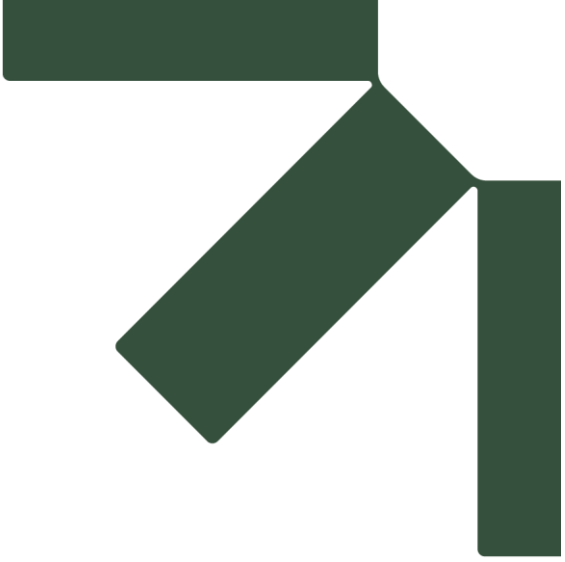




Appendix 7.1 Operational Phase Road Vehicle Exhaust Emissions Assessment

Environmental Statement Addendum Volume II Technical Appendices

MIX, Manchester

Airport City Limited Partnership

SLR Project No.: 425.VT7978.00001

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Appendix 7.1 - Operational Phase Road Vehicle Exhaust Emissions Dispersion Modelling Inputs and Assessment Results



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1.0 INTRODUCTION

- 1.1.1 This Technical Appendix summarises the dispersion modelling study utilised to predict air quality impacts at sensitive locations in the vicinity of the Amended Proposed Development as a result of operational stage road vehicle exhaust emissions. It should be read in conjunction with the Environmental Statement (ES) Addendum and associated appendices.

2.0 METHODOLOGY

2.1 Introduction

2.1.1 The Proposed Development has the potential to cause air quality impacts as a result of exhaust emissions associated with vehicles travelling to and from the Application Site during the operational phase. In order to assess changes in nitrogen dioxide (NO₂), particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀) and particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5}) concentrations at sensitive locations, detailed dispersion modelling was undertaken in accordance with the following methodology.

2.2 Dispersion Model

2.2.1 Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.1.0.2). ADMS-Roads is developed by Cambridge Environmental Research (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and the Department for Environment Food and Rural Affairs (DEFRA).

2.2.2 The model required input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z₀); and,
- Monin-Obukhov length.

2.2.3 The following Sections detail the relevant inputs utilised in the assessment.

Assessment Area

2.2.4 Ambient concentrations were predicted at a number of sensitive receptor locations, as outlined in Table 7.9 of Chapter 7 and Figure 7.2 of the March 2026 ES.

Traffic Flow Data

2.2.5 Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as Heavy Duty Vehicle (HDV) proportion, was provided by Buro Happold, the Transport Consultants for the project.

2.2.6 Baseline traffic data for a number of links was not available from the Transport Consultants and was therefore supplemented with information from the Department for Transport (DfT)¹. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads, in Great Britain for the years 1999 to 2025. It should be noted that the DfT web tool is referenced in DEFRA guidance² as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the Site.

2.2.7 A summary of the traffic data is provided in Table 1.

Table 1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		2024	2035 DM	2035 DS	2024	2035 DM	2035 DS
L1	M56 Northbound (NB), south of junction 5	69,633	79,436	80,387	5.99	6.10	6.07
L2	M56 NB, between junction 5 slip road off and slip road on	76,953	87,734	87,734	5.12	5.23	5.23
L3	M56 NB, north of junction 5	76,953	87,734	88,685	5.12	5.23	5.21
L4	M56 Southbound (SB), south of junction 5	67,905	77,478	78,429	6.84	6.95	6.91

¹ <https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints>.

² Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		2024	2035 DM	2035 DS	2024	2035 DM	2035 DS
L5	M56 SB, between junction 5 slip road off and slip road on	76,630	87,367	87,367	5.34	5.45	5.45
L6	M56 SB, north of junction 5	76,630	87,367	88,318	5.34	5.45	5.42
L7	M56 NB, slip road off at junction 5	20,024	23,203	24,154	2.80	3.25	3.26
L8	M56, slip road joining M56 Eastbound (EB) at junction 5	20,024	23,203	25,105	2.80	3.25	3.26
L9	M56 SB, slip road off at junction 5	20,024	23,203	24,154	2.80	3.25	3.26
L10	M56 NB, slip road on at junction 5	19,829	22,982	23,933	2.83	3.29	3.29
L11	M56, slip road leaving M56 Westbound (WB) at junction 5	19,829	22,982	24,884	2.83	3.29	3.29
L12	M56 SB, slip road on at junction 5	19,829	22,982	23,933	2.83	3.29	3.29
L13	M56 EB, between junction 5 and Outwood Lane	20,024	23,203	23,203	2.80	3.25	3.25
L14	M56 EB, approach to A555, Slow Phase (SP)	19,753	22,877	22,877	3.78	4.25	4.25
L15	A555 EB, between Outwood Lane and Enterprise Way	19,753	22,877	22,877	3.78	4.25	4.25
L16	A555 EB, junction with Enterprise Way, SP	19,753	22,370	22,370	3.78	3.81	3.81
L17	A555 EB, between Enterprise Way and Ringway Road	19,753	22,446	23,297	3.78	3.88	3.85
L18	A555 EB, junction with Ringway Road, SP	19,753	22,446	23,297	3.78	3.88	3.85
L19	A555 EB, East of Ringway Road	19,753	22,446	23,297	3.78	3.88	3.85
L20	M56 WB, between junction 5 and Outwood Lane	19,829	22,982	22,982	2.83	3.29	3.29
L21	Outwood Lane NB, junction with M56, SP	11,649	12,908	12,908	3.50	3.50	3.50
L22	Outwood Lane, South of M56	23,297	25,816	25,816	3.50	3.50	3.50

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		2024	2035 DM	2035 DS	2024	2035 DM	2035 DS
L23	A555 WB, junction with M56, SP	19,753	22,877	22,877	3.78	4.25	4.25
L24	Outwood Lane NB, junction with A555 EB, SP	19,753	22,370	22,370	3.78	3.81	3.81
L25	M56 EB, junction with Outwood Lane, SP	20,024	23,203	23,203	2.80	3.25	3.25
L26	A555 WB, junction with Outwood Lane, SP	19,753	22,370	22,370	3.78	3.81	3.81
L27	A555 WB, between Outwood Lane and Enterprise Way	19,753	22,877	22,877	3.78	4.25	4.25
L28	A555 WB, junction with Enterprise Way, SP	19,753	22,877	22,877	3.78	4.25	4.25
L29	A555 WB, between Enterprise Way and Ringway Road	19,753	22,877	22,877	3.78	4.25	4.25
L30	A555 WB, junction with Ringway Road, SP	19,753	22,877	22,877	3.78	4.25	4.25
L31	A555 WB, East of Ringway Road	19,753	22,877	22,877	3.78	4.25	4.25
L32	A555 EB, junction onto Enterprise Way, SP	3,370	4,341	4,341	4.90	7.11	7.11
L33	Enterprise Way, junction with A555 WB, SP	3,370	4,341	4,341	4.90	7.11	7.11
L34	A555 WB, junction onto Enterprise Way, SP	3,370	3,910	4,762	4.90	5.30	4.91
L35	Enterprise Way, junction with A555 EB, SP	3,370	3,910	4,762	4.90	5.30	4.91
L36	Enterprise Way, between A555 and Aviator Way	13,480	16,504	18,206	4.90	6.25	5.96
L37	Enterprise Way, South of Aviator Way, SP	13,480	16,504	18,206	4.90	6.25	5.96
L38	Enterprise Way, North of Aviator Way, SP	13,480	15,422	17,124	4.90	5.03	4.84
L39	Enterprise Way, North of Aviator Way	13,480	15,422	17,124	4.90	5.03	4.84
L40	Aviator Way, junction with Enterprise Way, SP	13,480	16,586	16,586	4.90	6.34	6.34

