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Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

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The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order
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CONTENTS

1. INTRODUCTION.....	2
2. RELEVANT LEGISLATION, POLICY AND GUIDANCE.....	3
2.1 Legislation.....	3
2.2 Air Quality Legislation	4
2.3 National Policy	8
2.4 Rail Specific Policy.....	10
2.5 Local Policy.....	11
2.6 Guidance.....	16
3. ASSESSMENT METHODOLOGY	17
3.1 Baseline Conditions	17
3.2 Construction Phase.....	17
3.3 Operational Phase	19
4. APPRAISAL OF IMPACTS AND EFFECTS.....	21
4.1 Baseline	21
5. IDENTIFICATION OF IMPACTS AND EFFECTS.....	27
5.1 Construction Phase.....	27
5.2 Operational Impacts.....	33
5.3 Cumulative impacts.....	34
6. MITIGATION AND CONSIDERATION OF CONTROL MEASURES.....	35
6.1 Construction Dust	35
6.2 Construction traffic	38
6.3 Operation	38
7. SUMMARY.....	39

1. INTRODUCTION

- 1.1.1 An air quality appraisal has been undertaken for the proposed Stalybridge to Diggle (Saddleworth) Enhancements Order ('the Order Scheme') as part of the Transpennine Route Upgrade (TRU) between Stalybridge and the western portal of Standedge Tunnel in Diggle.
- 1.1.2 The TRU programme involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), removal, remodelling, and replacement of bridges and structures to accommodate OLE, track and signalling upgrades, and structural strengthening works. Refer to Volume 1, Chapter 1, Table 1-1 of this Report [NR14] for a summary of works included in the Order Scheme.
- 1.1.3 This report presents the appraisal of the potential construction and operational air quality effects associated with the Order Scheme. The Order Scheme passes through the local authority areas of Tameside Metropolitan Borough Council (TMBC) and Oldham Metropolitan Borough Council (OMBC). TMBC and OMBC are included within the Greater Manchester Combined Authority (GMCA).
- 1.1.4 The construction period for the Order Scheme is estimated at approximately 5 years, from mid-2027– 2032. During construction, dust and particulate matter may be generated by dust-raising activities. In addition, there may be changes in emissions from traffic due to the addition of construction traffic using local roads. The key air pollutants that are addressed in this assessment are nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}), as these pollutants are the most likely to be present at concentrations close to air quality criteria in the UK. During operation, there will be a reduction in locomotive emissions as a result of electrification of passenger services replacing the diesel engines.
- 1.1.5 This report includes a review of existing air quality conditions, describes the methodology used to appraise the impact of the Order Scheme on air quality during its construction and operation, presents commentary on identified potential effects, makes recommendations for mitigation and draws conclusions regarding the likely significance of residual impacts.

2. RELEVANT LEGISLATION, POLICY AND GUIDANCE

2.1 Legislation

Air Pollutants

Nitrogen Dioxide

- 2.1.1 Nitrogen dioxide is generally produced by the oxidation of nitric oxide (NO) in ambient air (i.e. it is not formed directly and as such is known as a secondary pollutant). NO and NO₂ are collectively termed oxides of nitrogen (NO_x). Approximately 30 percent of UK NO_x emissions are from road transport¹, with a further 20% of contributions coming from other transport. Rail contributed to only 3% of the total UK NO_x transport emissions in 2022². The majority of NO_x emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O₃) to form NO₂. In high concentrations NO₂ can affect the respiratory system, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air.

Particulate Matter

- 2.1.2 Particulate matter in vehicle exhaust gases consists of carbon nuclei onto which a wide range of compounds are absorbed. These particles have an effective aerodynamic diameter of less than 10 micrometres (µm). Particles in this size range are referred to as PM₁₀. Diesel engines produce the majority of particulate emissions from the vehicle fleet. Approximately 16 percent of PM₁₀ emissions in the UK are derived from road transport³, with rail contributing to only 2% of the total UK transport emissions in 2022². Particulate matter appears to be associated with a range of symptoms of ill health including effects on the respiratory and cardiovascular systems, on asthma and on mortality. Exposure to a finer fraction of particles (PM_{2.5}), which typically make up around two thirds of PM₁₀ emissions and

¹ National Atmospheric Emissions Inventory (NAEI) 'About Nitrogen Oxides' Available at: <https://naei.energysecurity.gov.uk/air-pollutants/nitrogen-oxides>

² Department for Transport (2023) Energy and environment data tables. Table ENV0301 (pollutant, emissions and noise). <https://www.gov.uk/government/statistical-data-sets/energy-and-environment-data-tables-env#pollutants-emissions-and-noise-env03>

³ NAEI 'About PM₁₀ (Particulate Matter < 10µm)' Available at: <https://naei.energysecurity.gov.uk/air-pollutants/PM10>

concentrations) give a stronger association with the observed ill health effects⁴.

Dust

- 2.1.3 Dust is defined within the Institute of Air Quality Management (IAQM)'s "Guidance on the assessment of dust from demolition and construction" (IAQM Construction Dust Guidance)⁵ as solid particles that are suspended in air or that have settled out onto a surface after having been suspended in air. It includes particles that give rise to soiling (deposited dust) and to human health and ecological effects.
- 2.1.4 The IAQM Construction Dust Guidance states that there is evidence that, without effective mitigation, major construction sites can lead to an increase in annual mean PM10 concentrations and the number of exceedances of the short term 24-hour objective for PM10. In addition, construction activities have the potential to cause higher than normal levels of dust deposition in the surrounding area. Dust emissions from a construction site may be mechanically generated due to land preparation (e.g. demolition, land clearing and earth moving) or released from site plant and from the movement of road vehicles on temporary roads, open ground and haul routes.

2.2 Air Quality Legislation

UK Legislation

- 2.2.1 Air quality legislation that applies in England includes the following:
- The EU (Withdrawal Agreement) Act 2020 which implements statutory air quality limit values;
 - Regulations implementing national air quality objectives: Air Quality (England) Regulations 2000 (SI 2000 No. 928) and Air Quality (England) (Amendment) Regulations 2002 (SI 2002 No. 3043)^{6 7}; and

⁴ Committee on the Medical Effects of Air Pollutants (COMEAP) (2010). The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. [pdf] Didcot: Health Protection Agency. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/304641/COMEAP_mortality_effects_of_long_term_exposure.pdf

⁵ Institute of Air Quality Management (IAQM) (2024). Guidance on the assessment of dust from demolition and construction. <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

⁶ The Air Quality (England) Regulations 2000. Available at: <http://www.legislation.gov.uk/uksi/2000/928/contents/made>

⁷ The Air Quality (England) (Amendment) Regulations 2002. Available at: <http://www.legislation.gov.uk/uksi/2002/3043/contents/made>

- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No. 96)⁸.

European Union (EU) Limit Values

- 2.2.2 The EU (Withdrawal Agreement) Act 2020 implements the air quality limit values that are included in the EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC) and were previously included in air quality regulations⁹ (Statutory Instrument (SI) 2010 No. 1001) and as amended (SI 2016 No. 1184). The relevant limit values in the context of this assessment for the protection of human health for NO₂ and fine particulate matter are presented in Table 1-1.
- 2.2.3 The UK Government's air quality plan for nitrogen dioxide in the UK¹⁰ sets out how local authorities should contribute to the achievement of air quality criteria through targeted feasibility studies¹¹, including clean air zones (CAZ) where appropriate.

