highways england

Smart Motorways Programme

Jacob Atkins JV

M56 Junction 6 to 8

Environmental Assessment Report

Appendix B

August 2018

Notice

Appendix B - Air Quality

Appendix B.1 Regulatory / Policy Framework

B.1.1. Air Pollutants

Vehicle exhausts contain a number of pollutants including oxides of nitrogen (NOx), carbon monoxide (CO), hydrocarbons, carbon dioxide (CO_2) and particles. The quantities of each pollutant emitted depend on the type and quantity of fuel used, engine size, speed of vehicle and abatement equipment fitted. Once emitted, the pollutants disperse and subsequently are diluted in the ambient air. Pollutant concentrations in the air can be measured or modelled and then compared with the ambient air quality criteria (discussed below).

The local air quality assessment has focused on the impacts of the air pollutant nitrogen dioxide (NO_2) as the air quality criteria for this pollutant is likely to be most difficult to achieve in the vicinity of roads (see M56 J6-8 Environmental Scoping Report). The regional assessment of emissions considers NOx, carbon dioxide (CO_2) and particulate matter.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a secondary pollutant produced by the oxidation of nitric oxide (NO). NO and NO_2 are collectively termed nitrogen oxides (NOx). Almost a third of the UK NOx emissions are from road transport[1]. The majority of NOx emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O_3) to form NO_2. In high concentrations, NO_2 can affect the respiratory system and can also enhance the response to allergens in sensitive individuals, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air.

Carbon Dioxide

Carbon dioxide (CO_2) is a greenhouse gas and is used as an indicator of the wider scale, non-local effects of transport schemes. CO_2 does not affect human health at ambient levels and so is not significant as a local pollutant but is important for its national and international role in climate change.

Particulates

PM_{10} particles are fine particles with an aerodynamic diameter of less than 10 µm. PM_{10} is composed of a wide range of materials and are formed from combustion (e.g. road traffic) and from chemical reactions in the atmosphere. Fine particulates can have adverse health effects when inhaled.

B.1.2. Air Quality Criteria

There are two types of air quality regulations that apply in England:

- Regulations implementing mandatory European Union Directive limit values: The Air Quality Standards Regulations 2010 (SI 2010/64)[2]; and
- Regulations implementing national air quality objectives: Air Quality (England) Regulations 2000 (SI 2000/928)[3] and Air Quality (England) (Amendment) Regulations 2002 (SI 2002/3043)[4].

In 2008, the European Commission adopted Directive 2008/50/EC on ambient air quality and cleaner air for Europe[5]. This directive merged the Air Quality Framework Directive (96/62/EC) and three of

[1] NAEI (2015). *Pollutant Information: Nitrogen oxides (NO_x expressed as NO_2).* Retrieved from National Atmospheric Emissions Inventory: http://naei.defra.gov.uk/overview/pollutants?pollutant_id=PMFINE
[2] The Air Quality Standards Regulations 2010: http://www.legislation.gov.uk/uksi/2010/1001/contents/made
[3] The Air Quality (England) Regulations 2000: http://www.legislation.gov.uk/uksi/2000/928/contents/made
[4] The Air Quality (England) (Amendment) Regulations 2002: http://www.legislation.gov.uk/uksi/2002/3043/contents/made
[5] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF

the four pollutant specific daughter directives, and introduced new objectives for $PM_{2.5}$. The relevant EU Limit Values in the context of this assessment for the protection of human health are presented in Table B-1.

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS)[6] provides details of national air quality standards and objectives for a number of local air pollutants, including NO_2. The standards are 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 minimum or low risk even by the most sensitive members of the population. The objectives are targets for air pollution levels to be achieved by a specified timescale, which take account of the costs and benefits of achieving the standard, either without exception or with a permitted number of exceedances.

Local authorities are not legally obliged to achieve the UK AQS objectives. They do, however, have a responsibility (under the Environment Act 1995)[7] to review and assess local pollution levels against these objectives and are required to work towards the objectives by drawing up action plans setting out the measures they intend to take in pursuit of them. These standards and objectives are defined in Regulations SI 2000/928 and SI 2002/3043.

It should be noted that the AQS air quality criteria only apply in locations where there may be a 'relevant exposure'. These human health objectives are applicable where members of the public may be exposed to pollutant concentrations for periods equal to or exceeding the averaging periods set for these criteria. 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.

Table B-1 Relevant Air Quality Criteria

Pollutant	Criteria
NO_2	Hourly average concentration should not exceed 200 µg/m^3 more than 18 times a year.
	Annual mean concentration should not exceed 40 µg/m^3.
NO_x (vegetation)	Annual mean concentration should not exceed 30 µg/m^3.

Ecological Criteria

The EU has set limit values for the protection of vegetation for oxides of nitrogen based on the work of the United Nations Economic Commission for Europe (UNECE) and WHO and these limit values have been incorporated into The Air Quality Standards Regulations 2010 (SI 2010/1001).

The limit value for oxides of nitrogen for the protection of vegetation is an annual mean of 30µg/m^3. This is the same as the AQS objective. The limit values for the protection of vegetation apply to locations more than 20km from towns with more than 250,000 inhabitants or more than five km from other built-up areas, industrial installations or motorways. This objective does not apply in those areas where assessment of compliance with the limit value is not required. However, as the UNECE and the WHO have set a critical level for NOx for the protection of vegetation, the policy of the statutory nature conservation agency (in England, Natural England) is to apply the criterion as a benchmark, on a precautionary basis, in internationally designated conservation sites (Ramsar,

[6] DEFRA (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Retrieved from: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england-scotland-wales-and-northern-ireland-volume-2
[7] Environment Act 1995: http://www.legislation.gov.uk/ukpga/1995/25/contents

Special Area of Conservation (SAC), Special Protection Area (SPA) and Sites of Special Scientific Interest (SSSIs)).

In addition, critical loads for nitrogen and acid deposition have been set by the UNECE, that represent (according to current knowledge) the exposure below which there should be no significant harmful effects on sensitive elements of the ecosystem. The critical loads vary by type of ecosystem, and are available from the Air Pollution Information System (APIS) website[8].

B.1.3. National Planning Policy

National Planning Policy (NPPF)

The National Planning Policy Framework (NPPF) sets out the Government's requirements of the planning system. The NPPF requires local planning authorities (LPAs) to take account of air quality in plan making, stating at paragraph 124: *"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."*

National Networks National Policy Statement

The National Networks National Policy Statement (NN NPS), prepared by the Department for Transport (DfT)[9], provides policy and guidance relating to the development of nationally significant infrastructure projects. NN NPS requires a judgement to be made as to the risk of a project affecting the UK's ability to comply with the Air Quality Directive (paragraph 5.9 of the NN NPS). Paragraph 5.11 of the NN NPS states "*Air quality considerations are likely to be particularly relevant where schemes are proposed: within or adjacent to Air Quality Management Areas (AQMAs); roads identified as being above Limit Values or nature conservation sites; and where changes are sufficient to bring about the need for a new AQMA or change the size of an existing AQMA; or bring about changes to exceedances of the Limit Values, or where they may have the potential to impact on nature conservation sites.*" Furthermore, paragraph 5.13 of the NN NPS, states "*The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will: result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or affect the ability of a non-compliant area to achieve compliance with the most recent timescales reported to the European Commission at the time of the decision.*"

Road Investment Strategy & Strategic Business Plan (RIS & SBP)

The DfT Road Investment Strategy (RIS) published in 2015[10] sets out the DfT's aspirations for the Strategic Road Network over the next 25 years. It states that by 2040 DfT aspires to a network that will be sustainable with 'zero breaches of air quality regulations and major reductions in carbon emissions across the network'.

Highways England Delivery Plan 2015-2020

The Highways England Delivery Plan 2015-2020[11] identifies Highways England's commitment to investing £75m 'in a range of projects to reduce pollution and ensure the air around the network is

[8] http://www.apis.ac.uk/
[9] Department for Transport, National Policy Statement for National Networks, December 2014
[10] Department for Transport, Road Investment Strategy: for the 2015/16 – 2019/20 Road Period, March 2015
[11] Highways England, Highways England Delivery Plan 2015-2020, March 2015

clean and healthy'. Key Performance Indicators (KPIs) and Performance Indicators (PI) are also identified including the following PI performance specification in relation to air quality 'Suite of PIs to provide additional information about environmental performance.' These should, at a minimum, include: - Air Quality'. The Delivery Plan includes a commitment to develop a PI for vehicle derived emissions of carbon dioxide, and other greenhouse gases arising from the use of the Strategic Road Network by March 2016.

When Highways England plan works to improve the network, an assessment of the potential for environmental effects of the Scheme is undertaken, including consideration of air quality. To ensure consistency and robustness in all air quality assessments, an agreed methodology is set out in the DMRB, supplemented by Interim Advice Notes where necessary.

Highways England Air Quality Strategy

The Highways England Air Quality Strategy, published in August 2017[12] sets out Highway's England's approach to improving air quality, utilising a committed fund from the UK Government of £100 million. The focus of the strategy is on exploring innovative ways to improve air quality on and around its network. As part of the strategy the HE has identified fours priority action areas; policy, planning, monitoring and operational management, and has committed to *"where appropriate, design out or mitigate poor air quality for our schemes"*. These activities will draw on its expertise and knowledge to explore innovative ways to improve air quality around its network and beyond. Through this work it will deliver a cleaner network and improve the health of its neighbours and customers.

B.1.4. Local Planning Policy

Greater Manchester Combined Authority (GMCA)

The Greater Manchester Air Quality Action Plan (GMAQAP)[13] was developed to promote improvements in air quality related issues in the ten Local Authorities which form part of the GMCA (namely Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan). Together with Transport for Greater Manchester (TfGM), GMCA have developed a series of policies and strategies to improve the efficiency of the transport network and access to travel, in order to achieve benefits in terms of air quality. Policies and interventions were subsequently identified and divided into the following broad subjects, based on the area and type of effects that may be achieved:

- *Development Control and Planning Regulation*, to reduce the emissions raising during the construction and operation of new developments, through the adoption of the IAQM/EPUK planning guidance criteria, the implementation of Clean Air Zones and Speed-controlled zones, etc;
- *Freight and Heavy Goods Vehicles*, to reduce emissions associated with HGV and Freight journeys, by developing strategies concerning the delivery, servicing and logistics activities in Greater Manchester as well as introducing more sustainable transport and alternative fuels;
- *Buses*, including route management, as well as the introduction of 'green' bus technologies;
- *Cycling*, to encourage people to cycle in their everyday journeys, as well as increasing the number of cycleways and improving existing cycle networks;
- *Travel Choices*, to improve accessibility, information and ticketing of the public transport facilities, through car clubs and by optimising the traffic management control and travel information system;
- *Cars*, to reduce the emissions from cars, by reducing the number of private cars and increasing the number of charging points for electric vehicles; and
- *Information and Resources*, such as websites to provide useful information to road users allowing them to plan their journeys and take into consideration road traffic conditions.

[12] https://www.gov.uk/government/publications/highways-england-air-quality-strategy
[13] https://www.greatermanchester-ca.gov.uk/downloads/file/228/gm_air_quality_action_plan_2016-21

In July 2016, TfGM published for consultation the draft Greater Manchester Transport Strategy 2040, on behalf of the GMCA and GM Local Enterprise Partnership, along with a Delivery Plan for the period 2016/17-2020/21. These documents together constitute Greater Manchester's fourth Local Transport Plan. The key environmental aspects of the 2040 Transport Strategy include:

- *More people travelling by non-car models;*
- *Reduce emissions of CO_2 and NO_2;*
- *Accessible locations prioritised for new developments; and*
- *Infrastructure designed and maintained to minimise environmental impact.*

Within the M56 J6-8, M60 J24-4, M62 J10-12 and M6 J21A-26 geographical study areas, the local authorities are Manchester City Council (MCC), Stockport Metropolitan Borough Council (SMBC), Trafford City Council (TCC), Halton Borough Council (HBC) and Warrington Borough Council (WBC). All these local authorities refer to the GM AQAP; however, further information on relevant policies adopted in their local development plans can be found below.

Liverpool City Region (LCR) Combined Authority

The LCR Combined Authority was established on 1st April 2014, and encompasses Halton Borough Council (HBC), Knowsley Metropolitan Borough Council (KMBC), Liverpool City Council (LCC), Metropolitan Borough of Sefton (MBS), St. Helens Metropolitan Borough Council (SHMBC), and Metropolitan Borough of Wirral (MBW). West Lancashire Borough Council (WLBC) and WBC are associate members. The LCR Combined Authority has devolved responsibility for strategic decision making for transport in the region. The Transport Plan for Growth[14] sets out the following 'Shared Priorities' related to air quality under the heading of Carbon Reduction and Air Quality:

- *"Air Quality Management Areas, where the levels of air pollution exceed safe health and legal limits.*
- *Promoting active travel and improving air quality."*

Bolton Council

The Bolton Development Plan[15] (Bolton Council, 2011), which includes the core strategy, includes the following policies related to air quality:

Policy CG4: *"Development should not generate unacceptable nuisance, odours, fumes, noise or light pollution, nor cause detrimental impacts upon water, ground or air quality."*

Policy IPC1: *"For all types of development, including housing, contributions will be sought for additional types of infrastructure necessary to remedy site-specific deficiencies that arise from development or any other mitigation or compensatory measures required. These may include where relevant:*

- *Mitigation or compensation against air quality impacts in Air Quality Management Areas."*

Central Lancashire

The councils of Preston City Council (PCC), Chorley Council (CC), and South Ribble jointly prepared the Central Lancashire Core Strategy[16] and it was adopted in July 2012. It contains the following policy related to air quality:

Policy 30: Air Quality: *"Improve air quality through delivery of Green Infrastructure initiatives and through taking account of air quality when prioritising measures to reduce road traffic congestion."*

[14] Liverpool City Region Combined Authority, 2014. The Transport Plan for Growth
[15] Bolton Council, 2011. Local Development Framework. Bolton's Core Strategy Development Plan Document Adopted 2 March 2011: Shaping the future of Bolton.
[16] Preston City Council, South Ribble Borough Council and Chorley Council, 2012. Central Lancashire Adopted Core Strategy Local Development Framework.

Cheshire East Council

Cheshire East Council's (CEC's) Air Quality Action Plan aims to encourage a reduction in air pollution through a combination of mitigation options required to reduce NO_2 levels in line with the AQS objective. These actions include the installation of additional monitoring stations, air quality modelling, relieving traffic congestion and reducing emissions and exposure.

The Cheshire East Local Plan Strategy includes Policy SE12 "*Pollution, Land Contamination and Land Instability*" which states the following:

1. "*The Council will seek to ensure all development is located and designed so as not to result in a harmful or cumulative impact upon air quality, surface water and groundwater, noise, smell, dust, vibration, soil contamination, light pollution or any other pollution which would affect the natural and built environment, or detrimentally affect amenity or cause harm. Developers will be expected to minimise, and mitigate the effects of possible pollution arising from the development itself. Or as a result of the development (including additional traffic) during both the construction and the life of the development. Where adequate mitigation cannot be provided, development will not normally be permitted.*
2. *Development for new housing or other environmentally sensitive development will not normally be permitted where existing air pollution, soil contamination, noise, smell, dust, vibration, light or other pollution levels are unacceptable and there is no reasonable prospect that these can be mitigated against.*
3. *Development should support improvements to air quality, not contradict the Air Quality Strategy or Air Quality Action Plan and seek to promote sustainable transport policies.*"

Cheshire East Council's Air Quality Action Plan[17] and Air Quality Strategy[18] have been integrated into the Local Transport Plan LTP3[19] which outlines actions that will be implemented to reduce the negative impacts of transport on public health.

Policy B1, "Strategic Road network", of the LTP3 states that Cheshire East will "*Work with the Highways Agency to improve the management of traffic on the motorway and trunk road network in Cheshire East through supporting proposals for 'Active Traffic Management' and by taking a partnership approach to solving safety and congestion problems at motorway junctions. Also seek to ensure that the local communities concerns are captured and reflected in the Highways Agency's designs (e.g. for the proposed improvements to the A556 (T)).*"

Cheshire West and Chester

Air Quality issues relating to development proposals and the need for mitigation measures to reduce any adverse impact raising from a new development are considered in Policy Strat 1 "Sustainable Development" of the Cheshire West & Chester Council Local Plan (Part One) Strategic Policies which states:

"*The Local Plan seeks to enable development that improves and meets the economic, social and environmental objectives of the borough in line with the presumption in favour of sustainable development. Proposals that are in accordance with relevant policies in the Plan and support the following sustainable development principles will be approved without delay, unless material considerations indicate otherwise:*

1. *Mitigate and adapt to the effects of climate change, ensuring development makes the best use of opportunities for renewable energy use and generation.*
2. *Provide for mixed-use developments which seek to provide access to homes, employment, retail, leisure, sport and other facilities, promoting healthy and inclusive communities whilst reducing the need to travel.*

[17] Local Air Quality Management, Final Action Plan, Cheshire East Council, July 2011.
[18] Local Air Quality Strategy for Cheshire East Council, May 2011- 2015.
[19] Local Transport Plan, Final Strategy (2011-2026), Cheshire East Council.

3. *Locate new housing, with good accessibility to existing or proposed local shops, community facilities and primary schools and with good connections to public transport.*
4. *Protect, enhance and improve the natural and historic environment whilst enhancing and restoring degraded and despoiled land, seeking opportunities for habitat creation.*
5. *Encourage the use and redevelopment of previously developed land and buildings in sustainable locations that are not of high environmental value.*
6. *Minimise the loss of greenfield land and high grade agricultural land.*
7. *Support regeneration in the most deprived areas of the borough and ensure those reliant on non-car modes of transport can access jobs and services.*
8. *Ensure the prudent use of our natural finite resources whilst promoting the re-use, recovery and recycling of materials.*

The Council will always work proactively with applicants where proposals are not in accordance with the Plan to find solutions which mean that proposals can be made sustainable and approved wherever possible. However, proposals that fundamentally conflict with the above principles or policies within the Local Plan will be refused."

The Cheshire West and Chester Local Transport Plan (2011-2026) lists short and long-term actions to improve air quality across the district. Short term actions include:

1. *Develop and implement Air Quality Action Plans in Chester and Ellesmere Port to eliminate existing air quality problems;*
2. *Manage and maintain roadside air quality monitors and periodically review their locations; and*
3. *Declare Air Quality Management Areas in locations where poor air quality exceeds levels set out in national standards.*

In the long term, LTP actions include:

1. *Assess new developments to consider their potential impact on air quality;*
2. *Use the Local Development Framework and local policies to reduce the impact of air quality problems and promote the use of more sustainable modes of transport; and*
3. *Keep under review the need for AQMA near to European sites covered by the Habitats Regulation Assessment.*

Chorley Council

The Chorley Local Plan[20] references Policy 30 of the Central Lancashire Core Strategy Document and contains no further policies related to air quality.

Halton Borough Council

HBC's Local Plan Core Strategy includes Policy CS23: "Managing Pollution and Risk", which states:

"To control development which may give rise to pollution:

- Development proposals should not exacerbate and where possible, should minimise, all forms of emissions and odour, water, noise and light pollution.
- Proposals for development within or close to identified Air Quality Management Areas (AQMAs) in the Borough should have specific regard to how the exceedance in air pollutants can be addressed and how the impact on receptors can be reduced."

Knowsley Metropolitan Borough Council

The following policy related to air quality is described in the Knowsley Local Plan Core Strategy[21]:

[20] Chorley Council, 2015. Chorley Local Plan 2012 – 2026: Site Allocations and Development Management Policies Development Plan Document.
[21] Knowsley Metropolitan Borough Council, 2016. Knowsley Local Plan Core Strategy.

Policy CS 2: Development Principles: *"Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:*

Mitigating potential negative impacts of traffic growth and road traffic on highway safety, air quality, noise and health; and,
Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated."

Saved policies from the 2006 Unitary Development Plan for Knowsley[22] relating to air quality include:

Policy T8: *"Transport Assessments - Development proposals that would prejudice the primary function of any part of the highway network (i.e. the motorway, trunk road, primary and local highway network) by generating a material increase in traffic, which would overload the access to, or any part of the network, will not be permitted, unless the necessary mitigation measures required are undertaken. Planning applications for the following forms of development will be required to be accompanied by a Transport Assessment:*
Proposals which are likely to significantly increase pollution and/or noise as a result of traffic generation; or cause pollution levels in Air Quality Management areas to exceed guideline levels; and
Proposals that would generate a material increase in traffic entering or using any motorways, trunk roads or other primary routes."

Manchester City Council

MCC's Core Strategy development plan[23] includes the following policies relevant to air quality:

Policy EN16 "*The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant. When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.*"

Policy DM1 "Development Management" adds: "*All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document: Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.*"

Oldham Council

Policy 9 "Local Environment" of Oldham's Local Plan (formerly Local Development Framework)[24], which was adopted by the City Council in November 2011, states:

"*The council will protect and improve local environmental quality and amenity by ensuring development … does not have an unacceptable impact on the environment or human health caused by air quality, odour, noise, vibration or light pollution"* and "… d*oes not result in unacceptable level of*

[22] Knowsley Metropolitan Borough Council, 2006. 2006 Knowsley Replacement Unitary Development Plan: Adopted June 2006.
[23] *Manchester's Local Development Framework, Core Strategy Development Plan Document,* Adopted 11th July 2012, Manchester City Council
[24] Oldham Local Development Framework, Development Plan Document - Joint Core Strategy and Development Management Policies, Oldham Council, November 2011.

pollutants or exposure of people in the locality or wider area. Developments identified in the Air Quality Action Plan will require an air quality assessment".

Further supporting text is also provided immediately below this policy which states:

"*The significance of the development in terms of its air quality impact will depend upon:*

a. the extent of the predicted increase in pollution from the development;

b. whether the development is already in an Air Quality Management Area;

c. whether the development may cause exceedances of air quality objectives or standards where these did not already occur;

d. whether the development affects the implementation of measures under the Air Quality Action Plan or Local Transport Plan;

e. exposure of people in the locality or wider area; and

f. whether the development could potentially affect a European designated nature conservation site".

Preston District Council

The Preston Local Plan 2012-26[25] references Policy 30 of the Central Lancashire Core Strategy Document and contains no further policies related to air quality.

Salford City Council

Salford City Council (SCC) are in the process of preparing a new Local Plan which will replace the Salford City Council Unitary Development Plan 2004-2016[26]. As of December 2017 a draft Local Plan had been published and consulted on. Until the new Local Plan is adopted policies within the Unitary Development Plan are referred to when assessing planning applications.

Salford City Council's Unitary Development Plan 2004-2016[27] initially set out Salford City Council's policies in terms of air quality. Since the adoption of the Greater Manchester Joint Waste Development Plan Document[28] a small number of existing policies have been superseded. The City of Salford Unitary Development Plan 2004-2016: Policies saved beyond 21 June 2009[29] sets out current policy in terms of air quality:

Policy EN 17 – Pollution Control: *"Development proposals that would be likely to cause or contribute towards a significant increase in pollution to the air (including dust pollution), water or soil, or by reason of noise, odour, artificial light or vibration, will not be permitted unless they include mitigation measures commensurate with the scale and impact of the development.*

Potential releases of pollution must be capable of being adequately regulated by the relevant pollution control authority under the pollution control framework.

When assessing such proposals, particular regard will be had to the proximity of the development and its effect upon environmentally sensitive uses, buildings, features, areas and considerations such as:

- *housing;*
- *Schools, hospitals, nursing homes or similar institutions;*
- *Industrial processes and utilities infrastructure that require specific operating conditions; and*
- *The quality of the soil, air, and ground and surface waters.*

Consideration will also be given to:

[25] Preston City Council, 2015. The Preston Local Plan 2012-26 (Site Allocations and Development Management Policies 2015
[26] Salford City Council, 2016. A Fairer City. Draft Local Plan.
[27] Salford City Council, 2006. The City of Salford Unitary Development Plan 2004-2016.
[28] Greater Manchester Combined Authority, 2012. Greater Manchester Joint Waste Development Plan Document.
[29] Salford City Council, 2009. The City of Salford Unitary Development Plan 2004-2016: Policies saved beyond 21 June 2009.

- *the cumulative effect of pollution, having regard to the effects of existing sources of pollution; and*
- *any balancing benefits of the development."*

Policy EN 23: Environmental Improvement Corridors. "Development along any of the city's major road, rail and water corridors will be required to preserve, or make a positive contribution to the corridor's environment and appearance. In determining the extent to which a development would achieve this, regard will be had in particular to:

- *the impact on the quality, management and maintenance of the public realm;*
- *the contribution that would be made towards air quality improvement and accessibility, particularly by promoting improved public transport and access by foot and cycle."*

The soon to be adopted draft Local Plan (Salford City Council, 2016) includes the following policy relevant to air quality:

Policy PH1. Pollution Control: *"Development will not be permitted where it would result in unacceptable levels of pollution, either individually or cumulatively with other existing or proposed developments, or would be subject to unacceptable levels of pollution. The acceptability of likely pollution levels will be determined having regard to:*

- *The potential impacts on human health and amenity;*
- *The proximity and sensitivity of uses that could be affected by the pollution;*
- *The proximity and sensitivity of environmental assets;*
- *Existing pollution levels; and*
- *Any relevant strategies and targets for pollution control and reduction.*

Within air quality management areas, developments must minimise and mitigate as far as practicable the local impact of emissions, both during the construction and operational phases of development. Where appropriate, conditions or planning obligations will be used to ensure that during construction and through the operation of completed development:

- *Pollution levels and impacts can be adequately monitored; and*
- *Measures to reduce and/or mitigate pollution impacts are being adequately implemented and maintained."*

Sefton Metropolitan Borough Council

Sefton Metropolitan Borough Council's (SeMBC) Local Plan[30] sets out Sefton Council's policies in terms of air quality in relation to highways:

Policy EQ1: Healthy Sefton. *"Development should help maximise opportunities to improve quality of life to make it easier for people in Sefton to lead healthy, active lifestyles, by:*

- *Managing air quality and pollution."*

Policy EQ4: Pollution and Hazards. *"Development proposals should demonstrate that environmental risks have been evaluated and appropriate measures have been taken to minimise the risks of adverse impacts which include amenity, damage to health and wellbeing, property and the natural environment (including internationally important nature sites) from:*

- *Pollution of the land, water (including surface water and groundwater) and the air,*
- *Noise/vibration, dust, odour or artificial light pollution.*

Development will be permitted where it can be demonstrated that:

- *Appropriate measures are incorporated into proposals to avoid pollution to air, water and soil.*

[30] Sefton Council, 2017. A Local Plan for Sefton: Adopted April 2017.

- *The cumulative effects of pollution will be taken into account in terms of the impact of a number of developments in an area. The effects of a combination of various types of pollution will also be considered."*

Policy EQ5: Air Quality. "*Development proposals must demonstrate that they will not:*

- *Hinder the achievement of Air Quality Management Area objectives and the measures set out in an Air Quality Management Area Action Plan, or*
- *Hinder the revocation of an Air Quality Management Area by:*
- *introducing significant new sources of air pollutants, or*
- *Introducing new development whose users will be especially susceptible to air pollution, or*
- *Lead to the declaration of an Air Quality Management Area, or*
- *Lead to a material decline in air quality.*

Where appropriate Major developments must incorporate appropriate measures to reduce air pollution and minimise exposure to harmful levels of air pollution to both occupiers of the site and occupiers of neighbouring sites."

South Ribble Borough Council

The South Ribble Local Plan[31] references Policy 30 of the Central Lancashire Core Strategy Document and contains no further policies related to air quality.

St Helens Metropolitan District Council

St Helens Metropolitan District Council (SHMDC) is in the process of preparing a new Local Plan[32] which will replace the St Helens Local Plan Core Strategy[33]. As of December 2017 a draft Local Plan had been published and consulted on. Until the new Local Plan is adopted policies within the St Helens Council Local Plan Core Strategy are referred to when assessing planning applications. St Helens Local Plan Core Strategy includes details on air quality:

Policy CP1: Environmental Quality.

- *"Minimise and mitigate against the effects of air, light and water pollution (including contamination of soil, surface water and groundwater resources) and noise, vibration, smells, dust and electromagnetic fields caused by the development; and*
- *Development that is located within or would impact on Air Quality Management Areas will require special consideration with regard to their impacts on air quality."*

Policy LPD09. Air Quality*: "Development proposals must demonstrate that they will not:*

- *Hinder the achievement of Air Quality Management Area (AQMA) objectives and the measures set out in an Air Quality Management Area Action Plan; or*
- *Hinder the revocation of an Air Quality Management Area by:*
- *introducing significant new sources of air pollutants, or*
- *Introducing new development whose users will be especially susceptible to air pollution; or*
- *Lead to the declaration of an Air Quality Management Area; or*
- *Lead to a material decline in air quality."*

Where appropriate Major developments must incorporate appropriate measures to reduce air pollution and minimise exposure to harmful levels of air pollution to both occupiers of the site and occupiers of neighbouring sites.'

[31] South Ribble Borough Council, 2015. Local Plan (Adopted July 2015).
[32] St Helens Council, 2016. St. Helens Local Plan 2018-2033 Preferred Options
[33] St. Helens Council, 2012. St. Helens Local Plan Core Strategy, October 2012.

The St Helens Air Quality Action Plan[34] includes the following proposed actions to combat poor air quality in the borough, related to highways:

- *"Acoustic/ AQ Barrier on M6 flyover – Install a 3m high, 80m long acoustic barrier on the M6 passing over Southworth Road AQMA to increase turbulence and disperse NO_x.*
- *Use of hard shoulder running (M6 J 21A to J24) – Have a managed traffic system so during times of congestion the hard shoulder can be used as an extra lane to increase capacity and reduce queuing.'*
- *Option 2: Active Traffic Management on the M6 J 21A – 24.*
- *Option 4: Traffic Regulation Order on the A49 High Street.*
- *Option 6: Optimise traffic flow on the A580 East Lancs, A570 Linkway, A58 Buss corridor, and A572 between A58 and A49."*

Stockport Metropolitan Borough Council

Relevant policies within the Stockport LDP Core strategy DPD[35] include Policy CS8 "Safeguarding and Improving the Environment", which states in the "Environmental Protection, Improvement and Safeguarding" section:

"Development proposals which seek to make environmental improvements and enhancements will be given positive consideration, especially where they bring derelict, vacant or contaminated previously developed land back into safe, active use. Development should be located and designed in such a way as take account of natural and man-made environmental constraints and hazards including:

- *Air, water, noise and vibration, light or other pollution (including air-quality management areas)."*

In addition, Development Management Polity SEI-3 refers to air quality with regard to "Controlling Pollution" by stating that:

"New development that seeks to reduce air, noise, light, water or ground pollution in areas or locations where acceptable standards are already exceeded will be given positive consideration. New housing or other environmentally sensitive development will not be permitted where existing pollution levels are unacceptable and where there is no reasonable prospect that they can be satisfactorily reduced through specific measures or action programmes. In particular:

- *AIR QUALITY: An Air Quality Management Area (AQMA) has been declared under the provisions of the National Local Air Quality Strategy and is subject to revision on a biennial basis. All development should be designed so as to ensure that adequate levels of air quality are achieved within buildings. Development that assists in reducing the existing levels of poor air quality within the declared AQMA will be given positive consideration. Development that would exacerbate the existing poor air quality levels within the AQMA will be permitted only where it is demonstrated that that exacerbation will be mitigated."*

Tameside Metropolitan Borough Council

Policy MW14 "Air Quality" of TMBC's currently adopted Unitary Development Plan, adopted in 2004[36], states:

"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.

[34] St. Helens Council, 2013. Air Quality Action Plan for St Helens Council.
[35] Local Development Framework, Core Strategy DPD, Stockport Metropolitan Borough Council, March 2011.
[36] The Tameside Unitary Development Plan Written Statement, Adopted Plan November 2004, Tameside Metropolitan Borough, Tameside Metropolitan Borough

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."

TMBC is currently preparing a new Local Plan which will be the main land use planning document for the Borough. The Local Plan will replace the Council's currently adopted Unitary Development Plan and will incorporate the strategic policies and allocations as they evolve in the draft Greater Manchester Spatial Framework (GMSF).

Trafford Council

Trafford Council's Local Plan Core Strategy[37] includes policy L5 "Climate Change", which states:

"*Development that has potential to cause adverse pollution (of air, light, water, ground), noise or vibration will not be permitted unless it can be demonstrated that adequate mitigation measures can be put in place.*

Where development is proposed close to existing sources of pollution, noise or vibration, developers will be required to demonstrate that it is sited and designed in such a way as to confine the impact of nuisance from these sources to acceptable levels appropriate to the proposed use concerned.

Within the Borough's Air Quality Management Zones developers will be required to adopt measures identified in the Greater Manchester Air Quality Action Plan, to ensure that their development would not have an adverse impact on the air quality".

Warrington Borough Council

Air quality is referenced within a number of policies and objectives in the Warrington Borough Council (WBC) Local Plan Core Strategy[38]. In policy CS4 for example, the council commits to support improvements to Warrington's Transport Network that will "*reduce the impact of traffic on air quality and reduce carbon emissions to help tackle climate change*".

Key objectives reported in the Core Strategy include Objective S5, the aim of which is to "*Ensure that potential environmental problems arising from the impacts of new development are avoided by adopting appropriate policies to safeguard and ensure prudent use of resources including land, air, water, biodiversity and heritage taking opportunities to create new and enhance existing provision where ever possible*". Furthermore, Objective T9 aims to "*Reduce the impacts of climate change and secure improvements to air quality within the borough through the sustainable location of development and reductions in congestion as a result of demand management measures and realistic alternatives to using the private car.*"

Policy QE6 "Environment an Amenity Protection" states that: "*The Council, in consultation with other Agencies, will only support development which would not lead to an adverse impact on the environment or amenity of future occupiers or those currently occupying adjoining or nearby properties, or does not have an unacceptable impact on the surrounding area. The Council will take into consideration … Air quality."*

and

"Where development is permitted which may have an impact on such considerations, the Council will consider the use of conditions or planning obligations to ensure any appropriate mitigation or compensatory measures are secured' ."

[37] Trafford Local Plan: Core Strategy. Trafford Council, January 2012
[38] Local Plan Core Strategy, Warrington Borough Council, July 2014.

The requirement for and methodology for air quality assessments are detailed in the WBCs Environmental Protection Supplementary Planning Document[39]. This document states in the air quality "Planning Conditions and Obligations" section the following:

"The Council will encourage design solutions, and use conditions, S106 Agreements and unilateral undertakings to mitigate impacts from any developments that are detrimental to air quality. The following should be considered although this is not an exhaustive list:

- *Design of development proposals to mitigate against exposure on the development from existing air quality issues; for example the location of building inlet ventilation, or set back residential buildings away from roadside to reduce receptor exposure;*
- *Measures during the construction of new development including dust control, site monitoring and plant emissions;*
- *Contributions for the introduction of new or improved low emission public transport;*
- *The provision of on and off site facilities for cycling and walking;*
- *The provision of electric car charging points;*
- *Preferential permission and parking charges for low emission vehicles and car share;*
- *The management of car parking;*
- *Traffic management;*
- *Road infrastructure;*
- *Green Travel Plans;*
- *Monitoring of air pollution;*
- *Financial contribution towards local air quality review and assessment."*

West Lancashire Borough Council

Air Quality within the administrative area of West Lancashire Borough Council is not addressed in the West Lancashire Local Plan[40] currently in use.

Wigan Council

Wigan Council (WC) Local Plan Core Strategy[41] sets out Wigan Council's policies in terms of air quality:

Objective NRP 1: *"To maintain soil quality; tackle pollution and ground stability problems from contaminated and derelict land and ensure that no new pollution arises as a result of development; ensure that development does not result in unacceptable levels of air pollution or will not have an unacceptable effect on air quality, through traffic or emissions."*

Policy CP17 – Environmental Protection: *"We will help maintain, enhance and protect our environment for the benefit of people and wildlife, and make the borough a better place for people to live and businesses to locate and thrive, by:*

- *Managing air quality, particularly in our Air Quality Management Areas, including by minimising the air pollution."*

[39] Environmental Protection Supplementary Planning Document, Warrington Borough Council, May 2013.
[40] West Lancashire Borough Council, 2013. West Lancashire Local Plan 2012-2027: Development Plan Document.
[41] Wigan Council, 2013. Wigan Local Plan: Core Strategy Development Plan Document.

Appendix B.2 Baseline and Constraints

B.2.1. M56 J6-8 Geographical Study Area

The M56 J6-8 geographical study area includes Warrington Borough Council (WBC), Trafford Council (TC), Manchester City Council (MCC), Salford City Council (SCC) and Stockport Metropolitan Borough Council (SMBC), which form part of the Greater Manchester Combined Authority, as well as Cheshire East Council (CEC). Baseline data and information has been reviewed and collated for each of these six local authority areas.

Air Quality Management Areas (AQMA)

A number of the local authorities in the M56 J6-8 geographical study area have designated AQMAs, three of which are within 200 metres of the ARNs for the 'core' scenario and 'M56 J6-8 Only' scenarios, and therefore could potentially be affected by the proposed scheme. Two of these AQMA physically abut the M56 J6-8 scheme extent: the eastern most extent of the proposed M56 J6-8 scheme is located within the Greater Manchester AQMA, whilst the western most extent meets the Cheshire East A556 Chester Road AQMA where it crosses the M56 at J6.

Table B-2 summarises the AQMAs identified in the M56 J6-8 geographical study area, the locations of which are shown in the constraints map in Figure 5.3 – M56 J6-8.

Table B-2: AQMA in the M56 J6-8 Geographical Study Area

Name	Air Quality Criteria Exceeded	Description	Distance from M56 J6-8 Scheme	Distance from local ARN	
				'Core'	'M56 J6-8 Only'
Greater Manchester Combined Local Authority					
Greater Manchester AQMA	NO_2 annual mean	An area covering the 10 districts of Greater Manchester, including arterial routes, district centres and airport.	0.0 km	0.0 km	0.0 km
Warrington Borough Council					
Warrington AQMA No.1	NO_2 annual mean	An area 50m from roadside around the M62, M6 and M56	7.6 km	0.0 km	0.0 km
Cheshire East Council					
A556 Chester Road	NO_2 annual mean	An area encompassing A556 Chester Road around M6 and M56.	0.0 km	0.0 km	0.0 km
Note: AQMA information taken from DEFRA AQMA website and local authority review and assessment reports					

Air Quality Monitoring

Continuous Monitoring

The M56 J6-8 geographical study area does not include any air quality continuous monitoring stations (CMS), however, data for the closest CMS sites are presented in

Table B-3 for the period 2011-2016 (the latest available year). Where relevant, these CMS data have been used in trend analysis and / or comparison with mapped background concentrations.

Table B-3: Annual Mean NO_2 Monitoring Data ($\mu g/m^3$) from Continuous Monitoring Stations

Local Authority	Local Authority ID	Distance from ARN		Site Type	X, Y	2011	2012	2013	2014	2015	2016
		'Core'	'M56 J6-8 Only'								
Tameside	TAME	0.6 km south east	12 km north east	Urban Background	393454, 394330	21	19	17*	16	19	18
Trafford	TRAF	1.2 km east	5.6 km north west	Urban Background	378783, 394726	26	26	22	22	20	22
Trafford	TRF2	0.6 km north east	4.7 km north west	Roadside	378783, 394726	41	49	39*	32	30	33
Cheshire East	RTA1	0.6 km north east	2.7 km south	Roadside	373004, 382626	41	44	42	40	34	38
Manchester	MAN3	7.6 km north east	8.2 km north	Urban Background	384310, 398337	44	41	39	40	39	40
Manchester	MAN8	2.6 km south east	2.7 km east	Suburban background	383904, 385818	23	24	22	22	20	ND
Stockport	STK5	3.7 km south east	9.7 km east	Roadside	391481, 387637	24	29	30	27	24	26
Salford	M60	3.5 km north	13 km north west	Roadside	374810, 400855	64	62	62	60	52	46

ND = data not available / monitoring not undertaken
* data capture below 75%.
Exceedances of annual mean NO_2 UK AQS objective are highlighted in **bold**.

Trend Analysis of Annual Mean Nitrogen Dioxide CMS Data

Analysis of trends in annual mean NO_2 has been undertaken using the Finnish Meteorological Institute MAKESENS (v1) spreadsheet using the annual mean time series data for the roadside CMS sites described in

Table B-3.

The statistical analysis undertaken includes a Sen's slope[42] estimate of the linear trend, residual concentrations[43] which indicate the variation year on year and the Mann-Kendall test statistic (S) to indicate the significance of any trend. In order to conduct a Mann-Kendall test, five or more series of data must be presented for each site. The Mann-Kendall test statistic is expressed as a whole number. For the null hypothesis of a random distribution of the data to be rejected S[44] has to be equal to or greater than an absolute value determined from the number of data points (equivalent to a probability of less than 0.1 or 10%).

Table B-4 summarises the results of the statistical analysis for each roadside CMS site, which indicates that there have been statistically significant downward trends in annual mean NO_2 concentrations at:

[42] The "Sen Slope" refers to the equatio7n of the linear trend line and gives the rate of change per year.
[43] The difference in the actual monitored concentration compared to the concentration indicated by the trend line.
[44] Nielsen, D. M. (Ed.). (2005). Practical handbook of environmental site characterization and ground-water monitoring. CRC press.

- M60 (a roadside site approximately 3.5 km north of the M56 J6-8 geographical study area); and
- RTA1 (a roadside site approximately 0.4 km east of the M56 J6-8 geographical study area).

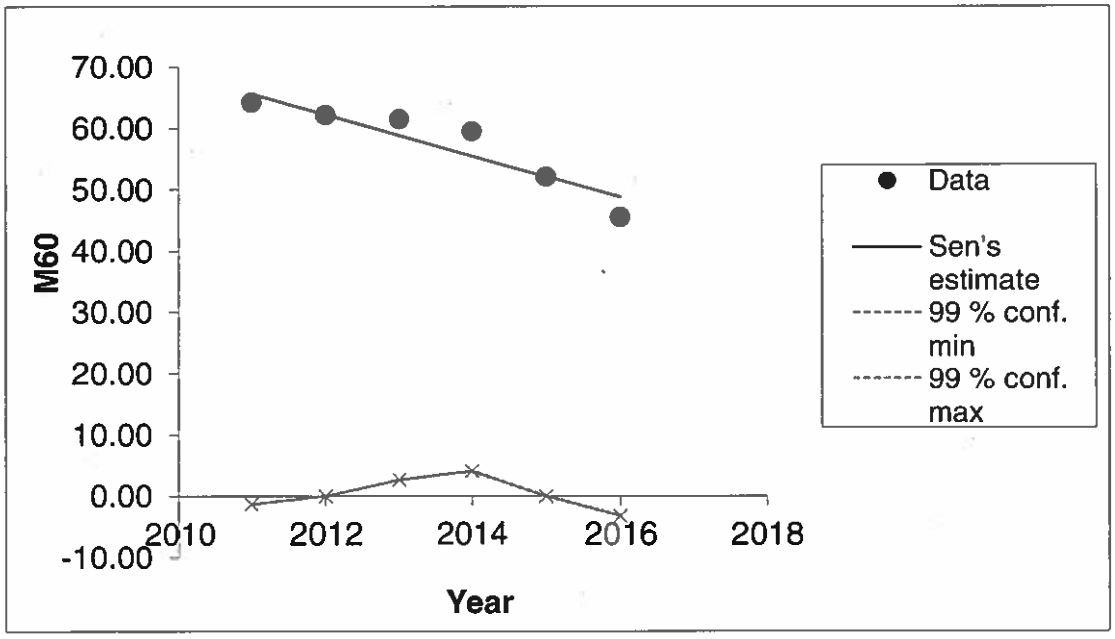
Table B-4 Summary of Roadside Annual Mean NO_2 Trend Analysis

Site ID	Site Type	Number of Data Points	Required S Value	S Value	Sen's Slope	Significant	Within 200m of ARN links?
M60	Roadside	6	≥ 9	-15	-3.4	Yes	Yes*
TFR2	Roadside	6	≥ 9	-7	-2.8	No	No
STK5	Roadside	6	≥ 9	-2	-0.5	No	No
RTA1	Roadside	6	≥ 9	-9	-1.5	Yes	No

* Within the geographical area defined by the full extent of the ARN for the 'core' scenario.

Figure B-1 and Figure B-2 show the trends in annual mean NO_2 from measured data at each of the CMS sites where there is a significant trend. The vertical axis indicates concentration in $\mu g/m^3$. Confidence intervals for data are only plotted where there are 10 or more data points. The linear trend is shown as a solid black line and residual concentrations are shown as a solid light blue line.

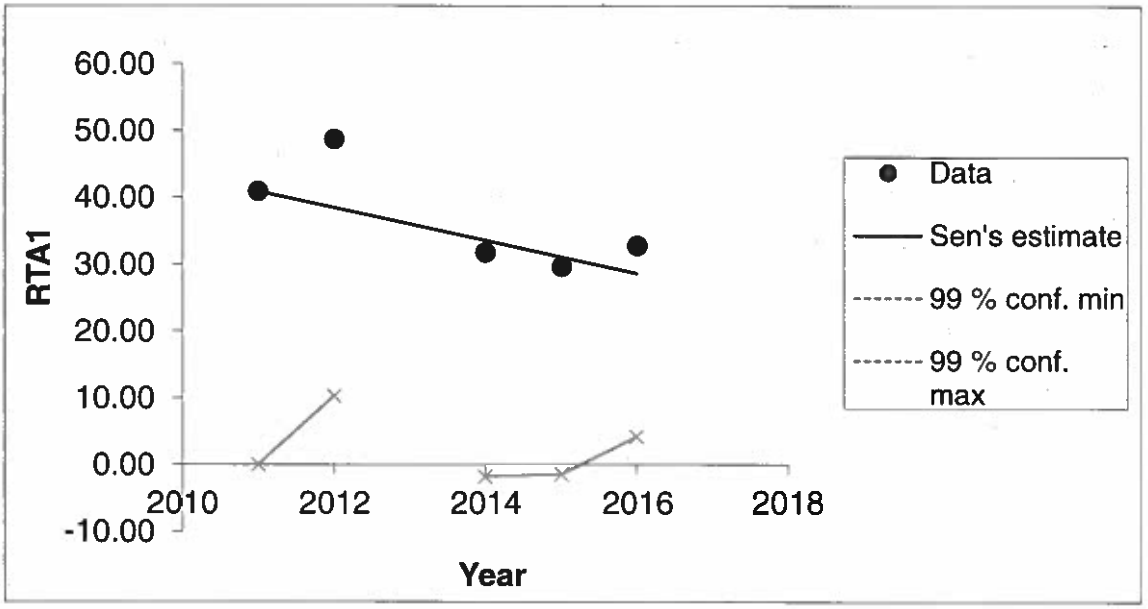
Figure B-1 Site M60 - Mann-Kendall and Sen Estimate of Annual Mean NO_2 Trend



The M60 CMS site has six data points. The Sen's slope estimate, illustrated by the solid black line in Figure B-1 above, is -3.4, which suggests that there was a general decrease in NO_2 concentration of 3.4 $\mu g/m^3$ per year over the six-year period between 2011 and 2016 at this site. The plot of residual concentrations shows that there was little variation year on year.

The Mann-Kendal test statistic (S) is expressed as a whole number, and for the M60 CMS site is -15. For the null hypothesis of a random distribution of the data to be rejected, where the number of data points is six, the value of S would have to be equal to or greater than an absolute value of nine (equivalent to a probability of less than 0.1 or 10%). For six data points, only S values of nine or more give a reasonably robust indication of a significant monotonic trend. Consequently, there is evidence of a statistically significant monotonic trend at the M60 site.

Figure B-2 Site RTA1 - Mann-Kendall and Sen Estimate of Annual Mean NO_2 Trend



The RTA1 site has six data points. The Sen's slope estimate, illustrated by the solid black line in Figure B-2 above, is -1.50, which suggests that there was a general decrease in NO_2 concentration by 1.5 µg/m^3 each year over the six-year period between 2011 and 2016 at this site. The plot of residual concentrations shows that there was little variation year on year.

The Mann-Kendal test statistic (S) is expressed as a whole number, and for the RTA1 site is -9. For the null hypothesis of a random distribution of the data to be rejected, where the number of data points is six, the value of S would have to be equal to or greater than an absolute value of nine (equivalent to a probability of less than 0.1 or 10%). For six data points, only S values of nine or more give a reasonably robust indication of a significant monotonic trend. Consequently, there is evidence of a statistically significant monotonic trend at the RTA1 site.

It should be noted however, that the RTA1 CMS site is located adjacent to the recently bypassed A556. As a result, whilst a significant downward trend was observed at this site, these data have not been compared to future year NO_2 projections in the following section, as measured concentrations at this site in recent years are likely to have been affected by congestion and re-routing during the construction works associated with the A556 scheme.

Future Projections of Nitrogen Dioxide

In 2012, DEFRA published a report on Long Term NOx and NO_2 Trends and an advice note on projecting NO_2 concentrations in 2012[45]. The consequence of the conclusions of DEFRA's advice note on long term NO_2 trends was that there is a gap between projected vehicle emission reductions and projections of the annual rate of improvements in ambient air quality in DEFRA's previously published technical guidance compared to observed trends from monitoring data. The result being that projections in concentrations of NO_2 were considered to be overly optimistic in some cases, in particular up to the year 2017. DEFRA updated their projections in 2014 but a gap still exists between projections and observed trends.

