RUNNYMEDE LOCAL PLAN
M25 Traffic Impact Assessment Note

MAY 2019
Runnymede Local Plan

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1 Introduction

1.1 Background

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 (see Appendix A), 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 was therefore required to address Highways England concerns.

1.2 Purpose of the Document

The purpose of this technical note is to document the proposed non-consented developments traffic impact on the M25 corridor. These developments are included in the Local Plan and the methodology is agreed with Highways England.
1.3 Study Area

The study area, visible in Figure 1, “is specifically focussed on the transport implications that may arise from the development proposals contained in the submission Runnymede 2030 Local Plan on the Strategic Road Network (SRN) Junctions.” (Statement of Common Ground between Runnymede Borough Council and Highways England, 28 November 2018).

More specifically, the traffic impact assessment focuses on:

- M25 Junction 11 mainline merge and diverge segments;
- M25 Junction 11 part-signalised roundabout; and
- M25 Junction 13 (early assessment only).

Figure 1: Study Area
1.4 **Document Structure**

The remaining part of this document is structured as follows:

- Section 2 summarises the agreed methodology;
- Section 3 covers the M25 Junction 11 traffic demand forecast;
- Section 4 provides the M25 Junction 11 mainline traffic assessment;
- Section 5 provides the M25 Junction 11 roundabout traffic assessment;
- Section 6 provides the M25 Junction 13 early assessment; and
- Section 7 presents the conclusion and recommendations.
2 Methodology

The proposed methodology for this traffic assessment has been agreed using an initial memo as well as a series of workshops with Highways England (via Skype conferences). This information is available in Appendix A.

Development Considered

Future developments will have to have been consented in the Local Plan. Some developers may wish to proceed to the preparation of a Transport Assessment prior to the Local Plan, but they may have to update their study thereafter.

Assessment Process

The traffic assessment process agreed with Highways England is as follows:

- Prepare Daily flow profiles on the M25 to identify peak hours for a typical week day;
- Extract TEMPro values per road type for the M25 as well as St Peter’s Way (TEMPro growth factors used to prepare baseline 2030 traffic volumes);
- Prepare non-consented developments trip generation and distribution using:
  - Trics trip rates for the non-consented developments;
  - Omnitrans 2030 select link analysis for each development as a basis for the distribution/assignment;
- The preparation of 2030 flow diagrams (with and without non-consented developments) for AM and PM peak hours between M25 Junction 11 and M25 Junction 13;
- Prepare DMRB calculations, using TD22/06, for the merges and diverges of Junction 11;
- Prepare a more conservative Junction 11 LinSig model in order to assess the worst-case queue length at the roundabout, in particular for off-slip ramps leading to the roundabout; and
- The preparation of a technical note.

Assessment Criteria

Establishing whether or not the non-consented developments will have an impact that requires mitigation has been established as follow:

- **For the merge and diverge segments of the M25 mainline:** there is an impact if, according to TD22/06, the 2030 (with non-consented developments) proposed merge or diverge segment type is bigger than the 2030 baseline type required;
- **For the M25 Junction 11 roundabout:** there is an impact if the additional traffic results in a change of state of operation (under capacity / around capacity / over-capacity) or it results in degraded over-capacity traffic conditions; and
- **For M25 Junction 13,** the extraction of traffic volumes from the strategic model has been used to perform an early assessment of the impact.

The road safety implications of a change in traffic conditions must also be considered.
3 M25 Junction 11 - Traffic Demand Forecast

3.1 Traffic Data

The traffic data that has been used for the analysis for this study comprises of:

- **For the mainline**: Highways England’s WebTRIS\(^1\) traffic count data;
- **For the roundabout**: M25 Junction 11 traffic count data (See Appendix B); and
- **For the traffic background growth**: TEMPro 7.2.

The M25 Junction 11 traffic count undertaken for the previous stage of the A320 study took place on the 31st October 2017, which corresponds to a neutral date. The Tuesday and Thursday of the same week were retained for the mainline assessment. The WebTRIS sites selected for the assessment are shown in Figure 2.