National Air Quality Strategy

- 2.2.4 Air quality objectives were originally included in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland¹², published in 2007. In England this has been replaced by The Air Quality Strategy (AQS): Framework for local authority delivery¹³. This strategy sets out the national air quality objectives and targets for local air pollutants and provides a strategic framework for local authorities and other partners in England.
- 2.2.5 Air quality objectives were set by expert organisations with regard to scientific and medical evidence on the effects of the particular pollutant on health, and define the level of pollution below which health effects are expected to be minimal or low risk even for the most sensitive members of the population. These criteria establish air pollutant concentrations to be achieved by a specified timescale, which take account of the costs and

⁸ Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. Available at <https://www.legislation.gov.uk/uksi/2023/96/contents/made>

⁹ The Air Quality Standards Regulations 2010. Available at <http://www.legislation.gov.uk/uksi/2010/1001/contents/made>

¹⁰ Defra, UK plan for tackling roadside nitrogen dioxide concentrations, July 2017, Available at: <https://uk-air.defra.gov.uk/library/no2ten/index>

¹¹ Uk-air.defra.gov.uk. Supplement to the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations: Local Authorities Feasibility Studies - Defra, UK. [online] Available at: <https://uk-air.defra.gov.uk/library/no2ten/2018-la-tfs-documents>

¹² Department for Environment, Food and Rural Affairs (Defra), 2007. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. <http://archive.Defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol1.pdf>

¹³ DEFRA (2023), The Air Quality Strategy for England: Framework for Local Authority Delivery. Available at: <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england>

benefits of achieving the standard, either without exception or, for certain short term averaging period standards, with a permitted number of exceedances.

- 2.2.6 It should be noted that the UK AQS objectives only apply in locations likely to have ‘relevant exposure’ i.e. where members of the public are exposed for periods equal to or exceeding the averaging periods set for the standards. For this assessment, locations of relevant exposure include building façades of residential premises, schools, public buildings and medical facilities; places of work (other than certain community facilities) are excluded.
- 2.2.7 In 2019, the UK Government published its Clean Air Strategy¹⁴, which set out actions proposed by the Government to improve air quality by reducing pollution from a wide range of sources and including requiring new targets for PM_{2.5}. Targets have now been set in legislation⁸, as required by the Environment Act 2021¹⁵. Interim targets have also been introduced in Defra’s Environmental Improvement Plan 2023¹⁶ to be achieved by the end of January 2028.

Local Air Quality Management.

- 2.2.8 Under Part IV of the Environment Act 1995, and as updated by the Environment Act 2021, all local authorities are responsible for Local Air Quality Management (LAQM), the mechanism by which the Government’s AQS objectives are to be achieved. As part of this LAQM role, local authorities are required to periodically review air quality in their area and to assess present and likely future air quality against the objectives defined in Regulations. Where a local authority anticipates an objective is expected to be breached within their area, they must designate an Air Quality Management Area (AQMA) and develop an action plan to improve pollution levels and work towards achieving the AQS objectives. Under the current LAQM regime, a local authority is responsible for regular review and assessment of local air quality, reports on which are published following public consultation and review by the Department for Environment, Food and Rural Affairs (Defra).
- 2.2.9 Statutory responsibility for achieving air quality limit values rests with the Government and local authorities have no responsibility for achieving the

¹⁴ Defra, 2019. Clean Air Strategy 2019. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf.

¹⁵ Environment Act 2021. Available from: www.legislation.gov.uk/ukpga/2021/30/contents/enacted

¹⁶ Defra, 2023. Environmental Improvement Plan 2023. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf

national air quality criteria, although they should contribute to this through local action plans designed to reduce pollution levels in AQMAs, and through the targeted feasibility studies¹¹, including clean air zones where appropriate, to supplement the government's air quality plan for nitrogen dioxide in the UK¹⁰.

- 2.2.10 The relevant statutory air quality criteria for the protection of human health are outlined in Table 1-1.

Table 1-1 – Statutory Air Quality Criteria

Pollutant	Objective
NO ₂	Hourly mean concentration should not exceed 200 µg/m ³ more than 18 times a year. Annual mean concentration should not exceed 40 µg/m ³ .
PM ₁₀	24-hour mean concentration should not exceed 50 µg/m ³ more than 35 times a year. Annual mean concentration should not exceed 40 µg/m ³ .
PM _{2.5}	UK (Except Scotland) annual mean concentration should not exceed 20 µg/m ³ by 2020. Annual mean concentration target across England should not exceed 10 µg/m ³ by 2040, with an interim target of 12 µg/m ³ by January 2028. Population exposure reduction target (England): reduction of at least 35% compared to a base year of 2018, with an interim target to reduce by 22% by the end of January 2028.

Dust

- 2.2.11 There are no national standards or guidelines for dust deposition currently set in the UK, nor by any international organisations. This is due mainly to the difficulty that any standard set would need to relate to dust being a perceptual problem rather than being specifically related to health effects. Typically, there is a 'likelihood of complaint' in residential areas when measured dust levels (as measured using a passive deposit gauge) are

200 mg/m²/day or greater. This threshold is recommended as a level for action by IAQM¹⁷.

2.3 National Policy

National Planning Policy Framework

2.3.1 The Government's planning guidance of general relevance to air quality is found within the National Planning Policy Framework (NPPF)¹⁸. It provides guidance for local authorities on incorporating air quality considerations into planning decisions and aims to protect the environment and to promote sustainable growth.

2.3.2 Paragraph 110 states that growth and development should be focused on locations which can be made sustainable, as this can help reduce congestion and emissions, and improve air quality and public health.

2.3.3 Paragraph 199 considers impacts on local air quality:

“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

Planning Practice Guidance

2.3.4 Planning Practice Guidance (PPG) for air quality¹⁹ is intended to support the NPPF and provide further detail on its policies. Paragraph 005 of this guidance provides information relating to air quality that could be important

¹⁷ IAQM Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites, https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

¹⁸ Department for Levelling Up, Housing & Communities, National Planning Policy Framework (NPPF), December 2024, minor update in February 2025. Available at <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹⁹ National Planning Portal, available at <http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>

to decision makers, and when there are concerns about air quality, the local planning authority may want to know about:

- “the ‘baseline’ local air quality, including what would happen to air quality in the absence of the development;
- whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and
- whether occupiers or users of the development could experience poor living conditions or health due to poor air quality.”

2.3.5 Paragraph 005 of this guidance also advocates early engagement with the local planning and environmental health departments to establish the scope of any assessment. Guidance is also given on the level of detail required in an air quality assessment, and measures which could be employed to mitigate adverse effects.

2.4 Rail Specific Policy

Department for Transport

2.4.1 The Department for Transport's (DfT) Rail Environment Policy Statement²⁰ aims to:

“achieve a cleaner, greener railway that is fit for the future”.

2.4.2 The policy statement includes the following priorities in relation to air quality:

- set targets for levels of PM_{2.5}, PM₁₀ and NO₂ for all parts of the network that the public can access in 2022, with the ambition of meeting these targets by the end of 2030.
- the rail industry will be required to produce air quality improvement plans for stations identified as having poor air quality.
- remove all diesel-only trains from the network by 2040
- 100% of Network Rail's cars and vans will be zero emission vehicles by 2027

2.4.3 In addition, the recent Government's Transport Decarbonisation Plan²¹ includes as a strategic priority the need to:

- *“accelerate modal shift to public and active transport”*
with a commitment to:
- *“improve rail journey connectivity with walking, cycling and other modes of transport”*

²⁰ DfT (2021) Rail Environment Policy Statement on Track for a Cleaner, Greener Railway. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002166/rail-environment-policy-statement.pdf

²¹ DfT (2021) Decarbonising Transport. A Better, Greener Britain. Available at: <https://www.gov.uk/government/publications/transport-decarbonisation-plan>

- 2.4.4 Furthermore, the Williams-Shapps Plan for Rail²² also includes a commitment to *“accelerate electrification of the rail network”*.

Clean Air Strategy

- 2.4.5 The Department for Environment, Food and Rural Affairs (Defra)’s Clean Air Strategy¹ has also identified actions to reduce emissions from transport, including to:

“reduce emissions from rail and reduce passenger and worker exposure to air pollution.”

Network Rail

- 2.4.6 Network Rail has set up its own decarbonisation strategy²³, which aims to:

“set science based targets to the most ambitious target of limiting emissions from our own operations to a 1.5°C warming scenario.” By limiting emissions within their direct control as well as optimising both its upstream and downstream emissions.

Rail Safety & Standards Board

- 2.4.7 The Rail Safety & Standards Board (RSSB)’s Air Quality Strategy Framework²⁴ has a vision to achieve ‘A rail network with a positive impact on local air quality’. The Strategy covers all pollutant emissions resulting from the GB rail industry which have proven to impact human health.

