ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD

WRITTEN REPRESENTATION

HIGHWAYS ENGLAND RESPONSE

1. GENERAL

1.1 *The decision to re-surface the whole of the motorway with low-noise surfacing, rather than just the sections of road to be widened, is welcomed.*

1.2 *The Council recognises that the scheme will provide additional traffic capacity and more reliable journey times on the M4, where congestion at peak times is spreading to other parts of the day. These improvements will help maintain the Borough's connectivity across the Thames Valley and the wider area, as well as London and Heathrow airport.*

1.3 *However, RBWM fundamentally oppose the proposals for a third runway as part of Heathrow expansion due to the adverse environmental impact upon local residents, local businesses, institutions and the tourist trade and therefore would not support the M4 Smart Motorway scheme if it were being introduced to facilitate expansion at Heathrow.*

Highways England Comment

1.3.1 Highways England confirms that the M4 junctions 3 to 12 smart motorway scheme (the "Scheme") is not being introduced to facilitate expansion at Heathrow Airport.

2. TRAFFIC IMPACT

2.1 *Whilst the additional traffic capacity on the M4 motorway is to be supported, the Council remains concerned that the traffic impact on motorway junctions, approach roads as well as local roads has yet to be clearly identified. Mitigation measures to address these impacts needs to be considered and funding to implement appropriate measures needs to be identified.*

Highways England Comment

2.1.1 It is not correct that impact on junctions, approach and local roads has yet to be clearly identified.

2.1.2 Highways England uses a computer forecasting model for traffic modelling (described in Chapter 2 of the Traffic Forecasting Report, which was provided at Appendix 1 to the Response to Relevant Representations at Deadline I), an approach which is used on all Highways England major schemes. The traffic model takes account of details of the Scheme and of future developments provided by the local planning authorities and Highways England alongside national population and employment forecasts to assess the Scheme and its effects on the surrounding roads (see Section 4.4 of the Traffic Forecasting Report provided at Appendix 1 to Highways England's Response to Relevant Representations submitted for Deadline I).

2.1.3 The Scheme will provide additional capacity that will reduce congestion together with modern technology to inform drivers and smooth traffic flows on the Scheme, creating an opportunity to provide traffic relief to the surrounding local roads over a wide area beyond the immediate area of the Scheme.

2.1.4 The results of the traffic modelling that show that the Scheme will result in a reduction in congestion along the Scheme extent are summarised in paragraphs 4.3.3 and 4.3.4 of the Engineering and Design Report ("EDR") (Application Document Reference Number 7-3). The effect of the Scheme on local roads is assessed in paragraph 6.1.13 of Chapter 13 of the Environmental Statement ("ES"), Effects on All Travellers (Application Document Reference 6-1). Tables 13.4 and 13.5 of the ES list the roads in the vicinity of the Scheme that are considered to be potentially most affected by the Scheme. The results of the assessment on these routes are set out in Tables 13.27 to 13.29 and summarised in paragraphs 13.8.6 to 13.8.9, concluding overall that the impact is neutral. On that basis, Highways England considers that the traffic impact on approach roads and motorway junctions has been fully identified and assessed.

2.1.5 As such, and having particular regard to the effects of the Scheme on the local road network, Highways England considers that it is not necessary for further mitigation to be considered or for further funding to be identified.

3. ROAD SAFETY

3.1 *Although the Council broadly supports the principals of the Smarter Motorway scheme, there are concerns about the full-time replacement of the hard shoulder with emergency refuge*

areas spaced a 2.5km intervals. A comparative safety assessment based on data from existing similar smart motorway arrangements would have supported this decision.

Highways England Comment

3.1.1 In relation to the concerns raised regarding the conversion of the hard shoulder into a permanent running lane, Highways England's assessments show that the Scheme will deliver the additional capacity required without compromising overall safety. The Hazard Log Report (Annex E of the EDR (Application Document Reference 7-4)) notes that the Scheme's hazard log is based on the generic Interim Advice Note ("IAN") 161/13 hazard log, which is a comparative assessment which includes hazard data from other schemes.

