

M4 Junction 3-12 Smart Motorway (TR 010019)

Written representation from Reading Friends of the Earth for Deadline IV

Summaries of oral submissions to Hearings – November 16th to 20th 2015

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Reading Friends of the Earth is a voluntary group of residents of the 'Greater Reading' area. We campaign on environmental issues. We are a separate body to Friends of the Earth England Wales and Northern Ireland.

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1/. Open Floor Hearing – 16th November

Personal Observations:

Noise:

I live at RG6 5QH - one and a quarter km from M4. On some occasions traffic noise can be intense when I open the front door.

Safety:

I have been an owner-driver since 1972 but find busy 4-lane motorways scary – even when they have a hard shoulder.

Option Selection:

Not clear what criteria were applied in Option Selection ... Described in Chapter 3 of Environmental Statement ... By September 2013 the Scheme was classified as a single option scheme ... 'Smart Motorway' may not be best value for UK.

Reading FoE position: 'Managed Motorway' improvements seem sensible but expect that all-lane-running will:

- be less safe, and less resilient, than three lanes with a hard shoulder.
- encourage traffic volumes to grow causing worse noise and air quality, and more climate-changing emissions.
- be significantly more expensive to implement than other options.

So would like the Panel to separate the costs and benefits to make the case to delay or abandon all-lane running because we believe the Option Selection process did not evaluate the options in sufficient detail.

Priority should be to reclaim the M4 from local traffic for long-distance travel - by demand management and modal shift – to maintain accessibility and improve local environment.

Traffic Modelling:

Traffic volumes:

Very hard to predict – many factors:

- Marginal cost of travel is falling as fuel efficiency rises.
- Coming out of recession people take jobs wherever they can so drive further – but they and society would be better off if they did not travel so far.
- “Robots threaten 15m UK jobs” said Bank of England's chief economist last week.
- Economic projections are not reliable – for SE Plan in about 2005 Experian projected close to 3% p.a. economic growth (GVA) for the next 20 years.
- For SE Plan the ‘Taking Stock’ report said SE Region environmental footprint was 29 times its land area – so can growth be sustainable?
- Information technology has improved and working from home – at least part-time - has become much more popular.
- Government promises to get inward migration down from hundreds of thousands to tens of thousands per year.

We think environmental and cost considerations should take precedence over ‘predict and provide’.

Effects of traffic volume on congestion and environment:

Also hard to predict:

- Important that panel are aware that traffic volumes have very non-linear impacts on delays – when roads start to be overloaded delays can increase as the square or cube of traffic density until eventually flow breaks down at gridlock.
- For previous Examinations into ‘Cross Town Route’ and ‘Wokingham District Plan’ at our request consultants simulated scaling the Origin/Destination matrix ... to look at sensitivity and see how close the roads are to gridlock
- Traffic on **approaches to Reading** has been said to increase by 4% - so may increase delays by 8% or 12% - what will this cost?
- Traffic on **M4** when overloaded or lanes blocked may cause long delays, especially when there is no hard shoulder.

Comments on Carbon Costs:

Figure for lifetime carbon emissions of scheme is 4 million tonnes of CO₂ ... how sensitive is this to assumptions about vehicle technologies and traffic volumes?

What is the economic cost of an additional 4 million tonnes of CO₂?

- Sweden taxes at \$168 - about £100 - per tonne - already.
- Economist Nicholas Stern has written that by 2035 the price should be between \$82 and \$260 – a mean of about £112
- Committee on Climate Change came up with a potential range of £100-£300 per tonne of CO₂ – mid-range £200 - in 2050.
- Airport Commission envisages future price of £330 per tonne by 2050.

So 4 million tonnes would add around £400 million pounds to the cost of the project at £100 per tonne, and at £330 per tonne would add £1.3 billion.

2/. Environmental Matters – 17th and 18th November:

(Numbered as in document 3512035)

Section B: Traffic Forecasting:

During Questions 17 to 23 (*Realism and Uncertainty in Modelling, and Distributional Effects ...*):

Mr. Whittle (for HE) used the word 'patchy' to describe the detail of modelling between 'screenlines', and there was discussion of three levels of modelling: strategic, local, and junction.

