Draft - 13th February 2014

Consultation on the proposed M1 Junctions 28 to 35a Maximum Mandatory Speed Limit: RAC Foundation response.

The RAC Foundation is an independent transport policy and research organisation which explores the economic, mobility, safety and environmental issues relating to roads and their users. The Foundation carries out independent and authoritative research with which it promotes informed debate and advocates policy in the interests of responsible road users.

1. Introduction

The 51 kms of M1 between the A616 and the A38 is a very important stretch of the national motorway network having been opened between July 1968 and June 1968 during the peak years of Britain's motorway construction. As well as providing a vital N/S artery east of the Pennines it carries substantial volumes of intra-regional traffic in South Yorkshire and north Nottinghamshire. It comprises 1½%[1] of the national motorway network and carries about 2% of its traffic - up from about 30 thousand vehicles/day in the early 1970s[2] to over 100 thousand today[3].

This is not the first section of motorway where air quality standards have created a problem. The scheme for hard shoulder running for junctions 15 to 12 and junctions 8 to 12 on the M60 having been scaled back to variable speed limits without additional lane capacity[4].

The managed motorway programme is planned to add at least an additional 355 kilometres of extra capacity to the busiest arteries of the country's transport network, on top of over 322 kilometres of existing planned investment[5]. So it is important that this proposal is seen in the wider context of the national motorway development programme as well as a scheme in its own right. As road traffic on the strategic road network grows[6] there is the potential for this type of problem to become more widespread.

2. Approach to Evaluation

The Department of transport has well developed and effective appraisal procedures[7] including the application of its webTAG model for estimating a range of costs and benefits[8]

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[1] DfT 2013a.
[2] DoE 1976, table 28.
[3] DfT 2013b.
[4] Highways Agency 2013.
[5] DfT 2013d
[6] Central forecast of 45.6% between 2010 and 2040 (DfT 2013e).
[7] DfT 2013f.

and these are generally used by the Highways Agency. The consultation document says nothing about the costs and benefits of the proposals and is apparently uncertain about their effects. On air quality impacts the assessment is that *analysis indicated that the proposal would allow the managed motorway schemes to be built, providing additional highway capacity but without creating significant adverse impacts on local air quality*[9]. It says nothing specific about other benefits or the costs either of implementation, operation or in increased journey times to road users.

This makes it very difficult for respondents to give well founded and meaningful response to the consultation. In the absence of any quantified assessment however there are a number of questions that can usefully be asked. These are:

How serious are the air quality impacts from traffic likely to be?

What difference would the lower maximum speeds limit make?

What costs and benefits to road users would result from the lower speed limit?

Is the proposal reasonably proportionate in the light of the above?

3. General air quality impacts from road traffic

There is no doubt that road traffic is a substantial contributor to air pollution as can be seen from table 1.

Table 1. Road Transport's contribution to UK Air Pollutant Emissions 2011.

Pollutant	**Road Transport**	**All Sources**	**from Road Transport**
Carbon Monoxide (CO)	736	2,145	34.3%
Nitrogen Oxides (NO_x)	339	1,033	32.8%
Particulates (PM_{10})	23.8	112.9	21.1%
Particulates ($PM_{2.5}$)	17.1	67.2	25.4%
Benzene (C_6H_6)	2.1	8.3	25.3%
1,3-butadiene (C_4H_6)	0.7	1.8	38.9%
Lead (Pb)	1.5	58.6	2.6%
Sulphur Dioxide (SO_2)	0.9	378.8	0.2%

