APPENDIX 13B: AIR QUALITY MODELLING DETAILS

13.1.1 This Appendix presents the technical information and data upon which the air quality assessment is based.

13.1.2 In urban areas, pollutant concentrations are primarily determined by the balance between pollutant emissions that increase concentrations, and the ability of the atmosphere to reduce and remove pollutants by dispersion, advection, reaction and deposition. An atmospheric dispersion model is used as a practical way to simulate these complex processes; such a model requires a range of input data, which can include emissions rates, meteorological data and local topographical information.

13.1.3 The effect on local air quality of emissions from changes to traffic movements as a result of the operation of the completed Development was assessed using an advanced atmospheric dispersion model, ADMS-Roads.

13.1.4 The ADMS-Roads model is a comprehensive tool for investigating air pollution in relation to road networks. On review of the Site, and its surroundings, the ADMS-Roads model is considered appropriate for the assessment of the effects of the proposals on air quality, both in the short and long terms. The science of ADMS-Roads is significantly more advanced than that of most other air dispersion models. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions. It can predict long-term and short-term concentrations, as well as calculations of percentile concentrations. The use of the ADMS-Roads model was agreed with the air quality environmental health officer (EHO) at Blaby District Council (BDC).

13.1.5 The ADMS-Roads model is a version of the Atmospheric Dispersion Modelling System (ADMS), which is a model representing dispersion of pollutants from road traffic and small industrial sources. This is a formally validated model, developed in the United Kingdom (UK) by CERC (Cambridge Environmental Research Consultants). This includes comparisons with data from the UK's Automatic Urban Rural Network (AURN) and specific verification exercises using standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation, and their models were compared favourably against other EU and U.S. EPA systems. Further information in relation to this is available from the CERC web site at www.cerc.co.uk.

Model Scenarios

13.1.6 In order to assess the effect of the proposed Development on local air quality, future 'without Development' and 'with Development' scenarios have been assessed. The Development is programmed to be complete in 2026 and therefore this is the year in which these future scenarios were modelled. The year 2010 was modelled to establish the existing baseline situation because it is the latest year of available, ratified, monitoring data from BDC within the study area against which the air quality model is verified (discussed further below). Base year traffic data for 2010 and meteorological data for 2010 were also used to be consistent with the verification year.

13.1.7 To take into account the recent Defra analysis[1] that historical monitoring data is not declining in line with emission forecasts, as outlined in Chapter 13: Air Quality, a sensitivity analysis has been undertaken on the basis of no future reductions in pollutant concentrations (i.e.

considering the potential effects of the Development against the current baseline, 2010, conditions by applying the 2026 traffic data to 2010 background concentrations and emission rates). The results for this sensitivity analysis are presented in Chapter 13: Air Quality.

Traffic Data

13.1.8 The traffic data used in the air quality assessment, provided by WSP, is presented in Table A1. WSP have provided traffic data for the roads where there is likely to be a significant change from the operation of the proposed Development. This comprised 24-hour annual average daily traffic (AADT), %HDV and speeds.

Table A1: Hourly Traffic Data Used within the Assessment (based on 24-hour AADT)