2.5 Local Policy

- 2.5.1 Both OMBC and TMBC have declared a climate emergency and are committed to taking significant actions to reduce carbon emissions and enhance climate resilience. Following the declaration, a climate change strategy was produced by Tameside to outline the actions needed to reach this target. One of the eight ‘Themes for action’ within the strategy is ‘Transport – carbon busting options for all’. Similarly, one of Oldham’s Green New Deal objectives is ‘Help deliver the GM2040 Transport Strategy

²² DfT (2021) Great British Railways: The Williams-Shapps Plan for Rail Available at: www.gov.uk/government/publications/great-british-railways-williams-shapps-plan-for-rail.

²³ Network Rail (2022) Traction Decarbonisation Network Strategy – Executive Summary: <https://www.networkrail.co.uk/sustainability/a-low-emission-railway/>

²⁴ GB Rail Industry supported by RSSB (May 2022 update) Air Quality Strategic Framework available at: <https://www.rssb.co.uk/sustainability/clean-air/air-quality-strategic-framework>

Right Mix target for 50% of all journeys in Greater Manchester to be made by walking, cycling and public transport by 2040”.

Tameside Unitary Development Plan

2.5.2 Policy MW14²⁵ Air Quality stipulates that:

“When developments are proposed which could have a significant impact on local air quality, the Council will consider the extent to which the development may affect the target levels in any Air Quality Management Areas which are declared or the requirements of related action plans, and weigh this against other material considerations before granting planning permission.

When developments are proposed within areas where air quality is likely to exceed the objectives set in the National Air Quality Strategy, the Council will consider the extent to which occupiers could be exposed to health risks from levels of air pollution in excess of national targets, taking into account the effect of action plans introduced to reduce such exceedances, and will weigh this against other material planning considerations before granting planning permission.”

Oldham Metropolitan Borough Council Local Development Framework Air Quality and Development Supplementary Planning Document²⁶

2.5.3 The SPD supports the implementation of Policy 9 and provides guidance on air quality in planning decisions. Key requirements include:

2.5.4 Air quality assessments (AQAs) are required where a “significant increase in air pollution emissions is expected to or anticipated to arise from the potential development”.

2.5.5 The Council “will require air quality assessments to be submitted alongside planning applications where a development is likely to result in unacceptable levels of pollutants” and the Council “will require mitigating measures, or secure changes to the proposal that will make it acceptable, before granting planning permission”

2.5.6 Air quality assessments must include:

- “An assessment of the current air pollution levels in the area and predict the changes in pollution that would occur if the development goes ahead

²⁵ Tameside Metropolitan Borough Council, The Tameside UDP, November 2004, Available at: <https://tameside.gov.uk/udp>

²⁶ Oldham MBC adopted this former SPD in 2007. The parent policies cited therein have been superseded, but the council has retained the document for information as it provides useful guidance.

- assessment of air quality impacts during the construction phase
- assessment of any measures proposed to mitigate, compensate or offset air quality impacts.”

2.5.7 Developments normally requiring an AQA include those that:

- “will result in increased congestion, a change in either traffic volumes (e.g. 5% AADT or peak) or a change in vehicle speed (± 10 kph), or both, on a road with greater than 10,000 vehicles per day (vpd)
- include new car parking spaces (>80 spaces)
- lie within an area of poorer air quality such as an AQMA.”

2.5.8 Mitigation may include “restrictions on the number of available parking spaces, agreements to restrict delivery vehicles to meet certain specified emissions standards, and design of buildings to reduce energy consumption.

Greater Manchester Places for Everyone Development Plan

2.5.9 Policy JP-S5²⁷: Clean Air states that “a comprehensive range of measures will be taken to support improvements in air quality [...] including:

1. *Locating and designing development, and focusing on transport investment, so as to reduce reliance on forms of transport that generate air pollution;*
2. *Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;*
3. *Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;*
[...]

²⁷ Greater Manchester Combined Authority, Places for Everyone Joint Development Plan, March 2024. Available at: [Places for Everyone Joint Development Plan Document \(greatermanchester-ca.gov.uk\)](https://greatermanchester-ca.gov.uk/places-for-everyone-joint-development-plan-document)

5. *Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;*

6. *Implementing the Clean Air Plan and associated measures; [...] .”*

2.5.10 These policies are further supported by:

- Greater Manchester’s Five Year Environment Plan²⁸; Action 11, support the transition to electric mobility, through the electrification of the rail fleet; and
- Greater Manchester’s Clean Air Plan²⁹, an investment led route to reduce pollution without the need for a Clean Air Zone or road user charging.

Oldham Council Joint Core Strategy and Development Management Policies Development Plan Document

2.5.11 Policy 9³⁰ Local Environment stipulates that the council will protect and improve local environmental quality and amenity by ensuring development:

“ii. does not have an unacceptable impact on the environment or human health caused by air quality, odour, noise, vibration or light pollution [...]

v. does not result in unacceptable level of pollutants or exposure of people in the locality or the wider area. Developments identified in the Air Quality Action Plan will require an air quality assessment.”

²⁸ Greater Manchester Five-Year Environment Plan 2025 – 2030 https://www.greatermanchester-ca.gov.uk/media/alnIOfsy/gmca_5-year-plan_final_digital_v3-ua.pdf

²⁹ Greater Manchester Clean Air Plan: <https://cleanairgm.com/clean-air-plan>

³² Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025. Available at: <https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/>

Oldham Metropolitan Borough Council Local Development Framework Air
Quality and Development Supplementary Planning Document³¹

- 2.5.12 The SPD supports the implementation of Policy 9 and provides guidance on air quality in planning decisions. Key requirements include:
- 2.5.13 Air quality assessments (AQAs) are required where a “significant increase in air pollution emissions is expected to or anticipated to arise from the potential development”.
- 2.5.14 The Council “will require air quality assessments to be submitted alongside planning applications where a development is likely to result in unacceptable levels of pollutants” and the Council “will require mitigating measures, or secure changes to the proposal that will make it acceptable, before granting planning permission”
- 2.5.15 Air quality assessments must include:
- “An assessment of the current air pollution levels in the area and predict the changes in pollution that would occur if the development goes ahead
 - assessment of air quality impacts during the construction phase
 - assessment of any measures proposed to mitigate, compensate or offset air quality impacts.”
- 2.5.16 Developments normally requiring an AQA include those that:
- “will result in increased congestion, a change in either traffic volumes (e.g. 5% AADT or peak) or a change in vehicle speed (± 10 kph), or both, on a road with greater than 10,000 vehicles per day (vpd)
 - include new car parking spaces (>80 spaces)
 - lie within an area of poorer air quality such as an AQMA.”
- 2.5.17 Mitigation may include “restrictions on the number of available parking spaces, agreements to restrict delivery vehicles to meet certain specified

³² Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025.
Available at: <https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/>

emissions standards, and design of buildings to reduce energy consumption.

2.6 Guidance

LAQM Technical Guidance

- 2.6.1 Guidance concerning local air quality management and assessment is given in Defra's technical guidance LAQM.TG(22)³²; the guidance provides relevant methods concerning treatment and interpretation of data for local authorities in relation to the LAQM regime but is frequently applied when undertaking assessments for planning applications.

Development Control

- 2.6.2 The EPUK/Institute of Air Quality Management (IAQM) 'Land-use Planning and Development Control: Planning for Air Quality' (2017)³³ guidance (IAQM Planning Guidance) sets out to ensure that air quality is adequately considered in land-use planning and development control processes. It comprises an initial screening stage to determine the need for an air quality assessment. If an assessment is required, a number of more stringent criteria are provided to help establish the need for further work, which may be either qualitative or quantitative, simple or detailed. It also provides a framework for describing the magnitude of changes in local air pollutant concentrations at individual receptors and gives advice on how overall significance may be assessed.

Construction Dust

- 2.6.3 The IAQM Construction Dust Guidance⁵ provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction land development schemes and outlines options for mitigation depending on the level of 'dust risk' identified for a site through the assessment process.

³² Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025. Available at: <https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/>

³³ Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality. Available online: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

3. ASSESSMENT METHODOLOGY

3.1 Baseline Conditions

3.1.1 Information on existing air quality conditions and constraints in proximity to the Order Scheme was obtained from the following sources:

- Greater Manchester Combined Authorities (GMCA) air quality annual status report (ASR) 2023³⁴;
- Air quality background concentrations and Pollution Climate Mapping (PCM) modelling data from DEFRA's Air Information Resource (UK-AIR)³⁵; and,
- Ordnance Survey (OS) mapping (OpenStreetMap), and the Natural England Multi-Agency Geographic Information for the Countryside (MAGIC) website³⁶ to identify residential properties, designated ecological sites and other sensitive receptors in the vicinity of the Order Scheme.

3.2 Construction Phase

Construction Dust Risk Assessment

3.2.1 The IAQM Construction Dust Guidance⁵ provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction. The assessment of dust emissions during the construction of the Order Scheme is considered in the context of the overall scale and nature of the development under consideration and the potential sensitivity of neighbouring land uses. The quantity and distribution of dust emissions varies according to type, duration and location of activity, weather conditions and the effectiveness of suppression (mitigation) measures. Good practice control measures that are “highly recommended” or “desirable” for dust control for various dust risks categories are recommended.

3.2.2 It is anticipated that any potential air quality impacts associated with the majority of the relevant works elements during construction of the Order Scheme will be highly localised and temporary in nature. Such activities will be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix

³⁴ 2023 Air Quality Annual Status Report (ASR), GMCA, 2024. Available at: <https://cleanairgm.com/data-hub/monitoring-reports/>

³⁵ Uk-air.defra.gov.uk. Home - Defra, UK. [online] Available at: <https://uk-air.defra.gov.uk/>.

³⁶ Magic.defra.gov.uk. Magic Map Application. [online] Available at: <https://magic.defra.gov.uk/MagicMap.aspx>

1A of this Report [NR14]). Further, more specific details of mitigation measures will be detailed in Part B of the CoCP (to be secured via condition in the 'Request for deemed planning permission and statement of proposed conditions' [NR11]. Part B of the CoCP shall include requirements for preparation of a Pollution Prevention Incident Control Plan (PPICP) and a Nuisance Management Plan (NMP), both of which will need to be submitted to and approved by the relevant local planning authority. Therefore, the specific appraisal of potential air quality effects of most construction activities will be undertaken prior to construction phase.

- 3.2.3 The Order Scheme includes construction of a new station at Mossley, located ~400 m north of the existing station which is to be demolished. Construction of a new station is a larger undertaking than many other relevant works included in the Order Scheme, such as OLE upgrades. As such, potential air quality impacts due to construction of the new station have been appraised in accordance with the four-step process described in the IAQM Construction Dust Guidance. These steps are summarised in Annex A of this report.

Construction Vehicle Emissions

- 3.2.4 The IAQM Planning Guidance³⁷ advises that an air quality assessment should be undertaken where development causes a change in traffic flows on local roads with relevant receptors of:
- more than 25 Heavy Duty Vehicles (HDV) per day (Annual Average Daily Traffic, AADT) within or adjacent to an AQMA, or by more than 100 HDVs (AADT) elsewhere;
 - more than 100 Light Duty vehicles (LDV) (AADT) within or adjacent to an AQMA, or by more than 500 LDVs (AADT) elsewhere.
- 3.2.5 The information on the number of construction vehicle movements associated with the Order Scheme has been provided in Volume 1, Chapter 10 and Volume 3, Appendix 10A of this Report [NR14]. and screened against the above criteria. Where the screening criteria were exceeded, pollutant concentrations have been modelled at representative receptors for scenarios without and with Scheme construction traffic. The modelling results were then considered in the context of IAQM impact descriptors, presented in Table 3-1 below.

³⁷ Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality.
Available online: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

Table 3-1 - Impact descriptors for individual receptors

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL [^])			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial
[^] AQAL: this may be an air quality objective, EU limit or target value. In the case of this assessment the AQAL is the annual mean AQS objective for NO ₂ and PM ₁₀ , both of which are 40 µg/m ³ , and an interim target of 12 µg/m ³ for PM _{2.5} by 2028. See Table 1-1 above.				

3.3 Operational Phase

Building Emissions

- 3.3.1 The specification of the new Mossley station will be finalised at detailed design stage. In the absence of details on potential buildings emissions sources, a qualitative appraisal of potential building emissions has been undertaken, and outline recommendations for mitigation in design have been proposed in section 6.3 below.

Rail Emissions

- 3.3.2 The electrification of the railway will facilitate replacement of diesel trains, this will lead to a reduction in NO_x and particulate matter (PM) emissions from passenger trains during operation. As this has a beneficial effect, no further assessment of passenger train emissions is required.
- 3.3.3 Diesel freight services currently operate on the TransPennine Route and will continue to do so when the electrification upgrades are operational. With reference to LAQM TG22³², paragraph 7.21 requires assessment of emissions from moving diesel locomotives where background NO₂ concentrations are above 25 µg/m³. As described in the baseline data presented in Table 2-1 above, background NO₂ concentrations across the Order Scheme area are below this threshold, and at Mossley station are 10.5 µg/m³. In addition, freight services would not stop at Mossley, so there would be no impacts due to idling diesel engines at sensitive receptors in this location. Furthermore, there are no proposals for

increased use of freight trains, nor the use of sidings for diesel locomotives in operation of the Order Scheme. Therefore, appraisal of emissions from diesel freight has been scoped out of further assessment.

Road traffic emissions

- 3.3.4 Volume 1, Chapter 10 of this Report [NR14] confirms that the operation of the Order Scheme will not result in any additional vehicle trips, reassignment of traffic onto other roads, highway re-alignment of more than 5 m, or the creation of new road junctions. As such, appraisal of operational phase traffic emissions has been scoped out of further assessment.
- 3.3.5 The need for an assessment of operational impacts associated with the new Mossley Station has been determined based on the screening criteria given in the IAQM Planning Guidance³³. The IAQM Planning Guidance screening criteria indicate an air quality assessment is required if the development comprises:
- 10 or more residential units or a site area of more than 0.5 ha; or
 - More than 1,000 m² of floor space for all other uses or a site area greater than 1 ha;
- and either:
- More than 10 parking spaces; or
 - A centralised energy facility or other centralised combustion process.
- 3.3.6 Under the current proposals, there will be an increase of 30 parking spaces at Mossley Station. However, given that the total floor space of the new station building is 107m² and there will be no centralised energy facility, the screening criteria are not met.
- 3.3.7 Furthermore, the 30 additional parking spaces equate to 150 two-way trips per day. This is below the screening criteria outlined in paragraph 3.2.4 above.
- 3.3.8 Thus, a quantitative air quality assessment for the impact of the operation of the new station on local air quality is not required, and the impact can be considered insignificant.

4. APPRAISAL OF IMPACTS AND EFFECTS

4.1 Baseline

Local Air Quality Management

4.1.1 The Order Scheme does not lie within any AQMAs. The nearest AQMA to the Order Scheme is the Tameside AQMA, located at a distance of approximately 360m west of the Order Scheme boundary. Two major approach roads (A106 and A635), which may carry construction or operational traffic for the Order Scheme, do extend into the Tameside AQMA.

4.1.2 Air quality monitoring is undertaken by national and local authorities and is a key component of local air quality management. Measurements of pollutant concentrations include those made by analytical instruments that measure continuously, and passive sampling devices such as diffusion tubes which give longer period average results, typically monthly, to calculate an annual mean concentration.

Continuous Monitoring Data

4.1.3 The nearest continuous monitoring site is located 3.6 km west of the Order Scheme and is not considered to be representative of the study area.

Passive Monitoring Data

4.1.4 Both TMBC and OMBC undertake passive monitoring of NO₂. There are 17 diffusion tube sites located within a 2 km study area around the Order Scheme boundary, as shown in Volume 2, Figure 13.1.1 of this Report [NR14]. All recorded annual mean NO₂ concentrations within the study area were below the AQS objective of 40µg/m³ between 2019 and 2023³⁸ except at TA42 in 2019 where measured concentrations were marginally above AQS objective as shown in Table 4-1 below. The closest diffusion tube to the Order Scheme is a roadside site (OLHSNO), approximately 40m to the

³⁸ Pollutant concentrations measured in 2020 (and to a lesser extent, 2021) may not be representative of real-world conditions due to the effects of national lockdowns in response to the COVID-19 pandemic reducing traffic flows.

northeast on Oldham Road (A670), which had an annual mean NO₂ concentration of 25.4 µg/m³ in 2023.