Source: DfT, table ENV0301

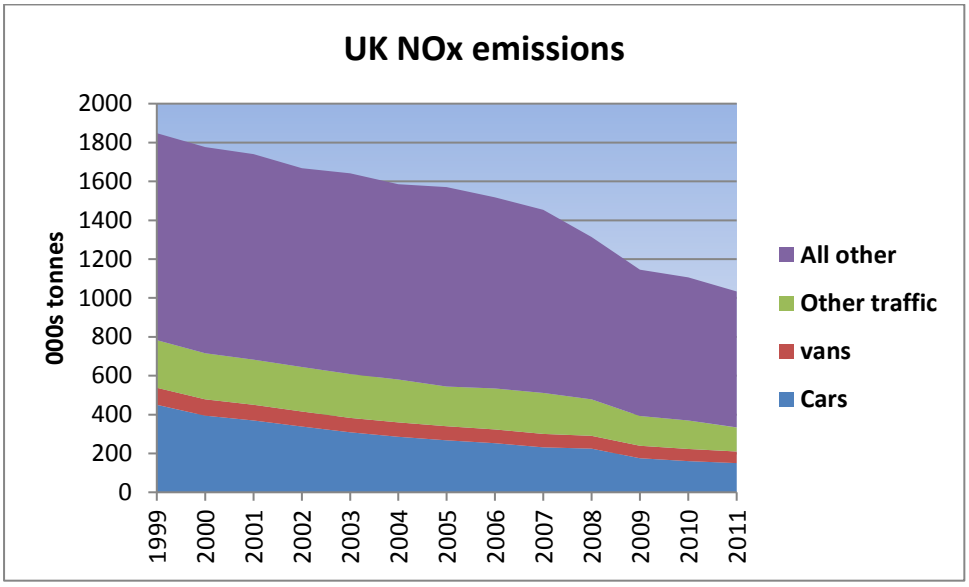
The pollutant of principle concern is NO_2 although PM_{10} and SO_2 are also cited in two of the declared Air Quality Management Areas (AQMAs). As can be seen from table 1 road traffic is a barely significant contributor to SO_2 emissions; so there are no significant grounds for taking action on this account. PM_{10} levels are an issue in the Sheffield City and Erewash No.2 AQMAs. In Sheffield it is estimated that 40% of PM_{10} emissions are from road traffic and 74% of these are from buses, HGVs and vans - so just over 10% of PM_{10} emissions are

[8] DfT 2014.
[9] Highways Agency 2014, para 3.2.

from cars[10]. The Erewash No.2 AQMA contains 130 residential properties and in its most recent screening report concluded that *the DMRB screening model indicates it is unlikely there will be exceedances of the annual mean objective or 24 hour mean objective for PM_{10} including near busy roads and junctions in 2005 but that the EU Limit Values (Stage 2) for 2010 may be exceeded in that year near busy roads and junctions*[11].

NO_2 is cited as a pollutant in all the other AQMAs and table 1 shows that road transport contributes about a third of this nationally. Tighter emission controls and the retirement of older, more polluting, vehicles has meant that both the emission rates and totals for road transport NO_2 have been falling.

Figure 1: UK NO_x emissions 1999 - 2011



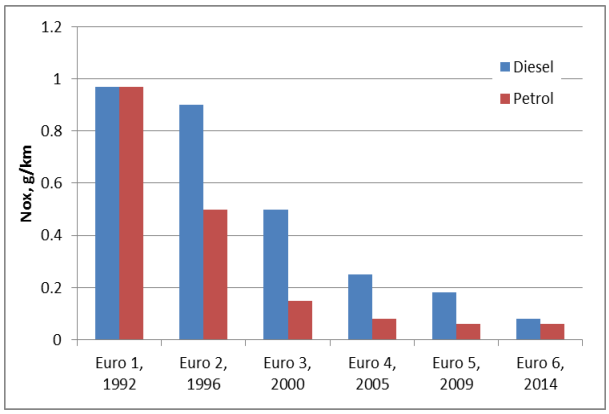
Source: DfT, table ENV0301

NO_x emissions (comprising both NO and NO_2) from road transport have halved over this period and have fallen from 43% to 33% of the total and cars and taxi emissions have reduced by two thirds and fallen from 24% to under 15% of the total. These trends are set to continue as further tighter standards are introduced and older vehicles replaced by newer less polluting ones.

Figure 2 shows how NO_x emission standards for new passenger cars have been tightened over recent years and are set to improve further and figure 3 gives the picture for heavy duty vehicles. In both cases the reductions for diesel engine vehicles between 2005 and 2014 are such that this standard will improve by a factor of more than 3.