Link ID	Name	Speed (kph)	Base 2010		Without 2026		With 2026	
			LDV	HDV	LDV	HDV	LDV	HDV
1	Main Street (West of B5380)	97	737	82	921	102	902	100
2	Main Street (East of Station Road)	48	377	42	471	52	467	52
3	B5380	97	493	55	616	68	641	71
4	A47 (East of A563)	64	1079	120	1349	150	1375	153
5	A47 East of B5380	64	892	99	1115	124	1095	122
6	A47 (East of Baines Lane)	64	950	106	1187	132	1148	128
7	A47 (East of Station Road)	64	807	90	1009	112	969	108
8	Station Road	48	561	62	560	62	597	66
9	A47 (East of Beggar's Lane)	64	768	85	960	107	941	105
10	A47 (East of B582)	64	571	63	855	95	952	106
11	B582 (North of A47)	97	249	28	311	35	313	35
12	A563 (North of Meridian Way)	64	1156	128	1445	161	1565	174
13	Broustone Lane	48	369	41	461	51	461	51
14	Beggar's Lane	48	353	25	442	31	737	51
15	B582 (North of Beggar's Lane)	97	360	40	450	50	441	49
16	Meridian Way (East of A563)	80	482	54	603	67	951	106
17	Meridian East	80	169	19	212	24	325	36
18	M1 (North of M69)	113	5500	611	6875	764	6864	763
19	A563 (North of A5640)	80	1151	128	1438	160	1362	151
20	A5640 (North of B4114)	80	1312	146	1640	182	1675	186
21	A5640 (East of B4114)	113	2212	246	2765	307	2797	311
22	M69	113	1930	214	2412	268	2424	269
23	B4114 (North of Leicester Lane)	80	1479	164	1878	205	1723	191
24	M1	113	3638	404	4548	505	4535	504
25	B582 (North of Leicester Lane)	48	449	50	562	62	549	61
26	Leicester Lane (West of B582)	97	527	52	659	65	539	53
27	B582 (North of B4114)	64	562	62	703	78	762	85
28	A563	80	1503	167	1878	209	1883	209
29	Leicester Lane (East of B4114)	80	527	52	659	65	534	53
30	B4114 (North of B582)	80	1236	137	1545	172	1543	171
31	B582	64	1117	124	1397	155	1412	157
32	B4114	70	1106	123	1383	154	1412	157
33	Meridian Way (East of Meridian East	38	-	-	-	-	669	74
34	New Development Road 1	38	-	-	-	-	227	25

Link ID	Name	Speed (kph)	Base 2010		Without 2026		With 2026	
			LDV	HDV	LDV	HDV	LDV	HDV
35	New Development Road 2	38	-	-	-	-	148	16
36	New Development Road 3	38	-	-	-	-	346	38
37	New Development Road 4	38	-	-	-	-	283	31

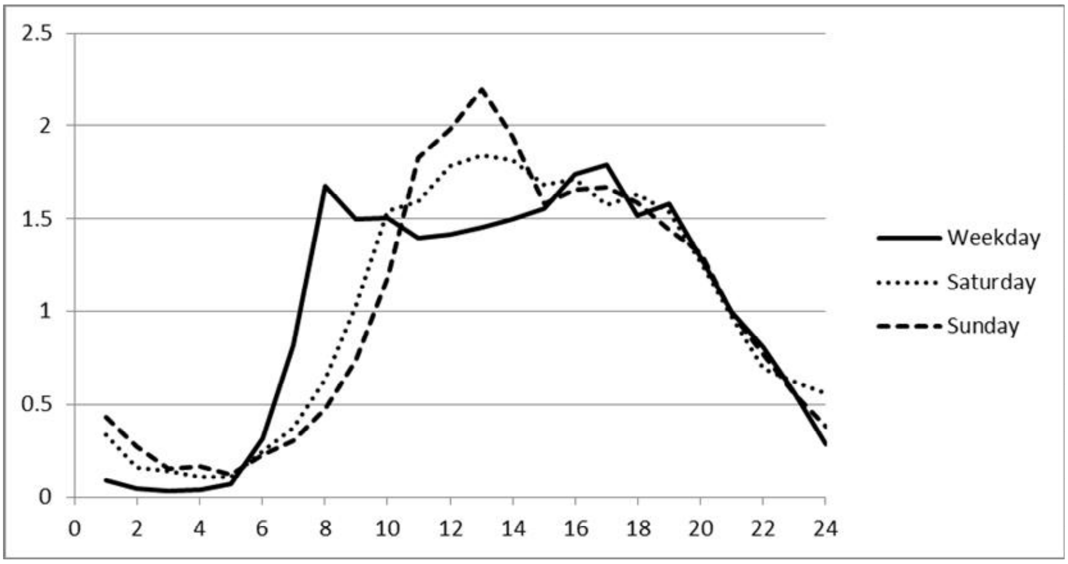
Speed

13.1.9 To take into account the presence of slow moving traffic near junctions and at roundabouts, the speed on road links in these locations was reduced using the criteria recommended within LAQM.TG(09)[2]: The speed was reduced by 10kph compared to the speed in Table A.1 for junctions (non-motorway) and roundabouts, where some slowing of traffic occurs,.