3.1.2 The hazard assessment methodology used to assess the expected safety performance of the smart motorways concept uses evidence (i.e. monitoring data on performance) gathered from the M42 Pilot and more recent operational smart motorway schemes (e.g. hard shoulder running ("HSR") schemes on the M6 around Birmingham and M62 J25-30). This evidence demonstrates that the use of the hard shoulder, as an additional lane, does not compromise overall safety. It is noted that the Scheme has a different operating regime than the early smart motorway schemes (e.g. M42 Pilot) as they operated with an HSR operating regime and not all lanes running ("ALR"). However, the early smart motorway schemes have enabled a comparative safety assessment of the use of the hard shoulder as a running lane to be undertaken. The hazard log for the Scheme also takes account of work during the design process from other ALR schemes, e.g. M1 J28–31, M1 J32–35a and M25 J23–27.

3.1.3 Monitoring is currently underway on the first ALR scheme on the M25 J23-27 to measure actual safety performance and compare it with the safety levels before the introduction of ALR. This will provide data to enable a further comparative safety assessment based on evidence from an operational ALR scheme to be undertaken. The monitoring from the first ALR scheme will include data on live lane stoppages and use of emergency refuge areas ("ERAs"). The one year monitoring report will be published by the end of 2015, however this remains a very short timeframe upon which to assess the efficacy of the scheme (a scheme requires three years of validated accident data in order to be confident that it is meeting its safety objective). The results will give an indication of the actual

safety level that can be achieved with ALR allowing the hazard log assessment and hazard assumptions for ALR schemes, including the Scheme, to be reviewed and if necessary revised, in line with the monitoring results.

3.1.4 Regarding the comment that the refuge areas are placed at 2.5km intervals, the average spacing between refuges will be 1.14 miles (1.85km) as detailed in section 2.2 of Annex E of the EDR, which is significantly within the 2.5km maximum spacing outlined with the smart motorways ALR design standard (IAN 161/13).

3.1.5 An assessment for the provision of refuge areas has been undertaken by Highways England which provided the design standard requirement for 2.5km maximum spacing outlined within IAN 161/13. Evidence supporting IAN 161/13 – 'An Evaluation of the provision of refuge area' supports the view that many road users will still be able to make it to a refuge area in an emergency, even when the distance is increased. (Ref: http://assets.highways.gov.uk/specialist-information/knowledge-compendium/2011-13-knowledge-programme/MM-ALR_Evaluation_of_the_Provision_of_Refuge_Areas.pdf). The report explains how detailed monitoring of hard shoulder and ERA activity was undertaken soon after the implementation of the M42 Pilot. This work was based on analysis of CCTV images which coincided with a section of the Pilot scheme on which ERAs are located at a nominal spacing of 800m. This monitoring indicated that a wider spacing of ERAs did not compromise the expected use or usefulness of the ERAs. As noted above, the refuge spacing on the Scheme will be significantly less than the IAN 161/13 design standard.

4. CONSTRUCTION IMPACT

4.1 *Construction activity will need to be carefully managed in order to minimise impact upon adjacent residential properties. This includes the construction work compounds and traffic diversions from the motorway onto local roads during construction. Even in the absence of formal traffic diversions, we are concerned about traffic being displaced onto local roads in order to avoid the motorway during the construction phase. Construction related traffic also needs to be considered where this will have an impact upon local re roads.*

Highways England Comment

4.1.1 Construction works may have the potential to impact upon adjacent residents and their properties through increased noise and vibration, effects upon air quality or increased traffic.

4.1.2 A construction noise and vibration assessment has been carried out to assess relevant impacts on residents; this is provided in Chapter 12 of the ES (paragraphs 12.4.32 to 12.4.87) and Appendix 12.3 of the ES.

4.1.3 Section 12 of the outline Construction Environmental Management Plan ("CEMP") (Appendix 4.2A of the ES (Application Document Reference (6-3)) details the contractor's measures for managing noise and vibration during the works. The measures detailed in the CEMP are secured by Requirement 8 of Schedule 2 of the draft Development Consent Order (Application Document Reference 3-1). The strategy to be implemented will be to control of noise and vibration at source (paragraph 12.2.3 of the CEMP). Any construction activities likely to cause significant ground vibration will be subject to further, detailed design and verification prior to commencement of the works. Paragraphs 12.6.11 to 12.6.18 detail the contractor's approach to protecting buildings from the effects of ground borne vibration, including the identification of any buildings requiring structural surveys pre and post construction works.

4.1.4 In addition, a construction air quality assessment has also been carried out to assess impacts from construction dust and heavy goods vehicles movements; this assessment is provided in Chapter 6 of the ES.

4.1.5 Section 6 of the outline CEMP details the management of air quality during the works. Mitigation measures may include ensuring that vehicles are well maintained, implementing wheel washing systems and providing dust suppression, via water spraying, to minimise airborne dust (paragraph 6.2.1 of the CEMP).

