

Your ref: PL/2015/51409/PPOL

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By email

Dear Lawrence

**PL/2015/51409/PPOL Outline application for a motorway service area, new motorway junction and associated works (means of access for consideration). Proposed Motorway Service Area, Solihull Road, Hampton In Arden, Solihull**

Thank you for your correspondence regarding the Highways England response to the above referenced planning application for a new Motorway Service Area (MSA) between Junctions 5 and 6 on the M42 in Solihull. Highways England (“we”) have been appointed by the Secretary of State for Transport as a strategic highway company under the provisions of the Infrastructure Act 2015 and we are the highway authority, traffic authority and street authority for the Strategic Road Network (SRN).

As you are aware, following an approximate two year period when we recommended that the application not be determined whilst the applicant addressed a number of outstanding concerns, we subsequently resolved on 21 August 2017 to recommend to you a series of planning conditions which would make the development acceptable to us.

You have specifically asked us to provide a comprehensive response to you setting out how we have arrived at our conclusion that the development scheme is now capable of being safely integrated with the SRN such that the safe operation of the motorway including its ‘Smart Motorway’ system would not be adversely affected.

### **Context**

You will be aware that the application is not the first such MSA proposal to be brought forward for your consideration on this site. The present application follows on from earlier but different proposals on the same site subject to planning appeals in 1999/2000 and 2008 respectively. Consequently we are aware that parties may draw comparisons between the current application and previous historical proposals for MSA facilities on this site. In this regard we would make clear that the precise form of the present application and that subject to previous appeals are distinct. We assess and respond to each planning application by considering each such application on its merits. This includes consideration of matters of policy, guidance, methodologies and the evidence put forward within the application at that time. In this regards these are

matters that may either change over time or apply differently to previous such proposals.

In considering any planning application proposal our primary consideration is the continued safe operation of the SRN. Where proposals may directly affect a road under our jurisdiction we require that the application includes sufficient evidence as to how the proposal can be safely accommodated within the affected section of road. Where the proposals include for a mitigation or access scheme this should also be supported by evidence that demonstrates the proposals are deliverable in accordance with appropriate policy, standards and guidance. The burden of proof to demonstrate that any proposal is suitable fundamentally lies with the applicant and it is necessary that they demonstrate to us that their proposal can be safely delivered. These safety and approvals processes are set out and considered further below

## **MSA Provision and Need**

While each application is judged on its own merits, the 'need' for an MSA facility along this section of the M42 was a matter considered at previous public enquiries. These concluded that a need for such a facility did exist on this section of the M42. As we have previously confirmed to you it is our view that the present proposal also can satisfy this previously established need

The need for a MSA was also identified in the Review of Strategic Road Network Service Areas (Highways Agency 2010) which confirmed a gap in provision between M40 Warwick Services and M6 Hilton Park Services. The distance between these two facilities is 38 miles. Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development' Annex B, Paragraph B6, states that Highways England (referred to as the Highways Agency) recommends that the maximum distance between motorway service areas should be no more than 28 miles.

## **Our consideration of the safety case**

In assessing the application our main consideration related to the suitability of the engineering proposals that form a highway scheme to construct a new motorway junction to provide access to the MSA. In considering any scheme we employ a safety risk governance process that requires appropriate safety risk assessment, evaluation and management to be undertaken to inform all activities, projects, decisions and schemes. This includes assessment of those road schemes which are promoted as a result of third party development applications.

Through the early stages of our consideration of the application we identified a need to work with the applicant to review the technical details of the information submitted. This information was initially subject to review and development through a Project Safety Control Review Group (PSCRG) set up such that it includes representatives of both the applicant and Highways England and supporting technical advisors. It was subsequently identified that the safety case would require approval via submission to our National Safety Control Review Group (NSCRG) which provides independent scrutiny of proposed schemes.

Our NSCRG considered the full safety case submitted by the applicant including consideration of matters such as the principals involved in the need to obtain four (4) Departures from Standards approvals from the Design Manual for Roads and Bridges (DMRB) as well as matters related to the interaction of the proposals with the M42 Smart Motorways system which would be altered by the proposal. Overall it has been demonstrated that the scheme identifies a safety benefit, the principal issues considered by us are set out below.

## **Scheme Benefits**

Government policy sets out that the promotion of an MSA facility is a matter for the private sector and therefore the costs of such development, including all necessary supporting infrastructure, are born by the MSA promotor. Nonetheless a public benefit, to the road user is expected to arise from the provision of any such facility due to the performance of its road safety function.

The introduction of the MSA at this location would fill a gap in provision of rest and refreshment facilities and would create the potential for a reduction in fatigue related incidents on the network. Although these benefits are difficult to quantify the applicant has put forward sufficient evidence to demonstrate the veracity of their assessment of these benefits.

