>LGV account for approx. 23% of the scheme benefits in TUBA, HGV 7%.</p> <p>Local growth assumptions remain unaltered for both High and Low Growth scenarios.</p>
17	Forecasting 4.4 Tables 2 to 5.	Please provide the full uncertainty log (and map) that includes all developments considered. Please provide evidence of the information used to assign uncertainty status.	Amber	Results are provided in Supporting Document 10 - Supplementary Modelling Report.
18	Forecasting Section 4.8	Please provide details of the assumptions relating to the change in PT fares in forecasting.	Green	As there is no PT model fares are estimated, 100p +10p/km. The fare is assumed to increase in line with VoT increase.
19	Forecasting Section 7.2	Please provide details of the demand/supply convergence.	Red	<p>Converged with target GAP of 0.05% over 24hr period.</p> <p>Results are provided in Supporting Document 10 - Supplementary Modelling Report.</p>
20	Forecasting Section 6, 6.8	Please provide a comparison between the total committed housing and jobs included in the uncertainty log and explicitly represented in the model and the total housing and jobs from NTEM	Red	Comparison results are provided in Supporting Document 10 - Supplementary Modelling Report.

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		<p>planning data for the study area.</p> <p>Please provide a clear summary of the matrix totals, including the development growth, background growth and level of TEMPRO constraint applied.</p> <p>Please provide adjusted TEMPRO growth factors.</p>		<p><i>Summary is provided in Supporting Document 10 - Supplementary Modelling Report.</i></p> <p><i>Adjusted TEMPRO factors were not calculated in the matrix forecast process. The matrices were constrained to NTEM levels, development trips were included and all other growth was scaled by so the overall matrix total matched NTEM.</i></p>
21	Forecasting Chapter 7 and Chapter 8	<p>Please provide plots of forecast traffic flows by time periods for the Do Minimum and Do something scenarios.</p> <p>Please provide plots of network performance including junction delay plots and V/C plots, by time period for the Do Minimum and Do Something scenarios.</p> <p>Please provide journey time route analysis for key corridors affected by the scheme by time period for the Do Minimum and Do Something scenarios.</p> <p>Please provide select link analysis of traffic using the scheme.</p>	Red	<p><i>Results are provided in Supporting Document 10 - Supplementary Modelling Report.</i></p>

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22	Forecasting 7.6 / 8.4	If the model includes very slow speeds or high junction delays please provide evidence of their plausibility.	Green	<i>Results are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
23	Forecasting 7.6 / 8.4	if the model includes any forecasts of flows above capacity, especially for the do-minimum, please provide an explanation of how these are accounted for in the modelling/appraisal.	Green	<i>Results are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
24	Forecasting n/a	Please provide results from the sensitivity tests; high and low growth and OBR forecasts.	Red	<i>OBR is not a forecast run, rather an economic sensitivity test. Results from high and low growth are provided in Supporting Document 10 - Supplementary Modelling Report.</i>
25	Forecasting 8.2 and Appendix D	Please provide details of the impact of the scheme on the SRN, including flow change and journey time impacts by time period.	Red	<i>TFR 8.2 – Journey time data and flow/diff plots have been produced as part of point 20 above. Impacts on SRN are identified in Supporting Document 10 - Supplementary Modelling Report.</i> <i>Appendix E of TFR (DCO document 7.6 Economic Appraisal Report Appendix B) includes AADT DS-DM plots.</i>
26	Appraisal 3.3.7	Please provide an itemised breakdown and spend profile of all operating and maintenance costs.	Amber	<i>Updated section 3.3.6 of the Economic Appraisal Report (Supporting Document 1), included detailed calcs in Appendix A.</i>
27	Appraisal	Please provide delays during maintenance or reasoning why they have not been included in the appraisal.	Red	<i>Added section 3.4 in the Economic Appraisal Report (Supporting Document 1). Reasoning is maintenance regime will maximise the use of off peak to provide minimal impact on traffic. Unlikely to affect scheme economics</i> <i>When assessing delays a comparison needs to be made on a network wide basis between the Do Minimum and Do Something scenarios. The impact of maintenance delays on the existing network will be improved due to the presence of the Scheme itself, as this provides an</i>

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				<i>additional river crossing when the other key links (e.g. Breydon Bridge and Haven Bridge) are being maintained.</i>
28	Appraisal	Please provide delays during construction or reasoning why they have not been included in the appraisal.	Red	Added section 3.4 in the <i>Economic Appraisal Report (Supporting Document 1)</i>. Reasoning is scheme is offline so minimal impact on traffic, unlikely to affect scheme economics.
29	Appraisal 4.2 of supporting document	<p>Please provide reasoning / evidence as to why a low proportion of the overall benefits are for trips to/from the peninsula (sectors 1 and 10)</p> <p>Please provide reasoning / evidence as to why the benefits at a sectoral level are highly asymmetric.</p>	Amber	<p>From <i>Supporting Document 5 - TUBA Methodology Technical Note</i> –</p> <p><i>Looking at the overall benefits presented in Table 4.5 sectors 1 and 10 combine to produce 15% of the origin benefits behind sector 7 with 61%, and 41% of the destination benefits ahead of sector 7 with 29%. (Sector 7 is a large sector relative to sectors 1 and 10, and contains both residential and large employment sites). The relief of congestion on the A47 will benefit trips to, from and within sector 7, hence the large realisation of benefits.</i></p> <p><i>The asymmetric nature of the benefits is discussed in the last paragraph of section 4.2 of the TUBA supporting note. The higher benefits are seen in the northbound direction as the schemes relieves large delays NB at Harfreys and Gapton roundabouts. The proposed scheme relieves congestion on the network that would be expected to be toward Great Yarmouth or north bounded.</i></p>
30	Appraisal Section 5 of EAR and section 4.3 to 4.7 of supporting document	<p>Please confirm whether the VOC in Table 4.7 of the supporting doc and Table 5.2 of the EAR are total VOC or VOC (fuel only).</p> <p>Please provide evidence why the PM peak benefits are much higher than the AM peak.</p>	Amber	As stated in Table 5.2 of the <i>Economic Appraisal Report (Supporting Document 1)</i> these are fuel only VOCs. Table 4.7 of the <i>TUBA Methodology Technical Note (Supporting Document 5)</i> has been amended to reflect this.

