

MARGARET COCKS

WRITTEN REPRESENTATION

HIGHWAYS ENGLAND'S RESPONSE

ADDITIONAL COMMENTS FROM MARGARET COCKS

1.1 *Over the years the noise from the motorway has got worse. I can now hear it indoors all the time, despite having double glazing. Not having quiet in your own home is stressful. Some days I cannot go in the garden as it is so loud, and one has to shout to someone just 3m away to be heard. In the summer we cannot open the bedroom window as the noise is too loud to sleep. The Environmental Noise Directive (2002) requires:*

- *"determination of exposure to environmental noise by noise mapping"*
- *also "adoption of action plans based on noise mapping, designed to manage noise issues and effects, including noise reduction."*

Highways England Comment

1.1.1 Strategic noise mapping for major roads (including the M4) was first carried out in 2007, as required by the Environmental Noise Directive, this is known as Round 1.

1.1.2 The Round 2 strategic noise mapping was carried out in 2012. The results of the Round 1 and Round 2 strategic noise mapping for the M4 between junction 3 and junction 12, identified specific 'Important Areas'. These were reviewed as part of the noise assessment for the M4 Junctions 3 to 12 Smart Motorway (the "Scheme"). 'Important Areas' are those areas along the strategic road network, which have been identified by the strategic noise mapping exercise as having high noise levels.

1.1.3 The Environmental Noise Directive also requires that Noise Action Plans are produced for identified Important Areas, defining actions to reduce noise levels, where feasible. The Round 1 Noise Action Plans for Important Areas have been taken account of in the development of the noise mitigation strategy for the Scheme, as required under paragraph 5.200 of the National Policy Statement for National Networks ("NN NPS"). The Noise Action Plans from the Round 2 strategic noise mapping were due for release in October / November 2015, but are not yet available. On release of these Action Plans, Highways England will undertake a review and incorporate any necessary changes to the noise mitigation strategy during the detailed design stage.

1.2 *Noise maps have been produced by DEFRA. They are computer generated, based on topography, buildings and traffic flows. This link takes you to the Lden (day, evening and night) map:*

http://services.defra.gov.uk/wps/portal/noise!/ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3hnd0cPE3MfAwMD42BTA093f1Nvk2ATAwNnA6B8JG55A2NidBvgAI4GBHSHg1yL33aQPB7z_Tzyc1P1C3JDIwyyTBQBYsELYQ!!/dl3/d3/L0lDU0lKSmdrS0NsRUpDZ3BSQINBL29Ob2dBRUIRaGpFS0lRQUJHY1p3aklDa3FTaFNOQkFOYUEhIS80QzFiOVdfTnIwZ0RFUIpJSIJ

[ERVNaTUpRaUlrZmchIS83XzZHTDgxOk8wOTBIMjMwSUNUSjc5ME4zMDQxLzQ5R2tnOTM5NzAwMDEvaWJtLmludi8zMDk2Mzg5NTE2NzYvamF2YXguc2VydmxldC5pbmNsdWRILnBhdGhfaW5mbY8lME1hcFBvcnRsZXRJbnN0cnVjdGlvbnMuanNw/](http://services.defra.gov.uk/wps/portal/noise!/ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3hnd0cPE3MfAwMD42BTA093f1Nvk2ATAwNnA6B8JG55A2NidBvgAI4GBHSHg1yL33aQP7z_Tzyc1P1C3JDIwyyTBOBYsELYQ!!/dl3/d3/L0lDU0lKSmdrS0NsRUpDZ3BSQ1NBL29Ob2dBRUIRaGpFS0lROUJHY1p3aklDa3FTaFNOOkFOYUEhIS80QzFiOVdfTnIwZ0RFU1pJSIJERVNaTUpRaUlrZmchIS83XzZHTDgxOk8wOTBIMjMwSUNUSjc5ME4zMDQxLzQ5R2tnOTM5NzAwMDEvaWJtLmludi8zMDk2Mzg5NTE2NzYvamF2YXguc2VydmxldC5pbmNsdWRILnBhdGhfaW5mbY8lME1hcFBvcnRsZXRJbnN0cnVjdGlvbnMuanNw/)

Highways England Comment

1.2.1 As stated in the response to paragraph 1.1 above, the strategic noise mapping results, in particular the Important Areas and the Noise Action Plans, were reviewed as part of the noise assessment for the Scheme and have been taken into account in the development of the noise mitigation strategy for the Scheme.

