M4 Junction 3-12 Smart Motorway (TR 010019) – summary of representations made at special hearings on Environment and Safety (with additional evidence)

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1. Environment

1.1 Traffic Forecasting

Campaign for Better Transport notes that Highways England explained that the three scenarios it has modelled its core traffic forecast relates to scenario 1 in the Road Traffic Forecasts 2015, while its high forecast relates to scenario 5 and its low forecast to scenario 4. This leaves two scenarios unaccounted for, both of which are lower than Highways England's core forecast. That suggests that the core forecast is too high and we believe the modelling should be re-run for scenario 3 to see how this would affect outcomes and the need for the scheme.

Having said that, should the scheme be brought forward in its current form, which will see an increase in capacity of 25 – 33% in terms of running lanes, passing through heavily built up areas and near to urban centres, then we would expect there to be quite a high suppressed demand for road travel which will quickly fill up any new capacity. This induced traffic could be quite high and we are not convinced, given the road's location, that the level of induced traffic will be only 0.4% or thereabouts.

This is important as the level of induced traffic is a measure of the impact of the scheme. The low level of induced traffic also feeds into the air quality and carbon emissions for the scheme and therefore its understatement will give a rosier picture of the scheme and hide its true impact.

We mentioned the report by Yaron Hollander, a former Transport for London modeller, who has identified a number of issues with the way modelling is carried out, the lack of scrutiny and understanding around modelling and the problems this can cause. The article in Local Transport Today[1] highlighted that quite often as long as the guidance is followed, there is no real scrutiny of the modelling and most claims or assertions by the proponents are taken as read.

During the discussion, questions were asked around the value of time and whether by having fixed this in 2009, this might be too low. We highlighted latest research which shows many value of time rates are being suggested to be lowered for transport scheme appraisals and reliability of journey benefits slashed. This is likely to see all road schemes with reduced cost benefit ratios which will probably feed through into new WebTAG guidance in March 2016[2].

We support the Panel's call for a clear setting out of data and assumptions used in any modelling and we would urge that this is done in clear English, avoiding the use of jargon and acronyms wherever possible.

It is also worth noting that there was concern that Highways England's traffic model wasn't sensitive enough to highlight impacts on the local road network. We would agree with this and flagged up previous evidence that we had submitted on air pollution highlighting the inaccuracy of Defra's strategic air quality model which has been shown to be wildly inaccurate when trying to predict real-life pollution levels at a local level[3].

1.2 Air Pollution

We outlined that there are four main factors affecting emission levels and these are:

1. Fleet composition
2. Current actual real life emissions
3. Projected rate of improvement over time
4. Modelled traffic levels

[1] See Appendix 1
[2] See Appendix 2
[3] Section 2.2 & Appendix 1, Comments on Highways England's responses to Panel's 1st Written Questions – 5 Nov 2015

Given that the Department for Transport (DfT) states that the car fleet will continue to increase in its dieselisation[4] this is going to lead to a greater increase in emissions from diesel vehicles over time.

Secondly, given the VW scandal, it has become evident that real life emissions of vehicles are far higher than was thought, not just in older diesel engines, which might explain why improvements in air quality have been hard to achieve in more recent years, but also in relation to the latest Euro 6 engines. These have been shown to have emissions well above the laboratory test limits in real life[5] and consequently emissions are unlikely to drop as Highways England are assuming.

In addition to the delay in phasing out new Euro 5 engines, which will now continue to be sold until September 2016, instead of September 2015[6], it is proposed that the real-world tests to be introduced for Euro 6 engines won't be as strict as the laboratory tests. Any new models from September 2017 will be allowed to emit real-world emissions up to 110% higher than the laboratory test until January 2020. However, new vehicles of existing models, already approved and on the market, won't have to meet these new targets until September 2019, some two years later. This means that we are likely to have high polluting Euro 6 engines around for quite some time.

Beyond January 2020, new models will be allowed to emit up to 50% higher real-world emissions, while new vehicles of older models, won't have to meet this target until January 2021[7].

