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11th February 2010

Dear Mary-Ann

Observations on Local Model Validation report (LMVR) for Whiteley SATURN Traffic Model produced by HCC

Further to recent email correspondence between Cllr Roland Diffey and your office the Parish Council would like to make the following observations:

1. Para 1.1 of the report states that ***'the LMVR has been prepared in accordance with best practice guidance as reflected by DfT Transport Assessment Guidance (WEBTAG) and Design Manual for Roads and Bridges.'***

Observation 1: In the Council's view, the model has not been prepared in accordance with best practice or the aforementioned Standards

Evidence: The model is an AM peak hour model only, between 8.00 and 9.00am.

The Design Manual For Road and Bridges (DMRB) Volume 12, Section 2, Part 1, Traffic Appraisal in Urban Areas, Chapter 4, Traffic Model Development, Section 4.3.3 states:

'Model periods should be as long as possible, the whole peak period should be included (not just the peak hour)'

This statement is enclosed within a black box within the design standard which means that the requirements within the box are mandatory and must be adhered to.

As such the whole of the peak period from 7.00 – 10.00am should have been modelled to be compliant with Standards and in accordance with published best practice.

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2. Para 6.3.1 of the report states that '*Traffic flow validation makes use of the GEH statistic. Table 4.2 of the DMRB Volume 12A defines the indicator…*'

Observation 2: The validation process undertaken has used identified 'Acceptability Guidelines' from Table 4.2 but in the main appears to have used a simple comparison of calculated GEH with guideline values, with little recognition that some of the variances whilst within guidelines could impact significantly on the overall accuracy of the model.

Evidence: Various assessments and comparison of GEH within the model exceed the acceptability guidelines within the DMRB. These include variances in link flows, junction turning flows and in journey times. In the majority of cases these excessive GEH values are given only cursory mention within the report and dismissed as not affecting the overall accuracy of the model. In many cases, significant variances occur between observed and modelled data, but because the GEH value falls within the acceptability guidelines criteria, they have not been considered further. This is not in accordance with best practice.

Such instances within the LMVR include variances in flows at Segensworth Roundabout, variance in flow on Whiteley Way, and both Route 1 and Route 2 journey times. There is no evidence within the report of these excessive values being investigated, or the model amended, to produce better fit between the observed and modelled data.

In the case of the journey times, variance on Route 1 is such that the variance between the observed and modelled journey times is 111 seconds. This equates to a variance in % terms of 14.8% and just within the DMRB Table 4.2 Acceptability Guidelines of 15%.

Route 2 shows a variance between observed and modelled journey times of 68 seconds. This equates to a variance of 9.5% and as such again is within the acceptability criteria of 15%.

However, the aforementioned Table 4.2 of acceptability criteria places an additional requirement on the assessment of journey times in addition to the 15% requirement. This is that differences in times should be less than 1 minute. In the case of both Route 1 and Route 2 the variance is greater than 1 minute and in the case of Route 2 is nearly 2 minutes. This additional requirement has been ignored. These excessive variance values have simply been accepted within the LMVR whereas in the Council's view they show that the model is unable to replicate observed journey times and the model requires amendment of the link speed flow characteristics.

It is not unsurprising that the model is unable to replicate journey times because the LMVR states that the model has been coded with free flow link speeds, equivalent to speed limits on the majority of links. With knowledge of the study area this is an over simplification of the model and is not representative of traffic speeds, with the network being subject to significant queuing and congestion.

DRMB Volume 12 Section 2 part 1 Traffic Appraisal in Urban Areas Chapter 4 section 4.4.43 also states that….*'a model that passes the guidelines but has significant discrepancies on the most crucial links may be unacceptable.*'

Again there are numerous instances within the LMVR where calculated values of GEH are within acceptability criteria, but the variance in flows themselves demonstrate significant % differences between observed and modelled data. These variances again occur on significant and important links within the modelled network, and yet again there is no evidence or even mention within the LMVR of the impact that such variance could have on the performance of the model.

For example values of GEH for the validation of total traffic flows through Segensworth roundabout is calculated at 4.5. As far as the LMVR is concerned 4.5 is less than 5 so the variance is acceptable. The actual variance in flows is -344pcu in the model compared to the observed flows. This is a 6% variance on a key junction that will influence journey times, congestion and in practice influence choice of route for some users. Such variances must be significant when looking to test impacts or revised accessibility to Whiteley given the limited capabilities of the model as a peak hour only model. This single variance alone is far greater than most of the changes in flows that occur within the network as a result of the Do Something results from opening YTD.

