

# TECHNICAL NOTE



**Job Name:** Sharpness Vale  
**Job No:** 332210067  
**Note No:** 332210067-701-TN003  
**Date:** August 2024  
**Prepared By:** Leigh Stolworthy  
**Subject:** Update to 332210067-701-TN001 - M5 Junction 14 VISSIM Modelling

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## 1 Background

- 1.1 Stantec have been appointed by Sharpness Development LLP to provide transport support for the Sharpness Vale Development of 2,400 dwellings and 10ha of employment land, in the Stroud District of Gloucestershire. Transport evidence was considered at the Stroud District Draft Local Plan Examination in Public in May 2023. Subsequently and in support of the emerging policy PS36, the Planning Inspector has requested further information in support of the Draft Local Plan, which forms the basis of a joint action plan (JAP) produced by Stroud District Council (SDC). A key element of this joint action plan is an agreement on the plans for the strategic road network to accommodate the planned growth of the Draft Local Plan.
- 1.2 The JAP was produced by SDC in collaboration with National Highways, Gloucestershire County Council and South Gloucestershire Council. The work undertaken by Stantec, to assess potential to accommodate a proportion of Sharpness Vale development traffic at the M5 Junction 14, is separate to the work being undertaken by the JAP with regards to a full upgrade scheme for the junction.
- 1.3 A proportion of the Sharpness Vale Development generated traffic is anticipated to traverse through the M5 Junction 14. Therefore, Stantec has engaged with National Highways to obtain their VISSIM microsimulation model of the M5 Junction 14, for the purpose of assessing the impact of these trips on the M5 Junction 14.
- 1.4 Further to the above, Stantec has assessed the potential for Sharpness Vale Development traffic to be accommodated at the M5 Junction 14 and the neighbouring A38/B4509 junction, and the associated highway mitigation likely to be required to alleviate the impact of those additional development trips on the highway network.
- 1.5 A Technical Note, **332210067-701-TN001 - M5 Junction 14 VISSIM Modelling**, was produced which concluded that 1,000 dwellings at Sharpness Vale can be delivered by the provision of an interim highway mitigation scheme without unacceptable impact on highway safety on either the M5 Junction 14 or the A38/B4509 junction.

## DOCUMENT ISSUE RECORD

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1.6 This Technical Note and associated modelling files and drawings was issued to National Highways for consideration on 31 July 2024.

## **2 National Highways initial review of 332210067-701-TN001 - M5 Junction 14 VISSIM Modelling**

2.1 National Highways requested clarifications and additional information to assist with their review of the Technical Note which was responded to via the issue of a further Technical Note (**332210067-701-TN002 - Sharpness Vale: Trip Generation, Distribution, Mode Share and Assignment Assumptions for M5 Junction 14 VISSIM Modelling**) on 7 August 2024.

2.2 A meeting was held with National Highways and their consultants on 27 August 2024 to discuss the National Highways review of the Technical Notes issued, transport microsimulation modelling work undertaken, and interim highway mitigation scheme identified.

2.3 In the meeting on 27 August National Highways acknowledged that initial queries and requests for information had been addressed. National Highways further queried the speed curves that had been applied in the model in line with the associated turning radii of the proposed interim mitigation scheme and suggested that an additional model run be undertaken with an increase in speed associated with the proposed radius which could potentially increase the junction through put. This is being undertaken as a sensitivity analysis and results will be provided to National Highways in a new Technical Note during week commencing 9 September 2024.

2.4 National Highways requested further clarifications regarding trip generation assumptions but didn't anticipate this having any material effect on the outcome of the modelling work undertaken. National Highways are to provide details of this request to enable an expedited response.

2.5 In the meeting on 27 August 2024 National Highways indicated that an interim highway mitigation scheme at the M5J14 had been agreed by them in August 2024 associated with two developments at Charfield. On the day of the meeting National Highways provided a technical report relating to the modelling of the Charfield developments and associated identified highway mitigation. National Highways indicated that the implementation of more than one highway mitigation scheme before the full upgrade of the M5 J14 would not be acceptable due to prolonged traffic disruption associated with the implementation thereof and requested that the Sharpness Development LLP consider modelling combined traffic of the Charfield development with that of Sharpness Vale to test the proposed mitigation against the accommodation of traffic from both developments. There are two broad options with regard to how this work could be undertaken as follows:

- Use the transport model for the Charfield developments to test the additional traffic associated with the development of 1000 units at Sharpness Vale.
- Use the Sharpness transport model and proposed highway mitigation to test the inclusion of development traffic associated with the Charfield developments.

2.6 These two options are discussed further below

## **3 Use of Charfield Development Transport Model to Test Sharpness Vale Development Traffic.**

3.1 The Charfield Development Traffic Model uses the full development forecast year of 2024 whereas the development of 1000 units at Sharpness Vale is not projected to be achieved until 2032. Clearly the Charfield developments cannot be fully developed in 2024 as the planning application stage is not yet concluded.

- 3.2 Additional forecast years will need to be developed for the Charfield transport model to be able to test the additional traffic associated with Sharpness Vale 1000 units as well as the realistic buildout rate of the Charfield developments themselves. This will require a fresh review by National Highways and would not offer time saving benefits of using this version of the transport model.
- 3.3 The distribution of Charfield development trips and associated mitigation is likely to be skewed towards traffic from the east of Junction 14 and therefore may not easily accommodate additional traffic from the west associated with Sharpness.
- 3.4 Use of Charfield model will require the model and associated data to be obtained from the Charfield development through agreements with regard to use. This cannot be provided by National Highways. This may result in a protracted modelling process.
- 3.5 Whilst the agreements reached with regard to the Charfield proposed interim highway mitigation scheme included stage 1 road safety audits as well as Walking, Cycling and Horse-Riding Assessment (WCHAR) these will need to be redone should there be any change to the highway mitigation scheme which would not offer a time saving benefit of using this model.
- 3.6 For the reasons identified above the use of the Charfield Development transport model is not the preferred option.

## **4 Use of the Sharpness Vale M5 Junction 14 Transport Model**

- 4.1 As mentioned above the Sharpness Development transport model for M5J14 includes forecast traffic up to 2032 when the development of 1000 units is projected to be reached. This forecast traffic includes background traffic growth associated with other developments. There will be a need to assess and potentially adjust the Tempro growth factors to ensure that traffic associated with the Charfield development is not double counted when the development traffic is applied at the appropriate forecast year.
- 4.2 The technical information for the Charfield Development provided by National Highways will be used to apply the peak hour trip distribution for the development set as a separate vehicle class in the transport model so that the trips can be differentiated from the Sharpness Vale development trips in the model. This will enable a balanced and multidirectional approach to highway mitigation provision.
- 4.3 The combined development traffic will then be assessed to determine the efficacy of the interim highway scheme already identified which will be adjusted as required.
- 4.4 Once final combined mitigation has been confirmed that effectively accommodates traffic from both developments this will be resubmitted to National Highways for consideration following which fresh road safety audits and WCHAR will be undertaken.
- 4.5 This is the preferred option and will be pursued in consultation with National Highways. It is anticipated that this work will be concluded during September 2024.