Table 4-1 Diffusion tube results³⁹

Site ID	Site type	X	Y	2019	2020	2021	2022	2023
OLCVNO	Roadside	399533	404454	19.1	14.5	15.3	15.4	15.8
OLHSNO	Roadside	399589	405511	30.0	22.8	25.2	25.8	25.4
TA25NO	Roadside	396950	402329	28.6	21.9	19.8	21.1	20.7
TA27NO	Roadside	396177	398218	28.7	20.7	22.5	22.1	21.0
TA31NO	Suburban	396899	402449	27.2	15.9	16.1	16.7	15.9
TA32NO	Suburban	396982	402437	25.1	18.5	20.1	19.9	19.6
TA33NO	Roadside	397011	402591	24.2	18.2	19.2	19.9	18.8
TA34NO	Roadside	397060	402581	23.0	18.7	17.9	19.5	19.5
TA35NO	Roadside	397080	402540	36.9	27.7	29.1	30.4	31.3
TA36NO	Suburban	397060	402387	22.0	16.1	17.0	16.5	15.9
TA37NO	Roadside	396728	402073	31.7	26.6	27.7	28.1	26.8
TA42NO	Urban Background	394494	399010	30.1	21.3	24.5	23.5	23.0
TA43NO	Roadside	394204	398933	40.3	31.2	33.2	35.3	33.0
TA59NO	Roadside	395652	399140	19.8	15.0	15.9	15.1	14.1
TA60NO	Roadside	395747	399112	27.8	20.2	21.5	20.2	19.3
TA61NO	Roadside	395682	399171	24.0	18.2	20.3	19.0	18.4
TA62NO	Roadside	395589	399227	23.0	17.1	17.2	18.4	17.7
TA64NO	Kerbside	395787	398769	*-	*-	37.4	36.7	36.7

*Data unavailable

Mapped Background Data

- 4.1.5 Estimates of current and future year background pollutant concentrations in the UK are available on the Defra UK-AIR website³⁵. The background estimates, which are a combination of measured and modelled data, are available for each one-kilometre grid square throughout the UK based for a reference year of 2021 and future year estimates up to 2030. These background estimates include contributions from all source sectors, e.g. road transport, industry and domestic and commercial heating systems.
- 4.1.6 Estimated annual mean background concentrations for 2025 for the one-kilometre grid squares that cover the Order Scheme are presented in Table

³⁹Data for 2019 – 2023 are taken from GMCA 2023 Annual Status Report Available at: <https://cleanairgm.com/monitoring-reports/>

4-2 for the pollutants NO₂, PM₁₀ and PM_{2.5}. The mapped concentrations of these pollutants indicate that background concentrations in the vicinity of the Order Scheme are expected to be well below⁴⁰ relevant AQS objectives.

Table 4-2 – DEFRA Background Concentrations in 2025 and 2029 (µg/m³)

Grid Square		2025			2029		
X	Y	NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
397500	400500	10.1	10.7	6.6	8.6	10.4	6.3
397500	401500	10.3	10.8	6.7	8.8	10.5	6.5
397500	402500	10.5	11.0	6.8	8.9	10.8	6.6
397500	403500	9.7	11.2	6.7	8.3	10.9	6.5
397500	404500	9.2	10.7	6.5	7.9	10.5	6.3
398500	403500	9.0	10.5	6.4	7.7	10.2	6.2
398500	404500	9.5	10.5	6.5	8.1	10.3	6.3
399500	404500	10.1	11.7	7.7	8.8	11.5	7.5
399500	405500	9.1	10.3	6.4	7.8	10.1	6.2
399500	406500	8.9	10.2	6.3	7.6	9.9	6.1
400500	406500	7.7	9.8	6.1	6.7	9.5	5.9
400500	407500	8.8	10.7	7.0	7.7	10.4	6.8
400500	408500	7.8	9.7	6.1	6.7	9.5	5.9
401500	408500	7.3	9.5	5.9	6.4	9.2	5.7
396500	398500	13.2	12.3	7.7	11.4	12.0	7.5
396500	399500	11.5	11.4	7.1	10.0	11.1	6.9
397500	399500	10.4	11.1	6.9	8.9	10.8	6.6

⁴⁰ Well below, i.e. <75% of the AQS objective. Defined in Footnote 6 to Table 6.3 of IAQM / EPUK Land Use Planning Guidance³³

Compliance Limit Values

- 4.1.7 Defra's PCM model⁴¹ is used to demonstrate compliance with air quality limit values and provides projected roadside concentrations of pollutants, for the years 2019 – 2030 inclusive, based on a 2018 reference year.
- 4.1.8 There are 29 links within 1 km of the Order Scheme. None of them have a projected roadside NO₂ concentration over 40µg/m³ in 2025 or later.

Receptors

- 4.1.9 Transport and construction emissions have the potential to affect both human health and sensitive ecological receptors.
- 4.1.10 The Order Scheme is located between the towns of Stalybridge in the south and Standedge to the north, with high sensitivity human health receptors within 250 metres of the Order Scheme boundary predominantly located in the following areas, from east to west:
- Stalybridge;
 - Mossley;
 - Micklehurst;
 - Grasscroft;
 - Uppermill; and,
 - Diggle.
- 4.1.11 The only habitat⁴² identified within 250m of the Order Scheme designated for biological features, is the Huddersfield Narrow Canal SSSI, shown on Figure 13.1.1 in Volume 2 of this Report [NR14].

⁴¹ [Air modelling for Defra - DEFRA UK Air - GOV.UK](#)

⁴² Ladcastle and Den Quarries SSSI, located west of Uppermill, is designated for its geological features and therefore is not a sensitive air quality receptor.

5. IDENTIFICATION OF IMPACTS AND EFFECTS

5.1 Construction Phase

Construction Vehicle Emissions

5.1.1 Construction traffic data is provided in Volume 3, Appendix 10B [NR14]. The construction traffic route network is illustrated in Annex B of this report. The annual average daily traffic (AADT) two-way flows and fleet composition data were provided for a worst case construction year of 2029 comprising baseline traffic flows, then the additional construction traffic flows in two consecutive phases, enabling works and core construction. These scenarios are respectively identified as:

- Construction base year 2029 without the Order Scheme;
- Construction year 2029 with Enabling Works traffic; and
- Construction year 2029 with Core Construction traffic.

5.1.2 The data for enabling works and core construction scenarios are presented in Table 5-1. These volumes of additional traffic have been compared with IAQM screening criteria (paragraph 3.2.4). Construction generated traffic flows exceed the IAQM screening criteria on two links within the identified construction route network, indicated by **bold** text in Table 5-1.

- Link 1, 70 Wakefield Road, located within the Tameside AQMA.
- Link 12, Oldham Road, not located within an AQMA.

5.1.3 A quantitative assessment has therefore been carried out to examine the impact from construction traffic emissions at receptors near the following affected links: Link 1, Wakefield Road; and Link 12, Oldham Road.

Table 5-1 - Two-way trips Generated by Construction of the Order Scheme

Link	Description	Enabling Works		Core Construction	
		LDV Trips	HDV Trips	LDV Trips	HDV Trips
1	Wakefield Road*	183	96	353	98
1.1	Printworks Road	30	9	46	8
2	Wakefield Road	183	78	353	82
2.1	Spring Bank Lane	0	0	0	0
3	A65	199	72	381	81
3.1	Egmont St	68	9	134	8
3.2	Cheshire St	68	9	134	8
4	Manchester Road	224	60	435	62
4.1	Stamford Road	15	0	32	4

Link	Description	Enabling Works		Core Construction	
		LDV Trips	HDV Trips	LDV Trips	HDV Trips
5	Manchester Road	184	39	354	43
6	Manchester Road	183	35	353	38
6.1	Mill Lane	0	0	0	0
7	Manchester Road	183	35	353	38
7.1	Heron Lane	3	2	10	2
8	Well Hole Road	183	35	353	38
9	Church Road/ Armit Road	13	2	37	4
9.1	High Grove Lane	0	0	0	0
10	Oaklands Road	183	33	353	34
11	Shaw Hall Bank Road	13	0	39	1
12	Oldham Road	186	31	721	32
13	A670 (Between Greenfield and Uppermill)	183	13	353	14
14	Huddersfield Road	183	13	353	14
14.1	Dobcross New Road	0	0	0	0
14.2	Ward Lane	0	0	0	0
15	Huddersfield Road	194	19	372	21
15.1	Sam Road	194	19	372	21
15.2	Station Road	0	0	353	98

*link located in an AQMA, as such, AQMA screening criteria are applied.