A comparison of the different projections has been undertaken for the M60 CMS site up to and beyond the Proposed Scheme opening year (2020). The M60 CMS is the only monitoring site adjacent to a motorway in the wider area and showed a statistical significant trend in the MAKESENS analysis. As a result, this site is considered the most suitable for assessing the appropriateness of future year NO_2 projections for the purposes of this study, which is primarily focussed on assessing

[45] http://uk-air.defra.gov.uk/assets/documents/reports/cat05/1108251149_110718_AQ0724_Final_report.pdf

changes in air quality at sensitive receptors adjacent to motorways. The following projection methods have been compared:

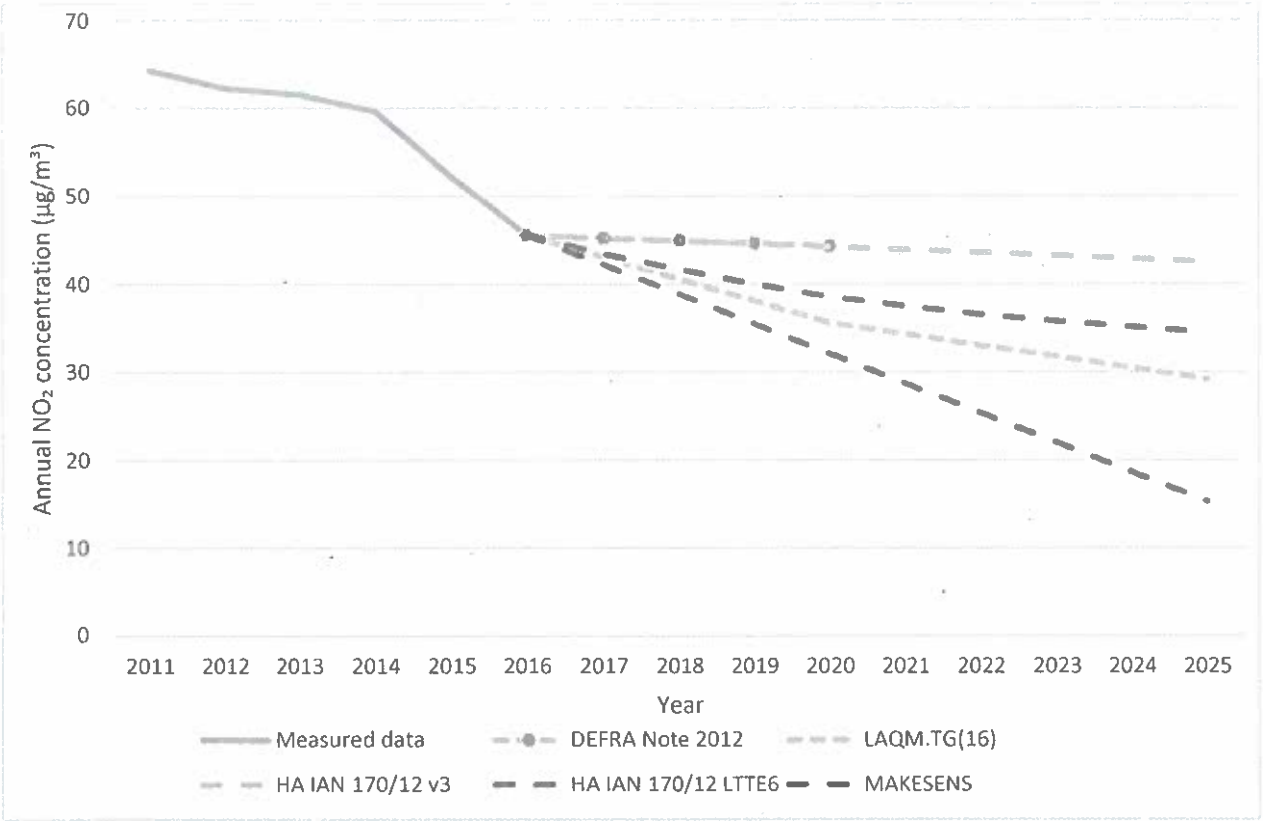
- The trend determined from the MAKESENS analysis reported above;
- The trend assumed in LAQM.TG(16)[46] DEFRA guidance (for roadside locations);
- The trend assumed in Highways England IAN 170/12v3 on future NO_x and NO_2 projections[47];
- The trend assumed in Highways England Interim Alternative Long Term Annual Projection Factors (IAN 170/12 LTTE6) for Annual Mean NO_2 and NO_x concentrations[48]; and
- The alternative trends in the DEFRA 2012 Note on Projecting NO_2 concentrations, which are available up to 2020.

The analysis shows that the alternative DEFRA projections from 2012 and the Highways England IAN 170/12 v3 projections are similar and give the most conservative projections of annual mean NO_2. The DEFRA LAQM.TG(16) projections for roadside sites, which were updated in 2014, are the most optimistic and the IAN 170/12 LTTE6 projection generally falls between the DEFRA LAQM.TG(16) projections and the IAN 170/12v3 projections.

For the M60 site, the projection from the MAKESENS analysis of the monitoring data is the most optimistic of the projections considered. In the expected opening year (2020) the MAKESENS projection most closely matches the LAQM.TG(16) projection.

For the purposes of this assessment, the IAN 170/12 LTTE6 projections have been used, which, based on the measured trend at the M60 CMS is likely to provide a relatively conservative assessment of future year NO_2 concentrations at roadside locations adjacent to motorways.

Figure B-3 Site M60 – Annual Mean NO_2 Future Year Concentration Projections



[46] http://laqm.defra.gov.uk/technical-guidance/
[47] http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian170.pdf
[48] Highways Agency (2013) Note on HA's Interim Alternative Long Term Annual Projection Factors (LTTE6) for Annual Mean NO_2 and NO_x Concentrations Between 2008 and 2030, Draft. Department for Transport

Passive Monitoring

Local Authority NO_2 Diffusion Tube Data

Annual mean NO_2 concentrations measured by CEC, TC and MCC at diffusion tube sites within the M56 J6-8 geographical study area are shown in Table B-5 for the period 2011 to 2016.

Table B-5 Annual Mean NO_2 Diffusion Tube Monitoring Results (µg/m^3) within M56 J6-8 Geographical Study Area

Local Authority	Local Authority ID	Modelled ID	Site Type	X, Y	2011	2012	2013	2014	2015	2016
Cheshire East	CE55	M535	Roadside	372269, 379717	No data	No data	64.6	64.0	50.8	53.0
Cheshire East	CE64	M540	Roadside	373766, 384824	No data	No data	32.4	30.8	25.2	27.4
Cheshire East	CE65	M541	Other	367000, 383414	No data	No data	38.5	35.1	30.9	34.5
Cheshire East	CE68	M542	Other	370333, 385246	No data	No data	31.2	30.2	28.6	29.8
Cheshire East	CE76	M546	Roadside	372938, 383846	No data	No data	19.3	17.4	16.0	17.7
Cheshire East	CE77	M547	Rural	372106, 381399	No data	No data	16.4	16.0	13.3	15.5
Cheshire East	CE78	M548	Rural	374626, 385487	No data	No data	25.0	22.0	20.3	22.2
Trafford	23	M749	Kerbside	376438, 396383	No data	45.6	38.9	38.6	38.4	39.8
Trafford	15	M751	Industrial	379089, 393283	No data	No data	No data	No data	28.8	33.3
Trafford	16	M752	Industrial	377416, 395756	No data	No data	No data	No data	25.7	33.0
Trafford	16A	M753	Kerbside	377416, 395756	No data	No data	No data	No data	24.9	32.7
Manchester	MAN13	M811	Suburban	367000, 383414	55.0	51.1	48.9	51.2	48.9	No data

The diffusion tube results in Table B-5 show exceedances to the annual mean NO_2 AQS objective occurred in all the years for which data are available between 2011 and 2016 at the MAN 13 diffusion tube site in Manchester, which is located approximately 45m west of the M56 between Junction 4 and Junction 3A, and at CE55, which is located approximately 55m east of the realigned A556, near its junction with the M6. Diffusion tube 23 in Trafford, measured an exceedance of the AQS Objective in the year 2012, measuring 45.6 µg/m^3, however since this point, measured concentrations have fallen to be just below the AQS objective. This monitoring site is located immediately southeast of M60 Junction 10.

Highways England NO_2 Diffusion Tube Data

Annualised mean concentrations for 2015 derived from Highways England NO_2 diffusion tube surveys undertaken at locations with the M56 J6-8 geographical study area between 2014 and 2016 are provided in Table B-6, along with the survey period data capture. The survey locations are shown in Figure 5.3 – M56 J6-8, with the monitoring sites colour coded by the 2015 annualised concentration derived.

Table B-6 Highways England Diffusion Tube Monitoring Data (Annualised to 2015)

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date Decommissioned	Survey Period Data Capture %	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised)
M56J6J8_001_0813	M1	382283	390525	Roadside	21/08/2013	21/08/2014	92	33.8	0.87	1.02	30.1
M56J6J8_002_0813	M2	382343	390528	Roadside	21/08/2013	21/08/2014	100	38.8	0.87	1.02	34.5
M56J6J8_003_0813	M3	382439	390497	Roadside	21/08/2013	21/08/2014	83	43.4	0.87	1.06	**40.1**
M56J6J8_004_0813	M4	382471	390496	Roadside	21/08/2013	21/08/2014	100	38.3	0.87	1.02	34.0
M56J6J8_005_0813	M5	382371	390011	Roadside	21/08/2013	21/08/2014	83	50.7	0.87	1.06	**46.7**
M56J6J8_006_0813	M6	382394	389944	Roadside	21/08/2013	21/08/2014	75	38.2	0.87	0.99	32.8
M56J6J8_007_0813	M7	382408	389571	Roadside	21/08/2013	21/08/2014	100	30.4	0.87	1.02	27.0
M56J6J8_008_0813	M8	382335	389438	Roadside	21/08/2013	21/08/2014	100	36.6	0.87	1.02	32.5
M56J6J8_009_0813	M9	382306	389302	Roadside	21/08/2013	21/08/2014	92	38.6	0.87	1.05	35.4
M56J6J8_010_0813	M10	382264	389384	Roadside	21/08/2013	21/08/2014	100	59.5	0.87	1.02	**52.9**
M56J6J8_011_0813	M11	382256	389329	Roadside	21/08/2013	21/08/2014	100	56.8	0.87	1.02	**50.4**
M56J6J8_012_0813	M12	382094	389086	Roadside	21/08/2013	21/08/2014	67	32.5	0.83	0.88	23.7
M56J6J8_013_0813	M13	382050	389105	Roadside	21/08/2013	21/08/2014	75	32.7	0.83	1.05	28.6
M56J6J8_021_0813	M21	382270	388723	Roadside	21/08/2013	21/08/2014	100	51.4	0.87	1.02	**45.6**
M56J6J8_022_0813	M22	382071	388728	Roadside	21/08/2013	21/08/2014	100	36.3	0.87	1.02	32.2
M56J6J8_023_0813	M23	381832	387692	Roadside	21/08/2013	21/08/2014	92	40.4	0.87	1.03	36.1
M56J6J8_024_0813	M24	381715	387687	Roadside	21/08/2013	21/08/2014	100	40.1	0.87	1.02	35.6
M56J6J8_025_0813	M25	381706	387343	Roadside	21/08/2013	21/08/2014	92	40.2	0.87	1.01	35.3
M56J6J8_026_0813	M26	381753	387164	Roadside	21/08/2013	21/08/2014	100	39.3	0.9	1	34.9
M56J6J8_027_0813	M27	381517	387164	Roadside	21/08/2013	21/08/2014	83	40.6	0.9	1	34.5
M56J6J8_028_0813	M28	381194	386764	Roadside	21/08/2013	21/08/2014	92	46.1	0.87	1.05	**42.2**
M56J6J8_029_0813	M29	381260	386693	Roadside	21/08/2013	21/08/2014	92	37.4	0.87	1.05	34.2

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date Decommissioned	Survey Period Data Capture %	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised)
M56J6J8_031_0813	M31	380215	385274	Roadside	22/08/2013	21/08/2014	83	47.4	0.87	1.03	**42.5**
M56J6J8_032_0813	M32	378092	384501	Roadside	22/08/2013	21/08/2014	100	25.1	0.87	1.02	22.3
M56J6J8_033_0813	M33	374871	384856	Roadside	22/08/2013	21/08/2014	100	20.5	0.87	1.02	18.2
M56J6J8_034_0813	M34	372485	385249	Roadside	22/08/2013	21/08/2014	100	22.6	0.87	1.02	20.1
M56J6J8_035_0813	M35	372477	385422	Roadside	22/08/2013	21/08/2014	100	23.2	0.87	1.02	20.6
M56J6J8_036_0813	M36	371289	385299	Roadside	22/08/2013	21/08/2014	92	34.8	0.87	1.05	31.9
M56J6J8_037_0813	M37	371236	385197	Roadside	22/08/2013	21/08/2014	100	39.1	0.87	1.02	34.7
M56J6J8_038_0813	M38	370861	385121	Roadside	22/08/2013	21/08/2014	100	28.5	0.87	1.02	25.3
M56J6J8_039_0813	M39	370319	385236	Roadside	22/08/2013	21/08/2014	100	35.2	0.87	1.02	31.3
M56J6J8_042_0813	M42	381914	388129	Compliance Risk	21/08/2013	21/08/2014	100	69.8	0.87	1.02	**62.0**
MMM_070_0709	M84	377638	395423	Roadside	01/09/2009	20/04/2015	92	53.1	0.85	0.93	**42.0**
MMM_073_0709	M85	377612	395055	Roadside	01/09/2009	20/04/2015	83	40.1	0.85	0.96	32.6
MMM_174_0310	M89	377485	394288	Roadside	01/03/2010	20/04/2015	92	34.2	0.85	0.93	27.0
MMM_208_1013	M117	380772	391717	Roadside	01/10/2013	20/04/2015	100	35.3	0.85	0.97	29.1
MMM_209_1013	M118	377181	396105	Roadside	01/10/2013	20/04/2015	92	41	0.85	0.95	33.1
MMM_211_1013	M120	376612	396325	Roadside	01/10/2013	20/04/2015	100	46.3	0.85	0.97	38.1
MMM_212_1013	M121	376514	396354	Roadside	01/10/2013	20/04/2015	100	40.8	0.85	0.97	33.6
MMM_263_0314	M161	376820	396232	Roadside	04/03/2014	20/04/2015	100	37.5	0.85	0.97	31.0
MMM_168_0310	M184	377552	394397	Roadside	28/07/2014	20/04/2015	100	42.7	0.85	0.88	31.9
MMM_176_0310	M186	377437	394337	Roadside	28/07/2014	20/04/2015	100	27.4	0.85	0.88	20.5
MMM_064_0709	M202	376388	396310	Roadside	28/07/2014	20/04/2015	100	48.1	0.85	0.88	35.9
MMM_068_0709	M203	377571	395436	Roadside	28/07/2014	20/04/2015	100	40.2	0.85	0.88	30.0
MMM_072_0709	M204	377498	395044	Roadside	28/07/2014	20/04/2015	100	38.5	0.85	0.88	28.8

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date Decommissioned	Survey Period Data Capture %	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised)
MMM_077_0709	M205	377593	394377	Roadside	28/07/2014	20/04/2015	100	39	0.85	0.88	29.1
M6J19lm_004_1215	M349	372313	379287	Roadside	08/12/2015	30/05/2016*	83	35.7	0.91	0.96	31.4
M6J19lm_005_1215*	M350	372108	379292	Roadside	08/12/2015	30/05/2016*	67	27.2	0.91	0.98	24.3
M6J19lm_006_1215	M351	372274	379723	Roadside	08/12/2015	30/05/2016*	83	67.3	0.91	1	**59.1**
M6J19lm_017_1215	M362	372012	379434	Roadside	08/12/2015	30/05/2016*	83	29	0.91	0.96	25.5
M6J16J19_025_0513	M392	372014	379753	Roadside	22/05/2013	21/05/2014	67	35.8	0.87	0.98	30.5
M6J16J19_026_0513	M393	372270	379718	Roadside	22/05/2013	21/05/2014	83	56.4	0.87	1.1	**51.6**
M6J16J19_027_0513	M394	372016	379440	Roadside	22/05/2013	21/05/2014	92	29.4	0.87	1.02	26.1
M6J16J19_033_0513	M400	366353	384975	Roadside	22/05/2013	21/05/2014	92	44.6	0.87	1.02	**39.5**
M6J16J19_034_0513	M401	366943	383815	Roadside	22/05/2013	21/05/2014	92	39.7	0.87	1.02	35.1
A556_11_0215	M406	382128	389294	Roadside	12/02/2015	31/08/2015*	71	31.6	0.85	1.11	29.8
A556_10_0215	M407	382261	389283	Roadside	12/02/2015	31/08/2015*	100	42	0.85	1.18	**42.0**
A556_26A_0215	M409	382432	389034	Roadside	12/02/2015	31/08/2015*	71	46.6	0.85	1.23	**48.7**
A556_26B_0215	M410	382432	389034	Roadside	12/02/2015	31/08/2015*	86	50.6	0.85	1.25	**53.8**
A556_26C_0215	M411	382432	389034	Roadside	12/02/2015	31/08/2015*	71	50.7	0.85	1.26	**54.3**
A556_6_0215	M419	382110	388471	Roadside	12/02/2015	31/08/2015*	71	47.3	0.85	1.2	**48.1**
A556_25A_0215	M420	381929	388171	Roadside	12/02/2015	31/08/2015*	100	62.2	0.85	1.18	**62.2**
A556_25B_0215	M421	381929	388171	Roadside	12/02/2015	31/08/2015*	100	64.3	0.85	1.18	**64.4**
A556_25C_0215	M422	381929	388171	Roadside	12/02/2015	31/08/2015*	86	64.8	0.85	1.17	**64.2**
A556_22A_0215	M423	381894	388217	Roadside	12/02/2015	31/08/2015*	100	57.6	0.85	1.18	**57.6**
A556_22B_0215	M424	381894	388217	Roadside	12/02/2015	31/08/2015*	100	57.7	0.85	1.18	**57.7**
A556_22C_0215	M425	381894	388217	Roadside	12/02/2015	31/08/2015*	86	59.2	0.85	1.12	**56.6**
A556_13_0215	M426	381826	388249	Roadside	12/02/2015	31/08/2015*	100	32.1	0.85	1.18	32.1
A556_12_0215	M427	382073	388728	Roadside	12/02/2015	31/08/2015*	100	28.7	0.85	1.18	28.7

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date Decommissioned	Survey Period Data Capture %	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised)
A556_14_0215	M428	381759	387869	Roadside	12/02/2015	31/08/2015*	86	33.1	0.85	1.12	31.7
A556_15_0215	M429	381699	387625	Roadside	12/02/2015	31/08/2015*	100	30.5	0.85	1.18	30.5
A556_24A_0215	M430	381708	387622	Roadside	12/02/2015	31/08/2015*	100	29.4	0.85	1.18	29.4
A556_24B_0215	M431	381708	387622	Roadside	12/02/2015	31/08/2015*	86	30.9	0.85	1.15	30.3
A556_24C_0215	M432	381708	387622	Roadside	12/02/2015	31/08/2015*	71	30.2	0.85	1.11	28.4
A556_16_0215	M433	381497	387152	Roadside	12/02/2015	31/08/2015*	100	31.3	0.85	1.2	31.3
A556_17_0215	M434	381188	386762	Roadside	12/02/2015	31/08/2015*	100	41	0.85	1.18	**41.0**
A556_5_0215	M435	381826	387671	Roadside	12/02/2015	31/08/2015*	100	38.4	0.85	1.18	38.4
A556_4_0215	M436	381713	387323	Roadside	12/02/2015	31/08/2015*	100	36.1	0.85	1.18	36.1
A556_3_0215	M437	381603	387115	Roadside	12/02/2015	31/08/2015*	100	43	0.85	1.2	**43.0**
A556_2_0215	M438	381379	386795	Roadside	12/02/2015	31/08/2015*	100	38.3	0.85	1.18	38.3
A556_1_0215	M439	381265	386697	Roadside	12/02/2015	31/08/2015*	71	34.6	0.85	1.11	32.6
A556_18_0215	M440	380211	385267	Roadside	12/02/2015	31/08/2015*	86	40.8	0.85	1.25	**43.4**
M60J24J27_035_0813	M475	384573	388998	Roadside	09/08/2013	20/04/2015	100	35.8	0.85	0.97	29.6
M60J24J27_036_0813	M476	384399	389006	Roadside	09/08/2013	20/04/2015	100	32.6	0.85	0.97	26.9

* the diffusion tube is not located within the M56 J6-8 geographical study area but it was used in the model verification
Exceedances of annual mean NO2 UK AQS objective are highlighted in **bold**.

B.2.2. M60 J24-4 Geographical Study Area

The M60 J24-4 geographical study area is located within the areas administered by Tameside Metropolitan Borough Council (TMBC), Stockport Metropolitan Borough Council (SMBC) and Oldham Council (OC), which form part of the GMCA. Baseline data and information have been reviewed and collated for each of these local authority areas.

Air Quality Management Areas (AQMA)

Sections of the Greater Manchester AQMA are located within the M60 J24-4 geographical study area, which was declared due to the exceedances in the NO_2 annual mean AQS objective. A summary of this AQMA is provided in Table B-7 while the extent of the AQMA within the M60 J24-4 geographical study area is shown in Figure 5.3 – M60 J24-4.

Table B-7 AQMA in the M60 J24-4 Geographical Study Area

Name	Air Quality Criteria Exceeded	Description	Distance from Scheme	Distance from local ARN
Greater Manchester Combined Authority				
Greater Manchester AQMA	NO_2 annual mean	An area covering the 10 districts of Greater Manchester, including arterial routes, district centres and airport.	0.0 km	0.0 km
Note: AQMA information taken from DEFRA AQMA website and local authority review and assessment reports				

Air Quality Monitoring

Continuous Monitoring

The M60 J24-4 geographical study area does not include any continuous monitoring stations (CMS), however, data for the closest CMS sites are presented in Table B-8 for 2011-2016 (the latest available year). Where relevant, these CMS data have been used in trend analysis and / or comparison with background concentrations.

Table B-8: Annual Mean NO_2 Monitoring Data ($\mu g/m^3$) from Continuous Monitoring Stations

Local Authority	Local Authority ID	Distance from ARN		Site Type	X, Y	2011	2012	2013	2014	2015	2016
		'Core'	'M60 J24-4 Only'								
Tameside	TAME	0.6 km southeast	0.6 km southeast	Urban Background	393454, 394330	21	19	17*	16	19	18
Trafford	TRAF	1.2 km east	8.7 km northwest	Urban Background	378783, 394726	26	26	22	22	20	22
Trafford	TRF2	0.6 km north east	7.8 km northwest	Roadside	378783, 394726	41	49	39*	32	30	33
Cheshire East	RTA1	0.6 km north east	14.3 km southwest	Roadside	373004, 382626	41	44	42	40	34	38
Cheshire West and Chester	LR-JG	7.0 km west	47.0 km southwest	Urban Background	340258, 376602	24	24	23	22	20	ND
Cheshire West and Chester	FMH	0.7 km south east	35.0 km southwest	Urban Background	352445, 378031	ND	ND	ND	19	15	ND
Manchester	MAN3	6.7 km west	6.7 km west	Urban Background	384310, 398337	44	41	39	40	39	40
Manchester	MAN8	2.6 km south east	3.8 km southwest	Suburban background	383904, 385818	23	24	22	22	20	ND
Stockport	STK5	3.7km southeast	3.7km southeast	Roadside	391481, 387637	24	29	30	27	24	26
Salford	M60	3.5 km north	15.7 km northwest	Roadside	374810, 400855	64	62	62	60	52	46

Local Authority	Local Authority ID	Distance from ARN		Site Type	X, Y	2011	2012	2013	2014	2015	2016
		'Core'	'M60 J24-4 Only'								
ND = data not available / monitoring not undertaken * data capture below 75%. Exceedances of annual mean NO2 UK AQS objective are highlighted in **bold**.											

Trend Analysis of Annual Mean Nitrogen Dioxide CMS Data

Analysis of trends in annual mean NO_2 has been undertaken using the Finnish Meteorological Institute MAKESENS (v1) spreadsheet using the annual mean time series data for the roadside CMS sites described in Table B-8.

The statistical analysis undertaken includes a Sen's slope[49] estimate of the linear trend, residual concentrations[50] which indicate the variation year on year and the Mann-Kendall test statistic (S) to indicate the significance of any trend. In order to conduct a Mann-Kendall test, five or more series of data must be presented for each site. The Mann-Kendall test statistic is expressed as a whole number. For the null hypothesis of a random distribution of the data to be rejected S[51] has to be equal to or greater than an absolute value determined from the number of data points (equivalent to a probability of less than 0.1 or 10%).

Table B-9 summarises the results of the statistical analysis for each roadside CMS site, which indicates that there have been statistically significant downward trends in annual mean NO_2 concentrations at:

- M60 (a roadside site approximately 15.7 km northwest of the M60 J24-4 geographical study area); and
- RTA1 (a roadside site approximately 14.3 km southeast of the M60 J24-4 geographical study area).

Table B-9 Summary of Annual Mean NO_2 Trend Analysis

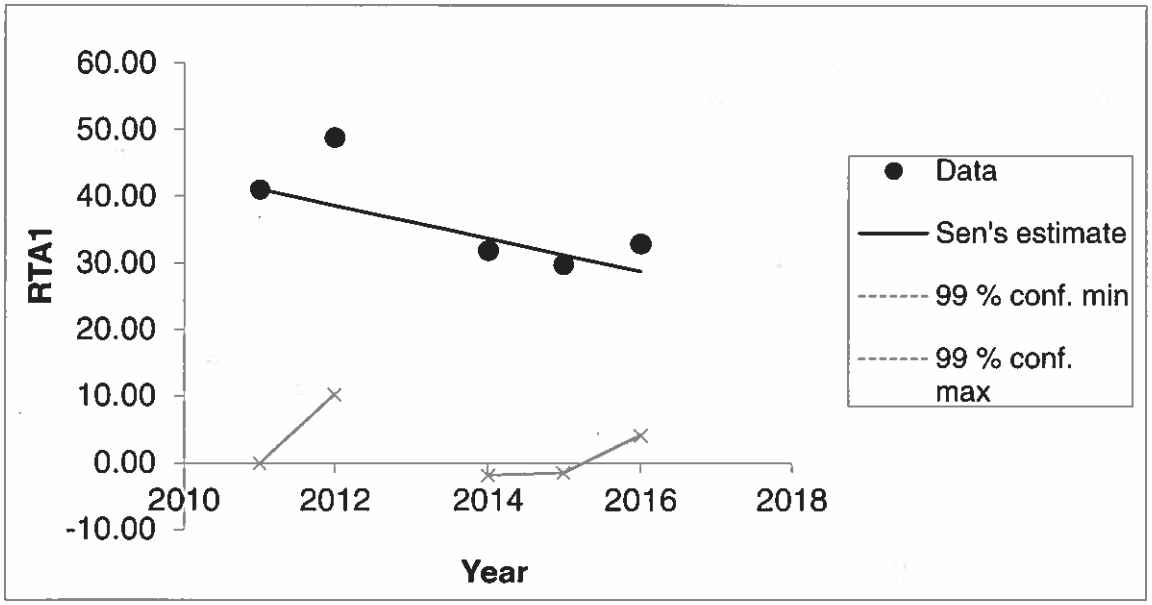
Site ID	Site Type	Number of Data Points	Required S Value	S Value	Sen's Slope	Significant	Within 200m of ARN links?
M60	Roadside	6	≥ 9	-15	-3.4	Yes	Yes*
TFR2	Roadside	6	≥ 9	-7	-2.8	No	No
STK5	Roadside	6	≥ 9	-2	-0.5	No	No
RTA1	Roadside	6	≥ 9	-9	-1.5	Yes	No
* Within the geographical area defined by the full ARN extent of the 'core' scenario.							

Monitoring site M60 in Salford is located is also within the M56 J6-8 geographical study area. Trend analysis for this site is presented in the M56 J6-8 geographical study area section above.

Figure B-4 shows the trend in annual mean NO_2 from measured data at the site RTA1, where there is a significant trend. The vertical axis indicates concentration in $\mu g/m^3$. Confidence intervals for data are only plotted where there are 10 or more data points. The linear trend is shown as a solid black line and residual concentrations are shown as a solid light blue line.

[49] The "Sen Slope" refers to the equation of the linear trend line and gives the rate of change per year.
[50] The difference in the actual monitored concentration compared to the concentration indicated by the trend line.
[51] Nielsen, D. M. (Ed.). (2005). Practical handbook of environmental site characterization and ground-water monitoring. CRC press.

Figure B-4 Site RTA1 - Mann-Kendall and Sen Estimate of Annual Mean NO_2 Trend



The RTA1 site has six data points. The Sen's slope estimate, illustrated by the solid black line in Figure B-2 above, is -1.50, which suggests that there was a general decrease in NO_2 concentration by 1.5 µg/m^3 each year over the six-year period between 2011 and 2016 at this site. The plot of residual concentrations shows that there was little variation year on year.

The Mann-Kendal test statistic (S) is expressed as a whole number, and for the RTA1 site is -9. For the null hypothesis of a random distribution of the data to be rejected, where the number of data points is six, the value of S would have to be equal to or greater than an absolute value of nine (equivalent to a probability of less than 0.1 or 10%). For six data points, only S values of nine or more give a reasonably robust indication of a significant monotonic trend. Consequently, there is evidence of a statistically significant monotonic trend at the RTA1 site.

It should be noted however, that the RTA1 CMS site is located adjacent to the recently bypassed A556. As a result, whilst a significant downward trend was observed at this site, these data have not been compared to future year NO_2 projections in the following section, as measured concentrations at this site in recent years are thought likely to have been affected by congestion and re-routing during the construction works associated with the A556 scheme.

Future Projections of Nitrogen Dioxide

The M60 CMS is the only monitoring site adjacent to a motorway in the wider area and showed a statistical significant trend in the MAKESENS analysis. As a result, this site is considered the most suitable for assessing the appropriateness of future year NO_2 projections for the purposes of this study. As above, the analysis for this site is presented in the M56 J6-8 geographical study area section above

Passive Monitoring

Local Authority NO_2 Diffusion Tube Data

Annual mean NO_2 concentrations, measured at SMBC, TMBC and OC diffusion tube sites within the M60 J24-4 geographical study area are shown in Table B-10 for the period 2011 to 2016.

Table B-10 Annual Mean NO_2 Diffusion Tube Monitoring Results (µg/m^3) at Local Authority Sites within the M60 J24-4 Geographical Study Area

Local Authority	Local Authority ID	Modelled ID	Within 200 metres of ARN links?	Site Type	X, Y	2011	2012	2013	2014	2015	2016
Stockport	SK17	M689	Yes	Urban Background	388471, 390093	29.8	30.8	27.7	27.2	27.3	30.2
Stockport	SK18	M690	Yes	Urban Background	389260, 390407	**47.0**	**50.2**	**42.8**	**40.5**	39.7	37.6
Stockport	SK20	M692	Yes	Urban Background	386481, 389530	**42.3**	**45.2**	**42.8**	**41.8**	**44.0**	**47.9**
Tameside	T3	M705	Yes	Urban Background	391000, 395130	30.5	29.4	26.6	ND	30.9	31.9
Tameside	T13	M711	Yes	Urban Traffic	392590, 398430	**44.8**	**43.2**	39.3	**42.3**	**42.5**	**42.9**

ND = No Data
Exceedances of annual mean NO_2 AQS objective (40 µg/m^3) shown in **bold**.

The diffusion tube results show that exceedances of the annual mean NO_2 AQS objective were measured in all years between 2011 and 2016 at site SK20, which is located approximately 40 m north of the M60, east of Junction 2, and for all years between 2011 and 2016, except 2013, at diffusion tube T13 in Tameside, which is located 2m from the A635, approximately 170 m east of the M60 at Junction 23. Exceedances of the annual mean NO_2 AQS objective were also measured between 2011 and 2014 at diffusion tube SK18, which is located approximately 30 m east of the A6 and approximately 150 m southeast of the M60 between Junction 27 and Junction 1.

Highways England NO_2 Diffusion Tube Data

Results from Highways England NO_2 diffusion tube surveys undertaken within the M60 J24-4 geographical study area are provided in Table B-11. The annualised mean concentrations for 2015 are provided along with data capture. The survey locations are shown in Figure 5.3 – M60 J24-4, colour coded by the 2015 annualised concentration.

Table B-11 Highways England Diffusion Tube Monitoring Data (Annualised to 2015)

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date De-commissioned	Survey Period Data Capture	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 Annualised Annual Mean
M60J24J27_001_0813	M441	390839	402399	Roadside	08/08/2013	20/04/2015	100	42.9	0.85	0.97	35.5
M60J24J27_002_0813	M442	390989	402188	Roadside	08/08/2013	20/04/2015	100	46.7	0.85	0.97	38.6
M60J24J27_003_0813	M443	391182	401718	Roadside	08/08/2013	20/04/2015	83	34.4	0.85	0.97	28.4
M60J24J27_004_0813	M444	391053	401701	Roadside	08/08/2013	20/04/2015	83	36.3	0.85	0.93	28.7
M60J24J27_005_0813	M445	391305	400977	Roadside	08/08/2013	20/04/2015	100	34.3	0.85	0.97	28.4
M60J24J27_006_0813	M446	391883	400125	Roadside	08/08/2013	20/04/2015	100	43.2	0.85	0.97	35.8
M60J24J27_007_0813	M447	391987	399762	Roadside	08/08/2013	20/04/2015	67	32.3	0.85	0.87	24.0
M60J24J27_008_0813	M448	391993	399967	Roadside	08/08/2013	20/04/2015	100	44.9	0.85	0.97	37.2
M60J24J27_009_0813	M449	392530	398377	Roadside	08/08/2013	20/04/2015	92	46.0	0.85	0.99	38.5
M60J24J27_010_0813	M450	392526	398421	Roadside	08/08/2013	20/04/2015	100	45.2	0.85	0.97	37.4
M60J24J27_011_0813	M451	392409	398119	Roadside	08/08/2013	20/04/2015	100	37.8	0.85	0.97	31.3
M60J24J27_014_0813	M454	391302	397344	Roadside	08/08/2013	20/04/2015	100	41.9	0.85	0.97	34.7
M60J24J27_015_0813	M455	391436	397204	Roadside	08/08/2013	20/04/2015	100	33.9	0.85	0.96	27.7
M60J24J27_017_0813	M457	390962	395494	Roadside	08/08/2013	20/04/2015	100	37.7	0.85	0.97	31.3
M60J24J27_018_0813*	M458	390822	395598	Roadside	08/08/2013	20/04/2015	100	46.7	0.85	0.97	38.7
M60J24J27_019_0813	M459	391007	395062	Roadside	08/08/2013	20/04/2015	92	32.5	0.85	0.98	27.0
M60J24J27_020_0813	M460	391617	392427	Roadside	08/08/2013	20/04/2015	100	41.6	0.85	0.97	34.4
M60J24J27_024_0813	M464	390644	391353	Roadside	09/08/2013	20/04/2015	100	45.9	0.85	0.97	38.0
M60J24J27_025_0813	M465	390444	391153	Roadside	09/08/2013	20/04/2015	100	45.0	0.85	0.97	37.2
M60J24J27_028_0813	M468	389426	390833	Roadside	09/08/2013	20/04/2015	83	36.2	0.85	0.95	29.3
M60J24J27_029_0813	M469	388302	390350	Roadside	09/08/2013	20/04/2015	92	47.7	0.85	1.00	**40.4**
M60J24J27_030_0813	M470	387227	389722	Roadside	09/08/2013	20/04/2015	92	40.5	0.85	0.95	32.7
M60J24J27_031_0813	M471	386908	389504	Roadside	09/08/2013	20/04/2015	100	39.4	0.85	0.97	32.6
M60J24J27_035_0813*	M475	384573	388998	Roadside	09/08/2013	20/04/2015	100	35.8	0.85	0.97	29.6
M60J24J27_036_0813*	M476	384399	389006	Roadside	09/08/2013	20/04/2015	100	32.6	0.85	0.97	26.9
M60J24J27_037_0813*	M477	384994	388831	Roadside	09/08/2013	20/04/2015	92	38.9	0.85	0.99	32.6
M60J24J27_038_0813*	M478	384999	388714	Roadside	09/08/2013	20/04/2015	92	43.5	0.85	0.95	35.2
M60J24J27_041_0813*	M481	385192	388748	Roadside	09/08/2013	20/04/2015	100	35.7	0.85	0.97	29.5

Site ID	Modelled ID	X	Y	Type	Date Commissioned	Date De-commissioned	Survey Period Data Capture	Survey Period Mean	Bias Adjustment factor	Annualisation factor	2015 Annualised Annual Mean
M60J24J27_042_0813*	M482	385111	388723	Roadside	09/08/2013	20/04/2015	100	37.9	0.85	0.97	31.3
M60J24J27_046_0813	M486	389739	390863	Roadside	09/08/2013	20/04/2015	83	46.9	0.85	0.94	37.4
* The diffusion tube is not located within the M60 J24-4 geographical study area but it was used in the model verification Exceedances of annual mean NO2 AQS objective (40 µg/m3) shown in bold.											

B.2.3. M62 J10-12 Geographical Study Area

The M62 J10-12 geographical study area includes Salford City Council (SCC), Trafford Council (TC) and Wigan Council (WC), which form part of the Greater Manchester Combined Authority; Knowsley Metropolitan Borogh Council (KMBC), St Helens Metropolitan District Council (SHMDC), Halton Borough Council (HBC), and Warrington Borough Council (WBC), Liverpool Combined Authority; and Cheshire East Council (CEC) and Cheshire West and Chester Council (CWaCC).Baseline data and information has been reviewed and collated for each of these nine local authority areas.

Air Quality Management Areas (AQMA)

The local authorities in the M62 J10-12 geographical study area have designated a number of AQMAs, four of which are within 200 metres of the core scenario ARN, and therefore could potentially be affected. The eastern most extent of the proposed scheme, from the SCC boundary to Junction 12, is located within the Greater Manchester AQMA. Within SHMBC the extent of the M6, from the boundary with Wigan to the boundary with Warrington, is located within the M6 AQMA. Within WBC the extent of the M62, from the boundary with SCC to the Boundary with SHMDC between Junctions 7 and 8, is located within Warrington AQMA No. 1. Additionally, the ARN approaches Warrington AQMA No. 4 at a closest distance of 110 m at the junction between the A49 and the M62.

Table B-12 summarises the AQMAs identified in the M62 J10-12 geographical study area, the locations of which are shown in the constraints map in Figure 5.2 – M62 J10-12.

Table B-12: AQMAs in the M62 J10-12 Geographical Study Area

Name	Air Quality Criteria Exceeded	Description	Distance from M62 J10-12 Scheme	Distance from local ARN	
				'Cumulative worst case'	'M62 J10-12 Only'
Greater Manchester Combined Local Authority					
Greater Manchester AQMA	NO_2 annual mean	An area covering the 10 districts of Greater Manchester, including arterial routes, district centres and airport.	0.0 km	0.0 km	0.0 km
St Helens Metropolitan Borough Council					
M6 AQMA	NO_2 annual mean	An area encompassing the M6 for its entire length within the borough.	0.0 km		0.0 km
Warrington Borough Council					
Warrington AQMA No.1	NO_2 annual mean	An area 50m from roadside around the M62, M6 and M56	0.0 km	0.0 km	0.0 km
Warrington AQMA No. 4	NO_2 annual mean	Covering the link roads and the town centre ring road	0.1 km	0.1 km	0.1 km
Note: AQMA information taken from DEFRA AQMA website and local authority review and assessment reports					

Air Quality Monitoring

Continuous Monitoring

The M62 J10-12 geographical study area includes two air quality continuous monitoring stations. Data for these are presented in Table B-13 for the period 2011-2016 (the latest available year). Additional background sites in the wider area are included for comparison purposes. Where relevant, these CMS data have been used in trend analysis and / or comparison with mapped background concentrations.

Table B-13: Annual Mean NO_2 Monitoring Data (µg/m^3) from Continuous Monitoring Stations

Local Authority	Local Authority ID	Distance from ARN		Site Type	X, Y	2011	2012	2013	2014	2015	2016
		'Cumulative worst case'	'M62 J10-12 Only'								
Salford	M60	0.0 km west	0.0 km west	Urban Traffic	374810, 400855	64	62	62	60	52	46
Salford	ECCL	0.1 km south	0.1 km south	Urban Industrial	377926, 398728	33	28	30	30	27	29
St Helens	**AN2**	**0.2 km east**	0.2km east	Motorway	**360045, 395643**	56	**52.7**	**47.5**	**47**	**53**	**ND**
Knowsley	Site 1	4.6 km south west	2.0 km north	Urban Background	341774, 398802	18	20.3	21	26.9	18.7	ND
Manchester	MAN3	1.9 km east	1.9 km east	Urban Background	384310, 398337	44	41	39	40	39	ND
Manchester	MAN8	2.8 km south east	1.9 km east	Suburban Background	383904, 385818	23	24	22	22	20	ND
Salford	GLAZ	2.3 km north		Rural Background	368759, 396028	18	19	15	14	15	ND
Sefton	CM1	5.6 km south west	8.6 km west	Urban Background	333257, 396072	32.3	32.3	31.4	30.8	ND	ND
Tameside	TAME	0.6 km east	1.5 km south west	Urban Background	393454, 394330	21	19	17	16	19	ND
Trafford	TRAF	1.3 km north east	1.3 km north east	Urban Background	378783, 394726	26	26	22	22	20	ND
Wigan	WIG5	1.2 km north	1.0 km north	Urban Background	357816, 406024	23	24	25	22	19	ND

ND = data not available / monitoring not undertaken
* data capture below 75%.

Exceedances of annual mean NO_2 UK AQS objective are highlighted in **bold**.

Trend Analysis of Annual Mean Nitrogen Dioxide CMS Data

As above, analysis of trends in annual mean NO2 has been undertaken using the Finnish Meteorological Institute MAKESENS (v1) spreadsheet using the annual mean time series data for the roadside CMS sites. Monitoring site M60 in Salford is located adjacent to the M62 J10-12 geographical study area. Trend analysis for this site is presented in the M56 J6-8 geographical study area section above.

Passive Monitoring

Local Authority NO_2 Diffusion Tube Data

Annual mean NO_2 concentrations measured by Salford, St Helens, Warrington and Wigan at diffusion tube sites within the M62 J10-12 geographical study area are shown in Table B-14 for the period 2013 to 2015. The monitoring locations are shown in Figure 5.3 – M62 J10-12.

Table B-14 Annual Mean NO_2 Diffusion Tube Monitoring Results (µg/m^3) within M62 J6-12 Geographical Study Area

Local Authority	Local Authority ID	Modelled ID	Site Type	X, Y	2013	2014	2015
Salford	SA1	Salford_SA1_IrlamLo	Urban Background	372766, 394105	21.1	20.2	20.0
Salford	SA2b*	Salford_SA2b_IrlamP	Urban Background	372141, 394212	23.0	22.3	21.3
Salford	SA9	Salford_SA9_StMarks	Urban Background	374733, 400935	27.2	28.8	25.1

Local Authority	Local Authority ID	Modelled ID	Site Type	X, Y	2013	2014	2015
Salford	SA20	Salford_SA20/21/22_M	Urban Traffic	374810, 400856	48.7	47.8	43.0
Salford	SA21	Salford_SA20/21/22_M	Urban Traffic	374810, 400856	50.3	ND	43.4
Salford	SA22	Salford_SA20/21/22_M	Urban Traffic	374810, 400856	51.3	ND	43.7
Salford	SA25	Salford_SA25_ 16Wyn	Urban Traffic	381302, 398034	28.7	29.3	28.5
Salford	SA31	Salford_SA31_ Walkden	Urban Traffic	374024, 401906	30.6	31.5	29.2
Salford	SA33*	Salford_SA33_Arnfiel	Urban Traffic	372597, 400728	31.3	30.7	29.1
Salford	SA34	Salford_SA34_ 673Liv	Urban Traffic	375367, 397799	47.1	44.3	43.5
Salford	SA42	Salford_SA42_ 44Eden	Urban Traffic	374695, 399853	44.2	40.4	38.7
Salford	SA44	Salford_SA44_ Pembrok	Urban Traffic	380412, 398439	36.2	38.0	38.6
Salford	SA50	Salford_SA50_ RookeS	Urban Traffic	375395, 397803	ND	ND	36.0
Salford	SA51	Salford_SA51_Liverpo	Urban Traffic	375212, 397664	35.6	36.2	33.6
Salford	SA52	Salford_SA52_Sealand	Urban Traffic	375148, 397589	34.6	35.1	32.4
Salford	SA53	Salford_SA53_ Ryecrof	Urban Background	374756, 399894	44.7	36.1	36.3
Salford	SA54*	Salford_SA54_ Ryecrof	Urban Background	374899, 399983	28.7	30.6	28.3
Salford	SA55*	Salford_SA55_SA55Le	Urban Traffic	372851, 400734	ND	ND	33.6
St Helens	**T1**	**StHelens_T1_ 170Sou**	**Motorway**	**360109, 395661**	**31.4**	**32.8**	**32.8**
St Helens	**T7**	**StHelens_T7_160Sou**	**Motorway**	**360055, 395638**	**38.4**	**41.4**	**40.3**
St Helens	**T9**	**StHelens_T9_ 3Water**	**Motorway / Railway**	**359915, 395639**	**27.4**	**25.9**	**24.1**
St Helens	**T10**	**StHelens_T10_160So**	**Motorway**	**360055, 395638**	**40.9**	**40.1**	**41.7**
St Helens	T13	StHelens_T13_ 22Uni	Motorway	352391, 390301	27.9	26.7	26.1
St Helens	T15	StHelens_T15_ 2Park	Motorway	358220, 397077	34.7	33.9	32.8
St Helens	T18	StHelens_T18_Linkwa	Roadside	349107, 397197	ND	ND	31.0
St Helens	**T30**	**StHelens_T30_ 4Unio**	**Motorway / Roadside**	**352264, 390229**	**26.6**	**26.0**	**23.5**
St Helens	**T31**	**StHelens_T31_160So**	**Motorway**	**360055, 395638**	**ND**	**ND**	**39.8**
St Helens	T33	StHelens_T33_ Warrin	Roadside	350386, 389936	39.9	40.7	36.7
St Helens	T12	StHelens_T12_24Nor	Motorway	350239, 389824	23.9	28.2	24.1
Warrington	DT1*	Warrington_DT1_Risle	Rural background	366949, 392004	24.6	19.1	25.2
Warrington	DT6	Warrington_ DT6_Manch	Roadside	366102, 389214	ND	41.7	55.5
Warrington	DT43*	Warrington_DT43_Winw	Roadside	360598, 389820	41.9	32.0	39.5

Local Authority	Local Authority ID	Modelled ID	Site Type	X, Y	2013	2014	2015
Warrington	DT44*	Warrington_DT44_Winw	Roadside	360484, 390416	**54.9**	**45.8**	**47.2**
Warrington	DT45*	Warrington_DT45_Winw	Roadside	360434, 390968	ND	**40.0**	**52.0**
Warrington	DT46*	Warrington_DT46_Long	Roadside	360647, 390362	**42.4**	32.3	**42.8**
Wigan	52	Wigan_52_ChurchLane	Urban Traffic	362147, 396959	27.0	**42.1**	**41.1**
Wigan	54	Wigan_54_EastLancs	Urban Traffic	370613, 400583	33.1	32.0	33.4

ND = data not available / monitoring not undertaken
Exceedances of annual mean NO_2 UK AQS objective are highlighted in **bold**.

The diffusion tube results in Table B-14 show exceedances to the annual mean NO_2 AQS objective occurred in all the years for which data is available between 2013 and 2015 at: the SA20/21/22 sites located at St Marks School, approximately 30 m from the M60; SA34, located approximately 30 m from the M60, at Junction 11; DT6 in Warrington, located at J21 of the M6, approximately 5 m away from the highway and DT44 and DT45, located alongside the A49 in Warrington.

SA42 in Salford, located approximately 60 m from the M60 close to Junction 13 shows exceedances to the AQS Objective in 2013 and 2014. SA53 in Salford, located approximately 30 m behind SA42, 90 m from the M60 shows exceedances to the AQS Objective in 2013. T33 in St. Helens, located approximately 50 m from the M62 at Junction 7 shows exceedances to the AQS Objective in 2014. DT43 in Warrington, located alongside the A49, shows exceedances to the AQS Objective in 2013. DT46 in Warrington, located alongside the A50, shows exceedances to the AQS Objective in 2013 and 2015. Wigan 54, located alongside the A580 at Astley, shows exceedances to the AQS Objective in 2014 and 2015.

Highways England NO_2 Diffusion Tube Data

Results from the Highways England NO_2 diffusion tube surveys undertaken at sites within the M62 geographical study area, in the years between 2013 and 2015 are provided in Table B-15. The annualised mean concentrations for 2015 are provided along with the survey period data capture. The survey locations are shown in Figure 5.3 – M62 J10-12, with the monitoring sites colour coded by the 2015 annualised concentration derived.

