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 Road Safety

Date: Wednesday 18 November 2015, 2pm

Venue: Radisson Blu Edwardian Heathrow Hotel, 140 Bath Road, Hayes, Middlesex, UB3 5AW

WELCOME AND INTRODUCTIONS

The Examining Authority began by making introductions and explaining the purpose of the hearing.

1. In answer to our first round of questions REP2-002 TS6.4, the applicant provides a table to compare the risk of different operating systems. The actual performance of the M42 Active Traffic Management (ATM) pilot is indicated as having the lowest level of risk at 40% of the baseline. The predicted risk for the M4 All Lane Running (ALR) scheme is 82%. Can the applicant explain why the higher level of risk is acceptable for the M4 scheme?

Highways England Response

1.1 As a congestion management scheme, the M4 J3-12 Scheme is required to maintain, not necessarily improve safety standards. This is consistent with the National Policy Statement for National Networks (NN NPS – section 4.60) which says that some developments may have safety as a key objective, but even where safety is not the main driver of a development the opportunity should be taken to improve safety, including introducing the most modern and effective safety measures where proportionate.

1.2 The requirement for smart motorways is to confirm that safety will be made 'no worse' than the baseline by the introduction of the Scheme as referenced in the ALR generic safety report, section 4.1.2 Road user safety objective. Despite the Scheme being aimed primarily at relieving congestion, rather than improving safety, there are predicted improvements in safety as a result of the Scheme.

1.3 The M42 Pilot introduced a new network operation concept, where the hard shoulder was opened to traffic as a running lane during peak periods for the first time. The priority for that scheme was to demonstrate to road users and broader stakeholders that the hard shoulder could be operated safely as a running lane in order to tackle congestion. Given the pilot nature of the scheme, a conservative approach was taken for the safety assessment and the design of the scheme to prove that the motorway could be operated at least as safely as a standard three lane motorway. This resulted in a high density of infrastructure such as overhead gantries with variable speed limit lane signals and a high frequency of emergency refuge areas (nominally at 500m spacing) for road users to use in the case of an emergency. The pilot scheme demonstrated that the hard shoulder can be operated safely as a traffic lane to manage congestion, whilst also delivering a significant overall safety improvement compared to the safety performance of a standard three lane motorway.

1.4 It is acknowledged that the original Smart Motorway design (the M42 Pilot – an HSR scheme) provides a greater reduction in risk compared to predicted reduction for the M4 J3-12 Scheme.

1.5 The experience gained from the M42 Pilot led to the optimisation of the operation and design and meant that equipment and infrastructure could be located at greater spacing than the original design whilst still achieving an improvement in safety.

1.6 Optimising the smart motorways design, and subsequent operation, has enabled Highways England to establish a design which provides value for money, whilst maintaining safety above baseline levels. These efficiencies have made it possible to deliver a far greater number of smart motorway carriageway miles and deliver significant benefits faster than would have been possible by replicating the heavily engineered M42 Pilot scheme. Although there is an expected improvement in safety as a result of ALR, the safety objective is to maintain and not necessarily improve safety standards.

1.7 Section 5.2.78 of the Planning Statement (Application Document Reference 7.1) explains that the calculations from the hazard analysis work show that the total score given in relation to the period after construction of the Scheme represents a reduction of risk of approximately 18% in comparison to the safety baseline (with no MIDAS queue protection). Even when the additional safety benefit of 10% above the baseline with MIDAS is taken into account, the Scheme would still expect to see a reduction in risk of approximately 8% and hence meet the required safety objective.

1.8 Highways England confirmed, in response to a press release highlighted by the Campaign for Better Transport, that it does aim to have no one harmed on the strategic road network. However, this is an aspirational aim to be achieved by 2040 rather than an immediate policy.

1.9 Highways England confirmed, in response to comments made by Reading Friends of the Earth, that it is not considering permanent speed limits because (from a policy point of view) it is not obliged to. Even without doing so, the Scheme meets and betters its objective of making the safety of the M4 "no worse".

2. In the event that there is evidence that an alternative proposal for the M4 Smart Motorway would offer a greater level of safety, can the applicant explain what led to the selection of the proposed scheme?

Highways England Response

2.1 The National Policy Statement for National Networks (NN NPS – section 2.23) states that the Government's wider policy is to bring forward improvements and enhancements to the existing Strategic Road Network. Enhancements to the existing national road network will include implementing "smart motorways to increase capacity and improve performance". The NN NPS also explicitly acknowledges the implementation of ALR schemes in FN29, which notes that the hard shoulder is transformed into a permanent additional running lane.