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		<p>Please provide evidence why there is a big increase in time benefits over the years, even after discounting.</p> <p>Please provide a sensitivity test without the 2051 inputs.</p>		<p><i>Per hour the PM benefits are 29% higher than the AM benefits. This is due to the relief of NB delays on the A47 in this period. The same level of delays at these locations do not regularly occur in the AM. There is a retail park accessed from Gapton rbt (via Gapton Hall Road) which will have greater influence in the PM than the AM.</i></p> <p><i>The time benefits increase even after discounting over the years as the DM network becomes increasingly constrained with higher traffic demand leading to larger delays. The addition of the scheme provides larger benefits.</i></p> <p><i>Sensitivity test without 2051 complete. TUBA file issued to DfT on 03/09/2020.</i></p>
31	Appraisal	Please provide TUBA tbn files.	Red	<i>Issued tbn and out files for core, low, high, core (23/38) and core OBR to DfT on 03/09/2020.</i>
32	Appraisal 4.4.3 and 5.5	Please provide further details of the reliability benefit calculation including how TUBA has been used in the calculation and what input matrices have been used in TUBA. Please provide the TUBA output file for reliability benefits.	Amber	<p><i>The reference to TUBA is historic and has been removed. The calculation is spreadsheet based but uses the same inputs as TUBA, though not the application itself.</i></p> <p><i>As stated in the Economic Appraisal Report (Supporting Document 1) 4.4.3 onwards, the calculation is as per TAG Unit A1.3.</i></p>
33	Appraisal 4.4.1 and 5.4	Please provide supporting analysis for the calculation of noise benefits.	Amber	<i>Noise worksheets can be found in FBC Appendix C. Brief overview of work provided in Economic Appraisal Report (Supporting Document 1) section 5.4.</i>
34	Appraisal 4.4.1	Please provide monetised benefits of air quality and supporting analysis for the calculation of these benefits.	Amber	<i>Air quality worksheets can be found in FBC Appendix C. Brief overview of work provided in Economic Appraisal Report (Supporting Document 1) section 5.4</i>
35	Appraisal 3.4	Please confirm that "sunk" costs have been excluded from the calculation of investment costs. For the application of inflation, re-basing and	Amber	<i>Section 3.5 (formerly 3.4) of the Economic Appraisal Report (Supporting Document 1) has been updated to provide profile costs for inflation and OB application,</i>

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		discounting please provide calculations including the cost profile.		<p><i>rebasing, discounting, converting to market prices and removal of sunk costs.</i></p> <p><i>NB The previous version of the EAR included the sunk costs for simplicity of calculations in advance of the final costs.</i></p>
36	Appraisal 5.12 and Section 5 of supporting document	<p>Please explain why there are negative accident benefits in the High growth scenario.</p> <p>Please provide the results of the Core scenario with alternative economic growth projections.</p>	Amber	<p><i>Higher levels of traffic in the high growth scenario result in disbenefits due to larger disbenefits at junctions on local roads such as Beccles Road as traffic routes away from congested main roads. This is also seen in the core scenario as overall disbenefits occur after 2048.</i></p> <p><i>Core with OBR COBA-LT has been completed</i></p>
37	Appraisal	<p>For the AMAT appraisal, please provide details of how the average trip length and percentage of trips on the scheme has been calculated.</p> <p>It would be helpful to see the AMAT.</p> <p>For the journey time appraisal, please confirm that the "rule of half" approach has been used in calculating benefits for new users.</p> <p>For the journey time appraisal, please clarify why an annualisation factor of 365 has been used.</p>	Amber	<p><i>Average trip length: This value has been maintained from the default assumptions included in the AMAT (May 2019 version) which is based on analysis from National Travel Survey data.</i></p> <p><i>Percentage of trips on scheme: This value has been calculated as the measured length of the GYTRC bridge alignment (0.4km) / average trip length (as above).</i></p> <p><i>AMAT files to be issued separately</i></p> <p><i>Rule of half has been used for calculating journey time benefits for new users</i></p> <p><i>The 365 annualisation value was taken from the previous assessment, this has now been updated to 253 for all</i></p>

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		Please provide the appraisal calculations.		<p><i>active mode appraisal assessments in line with the latest DfT Active Mode Appraisal Toolkit User Guide.</i></p> <p><i>The Active Mode Appraisal Report (Supporting Document 2) has been updated to include the above clarifications and updates.</i></p>

RAG rating definitions:

Red – Critical.

The information provided falls significantly short of DfT requirements and potentially undermines the analysis. If these issues cannot be addressed (by rectifying any underlying problems or providing clarification), the high level of uncertainty created will be reflected in our overall assessment e.g. by testing the potential impact of reducing benefits.

Amber – Important.

The gap or shortfall in the information provided leads to increased uncertainty in the appraisal results. If these issues cannot be addressed (by rectifying any underlying problems or providing clarification), the uncertainty created may be reflected in our overall assessment e.g. by testing the potential impact of reducing benefits.

Green – Routine.

If information is requested it is unlikely to materially affect our overall assessment. It would, however, be useful to have the information provided if it is not too costly to gather or report.