

LANCASHIRE COUNTY COUNCIL

CALLED IN PLANNING APPLICATION FOR PROPOSED HEYSHAM TO M6 LINK ROAD

LAND TO THE NORTH OF LANCASTER BEGINNING AT THE
END OF THE A683 HEYSHAM TO M6 LINK PHASE 1 AND
RUNNING IN AN EASTERLY DIRECTION TO CONNECT WITH
THE M6 AT JUNCTION 34 OF THE M6

Planning Inspectorate reference:
APP/Q2371/N/07/1200928 and
APP/Q2371/N/07/1200929

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PROOF OF EVIDENCE JAMES RICHER

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Air Quality

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1. INTRODUCTION

1.1 My name is James Richer and I am a Technical Director at Faber Maunsell with responsibility for managing the Air Quality department.

1.2 I have a Bachelor of Science degree in Human Environmental Sciences from King's College, University of London and a Master of Science (MSc (Eng)) degree in Combustion Science and Pollution Control. I have 15 years of experience specialising in the field of air pollution. I am a Fellow of the Royal Meteorological Society, a member of the Institute of Air Quality Management and a member of the National Society for Clean Air and Environmental Protection. I have also published and presented numerous scientific papers on air quality issues.

1.3 I specialise in assessing the air quality impacts from transport related developments and have completed air quality assessments for many major road, ferry terminal and airport schemes and have presented evidence at numerous public inquiries.

1.4 I am responsible for the development of the AAQulRE regional air quality model and I currently manage the operation of three UK Air Quality Urban and Rural Network (AURN) monitoring sites for the Department for Environment, Food and Rural Affairs (Defra).

1.5 In this evidence I will refer to the air quality assessment chapter in Volume 1 Part A of the Environmental Statement. This assessment uses the methodology outlined in Volume 11, Section 3, Part 1 of the Design Manual for Roads and Bridges (DMRB).

2. BACKGROUND

- 2.1 The provisions of Part IV of the Environment Act 1995 establish a national framework for air quality management, which requires all local authorities in England, Scotland and Wales to conduct local air quality reviews.
- 2.2 As a result of this Act, the UK Air Quality Strategy was published. The UK Air Quality Strategy identifies seven local ambient air pollutants that have the potential to cause harm to human health. The Air Quality Regulations 2007 set standards and objectives for the seven pollutants that are associated with local air quality. These objectives aim to reduce the health impacts of the pollutants to negligible levels.
- 2.3 Should local air quality reviews indicate that the objectives prescribed in the UK Air Quality Strategy will not be met, the local authority is required to designate an Air Quality Management Area (AQMA). Action must then be taken at a local level to ensure that air quality in the area improves. This process is known as 'Local Air Quality Management'.
- 2.4 Lancaster City Council has undertaken air quality reviews within the boundaries of the City. This process has resulted in the declaration of an AQMA for the annual mean nitrogen dioxide (NO₂) objective within the City Centre. This AQMA is shown on Figure 6.2.4 of Appendix A.
- 2.5 The exceedences predicted within the City Centre are due to congestion and the movement of Heavy Duty Vehicles (HDVs) through the City Centre. This issue was highlighted in the Further Assessment performed by Lancaster City Council, which indicated that HDVs were the source of

between 50% and 72% of the emissions of oxides of nitrogen (NOX) at roadside locations. An extract from this assessment is shown in Appendix B

2.6 Additionally, a more recent assessment indicated that an AQMA for the annual mean NO₂ objective was needed in the town centre of Carnforth. An extract from this assessment is shown in Appendix C

2.7 Presently, Lancaster City Council monitors NO₂ at twenty one locations and particulate matter with an aerodynamic size of less than 10 µm (PM₁₀) at one location.

2.8 The proposed Heysham to M6 Link is planned to connect Junction 34 of the M6 to the A683 bypassing the City Centre to the north and thereby reducing the traffic entering the City Centre.