All of these factors point to the fact that ongoing future rates in improvement are likely to be far less that previously envisaged and are unlikely to lead to a rapid improvement (at least initially) as modelled by Highways England. One reason, perhaps, why the Interim Advice Note (IAN) 170/12 v3 allows some discretion.

In addition, the hearing heard from a number of air quality experts who stated that traditionally improvements in air quality had been consistently overestimated and urged caution in future projections. This combination of factors suggests that even if the Highways England profile LTTE6 (on the graph they distributed at the Issue Specific Hearing) is shifted to the right by several years it is still unlikely to accurately reflect real-world emissions. While Highways England described LTTE6 as the realistic 'worst' case they failed to provide any evidence as to why their projection represented an accurate or cautious approach to future trends.

However, given that much of the above has happened post the publication of the IAN 170/12 v3, we believe that the most pessimistic future trend (LTT) as shown on the Highways England graph supplied at the Issue Specific Hearing is a sensible and cautious approach to future improvements. It still represents a slight ongoing improvement but does not envisage any sudden improvements as Highways England's graph does.

If a robust approach is to be taken to air pollution and for there to be no challenge to any decision, the more pessimistic LTT graph should be used to work out future emissions levels and Highways England should be asked to produce revised data on air pollution.

We are concerned that this issue has been significantly downplayed in the portrayal of the scheme which is then affecting proper consideration of other options or the need for mitigation. If the air pollution was remodelled we would be surprised if it did not become a significant issue and affect a lot more houses along the route.

However regardless of the issues above, there is still the question as to whether the scheme can delay compliance legally, even if not described as being significant by the Highways Agency.

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[4] Paragraph 3.58, page 53, Road Traffic Forecasts 2015, March 2015

[5] Sections 2 & 3, Realistic real-world driving emissions tests: the last chance for diesel cars?, Transport & Environment July 2015

[6] As mentioned by Hillingdon Borough Council's expert witness on air pollution at the Issue Specific Hearing, 17 November 2015

[7] European Commission Press Release, 25 September 2015

1.3 Health Impact Assessment

We raised concerns about assessment of active travel contained within the Health Impact Assessment (HIA) and Environmental Statement and explained how there was no justification for a minor positive score during operation.

While the scheme was not looking to remove or sever access for pedestrians and cyclists, except during construction, it did not appear to have considered the negative impact from extra traffic that would be generated on the surrounding road network and which would be a disincentive for people to walk or cycle. In addition, no assessment has been made of the impact of lengthening subways under the motorway, which are likely to make them more threatening and off-putting, particularly for pedestrians.

Construction in these areas could be an opportunity to improve existing crossing points through a range of measures, such as widening of underpasses, better lighting and flared entrances and exits. Opportunity could also be taken to provide dedicated cycle access at all crossing points both over and underground.

We raised the issue about funding streams in the Roads Investment Strategy which are specifically allocated to address historic environmental and community severance issues[8]. The M4 upgrade presents a cost effective opportunity to review whether there are any historical severance or environmental issues and to address any that are found.

It is worth noting that National Networks National Policy Statement (NNNPS) has a number of clear and strong statements about reducing severance and addressing the needs of cyclists and pedestrians. Paragraph 3.17 states: *"There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes…"* it goes on to say that it expects applicants to correct *"…historic problems,* ***retrofitting the latest solutions****…"* [our emphasis].

Paragraph 3.22 of the NNNPS reinforces this sentiment stating: *"…Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility."*

Paragraph 4.31 of the NNNPS also highlights the need that applicants *"…should also mitigate any* ***existing*** *adverse impacts wherever possible, for example, in relation to safety or the environment…"* [our emphasis].

At a minimum, Highways England should also be looking to provide cycle lanes and safe pedestrian routes on any new bridges it is constructing for busier roads so that these do not present a barrier for future provision. The cost of doing this at construction is much lower than trying to retrofit any such facilities.

It should also be assessing the suitability of existing provision and determining whether it is fit for purpose. Some of the bridges and underpasses could be vastly improved to provide simpler and more pleasant crossing points for vulnerable road users.

Unfortunately, Highways England was unable to justify a positive score for active travel as it has done little or nothing to fulfil the requirements of the NNNPS on this issue.