Table B-15 Highways England Diffusion Tube Monitoring Data (2013-2016)

Site ID/Modelled ID	X	Y	Type	Date Commissi-oned	Date Decommi-ssioned	Survey Period Data Capture %	Survey Period Mean ($\mu g/m^3$)	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised) ($\mu g/m^3$)
M62J10J12_001_0813	375118	398502	Roadside	14/08/2013	13/08/2014	91.7	47.0	0.87	0.99	**40.5**
M62J10J12_002_0813	375095	398479	Roadside	14/08/2013	13/08/2014	75.0	38.4	0.87	0.94	31.3
M62J10J12_003_0813	375148	397995	Roadside	14/08/2013	13/08/2014	91.7	40.5	0.87	1.04	36.7
M62J10J12_004_0813	374977	397449	Roadside	14/08/2013	13/08/2014	100.0	63.6	0.87	1.02	**56.2**
M62J10J12_005_0813	373287	397114	Roadside	14/08/2013	13/08/2014	100.0	52.2	0.87	1.02	**46.1**
M62J10J12_006_0813	373315	397162	Roadside	14/08/2013	13/08/2014	91.7	57.8	0.87	1.01	**50.8**
M62J10J12_008_0813	372529	394926	Roadside	14/08/2013	13/08/2014	100.0	42.6	0.87	1.02	37.6
M62J10J12_009_0813	372065	395443	Roadside	14/08/2013	13/08/2014	83.3	41.1	0.87	0.97	34.8
M62J10J12_010_0813	371849	395119	Roadside	14/08/2013	13/08/2014	83.3	37.2	0.87	1.00	32.4
M62J10J12_011_0813	371005	394282	Roadside	14/08/2013	13/08/2014	83.3	33.0	0.87	1.05	30.3
M62J10J12_014_0813	366970	392956	Roadside	14/08/2013	13/08/2014	100.0	28.0	0.87	1.02	24.7
M62J10J12_015_0813	365062	392939	Roadside	14/08/2013	13/08/2014	100.0	41.5	0.87	1.02	36.6
M62J10J12_016_0813	363575	392506	Roadside	14/08/2013	13/08/2014	100.0	53.4	0.87	1.02	**47.2**
M62J10J12_017_0813	363600	392386	Roadside	14/08/2013	13/08/2014	100.0	63.7	0.87	1.02	**56.3**
M62J10J12_018_0813	360457	390506	Roadside	14/08/2013	13/08/2014	100.0	45.1	0.87	1.02	39.8
M62J10J12_019_0813	360347	391320	Roadside	14/08/2013	13/08/2014	100.0	41.5	0.87	1.02	32.0
M62J10J12_020_0813*	360641	392568	Roadside	14/08/2013	13/08/2014	100.0	35.4	0.87	1.02	31.3
M62J10J12_021_0813*	360485	392572	Roadside	14/08/2013	13/08/2014	100.0	36.8	0.87	1.02	32.5
M62J10J12_022_0813	357528	391105	Roadside	14/08/2013	13/08/2014	100.0	33.6	0.87	1.02	29.7
M6J16J19_015_0513	374077	369081	Roadside	22/05/2013	21/05/2014	100.0	72.0	0.87	1.02	**63.8**
M6J16J19_016_0513	373332	370821	Roadside	22/05/2013	21/05/2014	100.0	25.1	0.87	1.02	22.2
M6J16J19_017_0513	373846	370501	Roadside	22/05/2013	21/05/2014	100.0	36.0	0.87	1.02	31.9
M6J16J19_021_0513	373468	373266	Roadside	22/05/2013	21/05/2014	100.0	25.2	0.87	1.02	22.3

Site ID/Modelled ID	X	Y	Type	Date Commissi-oned	Date Decommi-ssioned	Survey Period Data Capture %	Survey Period Mean (µg/m^3)	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised) (µg/m^3)
M6J16J19_023_0513	373324	374478	Roadside	22/05/2013	21/05/2014	100.0	66.3	0.87	1.02	**58.7**
M6J16J19_024_0513	373318	374479	Roadside	22/05/2013	21/05/2014	91.7	40.5	0.87	1.01	35.7
M6J16J19_029_0513	365857	389212	Roadside	22/05/2013	21/05/2014	100.0	44.1	0.87	1.02	39.1
M6J16J19_030_0513	366090	389204	Roadside	22/05/2013	21/05/2014	100.0	39.7	0.87	1.02	35.2
M6J16J19_031_0513	366500	386933	Roadside	22/05/2013	21/05/2014	100.0	36.5	0.87	1.02	32.4
M6J16J19_032_0513	366274	386701	Roadside	22/05/2013	21/05/2014	91.7	31.7	0.87	1.01	27.8
M6J19lm_013_1215	372869	378862	Roadside	08/12/2015	Ongoing	41.7	28.1	0.91	0.96	24.6
M6J 21AJ26_024_0813	357396	397358	Roadside	15/08/2013	14/08/2014	100.0	47.9	0.87	1.02	**42.3**
M6J 21AJ26_025_0813	360320	397133	Roadside	15/08/2013	14/08/2014	100.0	57.6	0.87	1.02	**50.9**
M6J 21AJ26_026A_0813	360041	395637	Roadside	15/08/2013	14/08/2014	91.7	57.1	0.87	1.02	**50.7**
M6J 21AJ26_026B_0813	360041	395637	Roadside	15/08/2013	14/08/2014	91.7	54.7	0.87	1.02	**48.6**
M6J 21AJ26_026C_0813	360041	395637	Roadside	15/08/2013	14/08/2014	91.7	54.7	0.87	1.02	**48.6**
M6J 21AJ26_027_0813	359819	395570	Roadside	15/08/2013	14/08/2014	100.0	37.5	0.87	1.02	**33.2**
M6J 21AJ26_029_0813	359312	395287	Roadside	15/08/2013	14/08/2014	100.0	43.2	0.87	1.02	**38.2**
M6J 21AJ26_030_0813	360468	391852	Roadside	15/08/2013	14/08/2014	100.0	44.7	0.87	1.02	**43.7**
M6J 21AJ26_031_0813	361067	392991	Roadside	15/08/2013	14/08/2014	100.0	31.8	0.87	1.02	**28.1**
M6J 21AJ26_032_0813	362094	392067	Roadside	15/08/2013	14/08/2014	83.3	59.4	0.87	0.99	**43.0**
M6J 21AJ26_033_0813	362131	391945	Roadside	15/08/2013	14/08/2014	91.7	34.3	0.87	0.99	**43.4**
M6J 21AJ26_034_0813	361440	393992	Roadside	15/08/2013	14/08/2014	100.0	55.2	0.87	1.02	**48.7**
M6J 21AJ26_036_0813	362739	392774	Roadside	15/08/2013	14/08/2014	91.7	42.9	0.87	0.99	**37.0**
M6J 21AJ26_037_0813	364860	393037	Roadside	15/08/2013	14/08/2014	91.7	48.3	0.87	0.99	**41.5**
M6J 21AJ26_038_0813	364015	390792	Roadside	15/08/2013	14/08/2014	91.7	32.0	0.87	1.08	**30.1**
M6J 21AJ26_039_0514	353963	404853	Roadside	15/05/2014	14/08/2014	25.0	47.9	0.83	1.25	**49.7**
M6J 21AJ26_040_0514	353980	404855	Roadside	15/05/2014	14/08/2014	25.0	59.2	0.83	1.25	**61.5**

Site ID/Modelled ID	X	Y	Type	Date Commissi-oned	Date Decommi-ssioned	Survey Period Data Capture %	Survey Period Mean (µg/m^3)	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised) (µg/m^3)
M6J 21AJ26_043_0514	359960	395600	Roadside	15/05/2014	14/08/2014	25.0	45.9	0.83	1.25	**47.6**
MMM_007_0709	375498	401520	Roadside	28/07/2014	20/04/2015	66.7	43.6	0.85	0.89	32.8
MMM_008_0709	375428	401417	Roadside	28/07/2014	20/04/2015	75.0	42.7	0.85	0.88	31.9
MMM_009&10_0709	375340	401259	Roadside	01/08/2009	20/04/2015	91.7	42.2	0.85	0.94	33.7
MMM_015_0709	375271	401474	Roadside	28/07/2014	20/04/2015	66.7	51.0	0.85	0.91	39.4
MMM_017_0709	375422	401646	Roadside	28/07/2014	20/04/2015	75.0	38.0	0.85	0.88	28.4
MMM_018_0709	374773	400609	Roadside	01/07/2009	20/04/2015	83.3	44.7	0.85	0.93	35.4
MMM_021_0709	374673	399911	Roadside	01/07/2009	20/04/2015	100.0	57.2	0.85	0.97	**47.1**
MMM_022_0709	374634	400265	Roadside	01/07/2009	20/04/2015	100.0	48.8	0.85	0.97	**40.2**
MMM_023_0709	374624	400049	Roadside	01/07/2009	20/04/2015	100.0	61.0	0.85	0.97	**50.2**
MMM_024_0709	375479	399320	Roadside	28/07/2014	20/04/2015	75.0	45.8	0.85	0.88	34.2
MMM_025_0709	375409	399286	Roadside	28/07/2014	20/04/2015	75.0	45.3	0.85	0.88	33.8
MMM_026_0709	375675	399217	Roadside	28/07/2014	20/04/2015	75.0	49.1	0.85	0.88	36.6
MMM_027_0709	375118	398500	Roadside	28/07/2014	20/04/2015	58.3	43.1	0.85	0.87	32.0
MMM_028_0709	375082	398457	Roadside	01/07/2009	20/04/2015	83.3	47.7	0.85	1.01	**40.9**
MMM_047_0709	373994	401953	Roadside	28/07/2014	20/04/2015	75.0	43.8	0.85	0.88	32.7
MMM_048_0709	374071	401781	Roadside	28/07/2014	20/04/2015	75.0	49.1	0.85	0.88	36.7
MMM_049_0709	374128	401741	Roadside	28/07/2014	20/04/2015	75.0	51.5	0.85	0.88	38.4
MMM_050_0709	374230	401677	Roadside	28/07/2014	20/04/2015	75.0	46.8	0.85	0.88	35.0
MMM_053_0709	375145	401909	Roadside	28/07/2014	20/04/2015	75.0	39.3	0.85	0.88	29.4
MMM_054_0709	375046	401919	Roadside	28/07/2014	20/04/2015	75.0	38.6	0.85	0.88	28.8
MMM_055_0709	375220	397636	Roadside	28/07/2014	20/04/2015	75.0	74.3	0.85	0.88	**55.4**
MMM_058_0709	375391	397832	Roadside	28/07/2014	20/04/2015	25.0	56.0	0.83	0.9	**41.7**
MMM_061_0709	373683	400779	Roadside	28/07/2014	20/04/2015	75.0	58.6	0.85	0.88	**43.7**
MMM_062_0709	374466	400945	Roadside	01/08/2009	20/04/2015	91.7	56.0	0.85	0.94	**44.6**

Site ID/Modelled ID	X	Y	Type	Date Commissi-oned	Date Decommi-ssioned	Survey Period Data Capture %	Survey Period Mean (µg/m^3)	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised) (µg/m^3)
MMM_181_0513	374808	400359	Roadside	29/04/2013	20/04/2015	100.0	54.8	0.85	0.97	**45.1**
MMM_183_0513	374787	400217	Roadside	29/04/2013	20/04/2015	91.7	38.0	0.85	0.93	30.1
MMM_184_0513	374749	400175	Roadside	29/04/2013	20/04/2015	100.0	41.3	0.85	0.97	34.0
MMM_185_0513	374787	400288	Roadside	29/04/2013	20/04/2015	100.0	41.2	0.85	0.97	33.8
MMM_186_0513	374682	400196	Roadside	29/04/2013	20/04/2015	100.0	45.1	0.85	0.97	37.1
MMM_187_0513	374682	400124	Roadside	29/04/2013	20/04/2015	100.0	48.4	0.85	0.97	39.8
MMM_188_0513	374738	400113	Roadside	29/04/2013	20/04/2015	100.0	46.4	0.85	0.97	38.1
MMM_189_0513	374743	400002	Roadside	29/04/2013	20/04/2015	100.0	42.5	0.85	0.97	34.9
MMM_190_0513	374743	399873	Roadside	29/04/2013	20/04/2015	91.7	45.6	0.85	0.95	36.8
MMM_191_0513	374756	399892	Roadside	29/04/2013	20/04/2015	83.3	44.0	0.85	0.95	35.5
MMM_192_0513	374790	399913	Roadside	29/04/2013	20/04/2015	91.7	40.9	0.85	0.95	33.0
MMM_193_0513	374814	399928	Roadside	29/04/2013	20/04/2015	100.0	41.2	0.85	0.97	33.8
MMM_194_0513	374842	399958	Roadside	29/04/2013	20/04/2015	100.0	38.1	0.85	0.97	31.3
MMM_197_0513	374824	400128	Roadside	29/04/2013	20/04/2015	100.0	36.8	0.85	0.97	30.2
MMM_203_0513	375067	399605	Roadside	29/04/2013	20/04/2015	100.0	38.6	0.85	0.97	31.8
MMM_204_0513	374991	399595	Roadside	29/04/2013	20/04/2015	83.3	45.5	0.83	0.95	36.0
MMM_205_0513	374967	399523	Roadside	29/04/2013	20/04/2015	100.0	50.9	0.85	0.97	**41.8**
MMM_206_0513	375062	399485	Roadside	29/04/2013	20/04/2015	100.0	43.1	0.85	0.97	35.4
MMM_213_1013	375319	397599	Roadside	01/10/2013	20/04/2015	100.0	39.9	0.85	0.97	32.9
MMM_214_1013	375364	397905	Roadside	01/10/2013	20/04/2015	100.0	38.5	0.85	0.97	31.7
MMM_215_1013	378121	398757	Roadside	01/10/2013	20/04/2015	100.0	46.3	0.85	0.97	38.1
MMM_216_1013	377529	398873	Roadside	01/10/2013	20/04/2015	83.3	65.5	0.85	0.99	**55.0**
MMM_217_1013	377013	399016	Roadside	01/10/2013	20/04/2015	100.0	48.3	0.85	0.97	39.8
MMM_219_1013	373910	402154	Roadside	01/10/2013	20/04/2015	100.0	30.8	0.85	0.97	25.4
MMM_221_1013	375862	402623	Roadside	01/10/2013	20/04/2015	100.0	51.9	0.85	0.97	**42.7**

Site ID/Modelled ID	X	Y	Type	Date Commissi-oned	Date Decommi-ssioned	Survey Period Data Capture %	Survey Period Mean ($\mu g/m^3$)	Bias Adjustment factor	Annualisation factor	2015 annual mean (annualised) ($\mu g/m^3$)
MMM_262_0414	374681	400052	Roadside	30/04/2014	20/04/2015	83.3	45.8	0.85	0.96	37.4
MMM_264_0214	374418	401239	Roadside	04/03/2014	20/04/2015	91.7	40.0	0.85	0.94	32.1
MMM_265_0214	375309	401397	Roadside	04/02/2014	20/04/2015	91.7	52.3	0.85	0.98	**43.8**
MMM_268_0714	372275	401153	Roadside	28/07/2014	20/04/2015	75.0	31.1	0.85	0.88	23.2
MMM_269_0714	373330	401442	Roadside	28/07/2014	20/04/2015	66.7	29.7	0.85	0.88	22.2
MMM_270_0714	374597	401706	Roadside	28/07/2014	20/04/2015	75.0	28.2	0.85	0.88	21.1
MMM_272_0714	374674	401861	Roadside	28/07/2014	20/04/2015	58.3	35.0	0.85	0.89	26.6
MMM_274_0714	375366	401781	Roadside	28/07/2014	20/04/2015	75.0	35.0	0.85	0.88	26.2
MMM_275_0714	375976	399233	Roadside	28/08/2014	20/04/2015	75.0	40.9	0.85	0.88	30.6

Exceedances of annual mean NO_2 UK AQS objective are highlighted in **bold**.
*Not within geographical study area but used in verification

B.2.4. Ecological Designations

M56 J6-8 Geographical Study Area

No designated ecological sites have been identified within 200m of the 'Cumulative worst case' or 'M56 J6-8 Only' ARNs, therefore, no assessment of the effect of these scenarios on ecological sites has been undertaken within the M56 J6-8 Geographical Study Area.

M60 J24-4 Geographical Study Area

There is one relevant designated ecological site within the M60 J24-4 geographical study area, the Hollinwood Branch Canal Site of Special Scientific Interest (SSSI), which contains some habitats sensitive to NO_x and nitrogen deposition. Critical loads for nitrogen deposition (where available) along with background nitrogen deposition rates and the NO_x background concentration at the designated ecological sites considered in the assessment are shown in Table B-16.

Table B-16 Critical loads for Nutrient Nitrogen and Background Nitrogen Deposition

Designated Sites	Habitat Type or Species	Critical Load (kg N $ha^{-1}yr^{-1}$)	Average Background Nitrogen Deposition [a] (kg N $ha^{-1}yr^{-1}$) [b]	2015 Average Background NO_x ($\mu g/m^3$)
Hollinwood Branch Canal SSSI	Fen, marsh and swamp	15 – 30 [c]	21.7	30.6
	Vascular plant assemblage	No comparable habitat with established critical load estimate available	14.9	

[a] Nitrogen deposition varies by land cover type, with habitats with a larger surface area of vegetation (e.g. woodland) having higher deposition.

[b] The background nitrogen deposition rate was taken from the APIS website (based on a 3-year mean for 2012-14).

[c] The APIS website indicates that the relevant critical load for this habitat type is 'site specific'. It has been suggested by the project ecologist that the closest habitat type to that found in the SSSI with a defined critical load is 'Rich Fen', therefore this critical load has been used to assess changes in nitrogen deposition within this SSSI.

M62 J10-12 Geographical Study Area

There are three designated ecological site within the M62 J10-12 geographical study area which contains habitats sensitive to NOx and nitrogen deposition; the Holcroft Moss SSSI/ Manchester Mosses SAC, the Rixton Clay Pits SSSI, and the Woolston Eyes SSSI. Critical loads for nitrogen deposition along with background nitrogen deposition and the average NOx background concentration at this SSSI are shown in Table B- 17.

Table B-17 Critical loads for nutrient nitrogen and background nitrogen deposition

Designated Sites	Habitat Type or Species	Critical Load (kg N $ha^{-1}yr^{-1}$)	Average Background Nitrogen Deposition* (kg N $ha^{-1}yr^{-1}$)^	Average Background NOx ($\mu g/m^3$) in 2015#
Holcroft Moss SSSI / Manchester Mosses SAC	Bogs; Fen Marsh and Swamp	5-10	19.5	23.7
Rixton Clay Pits SSSI	Broad-Leaved, Mixed and Yew Woodland; Triturus Cristatus	10-15	19.6	24.7
Woolston Eyes SSSI	Anas Clypeata; Anas Crecca; Anas Strepera; Aythya Ferina; Lowland Open Waters and their Margins; Podiceps Nigricollis	20-30	20.0	24.2

*Nitrogen deposition varies by land cover type, with habitats with a larger surface area of vegetation (such as woodland) having higher deposition.

^The background nitrogen deposition rate was taken from the APIS website (based on a 3-year mean for 2013-15).

Contributions from Motorways and Trunk A-Roads within the grid squares of the background maps have been removed from the mapped concentrations as these sources are explicitly modelled in the assessment.

Appendix B.3. Air Quality Assessment Methodology

B.3.1. Model Setup - Emission Rates

The emission rates used in the local air quality modelling were derived from IAN 185/15 on speed banding. In accordance with IAN 185/15 the traffic modellers undertook speed pivoting and infilling where required including:

- Analysis of the performance of modelled traffic speeds on individual road links compared against observed speeds on the same road links;
- Adjustment, where required, of modelled traffic speeds on individual road links to better reflect observed speeds; this is known as the "Speed Pivoting" approach;
- Assignment of individual road links into a speed-banding category by road type; and
- Adjustment, where required, of assigned speed band where changes in speed did not justify a change in speed band (speed change less than 5 kph) or where a speed band change was considered by the traffic modellers to no reflect a valid Proposed Scheme impact.

The emission rates for each hour were calculated as follows:

- Step 1 – Weekday AM, IP, PM, OP hourly flows (in terms of LDV and HDV) for each road link were obtained from the traffic model and a speed band assigned to each road link for each period.
- Step 2 – The traffic modellers were consulted to confirm which hours the relevant traffic model periods apply to. These were confirmed as:
  - AM: 07:00 – 10:00 (3 hours);
  - IP: 10:00 – 16:00 (6 hours);
  - PM: 16:00 – 19:00 (3 hours); and
  - OP: 19:00 – 07:00 (12 hours).

For M56 J6-8 geographical study area and M60 J24-4 geographical study area

- Step 3 – Hourly emissions were calculated for LDV and HDV separately for each road link for each traffic model period using the flow, speed and road type and the emission factors from IAN 185/15 for the relevant speed band. Calculated LDV and HDV emissions were then added together to give the total emission per hour for each road link during each period.
- Step 4 – The calculated emissions for each road link for each model period were then assigned against the relevant hour of the day in order to provide hour by hour emissions over a 24-hour period for both weekday and weekend days.

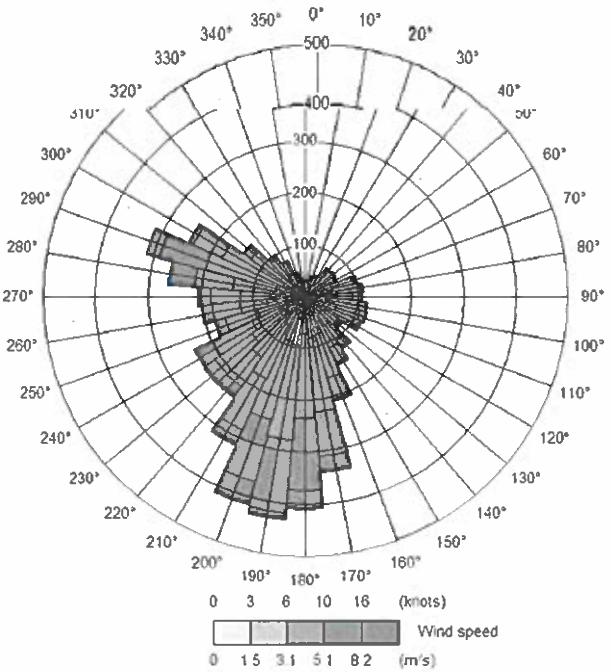
For M6 J 21A-26 geographical area and M62 J10-12 geographical study area

- Step 3 – Emission rates for each time period were calculated using the using the flow, %HDV speed and road type using the *"IAN 185-13 Speed Band Emission Factors v2"* spreadsheet tool.
- Step 4 – Emissions for each time period were input into the ADMS-Roads model and a "fac" file used to specify which hourly emission rate is used over each hour of the day.

B.3.2. Model Setup – Dispersion Setup

Hourly sequential meteorological data for 2015 for Manchester Airport meteorological station were used. The parameters required by the model included: date, time, wind direction (angle wind blowing from), wind speed (at 10 metres above ground level), surface air temperature (degrees Celsius), and cloud cover (oktas – or eighths of sky covered). The wind rose for Manchester Airport (presented below in Figure B-5) indicates that the dominant wind direction for 2015 was from the south-southwest.

Figure B-5 Wind Rose Diagram for Manchester Airport, 2015



A latitude of 53.36 degrees was selected. This determines times of sunrise and sunset for each day throughout the year, which in turn affects stability calculations.

Surface roughness coefficients have been defined as 0.5 metres (representative of parkland and open suburbia) for the M56 J6-8, M60 J24-4, M62 J10-12 and M6 J 21A-26 geographical study areas. The surface roughness is important in the approximation of turbulent conditions within the atmospheric boundary layer and thus in the estimation of pollutant concentrations at receptors.

Minimum Monin-Obukhov length (to reasonably limit the occurrence of very stable atmospheric conditions) has been defined as 30 metres at both the meteorological site and the dispersion site (representative of mixed urban/industrial). This parameter limits the occurrence of very stable boundary layer conditions (i.e. when the air is still) to a degree that is appropriate to the general land-use. In general, the potential for very stable conditions is lowest in large urban areas where the 'heat island' effect promoting turbulent motion in the boundary layer is strongest.

B.3.3. Model Setup – Receptors

M56 J6-8 Geographical Study Area

The locations of human health receptors are shown in Figure 5.4 – M56 J6-8.

M60 J24-4 Geographical Study Area

Table B-17 presents the ecological receptor locations within the M60 J24-4 geographical study area included in the air quality model. The locations of human health and ecological receptors are shown in Figure 5.4 – M60 J24-4.

Table B-17 Ecological Receptors included in the Air Quality Model

ID	Distance to road centre (m)	Name	X	Y	Local Authority
M60-E1	30	Hollinwood Branch Canal SSSI	391704	400218	Oldham

M62 J10-12 Geographical Study Area

Table B-18 presents the transect locations within the Holcroft Moss SSSI/ Manchester Mosses SAC included in the air quality model. The location of human health and ecological receptors are shown in Figure 5.3 – M62 J10-12.

Table B-18 Ecological Receptors included in the Air Quality Model

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_19m	19	Holcroft Moss SSSI	368465	393490	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_24m	24	Holcroft Moss SSSI	368469	393487	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_29m	29	Holcroft Moss SSSI	368472	393483	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_34m	34	Holcroft Moss SSSI	368476	393479	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_39m	39	Holcroft Moss SSSI	368479	393476	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_44m	44	Holcroft Moss SSSI	368483	393472	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_49m	49	Holcroft Moss SSSI	368486	393469	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_54m	54	Holcroft Moss SSSI	368490	393465	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_59m	59	Holcroft Moss SSSI	368493	393462	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_64m	64	Holcroft Moss SSSI	368497	393458	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_69m	69	Holcroft Moss SSSI	368500	393455	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_74m	74	Holcroft Moss SSSI	368504	393451	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_79m	79	Holcroft Moss SSSI	368507	393448	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_84m	84	Holcroft Moss SSSI	368511	393444	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_89m	89	Holcroft Moss SSSI	368515	393441	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_94m	94	Holcroft Moss SSSI	368518	393437	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_99m	99	Holcroft Moss SSSI	368522	393433	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_104m	104	Holcroft Moss SSSI	368525	393430	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_109m	109	Holcroft Moss SSSI	368529	393426	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_114m	114	Holcroft Moss SSSI	368532	393423	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_119m	119	Holcroft Moss SSSI	368536	393419	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_124m	124	Holcroft Moss SSSI	368539	393416	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_129m	129	Holcroft Moss SSSI	368543	393412	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_134m	134	Holcroft Moss SSSI	368546	393409	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_139m	139	Holcroft Moss SSSI	368550	393405	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_144m	144	Holcroft Moss SSSI	368553	393402	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_149m	149	Holcroft Moss SSSI	368557	393398	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_154m	154	Holcroft Moss SSSI	368561	393395	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_159m	159	Holcroft Moss SSSI	368564	393391	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_164m	164	Holcroft Moss SSSI	368568	393388	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_169m	169	Holcroft Moss SSSI	368571	393384	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_174m	174	Holcroft Moss SSSI	368575	393380	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_179m	179	Holcroft Moss SSSI	368578	393377	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_184m	184	Holcroft Moss SSSI	368582	393373	Warrington

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_189m	189	Holcroft Moss SSSI	368585	393370	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_194m	194	Holcroft Moss SSSI	368589	393366	Warrington
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_199m	199	Holcroft Moss SSSI	368592	393363	Warrington
Rixton_Clay_Pits_SSSI_SAC_0m	0	Rixton Clay Pits SSSI	368570	390055	Warrington
Rixton_Clay_Pits_SSSI_SAC_5m	5	Rixton Clay Pits SSSI	368568	390059	Warrington
Rixton_Clay_Pits_SSSI_SAC_10m	10	Rixton Clay Pits SSSI	368565	390064	Warrington
Rixton_Clay_Pits_SSSI_SAC_15m	15	Rixton Clay Pits SSSI	368563	390068	Warrington
Rixton_Clay_Pits_SSSI_SAC_20m	20	Rixton Clay Pits SSSI	368560	390072	Warrington
Rixton_Clay_Pits_SSSI_SAC_25m	25	Rixton Clay Pits SSSI	368558	390077	Warrington
Rixton_Clay_Pits_SSSI_SAC_30m	30	Rixton Clay Pits SSSI	368555	390081	Warrington
Rixton_Clay_Pits_SSSI_SAC_35m	35	Rixton Clay Pits SSSI	368553	390085	Warrington
Rixton_Clay_Pits_SSSI_SAC_40m	40	Rixton Clay Pits SSSI	368550	390090	Warrington
Rixton_Clay_Pits_SSSI_SAC_45m	45	Rixton Clay Pits SSSI	368548	390094	Warrington
Rixton_Clay_Pits_SSSI_SAC_50m	50	Rixton Clay Pits SSSI	368545	390098	Warrington
Rixton_Clay_Pits_SSSI_SAC_55m	55	Rixton Clay Pits SSSI	368543	390103	Warrington
Rixton_Clay_Pits_SSSI_SAC_60m	60	Rixton Clay Pits SSSI	368540	390107	Warrington
Rixton_Clay_Pits_SSSI_SAC_65m	65	Rixton Clay Pits SSSI	368538	390111	Warrington
Rixton_Clay_Pits_SSSI_SAC_70m	70	Rixton Clay Pits SSSI	368535	390116	Warrington
Rixton_Clay_Pits_SSSI_SAC_75m	75	Rixton Clay Pits SSSI	368533	390120	Warrington
Rixton_Clay_Pits_SSSI_SAC_80m	80	Rixton Clay Pits SSSI	368530	390124	Warrington
Rixton_Clay_Pits_SSSI_SAC_85m	85	Rixton Clay Pits SSSI	368528	390129	Warrington
Rixton_Clay_Pits_SSSI_SAC_90m	90	Rixton Clay Pits SSSI	368525	390133	Warrington
Rixton_Clay_Pits_SSSI_SAC_95m	95	Rixton Clay Pits SSSI	368523	390137	Warrington
Rixton_Clay_Pits_SSSI_SAC_100m	100	Rixton Clay Pits SSSI	368520	390142	Warrington
Rixton_Clay_Pits_SSSI_SAC_105m	105	Rixton Clay Pits SSSI	368518	390146	Warrington
Rixton_Clay_Pits_SSSI_SAC_110m	110	Rixton Clay Pits SSSI	368515	390150	Warrington

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Rixton_Clay_Pits_SSSI_SAC_115m	115	Rixton Clay Pits SSSI	368513	390155	Warrington
Rixton_Clay_Pits_SSSI_SAC_120m	120	Rixton Clay Pits SSSI	368510	390159	Warrington
Rixton_Clay_Pits_SSSI_SAC_125m	125	Rixton Clay Pits SSSI	368508	390163	Warrington
Rixton_Clay_Pits_SSSI_SAC_130m	130	Rixton Clay Pits SSSI	368505	390168	Warrington
Rixton_Clay_Pits_SSSI_SAC_135m	135	Rixton Clay Pits SSSI	368503	390172	Warrington
Rixton_Clay_Pits_SSSI_SAC_140m	140	Rixton Clay Pits SSSI	368500	390176	Warrington
Rixton_Clay_Pits_SSSI_SAC_145m	145	Rixton Clay Pits SSSI	368498	390181	Warrington
Rixton_Clay_Pits_SSSI_SAC_150m	150	Rixton Clay Pits SSSI	368495	390185	Warrington
Rixton_Clay_Pits_SSSI_SAC_155m	155	Rixton Clay Pits SSSI	368493	390189	Warrington
Rixton_Clay_Pits_SSSI_SAC_160m	160	Rixton Clay Pits SSSI	368490	390194	Warrington
Rixton_Clay_Pits_SSSI_SAC_165m	165	Rixton Clay Pits SSSI	368488	390198	Warrington
Rixton_Clay_Pits_SSSI_SAC_170m	170	Rixton Clay Pits SSSI	368485	390202	Warrington
Rixton_Clay_Pits_SSSI_SAC_175m	175	Rixton Clay Pits SSSI	368483	390207	Warrington
Rixton_Clay_Pits_SSSI_SAC_180m	180	Rixton Clay Pits SSSI	368480	390211	Warrington
Rixton_Clay_Pits_SSSI_SAC_185m	185	Rixton Clay Pits SSSI	368478	390215	Warrington
Rixton_Clay_Pits_SSSI_SAC_190m	190	Rixton Clay Pits SSSI	368475	390220	Warrington
Rixton_Clay_Pits_SSSI_SAC_195m	195	Rixton Clay Pits SSSI	368473	390224	Warrington
Rixton_Clay_Pits_SSSI_SAC_200m	200	Rixton Clay Pits SSSI	368470	390228	Warrington
Woolston_Eyes_1_0m	0	Woolston Eyes SSSI	366370	388531	Warrington
Woolston_Eyes_1_5m	5	Woolston Eyes SSSI	366365	388529	Warrington
Woolston_Eyes_1_10m	10	Woolston Eyes SSSI	366361	388528	Warrington
Woolston_Eyes_1_15m	15	Woolston Eyes SSSI	366356	388526	Warrington
Woolston_Eyes_1_20m	20	Woolston Eyes SSSI	366351	388524	Warrington
Woolston_Eyes_1_25m	25	Woolston Eyes SSSI	366347	388522	Warrington
Woolston_Eyes_1_30m	30	Woolston Eyes SSSI	366342	388521	Warrington

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Woolston_Eyes_1_35m	35	Woolston Eyes SSSI	366337	388519	Warrington
Woolston_Eyes_1_40m	40	Woolston Eyes SSSI	366332	388517	Warrington
Woolston_Eyes_1_45m	45	Woolston Eyes SSSI	366328	388516	Warrington
Woolston_Eyes_1_50m	50	Woolston Eyes SSSI	366323	388514	Warrington
Woolston_Eyes_1_55m	55	Woolston Eyes SSSI	366318	388512	Warrington
Woolston_Eyes_1_60m	60	Woolston Eyes SSSI	366314	388511	Warrington
Woolston_Eyes_1_65m	65	Woolston Eyes SSSI	366309	388509	Warrington
Woolston_Eyes_1_70m	70	Woolston Eyes SSSI	366304	388507	Warrington
Woolston_Eyes_1_75m	75	Woolston Eyes SSSI	366300	388505	Warrington
Woolston_Eyes_1_80m	80	Woolston Eyes SSSI	366295	388504	Warrington
Woolston_Eyes_1_85m	85	Woolston Eyes SSSI	366290	388502	Warrington
Woolston_Eyes_1_90m	90	Woolston Eyes SSSI	366285	388500	Warrington
Woolston_Eyes_1_95m	95	Woolston Eyes SSSI	366281	388499	Warrington
Woolston_Eyes_1_100m	100	Woolston Eyes SSSI	366276	388497	Warrington
Woolston_Eyes_1_105m	105	Woolston Eyes SSSI	366271	388495	Warrington
Woolston_Eyes_1_110m	110	Woolston Eyes SSSI	366267	388493	Warrington
Woolston_Eyes_1_115m	115	Woolston Eyes SSSI	366262	388492	Warrington
Woolston_Eyes_1_120m	120	Woolston Eyes SSSI	366257	388490	Warrington
Woolston_Eyes_1_125m	125	Woolston Eyes SSSI	366253	388488	Warrington
Woolston_Eyes_1_130m	130	Woolston Eyes SSSI	366248	388487	Warrington
Woolston_Eyes_1_135m	135	Woolston Eyes SSSI	366243	388485	Warrington
Woolston_Eyes_1_140m	140	Woolston Eyes SSSI	366238	388483	Warrington
Woolston_Eyes_1_145m	145	Woolston Eyes SSSI	366234	388481	Warrington
Woolston_Eyes_1_150m	150	Woolston Eyes SSSI	366229	388480	Warrington
Woolston_Eyes_1_155m	155	Woolston Eyes SSSI	366224	388478	Warrington

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Woolston_Eyes_1_160m	160	Woolston Eyes SSSI	366220	388476	Warrington
Woolston_Eyes_1_165m	165	Woolston Eyes SSSI	366215	388475	Warrington
Woolston_Eyes_1_170m	170	Woolston Eyes SSSI	366210	388473	Warrington
Woolston_Eyes_1_175m	175	Woolston Eyes SSSI	366206	388471	Warrington
Woolston_Eyes_1_180m	180	Woolston Eyes SSSI	366201	388469	Warrington
Woolston_Eyes_1_185m	185	Woolston Eyes SSSI	366196	388468	Warrington
Woolston_Eyes_1_190m	190	Woolston Eyes SSSI	366192	388466	Warrington
Woolston_Eyes_1_195m	195	Woolston Eyes SSSI	366187	388464	Warrington
Woolston_Eyes_1_200m	200	Woolston Eyes SSSI	366182	388463	Warrington
Woolston_Eyes_2_0m	0	Woolston Eyes SSSI	366443	388546	Warrington
Woolston_Eyes_2_5m	5	Woolston Eyes SSSI	366448	388548	Warrington
Woolston_Eyes_2_10m	10	Woolston Eyes SSSI	366452	388549	Warrington
Woolston_Eyes_2_15m	15	Woolston Eyes SSSI	366457	388551	Warrington
Woolston_Eyes_2_20m	20	Woolston Eyes SSSI	366462	388553	Warrington
Woolston_Eyes_2_25m	25	Woolston Eyes SSSI	366467	388555	Warrington
Woolston_Eyes_2_30m	30	Woolston Eyes SSSI	366471	388556	Warrington
Woolston_Eyes_2_35m	35	Woolston Eyes SSSI	366476	388558	Warrington
Woolston_Eyes_2_40m	40	Woolston Eyes SSSI	366481	388560	Warrington
Woolston_Eyes_2_45m	45	Woolston Eyes SSSI	366485	388561	Warrington
Woolston_Eyes_2_50m	50	Woolston Eyes SSSI	366490	388563	Warrington
Woolston_Eyes_2_55m	55	Woolston Eyes SSSI	366495	388565	Warrington
Woolston_Eyes_2_60m	60	Woolston Eyes SSSI	366499	388567	Warrington
Woolston_Eyes_2_65m	65	Woolston Eyes SSSI	366504	388568	Warrington
Woolston_Eyes_2_70m	70	Woolston Eyes SSSI	366509	388570	Warrington
Woolston_Eyes_2_75m	75	Woolston Eyes SSSI	366514	388572	Warrington

ID	Distance to edge of carriageway (metres)	Name	X	Y	Local Authority
Woolston_Eyes_2_80m	80	Woolston Eyes SSSI	366518	388573	Warrington
Woolston_Eyes_2_85m	85	Woolston Eyes SSSI	366523	388575	Warrington
Woolston_Eyes_2_90m	90	Woolston Eyes SSSI	366528	388577	Warrington
Woolston_Eyes_2_95m	95	Woolston Eyes SSSI	366532	388579	Warrington
Woolston_Eyes_2_100m	100	Woolston Eyes SSSI	366537	388580	Warrington
Woolston_Eyes_2_105m	105	Woolston Eyes SSSI	366542	388582	Warrington
Woolston_Eyes_2_110m	110	Woolston Eyes SSSI	366546	388584	Warrington
Woolston_Eyes_2_115m	115	Woolston Eyes SSSI	366551	388585	Warrington
Woolston_Eyes_2_120m	120	Woolston Eyes SSSI	366556	388587	Warrington
Woolston_Eyes_2_125m	125	Woolston Eyes SSSI	366561	388589	Warrington
Woolston_Eyes_2_130m	130	Woolston Eyes SSSI	366565	388591	Warrington
Woolston_Eyes_2_135m	135	Woolston Eyes SSSI	366570	388592	Warrington
Woolston_Eyes_2_140m	140	Woolston Eyes SSSI	366575	388594	Warrington
Woolston_Eyes_2_145m	145	Woolston Eyes SSSI	366579	388596	Warrington
Woolston_Eyes_2_150m	150	Woolston Eyes SSSI	366584	388597	Warrington
Woolston_Eyes_2_155m	155	Woolston Eyes SSSI	366589	388599	Warrington
Woolston_Eyes_2_160m	160	Woolston Eyes SSSI	366593	388601	Warrington
Woolston_Eyes_2_165m	165	Woolston Eyes SSSI	366598	388602	Warrington
Woolston_Eyes_2_170m	170	Woolston Eyes SSSI	366603	388604	Warrington
Woolston_Eyes_2_175m	175	Woolston Eyes SSSI	366607	388606	Warrington
Woolston_Eyes_2_180m	180	Woolston Eyes SSSI	366612	388608	Warrington
Woolston_Eyes_2_185m	185	Woolston Eyes SSSI	366617	388609	Warrington
Woolston_Eyes_2_190m	190	Woolston Eyes SSSI	366622	388611	Warrington
Woolston_Eyes_2_195m	195	Woolston Eyes SSSI	366626	388613	Warrington
Woolston_Eyes_2_200m	200	Woolston Eyes SSSI	366631	388614	Warrington

B.3.4. Background Concentrations

M56 J6-8 Geographical Study Area

Estimated annual mean background NO_2 concentrations for 2015 (the air quality assessment base year) were obtained from the background mapping provided on the DEFRA UK-AIR website and compared with 2015 monitoring data from the background CMS sites located in the M56 J6-8 geographical study area. Table B-19 presents the results of this comparison.

Table B-19 Comparison of Annual Mean NO_2 Concentrations (µg/m^3) from DEFRA Background Mapping and Urban Background CMS Sites – M56 J6-8 Geographical Study Area

Local Authority	Site ID	Modelled ID	Site Classification	X,Y	Grid Square X,Y	2015 DEFRA Background	2015 Monitored Background	%Difference (grid square NO_2 – monitored NO_2) / monitored NO_2*100)
Trafford	TRAF	M756	Urban background	378783, 378783	378500, 394500	21.7	20	8.7
Warrington	CM1	M805	Urban background	359151, 359151	359500, 388500	21.7	24.4	-11.0
Manchester	MAN3	M853	Urban background	384310, 384310	384500, 398500	34.9	39	-10.5
Manchester	MAN8	M854	Urban Background	383904, 383904	383500, 385500	20.8	20	4.0

M60 J24-4 Geographical Study Area

Estimated annual mean background NO_2 concentrations for 2015 (the air quality assessment base year) were obtained from the background mapping provided on the DEFRA UK-AIR website and these were compared with 2015 monitoring data from the background CMS sites located in the air quality study area. Table B-20 presents the results of this comparison.

Table B-20 Comparison of Annual Mean NO_2 Concentrations (µg/m^3) from DEFRA Background Mapping and Urban Background CMS Sites – M60 J24-4 Geographical Study Area

Local Authority	Site ID	Modelled ID	Site Type	X,Y	Grid Square X,Y	2015 DEFRA Backgrd	2015 Monitored Backgrd	%Diff. (grid square NO_2 – monitored NO_2) / monitored NO_2*100)
Tameside	TAME	M737	Urban background	393454, 394330	393500, 394500	20.0	19	5.5
Trafford	TRAF	M756	Urban background	378783, 394726	378500, 394500	21.7	20	8.7
Warrington	CM1	M805	Urban background	359151, 388218	359500, 388500	21.7	24.4	-11.0
Manchester	MAN3	M853	Urban background	384310, 398337	384500, 398500	34.9	39	-10.5
Manchester	MAN8	M854	Urban Background	383904, 385818	383500, 385500	20.8	20	4.0

M62 J10-12 Geographical Study Area

Estimated annual mean background NO_2 concentrations for 2015 (the air quality assessment base year) were obtained from the background mapping provided on the DEFRA UK-AIR website and these were compared with 2015 monitoring data from the background CMS sites located in the M62 geographical study area. Table B-21 presents the results of this comparison.

Table B-21 Comparison of Annual Mean NO_2 Concentrations (µg/m^3) from DEFRA Background Mapping and Urban Background CMS Sites – M62 Geographical Study Area

Local Authority	Site ID	Modelled ID	Site Classification	X,Y	Grid Square X,Y	2015 DEFRA Background	2015 Monitored Background	%Difference (grid square NO_2 – monitored NO_2) / monitored NO_2*100)
Knowsley	Site 1	N/A	Urban Background	341774, 398802	341500_ 398500	17.9	18.7	-4%
Manchester	MAN3	N/A	Urban Background	384310, 398337	382500_ 398500	34.4	39	-12%
Manchester	MAN8	N/A	Suburban Background	383904, 385818	383500_ 384500	18.2	20	-9%
Salford	GLAZ	N/A	Rural Background	355250, 430126	368500, 396500	15.6	15	4%
Sefton	CM1	N/A	Urban Background	341774, 398802	333500_ 396500	20.8	No data	N/A
Trafford	TRAF	N/A	Urban Background	383904, 385818	379500_ 395500	22.5	20	12%
Wigan	WIG5	N/A	Urban Background	355250, 430126	357500_ 406500	18.1	19	-5%

Appendix B.4. Model Verification

B.4.1. M56 J6-8 Geographical Study Area

Model verification was undertaken using monitoring sites within 200 metres of the ARN. A total of 103 diffusion tube monitoring sites within the M56 J6-8 geographical study area (within 200m of ARN) were considered for use in model verification. From these sites, only those representative of modelled sensitive receptor locations and with sufficient data capture were considered suitable for the purposes of model verification. Following detailed analysis of each monitoring location a total of 64 diffusion tube sites were taken forward in the model verification process. Table B-22 details the sites removed from the verification process, whilst Table B-23 and Figure 5.4 – M56 J6-8 show the locations of the diffusion tube sites used in verification.

Table B-22 Diffusion Tube sites excluded from model verification

Site ID	X, Y	Reason for exclusion from verification
M505	355773, 379819	Located adjacent to A56 Chester Road, which is not an ARN link, for which there is less confidence in modelled traffic conditions.
M541	367000, 383414	Measured concentration substantially lower than suggested by model and compared to similar nearby sites.
M542	370333, 385246	Located next to M39, with M39 being worst case
M429	381699, 387625	Attached to post which was obstructed by vegetation
M430, M431, M432	381708, 387622	Triplicate co-location on a fence which was obstructed by vegetation
M426	381826, 388249	Traffic data not provided for closest road source
M423, M424, M425	381894, 388217	Location immediately adjacent to M56 (3m from kerb), not considered representative of NO_2 concentrations affecting closest sensitive receptors (75m from kerb) at which alternative monitoring data is available.
M420, M421, M422	381929, 388171	Location immediately adjacent to M56 (3m from kerb), not considered representative of NO_2 concentrations affecting closest sensitive receptors (40m from kerb) at which alternative monitoring data is available. Also, site under bridge over M56 perhaps inhibiting dispersion.
M42	381914, 388129	"Compliance Risk" location immediately adjacent to M56 (<2m from kerb), not considered representative of NO_2 concentrations affecting closest sensitive receptors (40m from kerb) at which alternative monitoring data is available. Site also adjacent to a road source not modelled.
M22	382071, 388728	Immediately adjacent to M427.
M12	382094, 389086	Low data capture
M10	382264, 389384	Measured concentration substantially higher than nearby tubes, more representative of locations of nearby relevant exposure.
M5	382371, 390011	Closest road not modelled
M258	382343, 390528	Adjacent to M3
M257	382439, 390497	Adjacent to M2
M752	377416, 395756	Industrial site, therefore not suitable for model verification
M753	377416, 395756	Industrial site, therefore not suitable for model verification

Table B-23 Diffusion Tube Locations Used in Model Verification

Site ID	Modelled ID	Site Location	X	Y	Local Authority
M56J6J8_001_0813	M1		382283	390525	Manchester
M56J6J8_002_0813	M2		382343	390528	Manchester
M56J6J8_003_0813	M3		382439	390497	Manchester
M56J6J8_004_0813	M4		382471	390496	Manchester
M56J6J8_006_0813	M6		382394	389945	Manchester
M56J6J8_007_0813	M7		382408	389571	Manchester
M56J6J8_008_0813	M8		382335	389438	Manchester
M56J6J8_009_0813	M9		382306	389302	Manchester
M56J6J8_011_0813	M11		382256	389329	Manchester
M56J6J8_013_0813	M13		382050	389105	Manchester
A556_11_0215	M406		382128	389294	Manchester
A556_10_0215	M407		382261	389283	Manchester
A556_26_0215	M411a		382432	389034	Manchester
MMM_070_0709	M84		377638	395423	Trafford
MMM_073_0709	M85		377612	395055	Trafford
M56J6J8_021_0813	M21		382270	388723	Manchester
A556_6_0215	M419		382110	388471	Manchester
M56J6J8_023_0813	M23		381832	387692	Manchester
M56J6J8_025_0813	M25		381706	387343	Manchester
M56J6J8_026_0813	M26		381753	387164	Manchester
A556_5_0215	M435		381826	387671	Manchester
A556_4_0215	M436		381713	387323	Manchester
A556_3_0215	M437		381603	387115	Manchester
A556_2_0215	M438		381379	386795	Manchester
A556_1_0215	M439		381265	386698	Manchester
M56J6J8_024_0813	M24		381715	387687	Manchester
M56J6J8_027_0813	M27		381517	387164	Manchester
A556_12_0215	M427		382073	388728	Manchester
A556_14_0215	M428		381759	387869	Manchester
A556_16_0215	M433		381497	387152	Manchester
13	M740		381221	396441	Trafford
A556_17_0215	M434		381188	386762	Manchester
A556_18_0215	M440		380211	385267	Manchester
M56J6J8_031_0813	M31		380215	385274	Manchester
M56J6J8_032_0813	M32		378092	384501	Cheshire East
M56J6J8_033_0813	M33		374871	384856	Cheshire East
M56J6J8_034_0813	M34		372486	385249	Cheshire East
M56J6J8_035_0813	M35		372477	385422	Cheshire East
M56J6J8_036_0813	M36		371290	385299	Cheshire East
M56J6J8_037_0813	M37		371236	385197	Cheshire East
M56J6J8_038_0813	M38		370861	385121	Cheshire East

Site ID	Modelled ID	Site Location	X	Y	Local Authority
M56J6J8_039_0813	M39		370319	385236	Cheshire East
M6J19lm_004_1215	M349		372313	379287	Cheshire East
M6J19lm_005_1215	M350		372108	379292	Cheshire East
M6J19lm_017_1215	M362		372012	379434	Cheshire East
M6J16J19_025_0513	M392		372014	379753	Cheshire East
M6J16J19_027_0513	M394		372016	379440	Cheshire East
M6J16J19_033_0513	M400		366353	384975	Warrington
M6J16J19_034_0513	M401		366943	383815	Cheshire East
M60J24J27_035_0813	M475		384573	388998	Stockport
M60J24J27_036_0813	M476		384399	389006	Manchester
MMM_174_0310	M89		377485	394288	Trafford
MMM_168_0310	M184		377552	394397	Trafford
MMM_176_0310	M186		377437	394337	Trafford
MMM_068_0709	M203		377571	395436	Trafford
MMM_072_0709	M204		377499	395044	Trafford
MMM_077_0709	M205		377593	394377	Trafford
MMM_208_1013	M117		380772	391717	Trafford
MMM_209_1013	M118		377181	396105	Trafford
MMM_211_1013	M120		376612	396325	Trafford
MMM_212_1013	M121		376515	396354	Trafford
MMM_263_0314	M161		376820	396232	Trafford
MMM_064_0709	M202		376388	396311	Trafford
23	M749		376438	396383	Trafford

Uncertainty in modelled estimates has been considered by calculating root mean square error (RMSE) and fractional bias statistics. An air quality model can be considered to perform reasonably well where modelled concentrations are within 25% of monitored concentrations in accordance with DEFRA's Technical Guidance LAQM.TG(16). The RMSE should ideally be within 10% of the relevant air quality criterion, but is acceptable where it is within 25% of the relevant air quality criterion. The Fractional Bias (FB) has an ideal value of 0, but is acceptable in the range between +2 and -2.

