

WCC Modelling Protocol

Advice Note 008 – Use of Strategic Models

Protocol Category	Model Licensing	Version	002
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Introduction

1. This Advice Note (AN) has been produced to explain Warwickshire County Council's (WCC) requirements for modelling in addition to the microsimulation modelling.
2. It is accompanied by other advice notes which provide guidance on different aspects of the development and application of these models. Integration with strategic modelling may also be required where a development impact is likely to overlap two or more Highway Authorities.

Modelling triggers

3. 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 uses:
 - 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.
4. WCC will not accept Strategic Modelling as the only basis for assessment. All development assessments must be in accordance with LTP3 LUT5 which states:
5. "Strategic modelling may be requested based on either the magnitude of development or the development location (for example adjacent to a neighbouring highway authority)."
6. 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)
 - National Highways England Regional Traffic Model (RTM)
 - The West Midlands Policy Responsive Integrated Strategy Model (PRISM)

7. How these models are utilised will be broadly consistent irrespective of the location of the application, but more detailed analysis would be expected outside of the County area to consider aspects such as general flow change and traffic reassignment. Where the development sits within an existing microsimulation model network, provided the model is 'large scale' it is expected that these effects would be captured inherently within the microsimulation assessment.

Applications within Warwickshire County

8. 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 should be based on the WCC model scenarios which already exist unless agreed otherwise through scoping.
9. Consistency checks should be undertaken, in key areas of overlap, to demonstrate that the areas of congestion and network constraints within the SM and WCC models correlate. A lack of correlation does not preclude the use of either model but cognisance of any differences and potential shortfalls should be taken when assigning SM flows within the microsimulation models. 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.
10. Whilst identification of an Area of Influence within the SM may be requested it should not be assumed that this restricts the area of analysis within any additional microsimulation modelling assessment.
11. WCC considers that use of the SM should supplement the microsimulation modelling most likely by providing the routing and reassignment information to include within the Microsimulation model. In such circumstances, any development specific as well as 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.
12. Assignment should be informed through the microsimulation model with the SM providing end to end trip generation figures to assign within the model and, subsequently, the analysis of impacts will be informed from the microsimulation model.
13. 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. 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 this should be agreed as part of the scoping process.

14. 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.
15. Reporting of outcomes within the Microsimulation model should still be undertaken in line with the approach set out within AN003¹.

Applications Outside of Warwickshire County Council

16. WCC recognises that, when an application is being submitted in areas 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.
17. WCC considers that there are a number of 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.
18. 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.
19. 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.
20. In some instances, the development and/or any associated mitigation measures may result in the reassignment of other traffic, not directly related to the development, within the modelling. When this is considered likely, WCC would also request that analysis of the magnitude of change, in traffic volumes, is assessed within the Strategic model and

¹ Advice Note 033 – Guidance on Model Reporting Requirements

presented to WCC to determine if any further consideration needs to be given to potential reassignment effects arising from the development proposals.

21. 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.
22. The information used to determine the significance of any changes can be extracted from the strategic models and presented in a shape file and so can be requested as a standard output when scoping out the strategic modelling requirements.
23. 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.
24. 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.
25. 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.
26. 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.
27. Having extracted the development flow information from the strategic model, this can then be assessed within WCC's 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.