2.2 It is acknowledged that the original Smart Motorway design (the M42 Pilot – an HSR scheme) provides an alternative proposal which would provide a greater reduction in risk (i.e. a greater level of safety) compared to the Scheme. There are a number of reasons why the ALR concept selected for the proposed scheme and not an HSR scheme which may provide greater safety benefits.

2.2.1 Highways England's experience of operating HSR has shown that it is resource intensive. Operators are required to open and close the hard shoulder during every peak period.

2.2.2 It also has been found to have a number of potential technology points of failure, which means that the hard shoulder cannot be opened to traffic on occasion. For example, the opening of the hard shoulder as a running lane on an HSR scheme for safety reasons requires all hard shoulder lane signals to be available. When a hard shoulder lane signal develops a critical technology fault then the operator cannot open the hard shoulder to traffic. In addition, as there is a requirement for the operator to be able to view the full length of hard shoulder prior to opening, should a hard shoulder camera develop a fault where the operator cannot view a section of hard shoulder (either through a hard shoulder camera or a Pan- Tilt-Zoom camera) then the operator will not open the hard shoulder to traffic.

2.2.3 Furthermore, the level of potential technological failure results in a high maintenance burden which itself results in Highways England's maintenance workforce being exposed to greater risk. ALR reduces the risk of technology failure (where there would be impact on the provision of additional capacity and therefore subsequent impact on journey times) and risk to the workforce.

2.2.4 ALR also provides greater journey time benefits and provides a more consistent driving environment helping to reduce driver uncertainty and driver stress (as lane one is always available to traffic (unless there is an incident) there is no confusion with regard to which lanes are open and closed).

2.2.5 Another benefit is that ALR schemes remove the risk of hard shoulder misuse which can occur on HSR schemes when the hard shoulder is closed.

2.3 The learning and operating experience from the M42 Pilot and early smart motorway schemes has informed the safety assessment for the Scheme. Monitoring data and operational feedback has enabled Highways England to undertake appropriate safety assessments which has fed into the design process of the Scheme. Also, the Hazard Log Report (Annex E of the EDR (Application Document Reference 7.4)) confirms that it takes account of work from other ALR schemes, e.g. M1 J28–31, M1 J32–35a and M25 J23–27.

2.4 All of the previous factors impact on the financial and operational benefits of smart motorways. Optimising the smart motorways design, and subsequent operation, has enabled Highways England to provide more efficient schemes (both to construct and operate) and provide value for money, whilst still providing safety improvements. These efficiencies have made it possible to deliver a far greater number of smart motorway carriageway miles and deliver significant benefits faster than would have been possible by replicating the heavily engineered M42 Pilot scheme. This led to the ALR concept becoming Highways England policy and being the preferred operating regime to manage congestion on the SRN.

3. Would the level of risk be reduced if the national speed limit was not in force in off peak times with ALR? What experience is there of all lane running with the national speed limit?

Highways England Response

3.1 The safety of the Scheme has not been assessed on the basis that the national speed limit would not be in force in off peak times. It is assumed the question is referring to the introduction of a mandatory reduced speed limit (e.g. 50 or 60mph) during off peak periods. As no assessment has been undertaken with a reduced speed limit, it would not be possible to advise on the level of safety benefit, if any, that could be achieved. However, if the national speed limit was not in force during off peak times a slightly greater safety benefit may be achieved (note that this would depend on achieving compliance. Achievement of a slightly greater safety benefit is on the basis that a reduced mandatory speed limit would result in slower moving traffic and therefore the severity and likelihood of any incidents that occur would be expected to reduce (should all drivers comply with speed limits). It is noted however for example the risks associated with pedestrians in running lanes would not be expected to reduce as a vehicle hitting a pedestrian at 60mph is unlikely to be any different to 70mph.

3.2 Imposition of a non-safety related off peak speed limit would have a negative implication in regard to compliance. Achieving a greater safety benefit would require a high level of compliance during the off peak periods. A reduced speed limit during the off peak may have a significant impact on the level of compliance. Drivers are unlikely to understand why their speed is being restricted as there would be no apparent traffic condition related need for the speed restriction and therefore the risk of drivers not complying with the speed limit is likely to increase. The issue of non-compliance if there is no clear need for the speed limit would not only have an impact on the scheme itself but would also increase the risk of non-compliance across the road network. The credibility of the signs and signals across the network set by Highways England could be significantly affected. A comprehensive driver education campaign would be required in order to encourage drivers to comply.