Diurnal Profile

13.1.10 The ADMS-Roads model uses an hourly traffic flow, as presented in Table A1, based on the daily AADT flows. Traffic flows follow a diurnal variation throughout the day and week. Therefore, a diurnal profile was used in the model to replicate how the average hourly traffic flow would vary throughout the day and the week. WSP provided a profile for the A47 Hinckley Road from an Automatic Traffic Count (ATC) Survey undertaken in May 2010. Figure A1 presents the diurnal variation in traffic flows that has been used within the model, taken from the ATC survey.

Figure A1: Diurnal Traffic Variation



Canyons

13.1.11 Narrow streets with tall buildings on either side have the potential to create a confined space, which can interfere with the dispersion of traffic pollutants and may result in pollutant emissions accumulating in that area. In an air quality model these narrow streets are described as street canyons.

13.1.12 ADMS-Roads includes a street canyon function to take account of the additional turbulent flow patterns occurring inside a street with relatively tall buildings on both sides, known as a 'street canyon'. LAQM.TG(09) identifies a street canyon *"as narrow streets where the height of buildings on both sides of the road is greater than the road width."*

13.1.13 Following a review of the road network to be included within the model it was concluded that the roads within the network to be modelled are relatively wide and existing buildings are not considered to be tall. Therefore, no canyons were included within the model for the existing or with Development scenarios.

Emission Factors

13.1.14 The latest ADMS-Roads version (version 3.0, 23rd November 2010) has been used. This includes a number of UK emission factor datasets. The latest available UK Emission Factor Toolkit (EFT) version 4.2.2 published on 2nd November 2010, which provides factors for two vehicle categories (light and heavy duty vehicles) has been used in the assessment. The EFT provides emission factors up to the year 2025 therefore for the opening year assessment 2026 the emission factors for 2025 have been used.

13.1.15 The EFT uses traffic flow, %HDV, speed and road type information as input data and calculates outputs as total emissions as g/km and g/km/s for the selected pollutant(s).

Pollutant Background Concentrations

13.1.16 The ADMS-Roads model requires background pollutant concentration data (i.e. concentrations not including local pollutant sources such as roads or stacks), that correspond to the year of assessment, to which the model adds contributions from the road sources.

13.1.17 BDC do not undertake any background monitoring within their administrative boundary from which background concentrations can be obtained. Background concentrations of NO_x, NO_2, PM_{10} and $PM_{2.5}$ have therefore been taken from the Defra Air Quality Archive. Concentrations are available for 1x1km grid squares for assessment years between 2008 and 2020.

13.1.18 Background data has been obtained for each grid square corresponding to the sensitive receptor locations assessed (as outlined in Chapter 13: Air Quality) and the monitoring locations used for model verification (see below) for the baseline year of 2010 and for the future 'without' development and 'with' development scenarios. Due to the fact that Air Quality Archive does not produce mapped background concentrations for 2026 year (future year of assessment), 2020 was used as the latest available.

13.1.19 It is important to note that for NO_x and PM_{10}, the Air Quality Archive background maps present both the 'total' estimated background concentrations and the individual contributions from a range of emission sources (for example, motorways, aircraft, domestic heating etc). When detailed modelling of an individual sector is required as part of an air quality assessment, the respective contribution can be subtracted from the overall background estimate to avoid the potential for 'double-counting'. For this assessment, traffic data for all the Motorways and A Roads within the study area have been included in the modelling. Therefore, contributions from these sectors have been removed from the background concentrations obtained from the Air Quality Archive.