Highways England committed to look at whether there was an opportunity for enhancements for pedestrian and cycle links over and under the M4, but this needs to be informed by the requirements of the NNNPS and through a proper appraisal of the issues.

Taking a broader look at the HIA and it is clear that much of the scoring within it is overly optimistic and without evidence to support the position taken. Looking at each of the nine areas that the HIA looked at in turn, we find the following:

[8] Part 1, pages 9, 15, 53, 56 & 59, Part 2. Page 59, Part 3, pages 6, 9, 10, 25 & 26, Road Investment Strategy 2015 – 2020, March 2015

1. Access to social infrastructure – minor positive. We would suggest that this is more likely to be neutral overall as while it may allow more people to drive, it is likely to lead to greater congestion on the surrounding road network. Apart from the problems to drivers that this will cause it will impact on walking, cycling and potentially buses as well. Given that vulnerable people and those on lower incomes are less likely to drive and be reliant on other forms of transport, this will have a negative impact on them accessing their social infrastructure. There could also be wider impacts due to the increased air pollution and loss of green space and community assets, which could even tip the overall impact to a minor negative one.
2. Recreational, green space and light pollution – minor negative – agree with this score.
3. Active travel – minor positive. As explained above, we cannot see how just retaining what is there already can be described as a positive benefit during operation. Given the extra traffic on the surrounding roads (which pedestrians and cyclists need to use) and the lengthening of subways, which will make them less attractive and feeling less safe, the overall impact of the scheme on active travel will be minor negative at least.
4. Air quality – minor negative. As explained in this document and in our other submissions, air pollution arising from this scheme is likely to be significant. Unfortunately the modelling and assumptions made by Highways England, which they have not been able to justify, paint an overly optimistic view of future impacts, not least their modelling on how air pollution will fall away over time. If this was properly assessed this would be scored as a major negative impact.
5. Noise and vibration – minor positive. We agree with this if the extra noise from the increase in traffic is more than compensated by the low noise surface in a deteriorated condition and with new and better noise barriers being installed.
6. Soil and water pollution – neutral – accept.
7. Community safety and stress – moderately positive. We disagree with this for a number of reasons, not least because of the negative impact that this scheme will have on pedestrian and cycle safety on the surrounding road network and when using underpasses, etc. Increasing air pollution will also impact on human health causing greater harm and stress. However, most importantly, this category has been wrongly assessed from a driver's perspective. Driver stress has been given a very positive score because the HIA has used the large reductions in crashes seen on the M42 pilot as a guide to what will be seen on the M4[9], yet in the graph of comparison of risk for different motorway configurations[10], the M42 is shown as having significantly less risk than that proposed for the M4, where only an 8% point improvement in risk is expected. A similar mistake is made in the Executive Summary of the HIA which quotes an 18% reduction in risk, failing to point out that the safety baseline is not the position of the current M4. Therefore the overall score for this category, is more likely to be between minor positive to neutral.
8. Access to work and training – moderately positive. If you can drive and own a car, this may be true but this will not help those who rely on other modes of transport and who could well be disadvantaged by this scheme.
9. Minimising the use of resources – this was scoped out and not scored for operational impacts. However, minimising the use of resources would focus on reducing car use where resources are only used for a short period every day while prioritising low impact and resource efficient means such as walking, cycling and public transport. The latter makes far better use of resources as buses are in operation most of the day, not parked in car parks taking up large amounts of space. Therefore, if scored for its impact during operation, this would potentially come out negative.

From the above analysis, it is clear that if these nine categories were properly re-evaluated, the HIA is likely to come out with at least a minor negative outcome overall. That is based on taking the most optimistic score in the reassessments carried out above, so a more pessimistic view would see the negative impact worsen.

[9] See first paragraph, under Operation, page 96, Health Impact Assessment – "The M42 is seen as an appropriate comparator for the Scheme."

[10] Figure 3.1, Campaign for Better Transport, First written representation, October 2015

1.4 Carbon Emissions

Campaign for Better Transport supports the point that Friends of the Earth raised regarding the policy gap that has been identified as opening up on reducing carbon emissions overall and the slight increase seen from transport recently. This concern is increased by the fact that research shows that real life carbon emissions from new cars can be substantially above those advertised by manufacturers, in some cases over 50% higher than claimed[11].