3.3 It should also be noted that a significant disbenefit of reducing the speeds off peak is that journey times during the off peak would be significantly affected by a reduced speed limit and this would have a negative impact on the business case for the Scheme. Furthermore, a total of £536.5M in journey time benefits are provided by the Scheme (as detailed in appendix B of the Socio-Economic Report). Any application of speed limits when they not required by traffic conditions will erode these benefits.

3.4 Overall the safety benefit of introducing a reduced speed limit may result in a slightly greater reduction in risk, but this would depend on the effect on level of compliance on the scheme. Should non- compliance be an issue then it will impact on this Scheme and potentially across the network offsetting any potential reduction.

3.5 With regard to the experience on the network of ALR with the national speed limit, there is monitoring currently underway on the first ALR scheme on the M25 J23-27 and J5-7 to measure actual safety performance and compare it with the safety levels before the introduction of ALR. The one year monitoring report will be published before the end of 2015. This is a very short timeframe upon which to assess the efficacy of ALR schemes in general. However, 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 to be reviewed, and if necessary revised, in line with the monitoring results. The monitoring results will be provided to the examination when they are made available.

3.6 There are no other operational Smart Motorways designed to the ALR design guidance (IAN 161/13) which will provide further experience of ALR with the national speed limit. There are some very short sections of Controlled All Lane Running (e.g. M6 J7-8) but these sections

were not designed to the IAN 161/13 design standard and are not long enough to provide any meaningful data.

3.7 The monitoring results from the initial ALR schemes will provide important evidence to feed into future ALR assessment. Highways England is confident of the robustness of the approach, which is based on other early smart motorway schemes safety assessments and which provide a good indication for the expected safety performance of the Scheme.

3.8 Highways England confirmed, in response to comments made by the Campaign for Better Transport, that there are no long distance average speed enforcement systems currently approved by the Home Office for use in a variable speed limit scheme that could be introduced. The current approach therefore relies on a "spot" speed approach to achieve compliance.

4. When can the applicant produce the traffic safety monitoring data for the M25 J23-27 ALR scheme and compare its performance to the traffic safety performance before ALR was introduced?

Highways England Response

4.1 Monitoring is currently underway on the first ALR scheme on the M25 J23-27 and J5-7 as noted previously.

4.2 However, Highways England is confident of the robustness of the approach undertaken for the safety assessment, which is based on other early smart motorway schemes' safety assessments and which provide a good indication of the expected safety performance of the M4 J3-12 Scheme. However, the monitoring results from the initial ALR schemes will provide important evidence to feed into the M4 J3-12 ALR safety assessment. These results should be published and available by the end of the calendar year and, if so, will be summarised as part of Deadline V. If the results do not show the safety performance expected, causation factors for the (in all likelihood) small number of accidents will be assessed to understand the root cause of the problem. As these results will only cover one year (as opposed to the three years generally required for statistical significance) it will not be possible to draw precise conclusions. However, the one year of data should provide a good indication of the M25 scheme's performance and level of safety.

5. What is the applicant's view of the RAC's experience of the all lane running and dynamic hard shoulder configurations, reported in its written representation at Deadline II REP2-029 – in particular, the alleged proven safety record of the dynamic hard shoulder configuration versus the alleged unproven safety record of the all lane running configuration?

Highways England Response

5.1 Highways England note the RAC's comments are similar to the concerns that the organisation expressed prior to the installation of the M42 pilot scheme which they now support. The All Lane Running ("ALR") concept has taken learning from this scheme and is now Highways England policy and the preferred operating regime to manage congestion on the network.

5.2 The proven safety benefits of the original HSR scheme are acknowledged and it is predicted that the M4 J3-12 Scheme will provide a lower level of safety benefit and that it is a new configuration for which safety performance results have not yet been published.

5.3 The original smart motorway design (the M42 Pilot) operated with a HSR operating regime. The M42 Pilot achieved a 60% reduction in safety risk compared to the baseline (reference Annex E of the Engineering and Design Report ("EDR") (Application Document Reference Number 7.4)). It is also noted that although the original M42 Pilot scheme achieved a 60% reduction in safety risk, other HSR schemes introduced do not show the same level of benefit. For example, the HSR scheme on M6 J5-6 was expected to provide reduction in risk of approximately 36%. Not all schemes are the same for a variety of factors.