Firstly, unadjusted modelled estimates of total annual mean NO_2 concentrations have been compared against monitored annual means. Out of 64 comparisons, 54 modelled estimates were within +/- 25% of monitored without adjustment, as shown in Table B-24. Substantial underestimates of more than 25% are indicated for sites M21, M36, M349, M394, M401, M419 and M440 whilst substantial overestimates are indicated for sites M184, M186 and M203. 29 of the comparisons are within +/- 10% of monitored.

The results of the unadjusted model verification within the M56 J6-68 geographical study area have been used to define 11 model domains which are listed below and shown in Figure 5.4 – M56 J6-8.

Table B-24 Comparison of Unadjusted Modelled and Measured NO_2 Concentrations

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
Model Domain		A5103			
M1	30.1	27.1	-3.0	0.9	-10.0
M2	34.5	31.3	-3.2	0.9	-9.2
M3	40.1	31.9	-8.2	0.8	-20.4
M4	34	29.0	-5.0	0.9	-14.7
M6	32.8	29.6	-3.2	0.9	-9.7
M7	27	27.7	0.7	1.0	2.5
M8	32.5	29.5	-3.0	0.9	-9.2
M9	35.4	31.5	-4.0	0.9	-11.2
M11	50.4	40.0	-10.4	0.8	-20.7
M13	28.6	27.0	-1.6	0.9	-5.6
M406	29.8	29.4	-0.4	1.0	-1.3
M407	42	38.3	-3.6	0.9	-8.6
M411a	52.3	44.6	-7.7	0.9	-14.7
Model Domain		Humphrey Park			
M84	42	39.1	-3.0	0.9	-7.1
M85	32.6	32.9	0.3	1.0	0.9
Model Domain		M56 Benchill			
M21	45.6	32.3	-13.4	0.7	-29.3
M419	48.1	35.3	-12.8	0.7	-26.6
Model Domain		M56 Junction 3 to Junction 5 EAST			
M23	36.1	33.6	-2.5	0.9	-7.0
M25	35.3	34.4	-0.9	1.0	-2.6
M26	34.9	26.6	-8.3	0.8	-23.8
M435	38.4	33.5	-5.0	0.9	-12.9
M436	36.1	32.1	-4.0	0.9	-11.2
M437	43	32.7	-10.3	0.8	-24.0
M438	38.3	32.2	-6.1	0.8	-16.0
M439	32.6	33.6	1.0	1.0	3.2
Model Domain		M56 Junction 3 to Junction 5 WEST			
M24	35.6	36.8	1.2	1.0	3.3
M27	34.5	37.3	2.7	1.1	7.8
M427	28.7	32.3	3.6	1.1	12.5
M428	31.7	33.6	1.9	1.1	6.0
M433	31.3	34.1	2.8	1.1	8.8
M740	30.9	33.8	2.9	1.1	9.4
M434	41	38.4	-2.5	0.9	-6.2
Model Domain		M56 Junction 6			
M440	43.4	32.5	-10.9	0.7	-25.0

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
M31	42.5	34.6	-7.9	0.8	-18.7
Model Domain		**M56 Junction 8**			
M32	22.3	23.3	1.0	1.0	4.4
M33	18.2	20.0	1.8	1.1	9.9
M34	20.1	19.9	-0.2	1.0	-0.9
M35	20.6	21.2	0.5	1.0	2.5
Model Domain		**M56 M6 A556**			
M36	31.9	22.6	-9.2	0.7	**-29.0**
M37	34.7	26.7	-8.1	0.8	-23.2
M38	25.3	21.9	-3.4	0.9	-13.5
M39	31.3	26.8	-4.5	0.9	-14.3
M349	31.4	22.9	-8.5	0.7	**-27.0**
M350	24.3	19.6	-4.6	0.8	-19.1
M362	25.5	19.4	-6.1	0.8	-24.0
M392	30.5	24.0	-6.5	0.8	-21.4
M394	26.1	19.6	-6.5	0.8	**-24.9**
M400	39.5	30.5	-9.1	0.8	-23.0
M401	35.1	25.6	-9.6	0.7	**-27.2**
Model Domain		**M60 Junction 4**			
M475	29.6	31.1	1.5	1.1	5.0
M476	26.9	27.2	0.3	1.0	1.1
Model Domain		**M60 Junction 8 to Junction 9**			
M89	27	30.3	3.3	1.1	12.2
M184	31.9	40.2	8.3	1.3	**26.2**
M186	20.5	26.7	6.2	1.3	**30.2**
M203	30	39.9	9.9	1.3	**33.1**
M204	28.8	33.6	4.8	1.2	16.7
M205	29.1	31.8	2.6	1.1	9.0
M117	29.1	31.9	2.8	1.1	9.6
Model Domain		**M60 Junction 10**			
M118	33.1	39.3	6.2	1.2	18.8
M120	38.1	32.6	-5.5	0.9	-14.5
M121	33.6	31.8	-1.7	0.9	-5.2
M161	31	31.8	0.8	1.0	2.7
M202	35.9	31.2	-4.7	0.9	-13.1
M749	38.4	34.0	-4.5	0.9	-11.6

The RMSE and fractional bias values obtained for unadjusted modelled estimates of NO_2 compared to monitored concentrations are shown in Table B-25, split by model domain. The RMSE target value according to DEFRA's Technical Guidance LAQM.TG(16) for the 40 $\mu g/m^3$ objective concentration for

annual mean NO_2, is for the RMSE to be less than 4 µg/m^3 (10% of the objective) but must be not more than 25 % of the objective i.e. 10 µg/m^3. These results indicate that the RMSE is above the target value in 6 domains, and above the required value in one domain. This suggests that model adjustment is justified in a number of domains.

Table B-25 RMSE and Fractional Bias values for unadjusted modelled estimates of NO_2 compared to monitored concentrations

Model Domain	RMSE	Fractional bias
A5013	5.04	0.12
Humphrey Park	2.11	0.04
M56 Benchill	13.1	0.32
M56 Junction 3 to Junction 5 East	5.72	0.13
M56 Junction 3 to Junction 5 West	2.61	-0.05
M56 Junction 6	9.51	0.25
M56 Junction 8	1.06	-0.04
M56 M6 A556	7.21	0.26
M60 Junction 4	1.07	-0.03
M60 Junction 8 to Junction 9	6.04	-0.18
M60 Junction 10	4.37	0.05

A further comparison of modelled estimates of road contributed annual mean NOx with the road NOx component derived from monitoring data is presented in Table B-26. This analysis requires the estimation of the monitored road NOx component, which was undertaken using DEFRA's NO_2 to NOx calculator, version 5.1.

Table B-26 Comparison of Modelled and Measured NO_x Concentrations

Site	Measured NOx (µg/m^3)	Modelled Total NOx - Unadjusted (µg/m^3)	Modelled – Measured (µg/m^3)	Modelled / Measured	% Difference
Model Domain		A5103			
M1	18	11.7	-6.3	1.5	-35.1
M2	27.5	20.5	-7.0	1.3	-25.4
M3	40.4	21.8	-18.6	1.9	-46.1
M4	26.4	15.5	-10.8	1.7	-41.1
M6	21.7	14.9	-6.8	1.5	-31.3
M7	9.5	10.9	1.4	0.9	14.7
M8	21.2	14.8	-6.4	1.4	-30.2
M9	27.6	18.9	-8.7	1.5	-31.6
M11	64.2	38.2	-26.0	1.7	-40.6
M13	12.7	9.4	-3.3	1.4	-26.0
M406	15.4	14.5	-0.8	1.1	-5.4
M407	42.8	34.2	-8.6	1.3	-20.0

Site	Measured NOx ($\mu g/m^3$)	Modelled Total NOx - Unadjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
M411a	69.1	49.2	-19.8	1.4	-28.7
Model Domain		**Humphrey Park**			
M84	43.5	36.4	-7.0	1.2	-16.1
M85	21.9	22.6	0.6	1.0	2.9
Model Domain		**M56 Benchill**			
M21	53	21.6	-31.3	2.4	-59.2
M419	59.3	28.4	-30.9	2.1	-52.1
Model Domain		**M56 Junction 3 to Junction 5 EAST**			
M23	33.4	27.8	-5.7	1.2	-17.0
M25	31.7	29.6	-2.1	1.1	-6.5
M26	30.8	12.9	-18.0	2.4	-58.3
M435	38.9	27.5	-11.4	1.4	-29.3
M436	33.5	24.5	-9.0	1.4	-26.9
M437	49.8	25.8	-24.0	1.9	-48.2
M438	36.4	22.6	-13.8	1.6	-37.9
M439	23.5	25.7	2.3	0.9	9.7
Model Domain		**M56 Junction 3 to Junction 5 WEST**			
M24	32.3	35.0	2.7	0.9	8.3
M27	30	36.1	6.2	0.8	20.6
M427	14.1	21.7	7.7	0.6	54.5
M428	23.6	27.8	4.2	0.8	17.9
M433	22.9	28.9	6.1	0.8	26.6
M740	21.8	28.1	6.3	0.8	29.0
M434	42.7	36.7	-6.0	1.2	-14.1
Model Domain		**M56 Junction 6**			
M440	41.5	16.7	-24.8	2.5	-59.7
M31	39.3	21.1	-18.2	1.9	-46.3
Model Domain		**M56 Junction 8**			
M32	9.8	11.7	2.0	0.8	20.3
M33	4.3	7.8	3.5	0.6	81.8
M34	8.9	8.6	-0.3	1.0	-3.6
M35	10	11.0	1.0	0.9	10.4
Model Domain		**M56 M6 A556**			
M36	33.4	14.0	-19.5	2.4	-58.2
M37	39.9	22.3	-17.6	1.8	-44.1
M38	18.3	11.4	-6.9	1.6	-37.6
M39	31	21.4	-9.5	1.4	-30.7
M349	33.7	15.8	-17.9	2.1	-53.1
M350	18.6	9.3	-9.3	2.0	-49.9

Site	Measured NOx (µg/m^3)	Modelled Total NOx - Unadjusted (µg/m^3)	Modelled – Measured (µg/m^3)	Modelled / Measured	% Difference
M362	21.1	8.8	-12.3	2.4	-58.3
M392	31.8	18.0	-13.8	1.8	-43.4
M394	22.3	9.2	-13.1	2.4	-58.7
M400	50.9	30.1	-20.8	1.7	-40.9
M401	39.3	18.6	-20.7	2.1	-52.7
Model Domain		**M60 Junction 4**			
M475	14.2	17.4	3.1	0.8	22.2
M476	13.1	13.7	0.6	1.0	4.6
Model Domain		**M60 Junction 8 to Junction 9**			
M89	12.8	19.7	6.9	0.7	53.7
M184	23	41.9	18.9	0.5	82.2
M186	-0.3	12.0	12.3	0.0	<-100*
M203	16.3	38.4	22.1	0.4	135.5
M204	13.8	24.0	10.3	0.6	74.6
M205	17.1	22.7	5.6	0.8	32.7
M117	16.2	22.2	6.0	0.7	36.8
Model Domain		**M60 Junction 10**			
M118	18.1	31.9	13.8	0.6	76.4
M120	31	18.8	-12.2	1.7	-39.4
M121	20.9	17.1	-3.8	1.2	-18.0
M161	15.4	17.2	1.8	0.9	11.7
M202	26	15.8	-10.2	1.6	-39.3
M749	31.7	21.7	-9.9	1.5	-31.4

* Comparison of modelled and monitored Road-NOx concentrations suggests that monitored NO_2 concentrations at this site are dominated by the contribution from background sources, despite being within 70m of the M60. The resulting adjustment factor for this model domain is however not substantially influenced by the comparison between modelled and monitored Road-NOx at this site, and modelled (adjusted) NO_2 concentrations in this domain are within 10% of monitored concentrations at all other sites.

The results of the comparison of modelled and monitored road-NOx indicates that the model exhibits systematic bias in a number of model domains. As such, in order to improve model performance, model adjustment factors were derived where considered necessary, in accordance with the methodology described in LAQM.TG16. The model adjustment factors derived and applied to modelled road-NOx contributions with each model domain are described below in Table B-27.

Table B-27 Model Adjustment Factors Applied in each Model Adjustment Area

Model Domain	Adjustment Factor Applied?	Adjustment Factor
Humphrey Park, M56 Junction 3 to Junction 5 West, M56 Junction 8, M60 Junction 4	No	N/A
A5013	Yes	1.46
M56 Benchill	Yes	2.27
M56 Junction 3 to Junction 5 East	Yes	1.37
M56 Junction 6	Yes	2.17
M56 M6 A556	Yes	1.84

M60 Junction 8 to Junction 9	Yes	0.55
M60 Junction 10	Yes	1.07

A comparison of the adjusted modelled estimates of total annual mean NO_2 with monitored concentrations is presented in Table B-28 and Table B-33. The results show that the adjusted NO_2 concentrations modelled at the 64 monitoring sites are within +/- 25% of monitored concentrations at all sites following model adjustment, and the majority (51 of 64 sites or 80%) are within 10% of monitored concentrations. This suggests that the model, following adjustment, performs well at most locations in accordance with DEFRA Technical Guidance LAQM.TG16.

Table B-28 RMSE and Fractional Bias values for Adjusted modelled estimates of NO_2 compared to monitored concentrations

Model Domain	Number of Site Comparisons	Number of Monitoring Sites within ±25% of the Monitored Concentration Pre-Adjustment	Raw RMSE (Pre Adjustment) (µg/m^3)	Model Adjustment Factor	Adjusted Model RMSE	Fractional Bias (Post Adjustment)	Number of Sites within ±25% of the Monitored Concentration Post Adjustment
A5103	13	13	5.04	1.46	2.06	0.00	13
Humphrey Park	2	2	2.11	N/A			
M56 Benchill	2	0	13.1	2.27	1.77	0.00	2
M56 J5-3 East	8	8	5.72	1.37	3.96	0.01	8
M56 J5-3 West	7	7	2.61	N/A			
M56 J6	2	1	9.51	2.17	2.44	-0.01	2
M56 J8	4	4	1.06	N/A			
M56 M6 A556	11	8	7.21	1.84	2.25	0.02	11
M60 J4	2	2	0.63	N/A			
M60 J8J9	7	4	6.04	0.55	1.82	-0.01	7
M60 J10	6	6	4.37	1.07	4.29	0.03	6

Table B-29 Comparison of Adjusted Modelled and Measured NO_2 Concentrations

Site	Measured NO_2 (µg/m^3)	Modelled Total NO_2 – Adjusted (µg/m^3)	Modelled – Measured (µg/m^3)	Modelled / Measured	% Difference
Model Domain		A5103			
M1	30.1	29.7	-0.5	1.0	-1.5
M2	34.5	35.5	1.1	1.0	3.1
M3	40.1	36.4	-3.7	0.9	-9.3
M4	34	32.3	-1.7	1.0	-5.0
M6	32.8	32.8	0.0	1.0	0.0

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
M7	27	30.1	3.1	1.1	11.3
M8	32.5	32.7	0.2	1.0	0.5
M9	35.4	35.4	0.0	1.0	-0.1
M11	**50.4**	**47.1**	-3.3	0.9	-6.6
M13	28.6	29.0	0.5	1.0	1.7
M406	29.8	32.5	2.7	1.1	9.1
M407	**42**	**44.9**	2.9	1.1	6.9
M411a	**52.3**	**53.3**	1.0	1.0	1.9
Adjustment Area		**Humphrey Park**			
M84	**42**	39.1	-3	0.9	-7.1
M85	32.6	32.9	0.3	1	0.9
Adjustment Area		**M56 Benchill**			
M21	**45.6**	**44.1**	-1.6	1	-3.4
M419	**48.1**	**50.1**	2	1	4.1
Adjustment Area		**M56 Junction 3 to Junction 5 EAST**			
M23	36.1	38.1	2.0	1.1	5.5
M25	35.3	39.2	3.9	1.1	10.9
M26	34.9	28.9	-6.0	0.8	-17.3
M435	38.4	37.9	-0.5	1.0	-1.3
M436	36.1	36.1	0.0	1.0	0.1
M437	**43**	36.9	-6.1	0.9	-14.1
M438	38.3	35.9	-2.4	0.9	-6.1
M439	32.6	37.8	5.2	1.2	16.1
Adjustment Area		**M56 Junction 3 to Junction 5 WEST**			
M24	35.6	36.8	1.2	1.0	3.3
M27	34.6	37.3	2.7	1.1	7.8
M427	28.7	32.3	3.6	1.1	12.5
M428	31.7	33.6	1.9	1.1	6.0
M433	31.3	34.1	2.8	1.1	8.8
M740	30.9	33.8	2.9	1.1	9.4
M434	**41**	38.4	-2.5	0.9	-6.2
Adjustment Area		**M56 Junction 6**			
M440	**43.4**	**41.2**	-2.2	1	-5
M31	**42.5**	**45.2**	2.7	1.1	6.3
Adjustment Area		**M56 Junction 8**			
M32	22.3	23.3	1.0	1.0	4.4
M33	18.2	20.0	1.8	1.1	9.9
M34	20.1	19.9	-0.2	1.0	-0.9
M35	20.6	21.2	0.5	1.0	2.5

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
Adjustment Area		M56 M6 A556			
M36	31.9	28.3	-3.6	0.9	-11.3
M37	34.7	35.2	0.5	1.0	1.3
M38	25.3	26.6	1.3	1.1	5.1
M39	31.3	35.0	3.8	1.1	12.0
M349	31.4	29.2	-2.1	0.9	-6.8
M350	24.3	23.5	-0.7	1.0	-3.0
M362	25.5	23.1	-2.4	0.9	-9.5
M392	30.5	31.1	0.6	1.0	1.8
M394	26.1	23.4	-2.6	0.9	-10.1
M400	39.5	41.3	1.8	1.0	4.5
M401	35.1	32.8	-2.3	0.9	-6.6
Adjustment Area		M60 Junction 4			
M475	29.6	31.1	1.5	1.1	5.0
M476	26.9	27.2	0.3	1.0	1.1
Adjustment Area		M60 Junction 8 to Junction 9			
M89	27	26.0	-1.0	1.0	-3.7
M184	31.9	31.8	-0.1	1.0	-0.2
M186	20.5	24.0	3.5	1.2	17.1
M203	30	32.2	2.2	1.1	7.3
M204	28.8	28.4	-0.3	1.0	-1.1
M205	29.1	26.9	-2.3	0.9	-7.8
M117	29.1	27.1	-2.0	0.9	-6.8
Adjustment Area		M60 Junction 10			
M118	33.1	40.3	7.2	1.2	21.9
M120	38.1	33.2	-4.9	0.9	-12.8
M121	33.6	32.4	-1.2	1.0	-3.4
M161	31	32.4	1.4	1.0	4.7
M202	35.9	31.7	-4.2	0.9	-11.6
M749	38.4	34.7	-3.7	0.9	-9.7

B.4.2. M60 J24-4 Geographical Study Area

Model verification was undertaken using monitoring sites within 200 metres of the ARN. A total of 35 diffusion tube monitoring sites within the M60 J24-4 geographical study area (within 200 m of ARN) were considered for use in model verification. From these sites, only those representative of modelled sensitive receptor locations and with sufficient data capture were considered suitable for the purposes of model verification. Following detailed analysis of each monitoring location a total of 29 diffusion tube sites were taken forward in the model verification. Table B-30 details the sites removed from the verification process, whilst Table B-31 and Figure 5.4 – M60 J24-4 show the diffusion tube sites used in verification.

Table B-30 Diffusion Tube sites excluded from model verification

Site ID	X, Y	Reason for exclusion from verification
M447	390839, 402399	Survey period data capture < 75%
M451	392409, 398119	Monitoring site >100m from M60 and thought likely to be influenced by emission from other sources (e.g. nearby railway line and/or local roads not included in model)
M469	388302, 390350	Near entrance to large commercial premises. Access road and associated vehicle movements not included within model.
M690	389260, 390407	Site classed as urban background.
M705	391000, 395130	Site classed as urban background. Location of diffusion tube uncertain as co-ordinates only provided to nearest 10m. Tube M459 used instead, which is in close proximity.
M711	392590, 398430	Location of diffusion tube uncertain as co-ordinates only provided to nearest 10m.

Table B-31 Diffusion Tube Locations Used in Model Verification

Site ID	Modelled ID	Site Location	X	Y	Local Authority
M60J24J27_001_0813	M441	Silver Lampost	390839	402399	Oldham
M60J24J27_002_0813	M442	Black Lampost	390989	402188	Oldham
M60J24J27_003_0813	M443	Silver Lampost	391182	401718	Oldham
M60J24J27_004_0813	M444	Black Lampost	391053	401701	Oldham
M60J24J27_005_0813	M445	Wooden telegraph pole	391305	400977	Oldham
M60J24J27_006_0813	M446	Silver Lampost	391883	400125	Oldham
M60J24J27_008_0813	M448	Silver Lampost	391993	399967	Tameside
M60J24J27_009_0813	M449	Silver Lampost	392530	398377	Tameside
M60J24J27_010_0813	M450	Silver Lampost	392526	398421	Tameside
M60J24J27_014_0813	M454	Silver Lampost	391302	397344	Tameside
M60J24J27_015_0813	M455	Silver Lampost	391436	397204	Tameside
M60J24J27_017_0813	M457	Silver Lampost	390962	395494	Tameside
M60J24J27_018_0813	M458	Blue Lampost	390822	395598	Tameside
M60J24J27_019_0813	M459	Silver Lampost	391007	395062	Tameside
M60J24J27_020_0813	M460	Silver Lampost	391617	392427	Stockport
M60J24J27_024_0813	M464	Silver Lampost	390644	391353	Stockport
M60J24J27_025_0813	M465	Silver Lampost	390444	391153	Stockport
M60J24J27_028_0813	M468	Silver Lampost (in front of church)	389426	390833	Stockport
M60J24J27_030_0813	M470	Silver Lampost	387227	389722	Stockport

Site ID	Modelled ID	Site Location	X	Y	Local Authority
M60J24J27_031_0813	M471	Silver Lampost	386908	389504	Stockport
M60J24J27_035_0813	M475	Silver Lampost	384573	388998	Stockport
M60J24J27_036_0813	M476	Silver Lampost	384399	389006	Manchester
M60J24J27_037_0813	M477	Silver Lampost	384994	388831	Stockport
M60J24J27_038_0813	M478	Silver Lampost	384999	388714	Stockport
M60J24J27_041_0813	M481	Silver Lampost	385192	388748	Stockport
M60J24J27_042_0813	M482	Silver Lampost	385111	388723	Stockport
M60J24J27_046_0813	M486	Silver Lampost	389739	390863	Stockport
SK17	M689	Yew Street	388471	390093	Stockport
SK20	M692	Kennilworth Road	386481	389530	Stockport

Uncertainty in modelled estimates has been considered by calculating root mean square error (RMSE) and fractional bias statistics. An air quality model can be considered to perform reasonably well where modelled concentrations are within 25% of monitored concentrations in accordance with DEFRA's Technical Guidance LAQM.TG(16). The RMSE should ideally be within 10% of the relevant air quality criterion, but is acceptable where it is within 25% of the relevant air quality criterion. The Fractional Bias (FB) has an ideal value of 0, but is acceptable in the range between +2 and -2.

Firstly, unadjusted modelled estimates of total annual mean NO_2 concentrations have been compared against monitored annual means. Out of 29 comparisons, 27 modelled estimates were within +/- 25% of monitored concentrations without adjustment, as given in Table B-32. Whilst 17 of the comparisons are within +/- 10% of monitored, substantial overestimates are indicated for sites M450, M468 and M486.

Further examination of diffusion tubes sites M468 and M486 indicated that the M60 is in cutting as it passes these monitoring sites, therefore a separate adjustment factor has been applied in this area to reflect the influence of the cutting on the dispersion of emissions from the M60 in this location.

Table B-32 Comparison of Unadjusted Modelled and Measured NO_2 Concentrations ($\mu g/m^3$)

Site	Measured NO_2	Modelled Total NO_2	Modelled - Measured	Modelled / Measured	% Difference
M441	35.5	40.0	4.47	1.1	12.6
M442	38.6	39.7	1.05	1.0	2.7
M443	28.4	31.2	2.80	1.1	9.9
M444	28.7	25.2	-3.46	0.9	-12.1
M445	28.4	25.8	-2.55	0.9	-9.0
M446	35.8	33.8	-2.04	0.9	-5.7
M448	37.2	31.4	-5.77	0.8	-15.5
M449	38.5	40.0	1.50	1.0	3.9
M450	37.4	48.7	11.25	1.3	30.1
M454	34.7	34.3	-0.39	1.0	-1.1
M455	27.7	29.5	1.75	1.1	6.3

Site	Measured NO_2	Modelled Total NO_2	Modelled - Measured	Modelled / Measured	% Difference
M457	31.3	30.0	-1.25	1.0	-4.0
M458	38.7	33.6	-5.12	0.9	-13.2
M459	27.0	29.1	2.08	1.1	7.7
M460	34.4	30.4	-4.03	0.9	-11.7
M464	38.0	35.7	-2.24	0.9	-5.9
M465	37.2	35.7	-1.54	1.0	-4.1
M470	32.7	36.9	4.17	1.1	12.7
M471	32.6	31.2	-1.39	1.0	-4.3
M475	29.6	29.3	-0.31	1.0	-1.0
M476	26.9	25.6	-1.30	1.0	-4.8
M477	32.6	30.1	-2.50	0.9	-7.7
M478	35.2	31.4	-3.74	0.9	-10.6
M481	29.5	29.1	-0.38	1.0	-1.3
M482	31.3	31.3	-0.08	1.0	-0.3
M689	27.3	30.1	2.79	1.1	10.2
M692	44.0	39.3	-4.75	0.9	-10.8
Adjustment Area		M60 in Cutting			
M468	29.3	35.4	6.0	1.2	20.6
M486	37.4	47.7	10.3	1.3	27.4

Comparison of unadjusted modelled estimates for NO_2 compared to monitored concentrations, for those monitoring sites not in cutting, gave an RMSE of 3.57 µg/m^3. The RMSE target value according to DEFRA's Technical Guidance LAQM.TG(16) for the 40 µg/m^3 objective concentration for annual mean NO_2, is for the RMSE to be less than 4 µg/m^3 (10% of the objective) but must be not more than 25 % of the objective i.e. 10 µg/m^3.. The overall performance (based on the majority of comparisons) of the unadjusted model is therefore acceptable in those areas where the M60 is not in cutting. For the two monitoring sites located near to the M60 where it is in cutting, the RMSE was 8.42.

A further comparison of modelled estimates of road contributed annual mean NOx, with the road NOx component derived from monitoring data is presented in Table B-33. This analysis requires the estimation of the monitored road-NOx component. This has been undertaken using DEFRA's NO_2 to NOx calculator, version 5.1.

The results of the comparison of modelled and monitored road-NOx indicates that the model exhibits systematic bias where the M60 is in cutting, and tends to substantially overpredict road-NOx concentrations. As such, in order to improve model performance, a model adjustment factor of 0.47 was derived for this area in accordance with the methodology described in LAQM.TG16.

Table B-33 Comparison of Modelled and Measured NOx Concentrations (µg/m^3)

Site	Measured NOx	Modelled Total NOx	Modelled - Measured	Modelled / Measured	% Difference
M441	22.6	32.7	10.1	0.7	44.6
M442	29.6	32.0	2.4	0.9	8.1
M443	17.2	23.2	5.9	0.7	34.5
M444	17.8	10.6	-7.2	1.7	-40.2

Site	Measured NOx	Modelled Total NOx	Modelled - Measured	Modelled / Measured	% Difference
M445	19.6	14.3	-5.3	1.4	-27.1
M446	35.9	31.3	-4.6	1.1	-12.8
M448	36.7	23.8	-12.9	1.5	-35.2
M449	26.4	29.8	3.4	0.9	13.0
M450	23.9	50.6	26.7	0.5	111.6
M454	26.5	25.6	-0.9	1.0	-3.3
M455	11.7	15.3	3.6	0.8	31.2
M457	19.5	16.8	-2.7	1.2	-13.7
M458	36.1	24.5	-11.6	1.5	-32.1
M459	9.8	14.1	4.3	0.7	43.9
M460	28.3	19.6	-8.8	1.4	-31.0
M464	34.3	29.2	-5.1	1.2	-14.9
M465	32.6	29.1	-3.5	1.1	-10.7
M470	21.0	30.2	9.2	0.7	43.9
M471	23.3	20.3	-3.0	1.1	-12.9
M475	14.2	13.5	-0.7	1.0	-4.7
M476	13.1	10.4	-2.7	1.3	-20.4
M477	20.6	15.3	-5.3	1.3	-25.8
M478	26.2	18.1	-8.1	1.5	-31.1
M481	12.1	11.3	-0.8	1.1	-6.6
M482	15.9	15.7	-0.2	1.0	-1.1
M689	7.6	13.4	5.8	0.6	75.8
M692	49.7	38.3	-11.4	1.3	-22.9
Adjustment Area		**M60 in Cutting**			
M468	8.9	21.8	12.9	0.4	143.9
M486	26.4	50.8	24.4	0.5	92.3

A comparison of the adjusted (where necessary) modelled estimates of total annual mean NO_2 with monitored concentrations is presented in Table B-34 and Table B-35. The results show that the NO_2 concentrations modelled at the 29 monitoring sites are within +/- 25% of monitored concentrations, except at site M450 near M60 Junction 23, where the model overestimates annual mean NO_2 concentrations.

Table B-34 RMSE and Adjustment Factors Used in Air Quality Model Verification

Model Domain	Number of Site Compar-isons	Number of Monitoring Sites within ±25% of the Monitored Concentration Pre-Adjustment	Raw RMSE (Pre Adjustment) (µg/m^3)	Model Adjust-ment Factor	Adjusted Model RMSE	Fractional Bias (Post Adjustment)	Number of Sites within ±25% of the Monitored Concentration Post Adjustment
Main	27	26	3.57	N/A	N/A	0.01	26
M60 in Cutting	2	1	8.42	0.47	0.98	0.01	2

Table B-35 Comparison of Adjusted Modelled and Measured NO_2 Concentrations (µg/m^3)

Site	Measured NO_2	Modelled Total NO_2	Modelled - Measured	Modelled / Measured	% Difference
M441	35.5	40.0	4.47	1.1	12.6
M442	38.6	39.7	1.05	1.0	2.7
M443	28.4	31.2	2.80	1.1	9.9
M444	28.7	25.2	-3.46	0.9	-12.1
M445	28.4	25.8	-2.55	0.9	-9.0
M446	35.8	33.8	-2.04	0.9	-5.7
M448	37.2	31.4	-5.77	0.8	-15.5
M449	38.5	40.0	1.50	1.0	3.9
M450	37.4	48.7	11.25	1.3	30.1
M454	34.7	34.3	-0.39	1.0	-1.1
M455	27.7	29.5	1.75	1.1	6.3
M457	31.3	30.0	-1.25	1.0	-4.0
M458	38.7	33.6	-5.12	0.9	-13.2
M459	27.0	29.1	2.08	1.1	7.7
M460	34.4	30.4	-4.03	0.9	-11.7
M464	38.0	35.7	-2.24	0.9	-5.9
M465	37.2	35.7	-1.54	1.0	-4.1
M470	32.7	36.9	4.17	1.1	12.7
M471	32.6	31.2	-1.39	1.0	-4.3
M475	29.6	29.3	-0.31	1.0	-1.0
M476	26.9	25.6	-1.30	1.0	-4.8
M477	32.6	30.1	-2.50	0.9	-7.7
M478	35.2	31.4	-3.74	0.9	-10.6
M481	29.5	29.1	-0.38	1.0	-1.3
M482	31.3	31.3	-0.08	1.0	-0.3
M689	27.3	30.1	2.79	1.1	10.2
M692	44.0	39.3	-4.75	0.9	-10.8
Adjustment Area		**M60 in Cutting**			
M468	29.3	29.9	0.6	1.0	2%
M486	37.4	36.2	-1.3	1.0	-3%

B.4.3. M62 J10-12 Geographical Study Area

Model verification was undertaken using monitoring sites within 200 metres of the ARN. From these sites, only those representative of modelled sensitive receptor locations and with sufficient data capture were considered suitable for the purposes of model verification. Following detailed analysis of each monitoring location a total of 126 diffusion tube sites were taken forward in the model verification process. Table B-36 details the sites removed from the verification process, whilst Table B-37 and Figure 5.3 – M62 J10-12 show the locations of the diffusion tube sites used in verification.

Table B-36 Diffusion Tube sites excluded from model verification

Site ID	X,Y	Reason for exclusion from verification
Salford_SA1_IrlamLo	372766, 394105	roads not representing area
Salford_SA9_StMarks	374733, 400935	background site
Salford_SA20/21/22_M	374810, 400856	co-located with Salford CMS M60
Salford_SA20/21/22_M	374810, 400856	co-located with Salford CMS M60
Salford_SA20/21/22_M	374810, 400856	co-located with Salford CMS M60
Salford_SA51_Liverpo	375212, 397664	unexpectedly low measurements compared to Highways England data
Salford_SA52_Sealand	375148, 397589	unexpectedly low measurements compared to Highways England data
StHelens_T6_Parksid	359530, 394660	location unconfirmed
StHelens_T7_160Sou	360055, 395638	co-located with St Helens CMS Southworth Road
StHelens_T10_160So	360055, 395638	co-located with St Helens CMS Southworth Road
StHelens_T18_Linkwa	349107, 397197	roads note well described in model and edge of ARN
StHelens_T31_160So	360055, 395638	co-located with St Helens CMS Southworth Road
StHelens_T12_24Nor	350239, 389824	potential barrier effect
Warrington_DT1_Risle	366949, 392004	background site
M62J10J12_011_0813	371005, 394282	not enough road network + 175 m from Motorway
M62J10J12_014_0813	366970, 392956	urban background
M6J16J19_017_0513	373846, 370501	>200 m from ARN
M6J 21AJ26_026A_0813	360041, 395637	co-located with St Helens CMS Southworth Road
M6J 21AJ26_026B_0813	360041, 395637	co-located with St Helens CMS Southworth Road
M6J 21AJ26_026C_0813	360041, 395637	co-located with St Helens CMS Southworth Road
M6J 21AJ26_029_0813	359312, 395287	next to station carpark
MMM_028_0709	375082,	duplicated locations and older data

	398457	
MMM_270_0714	374597, 401706	background site
MMM_015_0709	375271, 401474	adjacent roads not in traffic model
MMM_027_0709	375118, 398500	duplicated locations and older data

Table B-37 Diffusion Tube Locations Used in Model Verification

Site ID/ Modelled ID	Site Location	X	Y	Local Authority
MMM_133_0709		373553	404789	Bolton
M6J16J19_015_0513		374077	369081	Cheshire East
M6J16J19_023_0513		373324	374478	Cheshire East
M6J16J19_024_0513		373318	374479	Cheshire East
M6J19Im_013_1215		372869	378862	Cheshire East
M6J16J19_016_0513		373332	370821	Cheshire West and Chester
M6J16J19_021_0513		373468	373266	Cheshire West and Chester
Salford_CMS_ECCL_Sal		377925	398729	Salford
Salford_CMS_M60_Salf		374810	400855	Salford
Salford_SA25_16Wyn		381302	398034	Salford
Salford_SA31_ Walkden		374024	401906	Salford
Salford_SA34_ 673Liv		375367	397799	Salford
Salford_SA42_44Eden		374695	399853	Salford
Salford_SA44_Pembrok		380412	398439	Salford
Salford_SA50_ RookeS		375395	397803	Salford
Salford_SA53_Ryecrof		374756	399894	Salford
Salford_SA54_Ryecrof		374899	399983	Salford
M62J10J12_001_0813		375118	398502	Salford
M62J10J12_002_0813		375095	398479	Salford
M62J10J12_003_0813		375148	397995	Salford
M62J10J12_004_0813		374977	397449	Salford
M62J10J12_005_0813		373287	397114	Salford
M62J10J12_006_0813		373315	397162	Salford
M62J10J12_009_0813		372065	395443	Salford
M62J10J12_010_0813		371849	395119	Salford
MMM_007_0709		375498	401520	Salford
MMM_008_0709		375428	401417	Salford
MMM_009&10_0709		375340	401259	Salford
MMM_017_0709		375422	401646	Salford
MMM_018_0709		374773	400609	Salford
MMM_021_0709		374673	399911	Salford
MMM_022_0709		374634	400265	Salford
MMM_023_0709		374624	400049	Salford
MMM_024_0709		375479	399320	Salford
MMM_025_0709		375409	399286	Salford

Site ID/ Modelled ID	Site Location	X	Y	Local Authority
MMM_026_0709		375675	399217	Salford
MMM_048_0709		374071	401781	Salford
MMM_049_0709		374128	401741	Salford
MMM_050_0709		374230	401677	Salford
MMM_053_0709		375145	401909	Salford
MMM_054_0709		375046	401919	Salford
MMM_055_0709		375220	397636	Salford
MMM_058_0709		375391	397832	Salford
MMM_181_0513		374808	400359	Salford
MMM_183_0513		374787	400217	Salford
MMM_184_0513		374749	400175	Salford
MMM_185_0513		374787	400288	Salford
MMM_186_0513		374682	400196	Salford
MMM_187_0513		374682	400124	Salford
MMM_188_0513		374738	400113	Salford
MMM_189_0513		374743	400002	Salford
MMM_190_0513		374743	399873	Salford
MMM_191_0513		374756	399892	Salford
MMM_192_0513		374790	399913	Salford
MMM_193_0513		374814	399928	Salford
MMM_194_0513		374842	399958	Salford
MMM_197_0513		374824	400128	Salford
MMM_203_0513		375067	399605	Salford
MMM_204_0513		374991	399595	Salford
MMM_205_0513		374967	399523	Salford
MMM_206_0513		375062	399485	Salford
MMM_213_1013		375319	397599	Salford
MMM_214_1013		375364	397905	Salford
MMM_215_1013		378121	398757	Salford
MMM_216_1013		377529	398873	Salford
MMM_217_1013		377013	399016	Salford
MMM_221_1013		375862	402623	Salford
MMM_262_0414		374681	400052	Salford
MMM_265_0214		375309	401397	Salford
MMM_268_0714		372275	401153	Salford
MMM_269_0714		373330	401442	Salford
MMM_272_0714		374674	401861	Salford
MMM_274_0714		375366	401781	Salford
MMM_275_0714		375976	399233	Salford
StHelens_CMS_AN2_So		360045	395643	St Helens
StHelens_T1_ 170Sou		360109	395661	St Helens
StHelens_T2_ 1Skitt		356549	399577	St Helens
StHelens_T9_ 3Water		359915	395639	St Helens
StHelens_T13_ 22Uni		352391	390301	St Helens
StHelens_T15_2Park		358220	397077	St Helens
StHelens_T30_ 4Unio		352264	390229	St Helens
M6J 21AJ26_024_0813		357396	397358	St Helens
M6J 21AJ26_027_0813		359819	395570	St Helens

Site ID/ Modelled ID	Site Location	X	Y	Local Authority
M6J 21AJ26_043_0514		359960	395600	St Helens
Sefton_NET_ MoorheyR		337547	400475	Sefton
Warrington_ DT6_Manch		366102	389214	Warrington
M62J10J12_015_0813		365062	392939	Warrington
M62J10J12_016_0813		363575	392506	Warrington
M62J10J12_017_0813		363600	392386	Warrington
M62J10J12_020_0813*		360641	392568	Warrington
M62J10J12_021_0813*		360485	392572	Warrington
M62J10J12_022_0813		357528	391105	Warrington
M6J16J19_029_0513		365857	389212	Warrington
M6J16J19_030_0513		366090	389204	Warrington
M6J16J19_031_0513		366500	386933	Warrington
M6J16J19_032_0513		366274	386701	Warrington
M6J 21AJ26_030_0813		360468	391852	Warrington
M6J 21AJ26_031_0813		361067	392991	Warrington
M6J 21AJ26_032_0813		362094	392067	Warrington
M6J 21AJ26_033_0813		362131	391945	Warrington
M6J 21AJ26_034_0813		361440	393992	Warrington
M6J 21AJ26_036_0813		362739	392774	Warrington
M6J 21AJ26_037_0813		364860	393037	Warrington
M6J 21AJ26_038_0813*		364015	390792	Warrington
M6J 21AJ26_002_0813		354084	410699	West Lancashire
Wigan_35_ WoodfieldC		357133	398671	Wigan
Wigan_52_ ChurchLane		362147	396959	Wigan
Wigan_53_ NewMilesL		353897	408522	Wigan
Wigan_54_ EastLancs		370613	400583	Wigan
Wigan_115_ Winchester		353845	405360	Wigan
M6J 21AJ26_003_0813		354337	410494	Wigan
M6J 21AJ26_004_0813		353803	408532	Wigan
M6J 21AJ26_005_0813		353704	405966	Wigan
M6J 21AJ26_006_0813*		353806	405532	Wigan
M6J 21AJ26_007_0813		353988	404591	Wigan
M6J 21AJ26_008_0813		353996	404850	Wigan
M6J 21AJ26_009_0813		353857	404906	Wigan
M6J 21AJ26_011_0813		353119	404582	Wigan
M6J 21AJ26_017_0813		355863	401280	Wigan
M6J 21AJ26_018_0813		356280	400728	Wigan
M6J 21AJ26_019_0813		356399	400783	Wigan
M6J 21AJ26_020_0813		356687	399488	Wigan
M6J 21AJ26_021_0813		356825	399214	Wigan
M6J 21AJ26_025_0813		360320	397133	Wigan
M6J 21AJ26_039_0514		353963	404853	Wigan
M6J 21AJ26_040_0514		353980	404855	Wigan

Uncertainty in modelled estimates has been considered by calculating root mean square error (RMSE) and fractional bias statistics. An air quality model can be considered to perform reasonably

well where modelled concentrations are within 25% of monitored concentrations in accordance with DEFRA's Technical Guidance LAQM.TG(16). The RMSE should ideally be within 10% of the relevant air quality criterion, but is acceptable where it is within 25% of the relevant air quality criterion. The Fractional Bias (FB) has an ideal value of 0, but is acceptable in the range between +2 and -2.

Firstly, unadjusted modelled estimates of total annual mean NO_2 concentrations have been compared against monitored annual means. Out of 126 comparisons, 95 modelled estimates were within +/- 25% of monitored without adjustment, as shown in Table B-38. Substantial underestimates of more than 25% are indicated for 30 sites whilst a substantial overestimate is indicated for 1 site. 41 of the comparisons are within +/- 10% of monitored.

The results of the unadjusted model verification within the M62 J10-12 geographical study area have been used to define 7 model domains which are listed below.

Table B-38 Comparison of Unadjusted Modelled and Measured NO_2 Concentrations

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
Model Domain		General			
M6J16J19_015_0513	63.8	47.2	-16.6	0.74	-26.1%
M6J16J19_016_0513	22.2	18.2	-4.0	0.82	-18.0%
M6J16J19_021_0513	22.3	18.4	-3.9	0.82	-17.7%
M6J16J19_023_0513	58.7	37.4	-21.3	0.64	-36.3%
M6J16J19_024_0513	35.7	33.3	-2.4	0.93	-6.7%
M6J19Im_013_1215	24.6	19.9	-4.8	0.81	-19.4%
M62J10J12_015_0813	36.6	30.0	-6.6	0.82	-18.0%
M62J10J12_016_0813	47.2	34.0	-13.2	0.72	-27.9%
M62J10J12_017_0813	56.3	33.5	-22.8	0.60	-40.5%
M6J 21AJ26_037_0813	41.5	34.1	-7.4	0.82	-17.8%
M62J10J12_003_0813	36.7	28.8	-8.0	0.78	-21.7%
M62J10J12_005_0813	46.1	40.4	-5.7	0.88	-12.4%
M62J10J12_006_0813	50.8	41.3	-9.4	0.81	-18.6%
M62J10J12_009_0813	34.8	28.0	-6.8	0.81	-19.4%
M62J10J12_010_0813	32.4	22.6	-9.8	0.70	-30.3%
M6J16J19_029_0513	39.1	31.5	-7.5	0.81	-19.3%
M6J16J19_030_0513	35.2	32.9	-2.2	0.94	-6.3%
M6J16J19_031_0513	32.4	28.0	-4.3	0.87	-13.4%
M6J16J19_032_0513	27.8	24.8	-3.0	0.89	-10.7%
MMM_058_0709	41.7	37.6	-4.0	0.90	-9.7%
MMM_213_1013	32.9	33.4	0.5	1.02	1.6%
MMM_214_1013	31.7	32.9	1.2	1.04	3.9%
Salford_SA34_673Liv	43.5	42.9	-0.6	0.99	-1.4%
Salford_SA50_RookeS	36.0	35.0	-1.0	0.97	-2.7%
Warrington_DT6_Manch	55.5	37.1	-18.4	0.67	-33.2%
M6J 21AJ26_030_0813	39.5	31.6	-7.9	0.80	-20.1%
M6J 21AJ26_032_0813	51.3	44.2	-7.2	0.86	-14.0%
M6J 21AJ26_033_0813	29.5	24.8	-4.7	0.84	-15.9%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
M6J 21AJ26_036_0813	37.0	32.0	-5.0	0.86	-13.6%
MMM_048_0709	36.7	35.0	-1.7	0.95	-4.5%
MMM_049_0709	38.4	34.6	-3.9	0.90	-10.0%
MMM_050_0709	35.0	29.5	-5.5	0.84	-15.7%
MMM_133_0709	42.8	37.3	-5.5	0.87	-12.9%
MMM_221_1013	42.7	37.6	-5.1	0.88	-11.9%
Salford_SA31_Walkden	29.2	27.9	-1.3	0.96	-4.4%
StHelens_T1_170Sou	32.8	27.7	-5.1	0.85	-15.4%
StHelens_T9_3Water	24.1	24.3	0.2	1.01	1.0%
StHelens_CMS_AN2_So	53.0	45.2	-7.8	0.85	-14.7%
M6J 21AJ26_017_0813	25.4	20.1	-5.4	0.79	-21.1%
M6J 21AJ26_018_0813	34.8	25.1	-9.7	0.72	-27.8%
M6J 21AJ26_019_0813	47.1	34.6	-12.5	0.73	-26.5%
M6J 21AJ26_020_0813	35.9	31.2	-4.6	0.87	-12.9%
M6J 21AJ26_021_0813	39.6	27.8	-11.8	0.70	-29.8%
StHelens_T2_1Skitt	35.8	29.0	-6.8	0.81	-18.9%
Wigan_35_WoodfieldC	38.9	33.4	-5.5	0.86	-14.2%
M6J 21AJ26_005_0813	36.0	23.2	-12.8	0.65	-35.5%
M6J 21AJ26_006_0813	33.8	23.5	-10.3	0.69	-30.6%
M6J 21AJ26_007_0813	37.0	26.1	-10.9	0.71	-29.5%
M6J 21AJ26_009_0813	47.3	32.8	-14.5	0.69	-30.6%
M6J 21AJ26_039_0514	49.7	33.0	-16.7	0.66	-33.6%
Wigan_115_Winchester	27.5	26.7	-0.8	0.97	-2.7%
Sefton_NET_MoorheyR	20.0	17.6	-2.4	0.88	-12.0%
M6J 21AJ26_002_0813	33.6	24.1	-9.4	0.72	-28.2%
M6J 21AJ26_004_0813	39.7	24.9	-14.8	0.63	-37.4%
Wigan_53_NewMilesL	32.4	24.8	-7.6	0.76	-23.5%
StHelens_T13_22Uni	26.1	22.4	-3.7	0.86	-14.2%
StHelens_T30_4Unio	23.5	19.9	-3.6	0.85	-15.2%
Salford_CMS_M60_Salf	52.0	42.6	-9.4	0.82	-18.1%
Model Domain		**A Roads**			
M6J 21AJ26_038_0813	30.1	24.2	-5.8	0.81	-19.4%
M62J10J12_004_0813	56.2	31.5	-24.7	0.56	-44.0%
MMM_055_0709	55.4	34.3	-21.1	0.62	-38.1%
M6J 21AJ26_034_0813	48.7	27.2	-21.5	0.56	-44.1%
M6J 21AJ26_024_0813	42.3	25.0	-17.3	0.59	-40.9%
M6J 21AJ26_025_0813	50.9	29.9	-21.0	0.59	-41.2%
M6J 21AJ26_027_0813	33.2	21.5	-11.7	0.65	-35.3%
M6J 21AJ26_043_0514	47.6	26.1	-21.6	0.55	-45.3%
Wigan_52_ChurchLane	41.1	27.4	-13.7	0.67	-33.2%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
Wigan_54_EastLancs	33.4	25.9	-7.5	0.77	-22.5%
M6J 21AJ26_008_0813	57.2	28.3	-28.9	0.49	-50.6%
M6J 21AJ26_011_0813	33.2	22.0	-11.2	0.66	-33.7%
M6J 21AJ26_040_0514	61.5	29.7	-31.8	0.48	-51.7%
M6J 21AJ26_003_0813	35.2	21.1	-14.1	0.60	-40.0%
Model Domain		**M60/A580**			
MMM_007_0709	32.8	38.6	5.8	1.18	17.6%
MMM_008_0709	31.9	37.9	6.0	1.19	18.9%
MMM_009&10_0709	33.7	31.4	-2.3	0.93	-6.8%
MMM_017_0709	28.4	34.2	5.9	1.21	20.7%
MMM_053_0709	29.4	29.6	0.3	1.01	1.0%
MMM_054_0709	28.8	29.8	0.9	1.03	3.2%
MMM_265_0214	43.8	48.0	4.2	1.10	9.6%
MMM_268_0714	23.2	23.6	0.4	1.02	1.9%
MMM_269_0714	22.2	24.2	2.0	1.09	8.9%
MMM_272_0714	26.6	27.0	0.4	1.01	1.5%
MMM_274_0714	26.2	29.5	3.3	1.13	12.6%
Model Domain		**Retail Park**			
M62J10J12_022_0813	29.7	19.4	-10.3	0.65	-34.6%
Model Domain		**M602**			
Salford_SA25_16Wyn	28.5	31.0	2.5	1.09	8.8%
Salford_SA44_Pembrok	38.6	37.4	-1.2	0.97	-3.2%
MMM_215_1013	38.1	34.2	-3.9	0.90	-10.3%
MMM_216_1013	55.0	44.4	-10.6	0.81	-19.3%
MMM_217_1013	39.8	35.5	-4.3	0.89	-10.7%
Salford_CMS_ECCL_Sal	27.0	28.3	1.3	1.05	4.8%
M62J10J12_001_0813	40.5	40.9	0.4	1.01	1.0%
M62J10J12_002_0813	31.3	33.3	2.0	1.06	6.4%
MMM_018_0709	35.4	33.1	-2.3	0.93	-6.5%
MMM_021_0709	47.1	50.5	3.5	1.07	7.4%
MMM_022_0709	40.2	39.5	-0.7	0.98	-1.8%
MMM_023_0709	50.2	51.9	1.7	1.03	3.4%
MMM_024_0709	34.2	33.8	-0.4	0.99	-1.2%
MMM_025_0709	33.8	33.8	0.0	1.00	-0.1%
MMM_026_0709	36.6	32.3	-4.4	0.88	-11.9%
MMM_181_0513	45.1	30.8	-14.2	0.68	-31.6%
MMM_183_0513	30.1	27.6	-2.5	0.92	-8.2%
MMM_184_0513	34.0	28.8	-5.2	0.85	-15.3%
MMM_185_0513	33.8	27.8	-6.1	0.82	-18.0%
MMM_186_0513	37.1	32.3	-4.8	0.87	-12.9%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
MMM_187_0513	39.8	33.2	-6.6	0.83	-16.5%
MMM_188_0513	38.1	29.7	-8.4	0.78	-22.0%
MMM_189_0513	34.9	31.6	-3.3	0.90	-9.5%
MMM_190_0513	36.8	36.5	-0.3	0.99	-0.7%
MMM_191_0513	35.5	33.7	-1.8	0.95	-4.9%
MMM_192_0513	33.0	30.3	-2.7	0.92	-8.1%
MMM_193_0513	33.8	28.8	-5.1	0.85	-15.0%
MMM_194_0513	31.3	27.2	-4.1	0.87	-12.9%
MMM_197_0513	30.2	27.2	-3.1	0.90	-10.1%
MMM_203_0513	31.8	30.7	-1.1	0.96	-3.5%
MMM_204_0513	36.0	31.7	-4.4	0.88	-12.2%
MMM_205_0513	41.8	39.7	-2.1	0.95	-5.0%
MMM_206_0513	35.4	34.4	-1.1	0.97	-3.1%
MMM_262_0414	37.4	35.3	-2.1	0.94	-5.7%
MMM_275_0714	30.6	31.1	0.5	1.02	1.6%
Salford_SA42_44Eden	38.7	53.4	14.7	1.38	38.0%
Salford_SA53_Ryecrof	36.3	33.6	-2.7	0.93	-7.4%
Salford_SA54_Ryecrof	28.3	25.7	-2.6	0.91	-9.1%
Model Domain		Park Cottages			
StHelens_T15_2Park	32.8	38.5	5.7	1.17	17.4%
Model Domain		Winwick			
M62J10J12_020_0813	31.3	23.6	-7.7	0.75	-24.6%
M62J10J12_021_0813	32.5	29.1	-3.4	0.90	-10.5%
M6J 21AJ26_031_0813	28.1	21.7	-6.4	0.77	-22.8%

The RMSE and fractional bias values obtained for unadjusted modelled estimates of NO_2 compared to monitored concentrations are shown in Table B-39, split by model domain. The RMSE target value according to DEFRA's Technical Guidance LAQM.TG(16) for the 40 $\mu g/m^3$ objective concentration for annual mean NO_2, is for the RMSE to be less than 4 $\mu g/m^3$ (10% of the objective) but must be not more than 25 % of the objective i.e. 10 $\mu g/m^3$. These results indicate that the RMSE is above the target value in 6 domains, and above the required value in 4 domains. This suggests that model adjustment is justified in a number of domains.