3. METHODOLOGY

- 3.1 The air quality assessment methodology outlined in the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1 was used in the air quality assessment in the Environmental Statement (Core Document LCC 34).
- 3.2 The air quality study comprises of three assessment methodologies: localised, generalised and regional.
- 3.3 The localised assessment requires the prediction of pollutant concentrations at sensitive receptors within the study area. The DMRB methodology predicts the concentrations of the five traffic-related pollutants with objectives in the UK Air Quality Strategy. These five pollutants are nitrogen dioxide (NO₂), particulate matter with an aerodynamic size of less than 10 µm (PM₁₀), carbon monoxide (CO), benzene and 1,3-butadiene.
- 3.4 In this air quality assessment, pollutant concentrations were predicted at 38 sensitive receptors. These predictions were made for a base scenario (2001) and two future years: the proposed opening year (2010) and the design year (2025). The predictions for the future years were made for two scenarios: without the proposed Link (Do-Minimum) and with the proposed Link (Do Something). The locations of the sensitive receptors selected are shown in Figures 6.2.2, 6.2.3 and 6.2.4 of Appendix A.
- 3.5 The generalised assessment predicts the change in exposure due to the movement of traffic from the City Centre to the Link Road.

- 3.6 The generalised assessment requires the counting of properties within 200 metres of all affected roads in the road network. These properties are grouped into four bands: 0-50 metres from roadside; 50-100 metres from roadside; 100-150 metres from roadside; and 150-200 metres from roadside.
- 3.7 The concentrations of NO₂ and PM₁₀ are then predicted within each band for each road for both the Do-Minimum and Do-Something scenarios. The change in concentration is then multiplied by the property count to give a measure of the change of exposure for that band. The results from all four bands are summed together to get an overall change in exposure for each road.
- 3.8 The overall change of exposure for the scheme is determined by summing the exposure scores for all the roads together.
- 3.9 The regional assessment predicts the total emissions from the road network. The emissions of five pollutants are predicted by the DMRB: CO, Total Hydrocarbons (THC), NO_x, PM₁₀ and carbon dioxide (CO₂).
- 3.10 These emissions were made for a base scenario (2001) and two future years: the proposed opening year (2010) and the design year (2025). The predictions for the future years were made for both the Do-Minimum and Do-Something scenarios.

4. AIR QUALITY IMPACT

- 4.1 The impact on air quality from the proposed road scheme is described in Appendix D.
- 4.2 Pollutant concentrations at the six sensitive receptors (see Figure 6.2.4 in Appendix A) in the Lancaster City Centre AQMA were predicted to decrease.
- 4.3 Pollutant concentrations at the eighteen sensitive receptors (see Figure 6.2.2 in Appendix A) by the proposed Link were predicted to increase at twelve and decrease at six.
- 4.4 Pollutant concentrations at the fourteen sensitive receptors (see Figure 6.2.3 in Appendix A) in the wider road network were predicted to increase at four and decrease at ten.
- 4.5 The generalised assessment, shown in Appendix D, predicted that, throughout the network, local air quality would be improved at 17,756 properties and be made worse at 3,545 properties.
- 4.6 No exceedences of the UK air quality standards were predicted at any of the sensitive receptors selected with or without the proposed Link. This is shown in Appendix D.
- 4.7 The regional assessment, shown in Appendix D, concludes that for the pollutants assessed, total emissions with the proposed Link would increase by between 2% and 6% in the 2010 scenario.

4.8 In the Lancaster City Centre Air Quality Management Area, total emissions with the proposed Link were predicted to decrease by between 21% and 23% in the 2010 scenario. This is shown in Appendix D.

5. CONCLUSION

- 5.1 The generalised assessment indicates that the overall impact on air quality would be beneficial.
- 5.2 The main adverse impacts would be along the proposed Link road in particular in Torrisholme. However, no exceedences of the UK standards were predicted in the proposed opening year and, with one exception, the Do-Something predicted concentrations of NO₂ and PM₁₀ would be lower than those in the base year.
- 5.3 The main beneficial impacts were in the Lancaster City Centre Air Quality Management Area and, in general, the wider network. Beneficial impacts were also predicted in Carnforth, where an Air Quality Management Area is proposed.
- 5.4 The regional assessment indicates that there would be a minor adverse impact on the emissions of regional pollutants. This impact was due to additional traffic using the proposed scheme and an increase number of vehicle/kilometres travelled. However, a significant beneficial impact in total emissions was predicted within the Lancaster City Centre Air Quality Management Area.
- 5.5 In my opinion, the large number of properties where improvements in local air quality were predicted to occur and the reductions in pollutant concentrations and emissions within the Lancaster City Centre Air Quality Management Area, indicates that the overall impact of the proposed scheme would be beneficial.