

**THE PLANNING ACT 2008**

**M4 (JUNCTIONS 3 TO 12) (SMART MOTORWAY) DEVELOPMENT CONSENT ORDER  
APPLICATION**

**TR010019**

**Written Summary of Issue Specific Hearing Dealing With Matters Relating to Traffic Safety**

**Date: Thursday 11 February 2016**

**Venue: Holiday Inn Maidenhead/Windsor, Manor Lane, Maidenhead, West Berkshire, SL6  
2RA**

## *Comparative Measurements from M25*

- *Would the applicant please provide an update on the measurements that are underway on the M25, as discussed at the first M4 Smart Motorway hearings in November 2015, and due by January 2016?*

### Highways England's response

1. Highways England stated that an 'Explanatory Note' (January 2016) (the "Note") was submitted at Deadline VI. This provided Highways England's response to the *M25 J23-27 Twelve Month Evaluation Report*, which was made publicly available on 01 February 2016. The Note provided an overview of the output from the M25 J23-27 scheme following one year of operation. The Note also outlined how the M25 J23-27 scheme has performed, and it considered whether there is any impact from the monitoring that would affect the M4 Junctions 3 to 12 Smart Motorway scheme (the "Scheme").
2. The Note states that whilst the results from the M25 J23-27 scheme provide an initial indication of the performance of that scheme, there are two key factors which limit the extent to which the data can be considered representative of how the M4 Scheme will function:
  - 2.1 Only one year of reporting is available from the M25 J23-27 scheme. Conclusive results require 3 years of safety data. However, this initial data relating to the first 12 months of all lane running ("ALR"), provides provisional reassurance that the M25 scheme is safe. The performance of ALR will continue to be monitored over the coming years, and the statistical significance of the results will continue to increase; and
  - 2.2 The M25 J23-27 scheme differs from the M4 Scheme in a number of key respects, for example:
    - 2.2.1 for the most part, the M4 Scheme has closer spacing of signals than the M25 J23-27 scheme. The average gantry spacing on the M25 J23-27 scheme is 1004m, compared to a spacing on the M4 Scheme of 904m. It follows that the M4 Scheme has more frequent signal visibility than the M25 J23-27 scheme; and
    - 2.2.2 the M4 Scheme has a lower average spacing of emergency refuge areas ("ERAs") than the M25 J23-27 scheme. The average spacing of ERAs on the M4 Scheme is 1850m, whereas the overall average spacing on the M25 J23-27 scheme is greater than 2000m. This means that, on average, the distance vehicles potentially need to travel in the event that they require a place of safety is reduced.
3. Whilst the *M25 J23-27 Twelve Month Evaluation Report* provides the actual recorded output from the M25 J23-27 scheme, the Note also considers the key conclusions and implications for the M4 Scheme. The M25 J23-27 scheme's monitoring output shows that the M25 J23-27 scheme is generally performing in-line with expectations. The results show that the overall safety performance over the initial 12 month period did not worsen and the initial indications are that the objectives of the M25 J23-27 scheme are being achieved.
4. Highways England has provided written evidence to the Transport Select Committee, which is also provided to the Examining Authority at Deadline VII in Appendix A. This evidence states that the overall collision and casualty rates have decreased on the M25 between

junctions 23 and 27 compared to the previous three years, and no fatal collisions attributable to the ALR concept have taken place. The written evidence states that:

- 4.1 there was a reduction in the average serious collision rate on M25 J23-27 of 19% based on the first 12 months of operation;
- 4.2 with regard to live lane breakdowns, the initial operational experience on the M25 J23-27 scheme is that the number of live lane breakdowns has increased, as anticipated, but not to the level predicted, with less than 0.3 breakdowns per carriageway mile per day. The prediction for the M25 scheme was 0.35 breakdowns per carriageway mile per day, which is the same prediction as for the M4 Scheme; and
- 4.3 the data from the M25 J23-27 scheme confirms that in excess of 45% of the approximately 5,000 breakdowns recorded over the first 12 months period reached a place of safety. This is compared to the M25 J23-27 Hazard Log prediction that half of the breakdowns would reach a place of safety. The same prediction that half of the breakdowns would reach a place of safety has been used for the M4 Scheme. Although the M25 J23-27 figures for breakdowns reaching a place of safety were slightly below the predicted performance, this is based on the initial one year of data, and will be subject to ongoing monitoring and review to establish whether it is a short term trend or a true representation of the overall scheme performance.
5. The Note identifies areas in the *M25 J23-27 Twelve Month Evaluation Report* where predictions were not met. For example:
  - 5.1.1 the proportion of breakdowns reaching a place of safety;
  - 5.1.2 increase in the number of stops within ERAs on the M25 J23-27 scheme; and
  - 5.1.3 compliance with Red X signals.
6. With regard to the number of illegal stops in ERAs, there was an increase in the number of illegal stops identified on the M25 J23-27 scheme, and Highways England is investigating the reasons for the increase. At a strategic level, Highways England is considering driver education programmes across the network.
7. With regard to the Red X signal compliance, as explained in the Highways England response to the Examining Authority's first written questions (Deadline II - Response to First Written Questions: Section 6 - Traffic Safety – TS6.10), Highways England is preparing a Red X signal compliance programme to increase understanding of the levels of non-compliance. The programme includes development of a monitoring tool, which will monitor compliance with Red X signals across the network and measures to enhance positive driver behaviour, such as consideration of improvements to the Highway Code and a driver theory test review. In addition, Red X signal education campaigns have already been undertaken to improve driver understanding, which have included media and press coverage.
8. As noted previously, signals on the M4 Scheme are spaced closer on average than on the M25 J23-27 scheme, and there is better signal visibility. The M4 Scheme also has closer average spacing of ERAs than the M25 J23-27 scheme. Consequently, it can be broadly expected that the performance of the M4 Scheme will be as good as, if not better, than the M25 J23-27 scheme.
9. In response to the Examining Authority's questions on safety sampling, Highways England noted that three years of safety data is generally considered necessary in order to generate conclusive reports on safety. The one year of data available provides confidence that the M25 scheme is safe, but conclusive evidence of the performance of ALR will come after three