5.1.4 An assessment was undertaken using National Highways' Design Manual for Roads and Bridges (DMRB)⁴³ spreadsheet tool⁴⁴ to understand the contribution of the additional construction vehicle movements on affected roads on local pollutant concentrations.

5.1.5 Residential receptors representing 'worst-case exposure' on both of the affected road links were selected:

- The Coach House, Wharmton Tower, on Oldham Road, located 5.8 m from the road; and
- Wakefield Road, located 1.4 m from the road.

⁴³ National Highways, DMRB LA105 Air Quality (June 2024), available at:
<https://www.standardsforhighways.co.uk/tse/attachments/af7f4cda-08f7-4f16-a89f-e30da703f3f4?inline=true>

⁴⁴ National Highways, DMRB Air Quality Spreadsheet Version Draft DMRB V9_EFTV13.0

- 5.1.6 In addition, concentrations were also estimated at the TA68NO monitoring location on Stamford Street, situated within the Tameside AQMA.
- 5.1.7 Receptor locations are illustrated in Figure 13.2.1 in Volume 2 of this Report [NR14]. Air quality baseline data (Table 5-2) show the existing background pollutant concentrations for NO₂ and PM₁₀ at these locations are well below their respective AQS criteria.
- 5.1.8 As shown in Tables 5-2 to 5-5 below, the increase in concentration of NO₂ and PM₁₀ due to construction traffic in either enabling works or core construction phases is less than 2% of the relevant AQS criteria (Table 1-1 above). The total concentrations remain below 75% of the relevant AQS criteria. With reference to impact descriptors in IAQM Planning Guidance³³ the impact of emissions from construction traffic is classed as negligible and not significant.
- 5.1.9 Furthermore, the low concentration results for PM₁₀ indicate that PM_{2.5} concentrations would not be at risk of exceeding legislated targets. With reference to LAQM TG(22)³² (paragraphs 7.188 – 7.124), PM_{2.5} concentrations can be derived from PM₁₀ data by applying a national factor⁴⁵. The latest year for which a national factor is available is 2024. Subtracting the factor of 6.0 from the highest estimated PM₁₀ concentration of 13.4 µg/m³ derives an estimated PM_{2.5} concentration of 7.4 µg/m³, which is below the annual mean target value of 10 µg/m³.
- 5.1.10 The results of the assessment have shown that the additional traffic generated by construction of the Order Scheme, in a worst case construction year, would not be expected to result in an adverse impact at

⁴⁵ <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/estimating-pm2-5-from-pm10-measurements/>

nearby sensitive receptors. Furthermore, construction traffic emissions will be temporary for the duration of construction only.

Table 5-2 Estimated NO₂ Results – Enabling Works Scenario 2029 (µg/m³)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	8.4	8.4	0.1	0.2%	Negligible
Residential on Wakefield Road	8.1	8.2	0.1	0.4%	Negligible
TA64 NO, Wakefield Road	11.2	11.8	0.6	1.5%	Negligible

Table 5-3 Estimated PM₁₀ Results – Enabling Works Scenario 2029 (µg/m³)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	10.5	10.6	0.1	0.2%	Negligible
Residential on Wakefield Road	10.7	10.8	0.1	0.3%	Negligible
TA64 NO, Wakefield Road	13.2	13.4	0.2	0.5%	Negligible

Table 5-4 Modelled NO₂ Results – Core Works Scenario 2029 (µg/m³)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	8.4	8.4	0.1	0.2%	Negligible
Residential on Wakefield Road	8.1	8.2	0.1	0.4%	Negligible
TA64 NO, Wakefield Road	11.5	11.8	0.3	0.6%	Negligible

Table 5-5 Modelled PM₁₀ Results – Core Works Scenario 2029 (µg/m³)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	10.5	10.5	<0.1	0.1%	Negligible
Residential on Wakefield Road	10.7	10.8	<0.1	0.1%	Negligible
TA64 NO, Wakefield Road	13.2	13.4	0.2	0.4%	Negligible

Construction Dust

- 5.1.11 In accordance with IAQM Construction Dust Guidance, an initial screening assessment was carried out using Ordnance Survey OpenStreetMap base mapping and DEFRA's website "Magic"⁴⁶ to determine the location and number of sensitive receptors within relevant distances of the construction of the proposed new Mossley Station.
- 5.1.12 The screening assessment identified that there were human receptors within 250 m of the Order Scheme boundary. No ecological receptors were identified within 50 m of the Order Scheme site boundary or within 50 m of the routes likely to be used by construction vehicles up to 250 m from the site access / egress. As such, construction dust impacts on ecological receptors were screened out.
- 5.1.13 A qualitative dust assessment has been conducted to determine the risk of dust soiling and impacts on human health of the construction activities associated with construction of the new Mossley Station. The proposed station boundary and 250 m buffer representing the construction dust study area are presented in Figure 13.3.1 Volume 2 of this Report [NR14].
- 5.1.14 Table 5-6 presents the assigned dust emission magnitude for each construction activity and the justification in accordance with IAQM guidance.

⁴⁶ Magic.defra.gov.uk. Magic Map Application. [online] Available at: <https://magic.defra.gov.uk/home.htm>

Table 5-6 Dust Emission Magnitude

Activity	Dust Emissions Magnitude	Justification
Earthworks	Small	Area of earthworks is estimated to be less than 18,000m ²
Construction	Large	Area of construction is estimated to be between 12,000m ³ to 75,000m ³ Potential dust construction material – e.g. concrete Potential onsite concrete batching
Trackout	Medium	Number of outward construction vehicles movements: 20-50 HDV Unpaved road length is estimated to be less than 50m Surface material has low potential for dust release

5.1.15 There are more than ten but fewer than 100 residential receptors within 20 m of the proposed Station boundary and within 20 m of the external trackout⁴⁷ route, extending 250m from the site access. Therefore, the surrounding area has been defined as ‘high’ sensitivity to dust soiling. As background annual mean PM₁₀ concentrations are below 24µg/m³ in the area (see section 4.1) the sensitivity of the surrounding area to human health impacts is ‘low’.

5.1.16 The sensitivity of the surrounding area and potential risk from dust soiling and human impacts, given the dust emissions magnitudes described above, has been assessed in line with IAQM guidance and findings are summarised in Table 5-7. The overall dust risk is considered to be ‘high’ (the highest dust risk identified across all activities). Appropriate mitigation for high dust risk construction activities is described in section 6.1.

Table 5-7 - Summary of Sensitivity of the Surrounding Area and Expected Dust Risk

⁴⁷ Trackout can be defined as the deposition of dust and dirt from a construction site onto a public road network where it may then be re-suspended in the air by vehicles using the road network.

Sensitivity of Surrounding Area		Summary of Dust Risk		
		Earthworks	Construction	Trackout
Dust Soiling	High	Low Risk	High Risk	Medium Risk
Human Health	Low	Negligible	Low Risk	Low Risk
Ecological	N/A	N/A	N/A	N/A

5.2 Operational Impacts

Building emissions

5.2.1 Any impacts on air quality associated with operation of the new Mossley station are expected to be minor in nature. In accordance with requirements included in Network Rail's Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [NR14]) an environmental performance benchmarking (such as using the independent BREEAM scheme) will be undertaken in order to review the environmental performance of new operational buildings. Opportunities will therefore be taken to embed measures in the design to improve environmental impacts of the new station, including any impacts associated with air quality. It is recommended that the detailed design incorporates embedded mitigation through adoption of low emission heating technologies where feasible.