1.5 Noise

The figures presented at the Examination by Highways England show that new low noise surfaces provide a noise benefit of 4-6 dB over a hot rolled asphalt surface, but after 10 years this drops to 1-3 dB. However, we are not convinced that a 3.5dB benefit ascribed to a low noise surface over its lifetime is appropriate, given that the average benefit after 10 years is only 2dB and at that point the surface could be around for a further 5 years before it is renewed.

In addition, quite a lot of the M4 already has a low noise surface so the benefit of a new low noise surface would not be as great as for a road not already treated.

[11] Transport & Environment Report: Mind the Gap 2015: Closing the chasm between test and real-world CO2 emissions, September 2015

2. Traffic Safety

2.1 Improving safety

At the Issue Specific Hearing, Highways England said it was their policy to not make safety worse with the scheme and when we raised the issue of their aim of reducing injuries and deaths to as close to zero by 2040, with an interim target of a 40% reduction by 2030[12], we were informed that this was just an aspiration.

However, the NNNPS goes somewhat further than the position Highways England gave, stating in paragraph 3.10 *"…scheme promotors are expected to take opportunities to improve road safety, including introducing the most modern and effective safety measures where proportionate."* While this contains a caveat around introducing the latest technology, it is clear that schemes should deliver safer roads, not just maintain the status quo.

Furthermore paragraph 4.60 states that: *"New highways developments provide an opportunity to make significant safety improvements…"* It goes on to repeat some of the wording in paragraph 3.10. Paragraphs 4.64 – 4.66 then talk of the need to *"minimise the risk of death and injury"* and that consent should not be granted unless *"…all reasonable steps have been taken and will be taken to minimise the risk of road casualties arising from the scheme…"*

This would tend to suggest that a more robust justification should be provided as to why the M42 SMART motorway configuration was not considered as an option for the M4, given its far lower risk, as this would have led to a minimisation of road casualties as demanded by the NNNPS.

2.2 Mitigation / Options

There was some discussion of reducing traffic speeds in relation to both air quality and noise. We would like to point out that whatever the reservations of Highways England, a permanent speed reduction would have numerous benefits and few downsides:

1. Air pollution would reduce with a 50 or 60mph speed limit
2. Noise – this decreases with speed
3. Safety – lower speeds would reduce the number and severity of crashes which would contribute to reduced driver stress
4. Carbon emissions would reduce with a 50 or 60 mph speed limit
5. Smoother and more effective traffic flow - it is possible to accommodate a greater flow at speeds of 50-60 mph, compared with 40 or 70 mph
6. Could avoid the need for as much air and noise mitigation which would help reduce the potential visual impact and associated costs

In contrast, the only negative impact would be a reduction in vehicle speeds and the scheme's cost benefit ratio, but the most likely impact would be at off-peak times when traffic management measures are less likely to be used. Therefore the impact on the overall value for money should not be that great and some elements such as improved safety would contribute to reducing costs.

There was also an issue raised about using average speed cameras and that these had not been used or approved in a managed motorway setting. However, there is nothing to stop the gantry speed cameras being deployed for spot speed checks when traffic speeds are reduced for traffic management reasons, alongside average speed cameras used solely to enforce the maximum speed allowed on the motorway. In fact the presence of the average speed cameras could have the beneficial impact of encouraging drivers to drive at constant speeds between gantries and not speed up and slow down as currently happens.

[12] Section 3.3, Comments on Highways England's responses to Panel's 1st Written Questions – 5 Nov 2015

Appendix 1 – Article from Local Transport Today – Can anyone save us from the misuses of transport modelling?

See separate document

Appendix 2 – Jacobs article outlining implications of changes to the Department for Transport's values of time

See separate document

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Campaign for Better Transport

Campaign for Better Transport's vision is a country where communities have affordable transport that improves quality of life and protects the environment. Achieving our vision requires substantial changes to UK transport policy which we aim to achieve by providing well-researched, practical solutions that gain support from both decision-makers and the public.

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