Table B-39 RMSE and Fractional Bias values for unadjusted modelled estimates of NO_2 compared to monitored concentrations

Model Domain	RMSE	Fractional bias
General	12.2	0.2
A Roads	8.2	0.5
M60/A580	24.4	-0.1
Retail Park	5.4	0.4
M602	19.5	0.1
Park Cottages	-	-
Winwick	12.8	0.2
- where only one measurement location is within a model zone and therefore statistics do not apply		

A further comparison of modelled estimates of road contributed annual mean NO_x with the road NOx component derived from monitoring data is presented in Table B-40. This analysis requires the estimation of the monitored road NOx component, which was undertaken using DEFRA's NO_2 to NOx calculator, version 5.1.

Table B-40 Comparison of Modelled and Measured NO_x Concentrations

Site	Measured Road NOx ($\mu g/m^3$)	Modelled Road NOx - Unadjusted ($\mu g/m^3$)	Modelled – Measured Road NOx ($\mu g/m^3$)	Modelled / Measured Road NO_x	% Difference
Model Domain		General			
M6J16J19_015_0513	119.3	72.6	-46.7	0.61	-39.1%
M6J16J19_016_0513	17.3	9.3	-7.9	0.54	-46.0%
M6J16J19_021_0513	17.3	9.5	-7.8	0.55	-45.1%
M6J16J19_023_0513	106.5	50.5	-56.1	0.47	-52.6%
M6J16J19_024_0513	46.5	41.0	-5.5	0.88	-11.9%
M6J19Im_013_1215	17.3	7.7	-9.6	0.45	-55.4%
M62J10J12_015_0813	31.5	17.1	-14.4	0.54	-45.7%
M62J10J12_016_0813	64.5	33.0	-31.6	0.51	-48.9%
M62J10J12_017_0813	88.9	31.8	-57.1	0.36	-64.3%
M6J 21AJ26_037_0813	51.1	33.9	-17.2	0.66	-33.7%
M62J10J12_003_0813	33.8	16.3	-17.5	0.48	-51.7%
M62J10J12_005_0813	64.2	50.1	-14.1	0.78	-21.9%
M62J10J12_006_0813	76.4	52.4	-24.0	0.69	-31.4%
M62J10J12_009_0813	33.2	18.5	-14.8	0.56	-44.4%
M62J10J12_010_0813	31.4	10.8	-20.6	0.34	-65.6%
M6J16J19_029_0513	40.4	23.5	-16.9	0.58	-41.9%
M6J16J19_030_0513	36.7	31.7	-5.0	0.86	-13.6%
M6J16J19_031_0513	34.8	25.4	-9.4	0.73	-27.0%
M6J16J19_032_0513	24.9	18.7	-6.2	0.75	-24.9%
MMM_058_0709	45.4	35.9	-9.6	0.79	-21.0%
MMM_213_1013	25.2	26.3	1.1	1.05	4.5%
MMM_214_1013	22.6	25.3	2.7	1.12	12.0%

Site	Measured Road NOx (µg/m^3)	Modelled Road NOx - Unadjusted (µg/m^3)	Modelled – Measured Road NOx (µg/m^3)	Modelled / Measured Road NO_x	% Difference
Salford_SA34_673Liv	49.8	48.3	-1.5	0.97	-3.0%
Salford_SA50_RookeS	32.1	29.9	-2.2	0.93	-6.9%
Warrington_DT6_Manch	88.0	41.1	-47.0	0.47	-53.4%
M6J 21AJ26_030_0813	41.5	23.7	-17.8	0.57	-43.0%
M6J 21AJ26_032_0813	77.3	58.7	-18.6	0.76	-24.0%
M6J 21AJ26_033_0813	21.5	11.8	-9.7	0.55	-45.1%
M6J 21AJ26_036_0813	41.5	30.1	-11.3	0.73	-27.3%
MMM_048_0709	30.5	26.8	-3.7	0.88	-12.3%
MMM_049_0709	34.6	25.9	-8.7	0.75	-25.2%
MMM_050_0709	26.7	14.8	-11.9	0.56	-44.5%
MMM_133_0709	47.8	34.7	-13.1	0.73	-27.3%
MMM_221_1013	48.3	36.2	-12.0	0.75	-24.9%
Salford_SA31_Walkden	14.3	11.6	-2.7	0.81	-18.9%
StHelens_T1_170Sou	32.7	21.8	-10.9	0.67	-33.4%
StHelens_T9_3Water	12.8	13.3	0.5	1.04	3.9%
StHelens_CMS_AN2_So	82.5	62.0	-20.5	0.75	-24.8%
M6J 21AJ26_017_0813	21.5	10.6	-10.9	0.49	-50.6%
M6J 21AJ26_018_0813	37.5	16.7	-20.9	0.44	-55.6%
M6J 21AJ26_019_0813	67.4	37.1	-30.3	0.55	-45.0%
M6J 21AJ26_020_0813	41.1	30.7	-10.4	0.75	-25.3%
M6J 21AJ26_021_0813	49.8	23.3	-26.5	0.47	-53.3%
StHelens_T2_1Skitt	40.9	25.9	-15.0	0.63	-36.7%
Wigan_35_WoodfieldC	45.1	32.5	-12.6	0.72	-28.0%
M6J 21AJ26_005_0813	42.4	14.8	-27.6	0.35	-65.1%
M6J 21AJ26_006_0813	37.4	15.3	-22.1	0.41	-59.1%
M6J 21AJ26_007_0813	44.6	20.5	-24.1	0.46	-54.0%
M6J 21AJ26_009_0813	69.9	35.0	-35.0	0.50	-50.0%
M6J 21AJ26_039_0514	76.3	35.4	-40.8	0.46	-53.5%
Wigan_115_Winchester	23.6	22.0	-1.6	0.93	-6.7%
Sefton_NET_MoorheyR	8.5	3.9	-4.6	0.45	-54.5%
M6J 21AJ26_002_0813	40.4	20.0	-20.4	0.50	-50.5%
M6J 21AJ26_004_0813	55.8	22.4	-33.4	0.40	-59.8%
Wigan_53_NewMilesL	38.7	22.2	-16.4	0.57	-42.5%
StHelens_T13_22Uni	20.5	13.0	-7.6	0.63	-36.9%
StHelens_T30_4Unio	15.2	8.0	-7.1	0.53	-47.0%
Salford_CMS_M60_Salf	72.2	48.1	-24.1	0.67	-33.4%
Model Domain		**A Roads**			
M6J 21AJ26_038_0813	19.7	7.7	-12.0	0.39	-60.9%
M62J10J12_004_0813	85.4	24.0	-61.4	0.28	-71.9%

Site	Measured Road NOx (µg/m^3)	Modelled Road NOx - Unadjusted (µg/m^3)	Modelled – Measured Road NOx (µg/m^3)	Modelled / Measured Road NO_x	% Difference
MMM_055_0709	81.1	28.4	-52.7	0.35	-65.0%
M6J 21AJ26_034_0813	70.9	20.4	-50.5	0.29	-71.2%
M6J 21AJ26_024_0813	49.9	11.6	-38.3	0.23	-76.7%
M6J 21AJ26_025_0813	70.4	20.7	-49.7	0.29	-70.6%
M6J 21AJ26_027_0813	32.0	7.6	-24.5	0.24	-76.4%
M6J 21AJ26_043_0514	66.7	16.8	-49.8	0.25	-74.8%
Wigan_52_ChurchLane	48.9	18.3	-30.6	0.37	-62.6%
Wigan_54_EastLancs	28.0	12.1	-15.9	0.43	-56.9%
M6J 21AJ26_008_0813	96.7	25.0	-71.7	0.26	-74.1%
M6J 21AJ26_011_0813	35.9	12.2	-23.7	0.34	-66.0%
M6J 21AJ26_040_0514	109.3	28.1	-81.2	0.26	-74.3%
M6J 21AJ26_003_0813	44.3	14.0	-30.3	0.32	-68.4%
Model Domain		**M60 / A580**			
MMM_007_0709	22.3	35.2	13.0	1.58	58.2%
MMM_008_0709	20.1	33.5	13.4	1.67	66.7%
MMM_009&10_0709	24.1	19.1	-4.9	0.79	-20.5%
MMM_017_0709	12.8	25.3	12.6	1.99	98.8%
MMM_053_0709	14.8	15.4	0.6	1.04	4.0%
MMM_054_0709	13.7	15.7	1.9	1.14	14.1%
MMM_265_0214	47.5	58.0	10.5	1.22	22.1%
MMM_268_0714	5.2	6.1	0.9	1.17	16.7%
MMM_269_0714	3.3	7.2	3.9	2.19	119.4%
MMM_272_0714	8.9	9.7	0.8	1.09	8.9%
MMM_274_0714	8.2	15.0	6.8	1.83	83.2%
Model Domain		**Retail Park**			
M62J10J12_022_0813	28.3	7.2	-21.1	0.25	-74.5%
Model Domain		**M602**			
Salford_SA25_16Wyn	4.4	9.6	5.2	2.17	116.9%
Salford_SA44_Pembrok	25.6	22.9	-2.7	0.89	-10.7%
MMM_215_1013	26.8	18.1	-8.7	0.67	-32.5%
MMM_216_1013	68.8	41.6	-27.2	0.60	-39.6%
MMM_217_1013	36.6	26.9	-9.7	0.73	-26.6%
Salford_CMS_ECCL_Sal	3.2	5.8	2.6	1.83	83.3%
M62J10J12_001_0813	41.2	42.2	0.9	1.02	2.3%
M62J10J12_002_0813	20.5	24.9	4.4	1.21	21.4%
MMM_018_0709	31.2	26.0	-5.1	0.84	-16.5%
MMM_021_0709	62.3	71.4	9.1	1.15	14.7%
MMM_022_0709	42.4	40.7	-1.7	0.96	-4.1%
MMM_023_0709	67.5	72.0	4.5	1.07	6.7%

Site	Measured Road NOx ($\mu g/m^3$)	Modelled Road NOx - Unadjusted ($\mu g/m^3$)	Modelled – Measured Road NOx ($\mu g/m^3$)	Modelled / Measured Road NO_x	% Difference
MMM_024_0709	25.4	24.5	-0.9	0.96	-3.6%
MMM_025_0709	24.6	24.5	-0.1	1.00	-0.3%
MMM_026_0709	30.8	21.2	-9.6	0.69	-31.3%
MMM_181_0513	54.3	21.2	-33.1	0.39	-60.9%
MMM_183_0513	19.5	14.3	-5.2	0.73	-26.6%
MMM_184_0513	28.0	16.8	-11.2	0.60	-39.9%
MMM_185_0513	27.8	14.7	-13.1	0.53	-47.0%
MMM_186_0513	35.1	24.3	-10.7	0.69	-30.6%
MMM_187_0513	41.4	26.4	-15.0	0.64	-36.3%
MMM_188_0513	37.5	18.9	-18.6	0.50	-49.6%
MMM_189_0513	30.2	22.9	-7.3	0.76	-24.3%
MMM_190_0513	37.2	36.6	-0.6	0.98	-1.6%
MMM_191_0513	34.2	30.2	-3.9	0.88	-11.5%
MMM_192_0513	28.6	22.8	-5.8	0.80	-20.4%
MMM_193_0513	30.5	19.5	-11.0	0.64	-36.1%
MMM_194_0513	24.9	16.3	-8.6	0.65	-34.6%
MMM_197_0513	19.9	13.5	-6.4	0.68	-32.4%
MMM_203_0513	20.1	17.7	-2.4	0.88	-11.8%
MMM_204_0513	35.5	25.7	-9.8	0.72	-27.6%
MMM_205_0513	49.2	44.1	-5.1	0.90	-10.4%
MMM_206_0513	28.2	25.7	-2.4	0.91	-8.6%
MMM_262_0414	35.9	31.1	-4.8	0.87	-13.4%
MMM_275_0714	17.5	18.6	1.0	1.06	6.0%
Salford_SA42_44Eden	41.7	79.1	37.5	1.90	89.9%
Salford_SA53_Ryecrof	36.1	30.0	-6.1	0.83	-16.9%
Salford_SA54_Ryecrof	18.5	13.2	-5.3	0.71	-28.8%
Model Domain		Park Cottages			
StHelens_T15_2Park	30.1	42.9	12.8	1.43	42.6%
Model Domain		Winwick			
M62J10J12_020_0813	25.1	9.1	-16.0	0.36	-63.7%
M62J10J12_021_0813	27.9	20.6	-7.3	0.74	-26.3%
M6J 21AJ26_031_0813	20.7	7.7	-13.0	0.37	-62.8%

The results of the comparison of modelled and monitored road-NO_x indicates that the model exhibits systematic bias in a number of model domains. As such, in order to improve model performance, model adjustment factors were derived where considered necessary, in accordance with the methodology described in LAQM.TG16. The model adjustment factors derived and applied to modelled road-NOx contributions with each model domain are described below in Table B-41.

Table B-41 Model Adjustment Factors Applied in each Model Adjustment Area

Model Domain	Adjustment Factor Applied?	Adjustment Factor
General	Yes	1.56
A Roads	Yes	3.42
M60 / A580	Yes	0.75
Retail Park	Yes	3.92
M602	Yes	1.05
Park Cottages	Yes	0.70
Winwick	Yes	1.70

A comparison of the adjusted modelled estimates of total annual mean NO_2 with monitored concentrations is presented in Table B-42 and Table B-43. The results show that the adjusted NO_2 concentrations modelled at the 122 monitoring sites are within +/- 25% of monitored concentrations at 123 out of 126 sites following model adjustment, and the majority (75 of 126 sites or 60%) are within 10% of monitored concentrations. This suggests that the model, following adjustment, performs well at most locations in accordance with DEFRA Technical Guidance LAQM.TG16.

Table B-42 RMSE and Fractional Bias values for Adjusted modelled estimates of NO_2 compared to monitored concentrations

Model Domain	Number of Site Comparisons	Number of Monitoring Sites within ±25% of the Monitored Concentration Pre-Adjustment	Raw RMSE (Pre Adjustment) (µg/m^3)	Model Adjustment Factor	Adjusted Model RMSE	Fractional Bias (Post Adjustment)	Number of Sites within ±25% of the Monitored Concentration Post Adjustment
General	58	42	12.2	1.56	5.1	0.0	57
A Roads	14	2	8.2	3.42	3.7	0.0	14
M60 / A580	11	11	24.4	0.75	2.1	0.0	11
Retail Park	1	0	5.4	3.92	0.1	0.0	1
M602	38	36	19.5	1.05	4.9	0.0	36
Park Cottages	1	1	-	0.70	-	-	1
Winwick	3	3	12.8	1.70	3.8	0.1	3

Table B-43 Comparison of Adjusted Modelled and Measured NO_2 Concentrations

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
Adjustment Area		General			
M6J16J19_015_0513	63.8	61.8	-2.0	0.97	-3.2%
M6J16J19_016_0513	22.2	20.9	-1.4	0.94	-6.1%
M6J16J19_021_0513	22.3	21.1	-1.2	0.94	-5.5%
M6J16J19_023_0513	58.7	48.7	-10.0	0.83	-17.1%
M6J16J19_024_0513	35.7	43.0	7.2	1.20	20.2%
M6J19lm_013_1215	24.6	22.0	-2.6	0.89	-10.5%
M62J10J12_015_0813	36.6	34.5	-2.2	0.94	-5.9%
M62J10J12_016_0813	47.2	42.0	-5.2	0.89	-11.1%
M62J10J12_017_0813	56.3	41.2	-15.1	0.73	-26.8%
M6J 21AJ26_037_0813	41.5	42.2	0.7	1.02	1.8%
M62J10J12_003_0813	36.7	33.0	-3.7	0.90	-10.1%
M62J10J12_005_0813	46.1	51.3	5.2	1.11	11.3%
M62J10J12_006_0813	50.8	52.6	1.9	1.04	3.6%
M62J10J12_009_0813	34.8	32.8	-2.0	0.94	-5.7%
M62J10J12_010_0813	32.4	25.5	-6.9	0.79	-21.2%
M6J16J19_029_0513	39.1	37.4	-1.6	0.96	-4.2%
M6J16J19_030_0513	35.2	40.6	5.5	1.16	15.5%
M6J16J19_031_0513	32.4	34.5	2.1	1.07	6.6%
M6J16J19_032_0513	27.8	29.8	2.0	1.07	7.2%
MMM_058_0709	41.7	46.0	4.3	1.10	10.3%
MMM_213_1013	32.9	39.9	7.0	1.21	21.2%
MMM_214_1013	31.7	39.2	7.5	1.24	23.6%
Salford_SA34_673Liv	43.5	53.4	9.9	1.23	22.7%
Salford_SA50_RookeS	36.0	42.2	6.2	1.17	17.2%
Warrington_DT6_Manch	55.5	46.5	-9.0	0.84	-16.2%
M6J 21AJ26_030_0813	39.5	37.5	-2.0	0.95	-5.0%
M6J 21AJ26_032_0813	51.3	56.5	5.2	1.10	10.1%
M6J 21AJ26_033_0813	29.5	28.0	-1.5	0.95	-5.0%
M6J 21AJ26_036_0813	37.0	39.4	2.4	1.06	6.4%
MMM_048_0709	36.7	41.5	4.8	1.13	13.2%
MMM_049_0709	38.4	40.9	2.5	1.06	6.4%
MMM_050_0709	35.0	33.3	-1.6	0.95	-4.6%
MMM_133_0709	42.8	45.4	2.6	1.06	6.1%
MMM_221_1013	42.7	46.0	3.3	1.08	7.8%
Salford_SA31_Walkden	29.2	31.0	1.8	1.06	6.2%
StHelens_T1_170Sou	32.8	33.4	0.6	1.02	1.7%
StHelens_T9_3Water	24.1	28.0	3.9	1.16	16.0%
StHelens_CMS_AN2_So	53.0	58.1	5.1	1.10	9.7%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
M6J 21AJ26_017_0813	25.4	23.0	-2.4	0.91	-9.5%
M6J 21AJ26_018_0813	34.8	29.6	-5.2	0.85	-15.0%
M6J 21AJ26_019_0813	47.1	43.4	-3.8	0.92	-8.0%
M6J 21AJ26_020_0813	35.9	38.8	2.9	1.08	8.1%
M6J 21AJ26_021_0813	39.6	33.8	-5.8	0.85	-14.7%
StHelens_T2_1Skitt	35.8	35.6	-0.2	0.99	-0.6%
Wigan_35_WoodfieldC	38.9	41.2	2.3	1.06	6.0%
M6J 21AJ26_005_0813	36.0	27.3	-8.8	0.76	-24.3%
M6J 21AJ26_006_0813	33.8	27.6	-6.2	0.82	-18.3%
M6J 21AJ26_007_0813	37.0	31.5	-5.5	0.85	-15.0%
M6J 21AJ26_009_0813	47.3	41.2	-6.1	0.87	-12.9%
M6J 21AJ26_039_0514	49.7	41.5	-8.2	0.83	-16.5%
Wigan_115_Winchester	27.5	32.5	5.0	1.18	18.1%
Sefton_NET_MoorheyR	20.0	18.7	-1.3	0.94	-6.3%
M6J 21AJ26_002_0813	33.6	29.4	-4.1	0.88	-12.3%
M6J 21AJ26_004_0813	39.7	30.7	-9.0	0.77	-22.7%
Wigan_53_NewMilesL	32.4	30.6	-1.8	0.94	-5.6%
StHelens_T13_22Uni	26.1	26.0	-0.1	0.99	-0.6%
StHelens_T30_4Unio	23.5	22.2	-1.3	0.94	-5.6%
Salford_CMS_M60_Salf	52.0	53.1	1.1	1.02	2.0%
Adjustment Area		**A Roads**			
M6J 21AJ26_038_0813	30.1	33.2	3.1	1.10	10.3%
M62J10J12_004_0813	56.2	55.1	-1.1	0.98	-2.0%
MMM_055_0709	55.4	61.2	5.7	1.10	10.3%
M6J 21AJ26_034_0813	48.7	48.3	-0.4	0.99	-0.8%
M6J 21AJ26_024_0813	42.3	38.1	-4.3	0.90	-10.1%
M6J 21AJ26_025_0813	50.9	51.0	0.2	1.00	0.3%
M6J 21AJ26_027_0813	33.2	30.4	-2.8	0.92	-8.5%
M6J 21AJ26_043_0514	47.6	44.1	-3.6	0.93	-7.5%
Wigan_52_ChurchLane	41.1	46.7	5.6	1.14	13.5%
Wigan_54_EastLancs	33.4	39.3	5.9	1.18	17.6%
M6J 21AJ26_008_0813	57.2	53.2	-3.9	0.93	-6.8%
M6J 21AJ26_011_0813	33.2	35.8	2.6	1.08	7.8%
M6J 21AJ26_040_0514	61.5	57.0	-4.5	0.93	-7.4%
M6J 21AJ26_003_0813	35.2	36.8	1.5	1.04	4.4%
Adjustment Area		**M60 / A580**			
MMM_007_0709	32.8	34.7	1.9	1.06	5.7%
MMM_008_0709	31.9	34.1	2.3	1.07	7.1%
MMM_009&10_0709	33.7	29.1	-4.5	0.86	-13.5%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
MMM_017_0709	28.4	31.3	2.9	1.10	10.4%
MMM_053_0709	29.4	27.8	-1.6	0.95	-5.4%
MMM_054_0709	28.8	27.9	-1.0	0.97	-3.3%
MMM_265_0214	43.8	42.1	-1.7	0.96	-3.9%
MMM_268_0714	23.2	22.9	-0.3	0.99	-1.4%
MMM_269_0714	22.2	23.3	1.1	1.05	4.8%
MMM_272_0714	26.6	25.8	-0.8	0.97	-3.1%
MMM_274_0714	26.2	27.6	1.5	1.06	5.7%
Adjustment Area		**Retail Park**			
M62J10J12_022_0813	29.7	29.8	0.1	1.00	0.5%
Adjustment Area		**M602**			
Salford_SA25_16Wyn	28.5	31.2	2.7	1.10	9.6%
Salford_SA44_Pembrok	38.6	37.9	-0.7	0.98	-1.9%
MMM_215_1013	38.1	34.6	-3.5	0.91	-9.2%
MMM_216_1013	55.0	45.2	-9.8	0.82	-17.8%
MMM_217_1013	39.8	36.1	-3.7	0.91	-9.2%
Salford_CMS_ECCL_Sal	27.0	28.4	1.4	1.05	5.3%
M62J10J12_001_0813	40.5	41.7	1.3	1.03	3.1%
M62J10J12_002_0813	31.3	33.9	2.6	1.08	8.2%
MMM_018_0709	35.4	33.6	-1.7	0.95	-4.9%
MMM_021_0709	47.1	51.8	4.8	1.10	10.1%
MMM_022_0709	40.2	40.3	0.1	1.00	0.3%
MMM_023_0709	50.2	53.2	3.0	1.06	5.9%
MMM_024_0709	34.2	34.3	0.1	1.00	0.4%
MMM_025_0709	33.8	34.3	0.5	1.01	1.5%
MMM_026_0709	36.6	32.7	-3.9	0.89	-10.6%
MMM_181_0513	45.1	31.3	-13.8	0.69	-30.5%
MMM_183_0513	30.1	27.9	-2.1	0.93	-7.1%
MMM_184_0513	34.0	29.2	-4.8	0.86	-14.1%
MMM_185_0513	33.8	28.1	-5.7	0.83	-17.0%
MMM_186_0513	37.1	32.8	-4.3	0.89	-11.5%
MMM_187_0513	39.8	33.8	-6.0	0.85	-15.1%
MMM_188_0513	38.1	30.2	-7.9	0.79	-20.8%
MMM_189_0513	34.9	32.1	-2.8	0.92	-8.1%
MMM_190_0513	36.8	37.3	0.5	1.01	1.4%
MMM_191_0513	35.5	34.4	-1.1	0.97	-3.1%
MMM_192_0513	33.0	30.8	-2.2	0.93	-6.5%
MMM_193_0513	33.8	29.2	-4.6	0.86	-13.7%
MMM_194_0513	31.3	27.6	-3.7	0.88	-11.7%

Site	Measured NO_2 ($\mu g/m^3$)	Modelled Total NO_2 – Adjusted ($\mu g/m^3$)	Modelled – Measured ($\mu g/m^3$)	Modelled / Measured	% Difference
MMM_197_0513	30.2	27.5	-2.8	0.91	-9.1%
MMM_203_0513	31.8	31.1	-0.7	0.98	-2.2%
MMM_204_0513	36.0	32.2	-3.8	0.89	-10.6%
MMM_205_0513	41.8	40.6	-1.2	0.97	-2.9%
MMM_206_0513	35.4	34.9	-0.5	0.99	-1.5%
MMM_262_0414	37.4	36.0	-1.5	0.96	-3.9%
MMM_275_0714	30.6	31.5	0.9	1.03	3.0%
Salford_SA42_44Eden	38.7	54.8	16.1	1.42	41.6%
Salford_SA53_Ryecrof	36.3	34.2	-2.1	0.94	-5.7%
Salford_SA54_Ryecrof	28.3	26.0	-2.3	0.92	-8.0%
Adjustment Area		Park Cottages			
StHelens_T15_2Park	32.8	33.5	0.7	1.02	2.1%
Adjustment Area		Winwick			
M62J10J12_020_0813	31.3	26.8	-4.5	0.86	-14.3%
M62J10J12_021_0813	32.5	35.9	3.4	1.10	10.4%
M6J 21AJ26_031_0813	28.1	24.4	-3.6	0.87	-12.9%

Appendix B.5. Assessment of Impact

Local Air Quality Results

Table B-44 Annual Mean NO_2 Results for Discrete Human Health Receptors within the M56 J6-8 Geographical Study Area - 'Cumulative worst case' scenario

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R10	16.0	32.4	26.2	26.4	0.2	Imperceptible	Fig.5.5, Map 15
M56 - R11	14.4	20.5	16.7	16.7	0	Imperceptible	Fig.5.5, Map 19
M56 - R12	16.0	31.1	25.5	25.7	0.2	Imperceptible	Fig.5.5, Map 16
M56 - R13	16.1	29.7	24.3	24.5	0.2	Imperceptible	Fig.5.5, Map 16
M56 - R14	16.1	35.4	29.1	29.3	0.2	Imperceptible	Fig.5.5, Map 16
M56 - R15	15.6	33	27	27.3	0.3	Imperceptible	Fig.5.5, Map 16
M56 - R16	15.7	30.1	24.8	25.1	0.3	Imperceptible	Fig.5.5, Map 16
M56 - R17	16.5	39	32.1	32.4	0.3	Imperceptible	Fig.5.5, Map 14
M56 - R18	14.7	20.8	16.9	17	0.1	Imperceptible	Fig.5.5, Map 18
M56 - R19	16.0	22.5	18.4	18.4	0	Imperceptible	Fig.5.5, Map 16
M56 - R20	15.6	28.9	23.7	24.1	0.4	Imperceptible	Fig.5.5, Map 16
M56 - R21	17.6	29.5	24.1	24.2	0.1	Imperceptible	Fig.5.5, Map 16
M56 - R22	17.6	26.4	21.5	21.6	0.1	Imperceptible	Fig.5.5, Map 16
M56 - R23	15.1	25.8	22.8	22.9	0.1	Imperceptible	Fig.5.5, Map 9
M56 - R24	15.4	28.9	23.5	23.6	0.1	Imperceptible	Fig.5.5, Map 15
M56 - R25	15.4	31.9	26	26.2	0.2	Imperceptible	Fig.5.5, Map 10
M56 - R26	14.4	24.2	20	20.1	0.1	Imperceptible	Fig.5.5, Map 12
M56 - R27	14.8	27.8	25.1	25.2	0.1	Imperceptible	Fig.5.5, Map 13
M56 - R28	14.8	26	21.7	21.8	0.1	Imperceptible	Fig.5.5, Map 12
M56 - R29	17.2	25.6	20.9	20.6	-0.3	Imperceptible	Fig.5.5, Map 8
M56 - R30	16.3	20	16.9	16.9	0	Imperceptible	Fig.5.5, Map 9
M56 - R31	23.7	32.6	26.7	26.3	-0.4	Imperceptible	Fig.5.5, Map 8
M56 - R32	15.6	23.1	19.2	19.1	-0.1	Imperceptible	Fig.5.5, Map 9
M56 - R33	17.2	26.4	21.5	21.1	-0.4	Imperceptible	Fig.5.5, Map 8
M56 - R34	15.9	20.7	16.9	17	0.1	Imperceptible	Fig.5.5, Map 9

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R35	24.4	42.8	35.6	35.6	0	Imperceptible	Fig.5.5, Map 7
M56 - R36	24.4	37.4	31	31	0	Imperceptible	Fig.5.5, Map 7
M56 - R37	20.2	36.4	30.8	30.8	0	Imperceptible	Fig.5.5, Map 7
M56 - R38	20.2	42.6	35.7	35.7	0	Imperceptible	Fig.5.5, Map 7
M56 - R39	24.4	38.6	33.1	33.5	0.4	Imperceptible	Fig.5.5, Map 7
M56 - R40	21.2	35.2	30.1	30.1	0	Imperceptible	Fig.5.5, Map 7
M56 - R41	19.1	34.2	29.9	30.1	0.2	Imperceptible	Fig.5.5, Map 7
M56 - R42	21.2	31.2	26.9	26.8	-0.1	Imperceptible	Fig.5.5, Map 7
M56 - R43	20.2	37.7	31.7	31.7	0	Imperceptible	Fig.5.5, Map 6
M56 - R44	21.2	38.3	32.3	32.3	0	Imperceptible	Fig.5.5, Map 7
M56 - R45	20.9	29	24	24.1	0.1	Imperceptible	Fig.5.5, Map 6
M56 - R46	20.2	36.7	30.6	30.6	0	Imperceptible	Fig.5.5, Map 6
M56 - R47	20.2	32.8	27.3	27.4	0.1	Imperceptible	Fig.5.5, Map 6
M56 - R48	21.8	34.6	28.5	28.5	0	Imperceptible	Fig.5.5, Map 6
M56 - R49	21.8	43	36.1	36.1	0	Imperceptible	Fig.5.5, Map 6
M56 - R50	21.8	46.7	39.6	39.5	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R51	21.8	45.5	38.5	38.4	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R52	21.8	43.8	37	37	0	Imperceptible	Fig.5.5, Map 6
M56 - R53	21.8	42.9	36.2	36.2	0	Imperceptible	Fig.5.5, Map 6
M56 - R54	21.8	36.9	30.8	30.8	0	Imperceptible	Fig.5.5, Map 6
M56 - R55	21.8	37.6	31.4	31.4	0	Imperceptible	Fig.5.5, Map 6
M56 - R56	21.8	48	40.8	40.7	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R57	21.8	42	35.4	35.4	0	Imperceptible	Fig.5.5, Map 6
M56 - R58	21.8	38.9	32.6	32.6	0	Imperceptible	Fig.5.5, Map 6
M56 - R59	21.8	39.5	33.2	33.2	0	Imperceptible	Fig.5.5, Map 6
M56 - R60	21.8	41	34.6	34.5	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R61	21.8	39.6	33.3	33.3	0	Imperceptible	Fig.5.5, Map 6
M56 - R62	21.8	42.9	36	36	0	Imperceptible	Fig.5.5, Map 6
M56 - R63	21.8	39.7	33.2	33.2	0	Imperceptible	Fig.5.5, Map 6

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R64	21.8	42.8	35.9	35.9	0	Imperceptible	Fig.5.5, Map 6
M56 - R65	21.8	48.5	41.3	41.2	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R66	21.8	46	39	38.9	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R67	21.8	48.6	41.4	41.3	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R68	21.8	49.1	41.7	41.7	0	Imperceptible	Fig.5.5, Map 6
M56 - R70	21.8	48.4	41.3	41.2	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R71	21.8	48.4	41.2	41.1	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R72	21.8	47.3	40.3	40.3	0	Imperceptible	Fig.5.5, Map 6
M56 - R73	21.8	46.4	39.6	39.5	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R74	21.8	46.9	40	40	0	Imperceptible	Fig.5.5, Map 6
M56 - R75	21.8	47.1	40.2	40.1	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R76	21.8	46.8	39.9	39.8	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R77	21.8	45.2	38.5	38.5	0	Imperceptible	Fig.5.5, Map 6
M56 - R78	21.8	48.4	41.2	41.1	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R79	21.8	44.8	38.1	38.1	0	Imperceptible	Fig.5.5, Map 6
M56 - R80	21.8	43.8	37.2	37.2	0	Imperceptible	Fig.5.5, Map 6
M56 - R81	21.8	42.9	36.4	36.4	0	Imperceptible	Fig.5.5, Map 6
M56 - R82	21.8	42.1	35.7	35.7	0	Imperceptible	Fig.5.5, Map 6
M56 - R83	21.8	41.3	34.9	34.9	0	Imperceptible	Fig.5.5, Map 6
M56 - R84	21.8	39.8	33.6	33.6	0	Imperceptible	Fig.5.5, Map 6
M56 - R85	23.6	35	28.3	28.3	0	Imperceptible	Fig.5.5, Map 5
M56 - R86	20.4	32.7	26.7	26.7	0	Imperceptible	Fig.5.5, Map 5
M56 - R87	20.4	29.6	24.1	24.2	0.1	Imperceptible	Fig.5.5, Map 5
M56 - R88	22.6	28.4	23.1	23.1	0	Imperceptible	Fig.5.5, Map 5
M56 - R89	20.4	28.2	23	23	0	Imperceptible	Fig.5.5, Map 6
M56 - R90	22.3	39.7	33.7	33.6	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R91	22.3	34.7	29.1	29	-0.1	Imperceptible	Fig.5.5, Map 4
M56 - R92	20.9	37.9	30.9	31	0.1	Imperceptible	Fig.5.5, Map 4
M56 - R93	21.3	34.2	28.5	28.4	-0.1	Imperceptible	Fig.5.5, Map 4

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R94	22.3	38.2	32.3	32.1	-0.2	Imperceptible	Fig.5.5, Map 4
M56 - R95	20.9	42.5	34.4	34.6	0.2	Imperceptible	Fig.5.5, Map 4
M56 - R96	20.9	39.4	31.9	32	0.1	Imperceptible	Fig.5.5, Map 4
M56 - R97	22.3	36.3	30.6	30.5	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R98	22.3	35.8	29.9	29.8	-0.1	Imperceptible	Fig.5.5, Map 6
M56 - R99	22.3	33.9	28.4	28.3	-0.1	Imperceptible	Fig.5.5, Map 4
M56 - R100	21.3	31.7	26.5	26.5	0	Imperceptible	Fig.5.5, Map 4
M56 - R101	21.3	35.8	30.2	30.1	-0.1	Imperceptible	Fig.5.5, Map 4
M56 - R102	21.3	29.1	23.9	23.9	0	Imperceptible	Fig.5.5, Map 4
M56 - R103	20.9	45	35.4	35.5	0.1	Imperceptible	Fig.5.5, Map 4
M56 - R104	20.9	47.2	38.3	38.6	0.3	Imperceptible	Fig.5.5, Map 4
M56 - R105	22.3	32.2	26.7	26.7	0	Imperceptible	Fig.5.5, Map 6
M56 - R106	21.3	37.8	31.9	31.8	-0.1	Imperceptible	Fig.5.5, Map 4
M56 - R107	21.7	26.5	21.7	21.7	0	Imperceptible	Fig.5.5, Map 4
M56 - R108	21.3	24.1	19.6	19.6	0	Imperceptible	Fig.5.5, Map 4
M56 - R109	21.7	26.3	21.6	21.6	0	Imperceptible	Fig.5.5, Map 4
M56 - R110	20.2	27.4	22.8	22.8	0	Imperceptible	Fig.5.5, Map 4
M56 - R111	21.7	27.4	22.6	22.6	0	Imperceptible	Fig.5.5, Map 4
M56 - R112	21.0	27.7	23	23	0	Imperceptible	Fig.5.5, Map 4
M56 - R113	20.2	24.5	19.7	19.8	0.1	Imperceptible	Fig.5.5, Map 3
M56 - R114	21.0	26.5	21.8	21.8	0	Imperceptible	Fig.5.5, Map 4
M56 - R115	20.2	24.5	19.7	19.7	0	Imperceptible	Fig.5.5, Map 3
M56 - R116	20.2	24.6	19.8	19.8	0	Imperceptible	Fig.5.5, Map 3
M56 - R117	20.6	26.7	21.5	21.5	0	Imperceptible	Fig.5.5, Map 3
M56 - R118	19.1	21.4	17.3	17.3	0	Imperceptible	Fig.5.5, Map 3
M56 - R119	19.1	22.1	17.8	17.8	0	Imperceptible	Fig.5.5, Map 3
M56 - R120	20.6	31	25.3	25.3	0	Imperceptible	Fig.5.5, Map 3
M56 - R121	21.9	33.1	26.6	26.6	0	Imperceptible	Fig.5.5, Map 2
M56 - R123	24.3	39.5	31.9	31.9	0	Imperceptible	Fig.5.5, Map 2

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R124	23.4	40.9	32.6	32.6	0	Imperceptible	Fig.5.5, Map 2
M56 - R125	23.4	32.2	25.9	25.9	0	Imperceptible	Fig.5.5, Map 2
M56 - R126	23.4	35	27.9	27.9	0	Imperceptible	Fig.5.5, Map 2
M56 - R127	21.9	38.6	31.7	31.7	0	Imperceptible	Fig.5.5, Map 2
M56 - R128	21.9	34.9	28.1	28.1	0	Imperceptible	Fig.5.5, Map 2
M56 - R129	15.1	26.1	25.8	25.9	0.1	Imperceptible	Fig.5.5, Map 9
M56 - R130	14.4	16.3	13.9	13.9	0	Imperceptible	Fig.5.5, Map 11
M56 - R131	14.4	15.8	13.5	13.5	0	Imperceptible	Fig.5.5, Map 11
M56 - R132	14.6	16.2	14.2	14.2	0	Imperceptible	Fig.5.5, Map 11
M56 - R133	14.6	16.3	16.3	16.3	0	Imperceptible	Fig.5.5, Map 11
M56 - R134	15.1	18	16.5	16.5	0	Imperceptible	Fig.5.5, Map 10
M56 - R135	15.1	21.5	17.9	17.9	0	Imperceptible	Fig.5.5, Map 10
M56 - R136	14.6	16.3	14.4	14.5	0.1	Imperceptible	Fig.5.5, Map 12
M56 – R137	14.3	57.6	47.8	48.4	0.6	Small increase	Fig.5.5, Map 14
M56 - R138	13.9	21.5	17.6	17.7	0.1	Imperceptible	Fig.5.5, Map 12
M56 - R139	14.2	21.5	17.6	17.7	0.1	Imperceptible	Fig.5.5, Map 14
M56 - R140	14.2	25.4	20.9	21	0.1	Imperceptible	Fig.5.5, Map 14
M56 - R141	15.2	28.9	23.7	23.9	0.2	Imperceptible	Fig.5.5, Map 14
M56 - R142	14.3	20.1	16.4	16.5	0.1	Imperceptible	Fig.5.5, Map 14
M56 - R143	14.3	29.3	24.1	24.3	0.2	Imperceptible	Fig.5.5, Map 14
M56 - R144	16.5	32.2	26.4	26.6	0.2	Imperceptible	Fig.5.5, Map 16
M56 - R145	14.4	24.6	20.3	20.5	0.2	Imperceptible	Fig.5.5, Map 12
M56 - R146	14.4	30.7	25.7	25.9	0.2	Imperceptible	Fig.5.5, Map 12
M56 - R147	16.5	51.2	42.4	42.9	0.5	Small increase	Fig.5.5, Map 16
M56 - S1	21.9	31.6	25.4	25.4	0	Imperceptible	Fig.5.5, Map 2
M56 - S2	21.8	40.5	33.9	33.9	0	Imperceptible	Fig.5.5, Map 6

Table B-45 Annual Mean NO_2 Results ($\mu g/m^3$) for Discrete Receptors within the M60 J24-4 Geographical Study Area

Receptor ID	Background 2015 NO_2	2015 Base NO_2	2020 DM $LTT_{E6}NO_2$	2020 DS LTT_{E6} NO_2	LTT_{E6} 2020 NO_2 Change	2020 LTT_{E6} NO_2 Change Criteria	Figure & Map
M60 - R1	21.3	28.7	23.5	23.4	-0.1	Imperceptible	Fig.5.5, Map 8
M60 - R2	22.2	29.4	24.0	24.0	<0.1	Imperceptible	Fig.5.5, Map 8
M60 - R3	21.3	36.5	30.0	29.7	-0.3	Imperceptible	Fig.5.5, Map 8
M60 - R4	22.0	28.5	23.1	22.8	-0.3	Imperceptible	Fig.5.5, Map 5
M60 - R5	22.0	34.1	28.0	27.5	-0.5	Small decrease	Fig.5.5, Map 5
M60 - R6	22.0	34.0	28.0	27.6	-0.4	Imperceptible	Fig.5.5, Map 5
M60 - R7	20.8	28.8	23.3	23.5	+0.2	Imperceptible	Fig.5.5, Map 6
M60 - R8	23.5	36.4	30.1	30.2	+0.1	Imperceptible	Fig.5.5, Map 8
M60 - R9	24.9	29.7	24.4	24.5	+0.1	Imperceptible	Fig.5.5, Map 7
M60 - R10	21.9	31.2	25.2	25.6	+0.4	Imperceptible	Fig.5.5, Map 6
M60 - R11	20.8	30.6	24.6	25.2	+0.6	Small increase	Fig.5.5, Map 6
M60 - R12	20.8	24.9	20.1	20.1	<0.1	Imperceptible	Fig.5.5, Map 6
M60 - R13	20.8	28.6	23.1	23.5	+0.4	Imperceptible	Fig.5.5, Map 6
M60 - R14	21.8	28.4	23.1	23.4	+0.3	Imperceptible	Fig.5.5, Map 7
M60 - R15	21.7	32.4	26.2	26.3	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R16	22.1	33.5	26.7	26.8	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R17	21.8	35.1	28.9	29.4	+0.5	Small increase	Fig.5.5, Map 7
M60 - R18	22.8	33.2	27.0	27.1	+0.1	Imperceptible	Fig.5.5, Map 1
M60 - R19	22.4	34.4	28.4	28.5	+0.1	Imperceptible	Fig.5.5, Map 1
M60 - R20	18.6	30.5	25.1	25.3	+0.2	Imperceptible	Fig.5.5, Map 3
M60 - R21	21.9	28.4	23.2	23.5	+0.3	Imperceptible	Fig.5.5, Map 4
M60 - R22	21.9	31.0	25.4	26.0	+0.6	Small increase	Fig.5.5, Map 4
M60 - R23	22.0	30.7	25.2	25.6	+0.4	Imperceptible	Fig.5.5, Map 4
M60 - R24	24.9	41.9	33.6	33.8	+0.2	Imperceptible	Fig.5.5, Map 7
M60 - R25	21.9	37.1	30.7	31.4	+0.7	Small increase	Fig.5.5, Map 4
M60 - R26	21.7	34.1	28.2	28.3	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R27	22.1	33.9	26.8	26.9	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R28	21.9	25.7	20.8	20.9	+0.1	Imperceptible	Fig.5.5, Map 6