5.2.2 Specification of low-VOC finishes and furnishings is also recommended.

Rail emissions

5.2.3 The Order Scheme will deliver electrification upgrades to allow operation of electric passenger trains and removal of diesel passenger trains from service. This will bring benefits in terms of reduced rail emissions. Until electrification upgrades have been completed across all route sections, diesel trains will remain in operation. Upon completion and commissioning of electrification works the majority of trains operating on the TransPennine Route will be electrically powered, thus delivering a reduction in the emissions associated with diesel combustion engines. Some particulate emissions will still occur through the abrasive actions of braking. Reduced emissions will benefit sensitive human and ecological receptors near to the

railway corridor, reducing the contribution of rail emissions to ambient pollutant concentrations.

- 5.2.4 The operation of electric, rather than diesel passenger train stock will generate positive air quality impacts and align with both TMBC and OMBC policies which aim to take significant action to reduce carbon emissions and therefore enhance climate resilience. The Order Scheme will also facilitate the target of increasing the number of journeys in Greater Manchester to public transport.

5.3 Cumulative impacts

Construction traffic emissions

- 5.3.1 Construction of the Order Scheme will require temporary road closures, bridge closures and other traffic management thus necessitating diversion of existing traffic flows onto alternate routes. There is the potential for cumulative air quality effects at sensitive receptor locations arising from additional road traffic emissions from construction traffic in combination with diverted traffic. However, given that the estimated pollutant concentrations for NO₂ PM₁₀ and PM_{2.5} reported in section 5.2 above, would be less than half of the relevant AQS objectives, it is therefore unlikely that any such diversions would risk an exceedance of the AQS objectives. Furthermore, any such cumulative impact would be temporary. Details of bridge closures and associated traffic management will be developed within the Construction Traffic Management Plan (CTMP). The contractor will be required to comply with the requirements of the Construction Traffic Management Plan, to be produced to provide details of traffic management on the nearby public roads, which will be secured via a planning condition in the 'Request for deemed planning permission and statement of proposed conditions' [NR12].

Construction dust emissions

- 5.3.2 The Order Scheme entails multiple elements of construction, preparation and operation of compounds, demolition and other works to be undertaken in close proximity to each other, and thus affecting sensitive receptor locations cumulatively. However, the Contractor will be required to operate in accordance with requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [NR14]) which contains appropriate and effective mitigation measures to control construction dust and plant emissions and as such that these sources should not have a significant effect on nearby sensitive receptors either individually or in combination (see section 6 below for details of further mitigation measures).

Permitted Development Rights

- 5.3.3 There are a range of additional works to be undertaken as part of the wider TRU W2B Project to be undertaken using Permitted Development Rights (PDRs). Construction of these works under PDR will be undertaken concurrently with the relevant works elements of the Order Scheme and therefore may give rise to cumulative effects both during the construction and operational phases of the Order Scheme.
- 5.3.4 Relevant works being undertaken under PDRs for air quality include (but are not limited to) preparation and operation of compounds, other construction works and activities, including the demolition of the existing Mossley station (refer to Volume 1, Table 1.2 of this Report [NR14] for a summary of works to be undertaken using PDR).
- 5.3.5 The potential effects of construction and operation of the works being undertaken by PDRs, either in isolation or in-combination or cumulatively with other elements of the Order Scheme, will be managed in accordance with the relevant clauses included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [NR14]). For air quality, control of emissions to air is addressed in sections 6.3 and 6.7 of those requirements, whereby the contractor shall reduce emissions to air from construction plant and non-road mobile machinery and dust emissions to as low as reasonably practicable.

6. MITIGATION AND CONSIDERATION OF CONTROL MEASURES

6.1 Construction Dust

Best Practicable Means

- 6.1.1 Construction works associated with the Order Scheme have the potential to generate dust emissions, which will require effective control/minimisation for the duration of the construction project.
- 6.1.2 Best practice environmental management measures in relation to air quality will be implemented on-site during construction through application of the CoCP, which is split into Part A and Part B.
- 6.1.3 Part A of the CoCP is provided in document [NR17] and sets out the general principles, relevant measures, standards and environmental management requirements to be adhered to during construction.
- 6.1.4 Part B of the CoCP is applicable to the Order Scheme that require deemed planning permission and will be secured through a planning condition as

described in the 'Request for deemed planning permission and statement of proposed conditions' [NR11].

- 6.1.5 The CoCP Part B will be a series of standalone reports and delivery plans (collectively referred to as 'the CoCP Environment Plans'). Of specific relevance to Air Quality is the Nuisance Management Plan (NMP) concerning dust, wheel wash measures, air pollution and temporary lighting. Commencement of construction of the Order Scheme will be linked to the submission and approval by TBMC or OMBC as the relevant local planning authorities of the NMP, as stipulated by a condition included in the 'Request for deemed planning permission and statement of proposed conditions' [NR11]. Preliminary works will comply with the environmental controls as set out in the CoCP Part A and covered under paragraph 15.2.18 of that document.
- 6.1.6 Management and monitoring actions for air quality are to be undertaken following completion of the Order Scheme, as covered by the CoCP.
- 6.1.7 Selected mitigation measures given in the IAQM Construction Dust Guidance (on which the relevant sections of the CoCP are based) for the relevant risk level of the construction activities associated with the new Mossley station are given below. The following general mitigation measures are specified as highly recommended for high risk construction sites:
- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
 - Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.
 - Display the head or regional office contact information.
 - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
 - Make the complaints log available to the local authority when asked.
 - Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
 - Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
 - Carry out regular site inspections to monitor compliance with the NMP, record inspection results, and make an inspection log available to the local authority when asked.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing).
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid bonfires and burning of waste materials.
- As the site is classed a high risk for construction the following mitigation are highly recommended:

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

6.1.8 Mitigation will include adherence to measures within NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [NR14]) for PD elements.

6.2 Construction traffic

6.2.1 Assessment of construction traffic emissions indicates that there will be negligible impact associated with the generated vehicle movements. It is recommended that the Construction Traffic Management Plan seeks to route construction traffic to avoid the Tameside AQMA.

6.3 Operation

6.3.1 Mitigation in operation is inherent in design as the electrification of the railway will reduce emissions from passenger services in comparison to diesel passenger trains and therefore contribute towards improvements to local air quality policy ambitions.

6.3.2 Electrification of the line will not generate any additional operational rail emissions or road vehicle trips.

6.3.3 Any air quality impacts associated with operation of the new Mossley station are expected to be minor. In accordance with requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [NR14]) an environmental performance benchmarking (such as using the independent BREEAM scheme) will be undertaken in order to benchmark the environmental performance of new operational buildings. Opportunities will therefore be taken to embed measures in the design to improve the environmental impacts of the new station, including any impacts associated with air quality. It is recommended that the detailed design incorporates embedded mitigation through adoption of low emission heating technologies such as air source heat pumps, where feasible.

7. SUMMARY

- 7.1.1 The additional construction traffic generated is expected to exceed assessment screening thresholds set by the IAQM, so further assessment has been undertaken. The results of the assessment show that impacts of construction traffic emissions are negligible.
- 7.1.2 With application of identified mitigation, construction dust impacts associated with the construction of the new Mossley station are not expected to be significant.
- 7.1.3 Construction dust impacts for areas of permitted development will be effectively controlled through application of NR/L2/ENV/015.
- 7.1.4 While operational impacts have been screened out as mitigation is embedded in the design, it is noted that the replacement of diesel passenger trains with an electric fleet will contribute positively towards clean air targets and facilitate reductions in greenhouse gases.

ANNEX A – CONSTRUCTION DUST RISK ASSESSMENT METHODOLOGY

The construction dust risk assessment has been carried out with reference to the four-step process described in the IAQM Construction Dust Guidance. These steps are summarised below:

Step 1 – is to screen the requirement for a more detailed assessment.

An assessment will normally be required where there is:

- A human receptor within:
 - 250 m of the boundary of the site; and / or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).
- An ecological receptor within:
 - 50 m of the boundary of the site and / or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

‘Human’ receptors include residential dwellings and other premises that may have a particular sensitivity to dust deposition or to the health effects of PM₁₀ e.g. vehicle showrooms, museums, long-term car parks, hospitals, schools and residential care homes. ‘Ecological’ receptors include sites with statutory designations e.g. Ramsar sites, Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs), as well as non-statutory sites such as local wildlife sites and/or locations with very specific ecological sensitivities e.g. horticultural operations.