13.1.20 The background data used within the assessment are presented in Table A2 below.

Table A2: Background Concentrations Used within the ADMS Assessment

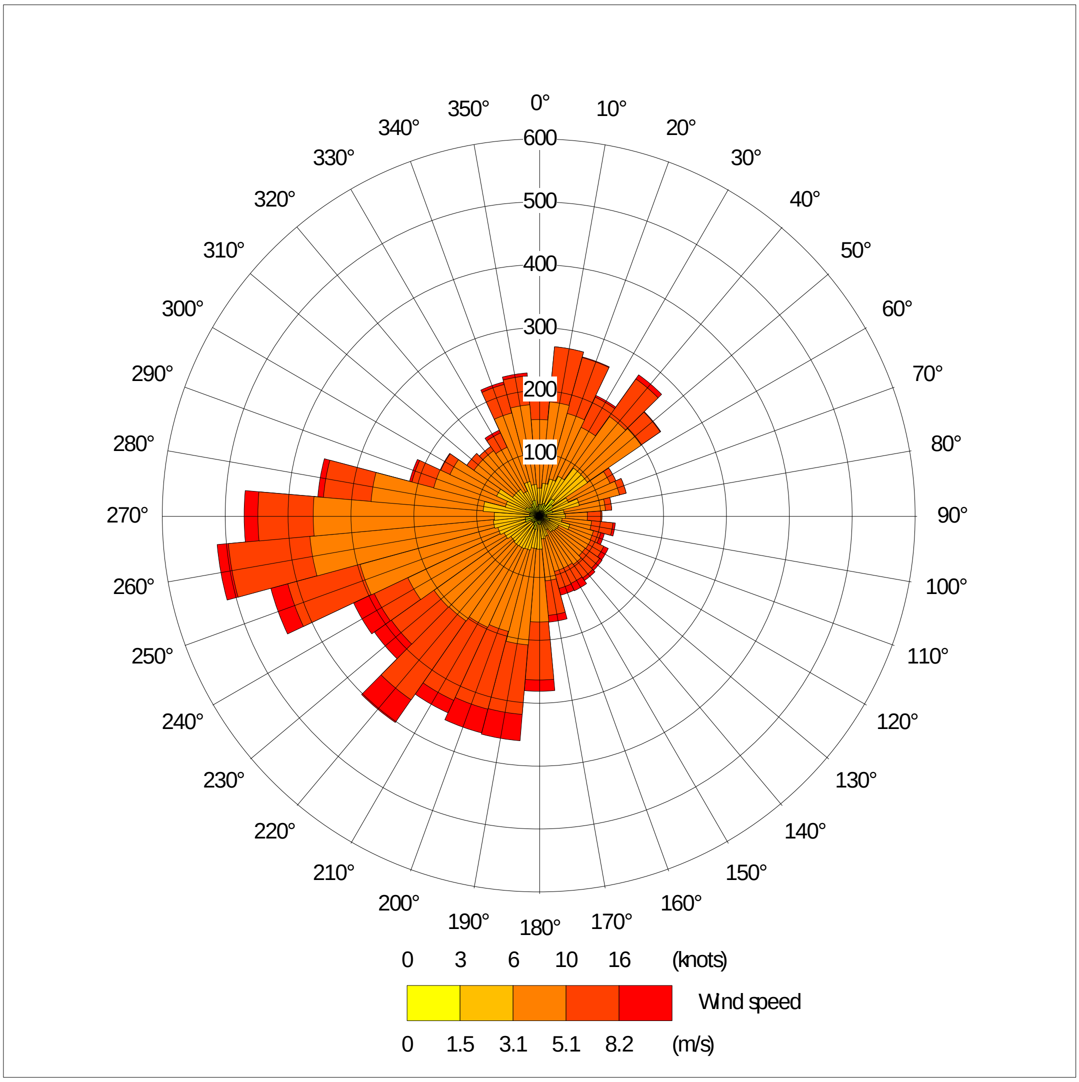
	NO_x	NO_2	PM_{10}	$PM_{2.5}$
Grid Reference: 453500, 303500; (Receptor 1) (Verification: St Andrews Church Diffusion Tube & 64 Packer Avenue Diffusion Tube)				
2010 Annual Mean	25.30	16.96	19.13	11.02
2026 Annual Mean	13.48	9.77	15.51	9.76
Grid Reference: 452500, 302500 (Receptors 2, 3 & 13)				
2010 Annual Mean	18.75	13.14	16.86	10.55
2026 Annual Mean	11.28	8.29	15.70	9.47
Grid Reference: 452500, 300500 (Receptor 4)				
2010 Annual Mean	17.54	12.39	17.05	10.47
2026 Annual Mean	10.31	7.62	15.89	9.38
Grid Reference: 453500, 299500 (Receptor 5)				
2010 Annual Mean	22.77	15.12	17.14	11.03
2026 Annual Mean	12.99	9.16	15.85	9.77
Grid Reference: 454500, 302500 (Receptors 6 & 7) (Verification: Priestman Road Diffusion Tube)				
2010 Annual Mean	27.47	18.26	19.18	12.30
2026 Annual Mean	15.69	11.24	17.75	10.88
Grid Reference: 455500, 302500 (Receptor 8)				
2010 Annual Mean	27.38	18.24	17.59	11.57
2026 Annual Mean	15.90	11.37	16.19	10.19
Grid Reference: 455500, 299500 (Receptor 9)				
2010 Annual Mean	26.01	16.98	17.44	11.41
2026 Annual Mean	14.11	9.90	16.09	10.05
Grid Reference: 454500, 298500 (Receptors 10, 11 & 12) (Verification: Sandhill Drive Automatic Monitor and Diffusion Tubes, St Johns Diffusion Tube & King Edward Avenue Diffusion Tube)				
2010 Annual Mean	22.03	14.66	18.30	11.80
2026 Annual Mean	12.75	9.03	17.14	10.66
Grid Reference: 454500, 301500 (Receptor 14)				
2010 Annual Mean	26.02	17.41	18.99	12.35
2026 Annual Mean	14.61	10.55	17.52	10.89
Grid Reference: 453500, 302500 (Receptors 15 & 16)				
2010 Annual Mean	20.32	14.07	19.59	11.83
2026 Annual Mean	12.00	8.79	18.41	10.71
Grid Reference: 453500, 301500 (Receptor 17)				
2010 Annual Mean	20.32	14.12	17.65	10.88
2026 Annual Mean	11.56	8.48	16.39	9.68
Grid Reference: 452500, 301500 (Receptor 18)				
2010 Annual Mean	16.77	11.89	17.10	10.38
2026 Annual Mean	10.02	7.42	15.96	9.33
Grid Reference: 453500, 304500 (Verification: The College Diffusion Tube)				
2010 Annual Mean	29.42	19.28	20.42	12.89