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		2024	2035 DM	2035 DS	2024	2035 DM	2035 DS
L41	Aviator Way, between Enterprise Way and Site access	13,480	16,586	16,586	4.90	6.34	6.34
L42	Enterprise Way approach to Site Access Roundabout from east	13,480	15,422	17,124	4.90	5.03	4.84
L43	Enterprise Way approach to Site Access Roundabout from west	21,677	24,967	30,198	2.39	2.56	2.87
L44	Enterprise Way between Site Access Roundabout and Bailey Lane	21,677	24,967	30,198	2.39	2.56	2.87
L45	Enterprise Way between Bailey Lane and Thorley Lane	21,677	25,392	30,334	2.39	2.91	3.19
L46	Enterprise Way south of Thorley Lane	21,677	25,392	29,123	2.39	2.91	2.97
L47	Thorley Lane	18,892	21,016	22,227	4.20	4.28	4.50
L48	Bailey Lane	9,680	10,726	11,014	2.88	2.88	2.80
L49	Slip road from World Way Roundabout to M56	16,946	20,819	22,721	2.28	2.86	2.90
L50	Slip road from M56 to World Way Roundabout	20,955	24,649	26,479	0.91	1.38	1.52
R1	Site Access Roundabout	17,579	20,195	23,661	3.36	3.50	3.59
R2	World Way Roundabout	29,789	35,177	37,042	1.84	2.21	2.27

2.2.8 Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards. A summary of the parameters is outlined in Table 2.

Table 2 Road Parameters

Link		Road Width (m)	Average Vehicle Speed (km/h)
L1	M56 NB, south of junction 5	15.2	110
L2	M56 NB, between junction 5 slip road off and slip road on	11.8	110

Link		Road Width (m)	Average Vehicle Speed (km/h)
L3	M56 NB, north of junction 5	15.0	110
L4	M56 SB, south of junction 5	15.1	110
L5	M56 SB, between junction 5 slip road off and slip road on	10.9	110
L6	M56 SB, north of junction 5	15.1	110
L7	M56 NB, slip road off at junction 5	6.5	80
L8	M56, slip road joining M56 EB at junction 5	15.3	80
L9	M56 SB, slip road off at junction 5	8.1	80
L10	M56 NB, slip road on at junction 5	6.5	80
L11	M56, slip road leaving M56 WB at junction 5	10.5	80
L12	M56 SB, slip road on at junction 5	3.9	80
L13	M56 EB, between junction 5 and Outwood Lane	15.3	80
L14	M56 EB, approach to A555, SP	8.8	20
L15	A555 EB, between Outwood Lane and Enterprise Way	9.3	65
L16	A555 EB, junction with Enterprise Way, SP	8.8	20
L17	A555 EB, between Enterprise Way and Ringway Road	7.3	65
L18	A555 EB, junction with Ringway Road, SP	13.7	20
L19	A555 EB, East of Ringway Road	7.5	65
L20	M56 WB, between junction 5 and Outwood Lane	11.5	80
L21	Outwood Lane NB, junction with M56, SP	10.5	20
L22	Outwood Lane, South of M56	17.2	45
L23	A555 WB, junction with M56, SP	7.5	20
L24	Outwood Lane NB, junction with A555 EB, SP	7.1	20
L25	M56 EB, junction with Outwood Lane, SP	7.2	20
L26	A555 WB, junction with Outwood Lane, SP	6.2	20
L27	A555 WB, between Outwood Lane and Enterprise Way	7.8	65
L28	A555 WB, junction with Enterprise Way, SP	7.0	20