I commented that I was aware of 'Congested Assignment Models' to model junction delays and I could not see how higher-level models could be accurate in predicting flows or routes between 'screen lines' if they did not model junction delays with some accuracy.

Mr. Whittle also said that traffic on J11 would rise by 2% ... which he seemed to imply was a small number ... but J11 is already often congested, so (as in my comments to the Open Floor Hearing) a 2% increase in traffic could perhaps lead to 4% to 6% increase in delays.

Section D: Noise and Vibration:

Commenting on questions 6 to 10 on Noise levels ... when HE had said there was a consensus around noise levels of 63dB (daytime) and 55 dB (night-time) being acceptable:

I referred to evidence given by Margaret Cocks at the Open Floor Hearing on 16th November who had advocated 40 dB as a safe level on health grounds. HE responded that this was an 'aspirational' target.

I commented that it would have been useful to ask Public Health England's views on this.

I said that speed reduction could reduce noise impacts, and would also improve air quality, safety, fuel use and carbon emissions. I note that this is discussed in http://www.racfoundation.org/assets/rac_foundation/content/downloadables/speed_limits-box_bayliss-aug2012.pdf (Sections 2.3 to 2.5)

Mr. Jones then commented that a 55 mph speed limit should be considered between J10 and J11.

Section E: Visual Impact:

Question 6: Lighting.

Comments not made orally to hearing because it was agreed to take all inputs in writing to save time.

LEDs - Light Emitting Diodes:

Lighting design is a complex field – selecting the right light sources against safety, economy, climate change, and aesthetic criteria.

As well as brightness and directionality CCT - 'corrected color temperature' - is an issue. Colours range from 'Cool White' to Warm White. It is argued that 'Warm White' with CCT of 3000K or even 2700K has less impact on human health and on wildlife and is more aesthetically pleasing.

The Royal Commission on Environmental Pollution

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228832/9780108508547.pdf.pdf reported on outdoor lighting in 2009 and warned of risks of stray light and replacing orange lighting with broad spectrum lighting.

In terms of LED technology applied to outdoor - and in particular to street lighting - there are the following problems:

- 1) blue-rich spectral content - and the resultant potential for disruption of circadian rhythms in the wider natural world, and also in humans
- 2) blue-rich spectral content - and the resultant increase in light pollution in the atmosphere through Rayleigh scattering
- 3) blue-rich spectral content - and the resultant increase in the potential for photobiological damage
- 4) blue-rich spectral content - and the resultant increase in glare
- 5) LED 'flicker' - and the resultant potential to cause migraines and epileptic episodes
- 6) Glare - and the resultant potential to cause nuisance to residents and cause road safety issues
- 7) Poor light uniformity - and the resultant potential to increase crime and road traffic accidents

I am told that at LuxLive <http://luxlive.co.uk/> the recent lighting exhibition and conference the current LED installation on the M4 around J10 & J11 near Reading cropped up in conversation - with everyone present in the discussion agreeing that the LED lighting is very poor, and dangerously glary.

I would like HE to look closely at criticisms of this recent LED installation and learn from any mistakes made.

Section G: Other Matters:

Question 5: mitigation of carbon impacts:

I asked whether embodied carbon in civil engineering works was included in the HE figure of 4 million tonnes of CO₂ for lifetime emission. I pointed out that concrete and steel had high carbon footprints.

HE replied that they thought it was not included but would confirm this.

3/. Road Safety – 18th November: (Numbered as in document 3511812)

Questions 1 to 5: Performance and Risk:

I asked HE to explain why risks differed between the three schemes discussed ... MIDAS, Active Traffic Management, and All Lane Running.

I asked for cost of adding Active Traffic Management for three lanes without adding All Lane Running, and what the safety benefits of this would be. I was told that HE did not have this figure.

I asked if general speed reduction would have useful benefits in improved safety.
