Appendix 14.2 - Air Quality Modelling Study

Introduction

14.1.1 This Appendix presents the technical information and data upon which the air quality assessment for the Development, as presented in **Chapter 14: Air Quality**, is based.

Air Pollutant Dispersion Model

14.1.2 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; which requires a range of input data, such as pollutant emissions rates and meteorological data.

14.1.3 An assessment of the suitability of the Site in terms of local air quality has been undertaken using the ADMS-Roads™ dispersion model.

14.1.4 The ADMS-Roads model is a comprehensive tool for investigating air pollution due to road traffic. On review of the Site and its surroundings ADMS-Roads was considered appropriate for the assessment of the long and short-term effects of the Development on air quality. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions of air pollutant concentrations. It can predict long-term and short-term concentrations, including percentile concentrations.

14.1.5 ADMS-Roads 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 air quality Automatic Urban and 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 website at www.cerc.co.uk.

Modelled Scenarios

14.1.6 In order to assess the effect of the Development on local air quality, the following scenarios were assessed:

- Scenario 1: 2031 End State 'Do Minimum' scenario (i.e. Without Development); and
- Scenario 2: 2031 End State 'Do Something' (i.e. With Development) scenario

14.1.7 A baseline scenario was also modelled to establish the existing air quality conditions around the Site, and allow a comparison and verification of the model with available air pollution monitoring data. The baseline scenario is based on year 2012, using road traffic, air pollution monitoring, and meteorological data for that year (discussed further below).

14.1.8 Moreover, to take into account the recent Defra analysis[1] that historical monitoring data has not been declining in line with emission forecasts, a sensitivity analysis was undertaken on the basis of no future reductions in pollutant concentrations (i.e. considering the potential effects of the Development against the current baseline conditions, by combining the 2031 traffic data to the 2012 background concentrations and vehicle pollutant emission rates).

14.1.9 However, the Defra analysis also acknowledges that NO_x and NO_2 concentrations are likely to reduce post 2015, when the Euro 6 emission standards begin to take effect. Given that the Development is to be completed in 2031, it is very likely that concentrations will be significantly lower than those presented in the sensitivity analysis, as the Euro 6 emissions standards will have fully been implemented by then. Although this scenario is very conservative, as NO_x emissions and NOx / NO_2 background concentrations are unlikely to remain constant over such a long period of time (nearly 20 years), it can help understand the potential effect on air quality of changes in road traffic flows only The results for this sensitivity analysis are presented in Annex B of this document and discussed in Chapter 14: Air Quality.

Traffic Data

14.1.10 Traffic flow data for the baseline 2012, and future 2031 (Do Minimum and Do Something) scenarios were provided by URS. Traffic data included annual average daily traffic (AADT) flows, traffic composition (percentage of HDVs – Heavy-Duty Vehicles) and vehicle speeds for the surrounding road network, derived from the SATURN transport model. Modelled speeds took into account of slow moving traffic near busy junctions and roundabouts

14.1.11 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. This was based on the average traffic distribution data from the Transport Model, provided by URS. **Figure 14.2** presents the diurnal variation in traffic flows that was used in the dispersion model.

Modelled Area

14.1.12 The traffic data provided was analysed to determine the extent of the road network that needed to be considered for the air quality assessment. The road network was selected based on the definition of the "affected road network", as per the Highways Agency's DMRB guidance[2], using the following criteria:

- Road alignment will change by 5 m or more; or
- Daily traffic flows will change by 1,000 AADT or more; or
- HDV flows will change by 200 AADT or more; or
- Daily average speed will change by 10 km/hr or more; or
- Peak hour speed will change by 20 km/hr or more.

14.1.13 Based on these criteria, the roads illustrated in **Figure 14.3** have been included in the air pollutant dispersion model. These included the main roads surrounding the Site, as well as a number of minor roads. The key roads assessed included:

- the A406 North Circular Road;
- the M1 (up to the M25 Junction);
- the A41 (Hendon Way/Brent Cross Flyover/Watford Way);
- The A5 Edgware Road/Cricklewood Broadway; and
- The A1 Great North Way (from the M1 to the A406).

14.1.14 Most of these roads needed to be considered due to changes over ±1,000 AADT, whilst a smaller number of roads were selected due to a change of ±200 HDVs. The M1/A5/A406 and A41/A406

junctions also needed to be considered owing to the proposed significant changes in the road layout, as part of the Development.

Sensitive Receptors

14.1.15 The approach adopted by the UK Air Quality Strategy (AQS) is to focus on areas at locations at, and close to, ground level where members of the public (in a non-workplace area) are likely to be exposed over the averaging time of the objective in question (i.e. over 1-hour, 24-hour or annual periods). Exceedences of the AQS objectives principally relate to annual mean NO_2 and PM_{10}, and 24-hour mean PM_{10} concentrations, so that associated potentially sensitive locations relate mainly to residential properties and other sensitive locations (such as schools) where the public may be exposed for prolonged periods.

