

**High Speed Rail: Consultation on the route from the
West Midlands to Manchester, Leeds and beyond**

Sustainability Statement

Appendix E12 – Air Quality

A report by Temple-ERM for HS2 Ltd



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1. INTRODUCTION

- 1.1.1. This report has been prepared to support the HS2 Phase Two proposed scheme for Consultation Sustainability Statement (the Sustainability Statement, Volume 1), a report which describes the extent to which the Government's proposed scheme for HS2 supports objectives for sustainable development. This document is a technical appendix which summarises the method for the Air Quality appraisal, informing the Sustainability Statement main report. The Sustainability Statement places emphasis on the key impacts only. This technical report summarises all the conclusions relating to the Air Quality appraisal.
- 1.1.2. Appendix B provides an explanation of the methodology used for the full Appraisal of Sustainability (AoS) and the rationale behind it.

2. METHODOLOGY

2.1. Scope and method

- 2.1.1. Changes in air quality might occur locally as a result of the proposed scheme. During construction, on-site construction activities such as demolition, construction and construction vehicle movements could give rise to dust and PM₁₀. Changes in road traffic, from construction vehicle movements or local diversions, could lead to changes in pollution levels. During operation, changes in road traffic could also lead to changes in pollution levels. Areas near the route that currently have high pollution levels have been identified, along with elements of the proposed route with the potential to generate air quality effects.
- 2.1.2. No information on traffic generation is available at this stage. However, the AoS has reviewed relevant data sources and identified areas where air quality is poor and considered where air quality effects would be most likely.
- 2.1.3. Pollutants considered are nitrogen dioxide (NO₂), PM₁₀ and PM_{2.5}. These are the pollutants for which national air quality objectives or EU limit values are most likely to be breached.
- 2.1.4. As noted above, no information is available on the potential levels of traffic generated in connections with the proposed scheme. However, a number of locations near the route are known currently to have poor air quality. There are a number of air quality management areas (AQMAs) in the vicinity of the proposed route that local authorities have designated as exceeding, or at risk of exceeding, national air quality objectives or EU limit values. Local authorities have developed action plans in pursuit of achieving national air quality objectives in these areas. Any road traffic generated at these locations as a result of HS2 could exacerbate air pollution.
- 2.1.5. There is also the potential for scheme-wide changes as a result of any modal shift brought about by HS2, with passengers transferring from road to rail.
- 2.1.6. More detailed assessments of air quality would be undertaken during the Environmental Impact Assessment (EIA).

3. FINDINGS

3.1. Western leg

- 3.1.1. In general, most of the areas along the proposed route are in compliance with national air quality objectives and European limit values. According to Defra's modelled background map data, background levels of NO₂, PM₁₀ and PM_{2.5} are within UK air quality objective

levels along the length of the proposed route and are set to decrease in future years.

- 3.1.2. Some areas near the proposed route, predominantly in the vicinity of busy roads, do currently exceed air quality objective levels, particularly for NO₂. AQMAs within 1km of the route (south to north) are:
- Cheshire East;
 - Warrington; and
 - Greater Manchester.
- 3.1.3. Proposed stations and depots overlapping AQMAs are Manchester Airport High Speed Station, Manchester Piccadilly Station and Golborne depot. Changes in traffic at these locations, either during construction or operation, might lead to changes in pollution levels. There is the potential for dust effects during construction in built-up areas, particularly at larger sites such as Manchester Airport High Speed Station, Manchester Piccadilly Station and Golborne depot. Best practice in the control of dust would be addressed by a code of construction practice. The proposed Crewe depot is not within an AQMA and does not have high densities of residential properties nearby, so is unlikely to generate traffic or dust air quality effects nearby.

Table 3.1 - Western leg AQMA analysis

Site	Proximity to Route	Feature	Analysis
Manchester Airport High Speed Station	Extensive construction near to an airport, within an AQMA	Construction site	Potential for adverse dust effects during construction and adverse effects from road vehicle emissions during operation.
Manchester Piccadilly Station	Extensive construction in an area with high density of residential properties, within an AQMA	Construction site	Potential for adverse dust effects during construction and adverse effects from road vehicle emissions during operation.
Golborne Depot	Construction site which overlaps part of AQMA	Construction site	Potential for adverse dust effects during construction and adverse effects from road vehicle emissions during operation.

3.2. Eastern leg

- 3.2.1. In general, most of the areas along the proposed route are in compliance with national air quality objectives and European limit values. According to Defra’s modelled background map data, background levels of NO₂, PM₁₀ and PM_{2.5} are within UK air quality objective levels along the length of the proposed route and are set to decrease in future years.
- 3.2.2. Some areas near the proposed route, predominantly in the vicinity of busy roads, do currently exceed air quality objective levels, particularly for NO₂. AQMAs within 1km of the route include (south to north):
- the administrative area of the City of Birmingham;
 - a site parallel to the M1 in the vicinity of East Midlands Airport, North West Leicestershire;
 - three sites close to the M1 in Trowell;
 - a site next to the M1 and B600 junction in Trowell;

- a site near to the junction of the M1 and A38;
 - the eastern part of Sheffield;
 - two sites to the east of the M1 between Barber Wood Road and Meadowbank Road, between Sheffield and Rotherham; and
 - Areas along the A655, A638 and M62 near Wakefield.
- 3.2.3. The station that is proposed at Sheffield Meadowhall is located within the AQMA between Rotherham and Sheffield, and the Sheffield City AQMA is also adjacent to the site. The East Midlands Hub Station is within 1km of an AQMA in Trowell on the northern outskirts of Stapleford.
- 3.2.4. There is the potential for dust effects during construction in built-up areas, particularly at larger sites such as the East Midlands Hub and Sheffield Meadowhall. Best practice in the control of dust would be incorporated into a code of construction practice that would be in place for the route. There is also the potential for dust effects from construction and construction traffic at a number of SSSIs. These effects at SSSIs are likely to be negligible in most cases based on past experience of assessing construction dust effects at SSSIs.
- 3.2.5. Leeds New Lane Station, Staveley depot and New Crofton depot are not within AQMAs and do not have high densities of residential properties nearby, so are unlikely to generate traffic or dust air quality effects nearby.

Table 3.2 - Eastern leg AQMA analysis

Site	Proximity to Route	Feature	Analysis
East Midlands Hub	Extensive construction in an area with high density of residential properties	Construction site	Potential for adverse dust effects during construction and adverse effects from road vehicle emissions during operation.
Sheffield Meadowhall	Extensive construction in an area with high density of residential properties, within an AQMA	Construction site	Potential for adverse dust effects during construction and adverse effects from road vehicle emissions during operation.