Meteorological Data

13.1.21 Meteorological data provides hourly sequential data including wind direction, wind speed, temperature, precipitation and the extent of cloud cover for each hour of a given year. As a minimum ADMS-Roads requires wind speed, wind direction, and cloud cover.

13.1.22 Meteorological data, to input into the model, were obtained from the closest meteorological station, East Midlands Airport Meteorological Station, for the year 2010. This meteorological station is complete and the closest to the Site and therefore the most representative of the Site. The 2010 data was used to be consistent with the base/ verification traffic year. It was also applied to the 2026 scenarios for the air quality impact assessment. Figure A2 presents the wind-rose for the metrological data.

Figure A2: 2010 Windrose for East Midlands Airport Meteorological Station



Terrain Data

13.1.23 ADMS-Roads allows the impact of complex terrain on emissions to be considered within the model by including a terrain file. When terrain is included the model alters the emission trajectory and dispersion to account for disturbances in the air flow due to the terrain. An

ADMS-Roads ready terrain file was produced for the study area from the OS Landform Panorama NTF digital terrain data using the ADMS Terrain Converter function contained within ADMS-Roads.

Model Data Processing

13.1.23 The modelling results were processed to calculate the averaging periods required for comparison with air quality objectives.

13.1.24 NO_X emissions from combustion sources (including vehicle exhausts) comprise principally nitric oxide (NO) and nitrogen dioxide (NO_2). The emitted nitric oxide reacts with oxidants in the air (mainly ozone) to form more NO_2. Since only nitrogen dioxide is associated with effects on human health, the air quality standards for the protection of human health are based on NO_2 and not total NO_X or NO.

13.1.25 The ADMS-Roads model was run without the Chemistry Reaction option to allow verification (see below). Therefore, a suitable NO_X:NO_2 conversion needed to be applied to the modelled NO_X concentrations. There are a variety of different approaches to dealing with NO_X:NO_2 relationships, a number of which are widely recognised as being acceptable. However, the current approach was developed for roadside sites, and is detailed within the Technical Guidance LAQM.TG(09), which supersedes the previous 2003 guidance document.

13.1.26 The latest guidance provides a spreadsheet calculator[3] to allow the calculation of NO_2 from NO_X concentrations, accounting for the difference between primary emissions of NO_X and background NO_X, the concentration of O_3, and the different proportions of primary NO_2 emissions, in different years. This approach is only applicable to annual mean concentrations.

13.1.27 Research[4] undertaken in support of LAQM.TG(09) has indicated that the hourly mean limit value and objective for NO_2 is unlikely to be exceeded at a roadside location where the annual-mean NO_2 concentration is less than 60µg/m^3. The hourly objective is, therefore, not considered further within this assessment where the annual-mean NO_2 concentration is predicted to be less than 60µg/m^3.