4.1.6 Highways England will manage the impact on local residents through the use of good communications. Table 3.1 of the CEMP outlines the responsibilities of the Public Liaison Officer, who will work with local communities and residents to keep them informed on activities that may inconvenience them and to feedback any concerns they have to the contractor. This will provide residents with the

opportunity to highlight any issues relating to their properties that have arisen from the construction works.

4.1.7 With regards to construction traffic, details of traffic management proposals and construction traffic routing including agreed access and construction routes for the Scheme in each local authority area, will be provided in the Construction Traffic Management Plan ("CTMP"), an outline version of which was provided with the Application in Annex E of CEMP. The final CTMP will be developed in consultation with local authorities to ensure impact to the local network is minimised. This is secured by Requirement 18 of Schedule 2 of the Development Consent Order ("DCO") (Application Document Reference 3-1).

4.1.8 Access routes for construction traffic will predominantly be via the M4 motorway and main roads on the local road network unless it is considered necessary for other local roads to be used. Any local roads likely to be used in this context will be specified in a revised CTMP to be submitted prior to the close of Examination. The priorities in the approach to construction transport routeing will be:

4.1.8.1 Use of the M4 itself for sites and working areas adjacent to the M4 where possible;

4.1.8.2 Use of other roads for site establishment for limited periods;

4.1.8.3 Use of other roads that are not residential in nature to provide access for working areas including bridge works: and

4.1.8.4 Use of residential roads as a last resort.

4.1.9 Access along residential roads will generally be prohibited, although given the nature of the environment in which the Scheme is situated, this may very well be unavoidable. Also, a number of relatively major roads in this densely populated part of England have residential properties along their length. Where residential roads are to be utilised, the residents will be notified of the nature, timing and duration of the works in advance.

4.1.10 The proposed construction compound locations have been selected such that they are located as close to motorway junctions as possible to minimise construction traffic using the local highway network. Access to the bridge construction sites will also be required via the local road network, particularly for site establishment. However, this will be kept to a minimum and access routes will be defined in the final CTMP, which will be prepared in consultation with

stakeholders as provided for at paragraph 2.4.1 of the Outline Construction Traffic Management Plan, Annex E of the Outline CEMP Appendix 4-2A of the ES (Application Document reference 6-3).

4.1.11 The effects of the proposed traffic management regime and phasing of the works during the construction of the Scheme on road users is described in paragraphs 8.3.1 to 8.3.6 of the EDR. To assess the possible effect of the construction traffic management on users of the M4, the Highways England bespoke software program QUADRO (QUeues And Delays at ROadworks) was run. Analysis of the delays predicted by the program shows that the delays arising from the additional time to travel through the works during the first phase of works reached a maximum predicted journey time extension of 10 minutes in each of the Monday – Thursday peak periods. Only during the Friday PM peak in the westbound direction do journey extensions exceed 10 minutes and queues occur.

4.1.12 During phase 2 of the works, the capacity of three narrow lanes is exceeded during peak periods between junctions 3 and 4 and between junctions 5 and 6. The initial effect as capacity is reached is that vehicles will start to queue but there is the risk that diversion to other routes may occur. Should all vehicles above the capacity limit choose to divert, the potential level of diversion as assessed by QUADRO is limited in number, totalling 106 vehicles per day, two-way Monday to Thursday between junctions 3 and 4 and a total of 296 vehicles per day, two-way Monday to Thursday between junctions 5 and 6.

4.1.13 The assessment that a limited amount of traffic diversion will occur during the construction of the Scheme is also reinforced by a comparison of traffic flow data captured during roadworks on the M4 in 2014. Two sets of works were undertaken – resurfacing between junctions 8/9 and 10 and bridge works between junctions 10 and 11, each using 3 narrow lanes of traffic management. Comparisons were made between traffic flows over the period May to September during which the works were carried out, and the same period the previous year using data from Highways England's Traffic Flow Data System ("TRADS"). The comparisons showed that flows in 2014 were marginally lower than the preceding year only during the peak periods. During the remainder of the day outside the peaks, flows in 2014 were typically 2-3% higher than in 2013. This suggests that if diversion was occurring, it was limited to the peak periods.