No further assessment is required if there are no receptors within a certain distance of the works.

- **Step 2** – assess the risk of dust impacts for demolition, earthworks, construction and trackout⁴⁸ activities based on two factors:
 - **Step 2a** – The scale and nature of the works, which determines the potential dust emission magnitude as small, medium or large (criteria presented in Table A-1)
 - **Step 2b** – The sensitivity of the area to dust impacts, which is defined as low, medium or high sensitivity (criteria presented in Table A-2 and Table A-3 and sensitivity determined in Table A-4 and A-5, and;
Step 2c – The two previous factors are combined to determine the risk of dust impacts with no mitigation applied (matrices provided in Table A-6, Table A-7 and A-8)

⁴⁸ Trackout can be defined as the deposition of dust and dirt from a construction site onto a public road network where it may then be re-suspended in the air by vehicles using the road network.

- **Step 3** – determine the site-specific mitigation for each of the four potential activities in Step 2 based on the risk of dust impacts identified.
- **Step 4** – examine the residual effects and determine whether or not these are significant.

Table A-1 - IAQM determination of dust emission magnitude

Source	Large	Medium	Small
Demolition	Total building volume > 75,000 m ³ Potentially dusty construction material (e.g. concrete) On site crushing and screening Demolition activities > 12 m above ground level	Total building volume 12,000m ³ – 75,000 m ³ Potentially dusty construction material Demolition activities 6-12 m above ground level	Total building volume <12,000 m ³ Construction material with low potential for dust release (e.g. metal cladding or timber) Demolition activities <6 m above ground Demolition during wetter months
Earthworks	Total site area > 110,000 m ² Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size) >10 heavy earth moving vehicles active at any one time Formation of bunds >6 m in height	Total site area 18,000 m ² – 110,000 m ² Moderately dusty soil type (e.g. silt) 5-10 heavy earth moving vehicles active at any one time Formation of bunds 3 m – 6 m in height	Total site area < 18,000 m ² Soil type with large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time Formation of bunds <4 m in height
Construction	Total building volume > 75,000 m ³ On site concrete batching/sandblasting	Total building volume 12,000m ³ – 75,000 m ³ Potentially dusty construction material (e.g. concrete) On site concrete batching	Total building volume <12,000 m ³ Construction material with low potential for dust release (e.g. metal cladding or timber)

Source	Large	Medium	Small
Trackout	<p>>50 HDV trips in any one day</p> <p>Potentially dusty surface material (e.g. high clay content)</p> <p>Unpaved road length >100 m</p>	<p>25-50 HDV trips in any one day</p> <p>Moderately dusty surface material (e.g. high clay content)</p> <p>Unpaved road length 50 m – 100 m</p>	<p><20 HDV trips in any one day</p> <p>Surface material with low potential for dust release</p> <p>Unpaved road length <50 m</p>

Table A-2 - IAQM sensitivities of people to dust soiling effects

Sensitivity of receptor	Identification factors
High	<p>Users can reasonably expect enjoyment of a high level of amenity; or</p> <p>The appearance, aesthetics or value of their property would be diminished by soiling; and</p> <p>The people or property would be reasonably expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.</p> <p>Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.</p>
Medium	<p>Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or</p> <p>The appearance, aesthetics or value of their property could be diminished by soiling; or</p> <p>The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.</p> <p>Indicative examples include parks and places of work.</p>
Low	<p>The enjoyment of amenity would not reasonably be expected; or</p> <p>Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or</p> <p>There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.</p> <p>Indicative examples include playing fields, farmland (unless commercially sensitive horticulture), footpaths, short term car parks and roads.</p>

Table A-3 - IAQM sensitivities of people to human health effects

Sensitivity of receptor	Identification factors
High	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM ₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
Medium	Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM ₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM ₁₀ as protection is covered by Health and Safety at Work legislation.
Low	Locations where human exposure is transient. Indicative examples include public footpaths, playing fields, parks and shopping streets.

Table A-4 - IAQM sensitivity of the area to dust soiling effects on people and property

Sensitivity of receptor	Number of Receptors	Distance from the source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A-5 - IAQM sensitivity of the area to human health impacts (for a site with a background concentration of <24 µg/m³)

Sensitivity of receptor	Number of receptors	Distance from the source (m)				
		<20	<50	<100	<200	<250
High	>100	Medium	Low	Low	Low	Low
	10-100	Low	Low	Low	Low	Low
	1-10	Low	Low	Low	Low	Low
Medium	>1	Low	Low	Low	Low	Low
Low	>1	Low	Low	Low	Low	Low

Table A-6 - IAQM risk of dust impacts – demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table A-7 - IAQM risk of dust impacts – earthworks and construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A-8 - IAQM risk of dust impacts – trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

ANNEX B – CONSTRUCTION TRAFFIC ROUTE NETWORK

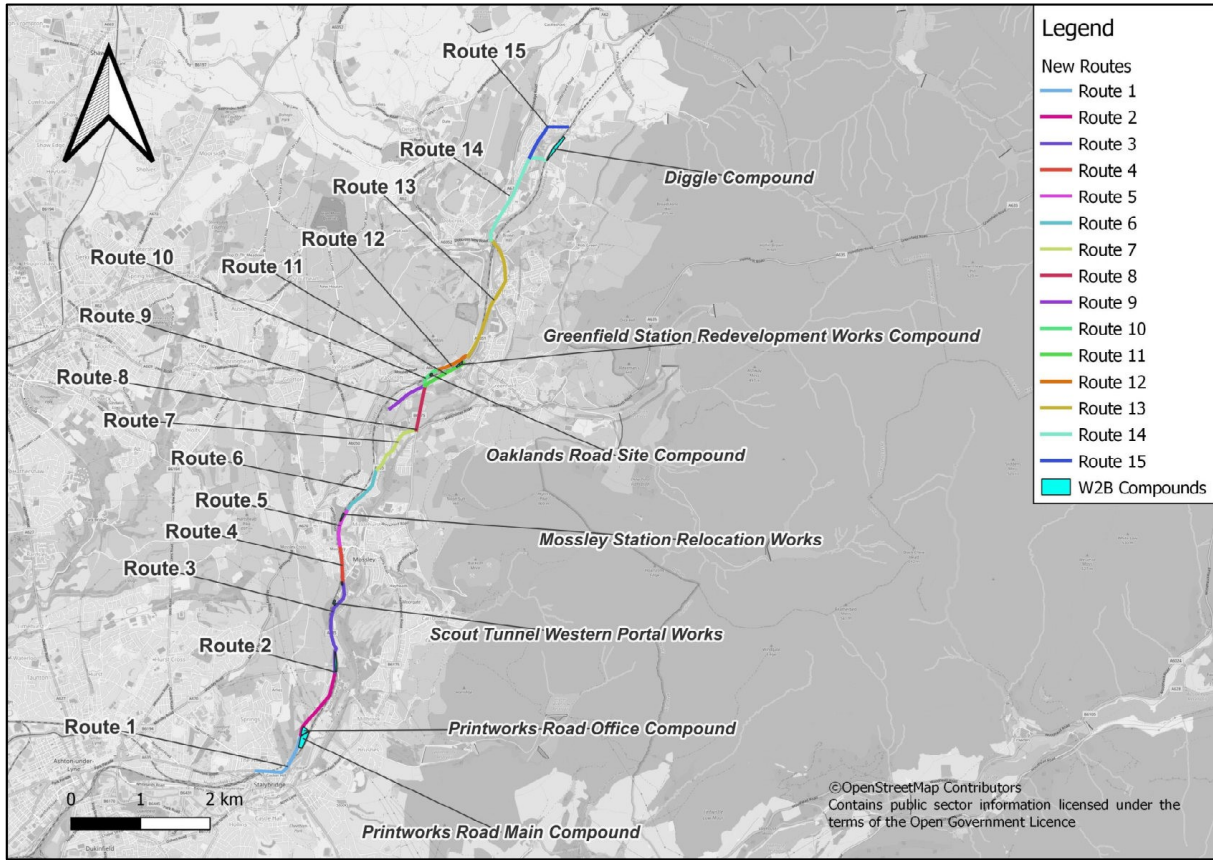


Figure A-1 - Construction Traffic Route Network