13.1.28 In order to calculate the number of daily PM_{10} exceedances of 50µg/m^3 the relationship between the number of 24-hour exceedances of 50µg/m^3 and the annual mean PM_{10} concentration from LAQM.TG (09)[1] was applied as follows:-

$$\textbf{Number of Exceedances} = -18.5 + 0.00145 \times (\text{annual mean}^3) + \frac{206}{\text{annual mean}}.$$

Other Model Parameters

13.1.29 There are a number of other parameters that are used within the ADMS-Roads model which are described here for completeness and transparency:

- The model requires a surface roughness value to be inputted. A value of 0.5 was used, which is representative of open suburbia;
- The model requires the Monin-Obukov length (a measure of the stability of the atmosphere) to be inputted. A value of 30m (representative of cities and large towns) was used for the modelling;

- The model requires the Road Type to be inputted. Motorway (not London) was selected for the M1 and M69 and Urban (not London) was selected for all other road links and used for the modelling.
- Terrain data for the local area was included within the model, as outlined above.

Model Verification

13.1.30 Model verification is the process of comparing monitored and modelled pollutant concentrations for the same year.

13.1.31 Discrepancies between modelled and measured concentrations can arise for a number of reasons, for example:-

- traffic data uncertainties;
- background concentration estimates;
- meteorological data uncertainties:
- sources not explicitly included within the model (e.g. car parks and bus stops);
- overall model limitations (e.g. treatment of roughness and meteorological data, treatment of speeds); and
- uncertainty in monitoring data, particularly diffusion tubes.

13.1.32 Verification is the process by which uncertainties such as those described above are investigated and minimised. Disparities between modelling and monitoring results are likely to arise as result of a combination of all of these aspects.

Nitrogen Dioxide

13.1.33 The ADMS-Roads model was run to predict annual-mean NO_2 concentrations at a number of the BDC monitoring locations (see Figure 13.2), which are located within 3.5km of the Site, as agreed with the BDC EHO - the automatic monitor located at Sandhill Drive (Blaby 1) and the following diffusion tubes locations:-

- Sandhill Drive, co-located with the automatic monitor (NOx Box Diffusion Tube 1, 2, 3);
- Priestman Road;
- King Edward Avenue;
- Kingsway North;
- Cumberwell Drive;
- The Cottage;
- St Andrews Church;
- 64 Packer Avenue; and
- St Johns, Enderby.

13.1.34 Guidance in LAQM.TG(09) states "*annual means are based on 365 days (366 days for leap years) and 90% data capture is required*". A number of the BDC diffusion tube monitor sites were not included within the verification process due to poor annual data capture (Hinckley Road, M1 Bridge (67%) and Leicester Road (84%)), whilst other locations were not included as there was insufficient traffic data for the roads surrounding the monitoring locations (i.e. they are located on the edge of the study road network).

13.1.35 As highlighted above, the NO_2 concentration is a function of NO_x concentrations. Therefore, the roadside NO_x concentrations predicted by the model at the chosen verification locations was converted to NO_2 using the NO_x to NO_2 calculator provided by DEFRA on the air quality archive and the background concentrations presented in Table A2.

13.1.36 The modelled and monitored roadside NO_2 concentrations are compared in Table A3.

Table A3: Model Verification Result for Annual Mean NO_2 in 2010

Monitoring Location	Monitored Annual Mean NO_2 ($\mu g/m^3$)	Modelled Total Annual Mean NO_2 ($\mu g/m^3$)	% Difference (modelled – monitored)
Sandhill Drive Automatic Monitor	46.0	25.13	-33.34
NOx Box Diffusion Tube 1	33.0	25.13	-23.85
NOx Box Diffusion Tube 2	32.0	25.13	-21.47
NOx Box Diffusion Tube 3	33.0	25.13	-23.85
Priestman Road Diffusion Tube No.7	32.0	23.43	-26.78
King Edward Avenue Diffusion Tube No8	51.0	31.12	-38.98
Kingsway North Diffusion Tube No.10	26.00	26.44	1.69
Cumberwell Drive Diffusion Tube No. 14	37.00	24.67	-12.57
The Cottage Diffusion Tube No.16	44.0	35.09	-20.25
St Andrews Church Diffusion Tube No.17	32.0	22.15	-30.78
64 Packer Avenue Diffusion Tube No.18	42.0	34.77	-17.21
St Johns Diffusion Tube No.19	37.0	23.13	-37.49