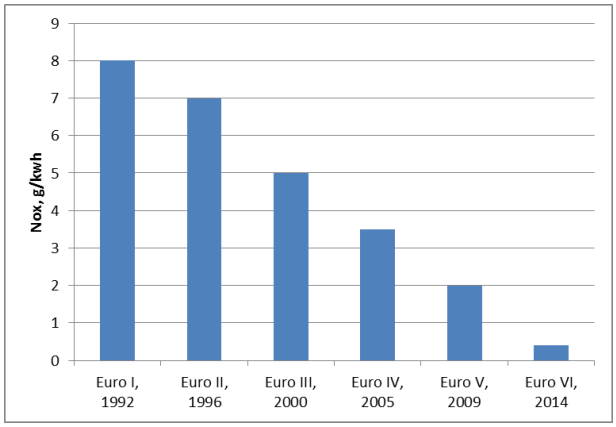
[10] Sheffield city Council 2012.
[11] AEA Technology 2006.

Figure 2: Changing NOx emission standards for passenger cars 1992 - 2014



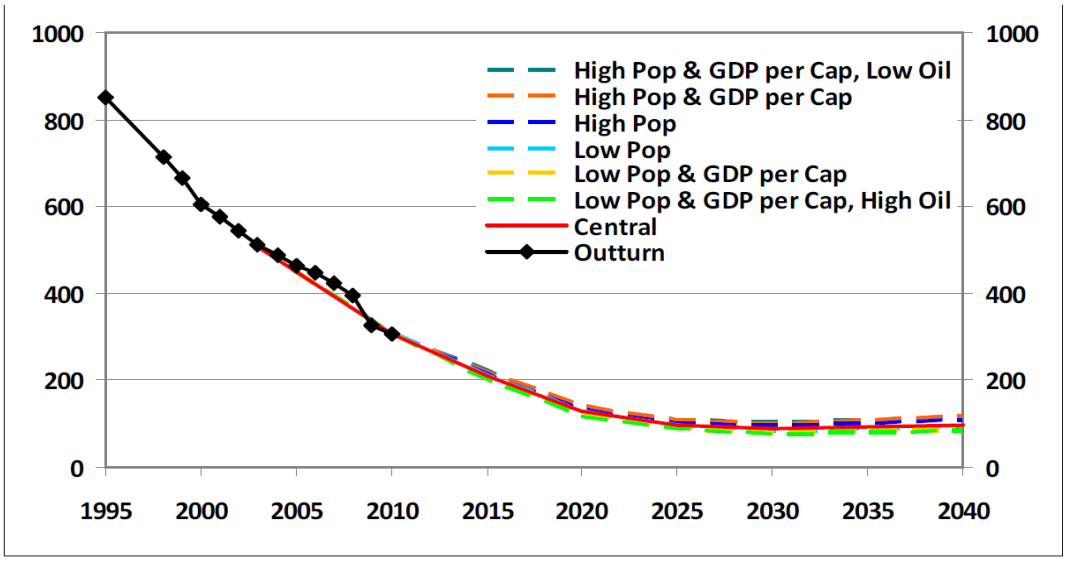
Source: Hitchcock G. et al

Figure 3: Changing NOx emission standards for heavy duty vehicles 1992 - 2014



Source: Hitchcock G. et al

Figure 4: NOx emissions forecast for English roads



Source: Department for Transport (2013e).

The resulting reductions in NO_x expected are illustrated in figure 4 from the most recent DfT road traffic forecasts[12].

4. Local air quality impacts

These are considered in more detail in the annex. The conclusions from this are:

- Of the fifteen AQMAs referred to in the consultation document eight are small with just sixty dwellings between them.
- Of the remaining seven, two (Barnsley AQMA 1 and Erewash AQMA 2) are outside the proposed lower speed limit area and unlikely to be much affected by it.
- Of the remaining five by far the largest is that for Sheffield. However only one edge is likely to be materially affected by the M1 in the vicinity of the Junction 34 complex. Much of the development in this area is industrial and commercial.
- There are four AQMAs in Rotherham with developments adjacent to and broadly opposite the stretch of the M1 affecting the Sheffield AQMA which are affected by NO_2 emissions from the M1. In all there would appear to be about a thousand houses within 150 metres of the edge of the motorway (many of which appear to have been constructed since its opening).
- The area are which appears to be materially affected by M1 traffic emissions stretches for about 8 kms from just north of Junction 34 to Junction 33.