Link		Road Width (m)	Average Vehicle Speed (km/h)
L29	A555 WB, between Enterprise Way and Ringway Road	7.0	65
L30	A555 WB, junction with Ringway Road, SP	7.8	20
L31	A555 WB, East of Ringway Road	8.3	65
L32	A555 EB, junction onto Enterprise Way, SP	6.5	20
L33	Enterprise Way, junction with A555 WB, SP	5.7	20
L34	A555 WB, junction onto Enterprise Way, SP	7.6	20
L35	Enterprise Way, junction with A555 EB, SP	5.3	20
L36	Enterprise Way, between A555 and Aviator Way	16.4	45
L37	Enterprise Way, South of Aviator Way, SP	17.2	20
L38	Enterprise Way, North of Aviator Way, SP	17.2	20
L39	Enterprise Way, North of Aviator Way	13.7	45
L40	Aviator Way, junction with Enterprise Way, SP	15.9	20
L41	Aviator Way, between Enterprise Way and Site access	10.2	40
L42	Enterprise Way approach to Site Access Roundabout from east	13.7	20
L43	Enterprise Way approach to Site Access Roundabout from west	16.5	20
L44	Enterprise Way between Site Access Roundabout and Bailey Lane	16.5	45
L45	Enterprise Way between Bailey Lane and Thorley Lane	19.0	40
L46	Enterprise Way south of Thorley Lane	12.1	40
L47	Thorley Lane	6.3	45
L48	Bailey Lane	7.3	45
L49	Slip road from World Way Roundabout to M56	7.9	45
L50	Slip road from M56 to World Way Roundabout	6.9	45
R1	Site Access Roundabout	7.7	30
R2	World Way Roundabout	10.0	40

- 2.2.9 Reference should be made to Figure 7.3 for a graphical representation of the road link locations.

Emission Factors

- 2.2.10 Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 13.1). This has been produced by DEFRA and incorporates COPERT 5.6 vehicle emission factors and fleet information.

Meteorological Data

- 2.2.11 Meteorological data used in the assessment was taken from Manchester Airport meteorological station over the period 1st January 2024 to 31st December 2024 (inclusive). Manchester Airport is located at NGR: 381792, 384116, which is approximately 1.6km south of the Proposed Development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.
- 2.2.12 All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 7.4 for a wind rose of the utilised meteorological data.

Roughness Length

- 2.2.13 The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.2m was used to describe the modelling extents and meteorological site. This is considered appropriate for the morphology of both areas and is suggested within ADMS-Roads as being suitable for 'agricultural areas (min)'.

Monin-Obukhov Length

- 2.2.14 The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 30m was used to describe the modelling extents and meteorological site. This value is considered appropriate for the nature of both areas and is suggested within ADMS-Roads as being suitable for 'cities and large towns'.

Background Concentrations

2.2.15 Annual mean NO₂, PM₁₀ and PM_{2.5} background concentrations taken from the DEFRA mapping grid square containing the Site were chosen to represent concentrations throughout the dispersion modelling extents without the contribution from road vehicles.

NO_x to NO₂ Conversion

2.2.16 Predicted annual mean NO_x concentrations were converted to NO₂ concentrations using the spreadsheet (version 9.1) provided by DEFRA, which is the method detailed within DEFRA guidance³.

Verification

2.2.17 The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

2.2.18 Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality the differences between modelled and monitored results are likely to be a combination of all of these aspects.

2.2.19 For the purpose of the assessment, model verification was undertaken for 2024 using traffic data, meteorological data and monitoring results from this year.

2.2.20 Monitoring of NO₂ concentrations was undertaken at four monitors in the vicinity of roads included within the modelling extents during 2024. The results were obtained and the road contributions to total NO_x concentrations calculated following the methodology

³ Local Air Quality Management Technical Guidance, (TG22), DEFRA, 2022.

contained within DEFRA guidance⁴. The monitored annual mean NO₂ concentrations and calculated road NO_x concentrations are summarised in Table 3.

Table 3 NO_x Verification - Monitoring Results

Monitoring Site		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
CAP_MANC_023	A555 (Ringway Road West)	32.90	34.96
CAP_MANC_024	A555 (Manchester Airport Relief Road)	34.80	40.44
CAP_MANC_174	Ringway Rd	33.30	36.09
CAP_MANC_175	Ringway Rd	36.50	45.54