Note: Height of diffusion tubes were modelled at 1.8m, height of automatic monitor was modelled at 3m

13.1.37 Table A3 indicates that the model under predicts annual mean NO_2 concentrations at the majority of locations.

13.1.38 Technical Guidance LAQM.TG(09) suggests that where there is disparity between modelled and monitored results, particularly if this is by more than 25%, appropriate adjustment should be undertaken. Although most locations are within 25% (at 7 of the 12 locations) the model under predicts concentrations at the majority of monitoring locations and therefore model adjustment has been undertaken.

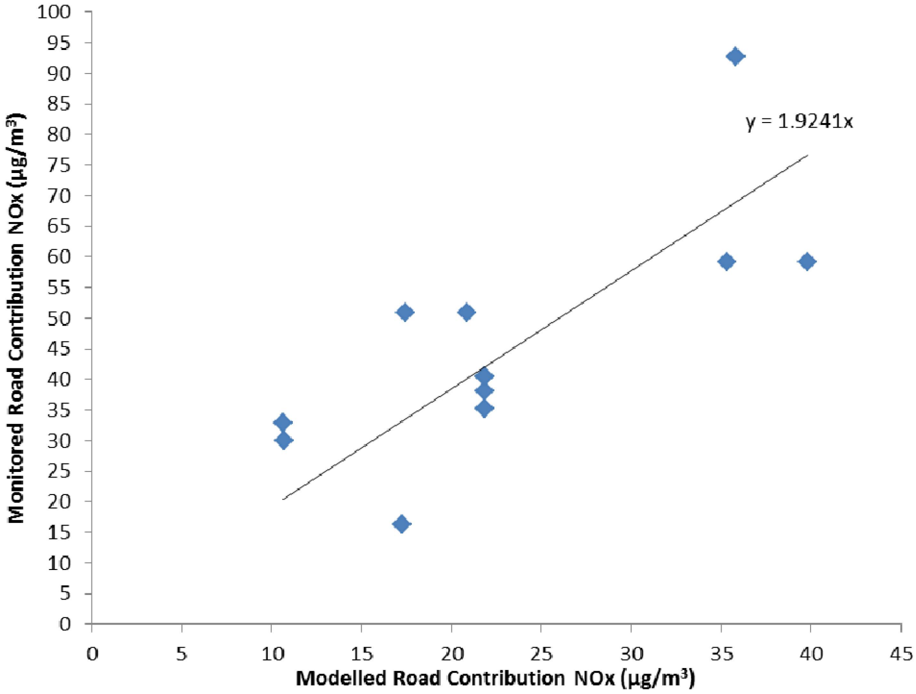
13.1.39 LAQM.TG(09) presents a number of methods for approaching model verification and adjustment. Example 2, of Annex 3 in the LAQM.TG (09) guidance document, indicates a method based on adjusting NO_2 road contribution and calculating a single adjustment factor. This method refers to modelling based on road traffic sources and can be applied to either a single diffusion tube location, or where numerous diffusion tube monitoring locations are sited within the modelled area. This requires the roadside NOx contribution to be calculated. In addition, monitored NOx concentrations are required, which have been calculated from the annual mean NO_2 concentration at the diffusion tube sites using the NOx to NO_2 spreadsheet as described above. The steps involved in the adjustment process are presented in Table A4.

