

Leisure and Prosperity Overview and Scrutiny Committee

22nd February 2011

Transportation Modelling Background Note

Background

- 1.1 Maidstone Borough Council has commissioned Jacobs to create a multi-modal transport model to assist in the assessment of transport strategies to address issues raised by future development growth aspirations in the Core Strategy.

The Visum Model

- 1.2 Jacobs have used the Visum Model which is a sophisticated travel demand modelling tool which uses software to replicate real world transportation systems. Visum models are used to simulate actual travel patterns and existing demand conditions. Travel demand is generated using land use data and socio economic data such as household size, car availability, census and employment data. Once a Visum model has been used to replicate existing conditions it can then be used to predict future travel patterns and demands based on changes in land use and/or changes in demographics. Future traffic projections are based on assumptions about how population, employment, vehicle operating costs and other factors will change over time.
- 1.3 Jacobs have stated that they are confident that the Visum Model remains the best tool to model accurately the impact of development proposals on the local and strategic road network in the context of the emerging Maidstone Core Strategy.
- 1.4 The Model concentrates on peak hour conditions in the urban area as this is the part of the Borough where MBC policies are seeking regeneration and brownfield development to revitalise vacant office and retail units. Congestion in Maidstone has long been recognised as a serious issue by Members, the public, transport operators and the development industry..
- 1.5 The Model is a strategic tool, aimed at producing evidence to help support the overall strategy and vision for the Borough encompassed in the Core Strategy. It assesses the likely use of various modes of transport and the resulting travel patterns in and around the town. It is not intended to give accurate representations of individual turning movements at every junction, and so would not be used for site specific development control detailed impact

assessments. Other modelling techniques and tools are available that are capable of modelling site specific situations.

- 1.6 The Visum Model tests a set of assumptions about the provision of a package of transport measures and its performance in dealing with the LDF Core Strategy development options. The model is calibrated against traffic flows and public transport patronage in 2007, and therefore the input data identifies the changes predicted to take place by 2026 in the size and location of housing, employment and retail sites in the Borough. It is trying to predict the increased level of demand for travel and then assess how the road and public transport networks would cope with it.
- 1.7 The decision that was taken at Cabinet on 9th February 2011 will impact on the eventual results that will emerge from the model. It is important in terms of the robustness of the evidence base that any Inspector can be satisfied that what has been modelled is what is contained in the Core Strategy and therefore we will look to run the model again according to the decisions that are made about the distribution of development across the Borough. Members should note that it costs £10,000 to run the model and takes approximately 4 weeks to obtain any results. We will ask Jacobs to run the model again when we have received results from the work that is being carried out into an updated Employment Land Review.
- 1.8 The guiding principles of measures that have been included in assumptions within the current model scenario relate to the following matters:
 - Promotion of sustainable transport
 - Seeking to manage the demand for travel downwards
 - Measures that are achievable within the plan period; and
 - Measures that are within the bounds of reasonable expectations of available finance

Modelling Processes

- 2.1 The model is presented with a schedule of expected housing, employment and other development sites for 2026, and a package of transport initiatives. The model is then run to produce morning and evening peak performance figures for 2026. The model uses an assessment of 'generalised cost' to predict which mode of travel people will use, and what would be their chosen destination. This is a combination of the actual cost (such as car fuel or public

transport fares) and an estimated cost equivalent to the time taken to travel. For instance the generalised cost of a bus journey is the monetary 'value' of the walking time to a bus stop, the waiting time (dependant on the frequency of service), the time taken by the bus to reach the appropriate bus stop, and the time taken to walk to the final destination.

- 2.2 We have so far looked to the model to produce a set of outputs that concentrate on the congestion levels on the main routes in and out of the town centre, using data such as travel times on specific routes, proportion of trips made by various modes, and cordon flows. Model runs have been based on previous iterations of development scenarios and will therefore not be valid in the face of the current approach to development distribution.
- 2.3 The transport strategy that will be adopted in support of the Core Strategy must also be achievable within the Core Strategy Plan Period, in that the funding for any infrastructure could be reasonably expected from development including Community Infrastructure Levy and the New Homes Bonus or other sources such as LTP, LSTF, LEP, and LIP. Site specific S106 requirements would also be expected. We do need to be alert to how changes in funding regimes may impact on how schemes may be funded.

Sensitivity

- 3.1 It must be borne in mind that calculations of capacity become very sensitive when the highway network becomes overloaded as a relatively small predicted increase in demand can create a sharp increase in travel times unless alternative means of travel are available. When the model reaches an upper level of congestion that can be accommodated on the network any demand above this level would be predicted not to be able to complete their journeys within the peak hour i.e. they would travel at different times and/or travel to different destinations or make other arrangements such as working from home.

Summary

- 4.1 Given the complexity of issues involved in the discipline of transportation modelling Members need the opportunity to look at the model and the way in which the assumptions that are going to be contained within it operate and influence the final output. As this would require a great deal of technical information it is proposed that a Member workshop be held to which Jacobs would be invited to explain the assumptions behind the model, the sorts of data the model uses and how changes to spatial distributions will affect the outcomes.

- 4.2 If such a workshop were to be held it would give members the opportunity to have a full discussion of all the matters relating to transport modelling in an arena that also provides the technical expertise beyond the remit of your planning officers. Officer attendance would be restricted to allow the focus to remain on Member concerns
- 4.3 Both Members from Maidstone BC and KCC would be invited and the workshop will be arranged as soon as possible.