*Figure 2: Selected WebTRIS sites*

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\(^1\) [http://webtris.highwaysengland.co.uk](http://webtris.highwaysengland.co.uk)
3.2 Peak Hour Identification

The daily flow profiles have been plotted to identify the morning and the evening peak hours. Average
weekdays (Tuesday & Thursday) data corresponding to the survey period (31/10/2017 -2/11/2017) was
used. The assessment is provided in Appendix B.

Benchmarking Flow Profiles

The M25 is regularly congested between junction 11 and junction 13. In order to ensure the peak hour
identification is not being impacted by severe congestion events, a benchmark against the weekday average
of the October 2017 month has been prepared. The selected days have a very similar profile as the monthly
average.

Peak Hour Identification

Table 1 below shows the peak hours identified for each site.

Table 1: AM and PM Peak hours for the selected sites on M25

<table>
<thead>
<tr>
<th>Date</th>
<th>Site</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/10/2017 &amp; 02/11/2017</td>
<td>M25 NB-J11</td>
<td>06:15-07:15</td>
<td>15:45-16:45</td>
</tr>
<tr>
<td>31/10/2017 &amp; 02/11/2017</td>
<td>M25 SB-J11</td>
<td>07:00-08:00</td>
<td>18:00-19:00</td>
</tr>
<tr>
<td>31/10/2017 &amp; 02/11/2017</td>
<td>M25 NB-J13</td>
<td>06:30-07:30</td>
<td>15:00-16:00</td>
</tr>
<tr>
<td>31/10/2017 &amp; 02/11/2017</td>
<td>M25 SB-J13</td>
<td>06:30-07:30</td>
<td>17:30-18:30</td>
</tr>
</tbody>
</table>

Table 1 shows that the peak hours vary between locations. However, the shape of the profiles is quite flat. In
order to ensure the worst-case network peak between the motorway peak and the development peak is
selected, the peak hours have been selected as follow:

- AM Peak Hour:
  - Motorway mainline (location dependent as per Table 1)
  - Each non-consented development peak between 06:00 – 08:00

- PM Peak Hour:
  - Motorway mainline (location dependent as per Table 1)
  - Each non-consented development peak between 15:00 – 19:00

3.3 Baseline 2017 to 2030 TEMPro Growth

The baseline traffic growth between 2017 and 2030 has been established using TEMPro 7.2. Table 2 shows
the TEMPro variable used.

Table 2: TEMPro Selected Variables

<table>
<thead>
<tr>
<th>EMPRO Criteria</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Year</td>
<td>2017</td>
</tr>
<tr>
<td>Future Year</td>
<td>2030</td>
</tr>
<tr>
<td>Time Period</td>
<td>AM and PM</td>
</tr>
<tr>
<td>Trip End Type</td>
<td>Origin / Destination</td>
</tr>
<tr>
<td>Transport Mode</td>
<td>Car driver/passenger</td>
</tr>
<tr>
<td>Growth level</td>
<td>Runnymede 007 (E02006399)</td>
</tr>
</tbody>
</table>
The growth factors extracted from TEMPro are shown in Table 3.

Table 3: TEMPro Growth factors

<table>
<thead>
<tr>
<th>Growth Period: 2017-2030</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runnymede 007 Motorway</td>
<td>1.1732</td>
<td>1.1740</td>
</tr>
<tr>
<td>Runnymede 007 Principal road (Urban)</td>
<td>1.1378</td>
<td>1.1386</td>
</tr>
</tbody>
</table>

3.4 Non-consented Sites Trip Generation

Proposed Developments

The proposed developments that have been included in the assessment of M25 Junction 11 are summarised in Table 4 and their location is shown in Figure 3. Table 4 specifically details the net change in development, taking into account both the proposed development and the existing situation. The calculation is detailed in Appendix C.

