

Cllr Gary Cowan

WRITTEN REPRESENTATION

HIGHWAYS ENGLAND'S RESPONSE

1. *I wish to make the following submission to deadline VI in response to the answers given by Highways England at deadline V to the Examining Authority's second written questions and to the submissions I made previously National planning policy, including the National Planning Policy Framework and the National Networks National Policy Statement provide that promoters should seek opportunities, where possible, to contribute to improvements in the noise climate. This requirement underlies the additional noise mitigation measures now being proposed by Highways England as part of the M4 Smart Motorway scheme. These are most welcome, but they do not go far enough.*

Highways England Comment

- 1.1 The enhanced noise mitigation study was based on a robust quantitative assessment (the methodology for which was agreed with the Highways England's principal noise adviser). As described in the Enhanced Noise Mitigation Study Report (Ref 514451-MUH-00-ZZ-RP-EN-400158), this assessment is a three step process comprising i) calculation of the perceptible noise reductions achieved through enhanced mitigation, ii) a cost/benefit analysis (in terms of health benefits related to noise reductions against mitigation costs), and iii) professional judgment where the combination of i) and ii) does not provide an obvious conclusion.
- 1.2 The outcome was the provision of a substantial number of new noise barriers and the provision of a substantial number of higher replacement noise barriers. Combined with the provision of a low noise surface along the complete extent of the Scheme, the provision of these noise barriers results in significant noise reductions to a large number of properties within the Scheme corridor.
- 1.3 Highways England is of the opinion that the provision of these new and replacement noise barriers, combined with the provision of a low noise surface along the complete extent of the Scheme, meets the requirements of the NN NPS in relation to noise to:-
 - 1.3.1 Have considered reasonable opportunities to deliver environmental and social benefits (NN NPS para 3.3); and
 - 1.3.2 Contribute to improvements to health and quality of life through the effective management and control of noise, where possible (NN NPS para 5.195, bullet point 3).

2. *Properties to the south of the motorway, including those for example in the Caters Hill area of Arborfield and Newland, have been subject to increasing noise from the M4 motorway since it was opened in the early 1970s. Were the original scheme being brought forward for approval today, one would expect a considerably greater provision of noise mitigation measures. As it is, these are now being proposed retrospectively, using the scheme proposals as an opportunity to deliver greater and wider benefits to the affected communities.*

Highways England Comment

- 2.1 Highways England concurs with Cllr. Cowan's statement that the Scheme proposals are being employed as an opportunity to deliver greater and wider benefits to the affected communities,

with these benefits detailed in Drawing 3 of the Enhanced Noise Mitigation Study (Ref 514451-MUH-00-ZZ-RP-EN-400158), Drawing 3 as submitted on 8th February 2016.

3. *People living in all affected properties should be availed of the same opportunity for noise mitigation. Their human rights should dictate this consideration. Individuals living in properties on the south side, and close to the motorway, have been affected by the nuisance of road noise from the M4 in just the same way as those living to the north, for example in Lower Earley.*
4. *In fact, their claim may be said to be greater because the properties in Lower Earley were built many years after the motorway was completed. An individual living to the south of the M4 is just as entitled as one living to the north to whatever relief may be available from the constant road traffic noise from the motorway.*

Highways England Comment

- 4.1 As shown in the Enhanced Noise Mitigation Study Report (Ref 514451-MUH-00-ZZ-RP-EN-400158), residential areas to the south of the motorway have been considered in exactly the same way as residential areas to the north of the motorway.
- 4.2 The provision of a low noise surface along the complete extent of the Scheme will result in noise reductions to all areas along the Scheme, whether to the north or south of the motorway, including the Arborfield and Newland District.
- 4.3 Many of the properties to the south of the motorway in the Arborfield and Newland District are at significant distances from the motorway (for example, Caters Hill, mentioned by Cllr. Cowan, is over 1 km from the motorway). The noise reduction provided by a barrier decreases as the distance of the receptor from the barrier increases. Additionally, other factors, such as the noise contributions from other sections of the motorway and other roads in the locale, come into play to reduce further the effectiveness of a noise barrier. Consequently, the installation of noise barriers to provide significant noise reductions to these properties would not provide effective mitigation.
5. *For those affected, this is a once-in-a lifetime chance to have their environment improved, and government policy supports their expectation. The additional cost which would be small in the overall cost of the scheme should not be denied on a cost basis. Where additional noise barriers are now being proposed, some relief would be provided, and this is welcomed.*