4.2 *The decision to provide offline new bridges at A330 Ascot Road, Monkey Island Lane, B376 Datchet Road and Ditton Court Road is welcomed as this will reduce traffic disruption during construction for local residents.*

Highways England Comment

4.2.1 Highways England appreciates recognition by the local highway authority that the decision to construct the new bridges at A330 Ascot Road, Monkey Island Lane, B376 Datchet Road and Ditton Court Road offline will minimise traffic disruption for local residents during construction.

4.3 *The timetable for construction of the scheme will conflict with other major construction projects in the area, including Crossrail, Western Rail Access to Heathrow, Maidenhead town centre developments and other committed development schemes across the Borough. Construction will therefore require careful co-ordination with the other on-going projects.*

Highways England Comment

4.3.1 Crossrail is currently under construction, with the final stages of the various station construction and civil engineering works scheduled for completion in 2018. The majority of the major engineering is in the central London sections. Outside London, towards Reading, the works ongoing up until 2018 mainly comprise smaller station works and upgrades to the track and associated equipment. As such it is not anticipated that there will any significant construction interaction between Crossrail and the Scheme. It is to be noted that the project is included within the transport model and forms a component of the cumulative assessment of the Scheme in respect of its operational phase.

4.3.2 The Western Rail Link to Heathrow proposal was announced on 5 February 2014 following consideration of four options by Network Rail. At the time that the assessment for the Scheme was undertaken, the proposal was at "early stages of development" following its inclusion in the Route Utilisation Strategies published in March 2010. As such, Western Rail Access was not at a sufficiently developed stage to be included in the cumulative assessment for the Scheme, and it did not come within the guidelines set out in the Design Manual for Roads and Bridges ("DMRB") for those committed, reasonably foreseeable developments that should be included in the assessment. It is understood an application may be brought forward in due course. Any application for the construction of the

Western Rail Link will be required to take the Scheme into account when assessing the effect of its proposals in relation to both construction and operational interactions.

4.3.3 The centre of the town of Maidenhead lies approximately 2.5km north of Junction 8/9 of the M4 motorway and is served by the A404, the A4 and the A308. The Maidenhead Town Centre Area Action Plan was adopted by the Royal Borough Council on the 27 September 2011. The Plan comprises a package of individual development proposals and associated infrastructure improvements to be delivered in two phases: 2011-2015 and 2016-2020. The development proposals are centred on a number of defined "Opportunity Areas", each of which has been taken into account in the development of the traffic forecasting model. A number of associated improvements to the local road network are planned "to improve traffic flows around the town centre". These schemes are to be funded from developer contributions obtained over the Plan period and implemented across the two expenditure phases. The Schemes comprise: A4/Ray Street junction closure; A4/Farlease roundabout modifications; A4 localised widening; A4 Castle Hill junction; Broadway link works; Stafferton Way link road and Blackamoor Lane link.

4.3.4 The assessment of the impacts on traffic arising during the construction of the Scheme did not identify any effect on the A4 through the town centre of Maidenhead Accordingly, given this approach and the distance between the Scheme and Maidenhead Town Centre, it is concluded that there will not be any conflict between construction activities for the Scheme or the works on the A4 in Maidenhead.

4.3.5 The other committed developments across the Royal Borough principally comprise a residual requirement as at April 2012 to deliver 1,897 housing units by April 2017, together with outstanding consents as at 31 March 2011 for 42,631 sq.m. of business, industrial, distribution and storage focused on previously developed land across the Borough. As these developments comprise a number of individual sites spread over time across the Borough, it is not considered that there will be any material conflict between construction activities associated with these developments and the Scheme.

4.3.6 As set out in paragraph 4.3.13 of the CEMP, detailed traffic management proposals and drawings will be produced based upon the principles set out above and in the application documents, and consultation will be held with external stakeholders including Thames Valley Police, the Metropolitan Police, Area 5 Connect Plus, Area 3 EM Highways, the Traffic Officer Service and the various local authorities affected by the works (included Royal Borough of Windsor and Maidenhead). The traffic management proposals will be approved by Highways England's Regional Operations Board and will secure the co-ordination that is sought by the Borough Council.

4.3.7 Others to be consulted in the formation of traffic management proposals will be Fire and Rescue, Ambulance Services, public transport operators, Network Rail, and district and parish councils (the latter particularly when planning road closures and diversion routes).The outline CTMP provided at Annex E to the outline CEMP (Appendix 4.2A of the ES) will control the implementation of access and construction routes to the construction sites. The plan will be developed by the contractor, in consultation with the relevant authorities, as secured by Schedule 2, Clause 18 (1) of the draft DCO, and will set out agreed access and construction routes for the Scheme. Early engagement will be entered into with local authorities to develop the CTMP to ensure any impact to the local network is minimised and to allow other developments in the local area to be properly considered.