Receptor ID	Background 2015 NO_2	2015 Base NO_2	2020 DM $LTT_{E6}NO_2$	2020 DS LTT_{E6} NO_2	LTT_{E6} 2020 NO_2 Change	2020 LTT_{E6} NO_2 Change Criteria	Figure & Map
M60 - R29	24.4	32.5	26.5	26.6	+0.1	Imperceptible	Fig.5.5, Map 1
M60 - R30	22.8	30.9	25.2	25.2	<0.1	Imperceptible	Fig.5.5, Map 1
M60 - R31	24.7	41.7	34.3	34.4	+0.1	Imperceptible	Fig.5.5, Map 2
M60 - R32	24.7	35.7	29.2	29.3	+0.1	Imperceptible	Fig.5.5, Map 2
M60 - R33	26.1	43.5	35.6	35.7	+0.1	Imperceptible	Fig.5.5, Map 4
M60 - R34	19.7	25.9	21.1	21.2	+0.1	Imperceptible	Fig.5.5, Map 3
M60 - R35	21.9	28.7	23.6	23.6	<0.1	Imperceptible	Fig.5.5, Map 8
M60 - R36	24.9	34.4	28.2	28.5	+0.3	Imperceptible	Fig.5.5, Map 7
M60 - R37	24.9	29.2	23.8	23.9	+0.1	Imperceptible	Fig.5.5, Map 7
M60 - R38	20.8	26.0	21.0	21.1	+0.1	Imperceptible	Fig.5.5, Map 6
M60 - R39	19.5	28.0	22.9	23.2	+0.3	Imperceptible	Fig.5.5, Map 4
M60 - R40	19.5	26.2	21.5	21.6	+0.1	Imperceptible	Fig.5.5, Map 4
M60 - R41	26.1	32.3	26.3	26.4	+0.1	Imperceptible	Fig.5.5, Map 4
M60 - R42	19.8	27.7	22.7	22.8	+0.1	Imperceptible	Fig.5.5, Map 2
M60 - R43	19.8	29.8	24.5	24.6	+0.1	Imperceptible	Fig.5.5, Map 2
M60 - R44	22.8	34.8	28.7	28.8	+0.1	Imperceptible	Fig.5.5, Map 1
M60 - R45	20.8	24.9	20.1	20.1	<0.1	Imperceptible	Fig.5.5, Map 6
M60 - R46	21.3	27.9	22.8	22.7	-0.1	Imperceptible	Fig.5.5, Map 8
M60 - R47	22.5	33.9	27.8	27.8	<0.1	Imperceptible	Fig.5.5, Map 8
M60 - R48	21.7	33.3	27.1	27.2	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R49	21.7	32.4	26.2	26.3	+0.1	Imperceptible	Fig.5.5, Map 5
M60 - R50	21.8	34.9	28.7	29.2	+0.5	Small increase	Fig.5.5, Map 7
M60 - R51	20.9	28.9	23.7	23.8	+0.1	Imperceptible	Fig.5.5, Map 2
M60 - R52	24.7	39.1	32.2	32.4	+0.2	Imperceptible	Fig.5.5, Map 2
M60 - R53	22.8	39.3	32.1	32.2	+0.1	Imperceptible	Fig.5.5, Map 1
M60 S1	21.8	32.6	26.8	27.1	+0.3	Imperceptible	Fig.5.5, Map 6

Table B-46 Annual Mean NO_2 Results ($\mu g/m^3$) for Discrete Receptors within the M62 J10-12 geographical study area from the air quality assessment of the 'cumulative worst case' scenario

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M6 - ER1*	20.0	75.6	61.6	63.4	+1.8	Small	General	Fig. 5.3 Map 13&14
M6 - ER2*	20.0	78.3	63.7	65.7	+2.0	Medium	General	Fig. 5.3 Map 13&14
M6 - ER3*	20.0	84.5	68.4	71.1	+2.7	Medium	General	Fig. 5.3 Map 13&14
M62 - ER4	18.8	50.1	41.8	42.4	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19a
M62 - ER5	18.8	47.6	39.7	40.2	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19a
M62 - ER6	18.8	44.5	37.0	37.5	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19a
M62 - ER7	18.8	40.2	33.4	33.8	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER8	18.8	41.1	34.1	34.5	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER9	18.8	38.3	31.8	32.1	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER10	18.8	36.7	30.4	30.7	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER11	18.8	36.1	29.9	30.2	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER12	18.8	34.7	28.7	29.0	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER13	18.8	33.5	27.6	27.9	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER14	18.8	33.7	27.8	28.1	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER15	18.8	39.4	32.8	33.2	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER16	18.8	40.0	33.3	33.8	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER17	18.8	41.5	34.6	35.1	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER18	18.8	40.6	33.9	34.3	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER19	18.8	43.5	36.3	36.8	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER20	18.8	37.7	31.4	31.7	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER21	18.8	37.4	31.0	31.4	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER22	18.8	37.2	31.0	31.3	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER23	18.8	35.2	29.2	29.5	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER24	18.8	35.3	29.2	29.6	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER25	18.8	33.5	27.7	28.0	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER26	18.8	33.6	27.8	28.1	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER27	18.8	35.2	29.2	29.5	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER28	18.8	33.3	27.6	27.9	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER29	18.8	33.3	27.5	27.8	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER30	18.8	32.1	26.5	26.7	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER31	18.8	31.1	25.6	25.9	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER32	18.8	32.1	26.5	26.8	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER33	18.8	32.2	26.6	26.9	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER34	18.8	32.3	26.7	27.0	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER35	18.8	34.2	28.3	28.6	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER36	18.8	34.8	28.9	29.2	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER37	18.8	36.2	30.0	30.4	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER38	18.8	36.8	30.5	30.9	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER39	18.8	40.9	34.1	34.5	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER40	18.8	41.1	34.2	34.7	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER41	18.8	40.2	33.5	33.9	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER42	18.8	38.8	32.3	32.7	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER43	18.8	37.6	31.3	31.6	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER44	18.8	37.1	30.8	31.1	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER45	18.8	39.4	32.8	33.2	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER46	18.8	39.5	32.9	33.3	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER47	18.8	39.4	32.8	33.2	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER48	18.8	41.4	34.5	34.9	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER49	18.8	41.3	34.5	34.9	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER50	18.8	39.9	33.2	33.6	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - ER51	19.1	47.4	38.5	38.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER52	19.1	48.7	39.7	39.7	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER53	19.1	50.4	41.1	41.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER54	19.1	52.3	42.7	42.9	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER55	19.1	53.8	43.9	44.1	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER56	19.1	56.3	46.0	46.2	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER57	20.4	41.9	33.3	33.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER58	20.4	40.4	32.1	32.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER59	20.4	40.7	32.4	32.5	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER60	20.4	41.3	32.9	33.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER61	20.4	41.8	33.3	33.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER62	20.4	43.0	34.4	34.5	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER63	20.4	43.5	34.8	34.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER64	19.1	43.3	34.7	34.7	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER65	19.1	43.9	35.2	35.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER66	20.4	41.8	33.0	33.1	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER67	20.4	36.5	28.9	28.9	<0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER68	20.4	39.2	30.9	31.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER69	20.4	40.3	31.8	31.8	<0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER70	20.4	40.0	31.5	31.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER71	20.4	40.1	31.6	31.7	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER72	20.4	39.9	31.5	31.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER73	20.4	40.0	31.5	31.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER74	20.4	40.0	31.5	31.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER75	20.4	40.2	31.7	31.8	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER76	20.4	40.4	31.9	31.9	<0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER77	20.4	40.3	31.8	31.8	<0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER78	20.4	40.4	31.9	32.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER79	20.4	40.7	32.1	32.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER80	20.4	40.7	32.2	32.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER81	20.4	40.9	32.3	32.3	<0.1	Imperceptible	General	Fig. 5.3 Map 10&10a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER82	20.4	41.1	32.5	32.5	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER83	20.4	41.5	32.8	32.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER84	20.4	43.5	34.4	34.5	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER85	20.4	43.8	34.7	34.8	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER86	20.4	44.1	34.9	35.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER87	20.4	46.9	37.0	37.2	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER88	20.4	47.8	37.9	38.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER89	20.4	48.4	38.4	38.5	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER90	20.4	48.9	38.9	39.0	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER91	20.4	50.2	39.9	40.1	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER92	20.4	51.2	40.8	40.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER93	19.1	45.3	36.3	36.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER94	19.1	48.0	38.7	38.8	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER95	19.1	53.1	43.0	43.2	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER96	19.1	58.7	47.9	48.0	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER97	19.1	68.0	55.5	55.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER98	19.1	75.1	61.4	61.7	+0.3	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER99	19.1	71.7	58.2	58.4	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER100	19.1	66.3	53.5	53.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER101	19.1	63.4	51.0	51.2	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER102	19.1	61.9	49.7	49.9	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER103	19.1	58.7	47.0	47.2	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER104	19.1	57.4	45.8	46.1	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER105	19.1	54.9	43.9	44.1	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER106	19.1	53.0	42.2	42.4	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER107	19.1	51.6	41.1	41.3	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10b
M62 - ER108	20.4	49.2	38.7	38.8	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER109	20.4	51.7	40.6	40.8	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER110	20.4	47.1	37.1	37.2	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER111	20.4	49.0	38.5	38.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER112	20.4	46.6	36.6	36.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER113	20.4	46.4	36.5	36.6	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER114	20.4	46.2	36.3	36.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER115	20.4	46.2	36.3	36.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER116	20.4	47.4	37.3	37.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER117	20.4	47.4	37.2	37.3	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER118	20.4	48.2	37.9	37.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER119	20.4	48.2	37.9	37.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER120	20.4	69.6	55.2	55.4	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - ER121	20.4	62.2	49.2	49.3	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER122	20.4	60.9	48.1	48.3	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER123	20.4	58.7	46.4	46.5	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER124	20.4	57.8	45.6	45.8	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER125	20.4	60.4	47.4	47.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER126	20.4	58.4	45.9	46.1	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER127	20.4	56.4	44.2	44.4	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER128	20.4	53.3	41.8	42.0	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER129	20.4	52.4	41.1	41.3	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER130	20.4	52.0	40.8	40.9	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a &10b
M62 - ER131	20.4	49.4	38.7	38.8	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER132	20.4	49.2	38.6	38.7	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER133	20.4	51.4	40.3	40.4	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER134	20.4	50.7	39.8	40.0	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER135	20.4	49.9	39.1	39.3	+0.2	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - ER136	20.4	49.5	38.8	38.9	+0.1	Imperceptible	General	Fig. 5.3 Map 10&10a
M62 - H1_SALFORD ROYAL NHS	25.5	30.9	25.1	25.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H4_0	29.7	37.4	30.4	30.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 11

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - H5_MEADOWBROOK	25.5	38.6	31.5	31.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H6_ASHLEIGH CARE HOM	22.6	26.9	21.9	21.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H7_0	24.3	30.1	24.5	24.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H8_0	20.7	35.5	29.3	29.3	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - H9_SARTORIA COURT	22.6	28.5	23.2	23.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H10_ABBEY GROVE RESI	25.4	33.4	27.2	27.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 11
M62 - H11_0	19.9	23.1	18.8	18.9	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - H14_0	19.9	26.8	22.0	22.1	+0.1	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - H15_DELPH PARK NURSI	18.9	31.7	26.1	26.6	+0.5	Small Increase	General	Fig. 5.3 Map 5&5b
M62 - H16_DELPH PARK NURSI	18.9	32.2	26.6	27.1	+0.5	Small Increase	General	Fig. 5.3 Map 5&5b
M62 - H17_DELPH PARK NURSI	18.9	29.0	23.8	24.2	+0.4	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R2_ARMY RESERVE CENT	26.5	29.5	24.2	24.2	<0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R3_LANCASTER HALL WA	18.3	25.3	20.7	20.8	+0.1	Imperceptible	General	Fig. 5.3 Map 5&13
M62 - R45	20.0	36.7	30.4	30.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R46	20.0	35.4	29.4	29.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R59	19.1	40.4	33.9	34.6	+0.7	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R60	19.1	38.6	32.4	33.0	+0.7	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M6 - R61*	16.8	54.9	45.3	45.6	+0.3	Imperceptible	General	Fig. 5.3 Map 28&28a
M62 - R65	19.9	41.5	34.4	33.7	-0.7	Small Decrease	General	Fig. 5.3 Map 5&5b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R66	17.2	42.0	35.5	37.0	+1.5	Small Increase	General	Fig. 5.3 Map 5
M6 - R67	17.0	46.3	38.4	39.8	+1.4	Small Increase	A Roads	Fig. 5.3 Map 28
M6 - R68	17.0	44.5	36.8	38.1	+1.3	Small Increase	A Roads	Fig. 5.3 Map 28
M6 - R69	17.2	48.3	40.1	42.0	+1.9	Small Increase	General	Fig. 5.3 Map 5
M62 - R70	18.9	39.2	34.0	34.9	+0.9	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R71	21.3	49.2	39.7	39.7	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R72	21.3	37.3	30.4	30.2	-0.2	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R73	21.3	44.7	36.8	36.3	-0.5	Small Decrease	General	Fig. 5.3 Map 9&9b
M62 - R74	17.1	23.8	19.4	19.8	+0.5	Small Increase	General	Fig. 5.3 Map 9
M62 - R75	18.9	30.4	25.0	26.0	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R76	21.6	36.8	31.1	31.8	+0.7	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R77	21.6	38.8	33.0	33.1	+0.1	Imperceptible	General	Fig. 5.3 Map 6&6a
M62 - R78	18.1	34.0	28.8	30.3	+1.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R79	18.1	28.9	24.2	25.5	+1.3	Small Increase	General	Fig. 5.3 Map 5&6
M6 - R85	15.4	39.6	32.6	33.1	+0.5	Small Increase	General	Fig. 5.3 Map 15
M6 - R86	15.4	41.0	33.7	34.3	+0.6	Small Increase	General	Fig. 5.3 Map 15
M6 - R87	15.4	32.4	26.5	26.8	+0.3	Imperceptible	General	Fig. 5.3 Map 15
M6 - R88	17.5	44.4	37.0	38.4	+1.4	Small Increase	General	Fig. 5.3 Map 14&14a
M6 - R89	17.5	42.2	35.2	36.4	+1.2	Small Increase	General	Fig. 5.3 Map 14&14a
M6 - R90	17.5	38.5	32.3	32.0	-0.3	Imperceptible	General	Fig. 5.3 Map 14&14a
M6 - R91	17.5	37.9	31.7	31.6	-0.1	Imperceptible	General	Fig. 5.3 Map 14&14a
M6 - R92	17.5	37.2	31.1	31.2	+0.1	Imperceptible	General	Fig. 5.3 Map 14&14a
M6 - R93	17.5	37.6	31.3	31.9	+0.6	Small Increase	General	Fig. 5.3 Map 14&14a
M6 - R94	17.5	38.2	31.8	32.6	+0.8	Small Increase	General	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								14&14a
M62 - R95	20.0	34.5	28.6	28.7	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R96	20.0	34.2	28.4	28.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R97	20.0	30.1	24.8	24.9	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M6 - R98	16.9	49.9	41.2	42.4	+1.2	Small Increase	A Roads	Fig. 5.3 Map 28
M6 - R99	17.6	29.4	24.0	24.7	+0.7	Small Increase	A Roads	Fig. 5.3 Map 28&28a
M6 - R100	17.6	30.0	24.5	25.3	+0.8	Small Increase	A Roads	Fig. 5.3 Map 28&28a
M6 - R101	17.6	23.6	19.2	19.6	+0.4	Imperceptible	General	Fig. 5.3 Map 28&28a
M6 - R102	17.6	24.0	19.5	19.9	+0.4	Imperceptible	General	Fig. 5.3 Map 28&28a
M6 - R103	17.6	25.0	20.4	20.8	+0.5	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R104	17.6	25.7	20.9	21.5	+0.6	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R105	17.6	26.4	21.5	22.1	+0.6	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R106	17.6	28.2	23.0	23.9	+0.9	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R107	17.6	27.7	22.6	23.4	+0.9	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R108	17.6	26.9	21.9	22.7	+0.8	Small Increase	General	Fig. 5.3 Map 60&60a
M6 - R109	17.6	30.2	24.7	25.5	+0.8	Small Increase	A Roads	Fig. 5.3 Map 28&28a
M6 - R110	17.6	31.0	25.3	26.2	+0.9	Small Increase	A Roads	Fig. 5.3 Map 28&28a
M6 - R111	17.6	31.8	26.0	27.0	+1	Small Increase	A Roads	Fig. 5.3 Map 28&28a
M6 - R112*	16.8	50.5	41.6	41.7	+0.1	Imperceptible	General	Fig. 5.3 Map 28&28a
M6 - R113	16.8	44.3	36.4	39.5	+3.1	Medium Increase	General	Fig. 5.3 Map 28&28a
M6 - R114	16.8	42.2	34.6	37.5	+2.9	Medium Increase	General	Fig. 5.3 Map 28&28a
M62 - R115	19.1	39.8	33.4	34.1	+0.7	Small Increase	A Roads	Fig. 5.3 Map 19&19b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R116	19.1	39.0	32.7	33.4	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R117	19.1	37.9	31.8	32.4	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R118	19.1	37.5	31.4	32.0	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R199	19.9	38.5	31.9	31.4	-0.5	Small Decrease	General	Fig. 5.3 Map 5&5b
M62 - R200	19.9	35.2	29.1	28.7	-0.4	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R201	19.9	32.8	27.0	27.0	-0.1	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R202	19.9	34.7	28.7	28.6	-0.1	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R203	19.9	36.2	29.9	29.8	-0.1	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R204	19.9	39.8	33.0	32.9	-0.1	Imperceptible	General	Fig. 5.3 Map 5&5b
M62 - R205	19.9	43.2	36.0	35.7	-0.3	Imperceptible	General	Fig. 5.3 Map 5&5b
M6- R206	18.9	43.0	35.5	35.6	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R207	18.9	38.7	31.9	32.0	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R208	18.9	39.2	32.3	32.4	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R209	18.9	31.4	25.7	26.0	+0.3	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R210	18.9	32.4	26.5	26.9	+0.4	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R211	18.9	34.1	27.9	28.4	+0.5	Small Increase	Winwick	Fig. 5.3 Map 5&5a
M6 - R212	18.9	36.1	29.5	30.2	+0.7	Small Increase	Winwick	Fig. 5.3 Map 5&5a
M62 - R213	17.2	31.7	26.4	27.3	+0.9	Small Increase	General	Fig. 5.3 Map 5
M62 - R214	18.1	33.6	28.6	30.5	+1.9	Small Increase	General	Fig. 5.3 Map 5
M62 - R215	17.7	38.2	33.2	34.2	+1.0	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R216	19.3	38.3	32.4	34.2	+1.9	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R217	21.6	35.6	30.0	30.8	+0.8	Small Increase	General	Fig. 5.3 Map 6&6a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R218	21.6	34.1	28.7	29.2	+0.6	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R219	21.6	36.0	30.4	30.5	+0.1	Imperceptible	General	Fig. 5.3 Map 6&6a
M62 - R220	21.6	38.6	32.8	33.7	+1.0	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R221	21.6	37.0	31.3	32.1	+0.8	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R222	17.1	28.1	23.1	23.9	+0.9	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R223	17.1	25.0	20.4	21.0	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R224	17.1	25.1	20.5	21.1	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R225	17.1	24.8	20.2	20.8	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R226	17.1	24.7	20.2	20.8	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R227	18.9	30.7	25.2	26.2	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R228	18.9	29.9	24.5	25.5	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R229	17.1	34.4	28.3	29.8	+1.5	Small Increase	General	Fig. 5.3 Map 9
M62 - R230	21.3	41.3	33.9	33.5	-0.4	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R231	20.7	31.2	25.3	25.2	-0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R232	20.7	31.0	25.2	25.1	-0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R233	20.7	31.3	25.4	25.3	-0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R234	21.3	32.0	25.9	25.9	-0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R235	21.3	37.6	30.6	30.4	-0.2	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R236	20.7	38.8	31.9	31.5	-0.4	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R237	20.7	41.7	34.3	34.0	-0.3	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R238	20.7	35.3	28.9	28.7	-0.2	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R239	21.3	45.1	36.2	36.2	<0.1	Imperceptible	General	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								9&9a
M62 - R240	21.3	35.5	28.5	28.5	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R241	21.3	35.8	28.7	28.7	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R242	21.3	53.0	42.5	42.5	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R243	21.3	47.3	38.0	38.0	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R244	21.3	44.8	35.9	35.9	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R245	21.3	45.6	36.5	36.5	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R246	21.3	36.8	29.6	29.6	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R247	21.3	39.2	31.5	31.5	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R248	21.3	41.3	33.2	33.2	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M6 - R249	13.4	21.7	18.5	18.6	+0.1	Imperceptible	General	Fig. 5.3 Map 30&31
M6 - R250	13.4	19.0	16.0	16.0	+0.1	Imperceptible	General	Fig. 5.3 Map 31
M6 - R251	13.3	30.3	26.5	26.7	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R252	13.3	22.2	18.9	18.9	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R257	17.0	25.1	21.0	20.7	-0.3	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R258	17.0	23.4	19.4	19.3	-0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R259	17.0	22.7	18.8	18.7	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R260	17.0	22.3	18.4	18.4	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R261	17.7	22.8	18.8	18.8	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R262	17.7	26.0	21.7	21.4	-0.2	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R263	17.7	23.4	19.4	19.3	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R264	18.9	29.3	24.3	24.3	-0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M6 - R265	18.9	29.3	24.3	24.3	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R266	18.9	29.4	24.5	24.4	-0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R267	18.9	28.3	23.4	23.4	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R268	18.9	26.5	21.7	21.9	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R269	18.9	25.6	21.0	21.1	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M62 - R270	18.8	27.9	23.0	23.5	+0.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R271	18.8	27.3	22.5	22.9	+0.4	Imperceptible	General	Fig. 5.3 Map 5
M62 - R272	18.8	26.3	21.6	21.9	+0.4	Imperceptible	General	Fig. 5.3 Map 5
M62 - R273	18.8	27.5	22.6	23.1	+0.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R274	15.7	31.5	26.9	27.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4a
M62 - R275	15.7	31.9	27.3	27.5	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R276	15.7	30.4	25.9	26.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R277	15.7	28.9	24.6	24.8	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R278	15.7	29.0	24.6	24.8	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R279	15.7	29.2	24.8	25.0	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M6 - R280	20.3	38.1	31.9	31.9	<0.1	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R281	20.3	37.1	31.0	31.0	<0.1	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R282	20.3	35.3	29.4	29.5	+0.1	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R283	20.3	34.8	29.0	29.1	+0.1	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R284	20.3	31.8	26.2	26.5	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R285	20.3	36.0	29.9	30.1	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R286	21.0	35.9	29.8	30.0	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 13&13a
M6 - R287	15.4	40.9	33.6	34.0	+0.4	Imperceptible	General	Fig. 5.3 Map 15

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M6 - R288	15.4	32.1	26.3	26.6	+0.3	Imperceptible	General	Fig. 5.3 Map 15
M62 - R290	24.7	29.9	24.5	24.6	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R291	24.7	29.7	24.3	24.5	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R292	24.7	29.6	24.2	24.4	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R293	19.0	23.0	18.8	19.0	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R294	19.0	22.9	18.8	18.9	+0.1	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R295	19.0	23.3	19.1	19.3	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R296	19.0	23.1	18.9	19.1	+0.1	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R297	19.0	23.4	19.2	19.4	+0.2	Imperceptible	General	Fig. 5.3 Map 6&7
M62 - R298	17.7	24.0	19.5	20.0	+0.5	Small Increase	General	Fig 5.3 Map 18
M6 - R520	13.4	21.3	18.1	18.2	+0.1	Imperceptible	General	Fig. 5.3 Map 33
M6 - R521	13.6	20.3	17.1	17.2	+0.1	Imperceptible	General	Fig. 5.3 Map 33
M6 - R522	13.4	24.8	21.3	21.5	+0.1	Imperceptible	General	Fig. 5.3 Map 33
M6 - R523	14.3	29.1	25.4	25.5	+0.1	Imperceptible	General	Fig. 5.3 Map 33
M6 - R524	14.3	23.9	20.4	20.5	+0.1	Imperceptible	General	Fig. 5.3 Map 33
M6 - R525	13.3	19.1	16.0	16.1	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R526	13.3	19.6	16.4	16.5	<0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R527	13.3	18.9	15.8	15.8	<0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R528	13.4	42.1	37.8	38.1	+0.3	Imperceptible	General	Fig. 5.3 Map 32
M6 - R529	13.4	24.5	21.0	21.1	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R530	13.4	28.4	24.8	24.9	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R531	13.4	21.0	17.8	17.9	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R532	13.4	19.8	16.7	16.8	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R533	13.4	25.2	21.8	21.9	+0.1	Imperceptible	General	Fig. 5.3 Map 32
M6 - R534	13.4	19.2	16.1	16.2	+0.1	Imperceptible	General	Fig. 5.3 Map 31

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M6 - R535	13.4	20.7	17.5	17.6	+0.1	Imperceptible	General	Fig. 5.3 Map 31
M6 - R536	13.4	19.8	16.7	16.8	+0.1	Imperceptible	General	Fig. 5.3 Map 31
M6 - R537	13.4	24.7	21.3	21.4	+0.1	Imperceptible	General	Fig. 5.3 Map 30
M6 - R538	13.8	20.7	17.4	17.5	+0.1	Imperceptible	General	Fig. 5.3 Map 30
M6 - R539	14.8	24.3	20.7	20.8	+0.1	Imperceptible	General	Fig. 5.3 Map 29
M6 - R540	15.8	23.1	19.3	19.4	+0.1	Imperceptible	General	Fig. 5.3 Map 29
M6 - R541	15.8	22.2	18.5	18.6	+0.1	Imperceptible	General	Fig. 5.3 Map 29
M6 - R562	15.9	25.8	21.0	21.2	+0.2	Imperceptible	General	Fig. 5.3 Map 15
M6 - R563	15.9	24.1	19.6	19.7	+0.1	Imperceptible	General	Fig. 5.3 Map 15
M6 - R564	15.9	23.6	19.2	19.3	+0.1	Imperceptible	General	Fig. 5.3 Map 14&15
M6 - R565	15.9	30.0	24.5	24.8	+0.3	Imperceptible	General	Fig. 5.3 Map 14&15
M6 - R566	17.5	33.5	27.8	29.2	+1.4	Small Increase	General	Fig. 5.3 Map 14
M6 - R567	20.3	27.0	22.2	22.3	+0.2	Imperceptible	General	Fig. 5.3 Map 13
M6 - R568	21.0	26.4	21.5	21.6	+0.1	Imperceptible	General	Fig. 5.3 Map 13&13a
M6 - R569	19.9	32.8	27.2	27.1	-0.2	Imperceptible	General	Fig. 5.3 Map 13
M6 - R570	19.9	32.2	26.7	26.6	-0.2	Imperceptible	General	Fig. 5.3 Map 13
M6 - R571	18.3	35.3	29.4	29.5	+0.1	Imperceptible	General	Fig. 5.3 Map 5&13
M6 - R572	18.3	24.9	20.5	20.6	+0.1	Imperceptible	General	Fig. 5.3 Map 5&13
M6 - R573	18.3	24.4	20.0	20.1	+0.2	Imperceptible	General	Fig 5.3 Map 5
M6 - R574	17.4	30.9	25.4	25.6	+0.2	Imperceptible	General	Fig. 5.3 Map 5
M6 - R575	15.9	22.5	18.4	18.9	+0.5	Small Increase	General	Fig. 5.3 Map 28
M6 - R576	15.9	23.8	19.4	20.0	+0.5	Small Increase	General	Fig. 5.3 Map 28
M6 - R577	17.6	26.7	21.8	22.6	+0.8	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R578	17.6	26.3	21.4	22.2	+0.8	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R581	18.1	35.7	29.3	32.0	+2.7	Medium Increase	Park Cottages	Fig. 5.3 Map 21
M6 - R582	18.1	33.7	27.6	29.9	+2.3	Medium Increase	Park Cottages	Fig. 5.3 Map 21

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R616	16.7	19.3	15.7	15.7	<0.1	Imperceptible	General	Fig. 5.3 Map 1
M62 - R617	16.7	19.0	15.5	15.5	<0.1	Imperceptible	General	Fig. 5.3 Map 1
M62 - R618	16.7	19.0	15.5	15.5	<0.1	Imperceptible	General	Fig. 5.3 Map 1
M62 - R619	16.7	20.7	16.9	17.0	<0.1	Imperceptible	General	Fig. 5.3 Map 1
M62 - R620	16.7	23.2	19.2	19.3	+0.1	Imperceptible	General	Fig. 5.3 Map 1
M62 - R621	16.8	33.1	28.0	28.1	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R622	16.8	33.0	27.9	28.0	+0.2	Imperceptible	General	Fig. 5.3 Map 2
M62 - R623	16.8	33.6	28.0	28.0	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R624	16.8	31.1	25.7	25.7	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R625	16.8	31.2	25.9	25.9	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R626	15.7	26.7	22.3	22.4	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R627	15.7	26.5	22.2	22.3	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R628	15.7	26.2	21.9	22.0	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R629	15.7	26.0	21.7	21.8	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R630	15.7	30.0	25.3	25.4	+0.2	Imperceptible	General	Fig. 5.3 Map 2
M62 - R631	15.7	24.4	20.3	20.4	+0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R632	15.4	27.4	23.0	23.1	+0.1	Imperceptible	General	Fig. 5.3 Map 2&3
M62 - R633	15.4	25.2	21.0	21.1	+0.1	Imperceptible	General	Fig. 5.3 Map 2&3
M62 - R634	15.7	21.8	18.0	18.1	+0.1	Imperceptible	General	Fig. 5.3 Map 2&3
M62 - R635	15.7	30.6	26.1	26.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R636	15.7	30.6	26.0	26.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R637	15.7	30.5	26.0	26.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R638	15.7	30.5	26.0	26.2	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R639	15.7	31.8	27.3	27.5	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a
M62 - R640	15.7	31.9	27.3	27.6	+0.2	Imperceptible	Retail Park	Fig. 5.3 Map 4&4a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R641	18.7	33.3	27.9	28.2	+0.3	Imperceptible	General	Fig. 5.3 Map 4
M62 - R642	18.7	30.0	25.0	25.3	+0.3	Imperceptible	General	Fig. 5.3 Map 4
M62 - R643	18.7	28.3	23.5	23.7	+0.2	Imperceptible	General	Fig. 5.3 Map 4
M62 - R644	18.9	26.4	21.8	22.0	+0.2	Imperceptible	General	Fig. 5.3 Map 4&5
M62 - R645	18.1	31.8	26.4	26.9	+0.6	Small Increase	General	Fig. 5.3 Map 5
M62 - R646	18.8	25.0	20.5	20.8	+0.4	Imperceptible	General	Fig. 5.3 Map 5
M62 - R647	18.8	25.1	20.5	20.9	+0.4	Imperceptible	General	Fig. 5.3 Map 5
M62 - R648	21.6	40.8	34.7	35.9	+1.2	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R649	21.6	40.2	34.2	35.3	+1.2	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R650	18.9	38.4	33.3	34.0	+0.7	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R651	17.0	20.8	17.0	17.1	+0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R652	16.7	21.1	17.3	17.4	+0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R653	16.7	21.0	17.2	17.3	+0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R654	16.7	21.4	17.5	17.6	<0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R655	17.1	25.4	20.8	21.4	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R656	17.1	25.0	20.4	21.1	+0.6	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R657	17.1	28.2	23.2	24.1	+1.0	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R658	17.1	27.8	22.8	23.7	+0.9	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R659	17.1	27.5	22.6	23.4	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R660	18.9	38.7	31.7	33.6	+1.9	Small Increase	General	Fig 5.3 Map 8a
M62 - R661	18.9	30.7	25.2	26.2	+1.0	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R662	19.1	26.8	21.9	22.1	+0.2	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R663	19.1	30.5	25.1	25.2	+0.2	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R664	22.0	37.1	30.3	30.3	<0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10d
M62 - R665	22.0	38.9	31.8	31.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 10d
M62 - R666	22.0	31.2	25.6	25.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R667	22.0	42.9	35.2	35.5	+0.3	Imperceptible	M602	Fig. 5.3 Map 10d
M62 - R668	22.0	35.0	28.6	28.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10e
M62 - R669	22.0	38.5	31.6	32.0	+0.4	Imperceptible	M602	Fig 5.3 Map 10e
M62 - R670	22.0	38.4	31.4	31.8	+0.4	Imperceptible	M602	Fig. 5.3 Map 10d
M62 - R671	22.7	34.9	28.5	28.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R672	22.0	36.8	30.2	30.5	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R673	22.7	36.6	30.0	30.4	+0.4	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R674	22.6	36.7	30.0	30.4	+0.3	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R789	18.9	30.4	24.9	25.9	+1.0	Small Increase	General	Fig. 5.3 Map 8b
M62 - R790	18.9	30.3	24.9	25.8	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R791	18.9	30.3	24.8	25.8	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R792	18.9	30.2	24.8	25.7	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R793	18.9	30.4	24.9	25.9	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R794	18.9	30.9	25.3	26.4	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R795	18.9	31.1	25.5	26.6	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R796	18.9	31.2	25.6	26.6	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R797	18.9	30.6	25.1	26.1	+1.0	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R798	18.9	30.5	25.0	26.0	+1.0	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R799	18.9	30.5	25.0	26.0	+1.0	Small Increase	General	Fig. 5.3 Map 8&8a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R800	18.9	30.2	24.8	25.7	+0.9	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R801	17.1	24.5	20.0	20.5	+0.5	Small Increase	General	Fig. 5.3 Map 9
M62 - R802	17.1	23.2	18.9	19.3	+0.4	Imperceptible	General	Fig. 5.3 Map 9
M62 - R803	18.9	27.5	22.5	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R804	18.9	27.6	22.6	23.2	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R805	18.9	27.4	22.4	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R806	18.9	27.6	22.5	23.2	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R807	18.9	27.7	22.6	23.3	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R808	18.9	27.8	22.7	23.4	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R809	18.9	27.9	22.8	23.5	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R810	18.9	27.5	22.5	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R811	18.9	28.1	23.0	23.8	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R812	18.9	27.5	22.4	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R813	18.9	28.4	23.2	24.0	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R814	18.9	28.6	23.4	24.2	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R815	18.9	28.8	23.5	24.3	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R816	18.9	29.0	23.7	24.6	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R817	18.9	29.2	23.9	24.7	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R818	18.9	29.5	24.2	25.1	+0.9	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R819	18.9	29.0	23.7	24.5	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R820	18.9	28.4	23.3	24.0	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R821	18.9	28.0	22.9	23.6	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R822	18.9	27.5	22.5	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R823	18.9	30.0	24.6	25.5	+0.9	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R824	18.9	28.8	23.6	24.4	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R825	18.9	28.1	23.0	23.8	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R826	18.9	30.1	24.7	25.6	+0.9	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R827	18.9	29.0	23.7	24.5	+0.8	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R828	18.9	28.2	23.1	23.9	+0.7	Small Increase	General	Fig. 5.3 Map 8&8a&8b
M62 - R829	18.9	29.8	24.5	25.4	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R830	18.9	29.4	24.1	24.9	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R831	18.9	28.1	23.0	23.7	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R832	18.9	27.8	22.8	23.4	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R833	18.9	27.5	22.5	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R834	18.9	29.0	23.8	24.6	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R835	18.9	28.4	23.2	24.0	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R836	18.9	27.9	22.8	23.5	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R837	18.9	27.4	22.4	23.1	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R838	18.9	29.6	24.3	25.2	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R839	18.9	29.1	23.8	24.7	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R840	18.9	28.4	23.2	24.0	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R841	18.9	28.0	22.9	23.7	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R842	18.9	27.5	22.5	23.2	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R843	18.9	29.2	23.9	24.8	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R844	18.9	28.6	23.4	24.2	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R845	18.9	27.7	22.7	23.4	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R846	18.9	29.1	23.8	24.7	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R847	18.9	28.6	23.4	24.2	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R848	18.9	28.0	22.9	23.6	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R849	18.9	27.5	22.5	23.2	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R850	18.9	29.7	24.4	25.3	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R851	18.9	29.6	24.2	25.1	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R852	18.9	29.4	24.1	24.9	+0.9	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R853	18.9	28.8	23.6	24.4	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R854	18.9	28.7	23.5	24.3	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R855	18.9	28.5	23.4	24.1	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R856	18.9	28.5	23.3	24.1	+0.8	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R857	18.9	27.6	22.5	23.2	+0.7	Small Increase	General	Fig. 5.3 Map 8&8b
M62 - R858	17.1	27.2	22.3	23.1	+0.8	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R859	17.1	26.8	22.0	22.8	+0.8	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R860	17.1	26.5	21.7	22.4	+0.8	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R861	17.1	25.9	21.2	21.9	+0.7	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R862	17.1	25.6	21.0	21.6	+0.7	Small Increase	General	Fig. 5.3 Map 8&8c
M62 - R947	22.0	27.8	22.5	22.4	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R948	22.0	27.7	22.4	22.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R949	22.0	27.6	22.3	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R950	22.0	27.5	22.2	22.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R951	22.0	27.6	22.2	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R952	22.0	27.5	22.2	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R953	22.0	27.5	22.2	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R954	22.0	27.5	22.2	22.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R955	22.0	27.5	22.2	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R956	22.0	27.4	22.1	22.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R957	22.0	28.4	23.0	22.9	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R958	22.0	28.0	22.5	22.4	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R959	22.0	28.1	22.4	22.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R960	22.0	27.4	21.7	21.6	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R961	22.0	27.3	21.6	21.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R962	22.0	27.6	21.8	21.7	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R963	22.0	28.6	22.4	22.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R964	22.0	27.7	22.2	22.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R965	22.0	28.2	22.6	22.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R966	22.1	28.4	23.0	22.9	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R967	22.1	27.7	22.3	22.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R968	22.1	27.7	22.4	22.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R969	22.1	27.2	22.0	21.9	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R970	22.1	27.2	22.0	21.9	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R971	22.1	27.2	22.1	22.0	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R972	22.1	27.3	22.1	22.0	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R973	22.1	29.4	23.9	23.7	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R974	22.1	29.6	24.1	23.9	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R975	22.1	26.4	21.4	21.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R976	22.1	26.8	21.7	21.6	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R977	22.1	27.6	22.5	22.4	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R978	22.1	27.3	22.2	22.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R979	22.1	27.5	22.4	22.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R980	22.1	27.1	22.0	21.9	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R981	22.1	29.1	23.7	23.5	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 24&24a
M62 - R982	22.1	25.3	20.5	20.4	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&25
M62 - R983	22.1	28.2	22.9	22.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&25
M62 - R984	22.1	39.4	32.2	32.0	-0.2	Imperceptible	General	Fig. 5.3 Map 24&25
M62 - R985	22.1	35.2	28.9	28.6	-0.3	Imperceptible	General	Fig. 5.3 Map 24&25
M62 - R986	20.6	24.4	19.9	19.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R987	20.6	24.4	19.9	19.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R988	20.6	24.5	20.0	19.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R989	20.6	24.5	19.9	19.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R990	20.6	25.5	20.9	20.7	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R991	20.6	24.1	19.6	19.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R992	20.6	25.3	20.7	20.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R993	18.1	38.7	33.1	34.8	+1.6	Small Increase	General	Fig. 5.3 Map 5&6
M62 - R994	21.6	34.5	28.9	29.7	+0.8	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R995	21.6	33.5	28.1	28.8	+0.7	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R996	19.3	29.8	25.0	25.6	+0.6	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R997	21.6	33.1	27.8	28.3	+0.5	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R998	21.6	32.5	27.2	27.7	+0.5	Small Increase	General	Fig. 5.3 Map 6&6a
M62 - R999	19.1	48.5	39.9	40.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1000	19.1	42.0	34.6	34.6	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1001	19.1	40.6	33.4	33.4	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1002	19.1	37.7	30.9	30.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1003	19.1	34.8	28.5	28.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1004	19.1	34.8	28.5	28.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1005	19.1	36.8	30.2	30.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1006	19.1	35.6	29.2	29.2	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1007	22.0	40.2	33.0	32.9	-0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1008	22.0	39.3	32.2	32.2	-0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1009	22.0	38.2	31.3	31.3	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10c
M62 - R1010	22.0	35.7	29.1	29.1	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1011	22.0	34.6	28.3	28.3	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1012	22.0	34.2	27.9	27.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1013	22.0	33.9	27.7	27.7	<0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10d
M62 - R1014	22.0	33.4	27.2	27.2	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1015	22.0	33.1	27.0	27.0	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1016	22.0	32.9	26.8	26.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1017	22.0	32.6	26.6	26.6	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1018	22.0	32.4	26.4	26.4	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1019	22.0	32.2	26.2	26.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1020	22.0	32.0	26.1	26.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1021	22.0	31.8	25.9	25.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1022	22.0	31.7	25.8	25.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1023	22.0	31.1	25.3	25.3	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1024	22.0	31.2	25.4	25.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1025	22.0	31.3	25.5	25.5	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1026	22.0	31.4	25.6	25.6	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1027	22.0	31.5	25.7	25.7	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1028	22.0	36.7	29.9	29.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1029	22.0	36.0	29.4	29.4	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1030	22.0	35.6	29.1	29.1	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1031	22.0	35.1	28.6	28.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1032	22.0	34.8	28.4	28.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1033	22.0	34.4	28.0	28.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1034	22.0	34.1	27.8	27.9	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10d
M62 - R1035	22.0	33.7	27.5	27.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1036	22.0	33.5	27.3	27.3	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1037	22.0	32.9	26.8	26.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1038	22.0	32.5	26.5	26.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1039	22.0	32.3	26.3	26.3	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1040	22.0	32.1	26.2	26.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1041	22.0	31.6	25.7	25.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1042	22.0	31.7	25.9	25.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1043	22.0	31.9	26.0	26.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1044	22.0	32.1	26.2	26.2	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1045	22.0	32.5	26.6	26.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1046	22.0	34.5	28.3	28.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1047	22.0	39.4	32.4	32.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1048	22.0	46.6	38.6	38.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1049	22.0	44.6	37.0	37.2	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1050	22.0	43.3	35.8	36.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1051	22.0	42.1	34.8	35.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1052	22.0	41.3	34.2	34.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1053	22.0	40.7	33.6	33.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1054	22.0	40.0	33.1	33.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1055	22.0	39.6	32.7	32.8	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10d
M62 - R1056	22.0	39.1	32.3	32.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1057	22.0	38.8	32.0	32.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1058	22.0	38.9	32.1	32.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1059	22.0	38.1	31.5	31.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1060	22.0	37.1	30.5	30.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1061	22.0	37.5	30.9	30.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1062	22.0	37.8	31.2	31.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1063	22.0	40.2	33.0	33.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1064	22.0	39.3	32.3	32.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1065	22.0	35.5	29.1	29.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1066	22.0	35.1	28.8	28.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1067	22.0	34.5	28.2	28.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1068	22.0	34.2	28.0	28.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1069	22.0	33.6	27.5	27.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1070	22.0	33.4	27.4	27.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1071	22.0	32.9	26.9	26.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1072	22.0	32.8	26.8	26.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1073	22.0	32.4	26.5	26.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1074	22.0	32.3	26.4	26.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1075	22.0	31.9	26.1	26.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1076	22.0	31.8	25.9	26.0	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10d
M62 - R1077	22.0	31.6	25.8	25.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1078	22.0	31.5	25.7	25.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1079	22.0	30.3	24.7	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1080	22.0	30.5	24.8	24.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1081	22.0	30.6	25.0	25.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1082	22.0	30.8	25.1	25.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1083	22.0	31.0	25.3	25.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1084	22.0	31.2	25.4	25.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1085	22.0	31.4	25.6	25.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1086	22.0	31.6	25.8	25.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1087	22.0	31.9	26.0	26.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1088	22.0	32.2	26.3	26.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1089	22.0	32.5	26.5	26.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1090	22.0	32.8	26.8	27.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1091	22.0	30.2	24.6	24.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1092	22.0	30.3	24.7	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1093	22.0	30.7	25.0	25.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1094	22.0	31.0	25.3	25.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1095	22.0	31.2	25.6	25.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1096	22.0	31.0	25.4	25.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1097	22.0	30.8	25.3	25.3	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10f
M62 - R1098	22.0	30.7	25.2	25.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1099	22.0	30.6	25.1	25.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1100	22.0	30.5	25.0	25.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1101	22.0	30.4	24.9	24.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1102	22.0	30.3	24.8	24.9	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1103	22.0	28.8	23.5	23.5	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1104	22.0	28.7	23.3	23.4	<0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1105	21.3	35.7	28.7	28.8	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1106	21.3	34.6	27.8	27.8	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1107	21.3	33.8	27.2	27.3	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1108	21.3	33.2	26.7	26.7	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1109	21.3	32.5	26.2	26.2	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1110	21.3	32.3	26.0	26.1	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1111	21.3	33.2	26.7	26.7	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1112	21.3	33.9	27.3	27.3	+0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R1113	22.7	33.3	27.1	27.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1114	22.7	31.3	25.5	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1115	22.7	30.5	24.9	25.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1116	22.7	29.6	24.0	24.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1117	22.7	29.1	23.7	23.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1118	22.7	28.1	22.8	22.9	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10e
M62 - R1119	22.7	27.9	22.7	22.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1120	22.0	27.2	22.1	22.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1121	22.0	27.3	22.2	22.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1122	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1123	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1124	22.0	28.2	22.9	23.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1125	22.0	28.6	23.2	23.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1126	22.0	29.4	23.9	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1127	22.0	30.1	24.5	24.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1128	22.0	31.6	25.8	26.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1129	22.0	32.7	26.7	26.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1130	22.0	27.2	22.1	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1131	22.0	27.0	22.0	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1132	22.0	28.0	22.7	22.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1133	22.0	28.3	23.0	23.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1134	22.0	28.9	23.5	23.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1135	22.0	29.4	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1136	22.0	30.6	24.9	25.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1137	22.0	31.5	25.7	25.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1138	22.0	33.8	27.6	27.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1139	22.0	27.1	22.0	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10e
M62 - R1140	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1141	22.0	27.2	22.1	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1142	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1143	22.0	27.0	22.0	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1144	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1145	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1146	22.0	27.0	22.0	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1147	22.0	27.0	22.0	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1148	22.0	27.1	22.0	22.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1149	22.0	27.0	21.9	22.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1150	22.0	27.2	22.1	22.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1151	22.0	27.4	22.3	22.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1152	22.0	27.7	22.5	22.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1153	22.0	27.8	22.6	22.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1154	22.0	28.1	22.8	22.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1155	22.0	28.2	22.9	23.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1156	22.0	28.5	23.2	23.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1157	22.0	28.7	23.3	23.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1158	22.0	29.2	23.7	23.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1159	22.0	29.5	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1160	22.0	31.7	25.8	26.0	+0.2	Imperceptible	M602	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								10&10e
M62 - R1161	22.0	33.0	26.9	27.1	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1162	22.0	34.7	28.3	28.6	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1163	22.0	33.4	27.3	27.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1164	22.0	32.5	26.6	26.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1165	22.0	31.2	25.5	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1166	22.0	30.6	24.9	25.1	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1167	22.0	30.0	24.4	24.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1168	22.0	29.8	24.2	24.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1169	22.0	29.4	23.9	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1170	22.0	29.4	23.9	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1171	22.0	30.0	24.4	24.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1172	22.0	27.3	22.2	22.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1173	22.0	27.6	22.4	22.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1174	22.0	27.7	22.6	22.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1175	22.0	28.1	22.9	23.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1176	22.0	28.4	23.1	23.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1177	22.0	28.9	23.5	23.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1178	22.0	29.4	23.9	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1179	22.0	27.8	22.6	22.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1180	22.0	28.2	23.0	23.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1181	22.0	28.5	23.2	23.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1182	22.0	29.1	23.7	23.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1183	22.0	29.5	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1184	22.0	30.0	24.4	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1185	22.0	30.5	24.9	25.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1186	22.0	32.0	26.1	26.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1187	22.0	33.2	27.1	27.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1188	22.0	34.3	28.1	28.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1189	22.0	33.7	27.6	27.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1190	22.0	33.3	27.3	27.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1191	22.0	28.0	22.8	22.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1192	22.0	28.2	23.0	23.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1193	22.0	28.9	23.6	23.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1194	22.0	29.1	23.7	23.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1195	22.0	29.4	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1196	22.0	29.7	24.2	24.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1197	22.0	30.7	25.1	25.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1198	22.0	31.4	25.6	25.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e &10f
M62 - R1199	22.0	30.1	24.6	24.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10f
M62 - R1200	22.7	34.3	28.0	28.2	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1201	22.7	34.8	28.4	28.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1202	22.7	35.1	28.7	29.0	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1203	22.7	35.2	28.8	29.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1204	22.7	35.2	28.8	29.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1205	22.7	35.2	28.8	29.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1206	22.7	35.7	29.2	29.5	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1207	22.7	34.9	28.5	28.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1208	22.7	35.2	28.7	29.0	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1209	22.7	36.0	29.5	29.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1210	22.0	34.9	28.5	28.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1211	22.0	36.0	29.4	29.8	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1212	22.0	35.2	28.8	29.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1213	22.0	35.8	29.3	29.6	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1214	22.0	36.4	29.8	30.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1215	22.0	36.5	29.9	30.2	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1216	22.0	36.4	29.8	30.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1217	22.0	37.1	30.4	30.7	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1218	22.0	37.6	30.7	31.1	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1219	22.0	37.7	30.9	31.3	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1220	22.0	37.9	31.1	31.4	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1221	22.0	37.2	30.5	30.8	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1222	22.0	37.5	30.7	31.0	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1223	22.0	38.9	31.9	32.3	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1224	22.7	33.8	27.6	27.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1225	22.7	33.5	27.3	27.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1226	22.7	31.4	25.6	25.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1227	22.7	31.1	25.4	25.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1228	22.7	30.9	25.2	25.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1229	22.7	31.0	25.2	25.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1230	22.7	29.9	24.3	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1231	22.7	29.9	24.4	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1232	22.7	29.5	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1233	22.7	29.8	24.3	24.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1234	22.7	29.6	24.1	24.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1235	22.7	29.2	23.7	23.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1236	22.7	31.1	25.3	25.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1237	22.7	31.2	25.4	25.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1238	22.7	31.3	25.5	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1239	22.7	31.4	25.5	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1240	22.7	31.5	25.6	25.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1241	22.7	31.5	25.7	25.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1242	22.0	31.0	25.2	25.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1243	22.0	30.9	25.2	25.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1244	22.0	30.0	24.4	24.6	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1245	22.0	29.7	24.1	24.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1246	22.0	29.6	24.1	24.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1247	22.0	29.9	24.3	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1248	22.0	31.2	25.4	25.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1249	22.0	31.5	25.6	25.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1250	22.0	31.1	25.3	25.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1251	22.0	32.3	26.3	26.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1252	22.0	32.4	26.4	26.6	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1253	22.0	29.4	23.9	24.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1254	22.0	29.5	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1255	22.0	29.7	24.1	24.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1256	22.0	29.8	24.2	24.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1257	22.0	30.0	24.4	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1258	22.0	30.1	24.5	24.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1259	22.0	30.3	24.6	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1260	22.0	30.4	24.7	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1261	22.0	30.6	24.9	25.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1262	22.0	31.0	25.2	25.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1263	22.0	31.1	25.3	25.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1264	22.0	31.4	25.6	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1265	22.0	31.5	25.7	25.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1266	22.0	38.1	31.2	31.6	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1267	22.0	36.7	30.0	30.3	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1268	22.0	39.0	32.0	32.4	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1269	22.0	37.7	30.9	31.2	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1270	22.0	35.5	29.0	29.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1271	22.0	34.9	28.5	28.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1272	22.0	33.8	27.6	27.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1273	22.0	33.3	27.2	27.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1274	22.0	31.7	25.8	25.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1275	22.0	32.0	26.0	26.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1276	22.0	32.3	26.3	26.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1277	22.0	32.5	26.4	26.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1278	22.0	32.6	26.6	26.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1279	22.0	32.7	26.7	26.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1280	22.0	32.9	26.8	26.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1281	22.0	33.1	27.0	27.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1282	22.0	33.3	27.1	27.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1283	22.0	33.6	27.4	27.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1284	22.0	33.8	27.5	27.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1285	22.0	34.1	27.8	28.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1286	22.0	34.3	28.0	28.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1287	22.0	34.6	28.2	28.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1288	22.0	34.8	28.4	28.6	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1289	22.0	35.2	28.7	28.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1290	22.0	35.5	29.0	29.2	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1291	22.0	35.8	29.3	29.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1292	22.0	36.2	29.5	29.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1293	22.0	36.6	29.9	30.1	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1294	22.0	38.2	31.3	31.5	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1295	22.0	38.9	31.8	32.1	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1296	22.0	39.9	32.7	33.0	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1297	22.0	40.8	33.5	33.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1298	22.0	29.3	23.8	23.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1299	22.0	29.4	23.9	24.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1300	22.0	29.6	24.1	24.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1301	22.0	29.8	24.3	24.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1302	22.0	30.1	24.5	24.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1303	22.0	30.3	24.7	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10e
M62 - R1304	22.0	41.3	33.9	34.2	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1305	22.0	34.3	28.1	28.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1306	22.0	33.5	27.4	27.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1307	22.0	32.5	26.5	26.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1308	22.0	32.0	26.1	26.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1309	22.0	31.1	25.3	25.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1310	22.0	30.7	25.0	25.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1311	22.0	30.3	24.7	24.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1312	22.0	30.0	24.4	24.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1313	22.0	39.7	32.5	32.8	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1314	22.0	42.1	34.5	34.9	+0.4	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1315	22.0	30.9	25.2	25.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1316	22.0	31.3	25.5	25.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1317	22.0	32.3	26.4	26.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - R1318	22.0	33.7	27.5	27.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&10d
M6 - R1801	17.5	35.7	29.7	31.4	+1.7	Small Increase	General	Fig. 5.3 Map 14
M62 - R1802	20.0	28.6	23.5	23.6	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1803	20.0	27.7	22.7	22.8	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1804	20.0	27.1	22.2	22.3	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1805	20.0	26.7	21.8	21.9	+0.1	Imperceptible	General	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								15&15a
M62 - R1806	20.0	26.3	21.5	21.6	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1807	20.0	26.0	21.2	21.3	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1808	20.0	25.7	21.0	21.1	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1809	20.0	26.0	21.2	21.3	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1810	20.0	25.6	20.9	21.0	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1811	20.0	26.2	21.4	21.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1812	20.0	27.4	22.4	22.6	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1813	20.0	27.1	22.1	22.3	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1814	20.0	27.3	22.3	22.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1815	20.0	36.6	30.5	30.6	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1816	20.0	35.8	29.8	29.9	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1817	20.0	35.3	29.4	29.4	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1818	20.0	31.0	25.6	25.7	+0.1	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1819	20.0	29.1	23.9	24.1	+0.2	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1820	20.0	29.0	23.8	24.0	+0.2	Imperceptible	General	Fig. 5.3 Map 15&15a
M62 - R1821	18.9	26.1	21.3	21.8	+0.5	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R1822	18.9	26.8	21.9	22.5	+0.6	Small Increase	General	Fig. 5.3 Map 8&8a
M62 - R1823	18.9	24.7	20.1	20.5	+0.4	Imperceptible	General	Fig. 5.3 Map 8&8a
M62 - R1824	16.9	21.7	17.8	17.8	<0.1	Imperceptible	General	Fig. 5.3 Map 7
M62 - R1825	19.0	23.5	19.3	19.5	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1826	19.0	23.1	19.0	19.1	+0.2	Imperceptible	General	Fig. 5.3 Map 6