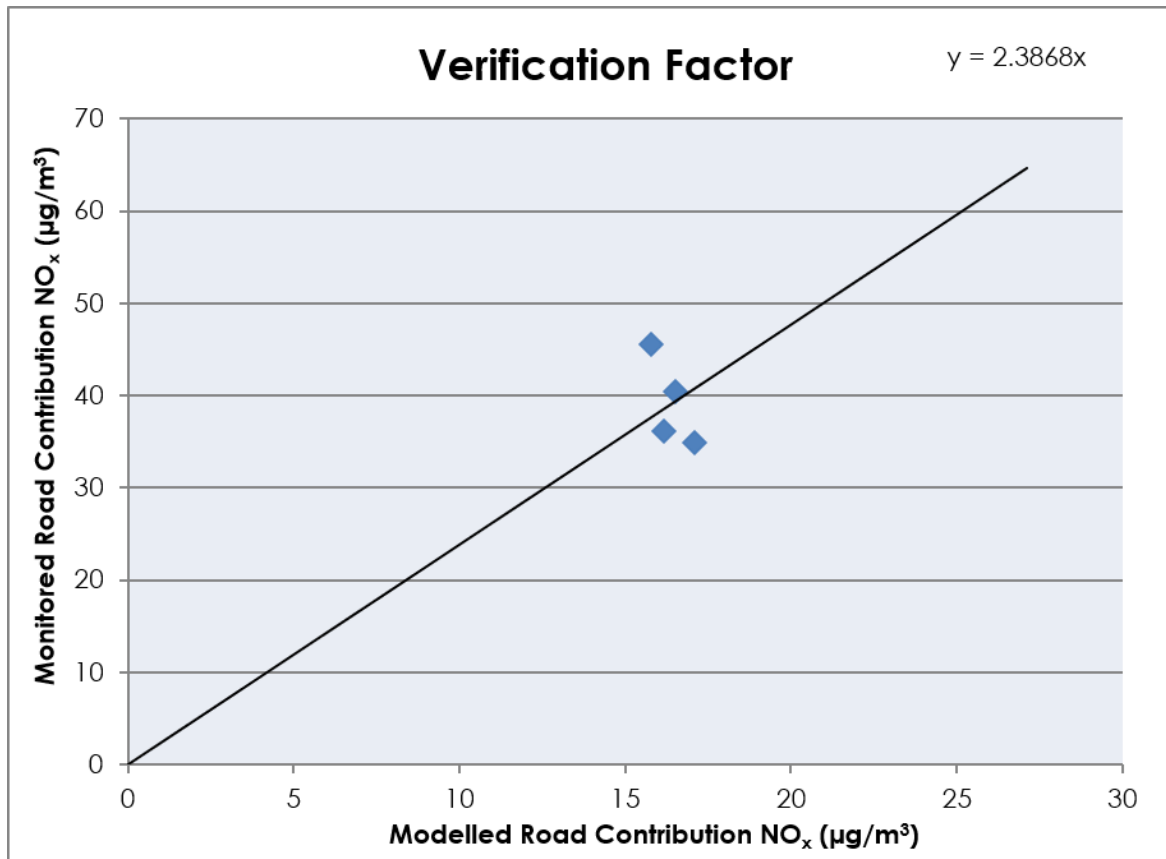
2.2.21 The annual mean road NO_x concentrations predicted from the dispersion model and the calculated 2024 road NO_x monitoring results are summarised in Table 4.

Table 4 NO_x Verification - Modelling Results

Monitoring Site		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
CAP_MANC_023	A555 (Ringway Road West)	34.96	17.11
CAP_MANC_024	A555 (Manchester Airport Relief Road)	40.44	16.50
CAP_MANC_174	Ringway Rd	36.09	16.17
CAP_MANC_175	Ringway Rd	45.54	15.80

2.2.22 The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated a verification factor of 2.3868 was required to be applied to all road NO_x modelling results, as shown in Graph 1.

⁴ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Graph 1 Verification Factor

2.2.23 Monitoring of PM₁₀ and PM_{2.5} concentrations is not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with DEFRA guidance⁵.

⁵ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

3.0 **ASSESSMENT**

3.1 **Introduction**

3.1.1 The Proposed Development has the potential to increase concentrations of NO₂, PM₁₀ and PM_{2.5} as a result of road traffic exhaust emissions associated with vehicles travelling to and from the Site during the operational phase. An assessment was therefore undertaken using dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the Site.