4.4 *We remain concerned that the proposed phasing of project, with M4 J12 to J8/9 opening before J8/9 to J3 will result in additional traffic problems in the Maidenhead area.*

Highways England Comment

4.4.1 As explained in paragraphs 4.1.5 to 4.1.9 above, Highways England's assessment demonstrates that the proposed phasing of the Scheme will not result in significant additional traffic issues in the Maidenhead area.

4.4.2 As explained in paragraph 8.3.1 of the EDR, the works programme over five years has been planned to balance the cost and time taken to carry out the works with the length of traffic management and associated 50mph speed restrictions in place at any time. It has been established from similar highway schemes that regularly implementing traffic management and then removing it with speed

variance between 50mph to 70mph creates driver frustration and is less safe to the travelling public and to road construction workers.

4.4.3 An advantage of proposed phasing is that the first section of the Scheme (junction 12 to junction 8/9) can be completed and opened as smart motorway in about two years, thereby giving early benefits to road users and minimising the length of time for potential disturbance to adjacent stakeholders. Also during this period, the effects on road users and adjacent stakeholders between junction 8/9 and junction 3 will be minimal.

4.4.4 The assessment of construction impacts in 2020, during the second phase of construction, was modelled on the basis the first phase between junctions 12 to 8/9 was already in operation. In 2020, during the second phase of construction, the assessment did not identify any traffic diversion in the Maidenhead area.

4.5 *The impact upon public rights of way during the construction phase also needs to be considered in order to minimise disruption.*

Highways England Comment

4.5.1 Highways England has considered the impact of the construction phase upon public rights of way ("PRoW"). The PRoW drawings (Application Document Reference 2-4) show where PRsoW are being temporarily stopped up and where additional proposed sections of PRsoW are to be provided as part of the Scheme. These drawings are supported by the following schedules within the draft DCO:

- Schedule 3 – Permanent Stopping up of Streets (Streets for which a substitute is to be provided); and
- Schedule 4 – Temporary Stopping up of Streets.

4.5.2 The impact upon public rights of way is largely associated with the replacement of existing overbridges and the widening of Thames Bray Bridge. Recognising the importance of these public rights of way to local communities, Highways England assessed the impact of the Scheme's implementation on these local amenities and will continue to consult with local authorities and local access forums to ensure the minimum disruption to local communities throughout the duration of the construction works, as detailed in paragraphs 4.1.1 to 4.1.6 of the outline CEMP.

5. IMPACT ON AIR QUALITY

Bray/M4 AQMA

5.1 *This AQMA was declared in 2009 and road traffic in the area is the dominant source of pollution. NO2 concentrations near the M4 are the highest in the Borough and one of the highest within the area of the proposed scheme. The proposed scheme will increase motorway capacity by permanently converting the hard shoulder to a running lane creating a fourth lane. Emissions are predicted to increase and the distance between the traffic lane and sensitive receptors will be reduced.*

Highways England Comment

5.1.1 The air quality assessment of potential effects of the Scheme includes the assessment of the reduced distance between sensitive receptors and the edge of the motorway carriageway within the detailed modelling. The predicted impacts presented in Chapter 6 of the ES, therefore includes the potential effect of the reduced distance between properties and the motorway.

5.1.2 The air quality assessment identifies that although some increases in annual mean nitrogen dioxide concentrations are predicted at some receptors adjacent to the Scheme, all sensitive receptors within the Royal Borough of Windsor and Maidenhead's area, including those within the Bray/M4 Air Quality Management Area, are predicted to experience annual mean concentrations of NO_2 below the objective value (40 µg/m^3). This is predicted to be the case both with and without the Scheme in the Opening Year (2022). The location of these receptors is presented on Drawings 6.8, 6.9, 6.10, 6.13, 6.35 and 6.36 of the ES (and associated insets) (Application Document Reference 6-2).