The implementation of the MSA would also include the provision of additional improvements to the main M42 carriageway due to the upgrade of the concrete safety barrier in the central reserve on the proposed All Lane Running (ALR) section between junctions 5 and 6. This would reduce the potential for cross-over collisions on this section of the motorway.

In addition to benefits to safety there is further potential that the scheme may also have an ancillary financial benefit to the public accounts. This is due to co-location of the proposed MSA junction with the location of our announced scheme for the improvement of M42 junction 6 which involves the provision of a new southern junction at a similar location. It is not possible to quantify these benefits and they are subject to a set of assumption around the delivery timescales of the two schemes that are subject to approval and therefore changes.

## **Motorway Operation**

The length of the M42 between junctions 3A and 7 currently operates as Smart Motorway with Dynamic Hard Shoulder Running (DHSR). It is proposed that the section between junctions 5 and 6 would be converted to All Lane Running (ALR) as part of the proposals to introduce the MSA. DHSR operation would be retained between junctions 3A and 5 and junctions 6 and 7. A hazard review process has been undertaken to assess the potential safety implications relating to the changes in operational regime.

ALR is Highways England's current standard for the introduction of new Smart Motorway Systems and is a safe system that has now been successfully used over a number of years and locations. The DHSR system as presently operates on the M42

was originally installed as part of an early pilot of the Smart Motorway System (then known as Active Traffic Management). This system has a good safety record and therefore in assessing the proposals, which involve a change in operating regime, we have made it clear to the applicant that appropriate hazard assessment and review processes must be followed.

## **Departure Details**

The scheme designer (the applicant's technical advisor) has identified four departures from standard for highway geometry associated with the current MSA proposals. These are listed below:

1. Northbound weaving length between the MSA merge and junction 6 diverge.
2. Southbound weaving length between junction 6 merge and the MSA diverge.
3. MSA northbound merge taper length
4. MSA northbound diverge slip road Site Stopping Distance (SSD)

The designer produced a departures summary report in December 2015 which provided details of the departures numbered 1 to 3 (above). The summary report set out the principles of the proposed departures and was produced for review by the Highways England Safer Roads Design team in order to enable an assessment of the potential acceptability of the departures, ahead of any formal application. The designer subsequently identified a further departure (number 4 above) in January 2016 and provided details in an email with attachments.

The information provided in the departures summary report and subsequent email provided adequate information to give sufficient confidence that departure 2 to 4 were approvable in principle, subject to detailed departure submissions containing appropriate supporting evidence, including details of appropriate and acceptable signing proposals. Formal submissions for the proposed departures have not yet been received by Highways England, but it is not requirement for the applicant to do so prior to the award of planning permission.

It was felt that the proposed northbound weaving length departure, between the MSA merge and M42 Junction 6 diverge, represented a greater degree of uncertainty regarding its acceptability. This was due to a combination of reduced weaving length and a number of other factors specific to the northbound diverge arrangements.

The following sections of this note provide further details and the Safer Roads Design team assessment of the proposed northbound weaving length departure.

## **Northbound Weaving Length - Overview**

TD 22/06 'Layout of Grade Separated Junctions', which applies to new junctions on existing motorways, requires a weaving length of 2km for a rural motorway. The proposed northbound weaving length is 1.15km which is a departure from TD 22/06.

The Designer has stated that the maximum peak hour (2018 base year am peak) M42 northbound flow between junctions 5 and 6 is predicted to be 5568 vehicles per hour

(vph) with 1775 vph (27% of total flow) diverging at junction 6. The predicted corresponding merge flow from the MSA is 364 vph with the traffic model suggesting that 97 vph will diverge at junction 6. The proportion of HGVs in the mainline flow will be 15.1%. The designer has stated that the current 85%ile speeds northbound on the M42 between Junctions 5 and 6 is 56mph. It should be noted that this is under DHS operation.

The MSA merge is proposed to be a Type A layout and the junction 6 diverge will be a Type D Ghost Island layout with a lane drop.

The existing junction 6 diverge features separate destinations signed from the diverge points either side of the 'tiger tail' markings. The first diverge point (when travelling north) is signed to A45 (W) and the second to A45 (E).

It was considered during the technical review by the Safer Roads Design team that the combination of reduced weaving length, the lane drop arrangement and diverge arrangements described above produced a degree of uncertainty regarding the potential for increased weaving conflict when compared to a compliant layout.

### **Northbound Weaving Length – Proposed Advance Direction Signing**

The designer has developed a signing strategy for the scheme which they discussed with specialists from the Safer Roads Design team at a meeting held on 6 October 2016. It was agreed by the Safer Roads Design team that the proposed signing strategy was acceptable in principle for the purposes of the planning application. Further detailed development of the signing strategy will be undertaken, in liaison with the Safer Roads Design team following any granting of planning permission for the scheme.