14.1.16 In total, 129 sensitive receptors have been selected along the affected road network shown in **Figure 14.3**. The receptors are representative of the façade of existing properties closest to the main roads that would be affected by the Development. The location of all sensitive receptors is illustrated in **Figure 14.4** (south of the air quality assessment area) and **Figure 14.5** (north of the assessment area).

Emission Factors

14.1.17 The latest version of the ADMS-Roads model (version 3.2.4) was used for the assessment. The model includes the latest vehicle emission factors published by Defra in the Emission Factors Toolkit (version 6.1, published in July 2014, and based on the latest COPERT database published by the European Environment Agency).

14.1.18 The model uses several parameters (traffic flow, percentage of HDV, speed and road type) to calculate road traffic emissions for the selected pollutants.

Background Pollutant Concentrations

14.1.19 Background pollutant concentration data (i.e. concentrations due to sources not directly taken into account in the dispersion model) have been added to the modelled concentrations, which only account for contributions from the local road traffic.

14.1.20 Background pollution data can generally be extracted from suitable air quality monitoring sites, or from the UK background pollution maps, published by Defra at a $1km^2$ resolution[3].

14.1.21 Chalgrove Primary School urban background site, part of LB Barnet Council's air quality network, has first been identified as a suitable site. However, given the extent of the modelled area, encompassing sensitive receptors several km across LB Barnet and LB Brent, it has been deemed more suitable to use the background maps, rather than a single local monitoring. Moreover, background maps include $PM_{2.5}$, which is not monitored by the Chalgrove School site.

14.1.22 A comparison between the air pollutant concentrations recorded in 2012 at the monitoring site, and those from the Defra maps at the same location (the $1km^2$ area encompassing the monitoring site) showed similar results, although slightly higher for the background maps ($32\mu g/m^3$ NO_2 and $19\mu g/m^3$ PM_{10} at the monitoring site, against $33.5\mu g/m^3$ and $23.9\mu g/m^3$ respectively in the maps). Therefore, the background maps have been deemed appropriate, as well correlated with local background monitoring.

14.1.23 Background map concentrations from the relevant 1km^2 have been assigned to each sensitive receptor, based on their location. The background maps include a detailed breakdown of source contribution, and allow to remove the contribution of specific pollution sources already included in a dispersion model. As most of the modelled area include a number of A-roads or motorway road links, their contribution has been removed from the maps, to avoid double counting.

14.1.24 The range (minimum and maximum) of background pollutant concentrations used at any sensitive receptor is summarised in **Table A14.1**. Full details of the background concentrations assigned to sensitive receptors is provided in **Table A14.6 in Annex A** of this document.

Table A14.1 – Comparison of NO_2 Modelled (Unadjusted) and Monitored Concentrations (µg/m^3)

Pollutant	Background Annual Mean Concentrations (µg/m^3)			
	2012		2031	
	Min	Max	Min	Max
NO_2	21.8	32.1	14.2	22.5
PM_{10}	20.5	24.7	18.8	22.6
$PM_{2.5}$	14.2	16.9	12.3	14.9

Meteorological Data

14.1.25 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 to compute the dispersion of pollutants.

14.1.26 2012 meteorological data were obtained from the Heathrow Airport weather station, which is 20km southwest of the Site, and considered representative of local weather conditions. **Figure 14.6** presents the wind-rose for the meteorological data.

14.1.27 Most dispersion models do not use meteorological data if they relate to calm winds conditions, as dispersion of air pollutants is more difficult to calculate in these circumstances. ADMS-Roads treats calm wind conditions by setting the minimum wind speed to 0.75 m/s. It is recommended in Technical Guidance LAQM.TG(09) that the meteorological data file be tested within a dispersion model and the relevant output log file checked, to confirm the number of missing hours and calm hours that cannot be used by the dispersion model. This is important when considering predictions of high percentiles and the number of exceedences. Technical Guidance LAQM.TG(09) recommends that meteorological data should only be used if the percentage of usable hours is greater than 75%, and preferably 90%. The meteorological data used in the assessment include 8,769 lines of usable hourly data out of the total 8,784 for the year, i.e. more than 99% of usable data. This is above the 75% threshold, and is therefore adequate for the dispersion modelling.

Model Data Processing

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

14.1.29 NO_x emissions from combustion sources (including vehicle exhausts) comprise principally nitric oxide (NO) and nitrogen dioxide (NO_2). The emitted NO reacts with oxidants in the air (mainly ozone - O_3) to

form more NO_2. Since it is NO_2 that is associated with adverse effects on human health, the air quality standards for the protection of human health is set out for NO_2 and not total NO_x or NO.