3.1.2 The assessment considered the following scenarios:

- 2024 - Verification;
- 2035 - Do-Minimum (DM); and,
- 2035 - Do Something (DS).

3.1.3 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth for the relevant assessment year. The DS scenario (i.e. with development) included baseline traffic data inclusive of anticipated growth for the relevant assessment year, in addition to predicted vehicle trips associated with the operation of the Proposed Development.

3.2 **Predicted Concentrations**

3.2.1 Annual mean NO₂ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. The results are summarised in Table 5.

Table 5 Predicted Annual Mean NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Runger Lane	19.51	19.68	0.17
R2	Residential - Thorley Lane	19.73	19.92	0.19
R3	Little Faces Day Nursery	19.15	19.29	0.14
R4	Residential - Bailey Lane	18.91	19.01	0.10

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R5	Residential - Hilary Road	17.98	18.08	0.10
R6	Residential - Hilary Road	18.06	18.18	0.12
R7	Residential - Hilary Road	17.99	18.09	0.10
R8	Residential - Felskirk Road	17.73	17.78	0.05
R9	Residential - Bleasdale Road	21.35	21.42	0.07
R10	Residential - Rowarth Road	25.71	25.79	0.08
R11	Residential - Bleasdale Road	19.88	19.95	0.07
R12	Residential - Keepers Cottage	22.04	22.12	0.08

3.2.2 As shown in Table 5, predicted annual mean NO₂ concentrations were below the relevant AQO of 40µg/m³, as set out in Table 7.1 of Chapter 7 of the March 2026 ES, at all sensitive receptors in both the DM and DS scenarios.

3.2.3 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. The results are summarised in Table 6.

Table 6 Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Runger Lane	13.94	14.13	0.19
R2	Residential - Thorley Lane	14.15	14.37	0.22
R3	Little Faces Day Nursery	13.58	13.75	0.17
R4	Residential - Bailey Lane	13.54	13.68	0.13
R5	Residential - Hilary Road	12.16	12.29	0.12
R6	Residential - Hilary Road	12.22	12.37	0.14
R7	Residential - Hilary Road	12.07	12.19	0.11
R8	Residential - Felskirk Road	11.81	11.87	0.06
R9	Residential - Bleasdale Road	14.03	14.10	0.07

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R10	Residential - Rowarth Road	16.66	16.73	0.07
R11	Residential - Bleasdale Road	13.22	13.30	0.08
R12	Residential - Keepers Cottage	14.60	14.68	0.09

3.2.4 As shown in Table 6, predicted annual mean PM₁₀ concentrations were below the relevant AQO of 40µg/m³, as set out in Table 7.1 of Chapter 7 of the March 2026 ES, at all sensitive receptors in both the DM and DS scenarios.

3.2.5 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. The results are summarised in Table 7.

Table 7 Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Runger Lane	7.91	8.01	0.10
R2	Residential - Thorley Lane	8.05	8.16	0.12
R3	Little Faces Day Nursery	7.72	7.81	0.09
R4	Residential - Bailey Lane	7.67	7.74	0.07
R5	Residential - Hilary Road	6.94	7.00	0.07
R6	Residential - Hilary Road	6.97	7.04	0.08
R7	Residential - Hilary Road	6.89	6.95	0.06
R8	Residential - Felskirk Road	6.75	6.78	0.03
R9	Residential - Bleasdale Road	8.10	8.14	0.04
R10	Residential - Rowarth Road	9.70	9.74	0.04
R11	Residential - Bleasdale Road	7.61	7.65	0.04
R12	Residential - Keepers Cottage	8.42	8.47	0.05

- 3.2.6 As shown in Table 7, predicted annual mean PM_{2.5} concentrations were below the Concentration Target of 10µg/m³, as set out in Table 7.1 of Chapter 7 of the March 2026 ES, at all sensitive receptors in both the DM and DS scenarios.

3.3 Impact Significance

- 3.3.1 Predicted effects on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 8.