Highways England Comment

- 5.1 As stated in the response to item 1, Highways England has considered reasonable opportunities to deliver environmental and social benefits to properties within the Scheme corridor. However, this consideration must be based on a qualitative assessment that includes a cost/benefit analysis. Highways England is a publicly funded body and the Scheme is being funded by the taxpayers' money. As such, Highways England cannot disregard the cost of the provision of acoustic barriers in circumstances where the assessment has shown that little or insufficient benefit will result.
6. *Those living alongside stretches of the M4 where no additional barriers are proposed will be, unfairly, left without the benefit that government policy seeks for them, and this needs to be tackled through the greater provision of mitigation measures.*

Highways England Comment

- 6.1 As stated in the response to item 1 above, the enhanced noise mitigation study was based on a robust quantitative assessment (the methodology for which was agreed with the Highways England's principal noise adviser). All residential areas within the Scheme corridor have been considered in exactly the same way.
7. *I welcome low noise surfaces but they have a limited life and their life expectation must be factored into the programme with its renewal a condition of approval. A northerly wind direction and its noise impact does not seem to have considered the impact of noise South of the motorway. Can both of these concerns be addressed.*

Highways England Comment

- 7.1 All road surface types degrade over time, with consequent increases in tyre/road noise. However, research has indicated that new low noise surfaces provide on average between 4 and 6 dB(A) benefit over tested hot road asphalt ("HRA") surfaces. In spite of the better acoustic durability of the HRA surfaces, the research concluded that low noise surfaces still outperformed the HRA surfaces by 1 to 3 dB(A) after 10 years. The -3.5 dB correction for a low noise surface, as prescribed in DMRB, is a reasonable average over the life of the surface for calculation and assessment purposes.
- 7.2 Like any surfacing, the life expectancy of low noise surfacing is determined by the specific constituents, quality of construction, amount of traffic and environmental conditions. The pavement is regularly monitored following installation and will be maintained to a high standard, in accordance with Highways England's standard procedures.
- 7.3 The typical life expectancy of low noise surfacing is between 10 and 15 years. However, in reality, heavily trafficked pavements, such as lane 1 of the M4, are likely to be replaced every 7 to 10 years and the outer lanes, with less heavy traffic, every 10 to 15 years.
- 7.4 Regarding Cllr. Cowan's comment on wind direction, the method used to calculate road traffic noise levels is Calculation of Road Traffic Noise ("CRTN"). The NN NPS specifically states that this method should be used for the calculation of road traffic noise (NN NPS para 5.191).
- 7.5 CRTN assumes typical noise propagation conditions, which are consistent with moderately adverse wind velocities and directions (that is, the major component of the wind direction is from the road to the receptor). This approach is employed for all receptors and all sections of road, regardless of where the receptor is in relation to the road section. Consequently, a reasonable worst case in terms of wind direction has been employed for receptors to the south of the motorway (as it has been for receptors to the north of the motorway).
8. *The M4 Smart Motorway impact on local feeder roads does not seem to have been addressed from Junctions 10/11. I recognise the scheme is designed to increase the capacity and flow of traffic on the M4 which is very welcome but fails to deal with local traffic entering/exiting the M4 from the local feeder roads Traffic using the A329/329M getting to/from Reading, Woodley, Winnersh, Earley and Bracknell and vice versa are subject to long queues/delays at the A329M at peak times. This leads to inconvenience and pollution and need to be addressed within the overall scheme.*

Highways England Comment

- 8.1 The M4 junction 10 is the exit for the A329(M) leading to Wokingham, Bracknell and Reading (east). Work has recently (December 2015) been completed on an improvement scheme as part of the Pinch Point Programme. The changes to the layout of the junction have

been implemented to ease congestion and improve traffic flows from the M4 onto the A329(M). The works involved:

- 8.1.1 widening the north and southbound slip roads from the M4 onto the A329(M) to allow for new two lane merges;
 - 8.1.2 reducing both carriageways of the A329(M), where it crosses the M4, to one lane using road markings; and
 - 8.1.3 amending the road markings on the link roads from the M4 eastbound carriageway to the A329(M) Wokingham bound carriageway to allow for two lanes.
- 8.2 The aims of that project are to:
- 8.2.1 improve capacity and movement through this junction;
 - 8.2.2 promote growth within key developments in Wokingham and Reading; and
 - 8.2.3 help facilitate the delivery of approximately 6,000 additional jobs and 10,000 homes by 2020, which are key aspirations within the Wokingham core strategy.
- 8.3 As the project has only recently been brought into operation, Highways England is closely monitoring its operation.
- 8.4 The traffic forecasts for the M4 smart motorway Scheme have also included traffic associated with the planned developments included within the Wokingham core strategy. Highways England and Wokingham Borough Council have been sharing information from their respective traffic models to ensure proper account is taken of the various development and associated infrastructure proposals.
- 8.5 The M4 junction 11 is the exit for the A33 leading to Reading and Basingstoke. The junction has been subject to a substantial upgrade, completed in mid-2010 and now comprises an enlarged intersection with the M4 together with an adjacent intersection immediately north of the motorway to connect the A33 Basingstoke Road with the B3031. The two junctions act as an inter-connected intersection with traffic signal control. This complex layout has been replicated within the M4 smart motorway traffic model, together with its associated traffic signal control and assessed against forecast operation under both a with- and without-Scheme situation.
- 8.6 The assessment with the M4 smart motorway in operation indicates that the additional traffic movements associated with the Scheme can be accommodated with only a limited impact on queues and delays. Average delays during peak periods are forecast to increase by a maximum of 2 seconds per cycle at any of the signal junctions around the intersection and with no discernible impact on queue lengths. This is illustrated in the following two diagrams, which are taken from the outputs from the M4 smart motorway traffic model. Diagram 1 shows the modelled delays at the signal stop lines around the junction for the am peak period in 2022 without the Scheme in operation. Diagram 2 shows the same junction with the Scheme in operation. The numbers shown at each stop line point represent the average delay in seconds. The red lines represent the maximum queue length at the end of each period that the traffic signals show red. A comparison of the with- and without-Scheme situations shows no significant difference between the two and, as such, no material impact arising from the operation of the Scheme. Therefore, Highways England considers that no further assessment of this junction is required.

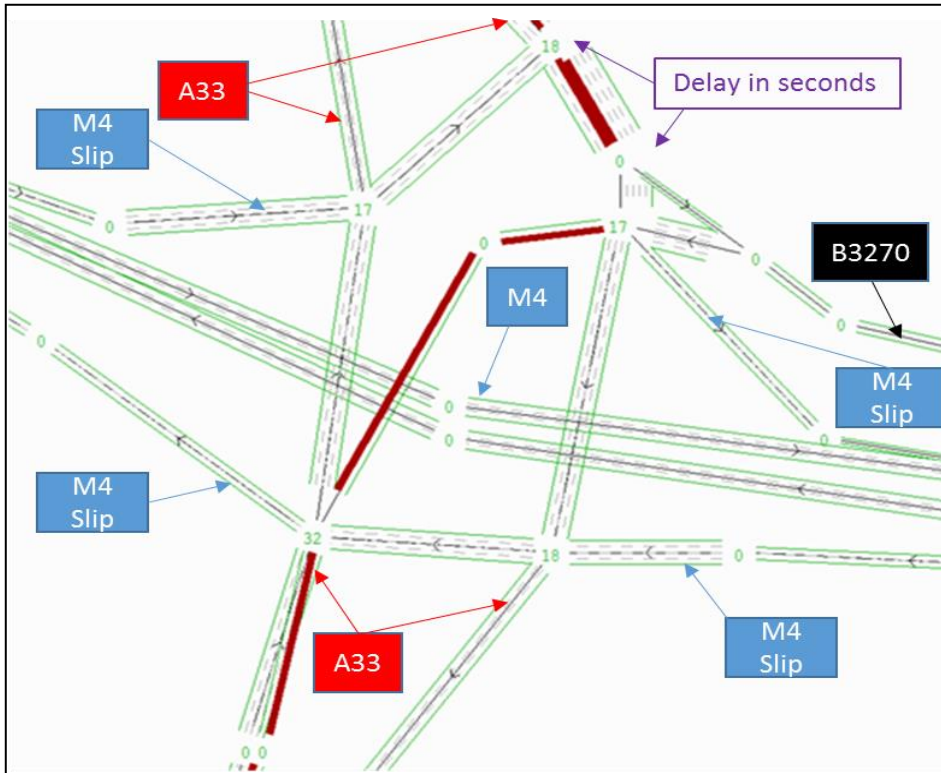


Diagram 1: Modelled delays at M4 Junction 11 – 2022 AM peak - No M4 smart motorway