Some GEH values in excess of 10 have simply been dismissed within the LMVR.

The LMVR concludes that the model validates well, but I am unable to draw the same conclusion, and believe that there is significant evidence of lack of reasonable validation.

3. Comparison of junction flows has been limited to M27 Junction 9, Segensworth and R1 only.

Observation: Overall comparison of total traffic entering and exiting junctions has not been looked at within the LMVR other than the aforementioned junctions, but this can be a good check on how well a model is replicating observed data around the network. Given the number of junctions within the model these other junctions are also important in the validation process.

Checks on some of the other junctions based on the modelled base year flows have been carried out and these have shown that some of the modelled junctions appear to generate traffic i.e. more traffic leaves the junction than enters during the time period. Others lose traffic i.e. more traffic enters the junction than leaves the junction during the time period. Whilst this is not unusual within a model, some of the variances are again significant and greater than the change in flows being forecast with the opening of YTD.

In several cases this check was not possible because of the lack of flow data on legs of the junction. In particular all the A27 junctions on the A27 have missing flow data on the junction legs to the south of the junctions.

Observations on Forecast traffic for Do Nothing and Do Something opening of Yew Tree Drive (YTD) as produced from Whiteley Traffic Model.

1. The model is forecasting increased trips into and out of Whiteley as a result of the opening of YTD.

The model indicates that traffic movement into and out of Whiteley increases during the peak hour as a result of the opening of YTD. The Council believes the simple opening of YTD should not generate additional trips, and as such the model is indicating that existing demand is being suppressed within the network.

HCC appears to have already identified this as an issue with the model, and have been provided with a technical note on this aspect of the modelling by the agents.

In simple terms, this note suggests that the additional modelled trips into and out of Whiteley during the peak hour, are trips that are currently unable to enter or exit Whiteley, within the modelled time period between 8.00 and 9.00am, due to congestion on the network, outside of Whiteley itself.

This reaffirms why the whole of the peak hour between 7.00 and 10.00am should have been modelled in accordance with best practice. Comparisons of all trips entering and exiting Whiteley during the overall peak period would probably have shown marginal difference when comparing, with and without YTD opened. The trips within each time period may have changed, but not the overall total. The approach taken by HCC and the presentation of data in this from presents an overly pessimistic result of opening of YTD.

The above issue coupled with the concerns raised above in respect of the initial validation of the modelled with observed data, leaves significant concerns regarding the accuracy of forecast data available to present to the public when consulting on any proposals for future changes to the network, such as the opening of Yew Tree Drive. (See item 4 below as well)

2. Number of modelled trips into Whiteley YTD, are shown at 448pcu's for the peak period. However increased flows southbound on YTD are only shown as an additional 139 pcu's. This means that 220 pcu's have been lost somewhere along YTD. Since there are no major employment facilities along these links that would draw traffic off these links, where does this traffic entering Whiteley disappear to?

3. The opening of YTD appears to have significant impacts on traffic on Botley Road between the YTD junction and the A27, and along the A27 itself from the Telford Way junction to the Station Road Junction, and even beyond past Cold East. Traffic eastbound on these links seems to reduce and traffic westbound seems to increase. However the links feeding these links do not reflect these changes.

   The above changes in traffic patterns seem even more strange, when coupled with the fact that the traffic flows on the M27 westbound of Junction 9 also increase as a result of opening YTD. So suddenly the simple opening of YTD has freed capacity on the A27 and the M27 for traffic heading westbound. This does not seem logical.

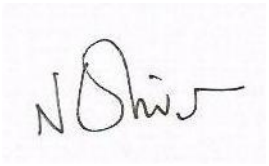
4. The scale of changes to link flows that are being shown between the Do Nothing and Do Something scenario with the opening of YTD are relatively small. In many cases, the difference between the Do Nothing and Do Something flows are actually less, than the differences between the Observed and Modelled flows for the base year.

   As such the validation of the model is insufficient to deliver sufficient confidence that the flows forecast for the Do Something are indeed accurate. To use the model for the purpose intended, improved validation between the observed and modelled base year flows would be necessary, otherwise it is impossible to determine whether the change in flow is due to the proposed network changes, or, simply discrepancies in forecast arising from inaccuracies within the model.

   Such a conclusion must leave the use of the model in doubt as it stands for the purpose that it is currently being used.

The Parish Council would welcome your early response to these observations followed by a meeting to discuss any outstanding concerns regarding the proposed consultation.

Yours sincerely



Nicki Oliver
Parish Clerk