5.4 However, the M42 Pilot was more costly, more visually intrusive, more resource intensive and provided less journey time benefits than the design proposed for the Scheme. It also has been found to have a number of potential technology points of failure, which means that the hard shoulder cannot be opened to traffic on occasion. For example, the opening of the hard shoulder as a running lane on a HSR scheme for safety reasons requires all hard shoulder lane signals to be available. When a hard shoulder lane signal develops a critical technology fault then the operator cannot open the hard shoulder to traffic. Alternatively, as there is a requirement for the operator to be able to view the full length of hard shoulder, should a hard shoulder camera develop a fault where the operator cannot view a section of hard shoulder (either through a hard shoulder camera or a Pan-Tilt-Zoom camera) then the operator will not open the hard shoulder to traffic. Furthermore, this results in a high maintenance burden which itself results in Highways England's workforce being exposed to greater risk. All of these factors impact on the financial and operational benefits of smart motorways.

5.5 Although the level of safety benefit expected for ALR is not as high as that seen on HSR schemes, the level of safety benefit meets the Scheme's safety objective (as set out in section 2.3 ‘Safety baseline and objectives’ of the Hazard Log Report (Annex E of the Engineering and Design Report (Application Document Reference 7.4)) and provides a safety benefit

when compared to the current motorway. ALR also provides substantial cost savings when compared to constructing and operating HSR.

5.6 The permanent conversion of the hard shoulder maximises the use of the space available, removes the risks introduced by the part time use of the hard shoulder and reduces the amount of information the road user has to assimilate from the overhead signs and signals. It also removes the need for the complex and resource intensive operating systems to "open" and "close" the hard shoulder, and reduces the incumbent maintenance requirements. The efficiencies delivered through an ALR scheme have made it possible to deliver a far greater number of smart motorway carriageway miles and deliver significant benefits more quickly than would have been possible by replicating the more heavily engineered M42 pilot scheme. This allows the Highways England to meet objectives relating to growth, wellbeing and balance of the nation's economy.

5.7 Although there are differences between the original HSR design and the Scheme design, the hazard log assessment work undertaken has shown that the Scheme should not compromise overall safety. There is also a requirement to confirm that safety will be made 'no worse' than the baseline across all populations by the introduction of the Scheme (see ALR generic safety report, Ref: 1039092-GSR-016, section 4.1.2 Road user safety objective). The safety baseline and objective is explained within the Hazard Log Report at section 2.3 (Annex E of the Engineering and Design Report (Application Document Reference 7.4)).

5.8 The safety baseline for smart motorways is the accident rate on the section of motorway before the installation of motorway incident detection and automatic signalling ("MIDAS") as stated in Section 2.3 of the Hazard Log Report (Annex E to the Engineering and Design Report (Application Document Reference 7.4)). The M4 between junctions 3 and 12 already has MIDAS installed. The assumed MIDAS safety benefit is 10%. Therefore, in order to represent the M4 without MIDAS, to show the safety baseline, the current three year average accident rate is increased by 10% to account for the benefits of MIDAS (see ALR generic safety report, Ref: 1039092-GSR-016, section 4.1.1 Safety baseline).

5.9 Section 5.2.78 of the Planning Statement (Application Document Reference 7.1) explains that the calculations from the hazard analysis work show that the total score given in relation to the period after construction of the Scheme represents a reduction of risk of approximately 18% in comparison to the safety baseline (with no MIDAS queue protection). Even when the additional safety benefit of 10% above the baseline with MIDAS is taken into account (i.e. the existing M4), the Scheme would still expect to see a reduction in risk of approximately 8%.

6. *When the scheme is operational, would the applicant explain why it is considered that the frequency of breakdowns in live lanes would be substantially less than the existing frequency of breakdowns on the hard shoulder?* *REP1-003, response no. 20*

Highways England Response

6.1 It is expected that the frequency of breakdowns in live lanes will be substantially less than the existing frequency of breakdowns on the hard shoulder. This is because a significant proportion of breakdowns will be able to get to an emergency refuge area ("ERA"). Experience from the initial smart motorway schemes suggests that in a case of a breakdown 50% of drivers will be able to get their vehicles to a place of safety (ref: Evaluating the Frequency of Emergency Refuge Areas (ERAs).