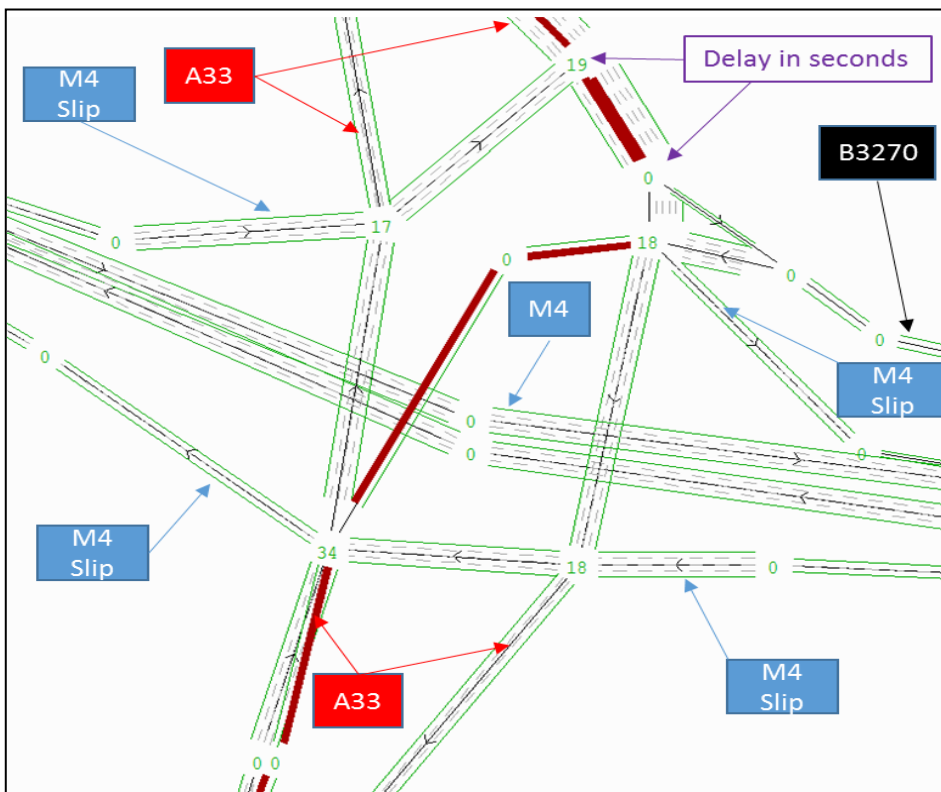


Diagram 2: Modelled delays at M4 Junction 11 – 2022 AM peak - With M4 smart motorway

- 8.7 In relation to the representation that this results in pollution, methodology for determining the local air quality study area is prescribed by the Design Manual for Roads and Bridges ("DMRB") Volume 11, Section 3, Part 1 'Air Quality' (HA207/07) (Ref 6.1) and associated Interim Advice Notes ("IANs") (Ref 6-2, 6-3 and 6-4 detailed in chapter 18 of the ES) and set out in 6.2.31, bullet points a) through to e). These criteria are used to identify whether significant changes in air quality are likely. If a criterion is not met or exceeded, then a significant change in air quality is not anticipated. Where these criteria have been met, sensitive receptors on those roads have been assessed.
- 8.8 The A329(M) is predicted to experience a change in traffic flows that would meet these criteria, and therefore sensitive receptors located adjacent to this road, and around the A3329(M)/A329 junction, have been included within the air quality assessment. The results at these locations are presented in Chapter 6 of the Environmental Statement, and can be seen on Drawings 6.32 and 6.33 (Application Document Reference 6-3). Changes in pollutant concentrations were predicted to be imperceptible (less than 0.4 µg/m³) at all of these receptors with the Scheme in place. Annual mean concentrations of pollutants were also all predicted to be below their respective objective values with the Scheme in place. Hence Highways England considers that any further study of Air Quality effects in these areas is not required and the impacts that Cllr Cowan is discussing here have already been evaluated.