5. Potential impacts from a lower speed limit

Existing free flow traffic speeds on motorways are shown in table 2.

Table 2: Traffic speed distribution on motorways 2012

	Cars	Vans	Coaches	Rigid HGVs	Artics
Under 50 mph	4	3	5	7	11
50-59 mph	14	15	41	53	88
60-64 mph	14	14	25	11	1
65-69 mph	20	19	11	11	0
70-74 mph	21	20	10	9	0
75-79 mph	14	15	5	5	0
80-89 mph	11	12	2	3	0
90 mph and over	2	2	0	1	0

Source: DfT, table SPE0101,

From this it can be seen that whereas, in the absence of congestion, 82% of cars and vans travel at above 60mph only 54% of buses, 40% of rigid HGVs and 1% of articulated lorries exceed 60mph. Heavy good vehicle are heavily represented on Motorway comprising 11%

[12] Department for Transport (2013e).

of the flow compared with only 5% on the road network generally[13]. Moreover the largest HGVs (articulated lorries) are again over represented on motorways comprising two thirds of all HGVs[14]. HGVs produce 29% of NOx emissions overall[15] so, given their over representation on motorways - especially the heaviest HGVs it is not unreasonable to assume that two thirds of motorway NO_2 emissions are from HGVs - most of which are travelling at under 60mph at present.

6. Costs and benefits from a lower speed limit

The introduction of motorway management (without the lower speed limit) on this section of the M1 is expected to:-

- *Increase motorway capacity and reduce congestion;*
- *Smooth traffic flows;*
- *Provide more reliable journey times;*
- *Increase and improve the quality of information for the driver.*

and variable mandatory speed limits are also to be introduced[16].

The additional benefits claimed for the lower speed limit are:-

- *A maximum mandatory speed limit set at a level below the national speed limit along the M1 will manage traffic growth, ensuring that any increase is restricted to a level that does not contribute to worsening air quality.*
- *Vehicles travelling at a relatively constant speed generally create lower emissions than vehicles travelling in stop/start conditions where drivers are constantly accelerating.*
- *Vehicle emissions will be lower from vehicles operating at a maximum of 60mph[17].*

The effects of a lower speed limit will depend on the level of compliance which, in turn, will depend on the enforcement regime. On this matter the consultation document (para.3.5) says:

Enforcement of the maximum mandatory 60mph speed limit is planned to be carried out using a combination of gantry-mounted and verge mounted speed enforcement equipment, and traditional enforcement by the Police. No new offences or sanctions will be introduced as a result of the proposed changes to legislation.

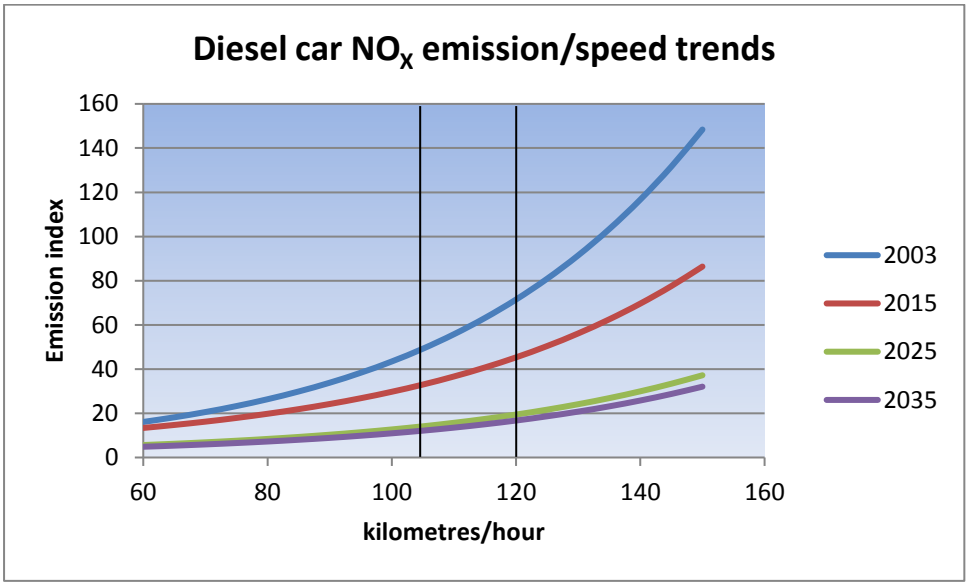
But no information is given on what the resulting speed outcome is expected to be however with the introduction of motorway management and variable mandatory speed limits the effects on speeds of a blanket maximum would appear to be quite limited. The period for which the lower limit should operate is also uncertain as recognised in the consultation document:

[13] Department for Transport (2013j).
[14] Department for Transport (2013k).
[15] Department for Transport (2013g).
[16] Highways Agency (2014), para 3.1.
[17] Ibid, para. 3.3.

The current proposal would see this speed limit in operation between 07:00 and 19:00 seven days a week. Further assessment work is being undertaken to refine the operational regime. Options under consideration include:

- *Amending the hours of operation, for example to operate only during peak hours.*
- *Amending the days of operation, for example to operate on Mondays to Fridays only*
- *Reducing the distance over which the speed limit applies, for example starting or ending the restriction at a different junction.*

Figure 5: Diesel car NOx emissions for different years and speeds



Source: AEA Technology (2009), table 6.

The main claimed benefits appear to be in the form of reduced emissions of which NO_2 is the main interest. Figure 5 is derived from the emissions equations used in the national transport model. As car and van speeds are most likely to be affected by a, lower speed limit and diesel engine vehicles are the main emitters of NO_x the curves are for diesel car fleets in the years 2003, 2015, 2025 and 2035. The downward shifting of the curves reflects the progressive tightening of new vehicle emission standards and the replacement of older vehicles with newer ones.

Points of particular note are:

- the very substantial reduction in emissions forecast between 2003 and 2015;
- the very substantial reduction in emissions forecast between 2015 and 2025 and
- the shrinking of emissions increases from 105kph to 120kph as emission standards improve.

The speed range of 105kph (65¼mph) to 120kph (74½mph) is chosen as being illustrative of what the lowering of the fixed speed limit might be on average car speeds. On the basis of these estimates for diesel cars:

- At 120kph emission rates in 2015 will be 36% lower than in 2003
- At 120 kph emission rates in 2025 will be 57% lower than in 2015 and 73% lower than in 2003.
- Whilst reducing average speeds from 120kph to 105kph in 2003 would reduce emissions by 31% in 2015 and 2025 this would fall to 27%.
- The improvement in emissions between 2015 and 2015 from 'cleaner' vehicles at 120kph is twice as great as reducing average speeds from 120kph to 105kph in 2015.

A lower maximum speed limit would increase journey times. How much is difficult to estimate but this would probably be negligible for HGVs as they are already subject to a 60mph speed limit on motorways. For cars and vans the situation is rather different as, on the motorway network as a whole, in free flow conditions over 80% travel at over 60mph. Using the same speed range of 120 down to 105 kph as used in the emissions illustration about 0.28m additional van hours and 1.73m additional car hours would be spent each year traversing this stretch of the M1. Using standard vales of time this would result in costs of almost £25m a year at 2014 prices[18].

There would be some savings in fuel from the lower speeds (estimated to be 6m litres {6%} for cars and 4m litres {15%} for vans[19]). The costs of this fuel saving would be £13½m year of which £8m would be in the form of lower fuel duty and VAT receipts - an overall net saving of about £5½m. The steeper change in fuel consumption for vans (with their higher wind resistance) can be expected to work through to emissions and the benefits of lowering average van speeds from 120kph to 105kph are likely to be at least double those of passenger cars.

It is likely that the cost of accidents would be lower. The longer journey times would also mean that people travelling along this section of the M1 would have a slightly longer exposure to pollution in the corridor.

The introduction of a lower speed limit on this 51km section the M1 would have implications for traffic routing in the corridor - displacing some traffic onto the A61 and perhaps the A60. The A61 runs through more developed areas than the M1 and the increases in congestion, pollution and accidents from this displaced traffic would offset the benefits from lower volumes and speeds on the M1. This does not appear to have been taken account of in the consultation document.