Figure 3: Location of proposed developments related to M25 Junction 11
## Runnymede Local Plan

### Table 4: Proposed developments Net Change

<table>
<thead>
<tr>
<th>Site Ref.</th>
<th>Development Name</th>
<th>Location</th>
<th>Land Use Type</th>
<th>Development Measure</th>
<th>Net Change&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slaa site 231</td>
<td>St Peter’s Hospital</td>
<td>St Peters Hospital, Guildford Road, Chertsey, KT16 0PZ</td>
<td>A1, A3 Local Shops</td>
<td>GFA (m2)</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B1 - Business</td>
<td>GFA (m2)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Houses</td>
<td>Units</td>
<td>192</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>208</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C2 - Nurses Home</td>
<td>GFA (m2)</td>
<td>-400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D1 - Hospital</td>
<td>GFA (m2)</td>
<td>10845</td>
</tr>
<tr>
<td>Slaa site 48</td>
<td>Hanworth Lane (north)</td>
<td>Hanworth Lane reserve housing site, Kennett Lane, Chertsey, KT16 9FY</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>46</td>
</tr>
<tr>
<td>Slaa site 48</td>
<td>Hanworth Lane (south)</td>
<td>Hanworth Lane reserve housing site, Hanworth Lane, Chertsey (south)</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>74</td>
</tr>
<tr>
<td>Slaa site 60</td>
<td>Pyrcroft Road</td>
<td>Pyrcroft Road reserve housing site, Pyrcroft Road, Chertsey, KT16 9ER</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B1 Type - Offices</td>
<td>GFA (m2)</td>
<td>-261</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B1 Type - Offices</td>
<td>GFA (m2)</td>
<td>-1875</td>
</tr>
<tr>
<td>Slaa site 254</td>
<td>Parcel B, Veterinary Laboratory site</td>
<td>Parcel B, Veterinary Laboratory allocation, rear of 10-28 Leigh Close</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>52</td>
</tr>
<tr>
<td>Slaa site 255</td>
<td>Chertsey Bittams A, B, C, D, E</td>
<td>Chertsey Bittams A allocation, Green Lane, Chertsey</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>382</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>262</td>
</tr>
<tr>
<td>Slaa site 263</td>
<td>Ottershaw East</td>
<td>Ottershaw East allocation, Brox Road, Ottershaw</td>
<td>C3 type - Houses</td>
<td>Units</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>77</td>
</tr>
<tr>
<td>Slaa site 99</td>
<td>Longcross Garden Village South</td>
<td>Longcross Garden Village South, Longcross Road, Longcross</td>
<td>C3 type - Houses</td>
<td>Units</td>
<td>872</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 type - Flats</td>
<td>Units</td>
<td>448</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A1- Local Shops</td>
<td>GFA (m2)</td>
<td>288</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3, A4 - Rest &amp; Café/Pubs</td>
<td>GFA (m2)</td>
<td>762</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A5-Hot food takeaway</td>
<td>GFA (m2)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D1-Primary School</td>
<td>GFA (m2)</td>
<td>500</td>
</tr>
<tr>
<td>Slaa site 99</td>
<td>Longcross Garden Village North</td>
<td>Longcross Garden Village North</td>
<td>C3 - Houses</td>
<td>Units</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 - Flats</td>
<td>Units</td>
<td>65</td>
</tr>
</tbody>
</table>

<sup>2</sup> The net difference between the existing and proposed developments
Trip Generation Methodology

TRICS (Trip Rate Information Computer System) database v 7.5.4 has been used to calculate the trip generation from the non-consented developments. The assumptions for extracting the trips rates for the proposed developments are as follow:

- Trips are for vehicle mode only;
- The area selected for sourcing the surveys is England excluding Greater London;
- The survey site locations are preferably on the edge of town, but some suburban sites have been included if there is not a sufficient number of edge of towns sites available;
- For residential developments, trip rates have been extracted for both private and affordable dwellings. The proportion of private and affordable units provided by the council has been used to split quantities of flats and houses;
- Typically, only surveys within the last 5 years have been retained, unless the sample size was too small, in which case a longer period has been used; and
- The highest hourly trip rate within each peak period was selected. As indicated in section 3.2, the time periods selected to extract the trip rates from are:
  - AM peak: 06:00-08:00
  - PM peak: 15:00-19:00

For the AM peak, some land use types have a higher trip rate outside of the selected period. These higher trip rates have not been selected as they would not correspond to the worst-case scenario on the M25.

Forecast Development Trips

The detailed trips generation for the proposed developments using TRICS is provided in Appendix C. Table 5 provides a summary of the total trips for each development.