6.2 On dual 3-lane motorways, discretionary stops (comfort stops and vehicle checks on the hard shoulder, i.e. illegal stops) outnumber breakdowns by between 8 and 10 times (ref: Evaluating the Frequency of Emergency Refuge Areas (ERAs)). The M42 Pilot found breakdowns approximately halved as detailed in 9.4.4 of the Engineering and Design Report (Application Document Reference Number 7.3). The use of refuge areas for emergency purposes only will be encouraged by appropriate signing and driver education messages. The objective therefore is that their reduced frequency (when compared with the early Smart Motorway schemes) will lead them to be used for illegal / inappropriate purposes more sparingly. Therefore discretionary (illegal stops) will be significantly reduced as road users are more likely to only stop in an emergency.

6.3 It is noted that the risk of live lane stoppages increases through the implementation of ALR. However, Highways England have control measures in place to mitigate against this risk e.g. implementation of a controlled environment through lane closures, Variable Mandatory Speed Limits and Closed Circuit Television (CCTV). Also on the unfortunate occasions when incidents do occur the use of the full CCTV coverage is available to manage efficient responses to incidents and any requirement for an area to be protected through the setting of signs and signals. Consequently most of the current motorway risks are expected to reduce as a result of the implementation of all lane running (see paragraph 10.3.6 of the Engineering and Design Report) more than compensating for an increase in the risk of a vehicle stopping in a live lane.

7. *In the event of live lane stoppages as a result of a breakdown, can the applicant explain how quickly a response would be given to put control measures in place to prevent a collision, in both peak and off peak times?*

Highways England Response

7.1 Any live lane incident would be given an immediate response category by the Traffic Officer Service and emergency services.

7.2 During peak periods the queue protection system will automatically set reduced speed limits should a vehicle stop in a live lane (for example as a result of a breakdown) and traffic begins to queue. This will alert control room Operators and will also provide them with location information. The Operator will then use CCTV to confirm the exact location of the stopped vehicle (typically within minutes or less). Once the Operator has located the stopped vehicle they will immediately protect the vehicle by closing the affected lane and setting warning messages for drivers approaching the incident. A vehicle stopped in a live lane merits an immediate response by the Traffic Officer Service and so a patrol will be despatched (this would include emergency services and recovery organisations where appropriate). Once at the scene, attending Traffic Officers (or emergency services) will enhance scene protection by placing emergency traffic management where appropriate.

7.3 The Operator may also be alerted through a 999 call, emergency roadside telephone ("ERT") call or call from an on-road Traffic Officer patrol about a vehicle stopped in a live lane and would respond in the same way as described above.

7.4 The time taken between a vehicle stopping in a live lane and the control room Operator being aware of the stopped vehicle varies. MIDAS typically reacts within minutes to queues forming behind a stopped vehicle and because MIDAS provides the control room Operator with location information about where the queue is, the Operator can verify the exact location of the stopped vehicle through CCTV quickly (again, typically within minutes).

7.5 There will be full coverage of all parts of the Scheme, with Operators working 24/7 within the Regional Control Centre. This does not, however, mean that all parts of the network are continually monitored. This is due to the limitations of manpower and the current lack of technology to carry out the tasks autonomously. The main purpose of the CCTV system is to locate an incident once it's occurred, the control room having been informed of it through MIDAS, by a 999 call, a call from an ERT or Traffic Officer call.

7.6 The extra controls introduced through smart motorways will enable a quicker identification of incidents than the existing M4 motorway. Highways England have also worked closely with the emergency service providers in regard to developing protocols for responding to incidents on the Scheme.

7.7 During the off peak periods, it is unlikely that the queue protection system will provide identification of a breakdown (because vehicles approaching the incident will change lane to travel past the breakdown and not slow down enough to result in reduced speed signals being displayed). Therefore a breakdown during the off peak periods will rely on a 999 call, ERT call or call from a Traffic Officer. The time taken between a vehicle stopping in a live lane and the control room Operator being aware of the stopped vehicle varies. The response is then the same as during the peak period, as described above.

7.8 A Regional Operating Agreement between Highways England and the Emergency Services is being developed for the M4 J3-12 scheme, similar to those already in place for the M25 and M1 ALR schemes. Highways England and the emergency services are working to improve their co-operation and Highways England has found that the implementation of smart motorways sharpens responses and inter-service communication significantly. The provision of full CCTV coverage enables significantly quicker and more accurate incident location verification (typically within minutes or less) of being made aware of an incident, and this can be shared with core responders where appropriate.

