A320 Corridor Study - M25 Further Traffic Modelling Methodology

1. Background

In late 2017, early 2018, Arcadis undertook a traffic study of the A320 corridor. This study was related to the preparation of the Runnymede 2030 Local Plan and included the proposal for additional land use development along the A320 corridor.

The traffic modelling undertaken was composed of:

- A Traffic Demand Forecast extracted from SINTRAM 72 model, which included the proposed developments; and
- A series of junction assessments along the corridor as well as for M25 Junction 11.

In the statement of common ground between Runnymede Borough Council and Highways England (HE), dated 28 November 2018, HE highlights the following concerns:

- The strategic model version used for the assessment does not fully comply with the latest modelling requirements, in particular in relation to trip rates; and
- Traffic conditions on the M25 mainline have not been considered while the corridor is experiencing regular congestion.

Further traffic modelling needs to be undertaken in order to identify a way forward. A successful outcome would be to demonstrate that there would be no severe impact on the SRN, or, that any severe impact can be mitigated to one that is less than severe.

The purpose of this document is to set out the proposed methodology of the further traffic modelling required to successfully address Highways England comments.

2. M25 Traffic Conditions

Considering the short timeline to undertake the study, Arcadis will need to focus on already available data, including:

- WebTris Traffic Count Data [http://webtris.highwaysengland.co.uk/];
- Google Traffic Typical Traffic Conditions; and
- Road Geometry based on aerial pictures.
Figure 1 shows the Google Traffic Typical Conditions for AM Peak of a typical Tuesday.

As seen on Figure 1, anti-clockwise on the M25, a congestion event is taking place at the merge with the M3. On the M25, the congestion is extending between M25 Junction 13 and M25 Junction 11.
Figure 2 shows the Google Traffic Typical Conditions for PM Peak of a typical Tuesday.

As seen on Figure 2, anti-clockwise on the M25, the congestion event is similar to the morning peak, but it does extend much further upstream, passing M25 Junction 13. In the PM peak, there is also congestion on the approach to M25 Junction 11 in the clockwise direction.

Motorway traffic management measures have already been implemented on the corridor. As seen on Figure 3, traffic signals ramp metering is already in place on M25 Junction 11 on slip ramps.
Considering the presence of the ramp metering system as well as the observed traffic congestion pattern, further congestion on the M25 is more likely to result from traffic returning to the A320 corridor in the PM peak than from traffic entering the M25 at Junction 11.

3. **Proposed Methodology**

   Based on the above assessment as well as the very tight timeline, a two-step methodology is proposed.

   **Step 1: Establishing the Source of Congestion**

   The purpose of this step is to confirm:
   - the source of congestion; and
   - spare capacity on the network.

   The work would involve:
   - The analysis of WebTris data in the corridor section to visualise all day traffic volume profiles, per direction;
   - The preparation of a flow diagram at AM and PM hour between M25 Junction 11 and M25 Junction 13;
   - The assessment of link volumes against the 1,800 veh/hr DMRB design requirement;
   - The preparation of DMRB merge and diverge calculations using TD22/06;
   - List potential mitigation measures and spare capacity; and
   - The preparation of a short technical note.
The conclusion of this assessment should lead to an agreement between Highways England and Runnymede Borough Council on the best way forward and to support the signing of an amended Statement of Common Ground between the two parties which agrees that Highway England’s current objections to the Runnymede 2030 Local Plan can be overcome.

Step 2: Developing Mitigations Measures (February onwards)
The development of mitigation measures is likely to include:
- Upgrade the capacity of M25 Junction 11 signalised roundabout, as recommended in the previous study.

It is acknowledged that additional/alternative mitigation may also be required subject to the conclusions drawn through step 1. This could include:
- A ramp metering system at M25 Junction 13 (even if a central reserve would need to be introduced for road safety reasons).

It is recommended to wait for the agreement of the conclusions drawn at Step 1 before agreeing a detailed traffic modelling scope for possible mitigation measures.

4. Project Team
The proposed team for the undertaking of this assessment is:
- Technical Reviewer: David Carrignon, Technical Director;
- Task Manager: Diego Moreno-Sosa, Senior Consultant; and
- Traffic Modeller: Monika Ruda, Assistant Consultant.

Step 1 would be delivered within 3 weeks from the commissioning date, excluding the two-week period over Christmas and New Year. The likely delivery date for the first Draft Technical note is therefore Friday 2nd February.

In order to provide some reasonable confidence that a solution is likely to be found, a written presentation will be provided for Friday 11 January which will set out the current results at this point and interim conclusions.

The deliverables will be composed of:
- A comprehensive technical note;
- All calculation and modelling provided as appendices;
- One interim results presentation on the 11th January;
- Two technical meetings with the team.

5. Modelling Scope Objectives
The purpose of this traffic modelling commission is to enable Runnymede Borough Council and Highways England (HE) to establish an agreed way forward. The modelling should:
- Provide a commonly agreed assessment of the technical issue;
- Enable to distinguish between the mitigations that should be part of the normally anticipated traffic management scope of HE and the mitigations that are specifically required following the A320 developments.

This latter point is particularly significant because HE objections are focussing on existing operational issues on the M25 mainline. It is important to understand if smart motorway
mitigations are planned on this motorway segment, and if so, how the A320 project can contribute to enhance them.