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R1827	19.0	23.0	18.9	19.0	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1828	19.0	23.2	19.0	19.2	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1829	19.0	23.1	18.9	19.1	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1830	19.0	22.9	18.7	18.9	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1831	19.0	23.3	19.1	19.3	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1832	19.0	23.5	19.3	19.5	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1833	19.0	23.3	19.1	19.3	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1834	19.9	27.3	22.4	22.5	+0.1	Imperceptible	General	Fig. 5.3 Map 14
M62 - R1835	18.9	30.1	25.4	25.6	+0.2	Imperceptible	General	Fig 5.3 Map 6a
M62 - R1836	18.9	32.5	27.7	27.5	-0.2	Imperceptible	General	Fig 5.3 Map 6a
M62 - R1837	18.9	28.8	24.2	24.5	+0.3	Imperceptible	General	Fig 5.3 Map 6a
M62 - R1840	18.8	24.7	20.2	20.6	+0.3	Imperceptible	General	Fig. 5.3 Map 5
M6 - R1841	17.0	22.1	18.1	18.2	+0.1	Imperceptible	Winwick	Fig. 5.3 Map 5
M6 - R1842	17.0	21.7	17.9	17.9	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M62 - R1906	18.8	24.5	20.0	20.3	+0.3	Imperceptible	General	Fig. 5.3 Map 5
M62 - R1907	18.8	24.5	20.0	20.3	+0.3	Imperceptible	General	Fig. 5.3 Map 5
M62 - R1908	18.8	24.8	20.3	20.7	+0.3	Imperceptible	General	Fig. 5.3 Map 5
M6 - R1914	18.3	28.7	23.8	23.8	<0.1	Imperceptible	General	Fig. 5.3 Map 6&13
M62 - R1915	18.8	24.9	20.3	20.7	+0.4	Imperceptible	General	Fig. 5.3 Map 5
M62 - R1916	19.0	22.7	18.5	18.7	+0.2	Imperceptible	General	Fig. 5.3 Map 6
M62 - R1917	16.7	22.2	18.2	18.1	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R1918	16.7	21.8	17.9	17.8	-0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R1919	16.7	20.4	16.7	16.6	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R1985	19.1	41.9	35.1	35.7	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R1986	19.1	34.4	28.7	29.2	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R1987	19.1	30.9	25.7	26.1	+0.4	Imperceptible	A Roads	Fig. 5.3 Map

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
								19&19b
M62 - R1988	19.1	34.0	28.5	29.0	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R1989	19.1	31.0	25.7	26.2	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19b
M62 - R1990	19.1	33.7	28.1	28.6	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R1991	19.1	37.5	31.4	31.9	+0.5	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R1992	17.9	27.7	22.9	23.1	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R1993	17.9	27.5	22.7	22.9	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R1994	19.7	28.0	23.0	23.2	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R1995	19.7	28.9	23.8	24.0	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R1996	19.7	32.3	27.0	27.6	+0.5	Small Increase	A Roads	Fig. 5.3 Map 20
M62 - R1997	19.7	33.4	27.9	28.2	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R1998	19.7	48.9	41.3	40.5	-0.8	Small Decrease	A Roads	Fig. 5.3 Map 20
M62 - R1999	19.7	45.3	38.0	37.0	-1.0	Small Decrease	A Roads	Fig. 5.3 Map 20
M62 - R2000	17.5	28.5	23.5	23.2	-0.3	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R2001	17.4	30.5	25.3	24.8	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 20
M62 - R2002	17.5	25.3	20.8	20.6	-0.1	Imperceptible	A Roads	Fig. 5.3 Map 20
M62 - R2003	17.5	26.9	22.1	21.9	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 20&21
M62 - R2004	17.4	36.1	30.1	29.3	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 20&21
M62 - R2005	17.4	35.0	29.2	28.5	-0.7	Small Decrease	A Roads	Fig. 5.3 Map 20&21
M62 - R2006	17.4	33.8	28.1	27.5	-0.6	Small Decrease	A Roads	Fig. 5.3 Map 20&21
M62 - R2007	17.4	30.4	25.2	24.7	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2008	17.4	27.4	22.6	22.3	-0.3	Imperceptible	A Roads	Fig. 5.3 Map 20&21
M62 - R2009	17.4	25.0	20.5	20.4	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 21
M62 - R2010	18.2	30.6	25.3	24.8	-0.4	Imperceptible	A Roads	Fig. 5.3 Map 21
M62 - R2011	18.2	34.7	28.9	28.2	-0.7	Small Decrease	A Roads	Fig. 5.3 Map 21

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2012	18.2	37.6	31.3	30.4	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2013	18.2	45.0	38.2	35.7	-2.5	Medium Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2015	22.1	24.2	19.6	19.5	<0.1	Imperceptible	M60 / A580	Fig 5.3 Map 24a
M62 - R2016	22.1	24.4	19.7	19.7	<0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&25
M62 - R2017	22.1	28.7	23.2	23.2	-0.1	Imperceptible	General	Fig. 5.3 Map 24&25
M62 - R2018	22.1	29.5	24.0	23.9	-0.1	Imperceptible	General	Fig. 5.3 Map 24&25
M62 - R2019	20.6	22.6	18.3	18.2	<0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&25
M62 - R2020	20.6	23.6	19.2	19.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2021	20.5	24.3	19.9	19.8	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2022	20.5	25.6	20.9	20.8	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2023	20.5	23.1	18.7	18.6	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2024	20.5	24.3	19.7	19.6	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2025	20.5	24.1	19.6	19.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2026	20.5	23.8	19.3	19.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2027	20.5	23.7	19.2	19.1	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2028	20.5	23.7	19.3	19.2	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2029	20.5	21.9	17.7	17.7	<0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24
M62 - R2030	20.5	25.4	20.7	20.5	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2031	19.4	27.0	22.0	21.8	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2032	20.5	24.1	19.5	19.4	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2033	20.5	24.2	19.6	19.5	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2034	19.4	26.8	21.8	21.5	-0.3	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2035	19.4	24.2	19.7	19.5	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2036	19.4	24.1	19.6	19.4	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2037	19.4	25.0	20.3	20.1	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2038	19.4	23.8	19.3	19.1	-0.2	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2039	19.3	26.2	21.2	21.0	-0.3	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2040	19.3	22.4	18.1	18.0	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 23&24
M62 - R2041	19.8	39.7	32.5	31.4	-1.0	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2042	19.8	33.6	27.5	26.8	-0.7	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2043	19.8	40.5	33.2	32.1	-1.1	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2044	19.8	35.8	29.3	28.5	-0.8	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2045	19.8	31.6	25.7	25.2	-0.6	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2046	19.8	43.1	35.2	34.0	-1.2	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2047	19.8	31.0	25.3	24.8	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2048	19.8	35.0	28.7	27.9	-0.7	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2049	19.8	33.2	27.1	26.4	-0.6	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2050	19.8	24.2	19.6	19.4	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 23
M62 - R2051	17.9	27.8	22.7	22.3	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2052	17.7	20.6	16.7	16.6	-0.1	Imperceptible	A Roads	Fig. 5.3 Map 23
M62 - R2053	17.7	34.2	28 0	27.2	-0.8	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2054	17.7	35.7	29.3	28.4	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2055	17.7	30.5	24.9	24.3	-0.6	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - R2056	17.7	21.5	17.4	17.3	-0.1	Imperceptible	A Roads	Fig. 5.3 Map 23
M62 - R2057	17.4	22.9	18.6	18.4	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 22
M62 - R2058	18.9	48.3	41.3	40.2	-1.2	Small Decrease	A Roads	Fig. 5.3 Map 22
M62 - R2059	18.9	26.2	21.4	21.2	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 22
M62 - R2060	16.8	19.9	16.1	16.1	<0.1	Imperceptible	A Roads	Fig. 5.3 Map 22
M62 - R2061	16.8	30.6	25.0	24.6	-0.4	Imperceptible	A Roads	Fig. 5.3 Map 21&22
M62 - R2062	17.6	23.3	18.9	18.9	-0.1	Imperceptible	A Roads	Fig. 5.3 Map 21&22

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2063	17.5	24.1	19.6	19.5	-0.1	Imperceptible	A Roads	Fig. 5.3 Map 21
M62 - R2064	18.2	38.2	31.3	30.8	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2065	18.2	47.6	39.1	38.2	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2066	18.2	37.4	30.6	30.2	-0.4	Imperceptible	A Roads	Fig. 5.3 Map 21
M62 - R2067	18.2	42.9	35.4	34.9	-0.5	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2068	18.2	40.6	33.7	32.8	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 21
M62 - R2069	17.4	42.9	36.1	34.6	-1.4	Small Decrease	A Roads	Fig. 5.3 Map 21
M6 - R2070	18.2	28.4	23.8	22.8	-1.0	Small Decrease	General	Fig. 5.3 Map 22
M62 - R2095	19.9	22.2	18.1	18.2	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2096	19.9	22.5	18.3	18.4	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2097	19.9	22.8	18.6	18.7	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2098	19.9	23.1	18.8	18.9	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2099	19.9	25.3	20.8	20.8	<0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2100	19.9	26.0	21.3	21.2	-0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2101	19.3	23.6	19.3	19.4	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2102	19.9	25.2	20.7	20.7	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2103	19.9	24.9	20.4	20.5	+0.1	Imperceptible	General	Fig. 5.3 Map 6&14
M62 - R2104	19.9	25.7	21.1	21.1	+0.1	Imperceptible	General	Fig. 5.3 Map 14
M62 - R2105	19.9	26.1	21.4	21.5	+0.1	Imperceptible	General	Fig. 5.3 Map 14
M62 - R2106	18.1	31.7	26.8	28.2	+1.4	Small Increase	General	Fig. 5.3 Map 5
M62 - R2107	19.3	25.3	20.8	21.3	+0.5	Small Increase	General	Fig. 5.3 Map 6
M62 - R2108	19.3	25.2	20.7	21.2	+0.5	Small Increase	General	Fig. 5.3 Map 6
M6 - R2207	15.9	19.1	15.6	15.5	-0.1	Imperceptible	General	Fig. 5.3 Map 19
M6 - R2208	15.9	19.3	15.7	15.7	<0.1	Imperceptible	General	Fig. 5.3 Map 19
M6 - R2209	15.9	24.7	20.3	20.3	<0.1	Imperceptible	General	Fig. 5.3 Map 19

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M6 - R2210	15.9	22.5	18.5	18.5	<0.1	Imperceptible	General	Fig. 5.3 Map 19
M6 - R2211	15.9	22.2	18.2	18.1	-0.1	Imperceptible	General	Fig. 5.3 Map 19
M6 - R2212	15.9	21.6	17.7	17.6	-0.1	Imperceptible	General	Fig. 5.3 Map 19
M6 - R2213	15.9	19.2	15.6	15.6	<0.1	Imperceptible	General	Fig. 5.3 Map 19
M62 - R2273	17.0	20.9	17.2	16.9	-0.3	Imperceptible	General	Fig. 5.3 Map 13
M62 - R2274	17.0	21.0	17.2	17.0	-0.3	Imperceptible	General	Fig. 5.3 Map 13
M62 - R2275	17.0	19.9	16.2	16.1	-0.1	Imperceptible	General	Fig. 5.3 Map 13
M62 - R2276	17.0	20.2	16.6	16.4	-0.2	Imperceptible	General	Fig. 5.3 Map 13
M62 - R2277	16.6	19.9	16.3	16.2	-0.2	Imperceptible	General	Fig. 5.3 Map 13
M62 - R2278	18.1	20.5	16.7	16.7	<0.1	Imperceptible	General	Fig. 5.3 Map 7&13
M62 - R2279	18.1	20.5	16.7	16.8	+0.1	Imperceptible	General	Fig. 5.3 Map 7&13
M62 - R2280	18.1	22.1	18.1	18.0	-0.1	Imperceptible	General	Fig. 5.3 Map 7&13
M62 - R2281	17.5	22.6	18.4	18.5	+0.1	Imperceptible	General	Fig. 5.3 Map 15
M62 - R2282	17.5	25.0	20.0	19.8	-0.2	Imperceptible	General	Fig. 5.3 Map 15
M62 - R2283	16.6	24.7	19.7	19.3	-0.4	Imperceptible	General	Fig. 5.3 Map 15&16
M62 - R2284	16.6	23.2	18.4	18.1	-0.4	Imperceptible	General	Fig. 5.3 Map 15&16
M62 - R2285	18.3	24.4	19.4	19.1	-0.3	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2286	18.3	24.0	19.1	18.8	-0.3	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2287	15.9	20.9	16.6	16.3	-0.3	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2288	15.9	18.3	14.6	14.6	-0.1	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2289	15.9	18.6	14.9	14.8	-0.1	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2290	15.9	18.8	15.0	14.9	-0.1	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2291	16.1	22.7	18.2	18.0	-0.2	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2292	16.1	17.6	14.1	14.1	<0.1	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2293	16.1	19.9	15.9	15.6	-0.3	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2294	16.1	20.0	15.9	15.7	-0.3	Imperceptible	General	Fig. 5.3 Map 16

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2295	16.1	19.5	15.6	15.4	-0.2	Imperceptible	General	Fig. 5.3 Map 16
M62 - R2296	15.8	21.7	17.2	16.7	-0.5	Small Decrease	General	Fig. 5.3 Map 16&17
M62 - R2297	16.9	20.3	16.2	16.0	-0.3	Imperceptible	General	Fig. 5.3 Map 16&17
M62 - R2298	16.9	18.9	15.2	15.1	-0.1	Imperceptible	General	Fig. 5.3 Map 16&17
M62 - R2299	16.9	18.4	14.8	14.7	-0.1	Imperceptible	General	Fig. 5.3 Map 16&17
M62 - R2300	16.9	18.1	14.6	14.5	<0.1	Imperceptible	General	Fig. 5.3 Map 17
M62 - R2301	17.3	22.6	18.0	17.5	-0.4	Imperceptible	General	Fig. 5.3 Map 17
M62 - R2302	17.3	21.7	17.3	17.0	-0.4	Imperceptible	General	Fig. 5.3 Map 17
M62 - R2303	19.3	23.1	18.5	18.2	-0.3	Imperceptible	General	Fig. 5.3 Map 17
M62 - R2304	18.4	22.0	18.1	18.2	<0.1	Imperceptible	General	Fig. 5.3 Map 18
M62 - R2305	18.4	22.9	18.4	18.2	-0.3	Imperceptible	General	Fig. 5.3 Map 18
M62 - R2306	20.2	23.8	19.2	19.0	-0.2	Imperceptible	General	Fig. 5.3 Map 18
M62 - R2307	20.2	24.3	19.6	19.3	-0.2	Imperceptible	General	Fig. 5.3 Map 18
M62 - R2308	20.2	24.4	19.6	19.4	-0.3	Imperceptible	General	Fig. 5.3 Map 18
M62 - R2309	20.2	21.9	17.7	17.7	<0.1	Imperceptible	General	Fig. 5.3 Map 8&18
M62 - R2310	18.5	20.0	16.1	16.1	<0.1	Imperceptible	General	Fig. 5.3 Map 8&18
M62 - R2311	20.2	21.8	17.6	17.7	<0.1	Imperceptible	General	Fig. 5.3 Map 8&18
M62 - R2312	18.9	23.4	18.8	18.9	<0.1	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2313	20.6	28.6	23.0	22.7	-0.4	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2314	20.6	28.2	22.7	22.4	-0.3	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2315	20.6	29.4	23.3	23.1	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2316	20.6	29.3	23.3	23.1	-0.2	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2317	20.6	22.3	18.0	18.0	<0.1	Imperceptible	General	Fig. 5.3 Map 8
M62 - R2318	20.6	40.2	32.6	31.7	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 8
M62 - R2319	20.6	30.6	24.6	24.3	-0.3	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2320	19.2	34.3	27.5	26.8	-0.6	Small Decrease	A Roads	Fig. 5.3 Map 8

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2321	19.2	31.7	25.4	25.0	-0.4	Imperceptible	A Roads	Fig. 5.3 Map 8
M62 - R2322	19.8	29.6	23.8	23.5	-0.3	Imperceptible	A Roads	Fig. 5.3 Map 9
M62 - R2323	19.8	40.9	32.9	31.8	-1.0	Small Decrease	A Roads	Fig. 5.3 Map 9
M62 - R2324	20.7	49.9	40.2	38.9	-1.3	Small Decrease	A Roads	Fig. 5.3 Map 9
M62 - R2325	20.7	54.9	44.4	42.9	-1.5	Small Decrease	A Roads	Fig. 5.3 Map 9
M62 - R2326	20.7	51.6	41.8	40.8	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 9
M62 - R2327	20.7	46.4	38.9	38.8	-0.1	Imperceptible	General	Fig. 5.3 Map 9&9b
M62 - R2328	21.3	30.6	24.8	24.8	<0.1	Imperceptible	General	Fig 5.3 Map 9b
M62 - R2329	21.3	46.9	37.6	37.6	<0.1	Imperceptible	General	Fig. 5.3 Map 9&9a
M62 - R2330	22.7	36.8	30.1	30.4	+0.4	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R2331	22.7	34.4	28.1	28.4	+0.3	Imperceptible	M602	Fig. 5.3 Map 10
M62 - R2332	22.7	31.3	25.5	25.7	+0.2	Imperceptible	M602	Fig. 5.3 Map 10&11
M62 - R2333	22.7	34.2	28.0	28.3	+0.3	Imperceptible	M602	Fig. 5.3 Map 10&11
M62 - R2334	25.4	35.0	28.6	28.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2335	25.4	39.3	32.2	32.5	+0.3	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2336	25.4	29.6	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2337	25.4	32.0	26.0	26.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2338	25.4	37.0	30.2	30.5	+0.3	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2339	25.4	38.6	31.6	31.9	+0.3	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2340	25.5	30.5	24.8	24.9	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2341	25.5	29.6	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2342	25.5	39.8	32.6	32.9	+0.3	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2343	25.5	34.1	27.8	27.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2344	25.5	29.6	24.0	24.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2345	29.7	34.1	27.7	27.7	<0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2346	29.7	34.7	28.1	28.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2347	29.7	39.5	32.2	32.3	+0.2	Imperceptible	M602	Fig. 5.3 Map 11

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2348	29.7	38.1	31.0	31.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2349	29.7	35.5	28.9	29.0	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2350	29.7	37.7	30.7	30.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - R2351	26.5	37.9	30.9	31.2	+0.2	Imperceptible	M602	Fig. 5.3 Map 11.
M62 - R2352	26.5	38.9	31.7	31.9	+0.2	Imperceptible	M602	Fig. 5.3 Map 11&12
M62 - R2353	26.5	31.3	25.5	25.5	+0.1	Imperceptible	M602	Fig. 5.3 Map 11&12
M62 - R2354	26.5	37.6	30.6	30.8	+0.2	Imperceptible	M602	Fig. 5.3 Map 11&12
M62 - R2355	26.5	32.6	26.6	26.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 11&12
M62 - R2356	26.5	32.8	26.7	26.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2357	26.5	31.5	25.6	25.7	+0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2358	26.5	38.2	31.2	31.4	+0.2	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2359	26.3	31.5	25.7	25.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2360	26.3	30.9	25.1	25.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2361	26.3	32.3	26.3	26.4	+0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2362	26.3	31.4	25.8	25.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2363	25.6	29.3	23.8	23.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2364	25.6	28.2	22.8	22.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2365	25.6	29.6	24.0	24.0	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2366	27.9	32.3	26.2	26.2	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M62 - R2367	25.6	28.9	23.4	23.5	<0.1	Imperceptible	M602	Fig. 5.3 Map 12
M6 - R2376	18.9	25.1	20.4	20.6	+0.2	Imperceptible	Winwick	Fig. 5.3 Map 4&5
M6 - R2377	18.9	25.4	20.7	20.9	+0.2	Imperceptible	Winwick	Fig. 5.3 Map 4&5
M62 - R2378	17.5	20.0	16.3	16.3	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2379	17.5	20.0	16.3	16.3	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2380	17.5	19.9	16.2	16.2	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2381	17.5	19.9	16.2	16.2	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2382	17.5	20.0	16.3	16.3	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2383	17.5	20.0	16.3	16.3	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2384	17.5	20.1	16.4	16.4	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2385	17.5	20.1	16.4	16.4	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2386	17.5	20.1	16.3	16.3	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2387	17.5	20.2	16.5	16.5	<0.1	Imperceptible	General	Fig. 5.3 Map 2& 2a
M62 - R2388	17.5	23.3	19.1	19.2	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R2389	17.5	24.4	20.2	20.1	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R2390	17.5	25.1	20.8	20.8	<0.1	Imperceptible	General	Fig. 5.3 Map 2
M62 - R2391	18.1	25.2	20.8	21.3	+0.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R2392	18.1	25.7	21.2	21.7	+0.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R2393	18.1	25.9	21.4	21.9	+0.5	Small Increase	General	Fig. 5.3 Map 5
M62 - R2394	17.7	27.7	23.0	23.9	+0.9	Small Increase	General	Fig. 5.3 Map 6
M62 - R2395	18.9	28.4	23.8	24.1	+0.3	Imperceptible	General	Fig. 5.3 Map 6&6a
M62 - R2396	16.7	21.9	18.0	17.9	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2397	16.7	21.9	18.1	17.9	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2398	16.7	21.9	18.0	17.9	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2399	16.7	21.7	17.8	17.7	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2400	16.7	21.4	17.5	17.4	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2401	16.7	21.5	17.6	17.5	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2402	16.7	21.2	17.4	17.3	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2403	16.7	21.3	17.5	17.4	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2404	16.7	20.8	17.0	17.0	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2405	16.7	20.3	16.6	16.6	<0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2406	16.7	20.3	16.6	16.6	<0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2407	16.7	22.1	18.2	18.0	-0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2408	16.7	21.4	17.6	17.4	-0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2409	16.7	21.4	17.6	17.4	-0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2410	16.7	21.5	17.7	17.5	-0.2	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2411	16.7	21.0	17.2	17.1	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2412	16.7	20.7	17.0	16.9	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2413	16.7	20.0	16.4	16.3	-0.1	Imperceptible	General	Fig. 5.3 Map 7&7a
M62 - R2414	19.1	27.9	22.8	22.9	+0.1	Imperceptible	M602	Fig 5.3 Map 10
M62 - R2415	17.5	23.8	19.1	19.0	-0.1	Imperceptible	General	Fig. 5.3 Map 15
M6 - R2418	17.0	21.6	17.9	17.9	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R2419	17.0	21.9	18.1	18.1	<0.1	Imperceptible	Winwick	Fig. 5.3 Map 5&5a
M6 - R2420	16.8	39.0	32.0	34.4	+2.4	Medium Increase	General	Fig. 5.3 Map 28&28a
M6 - R2421	16.8	35.5	29.1	30.9	+1.8	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R2422	17.6	24.1	19.6	20.1	+0.6	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R2423	17.6	24.5	19.9	20.6	+0.6	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R2424	17.6	23.7	19.3	19.8	+0.5	Small Increase	General	Fig. 5.3 Map 28&28a
M6 - R2425	17.6	22.9	18.6	19.1	+0.4	Imperceptible	General	Fig. 5.3 Map 28&28a
M6 - R2426	17.6	22.3	18.1	18.4	+0.4	Imperceptible	General	Fig. 5.3 Map 28&28a
M62 - R2427	19.1	36.9	30.9	31.5	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
M62 - R2428	19.1	36.6	30.7	31.3	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R2429	19.1	35.9	30.0	30.6	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19&19b
M62 - R2449	17.5	41.0	34.0	34.3	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2450	17.5	23.7	19.3	19.5	+0.1	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2451	18.0	31.4	25.9	26.2	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2452	18.0	34.7	28.7	29.1	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2453	18.0	26.5	21.7	21.9	+0.2	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2454	18.8	35.5	29.4	29.7	+0.3	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - R2455	18.8	49.9	41.6	42.2	+0.6	Small Increase	A Roads	Fig. 5.3 Map 19a
M62 - R2456	18.8	39.4	32.8	33.2	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19a
M62 - R2457	19.1	35.8	29.7	30.0	+0.4	Imperceptible	A Roads	Fig. 5.3 Map 19&19a
M62 - R2458	17.5	26.5	21.7	21.9	+0.1	Imperceptible	A Roads	Fig. 5.3 Map 19
M62 - S4_LANGWORTHY SURE S	26.5	32.6	26.7	26.8	<0.1	Imperceptible	M602	Fig. 5.3 Map 11&12
M62 - S5_0	25.4	31.0	25.2	25.3	+0.1	Imperceptible	M602	Fig. 5.3 Map 11
M62 - S6_0	25.4	33.0	26.9	27.0	+0.2	Imperceptible	M602	Fig. 5.3 Map 11
M62 - S11_HORRIDGES FARM	19.8	38.1	31.2	30.3	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 23
M62 - S11_HORRIDGES FARM	19.8	38.1	31.2	30.3	-0.9	Small Decrease	A Roads	Fig. 5.3 Map 24
M62 - S14_HEATHFIELD HOUSE	19.9	23.6	19.2	19.3	+0.1	Imperceptible	General	Fig. 5.3 Map 6&13
M62 - S15_0	19.9	23.4	19.1	19.2	+0.1	Imperceptible	General	Fig. 5.3 Map 6&13
M62 - S24_MONTON PREP AND	22.7	25.6	20.7	20.8	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&11
M62 - S25_BOOTHSTOWN METHO	19.3	21.5	17.4	17.3	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 24&25
M62 - S34_FORM	29.7	34.7	28.2	28.2	+0.1	Imperceptible	M602	Fig. 5.3 Map 11

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM LTT_{E6} NO_2 ($\mu g/m^3$)	2020 'Cumulative worst case' LTT_{E6} NO_2 ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change ($\mu g/m^3$)	2020 LTT_{E6} NO_2 Change Criteria	Verification Zone	Figure & Map
ER ST LUKES								
M62 - S35_ST MARKS CHURCH	20.4	33.7	26.6	26.6	<0.1	Imperceptible	General	Fig. 5.3 Map 10&25
M62 - S36_WEST WOOD PARK PR	22.0	32.4	26.4	26.6	+0.1	Imperceptible	M602	Fig. 5.3 Map 10&10d
M62 - S37_ELLE NBROOK PRIMA	20.6	22.1	17.9	17.9	<0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 25
M62 - S44_WALK DEN HIGH SCH	22.1	26.9	21.8	21.7	-0.1	Imperceptible	M60 / A580	Fig. 5.3 Map 25&26
M62 - S50_THE CANTERB URY C	25.5	32.1	26.0	26.1	+0.1	Imperceptible	M602	Fig. 5.3 Map 11

Exceedances of annual mean NO_2 UK AQS objective are highlighted in **bold**.
*Denotes receptors modelled using 3 Scheme Traffic flows, rather than Cumulative worst case (four North West SMP Schemes) traffic flows.

The results presented above are described below by area.

M62 J6 – J7

A total of 7 were considered alongside the M62 between J6 and J7. Annual mean concentrations of NO_2 are predicted to be below the 40 $\mu g/m^3$ annual NO_2 objective at all of these receptors.

With the proposed Scheme in place, negligible increases in pollutant concentrations (+≤0.4 $\mu g/m^3$) are predicted at these receptors, due to an increase in AADT flow of approximately 2,000 vehicles along the M62, and result in concentrations that range from 15.5 to 28.1 $\mu g/m^3$.

As concentrations are predicted to be below 60 $\mu g/m^3$ with and without the proposed Scheme at all receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 $\mu g/m^3$) is unlikely to be exceeded at these receptors, with and without the proposed Scheme in operation.

A570 from M62 J7 to Junction with A569

A total of 13 receptors were considered alongside the A570 between J7 of the M62 north to the junction with the A569. Annual mean concentrations of NO_2 are predicted to be below the 40 $\mu g/m^3$ annual NO_2 objective at all of these receptors.

With the proposed Scheme in place, negligible changes in pollutant concentrations (+≤0.4 $\mu g/m^3$) are predicted at these receptors, due to a decrease in AADT flow of approximately 750 vehicles along the A570, and result in concentrations that range from 16.2 to 20.8 $\mu g/m^3$.

As concentrations are predicted to be below 60 µg/m^3 with and without the proposed Scheme at all receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the proposed Scheme in operation.

M62 J7 – J8

A total of 12 receptors were considered alongside the M62 between J7 and J8. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations (+≤0.4 µg/m^3) are predicted at these receptors, due to an increase in AADT flow of approximately 2,100 vehicles along the M62, and result in concentrations that range from 18.1 to 28.0 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario at all receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M62 J8 – J9

A total of 16 receptors were considered alongside the M62 between J8 and J9. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations (+≤0.4 µg/m^3) are predicted at these receptors, due to an increase in AADT flow of approximately 3,950 vehicles along the M62, and result in concentrations that range from 22.0 to 28.2 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario at all receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A49 from Junction with A573, Winwick to M62 J9

A total of 9 receptors were considered alongside the A49, south of the junction with the A573 at Winwick, to J9 of the M62. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors

With the cumulative worst case scenario in place, small increases in pollutant concentrations is predicted at 2 of these receptors (+0.5 – 0.7 µg/m^3). Negligible increases (+≤0.4 µg/m^3). in pollutant concentrations are predicted at the remaining 7 receptors in this area. These changes are due to a decrease in AADT flow of approximately 5,100 vehicles along the M62, and result in concentrations that range from 20.6 to 35.6 µg/m^3.

As concentrations are predicted to be below 60 µg/m3 with and without the proposed Scheme in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M62 J9 – J10

A total of 26 receptors were considered alongside the M62 between J9 and J10 where it intersects the M6 . Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors.

With the cumulative worst case scenario in place, small increases in pollutant concentrations (+0.5 – 1.5 µg/m^3) are predicted at 7 of these receptors, in Houghton Green, and north of the M62. Negligible

increases in pollutant concentrations and predicted at 11 receptors. These changes are due to an increase in AADT flow of approximately 63,150 vehicles along the M62, and result in concentrations that range from 22.1 to 37.0 µg/m^3.

Small decreases in pollutant concentrations (-0.5 – 0.7 µg/m^3) are predicted at 2 receptors, located in Elm Road, Hulme. Negligible decreases are predicted at the remaining 6 receptors, located in Elm Road and Birch Avenue. These changes are due to a decrease in AADT flow of approximately 750 vehicles along the slip road leading off the M62 at J9 onto the A49, and result in concentrations that range from 27.0 to 35.7 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario at all 26 receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M62 J10 to J11

A total of 29 receptors were considered along the M62 between J10 and J11. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

A small increase in concentration (+0.5 -1.9 µg/m^3) is predicted at 27 of the 29 receptors.

Ten (10) of these 27 receptors are located near to Junction 10 with the M6 (J21A), on Millhouse Lane, Spring Lane, Johnson's Tenement, and Sandicroft Close. The predicted change at these receptors are due to an increase in AADT flow of approximately 22,000 vehicles along the M62, and between 18,000 and 22,000 vehicles on the M6 south and north of the junction respectively, and result in concentrations with the scheme in place that range from 21.2 to 34.8 µg/m^3.

Seventeen (17) of the 27 receptors where a small increase in concentrations is predicted are located between J10 and J11 of the M62, on Cross Lane and Cross Lane South. Negligible increases (+≤0.1 µg/m^3) are predicted at the remaining 2 receptors in this area. These changes are due to an increase in AADT flow of approximately 22,000 vehicles along the M62, and result in concentrations with the scheme in place that range from 23.9 to 35.9 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A574 from M6 to M62 J11

A total of 33 receptors were considered along the A574 between the M6 and the M62 at J11. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the core cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible changes in pollutant concentrations are predicted at these receptors (±≤0.4 µg/m^3), resulting in concentrations with the scheme in place that range from 18.2 to 24.6 µg/m^3.

Flows on the A574 decreases by between approximately 2,350 vehicles AADT between Birchwood and the M6, 1600 between Birchwood and Gorse Covert, and 72 between Gorse Covert and the M62. There is, however, an increase in HGV percentage between Gorse Covert and the M62, resulting in an approximately 300 AADT HGVs increase, alongside speed increases in the PM peak along the A574.

As concentrations are predicted to be below 60 µg/m^3 with and without the core cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A total of 12 receptors were considered along Holcroft Lane north of the M62 between J11 and J12 to Culcheth. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations are predicted at 3 of these receptors (+≤0.4 µg/m^3). Negligible decreases in pollutant concentrations are predicted at the remaining 9 receptors (-≤0.4 µg/m^3), due to a decrease in AADT flow of approximately 1,150 vehicles along Holcroft Lane. These changes result in concentrations that range from 15.0 to 18.0 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

Glazebrook Lane

A total of 25 receptors were considered along Glazebrook Lane south of the M62 between J11 and J12. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations are predicted at 4 of these receptors closest to the M62 (+≤0.4 µg/m^3), due to an increase in AADT flow of approximately 19,000 vehicles along the M62. Negligible decreases in pollutant concentrations are predicted at the remaining 21 receptors (-≤0.4 µg/m^3), due to a decrease in AADT flow of approximately 1,150 vehicles along Glazebrook Lane. These changes result in concentrations that range from 16.3 to 18.1 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M62 J11 to 12

A total of 95 receptors were considered alongside the M62 between J11 and J12 where it intersects the M60. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, small increases in pollutant concentrations are predicted at 92 of these receptors (+0.5 – 1.9 µg/m^3). Negligible decreases in pollutant concentrations are predicted at the remaining 2 receptors (-≤0.4 µg/m^3). These changes are due to an increase in AADT flow of approximately 19,000 vehicles along the M62. These changes result in concentrations that range from 19.3 to 33.6 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M60 J12-J14

A total of 101 receptors were considered alongside the M6 between J21 and 21A. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 34 of these receptors. These receptors are located on Farm Lane (M62 - ER109, M62 - ER120-130, M62 - ER133, and M62 - ER134), Greenacre Lane (M62 - R91, M62 - R92, M62 - R95-107), Edenfield (M62 - ER53-56), and Grange Road (M62 - R999), Alder Forest.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations are predicted at these three receptors (+≤0.4 µg/m^3), resulting in concentrations with the scheme in place that range from 40.0 to 78.2 µg/m^3, including three new exceedances at M62 - ER91, M62 - ER134,

and M62 - R999. These changes are due to an increase in AADT flow of approximately 1,150 vehicles along the M60.

The annual mean concentrations are predicted to remain above 60 µg/m^3 with and without the cumulative worst case scenario at one receptor (ER98) in 2020. It is anticipated that the hourly mean NO_2 objective (200 µg/m^3) may be exceeded at this receptor, with and without the cumulative worst case scenario in operation.

Concentrations at the other 67 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. Negligible changes are predicted at these receptors (±≤0.4 µg/m^3) in this area. These changes are due to an increase in AADT flow of approximately 1,150 vehicles along the M60, and result in concentrations ranging from 22.1 – 39.7 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario at the remaining 100 receptors in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M60 J11 to 12

A total of 32 receptors were considered along the M60 between J11 and J12. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at one of these receptors without the scheme in place. This receptor is located just off the M60 on Stannard Road, within 12m of the existing highway boundary.

With the cumulative worst case scenario in place, a negligible change in pollutant concentrations (±≤0.4 µg/m^3) is predicted at this receptor, resulting in a concentration with the scheme in place of 42.5 µg/m^3.

Concentrations at the other 31 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. With the cumulative worst case scenario in place, a small decrease in pollutant concentrations (-0.5 – 1.2 µg/m^3) is predicted at 1 of these receptors, located at Brookhouse Avenue. The predicted change here is due to a decrease in AADT flow of approximately 1,150 vehicles along the Slip Lane joining the M60 North. Negligible decreases in pollutant concentrations (-≤0.4 µg/m^3) are predicted at the remaining 30 receptors in this location.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M602

A total of 365 receptors were considered along the M602 between J1 and J3. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations are predicted at all 365 of these receptors (+≤0.4 µg/m^3), resulting in concentrations with the scheme in place that range from 20.8 to 38.9 µg/m^3, due to a decrease in AADT flow of approximately 3,350 vehicles along the M602.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A580 between the junction with the A58 to M6 J23

A total of 73 receptors were considered alongside the A580 between the junction with the A58 and J23 of the M6. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 3 of these receptors (M62 - R2455, M62 - ER4, and M62 - ER5) with the cumulative worst case scenario in operation, located on the A580 at Haydock.

With the cumulative worst case scenario in place, small increases in pollutant concentrations (+0.5 – 0.6 µg/m^3) are predicted at these receptors. The effect of this is to create one new exceedance of the annual NO_2 objective. These changes are due to an increase in AADT flow of approximately 350 vehicles along the A580, and an increase in HDV AADT flow of approximately 200 vehicles, resulting in concentrations with the scheme in place ranging from 40.2 – 42.4 µg/m^3.

Concentrations at the other 70 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. With the cumulative worst case scenario in place, small increases in pollutant concentrations (+0.5 – 0.7 µg/m^3) are predicted at 18 receptors, located on Penny Lane and Kenyons Lane North, Haydock. Negligible increases in pollutant concentrations (+≤0.4 µg/m^3) are predicted at the remaining 52 receptors in this area. These changes are due to an increase in AADT flow of approximately 350 vehicles along the A580, and an increase in HDV AADT flow of approximately 200 vehicles, resulting in concentrations with the scheme in place ranging from 19.5 – 37.5 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020 at all 11 receptors, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between M6 J23 and the Junction with the A573

A total of 6 receptors were considered alongside the A580 between J23 of the M6 and the junction with the A573. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, a small increase in pollutant concentrations (+0.5 µg/m^3) is predicted at 1 receptor, located on the A573. Negligible increases in pollutant concentrations (+≤0.4 µg/m^3) are predicted at the remaining 5 receptors in this area. These changes are due to an increase in AADT flow of approximately 650 vehicles along the A573, which counters the decrease in AADT flow of approximately 200 vehicles along the A580, and result in concentrations with the scheme in place that range from 22.9 to 28.2 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A573 and the Junction with the A572 at Golborne

A total of 19 receptors were considered alongside the A580 between J23 of the M6 and the junction with the A572. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 1 of these receptors (M62 - R1998) with the cumulative worst case scenario in operation, located on Summercroft Close in Golborne.

With the cumulative worst case scenario in place, a small decrease in pollutant concentrations (-0.8 µg/m^3) is predicted at this receptor, due to a decrease in AADT flow of approximately 2,100 vehicles along the A580, resulting in a concentration with the scheme in place of 40.5 µg/m^3.

Concentrations at the other 18 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. With the cumulative worst case scenario in place, a medium decrease in pollutant concentrations (-2.5 µg/m^3) is predicted at 1 of these receptors (M62 - R2013), located on the B5207 close to the junction with the A572. Small decreases in pollutant concentrations (-0.5 – 1.6

µg/m^3) are predicted at 11 of the receptors. Negligible decreases in pollutant concentrations (-≤0.4 µg/m^3) are predicted at the remaining 6 receptors in this location. These changes are due to a decrease in AADT flow of approximately 2,100 vehicles along the A580, resulting in concentrations with the scheme in place that range from 20.4 to 37.0 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020 at all 19 receptors, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A572 at Golborne and the Junction with the A579

A total of 5 receptors were considered alongside the A580 between the junction with the A572 to the junction with the A579. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, small decreases in pollutant concentrations (-0.5 – 0.9 µg/m^3) are predicted at 3 receptors. Negligible decreases (-≤0.4 µg/m^3) are predicted for the remaining 2 receptors. These changes are due to a decrease in AADT flow of approximately 1,300 vehicles along the A580 resulting in concentrations with the scheme in place ranging from 19.5 – 38.2 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A579 and the Junction with the A574

A total of 4 receptors were considered alongside the A580 between the junction with the A579 to the junction with the A574. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible decreases (-≤0.4 µg/m^3) are predicted for these receptors, due to a decrease in AADT flow of approximately 1,450 vehicles along the A580 resulting in concentrations with the scheme in place ranging from 16.1 – 24.6 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A574 and the Junction with the A572 at Boothstown

A total of 20 receptors were considered alongside the A580 between the junction with the A574 to the junction with the A572. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at one of these receptors (M62 - R2058) with the cumulative worst case scenario in operation, located at the junction with the A574.

With the cumulative worst case scenario in place, a small decrease in pollutant concentrations (-1.2 µg/m^3) is predicted at this receptor, due to a decrease in AADT flow of approximately 2,450 vehicles along the A580, resulting in a concentration with the scheme in place of 40.2 µg/m^3.

Concentrations at the other 19 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. With the cumulative worst case scenario in place, a small decrease in pollutant concentrations (-0.5 – 1.2 µg/m^3) is predicted at 14 of these receptors. Negligible decreases in pollutant concentrations (-≤0.4 µg/m^3) are predicted at the remaining 5 receptors in this location. These changes are due to a decrease in AADT flow of approximately 2,450 vehicles along the A580, resulting in concentrations with the scheme in place that range from 16.6 to 34.0 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020 at all 20 receptors, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A572 at Boothstown and the Junction with the A577

A total of 7 receptors were considered alongside the A580 between the junction with the A572 to the junction with the A577. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible decreases (-≤0.4 µg/m^3) are predicted for these receptors, due to a decrease in AADT flow of approximately 1,700 vehicles along the A580 resulting in concentrations with the scheme in place ranging from 17.3 – 21.5 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A577 and the Junction with the A575

A total of 25 receptors were considered alongside the A580 between the junction with the A577 to the junction with the A575. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible decreases in pollutant concentrations (-≤0.4 µg/m^3) are predicted for these receptors, due to a decrease in AADT flow of approximately 1,850-1950 vehicles along the A580 resulting in concentrations with the scheme in place ranging from 17.7 – 28.6 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A580 between the Junction with the A575 and M60 J14

A total of 42 receptors were considered alongside the A580 between the junction with the A575 and the M60 J14. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible decreases in pollutant concentrations (-≤0.4 µg/m^3) are predicted for these receptors, due to a decrease in AADT flow of approximately 1,850 vehicles along the A580 resulting in concentrations with the scheme in place ranging from 19.5 – 32.0 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded, with and without the cumulative worst case scenario in operation.

A57 Manchester Road West of J21

A total of 24 receptors were considered alongside the A57 Manchester Road, west of J21. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible increases in air pollutant concentrations are predicted at these receptors (+≤0.4 µg/m^3), resulting in concentrations with the scheme in place that range from 21.0 to 30.6 µg/m^3, due to an increase in AADT flow of approximately 650 vehicles along the A57.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A57 Manchester Road East of J21 and West of M60

A total of 47 receptors were considered alongside the A57 Manchester Road, east of J21 to the M60. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 3 of these receptors without the scheme in place. These three receptors are located just off the A57 immediately west of J11 with the M60, and are within 10m of the existing highway boundary (M62 - R2324, M62 - R2325 and M62 - R2326).

With the cumulative worst case scenario in place, small decreases in pollutant concentrations are predicted at these three receptors (-0.9 to -1.5 µg/m^3), resulting in concentrations with the scheme in place below the annual NO_2 objective at M62 - R2324 (38.9 µg/m^3), but still above the objective at M62 - R2325 and M62 - R2326 (42.9 and 40.8 µg/m^3 respectively). The predicted improvements here are due to a decrease in AADT flow of approximately 2,600 vehicles along the A57.

As the annual mean concentrations remain below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these three receptors, with and without the cumulative worst case scenario in operation.

Concentrations at the other 44 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. Small decreases in pollutant concentrations (-0.5 - 1.0 µg/m^3) are predicted at 4 receptors. These receptors are located along the A57, with one at Boysnope, one at Crossfield Road, Irlam one at Haye's Road, one at St Helen's Close, Hollins Green and one on Liverpool Street at Peel Green. They experience these predicted changes due to a decrease in AADT flow of between approximately 1,500 and 2,500 vehicles along the A57.

Negligible changes are predicted at the remaining 40 receptors (±≤0.4 µg/m^3) along the A57 Manchester Road, East of J21A to the M60.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

A57 Manchester Road east of M60

A total of 2 receptors were considered alongside the A57 Manchester Road, east of the M60. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible decreases in air quality are predicted at these receptors (-≤0.1 µg/m^3), resulting in concentrations with the scheme in place that range from 29.3 to 38.8 µg/m^3, due to a decrease in AADT flow of approximately 150 vehicles along the A57.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is predicted that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M6 J22-J23

A total of 31 receptors were considered alongside the M6 between J22 and J23. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 3 of these receptors, located on Southworth Road (M6 - R61, M6 - R112), and Winwick Lane (M6 - R98) with the cumulative worst case or three North West SMP Scheme scenario in operation.

Small increases in pollutant concentrations are predicted at the remaining receptor on Winwick Lane (+1.2 µg/m^3). These changes are due to an increase in AADT flow along the M6.

Concentrations at the other 28 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. Medium increases in pollutant concentrations (+2.3 – 3.1 µg/m^3) are predicted at 5 receptors, located at Winwick Lane (M6 - R113, M6 - R114, and M6 - R2420), and Park Cottages (M6 - R581 and M6 - R582). Small increases in pollutant concentrations are predicted at 19 receptors (+0.5 – 1.8 µg/m^3). Negligible increases are predicted at the remaining 4 receptors (±≤0.4 µg/m^3) in this area. These changes are due to an increase in AADT flow of approximately 23,700 vehicles along the M6, and result in concentrations that range from 18.4 to 39.5 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case (four North West SMP Schemes) scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded.