Table A4: Calculating Adjustment Factor

Site ID	Monitored NO_2	Monitored NOx	Monitored Road NO_2	Monitored Road NOx	Modelled Road NOx	Ratio of Monitored Road Contribution NOx/Modelled Road Contribution NOx
Sandhill Drive Automatic Monitor	46.0	57.26	23.04	35.23	21.88	1.61
NOx Box Diffusion Tube 1	33.0	62.50	18.34	40.47	21.88	1.85
NOx Box Diffusion Tube 2	32.0	60.02	17.34	37.99	21.88	1.74
NOx Box Diffusion Tube 3	33.0	62.50	18.34	40.47	21.88	1.85
Priestman Road Diffusion Tube No. 7	32.0	57.53	13.74	30.06	10.68	2.81
King Edward Avenue Diffusion Tube No. 8	51.0	114.69	36.34	92.66	35.84	2.59
Kingsway North Diffusion Tube No.10	26.0	43.67	7.76	16.29	17.26	0.94
Cumberwell Drive Diffusion Tube No. 14	37.0	36.84	14.18	50.81	20.86	2.44
The Cottage Diffusion Tube No. 16	44.0	88.64	24.72	59.22	35.35	1.68
St Andrews Church Diffusion Tube No.17	32.0	58.22	15.04	32.92	10.65	3.09
64 Packer Avenue Diffusion Tube 18	42.0	84.45	25.04	59.15	39.79	1.49
St Johns Diffusion Tube 19	37.0	72.84	22.34	50.81	17.47	2.91

13.1.40 Figure A2 shows the mathematical relationship between modelled and monitored roadside NO_x (i.e. total NO_x minus background NO_x) in a scatter graph (data taken from Table A4), with a trendline passing through zero and its derived equation.

Figure A2: Unadjusted Modelled versus Monitored Annual Mean Roadside NO_x at the Monitoring Sites (µg/m^3)



13.1.41 Consequently in Table A5 the adjustment factor (1.9241) obtained from Figure A2 is applied to the modelled NO_x Roadside concentrations to obtain improved agreement between monitored and modelled annual mean NO_x. This has been converted to annual mean NO_2 using the NO_x:NO_2 spreadsheet calculator.

Table A5: Comparison of Adjusted Model results and Monitored Data

Site ID	Adjusted Modelled Road NOx	Adjusted Modelled Total NOx	Modelled Total NO_2	Monitored Total NO_2	% Difference
Sandhill Drive Automatic Monitor	42.10	64.13	33.65	37.7	-10.74
NOx Box Diffusion Tube 1	42.10	64.13	33.65	33.0	1.97
NOx Box Diffusion Tube 2	42.10	64.13	33.65	32.0	5.16
NOx Box Diffusion Tube 3	42.10	64.13	33.65	33.0	1.97
Priestman Road Diffusion Tube No.7	20.56	48.03	27.92	32.0	-12.75
King Edward Avenue Diffusion Tube No.8	68.96	90.99	43.46	51.0	-14.78
Kingsway North Diffusion Tube No.10	33.21	60.59	33.29	26.0	28.04
Cumberwell Drive Diffusion Tube No. 14	40.14	62.17	32.86	37.0	-11.19
The Cottage Diffusion Tube No.16	68.01	97.43	46.98	44.0	6.77
St Andrews Church Diffusion Tube No.17	20.50	45.79	26.67	32.0	-16.66
64 Packer Avenue Diffusion Tube No.18	76.55	101.85	47.85	42.0	13.93
St Johns Diffusion Tube No.19	33.61	55.64	30.20	37.0	-18.38

13.1.42 The data in Table A5 indicates an improved agreement between monitored and modelled annual mean NO_2 results compared to the unadjusted/unverified model, with all but one of the adjusted modelled annual mean NO_2 concentrations now within 25% of the monitored annual mean NO_2 concentration, (refer to LAQM.TG (09)).

13.1.43 The NO_x adjustment process was subsequently applied to all of roadside NO_x modelling for 2010 and 2026 'without' and 'with' the Development in place, at the specific receptors locations assessed, before the predicted concentrations were converted to NO_2.

Fine Particulates

13.1.44 BDC undertake particulate (PM_{10}) monitoring at their automatic monitoring located at Sandhill Drive (Blaby 1). A comparison of the monitored data and the estimated background concentration from the Air Quality Archive for the monitor location shows that the background concentration is actually higher than the monitored data, even when removing all Motorway and A Road contributions from the background concentrations. Therefore no verification for fine particulates has been undertaken and this is considered to be a conservative, robust approach.

References

1 http://laqm.defra.gov.uk/faqs/faqs.html

2 DEFRA, 2009, Local Air Quality Management Technical Guidance LAQM.TG(09)

3 AEA, NOX to NO_2 Calculator, http://laqm1.defra.gov.uk/review/tools/monitoring/calculator.php Version 2.1, 22nd January 2010

4 AEAT, 'Analysis of the relationship between annual-mean nitrogen dioxide concentration and exceedances of the 1-hour mean AQS Objective', 2008.