7.9 Airwave is used by all emergency services and the Traffic Officer Service. There are joint communications protocols and the implementation of smart motorways across the network has helped to further improve these.

7.10 Highways England corporately are undertaking media activity to improve driver understanding. This is part of a strategic communications plan.

7.11 The controls introduced through Smart Motorways also help improve the clear up times for incidents that may occur.

8. What are the road safety implications, of the emergency refuge areas being spaced at an average of 1.85 km intervals, compared with closer spacing intervals, especially if the spacing was such that at least one emergency refuge area was always visible to road users?

Highways England Response

8.1 Evidence supporting IAN 161/13 – 'An Evaluation of the provision of refuge area' reinforces the view that many road users will still be able to drive to a an ERA in an emergency, even if the distance is increased from the early Smart Motorway schemes, where ERAs were located at nominal spacing of 500m on the M42 Pilot and nominal spacing of 800m on other HSR schemes. This is referenced within the report entitled 'Evaluation of the Provision of Refuge Areas' (http://assets.highways.gov.uk/specialist-information/knowledgecompendium/2011-13-knowledge-programme/MMALR_ Evaluation_of_the_Provision_of_Refuge_Areas.pdf).

8.2 IAN 161/13 – 'An Evaluation of the provision of refuge area' refers to the Birmingham Box Phase 3 Managed Motorways scheme where there is a considerable gap between areas of refuge (at approximately 3km) over the Bromford Viaduct section of the scheme. The breakdown rate for the Bromford Viaduct section is particularly low (well below the National Average), indicating that, when necessary, or when a location is deemed undesirable for motorists to stop, it is possible for vehicles to continue to a place perceived to be more safe to stop.

8.3 The M4 junction 3 to 12 scheme has an average spacing between ERAs of 1.14 miles (1.85km) as detailed in section 2.2 of Annex E of the EDR (Application Document Reference Number 7.4). This is significantly within the 2.5km maximum spacing outlined with the smart motorways ALR design standard (Interim Advice Note ("IAN") 161/13). During the design of the M42 Pilot, a decision was taken to provide ERAs frequently due to the need to demonstrate to road users and broader stakeholders that the hard shoulder could be operated safely as a running lane in order to tackle congestion. However, through analysis of the operation of M42 Pilot and subsequent HSR schemes, guidance on the required spacing has been reviewed leading to the 2.5km maximum spacing outlined within the smart motorways ALR design standard (Interim Advice Note ("IAN") 161/13). The nominal spacing was 500m on the M42 pilot and, as the design was improved, the nominal distance increased to 800m on early Smart Motorway schemes. Through optimisation of the design and operation of the smart motorways concept, the requirement for spacing was changed to a maximum of 2.5km. In addition, there was some uniformity with the fact that coasting distance from 70 mph on a dual carriageway is also around 2.5km. The lower average (of 1.85km) was chosen for this Scheme as a result of a number of factors:

1. The design and curvature of the road, in particular the level of visibility for entering and exiting the ERAs.

2. The location of other infrastructure and structures, which affects where the ERAs can be placed on the Scheme.

3. The length of the links.

8.4 The report notes the evidence from the Bromford Viaduct supports the view that many drivers are able to nurse a broken down vehicle up to a few kilometres distance before stopping (avoiding stopping in carriageway locations where drivers perhaps perceive themselves to be vulnerable).

8.5 In summary, the ERAs are located at greater intervals than the initial Smart Motorway schemes and it is noted that the ERAs on the M4 J3-12 Scheme may not always be visible to the motorist should they need to stop. However, there are 1 mile and half mile signs in advance of the ERAs which will advise motorists of the refuge area downstream. It is noted that many drivers will still be able to drive to an ERA in an emergency and the scheme is still expected to meet its safety objective. It is also noted that education campaigns for motorists will be important so that drivers are aware that a safe area of refuge is available downstream.

8.6 The ERAs will be around 100m long, giving drivers ample space to accelerate to speed to re-enter the motorway. It is noted, however, that the expectation is that most users are expected to be broken down. If drivers are not broken down, they can either contact Highways England using the emergency refuge phones or they can exit the ERA. The onus is on the driver to contact and then receive assistance.

9. Do interested parties wish to highlight any other aspects of road safety, not already covered above?

No Highways England Response Required