Table 5: Proposed development trips

<table>
<thead>
<tr>
<th>Site Ref.</th>
<th>Proposed development</th>
<th>Net Change (in Veh.)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM</td>
<td>PM</td>
<td>Total</td>
</tr>
<tr>
<td>Slaa site 231</td>
<td>St Peter's Hospital</td>
<td>148</td>
<td>135</td>
<td>282</td>
</tr>
<tr>
<td>Slaa site 48</td>
<td>Hanworth Lane (north)</td>
<td>2</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Slaa site 48</td>
<td>Hanworth Lane (south)</td>
<td>10</td>
<td>34</td>
<td>44</td>
</tr>
<tr>
<td>Slaa site 60</td>
<td>Pycroft Road</td>
<td>16</td>
<td>63</td>
<td>80</td>
</tr>
<tr>
<td>Slaa site 254</td>
<td>Parcel B, Veterinary Laboratory site</td>
<td>11</td>
<td>35</td>
<td>46</td>
</tr>
<tr>
<td>Slaa site 255</td>
<td>Chertsey Bittams A, B, C, D, E</td>
<td>43</td>
<td>144</td>
<td>187</td>
</tr>
<tr>
<td>Slaa site 263</td>
<td>Ottershaw East</td>
<td>14</td>
<td>46</td>
<td>60</td>
</tr>
<tr>
<td>Slaa site 99</td>
<td>Longcross Garden Village South</td>
<td>119</td>
<td>329</td>
<td>447</td>
</tr>
<tr>
<td>Slaa site 99</td>
<td>Longcross Garden Village North</td>
<td>22</td>
<td>72</td>
<td>94</td>
</tr>
<tr>
<td><strong>Total Trips</strong></td>
<td></td>
<td><strong>384</strong></td>
<td><strong>867</strong></td>
<td><strong>1251</strong></td>
</tr>
</tbody>
</table>
Table 5 shows that three development trip generations stand out:

- Longcross Garden Village South (36% of the total in AM and 40% in PM);
- St Peter’s Hospital (23% of the total in AM and 19% in PM); and
- Chertsey Bittams (15% of the total in AM and 15% in PM).

These three developments correspond to 73% of the total trip generation for non-consented developments.

3.5 Trip Distribution/Assignment

The distribution of the trips has been estimated by using Surrey County Council’s 2030 traffic model (OmniTRANS) select link analysis. Appendix D contains the calculations for the developments’ trip distribution.

Overall, the proportion of non-consented development traffic going through the M25 Junction 11 roundabout is:

- In the AM peak:
  - 12% arrival
  - 35% departure
  - Overall 354 trips in all directions (including traffic staying on St Peter’s Way)
- In the PM peak:
  - 15% arrival
  - 32% departure
  - Overall 466 trips in all directions (including traffic staying on St Peter’s Way)
4 M25 Junction 11 - Mainline Traffic Assessment

4.1 Merge and Diverge Traffic Volumes

The merge and diverge traffic volumes have been prepared using the following sources:

- The 2017 WebTRIS M25 mainline flows (as mentioned in section 3)
- The 2017 M25 Junction 11 turning count;
- The TEMPro 2017 to 2030 motorway growth factor (AM 1.1732 / PM 1.1740); and
- The non-consented development trip distribution/assignment outputs.

The summary of the DMRB assessment is detailed in Table 6 and Table 7. The calculation of traffic volumes, as well as the detailed calculations for the DMRB assessment are provided in Appendix E.

4.2 M25 Mainline Conclusion

In conclusion, the existing situation is that the M25 mainline is already experiencing congestion north of Junction 11. Our DMRB analysis shows that:

- Based on 2017 traffic volumes, the design standard would require one additional lane in the mainline on the M25 clockwise.
- The 2030 baseline traffic volumes show that a further geometric upgrade would be required according to the design standard. The traffic volume generated by the non-consented development going to the M25 is low and does not trigger a further section upgrade.