Table 8 Predicted Operational Phase Road Vehicle Exhaust Emissions Effect Significance - Annual Mean NO₂

Receptor		Sensitivity	Magnitude of Impact	Effect Significance
R1	Residential - Runger Lane	Very Low	Negligible	Negligible
R2	Residential - Thorley Lane	Very Low	Negligible	Negligible
R3	Little Faces Day Nursery	Very Low	Negligible	Negligible
R4	Residential - Bailey Lane	Very Low	Negligible	Negligible
R5	Residential - Hilary Road	Very Low	Negligible	Negligible
R6	Residential - Hilary Road	Very Low	Negligible	Negligible
R7	Residential - Hilary Road	Very Low	Negligible	Negligible
R8	Residential - Felskirk Road	Very Low	Negligible	Negligible
R9	Residential - Bleasdale Road	Very Low	Negligible	Negligible
R10	Residential - Rowarth Road	Very Low	Negligible	Negligible
R11	Residential - Bleasdale Road	Very Low	Negligible	Negligible
R12	Residential - Keepers Cottage	Very Low	Negligible	Negligible

- 3.3.2 As indicated in Table 8, effects on annual mean NO₂ concentrations as a result of the Proposed Development were predicted to be **negligible** at all receptor locations.
- 3.3.3 Predicted effects on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 9.

Table 9 Predicted Operational Phase Road Vehicle Exhaust Emissions Effect Significance - Annual Mean PM₁₀

Receptor		Sensitivity	Magnitude of Impact	Effect Significance
R1	Residential - Runger Lane	Very Low	Negligible	Negligible
R2	Residential - Thorley Lane	Very Low	Negligible	Negligible
R3	Little Faces Day Nursery	Very Low	Negligible	Negligible
R4	Residential - Bailey Lane	Very Low	Negligible	Negligible
R5	Residential - Hilary Road	Very Low	Negligible	Negligible
R6	Residential - Hilary Road	Very Low	Negligible	Negligible
R7	Residential - Hilary Road	Very Low	Negligible	Negligible
R8	Residential - Felskirk Road	Very Low	Negligible	Negligible
R9	Residential - Bleasdale Road	Very Low	Negligible	Negligible
R10	Residential - Rowarth Road	Very Low	Negligible	Negligible
R11	Residential - Bleasdale Road	Very Low	Negligible	Negligible
R12	Residential - Keepers Cottage	Very Low	Negligible	Negligible

3.3.4 As indicated in Table 9, effects on annual mean PM₁₀ concentrations as a result of the Proposed Development were predicted to be **negligible** at all receptor locations.

3.3.5 Predicted effects on annual mean PM_{2.5} concentrations at the sensitive receptor locations are summarised in Table 10.

Table 10 Predicted Operational Phase Road Vehicle Exhaust Emissions Effect Significance - Annual Mean PM_{2.5}

Receptor		Sensitivity	Magnitude of Impact	Effect Significance
R1	Residential - Runger Lane	Low	Negligible	Negligible
R2	Residential - Thorley Lane	Low	Negligible	Negligible
R3	Little Faces Day Nursery	Low	Negligible	Negligible
R4	Residential - Bailey Lane	Low	Negligible	Negligible
R5	Residential - Hilary Road	Very Low	Negligible	Negligible

Receptor		Sensitivity	Magnitude of Impact	Effect Significance
R6	Residential - Hilary Road	Very Low	Negligible	Negligible
R7	Residential - Hilary Road	Very Low	Negligible	Negligible
R8	Residential - Felskirk Road	Very Low	Negligible	Negligible
R9	Residential - Bleasdale Road	Low	Negligible	Negligible
R10	Residential - Rowarth Road	Medium	Negligible	Negligible
R11	Residential - Bleasdale Road	Low	Negligible	Negligible
R12	Residential - Keepers Cottage	Low	Negligible	Negligible

3.3.6 As indicated in Table 10, effects on annual mean PM_{2.5} concentrations as a result of the Proposed Development were predicted to be **negligible** at all receptor locations.

3.4 Overall Effect Significance

3.4.1 Predicted impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were predicted to be **negligible** at all receptor locations. As such, overall air quality effects associated with operational phase road vehicle exhaust emissions are predicted to be **not significant**.



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