1.3 *No actual noise measurements were taken to inform the modelling. They simulate an "average day". They do not claim to include information on wind direction or rain. The noise from the motorway is worse when the wind carries the sound (the prevailing west or southwesterly wind carries the sound towards the houses) and is much worse when the road surface is damp or wet. So I wonder if the maps are an underestimate of what is actually experienced here. Nonetheless the Lden map shows even quieter parts of Lower Earley (home to 30,000 people) exposed to over 55dB. We live in an area in the band 65 -69.9dB and some houses are in a band of 75+ dB. It should be remembered that the decibel scale is such that an increase in 10 dB is a 10 fold increase in sound pressure. So 65 dB is 10 times more sound pressure than 55dB, and 75dB is 100 times more than 55dB.*

Highways England Comment

1.3.1 The Department for Environment, Food and Rural Affairs (“Defra”) strategic noise maps are based on calculation, not measurement. They use the Calculation of Road Traffic Noise (“CRTN”) methodology to calculate road traffic noise levels, as required by paragraph 5.191 of the NN NPS. The CRTN methodology provides a reasonable worst case by assuming that a moderate wind is blowing from the noise source (i.e. any section of road) to all receptors in the study area, wherever those receptors are located in relation to the noise source.

1.3.2 The CRTN methodology does not account for the effects of a wet road surface on noise levels. Highways England agrees that traffic on a wet surface is noisier than on a dry surface. However, the effects of a wet road surface would exist in the Do Minimum scenario (i.e. without the Scheme) as well as in the Do Something scenario (i.e. with the Scheme) and the change in noise levels from Do Minimum to Do Something will be roughly comparable for a wet road surface and a dry road surface. It is the change in noise level (Do Minimum to Do Something) which is used to assess the effects of the Scheme.

1.4 *The following link takes you to the noise map for night time noise, Lnight:*

http://services.defra.gov.uk/wps/portal/noise!/ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3hnd0cPE3MfAwMD42BTA093f1Nvk2ATAwNnA6B8JG55A2NidBvgAI4GBHSHg1yL33aQP7z_Tzyc1P1C3JDIwyyTBOBYsELYQ!!/dl3/d3/L0lDU0lKSmdrS0NsRUpDZ3BSQ1NBL29Ob2dBRUIRaGpFS0lROUJHY1p3aklDa3FTaFNOOkFOYUEhIS80QzFiOVdfTnIwZ0RFU1pJSIJERVNaTUpRaUlrZmchIS83XzZHTDgxOk8wOTBIMjMwSUNUSjc5ME4zMDQxLzQ5R2tnOTM5NzAwMDEvaWJtLmludi8zMDk2Mzg5NTE2NzYvamF2YXguc2VydmxldC5pbmNsdWRILnBhdGhfaW5mbY8lME1hcFBvcnRsZXRJbnN0cnVjdGlvbnMuanNw/

Highways England Comment

- 1.4.1 As stated in the response to paragraph 1.1 above, the strategic noise mapping results, in particular the Important Areas and the Noise Action Plans, were reviewed as part of the noise assessment for the Scheme and have been taken into account of the development of the noise mitigation strategy for the Scheme.
- 1.5 *It shows most of the area is over 50dB, but around the edges it is in the band 60 - 64.9dB and some areas are 65-69.9dB. It has been shown that there are measurable effects on sleep if background sound in the room is over 30 dB. The 1999 WHO Night Noise Guidelines document said that sound pressures on the outside of buildings should be under 45 dB to allow the inside levels to be acceptable for sleep. If there is a lot of low frequency component to noise then the threshold should be lower as it is more disruptive.*
- 1.6 *WHO Night Noise Guidelines were updated in 2009. It is a large document looking at evidence of the link between noise exposure and health. They produced recommended night noise guidelines for Europe giving 40 dB as the target level for outside noise, but with 55dB as an interim target.*

http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf

Highways England Comment

- 1.6.1 Highways England does not disagree with this statement. It should be noted that the 45dB external noise level relates to the noise reduction (external to internal) for a partially open window to allow the internal noise level to be acceptable for sleep. Whereas a closed double glazed window would provide an approximate noise reduction of 25 to 30 dB, thus external noise levels of 55 to 60 dB would result in an approximate internal noise level of 30 dB.
- 1.6.2 The Night Noise Guidelines for Europe set the target level at 40 dB $L_{Aeq,8h}$ (free field), necessary to protect the public, including most of the vulnerable groups such as children, the chronically ill and the elderly, from the adverse health effects of night noise. However, it is recognized in the Guidelines that many people are exposed to noise levels above this value and recommend an interim target of 55 dB $L_{Aeq,8h}$ (free field).
- 1.6.3 All EU Member States are encouraged to gradually reduce the proportion of the population exposed to levels above the interim target within the context of meeting wider sustainable development objectives.
- 1.6.4 The World Health Organisation (“WHO”) Night Noise Guidelines have been employed in the noise assessment for the Scheme. The interim target level has been used to define the night time Significant Observed Adverse Effect Level (“SOAEL”) in the assessment (paragraphs 12.1.23, 12.2.21 and 12.2.22 of the Environmental Statement (“ES”) (Application Document Reference 6-1, APP-152)). This SOAEL has been employed to assess the effects of the Scheme and to develop the enhanced noise mitigation study.
- 1.6.5 It has been demonstrated that there will generally be noise reductions within the Scheme corridor with the Scheme in operation (as presented in the ES), with further noise reductions to those areas exposed to the highest noise levels with the provision of enhanced mitigation, thus “contributing to the improvements of

health and quality of life”, as required by the NN NPS and National Policy Statement for England (“NPSE”).