Following discussion with Highways England, it has been agreed that any required mitigation can be considered in Step 2. Following internal discussions, Highways England are content that mitigation is not required for the southbound diverge at Junction 11 and that mitigation for the northbound merge can be incorporated into the Step 2 assessment as part of wider roundabout mitigation (see Section 5.3 below).
Table 6: DMRB merge and diverge assessment for the AM peak hour of each location

<table>
<thead>
<tr>
<th>Section</th>
<th>2017 Mainline flow</th>
<th>Merge/diverge flow</th>
<th>Existing Section</th>
<th>DMRB Calculated Section</th>
<th>Comments</th>
<th>2030 baseline Mainline flow</th>
<th>Merge/diverge flow</th>
<th>DMRB Calculated Section</th>
<th>Comments</th>
<th>2030 (with developments) Mainline flow</th>
<th>Merge/diverge flow</th>
<th>DMRB Calculated Section</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>M25 J11 NB Offslip</td>
<td>5812</td>
<td>993</td>
<td>Type C - 3 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>Type A - 4 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>The current diverge section is adequate</td>
<td>6819</td>
<td>1165 (200 extra vehicles could be accommodated)</td>
<td>Type C - 4 lane downstream, 1 lane connector road and 5 lanes upstream</td>
<td>6819</td>
<td>1176 (11 vehicles added)</td>
<td>Type C - 4 lane downstream, 1 lane connector road and 5 lanes upstream</td>
<td>The non-consented developments do not trigger a change segment type</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M25 J11 NB Onslip</td>
<td>5812</td>
<td>1570</td>
<td>Type F - 3 lane upstream, 2 lane connector road and 4 lanes downstream</td>
<td>Type F - 4 lane upstream, 2 lane connector road and 5 lanes downstream</td>
<td>The current section is smaller than required by the design standard for existing volumes</td>
<td>6819</td>
<td>1842 (300 extra vehicles could be accommodated)</td>
<td>Type F - 4 lane upstream, 2 lane connector road and 5 lanes downstream</td>
<td>6819</td>
<td>1921 (79 vehicles added)</td>
<td>Type F - 4 lane upstream, 2 lane connector road and 5 lanes downstream</td>
<td>The non-consented developments do not trigger a change segment type</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>M25 J11 SB Offslip</td>
<td>5155</td>
<td>1667</td>
<td>Type C - 3 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>Type D - 3 lane downstream, 2 lane connector road and 4 lanes upstream</td>
<td>The current section is smaller than required by the design standard for existing volumes</td>
<td>6048</td>
<td>1956 (950 extra vehicles could be accommodated)</td>
<td>Type D - 4 lane downstream, 2 lane connector road and 5 lanes upstream</td>
<td>6048</td>
<td>1973 (17 vehicles added)</td>
<td>Type D - 4 lane downstream, 2 lane connector road and 5 lanes upstream</td>
<td>The non-consented developments do not trigger a change segment type</td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>M25 J11 SB Onslip</td>
<td>5155</td>
<td>1044</td>
<td>Type F - 3 lane upstream, 2 lane connector road and 4 lanes downstream</td>
<td>Type E - 3 lane upstream, 1 lane connector road and 4 lanes downstream</td>
<td>The current diverge section is adequate</td>
<td>6048</td>
<td>1225 (1650 extra vehicles could be accommodated)</td>
<td>Type E - 4 lane downstream, 1 lane connector road and 5 lanes upstream</td>
<td>6048</td>
<td>1294 (99 vehicles added)</td>
<td>Type E - 4 lane upstream, 1 lane connector road and 5 lanes downstream</td>
<td>The non-consented developments do not trigger a change segment type</td>
<td></td>
</tr>
</tbody>
</table>
### Table 7: DMRB merge and diverge assessment for PM peak hour of each location