With the three SMP NW Schemes in place, imperceptible increases in pollutant concentrations are predicted at the 2 receptors on Southworth Road.

A49 from Junction with A573, Winwick to M6 J22

A total of 17 receptors were considered alongside the A49, south of the junction with the A573 at Winwick, to J9 of the M62. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors.

With the cumulative worst case scenario in place, negligible increases in pollutant concentrations (±≤0.4 µg/m^3) are predicted at these receptors, due to an increase in AADT flow of approximately 200 vehicles along the A49, and a decrease in HDV AADT flow of approximately 800 vehicles along the A49, resulting in concentrations that range from 17.9 to 24.4 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M6 J21A-J22

A total of 4 receptors were considered alongside the M6 between J21A and J22. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 1 of these receptors, located at Sandsfields Cottage (M6 - R69) with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, a small increase in pollutant concentrations is predicted at this receptor (+1.9 µg/m^3), due to an increase in AADT flow of approximately 23,050 vehicles along the M6, resulting in a concentration of 42.0 µg/m^3.

Concentrations at the other receptor in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. Small increases in pollutant concentrations are predicted at 2 receptors (+1.3 – 1.4 µg/m^3), A negligible increase in pollutant concentrations (+≤0.4 µg/m^3) is predicted at the remaining receptor. These changes are due to an increase in AADT flow of approximately 23,050 vehicles along the M6, and result in a concentration of 25.6 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M6 J21-J21A

A total of 19 receptors were considered alongside the M6 between J21 and 21A. Annual mean concentrations of NO_2 are predicted to be above the 40 µg/m^3 annual NO_2 objective at 3 of these

receptors. These three receptors are located just off Nichol Avenue at Martinscroft Moss, and are within 10m of the existing highway boundary (M6 - ER1, M6 - ER2 and M6 - ER3).

With the three schemes two medium and one small increase in pollutant concentrations are predicted at these three receptors (+1.8 to +2.7 µg/m^3), resulting in concentrations with the scheme in place that range from 63.4 to 71.1 µg/m^3, due to an increase in AADT flow of approximately 6,000 vehicles along the M6.

As the annual mean concentrations remain above 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) may be exceeded at these three receptors.

Concentrations at the other 16 receptors in this area are predicted to remain below an annual average NO_2 concentration of 40 µg/m^3. Small increases in pollutant concentrations (+0.6 – 1.7 µg/m^3) are predicted at 6 receptors, including 4 located on Manchester Road near J21 and 2 located at Moss Side Farm, on Juniper Lane just north of J21. Negligible changes are predicted at the remaining 10 receptors (±≤0.4 µg/m^3) in this area. These changes are due to an increase in AADT flow of approximately 18,150 vehicles along the M6, and result in concentrations ranging from 20.1 – 38.4 µg/m^3.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

College Place Roundabout, A574 and B5210. West of J21-J21A

A total of 9 receptors were considered near to the College Place Roundabout, located approximately 280m west of the M6 between J21 and 21A. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, negligible increases in pollutant concentration (+≤0.2 µg/m^3), are predicted at these receptors resulting in concentrations with the scheme in place that range from 20.8 to 31.9 µg/m^3. The A574 here increases by approximately 450 vehicles AADT, and the B5210 reduces by approximately 2000 AADT. The predicted increases here are considered likely to be due to an increase in AADT flow of approximately 18,150 vehicles along the M6.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

M6 J20-21

A total of 9 receptors were considered along the M6 between J20 and J21. Annual mean concentrations of NO_2 are predicted to be below the 40 µg/m^3 annual NO_2 objective at all of these receptors with the cumulative worst case scenario in operation.

With the cumulative worst case scenario in place, small increases are predicted at 2 of these receptors (+ 0.5 – 0.6 µg/m^3), located on Massey Avenue. Negligible increases in air quality are predicted at the remaining 7 receptors (+ ≤0.4 µg/m^3) in this area, resulting in concentrations with the scheme in place that range from 19.3 to 34.3 µg/m^3. The predicted increases here are considered likely to be due to an increase in AADT flow of approximately 6,350 vehicles along the M6.

As concentrations are predicted to be below 60 µg/m^3 with and without the cumulative worst case scenario in 2020, it is anticipated that the hourly mean NO_2 objective (200 µg/m^3) is unlikely to be exceeded at these receptors, with and without the cumulative worst case scenario in operation.

Table B-47 Annual Mean NO_2 Results (µg/m^3) for Discrete Human Health Receptors within the M56 J6-8 Geographical Study Area - 'M56 J6-8 Only' Scenario

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'M56 J6-8 Only' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R10	16.0	32.4	26.2	26.5	0.3	Imperceptible	Fig.5.6, Map 15
M56 - R11	14.4	20.5	16.7	16.7	0	Imperceptible	Fig.5.6, Map 19
M56 - R12	16.0	31.1	25.5	25.6	0.1	Imperceptible	Fig.5.6, Map 16
M56 - R13	16.1	29.7	24.3	24.3	0	Imperceptible	Fig.5.6, Map 16
M56 - R14	16.1	35.4	29.1	29.1	0	Imperceptible	Fig.5.6, Map 16
M56 - R15	15.6	33	27	27.1	0.1	Imperceptible	Fig.5.6, Map 16
M56 - R16	15.7	30.1	24.8	24.9	0.1	Imperceptible	Fig.5.6, Map 16
M56 - R17	16.5	39	32.1	32.1	0	Imperceptible	Fig.5.6, Map 14
M56 - R18	14.7	20.8	16.9	16.9	0	Imperceptible	Fig.5.6, Map 18
M56 - R19	16.0	22.5	18.4	18.4	0	Imperceptible	Fig.5.6, Map 16
M56 - R20	15.6	28.9	23.7	23.9	0.2	Imperceptible	Fig.5.6, Map 16
M56 - R21	17.6	29.5	24.1	24.2	0.1	Imperceptible	Fig.5.6, Map 16
M56 - R22	17.6	26.4	21.5	21.6	0.1	Imperceptible	Fig.5.6, Map 16
M56 - R23	15.1	25.8	22.8	23	0.2	Imperceptible	Fig.5.6, Map 9
M56 - R24	15.4	28.9	23.5	23.7	0.2	Imperceptible	Fig.5.6, Map 15
M56 - R25	15.4	31.9	26	26.3	0.3	Imperceptible	Fig.5.6, Map 10
M56 - R26	14.4	24.2	20	20	0	Imperceptible	Fig.5.6, Map 12
M56 - R27	14.8	27.8	25.1	25.1	0	Imperceptible	Fig.5.6, Map 13
M56 - R28	14.8	26	21.7	21.7	0	Imperceptible	Fig.5.6, Map 12
M56 - R29	17.2	25.6	20.9	20.6	-0.3	Imperceptible	Fig.5.6, Map 8
M56 - R30	16.3	20	16.9	16.9	0	Imperceptible	Fig.5.6, Map 9
M56 - R31	23.7	32.6	26.7	26.4	-0.3	Imperceptible	Fig.5.6, Map 8
M56 - R32	15.6	23.1	19.2	19.2	0	Imperceptible	Fig.5.6, Map 9
M56 - R33	17.2	26.4	21.5	21.2	-0.3	Imperceptible	Fig.5.6, Map 8
M56 - R34	15.9	20.7	16.9	17	0.1	Imperceptible	Fig.5.6, Map 9
M56 - R35	24.4	42.8	35.6	35.7	0.1	Imperceptible	Fig.5.6, Map 7
M56 - R36	24.4	37.4	31	31.1	0.1	Imperceptible	Fig.5.6, Map 7
M56 - R37	20.2	36.4	30.8	31.1	0.3	Imperceptible	Fig.5.6, Map 7
M56 - R38	20.2	42.6	35.7	36	0.3	Imperceptible	Fig.5.6, Map 7

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'M56 J6-8 Only' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R39	24.4	38.6	33.1	33.7	0.6	Small increase	Fig.5.6, Map 7
M56 - R40	21.2	35.2	30.1	30.3	0.2	Imperceptible	Fig.5.6, Map 7
M56 - R41	19.1	34.2	29.9	30.3	0.4	Imperceptible	Fig.5.6, Map 7
M56 - R42	21.2	31.2	26.9	27	0.1	Imperceptible	Fig.5.6, Map 7
M56 - R43	20.2	37.7	31.7	31.9	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R44	21.2	38.3	32.3	32.6	0.3	Imperceptible	Fig.5.6, Map 7
M56 - R45	20.9	29	24	24.2	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R46	20.2	36.7	30.6	30.8	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R47	20.2	32.8	27.3	27.6	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R48	21.8	34.6	28.5	28.7	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R49	21.8	43	36.1	36.4	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R50	21.8	46.7	39.6	39.9	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R51	21.8	45.5	38.5	38.8	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R52	21.8	43.8	37	37.3	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R53	21.8	42.9	36.2	36.4	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R54	21.8	36.9	30.8	30.9	0.1	Imperceptible	Fig.5.6, Map 6
M56 - R55	21.8	37.6	31.4	31.6	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R56	21.8	48	40.8	41.1	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R57	21.8	42	35.4	35.7	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R58	21.8	38.9	32.6	32.8	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R59	21.8	39.5	33.2	33.4	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R60	21.8	41	34.6	34.8	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R61	21.8	39.6	33.3	33.5	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R62	21.8	42.9	36	36.3	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R63	21.8	39.7	33.2	33.4	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R64	21.8	42.8	35.9	36.1	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R65	21.8	48.5	41.3	41.6	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R66	21.8	46	39	39.3	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R67	21.8	48.6	41.4	41.7	0.3	Imperceptible	Fig.5.6, Map 6

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'M56 J6-8 Only' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R68	21.8	49.1	41.7	42.1	0.4	Imperceptible	Fig.5.6, Map 6
M56 - R70	21.8	48.4	41.3	41.6	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R71	21.8	48.4	41.2	41.5	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R72	21.8	47.3	40.3	40.7	0.4	Imperceptible	Fig.5.6, Map 6
M56 - R73	21.8	46.4	39.6	39.9	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R74	21.8	46.9	40	40.4	0.4	Imperceptible	Fig.5.6, Map 6
M56 - R75	21.8	47.1	40.2	40.5	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R76	21.8	46.8	39.9	40.2	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R77	21.8	45.2	38.5	38.8	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R78	21.8	48.4	41.2	41.5	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R79	21.8	44.8	38.1	38.4	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R80	21.8	43.8	37.2	37.5	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R81	21.8	42.9	36.4	36.7	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R82	21.8	42.1	35.7	36	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R83	21.8	41.3	34.9	35.2	0.3	Imperceptible	Fig.5.6, Map 6
M56 - R84	21.8	39.8	33.6	33.8	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R85	23.6	35	28.3	28.3	0	Imperceptible	Fig.5.6, Map 5
M56 - R86	20.4	32.7	26.7	26.7	0	Imperceptible	Fig.5.6, Map 5
M56 - R87	20.4	29.6	24.1	24.1	0	Imperceptible	Fig.5.6, Map 5
M56 - R88	22.6	28.4	23.1	23.1	0	Imperceptible	Fig.5.6, Map 5
M56 - R89	20.4	28.2	23	23	0	Imperceptible	Fig.5.6, Map 6
M56 - R90	22.3	39.7	33.7	33.9	0.2	Imperceptible	Fig.5.6, Map 6
M56 - R91	22.3	34.7	29.1	29.2	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R92	20.9	37.9	30.9	31	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R93	21.3	34.2	28.5	28.5	0	Imperceptible	Fig.5.6, Map 4
M56 - R94	22.3	38.2	32.3	32.4	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R95	20.9	42.5	34.4	34.4	0	Imperceptible	Fig.5.6, Map 4
M56 - R96	20.9	39.4	31.9	31.8	-0.1	Imperceptible	Fig.5.6, Map 4
M56 - R97	22.3	36.3	30.6	30.7	0.1	Imperceptible	Fig.5.6, Map 6

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'M56 J6-8 Only' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R98	22.3	35.8	29.9	30	0.1	Imperceptible	Fig.5.6, Map 6
M56 - R99	22.3	33.9	28.4	28.5	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R100	21.3	31.7	26.5	26.5	0	Imperceptible	Fig.5.6, Map 4
M56 - R101	21.3	35.8	30.2	30.3	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R102	21.3	29.1	23.9	24	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R103	20.9	45	35.4	35.4	0	Imperceptible	Fig.5.6, Map 4
M56 - R104	20.9	47.2	38.3	38.2	-0.1	Imperceptible	Fig.5.6, Map 4
M56 - R105	22.3	32.2	26.7	26.8	0.1	Imperceptible	Fig.5.6, Map 6
M56 - R106	21.3	37.8	31.9	32	0.1	Imperceptible	Fig.5.6, Map 4
M56 - R107	21.7	26.5	21.7	21.7	0	Imperceptible	Fig.5.6, Map 4
M56 - R108	21.3	24.1	19.6	19.6	0	Imperceptible	Fig.5.6, Map 4
M56 - R109	21.7	26.3	21.6	21.6	0	Imperceptible	Fig.5.6, Map 4
M56 - R110	20.2	27.4	22.8	22.8	0	Imperceptible	Fig.5.6, Map 4
M56 - R111	21.7	27.4	22.6	22.6	0	Imperceptible	Fig.5.6, Map 4
M56 - R112	21.0	27.7	23	23	0	Imperceptible	Fig.5.6, Map 4
M56 - R113	20.2	24.5	19.7	19.7	0	Imperceptible	Fig.5.6, Map 3
M56 - R114	21.0	26.5	21.8	21.8	0	Imperceptible	Fig.5.6, Map 4
M56 - R115	20.2	24.5	19.7	19.7	0	Imperceptible	Fig.5.6, Map 3
M56 - R116	20.2	24.6	19.8	19.8	0	Imperceptible	Fig.5.6, Map 3
M56 - R117	20.6	26.7	21.5	21.5	0	Imperceptible	Fig.5.6, Map 3
M56 - R118	19.1	21.4	17.3	17.3	0	Imperceptible	Fig.5.6, Map 3
M56 - R119	19.1	22.1	17.8	17.8	0	Imperceptible	Fig.5.6, Map 3
M56 - R120	20.6	31	25.3	25.3	0	Imperceptible	Fig.5.6, Map 3
M56 - R121	21.9	33.1	26.6	26.6	0	Imperceptible	Fig.5.6, Map 2
M56 - R123	24.3	39.5	31.9	31.9	0	Imperceptible	Fig.5.6, Map 2
M56 - R124	23.4	40.9	32.6	32.5	-0.1	Imperceptible	Fig.5.6, Map 2
M56 - R125	23.4	32.2	25.9	25.9	0	Imperceptible	Fig.5.6, Map 2
M56 - R126	23.4	35	27.9	27.9	0	Imperceptible	Fig.5.6, Map 2
M56 - R127	21.9	38.6	31.7	31.7	0	Imperceptible	Fig.5.6, Map 2

Receptor ID	Adjusted Background 2015 NO_2 ($\mu g/m^3$)	2015 Base NO_2 ($\mu g/m^3$)	2020 DM NO_2 ($\mu g/m^3$)	2020 'M56 J6-8 Only' NO_2 ($\mu g/m^3$)	2020 NO_2 Change ($\mu g/m^3$)	2020 NO_2 Change Criteria	Figure & Map
M56 - R128	21.9	34.9	28.1	28.1	0	Imperceptible	Fig.5.6, Map 2
M56 - R129	15.1	26.1	25.8	26	0.2	Imperceptible	Fig.5.6, Map 9
M56 - R130	14.4	16.3	13.9	13.9	0	Imperceptible	Fig.5.6, Map 11
M56 - R131	14.4	15.8	13.5	13.5	0	Imperceptible	Fig.5.6, Map 11
M56 - R132	14.6	16.2	14.2	14.2	0	Imperceptible	Fig.5.6, Map 11
M56 - R133	14.6	16.3	16.3	16.4	0.1	Imperceptible	Fig.5.6, Map 11
M56 - R134	15.1	18	16.5	16.6	0.1	Imperceptible	Fig.5.6, Map 10
M56 - R135	15.1	21.5	17.9	17.9	0	Imperceptible	Fig.5.6, Map 10
M56 - R136	14.6	16.3	14.4	14.5	0.1	Imperceptible	Fig.5.6, Map 12
M56 - R137	14.3	57.6	47.8	47.6	-0.2	Imperceptible	Fig.5.6, Map 14
M56 - R138	13.9	21.5	17.6	17.6	0	Imperceptible	Fig.5.6, Map 12
M56 - R139	14.2	21.5	17.6	17.6	0	Imperceptible	Fig.5.6, Map 14
M56 - R140	14.2	25.4	20.9	20.8	-0.1	Imperceptible	Fig.5.6, Map 14
M56 - R141	15.2	28.9	23.7	23.7	0	Imperceptible	Fig.5.6, Map 14
M56 - R142	14.3	20.1	16.4	16.4	0	Imperceptible	Fig.5.6, Map 14
M56 - R143	14.3	29.3	24.1	24.1	0	Imperceptible	Fig.5.6, Map 14
M56 - R144	16.5	32.2	26.4	26.4	0	Imperceptible	Fig.5.6, Map 16
M56 - R145	14.4	24.6	20.3	20.3	0	Imperceptible	Fig.5.6, Map 12
M56 - R146	14.4	30.7	25.7	25.7	0	Imperceptible	Fig.5.6, Map 12
M56 - R147	16.5	51.2	42.4	42.3	-0.1	Imperceptible	Fig.5.6, Map 16
M56 - S1	21.9	31.6	25.4	25.4	0	Imperceptible	Fig.5.6, Map 2
M56 - S2	21.8	40.5	33.9	34.1	0.2	Imperceptible	Fig.5.6, Map 6

Table B-48 Annual Mean NO_x Results ($\mu g/m^3$) for Ecological Receptors within the M60 Geographical Study Area

Receptor ID	Designated Site	Distance to road centre (m)	Background 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria
M60 – E1	Hollinwood Branch Canal SSSI	39	18.6	**41.5**	**30.4**	**31.2**	+0.8	Small
Exceedances of annual mean NO_x UK AQS objective are highlighted in **bold**.								

Table B-49 Nitrogen Deposition Results (kgN/ha/yr) for Ecological Receptors within the M60 J24-4 Geographical Study Area

Receptor ID	Designated Site	Distance to road centre (m)	Critical Load (kgN/ha/yr)	2015 Base NDep (kgN/ha/yr)	2020 DM NDep (kgN/ha/yr)	2020 DS NDep (kgN/ha/yr)	2020 NDep Change (% of Critical Load)
M60 – E1	Hollinwood Branch Canal SSSI	39	15 – 30 (Rich Fen)	15.37	13.78	13.82	0.04 (0.3%)

Table B-50 Annual Mean NOx Results (µg/m^3) for Ecological Receptors within the M62 Geographical Study Area - 'Cumulative worst case' Scenario

Receptor ID	Distance to road edge (m)	Background 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_19m	19	18.4	61.9	47.9	51.6	+3.7	Perceptible	21.3	21.4	+0.19
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_24m	24	18.4	57.4	44.4	47.5	+3.1	Perceptible	21.1	21.3	+0.17
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_29m	29	18.4	53.8	41.5	44.2	+2.7	Perceptible	21.0	21.1	+0.15
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_34m	34	18.4	50.8	39.2	41.6	+2.4	Perceptible	20.8	21.0	+0.13
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_39m	39	18.4	48.4	37.2	39.4	+2.2	Perceptible	20.8	20.9	+0.12
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_44m	44	18.4	46.2	35.5	37.5	+2.0	Perceptible	20.7	20.8	+0.11
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_49m	49	18.4	44.4	34.1	35.9	+1.8	Perceptible	20.6	20.7	+0.10
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_54m	54	18.4	42.8	32.8	34.5	+1.7	Perceptible	20.5	20.6	+0.10
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_59m	59	18.4	41.4	31.7	33.2	+1.5	Perceptible	20.5	20.6	+0.09
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_64m	64	18.4	40.2	30.7	32.2	+1.4	Perceptible	20.4	20.5	+0.08
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_69m	69	18.4	39.1	29.9	31.2	+1.3	Perceptible	20.4	20.5	+0.08
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_74m	74	18.4	38.1	29.1	30.3	+1.3	Perceptible	20.3	20.4	+0.07
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_79m	79	18.4	37.2	28.4	29.6	+1.2	Perceptible	20.3	20.4	+0.07
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_84m	84	18.4	36.4	27.7	28.9	+1.1	Perceptible	20.3	20.3	+0.07
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_89m	89	18.4	35.6	27.2	28.2	+1.1	Perceptible	20.2	20.3	+0.06
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_94m	94	18.4	35.0	26.6	27.6	+1.0	Perceptible	20.2	20.3	+0.06
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_99m	99	18.4	34.3	26.1	27.1	+1.0	Perceptible	20.2	20.3	+0.06
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_104m	104	18.4	33.8	25.7	26.6	+0.9	Perceptible	20.2	20.2	+0.06
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_109m	109	18.4	33.2	25.3	26.1	+0.9	Perceptible	20.1	20.2	+0.06

Receptor ID	Distance to road edge (m)	Background 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_114m	114	18.4	**32.7**	24.9	25.7	+0.8	Perceptible	20.1	20.2	+0.05
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_119m	119	18.4	**32.3**	24.5	25.3	+0.8	Perceptible	20.1	20.2	+0.05
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_124m	124	18.4	**31.8**	24.2	25.0	+0.8	Perceptible	20.1	20.1	+0.05
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_129m	129	18.4	**31.4**	23.9	24.6	+0.7	Perceptible	20.1	20.1	+0.05
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_134m	134	18.4	**31.1**	23.6	24.3	+0.7	Perceptible	20.1	20.1	+0.05
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_139m	139	18.4	**30.7**	23.3	24.0	+0.7	Perceptible	20.0	20.1	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_144m	144	18.4	30.4	23.0	23.7	+0.7	Perceptible	20.0	20.1	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_149m	149	18.4	30.0	22.8	23.4	+0.7	Perceptible	20.0	20.1	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_154m	154	18.4	29.7	22.5	23.2	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_159m	159	18.4	29.5	22.3	22.9	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_164m	164	18.4	29.2	22.1	22.7	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_169m	169	18.4	28.9	21.9	22.5	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_174m	174	18.4	28.7	21.7	22.3	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_179m	179	18.4	28.5	21.6	22.1	+0.6	Perceptible	20.0	20.0	+0.04
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_184m	184	18.4	28.3	21.4	21.9	+0.5	Perceptible	19.9	20.0	+0.03
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_189m	189	18.4	28.0	21.2	21.8	+0.5	Perceptible	19.9	20.0	+0.03
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_194m	194	18.4	27.9	21.1	21.6	+0.5	Perceptible	19.9	20.0	+0.03
Holcroft_Moss_SSSI_Manchester_Mosses_SAC_199m	199	18.4	27.7	20.9	21.4	+0.5	Perceptible	19.9	19.9	+0.03
Rixton_Clay_Pits_SSSI_SAC_0m	0	17.3	40.3	29.0	27.7	-1.3	Perceptible	20.3	20.3	-0.08
Rixton_Clay_Pits_SSSI_SAC_5m	5	17.3	33.2	24.1	23.3	-0.8	Perceptible	20.1	20.0	-0.05
Rixton_Clay_Pits_SSSI_SAC_10m	10	17.3	29.6	21.6	21.0	-0.6	Perceptible	20.0	19.9	-0.04
Rixton_Clay_Pits_SSSI_SAC_15m	15	17.3	27.5	20.1	19.7	-0.5	Perceptible	19.9	19.9	-0.03
Rixton_Clay_Pits_SSSI_SAC_20m	20	17.3	26.0	19.1	18.8	-0.4	Imperceptible	19.8	19.8	-0.02
Rixton_Clay_Pits_SSSI_SAC_25m	25	17.3	25.0	18.4	18.1	-0.3	Imperceptible	19.8	19.8	-0.02
Rixton_Clay_Pits_SSSI_SAC_30m	30	17.3	24.3	17.9	17.6	-0.3	Imperceptible	19.8	19.7	-0.02
Rixton_Clay_Pits_SSSI_SAC_35m	35	17.3	23.7	17.5	17.2	-0.2	Imperceptible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_40m	40	17.3	23.2	17.1	16.9	-0.2	Imperceptible	19.7	19.7	-0.01

Receptor ID	Distance to road edge (m)	Back-ground 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Rixton_Clay_Pits_SSSI_SAC_45m	45	17.3	22.8	16.9	16.7	-0.2	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_50m	50	17.3	22.5	16.6	16.5	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_55m	55	17.3	22.2	16.4	16.3	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_60m	60	17.3	22.0	16.3	16.2	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_65m	65	17.3	21.8	16.1	16.0	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_70m	70	17.3	21.6	16.0	15.9	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_75m	75	17.3	21.4	15.9	15.8	-0.1	Imperce p-tible	19.7	19.7	-0.01
Rixton_Clay_Pits_SSSI_SAC_80m	80	17.3	21.3	15.8	15.7	-0.1	Imperce p-tible	19.7	19.6	-0.01
Rixton_Clay_Pits_SSSI_SAC_85m	85	17.3	21.2	15.7	15.6	-0.1	Imperce p-tible	19.6	19.6	-0.01
Rixton_Clay_Pits_SSSI_SAC_90m	90	17.3	21.0	15.6	15.6	-0.1	Imperce p-tible	19.6	19.6	-0.01
Rixton_Clay_Pits_SSSI_SAC_95m	95	17.3	20.9	15.6	15.5	-0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_100m	100	17.3	20.8	15.5	15.4	-0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_105m	105	17.3	20.8	15.4	15.4	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_110m	110	17.3	20.7	15.4	15.3	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_115m	115	17.3	20.6	15.3	15.3	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_120m	120	17.3	20.5	15.3	15.2	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_125m	125	17.3	20.5	15.2	15.2	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_130m	130	17.3	20.4	15.2	15.2	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_135m	135	17.3	20.4	15.2	15.1	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_140m	140	17.3	20.3	15.1	15.1	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_145m	145	17.3	20.3	15.1	15.1	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_150m	150	17.3	20.2	15.1	15.0	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_155m	155	17.3	20.2	15.0	15.0	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_160m	160	17.3	20.1	15.0	15.0	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_165m	165	17.3	20.1	15.0	15.0	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_170m	170	17.3	20.1	15.0	14.9	<0.1	Imperce p-tible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_175m	175	17.3	20.0	14.9	14.9	<0.1	Imperce p-tible	19.6	19.6	<0.01

Receptor ID	Distance to road edge (m)	Background 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Rixton_Clay_Pits_SSSI_SAC_180m	180	17.3	20.0	14.9	14.9	<0.1	Imperceptible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_185m	185	17.3	20.0	14.9	14.9	<0.1	Imperceptible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_190m	190	17.3	20.0	14.9	14.9	<0.1	Imperceptible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_195m	195	17.3	19.9	14.8	14.8	<0.1	Imperceptible	19.6	19.6	<0.01
Rixton_Clay_Pits_SSSI_SAC_200m	200	17.3	19.9	14.8	14.8	<0.1	Imperceptible	19.6	19.6	<0.01
Woolston_Eyes_1_0m	0	17.0	106.6	81.4	82.6	+1.2	Perceptible	24.6	24.7	+0.05
Woolston_Eyes_1_5m	5	17.0	89.8	68.5	69.5	+1.0	Perceptible	24.1	24.2	+0.05
Woolston_Eyes_1_10m	10	17.0	78.9	60.1	61.0	+0.9	Perceptible	23.8	23.8	+0.04
Woolston_Eyes_1_15m	15	17.0	71.1	54.1	54.9	+0.8	Perceptible	23.5	23.6	+0.04
Woolston_Eyes_1_20m	20	17.0	65.2	49.6	50.3	+0.7	Perceptible	23.3	23.4	+0.04
Woolston_Eyes_1_25m	25	17.0	60.6	46.1	46.7	+0.6	Perceptible	23.2	23.2	+0.03
Woolston_Eyes_1_30m	30	17.0	56.8	43.2	43.8	+0.6	Perceptible	23.0	23.1	+0.03
Woolston_Eyes_1_35m	35	17.0	53.7	40.8	41.4	+0.5	Perceptible	22.9	23.0	+0.03
Woolston_Eyes_1_40m	40	17.0	51.1	38.8	39.3	+0.5	Perceptible	22.8	22.9	+0.03
Woolston_Eyes_1_45m	45	17.0	48.9	37.1	37.6	+0.5	Perceptible	22.8	22.8	+0.03
Woolston_Eyes_1_50m	50	17.0	47.0	35.6	36.1	+0.5	Perceptible	22.7	22.7	+0.03
Woolston_Eyes_1_55m	55	17.0	45.3	34.3	34.7	+0.4	Imperceptible	22.6	22.6	+0.02
Woolston_Eyes_1_60m	60	17.0	43.8	33.1	33.6	+0.4	Imperceptible	22.6	22.6	+0.02
Woolston_Eyes_1_65m	65	17.0	42.4	32.1	32.5	+0.4	Imperceptible	22.5	22.5	+0.02
Woolston_Eyes_1_70m	70	17.0	41.2	31.2	31.6	+0.4	Imperceptible	22.5	22.5	+0.02
Woolston_Eyes_1_75m	75	17.0	40.1	30.4	30.7	+0.4	Imperceptible	22.4	22.4	+0.02
Woolston_Eyes_1_80m	80	17.0	39.1	29.6	29.9	+0.3	Imperceptible	22.4	22.4	+0.02
Woolston_Eyes_1_85m	85	17.0	38.2	28.9	29.2	+0.3	Imperceptible	22.3	22.4	+0.02
Woolston_Eyes_1_90m	90	17.0	37.4	28.3	28.6	+0.3	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_1_95m	95	17.0	36.7	27.7	28.0	+0.3	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_1_100m	100	17.0	36.0	27.2	27.5	+0.3	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_1_105m	105	17.0	35.3	26.7	27.0	+0.3	Imperceptible	22.2	22.2	+0.02

Receptor ID	Distance to road edge (m)	Back-ground 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Woolston_Eyes_1_110m	110	17.0	34.7	26.2	26.5	+0.3	Imperceptible	22.2	22.2	+0.02
Woolston_Eyes_1_115m	115	17.0	34.1	25.8	26.0	+0.3	Imperceptible	22.2	22.2	+0.02
Woolston_Eyes_1_120m	120	17.0	33.6	25.4	25.6	+0.3	Imperceptible	22.2	22.2	+0.02
Woolston_Eyes_1_125m	125	17.0	33.1	25.0	25.2	+0.2	Imperceptible	22.1	22.2	+0.02
Woolston_Eyes_1_130m	130	17.0	32.7	24.6	24.9	+0.2	Imperceptible	22.1	22.1	+0.01
Woolston_Eyes_1_135m	135	17.0	32.2	24.3	24.5	+0.2	Imperceptible	22.1	22.1	+0.01
Woolston_Eyes_1_140m	140	17.0	31.8	24.0	24.2	+0.2	Imperceptible	22.1	22.1	+0.01
Woolston_Eyes_1_145m	145	17.0	31.4	23.7	23.9	+0.2	Imperceptible	22.1	22.1	+0.01
Woolston_Eyes_1_150m	150	17.0	31.1	23.4	23.6	+0.2	Imperceptible	22.1	22.1	+0.01
Woolston_Eyes_1_155m	155	17.0	30.7	23.2	23.4	+0.2	Imperceptible	22.0	22.1	+0.01
Woolston_Eyes_1_160m	160	17.0	30.4	22.9	23.1	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_165m	165	17.0	30.1	22.7	22.9	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_170m	170	17.0	29.8	22.4	22.6	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_175m	175	17.0	29.5	22.2	22.4	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_180m	180	17.0	29.2	22.0	22.2	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_185m	185	17.0	29.0	21.8	22.0	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_190m	190	17.0	28.7	21.6	21.8	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_195m	195	17.0	28.5	21.4	21.6	+0.2	Imperceptible	22.0	22.0	+0.01
Woolston_Eyes_1_200m	200	17.0	28.3	21.3	21.4	+0.2	Imperceptible	21.9	22.0	+0.01
Woolston_Eyes_2_0m	0	17.0	157.6	121.2	124.9	+3.6	Perceptible	26.0	26.2	+0.13
Woolston_Eyes_2_5m	5	17.0	132.9	102.1	105.0	+2.9	Perceptible	25.4	25.5	+0.11
Woolston_Eyes_2_10m	10	17.0	116.3	89.2	91.6	+2.4	Perceptible	24.9	25.0	+0.10
Woolston_Eyes_2_15m	15	17.0	104.4	80.0	82.1	+2.1	Perceptible	24.6	24.7	+0.09
Woolston_Eyes_2_20m	20	17.0	95.2	72.9	74.7	+1.8	Perceptible	24.3	24.4	+0.08
Woolston_Eyes_2_25m	25	17.0	88.0	67.3	68.9	+1.6	Perceptible	24.1	24.2	+0.07
Woolston_Eyes_2_30m	30	17.0	82.1	62.8	64.2	+1.4	Perceptible	23.9	24.0	+0.07
Woolston_Eyes_2_35m	35	17.0	77.1	58.9	60.2	+1.3	Perceptible	23.7	23.8	+0.06

Receptor ID	Distance to road edge (m)	Back-ground 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Woolston_Eyes_2_40m	40	17.0	72.9	55.7	56.9	+1.2	Perceptible	23.6	23.7	+0.06
Woolston_Eyes_2_45m	45	17.0	69.3	52.9	54.0	+1.1	Perceptible	23.5	23.5	+0.06
Woolston_Eyes_2_50m	50	17.0	66.2	50.5	51.5	+1.0	Perceptible	23.4	23.4	+0.05
Woolston_Eyes_2_55m	55	17.0	63.4	48.4	49.3	+1.0	Perceptible	23.3	23.3	+0.05
Woolston_Eyes_2_60m	60	17.0	61.0	46.5	47.4	+0.9	Perceptible	23.2	23.2	+0.05
Woolston_Eyes_2_65m	65	17.0	58.8	44.8	45.6	+0.8	Perceptible	23.1	23.2	+0.04
Woolston_Eyes_2_70m	70	17.0	56.8	43.3	44.1	+0.8	Perceptible	23.0	23.1	+0.04
Woolston_Eyes_2_75m	75	17.0	55.0	41.9	42.6	+0.8	Perceptible	23.0	23.0	+0.04
Woolston_Eyes_2_80m	80	17.0	53.4	40.6	41.3	+0.7	Perceptible	22.9	23.0	+0.04
Woolston_Eyes_2_85m	85	17.0	51.9	39.5	40.1	+0.7	Perceptible	22.9	22.9	+0.04
Woolston_Eyes_2_90m	90	17.0	50.5	38.4	39.1	+0.7	Perceptible	22.8	22.9	+0.04
Woolston_Eyes_2_95m	95	17.0	49.2	37.4	38.1	+0.6	Perceptible	22.8	22.8	+0.03
Woolston_Eyes_2_100m	100	17.0	48.1	36.5	37.1	+0.6	Perceptible	22.7	22.8	+0.03
Woolston_Eyes_2_105m	105	17.0	47.0	35.7	36.3	+0.6	Perceptible	22.7	22.7	+0.03
Woolston_Eyes_2_110m	110	17.0	46.0	34.9	35.5	+0.6	Perceptible	22.6	22.7	+0.03
Woolston_Eyes_2_115m	115	17.0	45.0	34.2	34.7	+0.5	Perceptible	22.6	22.6	+0.03
Woolston_Eyes_2_120m	120	17.0	44.1	33.5	34.0	+0.5	Perceptible	22.6	22.6	+0.03
Woolston_Eyes_2_125m	125	17.0	43.3	32.9	33.4	+0.5	Perceptible	22.5	22.6	+0.03
Woolston_Eyes_2_130m	130	17.0	42.5	32.3	32.8	+0.5	Perceptible	22.5	22.5	+0.03
Woolston_Eyes_2_135m	135	17.0	41.8	31.7	32.2	+0.5	Perceptible	22.5	22.5	+0.03
Woolston_Eyes_2_140m	140	17.0	41.1	31.2	31.6	+0.5	Perceptible	22.5	22.5	+0.03
Woolston_Eyes_2_145m	145	17.0	40.5	30.7	31.1	+0.4	Imperceptible	22.4	22.5	+0.03
Woolston_Eyes_2_150m	150	17.0	39.8	30.2	30.6	+0.4	Imperceptible	22.4	22.4	+0.02
Woolston_Eyes_2_155m	155	17.0	39.3	29.8	30.2	+0.4	Imperceptible	22.4	22.4	+0.02
Woolston_Eyes_2_160m	160	17.0	38.7	29.3	29.7	+0.4	Imperceptible	22.4	22.4	+0.02
Woolston_Eyes_2_165m	165	17.0	38.2	28.9	29.3	+0.4	Imperceptible	22.3	22.4	+0.02
Woolston_Eyes_2_170m	170	17.0	37.7	28.5	28.9	+0.4	Imperceptible	22.3	22.3	+0.02

Receptor ID	Distance to road edge (m)	Background 2015 NOx	2015 Base NOx	2020 DM NOx	2020 DS NOx	2020 NOx Change	2020 NOx Change Criteria	2020 DM Dep	2020 DS Dep	2020 Dep Change
Woolston_Eyes_2_175m	175	17.0	37.2	28.2	28.5	+0.4	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_2_180m	180	17.0	36.7	27.8	28.2	+0.4	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_2_185m	185	17.0	36.3	27.5	27.8	+0.4	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_2_190m	190	17.0	35.9	27.2	27.5	+0.3	Imperceptible	22.3	22.3	+0.02
Woolston_Eyes_2_195m	195	17.0	35.5	26.9	27.2	+0.3	Imperceptible	22.2	22.3	+0.02
Woolston_Eyes_2_200m	200	17.0	35.1	26.6	26.9	+0.3	Imperceptible	22.2	22.2	+0.02

Exceedances of annual mean NOX UK AQS objective are highlighted in bold.

The assessment has shown that the annual mean NO_x UK AQS objective of 30 µg/m^3 for the protection of vegetation is achieved in the base year (2015) at locations further than 149m back from the road within the Holcroft Moss SSSI/Manchester Mosses SAC; at locations further than 10 m back from the ARN within the Rixton Clay Pits SSSI/SAC; at locations further than 170 m back from the ARN within Woolston Eyes 1; and at no locations within 200 m of the ARN within Woolston Eyes 2. The annual mean NOx UK AQS objective of 30 µg/m^3 for the protection of vegetation is achieved in the opening year (2020) at locations further than 69 m back from the road without the cumulative worst case scenario, and 79 m back from the road with the cumulative worst case scenario within the Holcroft Moss SSSI/Manchester Mosses SAC. The maximum change in annual mean NOx concentrations at this designated ecological site, within 200 metres of the ARN, is 3.7 µg/m^3, at the point closest to the road (Holcroft_Moss_SSSI_Manchester_ Mosses_SAC_19m) in the cumulative worst case scenario.

The annual mean NOx UK AQS objective of 30 µg/m^3 for the protection of vegetation is achieved in the opening year (2020) with or without the cumulative worst case scenario, at locations closest to the road within the Rixton Clay Pits SSSI/SAC site. The maximum change in annual mean NOx concentrations at this designated ecological site, within 200 metres of the ARN, is -1.3 µg/m^3, at the point closest to the road centreline (Rixton_Clay_Pits_SSSI_SAC_0m) in the cumulative worst case scenario.

The annual mean NOx UK AQS objective of 30 µg/m^3 for the protection of vegetation is achieved in the opening year (2020) at locations further than 80 m back from the road with or without the cumulative worst case scenario, within the Woolston Eyes 1 site. The maximum change in annual mean NOx concentrations at this designated ecological site, within 200 metres of the road, is +1.2 µg/m^3, at the point closest to the road centreline (Woolston_Eyes_1_0m) in the worst case scenario.

The annual mean NOx UK AQS objective of 30 µg/m^3 for the protection of vegetation is achieved in the opening year (2020) at locations further than 155 m back from the road without the cumulative worst case scenario, and 160 m back from the road with the cumulative worst case scenario within the Woolston Eyes 1 site. The maximum change in annual mean NOx concentrations at this designated ecological site, within 200 metres of the road, is +3.6 µg/m^3, at the point closest to the road (Woolston_Eyes_2_0m) in the cumulative worst case scenario.

In line with IAN 174/13, where changes are greater than 0.4 µg/m^3, then effects are considered to be perceptible and as such nitrogen deposition has been calculated. This is the case at all sites considered.

The maximum change in annual nitrogen deposition at this designated ecological site, within 200 metres of the ARN, is 0.19 kg N ha^{-1} yr^{-1}, at the point closest to the road (Holcroft_Moss_SSSI_Manchester_ Mosses_SAC_19m) in the 'cumulative worst case' scenario.

The maximum change in annual nitrogen deposition at the Rixton Clay Pits SSSI/SAC, within 200 metres of the ARN, is -0.08 kg N ha-1 yr-1, at the transect location closest to the road centreline (Rixton_Clay_Pits_SSSI_SAC_0m) in the cumulative worst case scenario.

The maximum change in annual nitrogen deposition at Woolston Eyes 1, within 200 metres of the ARN, is +0.05 kg N ha-1 yr-1, at the point closest to the road (Woolston_Eyes_1_0m) in the cumulative worst case scenario.

The maximum change in annual nitrogen deposition at Woolston Eyes 2, within 200 metres of the ARN, is +0.13 kg N ha-1 yr-1, at the point closest to the road (Woolston_Eyes_2_0m) in the cumulative worst case scenario.

Regional Emissions Results

Table B-51 Regional Emissions Results – 'Cumulative worst case' Scenario

Year	Scenario	NOx (kg/yr)	PM_{10} (kg/yr)	CO_2 (t/yr)	Veh kms travelled /year
2015	Base	17,359,662	1,065,623	6,492,988	79,068,102
2020	Do-Minimum	12,206,323	936,590	6,569,997	83,927,627
	Do-Something	12,415,785	944,115	6,646,532	84,825,923
	Change with Do-Something	209,462	7,526	76,535	898,296
	%Change from Do-Minimum	+1.7%	+0.8%	+1.2%	+1.1%
	%Change from Base	-28.5%	-11.4%	+2.4%	+7.3%
2035*	Do-Minimum	5,929,506	981,973	7,075,523	94,062,787
	Do-Something	6,044,493	991,879	7,178,533	95,496,428
	Change with Do-Something	114,987	9,906	103,011	1,433,640
	%Change from Do-Minimum	+1.9%	+1.0%	+1.5%	+1.5%
	%Change from Base	-65.2%	-6.9%	+10.6%	+20.8%

*Predictions for the design year have been calculated using 2030 emissions as this is the limit of the projections within the emissions factor toolkit.

Table B-52 Regional Emissions Results – 'M56 J6-8 Only' Scenario

Year	Scenario	NO_x (kg/yr)	PM_{10} (kg/yr)	CO_2 (t/yr)	Veh kms travelled /year
2015	Base	14,293,183	946,146	5,779,964	64,740,365
2020	Do-Minimum	8,052,478	837,207	5,805,351	71,067,218
	Do-Something	8,045,971	836,381	5,800,674	71,068,306
	Change with Do-Something	-6,507	-825	-4,677	1,088
	%Change from Do-Minimum	-0.1%	-0.1%	-0.1%	0.0%
	%Change from Base	-43.7%	-11.6%	0.4%	9.8%
2035	Do-Minimum	5,174,249	887,431	6,224,690	80,529,728
	Do-Something	5,180,841	888,104	6,232,359	80,694,628

Year	Scenario	NO_x (kg/yr)	PM_{10} (kg/yr)	CO_2 (t/yr)	Veh kms travelled /year
	Change with Do-Something	6,592	673	7,669	164,899
	%Change from Do-Minimum	0.1%	0.1%	0.1%	0.2%
	%Change from Base	-63.8%	-6.1%	7.8%	24.6%

Appendix B.6. Traffic Data

B.6.1. Traffic Modelling – key sources for Air Quality

Model Coverage

The cumulative worst case (cumulative) case covering the traffic impacts of 4 schemes, uses traffic data from two different traffic models, due to the extent of the study area and the coverage of available traffic models. Using two models allowed balancing of the wider coverage and lower network density of the Trans Pennine South Local Model (TPSLTM), with the smaller geographic coverage but greater network density of the the Greater Manchester Local Traffic Model (GMLTM).

For the geographical study areas M56, M62 and M6, the traffic data used were derived from the TPSLTM, and were provided by Arup. For the M60 geographical study area, traffic data were derived from the GMLTM and were provided by Mott McDonald.

Engagement

Extensive engagement has been undertaken between the air quality and traffic modelling teams. This has included inclusion of the air quality team in traffic model calibration/validation meetings and inclusion of traffic representatives in air quality meetings, including joint presentations to Highways England, and participation of the traffic team in the Air Quality Peer2Peer meetings.

The air quality and traffic teams undertook early risk work to help identify any areas of poorer performance in the traffic model which coincided with AQ risk areas (Red and Amber). This then informed further iteration of traffic model calibration/validation for both models.

Close collaboration has also been undertaken to iteratively agree speed banding approaches, and to jointly undertake further detailed investigation of initial results to aid understanding and where necessary develop traffic data enhancements.

Specific collaboration has also been required between the two traffic teams to develop a traffic dataset leveraging both traffic models for the M602 corridor which was outside of the modelled area for both traffic models. This was a jointly agreed approach developed, tested together and rolled out with the agreement of Transport Planning Group (TPG).

Throughout, the traffic and air quality teams have engaged with Highways England's SRO, SMP Environment, SMP Traffic, and the Transport Planning Group (TPG) Appraisal Certifying Officers (ACO) to ensure that a statement of **"appropriate for assessment"** was achieved for both traffic models use in environmental assessment, achieved in June 2017. This statement reflected the proportionate hierarchical 'calibration and validation model development approach' that has been developed for the SMP, such that it provides levels of quality for specific areas of the model (i.e. 'model is high quality along scheme sections (H1), medium quality along the ARN (H2), low to medium in other areas').

Model Boundaries

Two traffic models are used, with the GMLTM providing the data for the M60 J24-4 scheme assessment (M60 only) and the M60 study corridor traffic data for the 'cumulative worst case' case of the cumulative impact of all 4 schemes.

Analysis was undertaken for the two models to determine the interaction between them. Investigations across the two models into operational performance of the M60 scheme and its interactions with the wider network and other proposed SM schemes indicated that both with and without the scheme in place only a very small variation (around 1% difference) in flows were found. As such, the GMLTM assessments of the M60 scheme in isolation would not need enhancement to account for cumulative impacts (as the large section of controlled motorway (CM) apply a throttle to flows and hence effectively isolate effects on the M60).

This isolation effect meant that an effective 'break point' with reference to model outputs for cumulative assessment purposes could be defined at M60 J3, such that the GMLTM model output was used east of J3 for all M60 effects - for the M60 only DS case, and for the M60 contribution to the 'cumulative worst case' cumulative scenario. This approach was agreed with TPG.

Traffic Reports

A number of technical notes and presentations were provided throughout the assessment period on traffic data and its use. For the NW schemes, a COMA has not been produced, as a Traffic Data Collection Report, a Local Model Validation Report, and a Traffic Forecasting Report have all been produced, with each incorporating the final versions of relevant technical notes used in the air quality assessment.

A full dataset of post-processed traffic data used in the air quality assessment was provided to Highways England SES Air Quality Advisor well in advance of the submission of the EAR to allow detailed consideration of the inputs and outputs utilised.

B.6.2. M56 and A556 interactions

The A556 ES Addendum concluded that in the proposed opening year, 2017, the A556 scheme would have a significant adverse effect on local air quality, based on the guidance in IAN 174/13, as a result of small increases in annual mean NO_2 concentration at 96 sensitive receptors between M56 J2-5, where the annual mean AQS objective was modelled to be exceeded.

In order to mitigate the potential adverse effects of the A556 scheme on local air quality in 2017, a 60mph speed restriction was proposed for the A556 scheme. This was modelled to reduce the number of sensitive receptors (where the annual mean AQS objective was modelled to be exceeded and which were likely to experience a 'small' increase in annual mean NO_2 concentrations), from 96 to 75. By 2022, the A556 ES Addendum suggested that modelled exceedances of the annual mean AQS objective would be limited to receptors adjacent to the M56 between J2-3 of the M56 (apart from a single receptor adjacent to the M56 between J4-5).

The A556 ES Addendum suggests that in the proposed opening year (2017), the A556 scheme would result in an increase in AADT flows of approximately 4,900 vehicle/day along the M56 between J4-5 and an increase of approximately 2,100 vehicles/day along the M56 between J2-3.

The 'cumulative worst case' scenario considered in the M56 EAR, suggests that in the proposed opening year (2020), the cumulative effect of the M56, M60, M6 and M62 schemes would result in a change in AADT flows of less than 1,000 vehicle/day along the M56 between J4-5 and J2-3 (i.e. the change in traffic flow would not be significant, therefore impacts have not been assessed in this area).

The 'M56 J6-8 Only' scenario, suggests that in the proposed opening year (2020), the M56 J6-8 scheme would result in a change in AADT flows of approximately 3,600 vehicle/day along the M56 between J4-5 (assessed), and a change in AADT flows of less than 1,000 vehicle/day along the along the M56 between J2-3 (i.e. the change in traffic flow would not be significant, therefore impacts have not been assessed in this area).

The TPSRTM traffic data used in this EAR does not include coding of the 60mph mitigation measure from the A556 scheme requirement, and so RRTM model output is worst case as it has assumed higher speed (operation at 70mph on the M56) leading to higher attracted traffic volumes. As the traffic volumes assessed on the M56 and A556 (where relevant) do not lead to any significant effect on local air quality, any re-assessment with the 60mph mitigation in place would not change this conclusion.