5.2 *Historically the rates of improvement in air quality and future year projections of declining concentrations have always been overestimated. Given the degree of uncertainty about the rate of improvement in air quality it is reasonable to adopt a precautionary approach and consider potential control measure.*

Highways England Comment

5.2.1 As identified, over the last few years the rates of improvement anticipated by the Department for Environment, Food and Rural Affairs ("Defra") have not been realised as quickly as anticipated. This is due to the dieselisation of the vehicle

fleet to a greater extent than previously anticipated, with the associated higher emissions of NO_x and NO_2, and also because of the gap between the anticipated laboratory based rates of NO_x emissions compared with real world rates of NOx emissions.

5.2.2 Highways England has adopted a precautionary approach. The approach utilised in the assessment of future air quality recognises the degree of uncertainty about the rate of improvement in air quality, and therefore Highways England has not assumed that in the future all improvements in air quality (i.e. rates of improvement in vehicle emissions etc.) will occur at the rate anticipated by Defra. In particular, the treatment of future air quality has been considered through the updated air quality advice on the assessment of future NO_x and NO_2 projections known as long term trend ("LTT") analysis (Interim Advice Note 170/12 v3. Updated air quality advice on the assessment of future NO_x and NO_2 projections for users of DMRB Volume 11, Section 3, Part 1 'Air Quality'), which assumes only a portion of improvements in air quality assumed by Defra will occur. This is described in paragraphs 6.2.57 to 6.2.60 of the ES.

5.2.3 In this approach all modelling is undertaken consistent with Defra emission rates and associated local air quality management tools. The LTT rates of improvement are applied to post-processed Defra based predictions to a more conservative set of results.

5.2.4 The air quality assessment, presented in Chapter 6 of the ES, has predicted that no significant air quality effects will occur as a result of the Scheme, and thus Highways England has not considered adopting additional control measures in the Scheme.

5.3 *We would not support the proposed scheme in its current form, with no control measures to reduce the air quality impact. In particular we recommend that Highways England consider noise barriers as a mean to improve air quality. It would be possible to improve the atmospheric dispersion of emissions from the M4 by increasing the height of the existing noise barriers in the area, which will also better contain the traffic noise from the new traffic lanes. The noise barriers would need to extend 350 metres to the west and 250 metres to the east of Windsor Road Overbridge. We would therefore suggest that the proposed scheme is an opportunity to mitigate the motorway air quality and noise impact in the area.*

Highways England Comment

5.3.1 The use of barriers is not currently an approved technique for mitigating air quality effects on Highways England road schemes. This is because there is uncertainty over the effectiveness of this type of measure. Therefore, based on both the absence of evidence of effectiveness of the measure, and that the effect is not quantifiable, it is not an appropriate measure to use for the Scheme.

5.3.2 Moreover, the air quality assessment, presented in Chapter 6 of the ES, has predicted that no significant adverse air quality effects will occur as a result of the Scheme, and thus Highways England has not considered adopting additional control measures in the Scheme.

6. NOISE AND VIBRATION IMPACT

6.1 *The decision to re-surface the whole of the motorway with low-noise surfacing, rather than just the sections of road to be widened, is welcomed.*

6.2 *However, the scheme would result in running lanes being moved closer to adjoining residential properties and other receptors. Therefore the Council would wish for Highways England to take the opportunity to implement mitigation measures in order to reduce the noise impact upon residents wherever possible.*

Highways England Comment

6.2.1 The proposed mitigation for the Scheme comprises low noise surfacing across all lanes, along the complete extent of the Scheme, and a number of new noise barriers, the heights and extents of which are defined in Table A12.2.1 of Appendix 12.2 of the ES (Application Document Reference 6-3). Existing noise barriers will be retained or replaced like for like if in poor condition. The heights and extents of existing noise barriers are defined in Table A12.1.1 of Appendix 12.1 of the ES (Application Document Reference 6-3).

6.2.2 The locations and extents of existing noise barriers and the new noise barriers are provided in Figure 12.2 of the ES (Application Document Reference 6-2). However, following consultation with London Borough of Hillingdon and South Bucks District Council after the Application,, a revised Figure 12.2 and revised

Tables A12.1.1 and A12.2.1 were provided in response to Question E4.7.18 of the Examining Authority's first written questions. The revised figure and tables incorporated revisions relating to the noise barriers to Hillingdon and to Dorney Reach, and the minor corrections as submitted in response to the Examining Authority's Rule 6 Letter.

6.2.3 Sheets 6, 7, 8, 9, 10, 12 and 13 of Figure 12.2 are relevant to the Royal Borough of Windsor and Maidenhead area.

6.2.4 The noise and vibration assessment, as reported in Chapter 12 of the ES (Application Document Reference 6-1), is for the Scheme with the above mitigation in place. The magnitude of impact for the Scheme is minor beneficial in the short term and negligible in the long term. The significance of effect during the operation of the Scheme is assessed as slight beneficial in the short term and neutral 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 (see paragraph 12.4.110 of the ES).