6. Conclusions

The consultation document does not contain sufficient information for a soundly based response to be made on the proposal to introduce a 60mph speed limit on the section of the M1 between junction 28 and 35a.

[18] Depending on the hours in which the lower. limit applies.
[19] Estimated from Department for Transport (2012), table 10.

The pollutant of general concern is NO_2 with PM_{10} and SO_2 being an issue in two small Air Quality Management Areas (AQMAs). Road transport contributes about a third on NO_x emissions nationally and its contribution have halved since 1999 and have fallen from 43% to 33% of the total. Moreover they are forecast to halve again by 2025.

The 60mph speed limit would be in addition to motorway management measure and a variable speed limit regime along this stretch of the M1. As such its effects are likely to be fairly limited and confined mainly to van and car traffic as roundly 80% of HGVs travel at speeds of 60mph or lower.

Cars generate only 14½% of NO_x emission and vans generate 6%. Because car emissions rise more slowly with speed than the less streamlined vans and HGVs, at motorway speeds car NO_x emissions are likely to form significantly less than the 45% overall average for road transport. Moreover as HGVs make up a significantly higher proportion of vehicles on motorways and include an even higher proportion of large articulated vehicles, cars will contribute only a minor proportion of motorway NO_x emissions.

Less polluting engines have already contributed more to reducing NO_x emissions than would be likely to be achieved by the proposed lower speed limit and are set to continue to do so. Cleaner car technology is set, by 2015, to reduce emissions by twice as much as would be achieved by the proposed lower speed limit.

Many of the AQMAs are small and/or not likely to be much affected by the proposed speed limit change. The only stretch of the M1 in this area where road traffic emissions appear to have a significant effect is that between Rotherham and Sheffield (junctions 33 to 35). To the extent that the effects of a lower speed limit would have an impact this is the section to be considered.

The proposed change would mainly affect vans and cars along with those HGVs travelling above 60 mph (less than 5% of all traffic). To impose this lower limit on the large majority of vehicles which generate only a minority of the NO_x emissions at a cost of the order of £20m/year would be disproportionate in light of the small benefits that would result.

There could also be adverse affects from the displacement of traffic on to busy local roads such as the A61 contributing to congestion, pollution and increased accidents on these.

To the extent that the mandatory lower limit would bring air quality benefits beyond motorway management with variable limits - and these would not appear to be much - most of these would be realised by confining the scheme to the section of the M1 between junctions 33 and 35 and applying the limit to all HGVs and large vans (N1-III as defined under EU Directive (EC) 2007/46/EC).

However to introduce a mandatory fixed speed limit for one section of motorway which applied to a different set of vehicle classes from that in the national limit for a limited (but unknown duration) and for only part of the day/week would be using a sledgehammer to crack a nut and further complicate the traffic regulation regime.

The best way forward, especially in light of the many uncertainties that attend this proposal, would be to use the variable speed limit regime as a more appropriate tool. With careful monitoring this would allow the relationship between traffic speeds on the M1 and NO_2 levels in the corridor to be explored - to help design traffic management schemes that could help address the problem in this corridor and more widely.

Sources

AEA Technology (2006) ***Air Quality Updating and Screening Assessment for Erewash Borough Council***, AEA Technology plc, Harwell, May 2006, http://www.erewash.gov.uk/media/files/Environment-and-Planning/Environmental%20Health/Updating%20&%20Screening%20Assessment.pdf

AEA Technology (2009), ***Updated Vehicle Emission Curves for Use in the National Transport Model***, AEA Technology, Didcot, December 2009, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/4556/aeat-updated-vehicle-emission-curves.pdf

Barnsley Metropolitan Borough Council (2010), ***Air Quality Action Plan - 2010: Consultation Draft***, BMBC, 2010, http://aqma.defra.gov.uk/action-plans/BMBC%20AQAP%202010.pdf

Department of the Environment, ***Transport Statistics Great Britain 1964-1974***, HMSO, London, March 1975.