years. A three year period of safety data is required for statistical significance to remove the influence of anomalous instances in the data set. As an example of this, Highways England confirmed that the M25 J23-27 scheme twelve month safety data had been skewed by anomalous instances including two fatal collisions that occurred which were not directly attributable to ALR operation: a suspected suicide and a stowaway incident.

10. At the issue specific hearing, the Examining Authority noted that the *M25 J23-27 Twelve Month Evaluation Report* compared the change in predicted and measured noise levels for the Do-Minimum and Do-Something scenarios. Highways England agreed to provide more information on this point. An extract of Table 5-2, taken from the *M25 J23-27 Twelve Month Evaluation Report*, is set out below. In general, the measured noise levels post-scheme construction are lower than both the predicted noise levels and the pre-scheme noise levels.
11. Highways England confirms that low noise re-surfacing works were carried out on the M25 during the twelve month noise monitoring period, and these works may have had a positive impact on the noise levels noted on the M25 J23-27 scheme:
  - 11.1.1 the M25 J23-27 Consultation Document, December 2012 (source - [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/245456/j23-27-consultation-document.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245456/j23-27-consultation-document.pdf) ) notes that “50-60% of the M25 between Junction 23 and 27 currently has low noise surface with the remainder being either concrete or rolled asphalt”;
  - 11.1.2 the baseline noise monitoring was undertaken in Winter 2012/13 (as detailed in the plan below (Figure 1-3), extracted from the *M25 J23-27 Twelve Month Evaluation Report*) just prior to the construction period. The post-opening noise monitoring was undertaken after use of the scheme commenced in Summer 2014 for M25 junctions 23 to 25 and in early 2015 for M25 junctions 25 to 27; and
  - 11.1.3 resurfacing works between M25 J23-24 and M25 J25-27 followed the construction of the M25 J23-27 scheme and were undertaken between 02 December 2014 and 21 June 2015 (all with installation of low noise surfacing) (<http://www.highways.gov.uk/roads/road-projects/M25-Junctions-23-to-27-Resurfacing>).

Table 5-2 Comparison of Measured and Predicted Noise Levels

Ref	Address	Predicted Noise Levels L <sub>A10+18hr</sub> (06:00 – 24:00) dB		Measured Noise Levels L <sub>A10+18hr</sub> (06:00 – 24:00) dB		
		Do Minimum 2015	Do Something 2015	Pre Scheme Winter	Post Scheme Summer	Post Scheme Winter
B1	Bentley Heath Farm, Barnet, EN5 4RY	61.1	62.0	61.8	59.0	61.2
B2	25 Dove Lane, Potters Bar, EN6 2SG	71.1	72.1	67.6		63.5 <sup>2</sup>
B3	9 Gilsland, Waltham Abbey, EN9 1UP	65.3	66.2	65.1		60.4
B4	Bowlands Meadow, Theydon Rd, Epping, CM16 4EE	78.7	79.9	77.3		74.9
B5	Crown Hill Nursery, Waltham Abbey, EN9 3TF	67.7	68.3	68.1		66.9 <sup>1</sup>
B6	Guys Lodge Farm, Enfield, EN2 9HJ	80.5	82.4	79.2	80.4	79.1 <sup>2</sup>
B7	65 Park Avenue, Potters Bar, EN6 5EN	63.5	64.1	63.6	57.3	57.4
A8	17 Hill Crest, Potters Bar, EN6 2RT	64.7	65.2	-	60.9	61.9
A9	73 Park Avenue, Potters Bar, EN6 5EW	61.4	62.2	-	55.8	59.4
A10	Effectable Construction, Burnt Farm Ride, Enfield, EN2 9DY	69.2	70.0	-	60.8	66.5
A11	Park Cottage, High Road, Epping, CM16 4DJ	73.6	74.3	-		72.4
A12	26 Arlington Crescent, Waltham Cross, EN8 7RN	74.4	74.6	-		72.3
A13	30 Lodge Lane, Waltham Abbey, EN9 3AD	62.1	63.0	-		61.1
A14	21 Beechfield Walk, Waltham Abbey, EN9 3AB	58.8	59.8	-		58.4

<sup>1</sup> Short term noise measurements were taken at an alternative site, and corrected for same distance as the original site.  
<sup>2</sup> Original Logger position not available, alternative site chosen.

Figure 1-3 Data Collection & Evaluation Periods

