

## **North Oxford Peartree Development Goodman**

### **1. Comment on Likely Performance of Network Improvement Schemes**

- 1.1 Jacobs are commissioned by Goodman to model the transportation impact of a proposed development to the North of Oxford near the A34 Peartree Interchange. The purpose of the study was to establish the existing highway conditions and examine the long-term transportation infrastructure required to support development in this location.
- 1.2 Jacobs have been asked to comment on the likely performance of the road network in the future and whether particular road network improvement options are likely to relieve congestion. The comment provided here is simply a qualitative assessment of possible future scenarios. The actual performance of schemes and future year traffic scenarios would need to be confirmed by modelling. Further comment on particular mitigation measures is provided in Section 3.
- 1.3 It is known that the local road network currently experiences congestion and delay, particularly in the AM and PM peak periods. Assessments carried out by Jacobs have shown that the Wolvercote and Cutteslowe roundabouts are currently over-capacity (refer to Scoping TA dated 22<sup>nd</sup> August 2007).
- 1.4 The situation on the local road network, particularly at Wolvercote and Cutteslowe roundabouts, is set to worsen in future years based on information related to likely background traffic growth as shown in TEMPRO, with or without any specific development at the Peartree site. As many of the arms of Wolvercote and Cutteslowe roundabouts are either at or approaching capacity, it is expected that they will not be able to cope with any background increases in traffic levels in the future and any further additional development traffic.
- 1.5 The congestion and delay situation on the local road network is likely to get worse in future because of continuing growth in traffic. Regardless of the level of development, it is thought that some level of network improvement would be necessary. It would appear that 'Do nothing' is not a viable solution.

- 1.6 Options for network improvement in this location include the re-design of the Wolvercote junction to form a gyratory system, with signalisation at Cutteslowe roundabout. These improvements are likely to provide some improvement to the performance of the local road network. It is likely, however, that a scheme could be found which would improve the network performance, in terms of traffic throughput, whilst maintaining a road network that experiences queuing and delay to a level not worse than that currently experienced. It may also be possible, with an appropriate design for the improvement scheme, that priority can be provided for bus movements, to improve journey times and improve reliability for public transport.
  
- 1.7 However, as the existing network capacity is constrained and it is thought unlikely that any of the potential improvement options Jacobs are commissioned to model would improve the congestion levels to a situation that is better than the existing situation in terms of queuing and delay for general traffic. To achieve this is likely to require a much more complex scheme, with inevitable cost implications.

## **2. Background to Model Development timeline**

- 2.1 A modelling methodology proposal was submitted to Oxford City Council and Oxfordshire County Council on the 9th November 2007. Following meetings with both parties, approval of the methodology was received. Oxford City and Oxfordshire County advised that approval would also need to be sought from the Highways Agency (HA) considering the proximity of the development site to the A34 Peartree Interchange.
- 2.2 A meeting was held at HA Dorking Offices on 12th November 2007 to discuss the proposed methodology. The modelling proposal was then submitted to the HA for their consideration and approval. Consultants Parsons Brinckerhoff (PB) reviewed the methodology on behalf of the HA. A technical note was produced by PB and submitted to Jacobs containing a number of comments. Jacobs revised the methodology based on the comments provided by PB. Some suggestions were not incorporated into the modelling approach and Jacobs provided a written response to the HA. Approval of the methodology, subject to the undertaking of queue length surveys, was received from the HA on 22nd January 2008.
- 2.3 Following consultation with Oxford City, Oxfordshire County and the HA, it was agreed to extend the model area to include the next junction along the A34 to the North near Kidlington Road and Oxford Road, and to extend the local road network beyond Kidlington to include the junction of the Bicester Road with Water Eaton Lane near Gosford.
- 2.4 Following the agreed extension to the model area, Jacobs supplemented the initial set of surveys with turning counts in Kidlington and the A34/C43 junction, carried out on 21st November 2007, in both AM and PM peak periods.
- 2.5 Jacobs defined a schedule of queue length surveys to record the level of queuing on the approach to junctions known to suffer from congestion. Approval of the location of these surveys was gained from the HA on 28th January 2008. Queue length data was recorded on 6 key approaches to junctions during the respective AM and PM peak periods.
- 2.6 The transport model was completed and submitted to Goodman on 5<sup>th</sup> March 2008. A meeting was then held with Oxfordshire County and Oxford City Council on 17<sup>th</sup> March 2008 to discuss the Local Model Validation Report and to present the model. The model validation report was subsequently submitted to HA on 31<sup>st</sup> March 2008.

Feedback followed on 11<sup>th</sup> April 2008 from Oxfordshire County and Oxford City. A response was received from HA on the model on 12<sup>th</sup> May 2008.

- 2.7 Goodman commissioned Jacobs on 17th June 2008 to respond to the comments by obtaining new and more comprehensive queue length data and to update and recalibrate the model to the new data. Jacobs completed this exercise on 7<sup>th</sup> August 2008, upon which the updated Local Model Validation Report and full response to the original comments was submitted to Oxford City, Oxfordshire County, and HA. The response has been provided to all parties in the document "Response to feedback 060808.doc".

### **3. Indicative Mitigation Measures**

3.1 Upon gaining agreement of the base transport model, with instruction from Goodman, Jacobs will proceed to model possible mitigation options as shown in the enclosed plans. The mitigation measures are likely to include:

- The conversion of the existing Wolvercote Roundabout junction to a signalised gyratory to relieve all approaches of existing congestion experienced in the peak hours and to provide public transport priority where possible including bus lanes and bus activated signals.
- The conversion of the existing Cutteslowe Roundabout to a high-capacity signalised crossroads. This could require the restriction of certain turning movements and will require further consultation and consideration.

3.2 The mitigation measures are likely to consist of the removal of roundabouts, signalisation, and bus priority measures with the purpose of maintaining the current level of congestion for general traffic while improving journey times for public transport. Options identified through this work would include at-grade options within the existing highway boundaries.

#### **Possible Results of Mitigation Modelling**

3.3 The following comments are provided as an indication of the results that could be expected in a like-for-like network comparison as a result of testing the particular mitigation measures described above using the transport model only. Without the quantitative support of the modelling output, the following information is subject to complete revision, depending upon the results of the mitigation modelling.

3.4 The performance of the network under future scenarios for particular movements through the study area in terms of queue lengths or journey times depends upon the strategy adopted for managing traffic within the study area.

3.5 It could be expected that the gyratory may provide significant benefit to the A40 Eastbound approaching Wolvercote in terms of queue length. However, without improvements at Cutteslowe, the queue might merely be moved further downstream. This could cause knock-on effects on a gyratory. Similarly, improvements at Cutteslowe without the gyratory may have limited benefit for similar reasons.

3.6 If the gyratory and signals are implemented together, this could result in improved network performance in terms of vehicle throughput and could result in reductions in queues at all problem points, in both the AM and PM scenarios.

- 3.7 The degree to which the flow of traffic along the A40 is prioritised will have knock-on effects upon the queuing and journey times on adjacent routes. If the A40 movements are given priority to alleviate the queuing towards Wolvercote roundabout, this may result in worsening conditions on other approaches to the A40.
- 3.8 There is the potential for a complex and unpredictable set of impacts as a result of the network improvement measures which may include a degree of traffic re-routing, traffic volume changes, public transport priority changes, and associated impacts upon queuing and delay.
- 3.9 The results of the modelling exercise will reveal a preferred scheme and the extent to which it improves the network performance and alleviates queuing and delay. A forward programme for mitigation testing is provided in an accompanying document "Forward Timetable 260808.pdf"