6.2.5 These noise reductions are shown in Figure 12.4 for the short term, and in Figure 12.5 for the long term (Application Document Reference 6-2). Sheets 6, 7, 8, 9, 10, 12 and 13 of Figure 12.4 and Figure 12.5 are relevant to the Royal Borough of Windsor and Maidenhead area.

6.2.6 The calculations employed to derive the noise changes in Figure 12.4 and Figure 12.5 include the effect of moving the traffic closer to receptors by converting the present hard shoulder to a running lane.

6.2.7 It is noted in paragraph 12.4.112 of the ES that there is potential to further improve the noise climate within the Scheme corridor through enhanced mitigation. A qualitative appraisal of an enhanced mitigation strategy to achieve this is provided in Appendix 12.5 of the ES (Application Document Reference 6-3). This enhanced mitigation strategy comprises the provision of additional noise barriers, as outlined in Table A12.5.1 of Appendix 12.5 of the ES and the replacement of some existing noise barriers with higher noise barriers as outlined in Table A12.5.2 of Appendix 12.5 of the ES.

6.2.8 The effects of implementing this enhanced mitigation strategy have not been assessed in Chapter 12 of the ES. Hence, the assessment provided in Chapter 12

of the ES (which concludes that the vast majority of the Scheme corridor will experience noise reductions with the Scheme in operation) is very much a worst case assessment.

6.2.9 Work is ongoing to provide a quantitative assessment of the enhanced mitigation strategy outlined in Appendix 12.5 of the ES, which will be shared with the Examination in due course. This comprises an iterative process which is employed to estimate the numbers of receptors experiencing specific reductions in noise levels (for an additional noise barrier, as detailed in Table A12.5.1 of Appendix 12.5 of the ES, or replacement of an existing barrier, as detailed in Table A12.5.2 of Appendix 12.5), monetising the benefits of these reductions in noise levels (as employed in Transport Analysis Guidance ("TAG") appraisal) and comparing this monetisation value with the cost of the mitigation to provide a cost benefit analysis. Thus, the lengths and heights of new barriers (if specified), and the heights of replacement barriers (if specified), will be optimised.The results of that assessment, and the results of the assessment of the landscape and visual impact of any additional noise barriers proposed, will be provided to the Examination in due course.

7. LIGHTING IMPACT

7.1 *The decision to not introduce lighting on sections of the motorway through RBWM that are presently unlit is welcomed on environmental grounds. The decision to introduce LED lighting that can be dimmed and controlled remotely in order to reduce environmental impact is also welcomed. We would nevertheless recommend that the road safety implications of any changes to the lighting are given due consideration.*

Highways England Comment

7.1.1 Highways England has considered the road safety implications of the Scheme's lighting proposals. Lit signs and gantries will be present throughout the Scheme. The design standard for smart motorways ALR (IAN 161) advises that for smart motorway schemes where the motorway is not currently lit, road lighting shall not be considered and therefore no road lighting has been provided between J8/9 and 10. The hazard log assessment undertaken for the Scheme (Hazard Log Report – Annex E of the EDR) includes the assumption that no road lighting will be provided between J8/9 and 10, but still expects an approximate reduction of risk of 18% for the Scheme when compared with the safety baseline (no Motorway

Incident Detection and Signalling (queue protection)). When comparing the predicted reduction in risk with the actual M4 J3-12 motorway with MIDAS (10% safety benefit compared to the baseline) the Scheme would still expect to see a reduction in risk of approximately 8%.

8. IMPACT ON PUBLIC RIGHTS OF WAY

River Thames Bridge

8.1 This is presently a footway/cycleway. We would wish to see this status retained and width improved to 3m.

Highways England Comment

8.1.1 Highways England intends to maintain and improve the footway/cycleway at Thames Bray bridge. The bridge widening has been designed to accommodate a widening of the existing cycleway/footpath. The existing width of 1.67 metres will be improved to 2.5metres as part of the structural solution. This complies with current design standards. The widening arrangement with a 2.5m footway has been configured to closely replicate the existing girder spacings and edge cantilever dimensions as far as possible for reasons of buildability, structural capacity and aesthetics. The resulting edge cantilever is 2.15m wide matching the existing width, and the girders are spaced at 4m compared with the existing 3.81m spacing. Widening in this configuration has been the subject of detailed structural assessment of the existing bridge to confirm the technical feasibility of widening. This assessment has shown that strengthening is required to the existing structure as part of the widening scheme.

