

WCC Modelling Protocol

Advice Note 02b.1 – Use of Other Strategic Models

Modelling triggers

1. Several conditions may trigger the need for modelling to be completed within a strategic model. These conditions include, but are not restricted to the following:
 - Strategic Modelling requirements as part of a neighbouring authority's assessment needs.
 - Overlapping impact between neighbouring highway authorities.
 - A need to consider impacts across neighbouring Districts and Boroughs.
 - A need to utilise a strategic model to identify an area of influence.
 - Absence of an available microsimulation model.
2. WCC will not accept Strategic Modelling as the only basis for an assessment which involves WCCs highway network. All development assessments must be in accordance with LTP4 as set out in AN01.
3. Strategic modelling requests may include the following suite of models be considered for Area of Influence (AoI) and wider impact assessments:
 - Coventry City Council - The Coventry Area Strategic Model (CASM)
 - Leicestershire County Council - The Pan Regional Transport Model (PRTM)
 - West Northamptonshire Council – The Northamptonshire Strategic Transport Model (NSTM)
 - Highways England Regional Traffic Model (RTM)
 - The West Midlands Policy Responsive Integrated Strategy Model (PRISM)
4. How these models are utilised will be broadly consistent irrespective of the location of the application. Where microsimulation exists within Warwickshire's highway network, this will be the primary means of assessing impacts, more detailed analysis within the strategic models would be expected outside of the County area to consider aspects such as general flow change and traffic reassignment.

Applications within Warwickshire County

5. It is expected that the use of the Strategic Model (SM) will be scoped in conjunction with all relevant highway authorities. WCC considers that, when the application is being submitted within Warwickshire, traffic forecasts and network conditions must be informed using WCCs model scenarios unless agreed otherwise through scoping.
6. Consistency checks should be undertaken, in key areas of overlap, to demonstrate that the areas of congestion and network constraints within the Strategic Model and WCC models correlate. A lack of correlation does not preclude the use of either model but cognisance of

any differences and potential shortfalls is important when assigning Strategic Model flows within the microsimulation models and vice versa. The licensee of the microsimulation model is responsible for these checks. WCC do not assume responsibility for or agree to the suitability of the strategic modelling which is required alongside the requested microsimulation modelling.

7. Whilst identification of an Area of Influence within the Strategic Model may be requested it should not be assumed that this restricts the area of analysis within any additional microsimulation modelling assessment.
8. Strategic Model should supplement microsimulation modelling on Warwickshire's network, most likely by informing routing and reassignment assumptions outside of the microsimulation model area.
9. Development specific and general traffic flow changes should be considered within the areas of overlap between the models to allow WCC to ascertain the magnitude of change identified by the strategic model, on key highway routes in to and out of Warwickshire.
10. In most cases it is anticipated that the traffic forecasts contained within the Microsimulation model and available years will be sufficient. This may only change if there are other key developments within the area, or cross boundary, that are considered material to the assessment but have not previously been considered within the microsimulation.
11. Forecast years do not necessarily require reconciliation between the models if only development movement is being considered. If wider demand responses such as reassignment are required, then a bespoke method may be required to translate the reassignment and demand response information into the microsimulation model and vice versa. If such a bespoke method is required, this should be agreed as part of the scoping process.
12. This is best achieved via the cordoning of the discrete development trip generation in accordance with the extent of the microsimulation model, and assignment via a specific demand assignment matrix.

Applications Outside of Warwickshire County Council

13. WCC recognises that, when an application is being submitted outside of Warwickshire, but it is predicted that the development impacts may affect WCC highway network, the neighbouring authorities strategic model may be the requested tool for the core assessment.
14. WCC considers that there are several instances where this strategic modelling will still need to be supplemented by an assessment completed within the WCC modelling suite namely:
 - Where it has been requested through consultation.
 - When the AoI is shown to include WCC Highway Network.
 - Where development impacts are considered likely to effect WCC Highway Network.
 - Where the development trip generation is predicted to be significant and/or the development is located on the boundary of a neighbouring authority.

15. There may be other instances where WCC wish to see the impacts of a development, previously identified within a strategic model, tested within their own suite of models. Predominantly this is because the level of calibration and validation achieved for WCCs network within the strategic models is not considered to be sufficient to enable a robust assessment of impacts to be completed. Strategic models also lack the necessary detail to enable detailed assessment of impacts to be completed without supplementary modelling (i.e. through microsimulation modelling or isolated junction modelling). The consequence of this is that WCC does not consider strategic modelling, in isolation, to be a suitable for informing the assessment of impacts associated with development proposals.
16. In these instances, WCC would recommend the following steps:
 - Development flows are extracted from the strategic model using select link analysis.
 - The % increase on links within Warwickshire is calculated using the Base and future year flows observed within the WCC models.
 - Supporting v/c information for the links and junctions is provided to assess whether the Strategic model is already identifying issues which may occur within WCCs network.
17. A development and/or any associated mitigation measures may also induce reassignment of other traffic, not directly related to the development, within the modelling. When this is considered likely, WCC may also request that analysis of the magnitude of change, in traffic volumes, is assessed within the STRATEGIC MODEL and presented to WCC to determine if further consideration of the potential reassignment effects arising from the development proposals is required.
18. This initial analysis can be used to determine whether the effects of the development traffic are likely to be significant. GEH or % change may be adopted as a benchmark to determine what is likely to be considered a significant change.
19. The information used to determine the significance of any changes can be extracted from the strategic models and presented in a shape file to aid the scoping of strategic modelling requirements.
20. Where a significant change is identified, WCC will request that supplementary assessments are undertaken, most likely using one of the existing suite of models or, if necessary, via a bespoke approach based on isolated junction modelling if an appropriate existing model is not identified.
21. Development flows should be extracted using the select link analysis and/or direct cordoning from the strategic model. These flows should then be input to the WCC models. In most instances, where the WCC microsimulation models are being used, the WCC models consider the extended AM and PM peak periods meaning that the peak hour traffic flows extracted from the strategic models will need to be converted to multiple hours via factoring alongside interrogation of the trip generation values for those hours.
22. The factoring of the peak to three-hour trip generation means the effects of any development proposal can be considered within all hours that WCC has chosen to cover within the models.

23. In the instances where the strategic model predicts significant reassignment as a result of either the direct impacts of the development or indirectly through mitigation then consideration can be given to accounting for these effects within the WCC models but a methodology for doing so will need to be agreed in advance.
24. Having extracted the development flow information from the strategic model, this can then be assessed within WCCs model in line with the standard approach to microsimulation modelling. Where wider demand responses, such as reassignment, need to be considered these would be assessed on an individual basis dependent upon the project and this should be agreed as part of any detailed scoping of the assessment prior to commencement.