### **Northbound Weaving Length - Assessment of Existing Comparable Sites on the Motorway Network**

The designer has also attempted to identify other locations on the strategic road network in England which feature similar weaving lengths and diverge arrangements that might provide operational evidence of existing comparable weaving lengths on the motorway network. A number of locations were put forward including:

- M62 Hartshead Moor MSA to Junction 25,
- M1 Leicester Forest East MSA to Junction 21.

The former location is smart motorway ALR operation with a weaving length of 800m. The ALR became operational in September 2013. The layout features a lane drop at junction 25. The nearside lane is signed as A644 only from a point prior to the MSA merge which reduces the potential for conflicting weaving movements. There have been 19 collisions (4 serious and 15 slight severity) on this stretch of motorway during a 5 year period. Of these, 2 slight collisions may be attributable to weaving manoeuvres.

The latter example is a four lane conventionally operating motorway with a weaving length of 900m between the MSA merge and junction 21 diverge. The layout features a

ghost island diverge with a lane drop at junction 21. Road users exiting the MSA and travelling south on the M1 through junction 21 will need to move to lane 2 after merging.

The signing and signalling layout for the MSA and Junction 21 diverge includes gantry mounted lane designation in advance of the MSA diverge, a verge mounted 'tiger tail' sign between the MSA diverge and merge (i.e. not visible to MSA traffic), and gantry mounted lane destination signing at 2/3 and 1/3 mile points.

There have been 46 collisions (44 resulting in slight injury and 2 involving serious injury) on this section during a five year period between 2010 and 2014.

Although the section of M1 between Leicester Forest East and Junction 21 doesn't operate as smart motorway, the weaving length and diverge arrangements are comparable to the proposed M42 MSA scheme layout.

Information relating to the mechanics of the collisions occurring on the M1 between the MSA and Junction 21 has been obtained and analysed. It should be noted that collision descriptions were not available and the analysis has been based on stick diagram information. The analysis suggests that 7 collisions, all resulting in slight injury, might potentially be attributed to the reduced weaving length. This equates to 15% of the total collisions or 1.4 collisions per annum. A further 5 collisions were attributed to 'unsafe merging manoeuvres' from the MSA.

The primary collision type at this location is shunt incidents (25 in total). Although, shunt type collisions could result from weaving related manoeuvres, the designer suggests that the majority of these collisions were a result of congestion and occurred at low speeds.

The AADT on this section of the M1 is approximately 5% lower than the flows on the M42 between junctions 5 and 6.

### **Northbound Weaving Length - Alternative Options**

The designer has considered a number of alternative options to remove weaving conflict including routing traffic merging from the MSA through the Junction 6 interchange to join the mainline via the northbound Junction 6 merge and introducing through lane running through Junction 6 to remove the lane drop. These were rejected by the Designer on the grounds of cost and land constraints.

### **Northbound Weaving Length - Conclusions**

The collision analysis for the M1 weaving length between Leicester Forest East and junction 21 suggests that a combination of reduced weaving length, lane drop and Ghost Island diverge operates at this location with no significant weaving related collision history.

This section of the M1 currently operates as non-smart motorway.

The evidence recently provided for the comparable M1 Leicester Forest East weaving length would suggest that the risks associated with the proposed weaving length between the M42 MSA northbound merge and junction 6 diverge are likely to be tolerable when the residual safety risk arising from this issue is considered against wider safety benefits of the scheme. Taking this into account, together with the use of smart motorway technology on the M42 and the likely benefits that will be provided by the MSA, including a reduced potential for fatigue and crossover related incidents, it is felt that the departure for the northbound weaving length is approvable in principle subject to the following conditions being satisfied:

- An appropriate detailed signing and signalling layout is provided based on the signing and signalling strategy previously agreed with the Safer Roads Design team specialists (and as shown on drawing 223839-ARP-ML-ZZ-SK-CH-00143) and the designer obtaining any necessary non prescribed sign authorisations on behalf of the Secretary of State for Transport.
- Endorsement of the final signing layout by PSCRG.

## Conclusion

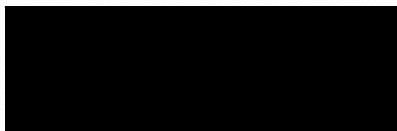
This letter sets out the main safety and engineering matters considered by Highways England during our assessment of the application which in particular considers our review of the design of the junction.

In accordance with DfT Circular 02/2013 our role is to consider the technical suitability of the proposals with regard the safety and operation of the SRN. Wider planning issues and the comparative merits of this and any other application(s) are for others to adjudge.

The considerations underpinned in our review of the application included the safety case made by the applicant that supports the proposal. This case is balanced by virtue of the fact that any new junctions will introduce new hazards onto the road network, this is offset by benefits to drivers inherent to the provision of an MSA facility and mitigation provided within the scheme.

If you have any questions regarding our response please do not hesitate to contact me.

Yours sincerely



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