<table>
<thead>
<tr>
<th>Section</th>
<th>2017 Mainline flow</th>
<th>Merge/diverge flow</th>
<th>Existing Section</th>
<th>DMRB Calculated Section</th>
<th>Comment</th>
<th>2030 baseline Mainline flow</th>
<th>Merge/diverge flow</th>
<th>DMRB Calculated Section</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M25 J11 NB Offslip</strong></td>
<td>5294</td>
<td>885</td>
<td>Type C - 3 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>Type C - 3 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>The current diverge section is adequate</td>
<td>6215</td>
<td>1039 (300 extra vehicles could be accommodated)</td>
<td>Type C - 4 lane down, 1 lane connector road and 5 lanes upstream</td>
<td>6215</td>
</tr>
<tr>
<td><strong>M25 J11 NB Onslip</strong></td>
<td>5294</td>
<td>1569</td>
<td>Type F - 3 lane upstream, 2 lane connector road and 4 lanes downstream</td>
<td>Type F - 3 lane upstream, 2 lane connector road and 4 lanes downstream</td>
<td>The current diverge section is adequate</td>
<td>6215</td>
<td>1842 (650 extra vehicles could be accommodated)</td>
<td>Type F - 4 lane down, 2 lane connector road and 5 lanes downstream</td>
<td>6215</td>
</tr>
<tr>
<td><strong>M25 J11 SB Offslip</strong></td>
<td>5504</td>
<td>1131</td>
<td>Type C - 3 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>Type A - 4 lane downstream, 1 lane connector road and 4 lanes upstream</td>
<td>The current diverge section is adequate</td>
<td>6462</td>
<td>1328 (1100 extra vehicles could be accommodated)</td>
<td>Type C - 4 lane down, 1 lane connector road and 5 lanes upstream</td>
<td>6462</td>
</tr>
<tr>
<td><strong>M25 J11 SB Onslip</strong></td>
<td>5504</td>
<td>1298</td>
<td>Type F - 3 lane upstream, 2 lane connector road and 4 lanes downstream</td>
<td>Type B - 4 lane upstream, 1 lane connector road and 4 lanes downstream</td>
<td>The current diverge section is adequate</td>
<td>6462</td>
<td>1524 (500 extra vehicles could be accommodated)</td>
<td>Type F - 4 lane down, 2 lane connector road and 5 lanes downstream</td>
<td>6462</td>
</tr>
</tbody>
</table>
5 M25 Junction 11 – Roundabout Assessment

5.1 Roundabout Traffic Volumes

The M25 Junction 11 traffic volumes have been prepared using the following sources:

- The 2017 M25 Junction 11 turning count;
- The TEMPro 2017 to 2030 motorway growth factor (AM 1.1378 / PM 1.1386); and
- The non-consented development trip distribution/assignment outputs.

The calculation of traffic volumes, as well as the detailed calculations for the Linsig assessment, are provided in Appendix F. Table 8 provides a summary of the overall traffic volume increase at the junction.

### Table 8: M25 Junction 11 Total Traffic Volumes (Veh/hr)

<table>
<thead>
<tr>
<th>Site Ref.</th>
<th>2017 Existing</th>
<th>2030 Baseline</th>
<th>2030 Non-consented Developments</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017 Existing</td>
<td>2030 Baseline</td>
<td>2030 Non-consented Developments</td>
<td>Percentage Increase</td>
</tr>
<tr>
<td>AM Peak</td>
<td>5442 full junction 2590 roundabout only</td>
<td>6192 full junction 2947 roundabout only</td>
<td>6385 full junction 3039 roundabout only</td>
<td>3.1% full junction 3.1% roundabout only</td>
</tr>
<tr>
<td>PM Peak</td>
<td>5249 full junction 2654 roundabout only</td>
<td>5977 full junction 3022 roundabout only</td>
<td>6296 full junction 3171 roundabout only</td>
<td>5.3% full junction 4.9% roundabout only</td>
</tr>
</tbody>
</table>

5.2 Traffic Assessment

The junction analysis performed at M25 Junction 11 reveals:

- In the 2017 existing situation:
  - The roundabout has reached capacity, both on the southbound approach from the motorway and on the circulating carriageway itself;
  - The queuing back from the M25 off slips to the roundabout presents a road safety risk in case of a blocking back event onto the M25.
- In the 2030 baseline situation:
  - Highways England confirmed there is no plan to upgrade M25 Junction 11 as part of the Smart Motorway Programme;
  - The roundabout is over capacity and would require physical mitigations. A signal timing update alone would not be sufficient;
  - The Smart Motorway programme downgrades the merge and diverge types at Junction 11. This proposed scheme removes the lane drop within the junction (stays continuously 4 lanes), making any blocking back issue onto the motorway even more sensitive from a road safety point of view;
  - The queues on the motorway off-slips arms are long and are likely to occasionally block back;
- In the 2030 with non-consented development traffic:
  - The level of over-saturation is worse than in the 2030 Baselines;
  - A blocking back queue onto the M25 would be a typical occurrence if no physical interventions are made.
5.3 M25 Junction 11 Conclusion

In conclusion, the M25 Junction 11 has reached capacity in the existing situation. The Smart Motorway Programme does not include provision for the upgrade of the roundabout.