8.1.2 The increase in loading caused by widening the footway further to 3m would be highly likely to increase the amount of strengthening required. The size of structural sections, crane sizes and temporary falsework needed to construct the widening would also need to increase to accommodate the wider footway.

8.1.3 An additional consideration at this structure is the presence of a high pressure gas pipeline approximately 15m to the north of the structure which cannot be permanently loaded or caused to settle by the bridge and associated embankment widening. Reinforced steepened embankment slopes are required for several hundred metres on the approaches to the bridge to accommodate the wider

highway alignment. Therefore further widening the structure, to accommodate a wider footway, would further steepen these embankments which in turn would significantly increase the overall construction cost.

8.1.4 For these reasons Highways England has designed a 2.5m wide footway on the widened structure and approach embankments which is sufficient for shared pedestrian and cyclist use and improves the existing situation.

Thames Path National Trail

8.2 *Existing widths should be maintained and opportunities for improvements progressed. Any closures should be kept short and convenient.*

Highways England Comment

8.2.1 The existing path along the banks of the River Thames runs along the eastern bank and passes under the Thames Bray Bridge. Highways England recognise the importance of the trail and the duration of any closures will be kept to the minimum necessary. Closures of the footpath will be required when construction activities have the potential to put the safety of footpath users at risk; examples may include installing steelwork beams or installing and removing parapet temporary works.

8.2.2 When the new eastern abutment is constructed the current route will become a work site which will extend from the edge of the water and past the face of the existing abutment. To maintain the national trail, a local diversion will be required to route the path away from the construction of the abutment. For the trail to remain open, the only viable option is to route the path on pontoons or a temporary structure in/above the river. In order to arrange this diversion, approval of the appropriate authorities (e.g. Canal and River Trust, Environment Agency) will be sought. Trail diversions and closures will be advertised in advance and will form part of the finalised CTMP for the Scheme.

8.2.3 There are no plans to undertake work on the trail, itself, at this stage. Should however any be needed to facilitate the bridge construction, the trail will be reinstated to its original condition.

8.3 *The Local Access Forum (LAF) Fast Response Team has examined the proposals for the M4 Smart Motorway and makes the following comments on behalf of the forum.*

Marsh Lane (Bridge 3 on consultation plan)

8.4 *This forms part of an aspiration to improve horse riding in this area, in particular the forum is working towards a Multi-Use Route that will utilise this bridge. This area is heavily used by horse riders. Modifications are needed to this bridge to make it easier for use by horse riders which could easily be folded in to the design of the Highways England works, including building in a sufficient verge width and installing higher parapets on the bridge. The forum suggests that the BHS are consulted regarding the detailed design of the bridge.*

Highways England Comment

8.4.1 The bridge replacement works and associated side road improvements were developed on the basis that such works would be on a like for like basis to the existing situation. The online improvements avoid the need to acquire additional lands and the DCO application has been prepared on this basis. Widening of the verges to accommodate equestrian usage of the PRoW would therefore result in additional retaining works for extended earthworks and design modifications to the bridge to include for 1.8m high parapets. It should also be noted that the visual intrusion element of the Environmental Statement would not have covered the impacts of the suggested upgraded PRoW provisions.

Datchet Footpath 1 (Bridge 11 on the plan)

8.5 *This is used heavily by cyclists as well as walkers and the forum recommend that the opportunity is taken to improve the widths of the path to accommodate this use.*

Highways England Comment

8.5.1 The bridge replacement works and associated side road improvements were developed on the basis that such works would be on a like for like basis to the existing situation. However, the cyclist usage of this bridge is recognised and as such the parapet height provisions for the new bridge have been enhanced compared to the existing situation. The parapet heights at Recreation Road overbridge will be 1.4m compared to the existing which are 1.0m high.

General comments

8.6 *The LAF note that there are approximately ten paths which cross the M4 in the borough. They request assurance from Highways England that these paths will be reinstated and put back to the same condition that they are now.*

Highways England Comment

8.6.1 Highways England confirms that where the Scheme works impact directly on existing PRsoW, the paths will be properly reinstated and returned to their existing condition, as stated at paragraph 13.7.4 of the CEMP.