- 1.7 *The National Planning Policy Framework 2012 sets out government plans and states developers should mitigate and reduce to a minimum adverse impacts on health and quality of life arising from noise from new developments.*

Highways England Comment

- 1.7.1 Under section 11 ‘Conserving and Enhancing the Natural Environment’ of the National Planning Policy Framework (2012), paragraph 123 states that planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development; and*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions.*

- 1.7.2 Highways England considers that the Scheme meets these aims, as the Scheme is expected to have a beneficial effect in terms of reductions in noise levels within the Scheme corridor.

- 1.7.3 Through a combination of mitigation measures such as the provision of low noise surfacing to all carriageways, the provision of additional noise barriers and the replacement of existing noise barriers, the noise assessment outlined in Chapter 12 of the ES demonstrates that the operation of the Scheme will result in a reduction in noise levels, when compared with the baseline conditions (Do Minimum 2022) in the opening year. Further to that, an enhanced noise mitigation study is being carried out to optimise the lengths and heights of those proposed additional and replacement barriers.

- 1.7.4 On that basis, Highways England considers that the Scheme meets the aims in paragraph 123 of National Planning Policy Framework, as required through paragraph 5.193 of the NN NPS. Furthermore, Highways England also considers that the Scheme meets the similar requirements of paragraph 5.195 of the NN NPS (reproduced below), that outlines the criteria in relation to noise on which the Secretary of State should grant development consent orders.

The Secretary of State should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life from noise as a result of the new development;*
- *mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and*
- *contribute to improvements to health and quality of life through the effective management and control of noise, where possible.*

- 1.8 *In summary the background motorway noise is already above acceptable levels and having adverse effects on quality of life and health. With increased traffic it will get worse. We need any possible method to mitigate the noise problem, probably quiet road surface on all lanes, sound barriers and a reduced speed limit.*

Highways England Comment

- 1.8.1 Highways England has confirmed that low noise surfacing will be provided across all lanes along the complete extent of the Scheme, as secured in requirement 5 at schedule 2 to the draft Development Consent Order (“DCO”) (REP3-005).
- 1.8.2 As reported in Chapter 12 of the ES, the magnitude of impact for the Scheme on ambient noise is minor beneficial in the short term and negligible in the long term, with the vast majority of the Scheme corridor experiencing negligible or minor reductions in noise levels with the Scheme in operation.
- 1.8.3 However, it is noted in paragraph 12.4.112 of the ES that there is the potential to improve further the noise climate within the Scheme corridor. A qualitative appraisal of an enhanced noise mitigation study to achieve this is provided in Appendix 12.5 of the ES (Application Document Reference 6-3, APP-351). This enhanced noise mitigation study comprises the possible provision of additional noise barriers and the possible replacement of some existing noise barriers with higher noise barriers.
- 1.8.4 Work has been undertaken to provide a quantitative assessment of this enhanced noise mitigation study, based on a detailed cost/benefit analysis, and the results of this assessment are provided with the submission at Deadline V.
- 1.8.5 Highways England confirms that the Lower Earley area was subject to the assessment undertaken as part of the enhanced noise mitigation study. The confirmed barrier provision in this area is detailed within Appendix E of the Enhanced Noise Mitigation Study Report (Ref 514451-MUH-00-ZZ-RP-EN-400158), Sheets 4 and 5 are relevant to the Lower Earley area.
- 1.8.6 The results of the enhanced noise mitigation study show that an additional 2126 metres of 2.5 metre high noise barrier is provided adjacent to Lower Earley and 260m of 3.5 new high noise barrier is provided in the Mill Lane area. The provision of this mitigation will provide further noise decreases to properties in Lower Earley, in addition to the minor noise decreases on Scheme opening (without enhanced mitigation) presented in Sheets 4 and 5 of Drawing 12.4 of the ES (Application Document Reference 6-2, APP-266).
- 1.8.1 With regards to the use of speed restrictions to control noise, this approach is not being considered by Highways England as the noise effects of the Scheme are predicted to be beneficial, with the vast majority of the Scheme corridor experiencing noise reductions. As such, no speed controls to mitigate noise are required.