Department for Transport (2012), ***TAG UNIT 3.5.6 Values of Time and Vehicle Operating Costs***, DfT, London, October 2012, http://www.dft.gov.uk/webtag/documents/expert/pdf/u3_5_6-vot-op-cost-120723.pdf

Department for Transport (2013a), ***Table RDL0101, Road lengths by road type and region and country in Great Britain, 2012***, https://www.gov.uk/government/publications/road-lengths-in-great-britain-2012

Department for Transport (2013b), ***Chart 0303, Average vehicle flows for major sections of the motorway network in Great Britain 2008 and 2012***, https://www.gov.uk/government/publications/road-traffic-estimates-in-great-britain-2012

Department for Transport (2013c), ***Table TRA0102 Motor vehicle traffic (vehicle miles) by road class in Great Britain, annual from 1993***, https://www.gov.uk/government/publications/road-traffic-estimates-in-great-britain-2012

Department for Transport (2013d) ***Action for Roads: A network for the 21st century***, Cmn 8679, July 2013, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/212590/action-for-roads.pdf

Department for Transport (2013e), ***Road Transport Forecasts 2013; Results from the Department for Transport's National Transport Model***, DfT, London, July 2013, https://www.gov.uk/government/publications/road-transport-forecasts-2013

Department for Transport (2013f), ***The Transport Business Cases***, DfT, London, January 2013,

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf

Department for Transport (2013g), ***Table ENV0301 (TSGB0308), Air pollutant emissions by transport mode: United Kingdom, from 1999***, https://www.gov.uk/government/statistical-data-sets/env03-pollutants-emissions-and-noise

Department for Transport (2013h), ***Table SPE0101, Free-flow vehicle speeds on non-built-up roads by road type and vehicle type in Great Britain, 2012***, https://www.gov.uk/government/statistical-data-sets/spe01-vehicle-speeds

Department for Transport (2013j), ***Table TRA0204, Motor vehicle traffic by vehicle type and road class in Great Britain, annual 2012,*** https://www.gov.uk/government/publications/road-traffic-estimates-in-great-britain-2012

Department for Transport (2013k), ***Table TRA3105, Heavy goods vehicle traffic by axle configuration and road category in Great Britain, 2012***, https://www.gov.uk/government/publications/road-traffic-estimates-in-great-britain-2012

Department for Transport (2013l), ***Table TRA4105, Motor vehicle traffic by road class and vehicle type in England, 2012***, https://www.gov.uk/government/publications/road-traffic-estimates-in-great-britain-2012

Department for Transport (2014), ***Transport Analysis Guidance: The Transport Appraisal Process***, DfT, London, January 2014, https://www.gov.uk/transport-analysis-guidance-webtag

Environment Agency (2013), ***Conversion Ratios for NO_X and NO_2***, http://www.environment agency.gov.uk/static/documents/Conversion_ratios_for__NOx_and_NO2_.pdf

European Commission (2007), ***DIRECTIVE 2007/46/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL***, Brussels, September 2007, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2007L0046:20130110:EN:PDF

Highways Agency (2013), ***The M60 Junction 8 to J12 and the M62 Junction 20 smart motorway: consultation document for statutory instrument***, HA, Manchester, November 2013, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/255525/M60_J8_M62_J20_MMM_Consultation_Document_SI_November_final_061113_1030_doc__attachment_.pdf

Highways Agency (2013), ***Interim Advice Note 174/13: Evaluation of Significant Local Air Quality Effects***, Highways Agency, Dorking, June 2013, http://www.dft.gov.uk/ha/standards/ghost/ians/pdfs/ian174.pdf

Highways Agency (2014), ***M1 Junctions 28 to 35a Maximum Mandatory Speed Limit: Consultation document***, HA, Birmingham, January 2014,

https://www.gov.uk/government/consultations/m1-junctions-28-to-35a-maximum-mandatory-speed-limit

Hitchcock G. et al, ***Road Transport Impacts on Air Quality: Possible Solutions***, RAC Foundation, London, March 2014.

