

## **AIR QUALITY**

SUPPLEMENTARY PROOF OF EVIDENCE OF  
DANIEL SMYTH BSC (JT HONS) MSC DIC  
ON BEHALF OF WILTSHIRE COUNTY COUNCIL

PUBLIC INQUIRY INTO:

WILTSHIRE COUNTY COUNCIL PLANNING APPLICATION W07.09002  
LAND TO THE EAST AND NORTH OF WESTBURY, WILTSHIRE, DEVELOPMENT:  
CONSTRUCTION OF A SINGLE CARRIAGEWAY ROAD WITH CLIMBING LANE  
OVER PART OF THE ROUTE, ROUNDABOUT JUNCTIONS, ASSOCIATED  
INFRASTRUCTURE

CALLED IN FOR DETERMINATION BY THE SECRETARY OF STATE,  
COMMUNITIES & LOCAL GOVERNMENT (SECTION 77 TOWN AND COUNTRY  
PLANNING ACT 1990 AS AMENDED)

THE WILTSHIRE COUNTY COUNCIL (A350 WESTBURY BYPASS CLASSIFIED  
ROAD) COMPULSORY PURCHASE ORDER 200'

THE WILTSHIRE COUNTY COUNCIL (A350 WESTBURY BYPASS CLASSIFIED  
ROAD) SIDE ROAD ORDER 200'



## 1. Introduction

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- 1.1 I have reviewed the Proof of Evidence of Professor John Whitelegg, including the extract from the Environmental Statement Table 13.18 (on P4 of Prof Whitelegg's evidence). I have re-visited the calculations set out in the ES and have re-calculated these. There was an error in the link information for part of the A350 to the south of Westbury in the do-something scenario in Table 13.18 for the original calculation, which has been corrected. I reproduce below the original and revised Tables.
- 1.2 The following regional emissions data were published in the February 2007 Environmental Statement using the DMRB model version 1.02:

**Original Table 13.18 Percentage Change in Regional Pollutant Emissions**

Pollutant	Percentage Change in Emissions Between Do Minimum and Do Something (DS – DM)/DM		
	2009	2010	2024
CO	-10.2	-10.1	-11.0
Total hydro-carbons	-12.2	-11.8	-12.5
NO <sub>x</sub>	5.2	5.4	5.7
PM <sub>10</sub>	5.9	6.4	8.2
CO <sub>2</sub>	-0.6	-0.2	-0.4

- 1.3 The following regional emissions data were estimated in May 2008 using the DMRB model, version 1.03c:

**Corrected Table 13.18 Percentage Change in Regional Pollutant Emissions**

Pollutant	Percentage Change in Emissions Between Do Minimum and Do Something (DS – DM)/DM		
	2009	2010	2024
CO	-1.9	-2.2	-2.5
Total hydro-carbons	-3.1	-3.3	-3.4
NO <sub>x</sub>	13.8	13.7	14.4
PM <sub>10</sub>	14.3	14.5	16.9
Carbon	8.4	8.4	8.9

- 1.4 The calculations are based on two different version of the DMRB model, which now reports emissions as carbon equivalent rather than carbon dioxide (CO<sub>2</sub>). The calculations in the revised table are based on the following inputs:

- In the Do Min 2009 scenario, an AADT of 15,731 and a link length of 2.2km.
  - In the Do Something 2009 scenario, an AADT of 5,988 and a link length of 0.69km.
  - C emissions in 2009 are DM = 3568 and DS = 3868, Difference = 300. This is 8.4% of DM.
- 1.5 Although the two versions of the DMRB method used to derive the pollutant emissions on the highway network are not directly comparable, the updated calculation show a small reduction in carbon monoxide and hydro-carbon emissions and an increase in oxides of nitrogen, particulates and carbon dioxide. These increases are for a relatively small section of the highway network covering the area surrounding Westbury. They illustrate a redistribution of pollutant emissions from the highway routes within the town to the new bypass. These are a consequence of the scheme, based on the traffic data associated with the scheme proposals. The total quantities of emissions from the highway network is very small and the differences between the two sets of regional emissions calculations are not considered to be significant.
- 1.6 I agree with Prof Whitelegg that the local changes in emissions need to be balanced against the anticipated benefits of a scheme and that a variety of factors should be taken into account in reaching a view on whether to take a scheme forwards. My evidence quantifies and discusses the benefits and disbenefits with respect to local air quality.
- 1.7 The treatment of greenhouse gases has evolved over the period that the scheme has been developed. The TAG approach has been developed to allow the cost of greenhouse gas emissions to be taken into account over an arbitrary 60 year period. There are of course many limitations to carrying out an assessment over such a period, not least the certainty of the traffic predictions and the confidence relating to fuel type and fleet mix over the period. Notwithstanding this, the approach does allow a monetary value to be attached to greenhouse gas emissions over an extended period of time and taken into account in evaluating the overall costs and benefits of a scheme. The current shadow price of carbon is £25.50 per metric tonne, which equates to an opening year cost of £7650 in 2009, subject to escalation of the shadow price of carbon in the intervening and subsequent period.
- 1.8 There were various changes and updates to the DMRB method between 2002 and 2007 which are summarised as follows.

<b>DMRB Version</b>	<b>Date</b>	<b>Comment</b>
1.01	Aug-02	Consistent with DMRB 11.3.1 text (May 2003).
1.02	Nov-03	Revision to address problem with local assessment for receptors near to more than one road.
1.03	Jan-07	Consistent with DMRB 11.3.1 text (May 2007). Updated regional assessment to allow calculation of carbon (instead of CO <sub>2</sub> ) emission rates, consistent with web-TAG Unit 3.5.6 Section 1.3 (Oct 2006).
1.03b	May-07	Checked for consistency with web-TAG Unit 3.5.6 section 1.3 (February 2007). Revision to C emissions: removed error in application of biofuel factors, which were applied twice in v1.03.
1.03c	Jul-07	Further revision to C emissions: removed error in application of biofuel and vehicle efficiency factors, which were compounded in v1.03b. Included biofuel factors for PSVs (buses & coaches), which previously were not applied. Revision to calculation of fuel consumption: lower boundary for emission-speed curves revised down from 10 km/h to 5 km/h for all vehicle types; upper boundary for HDVs limited to maximum point on curve to remove slight decrease in emissions between around 90 and 100 km/h.

- 1.9 Professor Whitelegg states that the do minimum scenario should not be predicated on the extrapolation of current trends but should rather assume that committed policies are successful, as set out at 2.2.2 of his evidence. These are mainly points of policy, which I do not deal with, but for the purposes of my calculations, the do minimum scenario is the starting point for the assessment of effects against which the scheme is judged and is incorporated in the do something on the same basis. Consequently, any change in the do minimum should be reflected by a similar change in the do-something. On this basis I would not expect a materially different outcome for my analysis if the underpinning assumptions for the do minimum and do something were to be changed.