The 2030 baseline situation corresponds to an increase in traffic of approximately 13.8% leading to a saturated junction that would require mitigations. Queues on the off-slip ramps of the M25 are long and are likely to regularly generate blocking back events.

The non-consented developments from Runnymede Local Plan would add an additional 3.1% to 5.3% in excess of the baseline. The congestion at the roundabout is increased compared to the 2030 baseline and blocking back queues on the motorway are expected to be a typical event.

A mitigation scheme for M25 Junction 11 will need to be devised in consultation with Highways England and following the agreement of a suitable methodology. This mitigation scheme will be considered in a separate report.
6  M25 Junction 13 – Early Assessment

6.1 Early Assessment

The purpose of this section is to present the traffic volumes from the 2030 OmniTRANS Strategic model at Junction 13 to establish if the Local Plan is likely to have any material impact.

6.2 Junction Configuration

Junction 13 is a large 3/4 lane spiral roundabout. It is controlled using traffic signals on all approaches and includes link roads towards the south, parallel to the M25 connecting to the A308 interchange.

6.3 Traffic Data

The developments' trip distribution for J13 has been obtained from the Surrey County Council's 2030 traffic model (OmniTRANS) select link analysis. The list of developments used for J13 assessment are presented below in Table 9.

<table>
<thead>
<tr>
<th>Site Ref.</th>
<th>Proposed development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slaa site 156</td>
<td>Blays House (Site 1)</td>
</tr>
<tr>
<td>Slaa site 157</td>
<td>Egham Gateway West (Site 2)</td>
</tr>
<tr>
<td>Slaa site 253</td>
<td>Egham Gateway East (Site 3)</td>
</tr>
<tr>
<td>Slaa site 256 &amp; 257</td>
<td>Thorpe Lea Rd N &amp; Thorpe Lea Rd W (Site 4 &amp; 5)</td>
</tr>
<tr>
<td>Slaa site 258</td>
<td>Virginia Water N (Site 6)</td>
</tr>
<tr>
<td>Slaa site 261</td>
<td>Virginia Water S (Site 7)</td>
</tr>
</tbody>
</table>

The location of each site is presented on Figure 4. All the sites are located south of the interchange, typically along or south of the A308. M25 Junction 13, via the link roads is a convenient alternative to the A308 to reach the northern part of Staines-Upon-Thames.

Appendix D contains the OmnisTRANS model outputs as well as a junction flow diagram.
Figure 4: Location of proposed developments related to M25 Junction 11
6.4 M25 Junction 13 Traffic Volumes

Overall, the proportion of non-consented development traffic going through the M25 Junction 13 roundabout is as follow.

**M25 Junction 13 Ramps**

To the north of the junction:
- AM Peak, 94 veh/hr northbound and 71 veh/hr southbound; and
- PM Peak 115 veh/hr northbound and 61 veh/hr southbound.

To the south of the junction:
- AM Peak, 64 veh/hr northbound and 32 veh/hr southbound; and
- PM Peak 23 veh/hr northbound and 26 veh/hr southbound.

The traffic exiting and entering the M25 from the non-consented developments at junction 13 is very small and cannot be expected to be material to the M25.

**M25 Junction 13 South Link Roads**

Given that the non-consented development being located far south of the junction, it is not surprising that the majority of the traffic at M25 Junction 13 transits through the link roads.
- AM Peak, 179 veh/hr northbound and 165 veh/hr southbound; and
- PM Peak 186 veh/hr northbound and 118 veh/hr southbound.

**M25 Junction 13 Roundabout**

The traffic from the non-consented developments to the roundabout is as follow:
- AM peak overall 346 veh/hr from all directions; and
- PM Peak overall 300 veh/hr from all directions.

This junction is already fully signalised, with 3/4 lanes circulating carriageway.

6.5 M25 Junction 13 Conclusion

In conclusion, the traffic arriving at M25 Junction 13 from the non-consented developments is anticipated to be comparable in volume to M25 Junction 11. The roundabout is already fully signalised, has a spiral road marking and is of much greater capacity.

Further traffic operations assessment will be required to calculate the detailed impact of the local plan on M25 Junction 13.