Rotherham MBC (2009), ***2009 Air Quality Updating and Screening Assessment for Rotherham Metropolitan Borough Council***, Rotherham MBC, May 2009, http://www.rotherham.gov.uk/downloads/file/3105/air_pollution_report_2009

Sheffield City Council (2012), ***Air Quality Action Plan for 2015***, Sheffield, July 2012, https://www.sheffield.gov.uk/environment/air-quality/action-plan.html

The Motorway Archive, ***Opening dates for Motorways in the UK in chronological order*** http://www.ukmotorwayarchive.org/

Annex: Air Quality Management Areas proximate to the M1 (junctions 28 - 35a)

Of the fifteen AQMAs affected by the proposals eight are small with just sixty dwellings between them. The remainder, more substantial, AQMAs are in Rotherham, Sheffield, Erewash and Barnsley.

By far the largest is the Sheffield Citywide AQMA which abuts the M1 between junctions 33 and 35. With the exception of a housing estate at its southern end and a residential area at Tinsley to the north of junction 34 there is a corridor of between 200 metres and 400 metres wide of vacant land, railway land car parks and industrial premises between the motorway and housing areas. The number of houses with 200 metres of the M1 comes to between 300 and 400 along with an infants' school at Tinsley. There are eight 'hot spots' in the area that are continuously monitored for air pollution and at the Tinsley site by the M1 NO_x levels have fallen from being slightly in excess of the annual mean objective to just slightly below it[20]. An inspection of results from other sites near the motorway shows that there are exceedances in the Tynsley and Wincobank areas with an overall picture of NO_x concentrations slowly reducing.

The Rotherham AQMA 1 lies to the north of the M1 and just to the west of junction 33. Two automatic monitoring sites are located close to the M1 and NO_X levels at each of these were within the annual objective levels and with 5 hourly exceedances (limit 18) at one site in 2008[21]. However at two sites adjacent to the motorway (10 metres and 18 metres away) there were levels 98% and 53% in excess of the objective respectively. This suggests that road users themselves are most exposed to traffic pollution and that this disperses significantly as the distance from the road increases.

Rotherham AQMA 2 again lies to the north of the M1to the west of junction 34 and comprises a mixture of open land and housing (about 150 dwellings) between 50 and 400 metres from the motorway. One of monitoring sites close to the motorway is in this area and the houses closest to the motorway must be experiencing NO_x concentrations above the objective level. However there is no evidence that this is exceeded by most of the properties situated further away from the M1.

Rotherham AQMA 3 is located where a local road passes under the M1about 3 kms south of junction 31. The nearest monitoring site at the local school showed concentrations of NO_x below the objective level in 2006 and 2007.

Rotherham AQMA 4 is to the NW of AQMA 2 and comprises about 200 dwellings between 20 and 200 metres from the motorway. The dwellings closest to the M1 will be affected by both noise and fumes and it is hard to understand why they have been left in such close proximity. Again one of the motorway monitoring sites is in this area and clearly shows that those houses close to the motorway will be subject to, excessive NO_x exposure.

[20] Sheffield Council 2012, table 2.3.
[21] Rotherham MBC (2009), table 2.12.

The Barnsley AQMA 1 comprises a narrow strip of 17kms in length extending 100 metres either side of the M1 between junctions 35a and 38 (so just to the north of the proposed lower speed limit area) and includes 265 dwellings. Most of these are between junctions 37 and 38 and appear to have been built after the opening of the Motorway (when road traffic NO_2 emissions in the corridor were probably greater). The exceedance is marginal as indicated in the Boroughs Air Quality Actions Plan: '*Since 2005, Barnsley MBC and the Agency have been involved in a joint monitoring exercise, which shows marginal exceedance of the annual average objective within the M1 AQMA, with concentrations not showing the downward trend predicted in 2004 by the Agency*.'[22]

The fact that this is outside the proposed speed limit are and that the exceedances are marginal does not appear to amount to a material reasons for the proposed intervention.

The Erewash AQMA 2 comprises an area of land immediately to the east of the M1 motorway about 60 metres wide encompassing approximately 130 dwellings, which have apparently been built adjacent to the motorway and are shielded by a wooden barrier, situated to the south of junction 25. This is over 25 kms to the south of the proposed lower speed limit area and is unlikely to see any benefits from it. Of the 22 sites at which NO_2 is monitored all but one are forecast to be at or above the objective level. This is on the A6005 which runs beneath the M1[23].

[22] Barnsley Metropolitan Borough Council (2010).
[23] AEA Technology (2006), table 7.1.