14.1.30 The dispersion model was run without the chemistry reaction option (used to estimate NO_2 concentrations from NO_x emissions), to allow verification (see below). Instead, a suitable NO_x to NO_2 conversion has been used to determine NO_2 concentrations from NO_x concentrations. There are a variety of different approaches to convert NO_x to NO_2; a number of which are acceptable. For this assessment, the conversion recommended by Technical Guidance LAQM.TG(09) has been used. This is based on a conversion tool developed by Defra[4], which accounts for the difference between primary emissions of NO_x, background NO_x and O_3 concentrations, and the different proportions of primary NO_2 emissions. This approach is only applicable to annual mean concentrations.

14.1.31 Research[5] undertaken in support of Technical Guidance LAQM.TG(09) has indicated that the 1-hour mean 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 1-hour mean 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.

14.1.32 For PM_{10}, the 24-hour mean air quality objective is 50µg/m^3, not to be exceeded more than 35 times a year. In order to calculate the number of exceedances of 50µg/m^3, the relationship provided in Technical Guidance LAQM.TG(09) between the number of 24-hour mean exceedances of 50µg/m^3 and the annual mean 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

14.1.33 Other parameters used in the dispersion model are described here for completeness and transparency:

- The model requires a surface roughness value. A value of 1.5 was used, which is representative of the Site (large urban area); and
- The model requires the Monin-Obukhov length (a measure of the stability of the atmosphere). A value of 100m (representative of large conurbations) was used for the modelling.

Model Verification

14.1.34 Model verification is the process of comparing monitored and modelled pollutant concentrations, and, if necessary, adjusting modelled results in line with monitoring results. 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.

14.1.35 Disparities between modelling and monitoring results generally arise as result of a combination of all of these aspects. Model verification ensures these uncertainties are investigated and minimised as far as practicable.

Verification of Nitrogen Dioxide (NO_2)

14.1.36 The dispersion model was used to predict annual mean NO_2 concentrations at 17 roadside monitoring sites. The location of these monitoring sites is illustrated in **Figure 14.7**. These included NO_2 diffusion tube sites operated by LB Barnet and LB Brent Councils, and roadside sites from the Waterman NO_2 monitoring survey. A real-time monitoring analyser operated by LB Brent Council along the A406 North Circular Road (site BT4) was also used.

14.1.37 **Table A14.2** compares the unadjusted modelled results with the monitored data. These indicate that the model under predicts NO_2 concentrations at all locations; and in particular does not predict exceedences at a number of monitoring sites where exceedences have been measured. Therefore, modelled results need to be adjusted to be in line with monitored data.

Table A14.2 – Comparison of NO_2 Modelled (Unadjusted) and Monitored Concentrations (µg/m^3)

Site	Monitored NO_2	Modelled NO_2	Difference (Modelled - Monitored)	% Difference
BRT17	**52.8**	38.1	-14.7	-28%
BRT23	**92.8**	**55.3**	-37.5	-40%
BRT29	**75.8**	36.7	-39.1	-52%
BRT30	**64.6**	35.4	-29.2	-45%
BRT43	**64.2**	**55.3**	-8.9	-14%
BT4	**76.0**	**54.3**	-21.7	-29%
PBN19	**50.0**	**40.4**	-9.6	-19%
PBN20	**52.5**	33.4	-19.1	-36%
PBN6	**60.1**	37.0	-23.1	-38%
Waterman_DT1	**78.4**	**44.9**	-33.5	-43%
Waterman_DT11	**72.8**	36.3	-36.6	-50%
Waterman_DT12	**71.5**	**40.5**	-31.0	-43%
Waterman_DT14	**60.6**	34.6	-26.0	-43%
Waterman_DT3	**57.9**	34.1	-23.9	-41%
Waterman_DT5	**49.5**	31.7	-17.8	-36%
Waterman_DT6	37.9	31.6	-6.3	-17%
Waterman_DT9	**76.0**	34.7	-41.2	-54%

In bold, exceedence of the NO_2 annual mean objective of 40µg/m^3

14.1.38 Technical Guidance LAQM.TG(09) suggests that where there is disparity between modelled and monitored results, appropriate adjustment should be undertaken, particularly if this is by more than 25%. The guidance suggests a number of methods for approaching model verification and adjustment. A common method, which has been used in this assessment, requires adjusting the modelled road-NO_x contribution, based on a comparison with the equivalent monitored road-NO_x concentration.

14.1.39 Results of the model verification are provided in **Table A14.3**. Following sensitivity tests, it was found that applying a single adjustment factor to modelled results was not suitable, due to the disparity of ratios, particularly different for monitoring sites along the main busy roads compared with other sites along more minor roads. It was deemed more suitable to determine 2 separate adjustment factors, as follows:

- An average ratio of 2.682 between monitored and modelled road-NO_x concentrations was used to adjust modelled results for all sites along the main A-roads; and
- An average ratio of 8.515 was used to adjust all other model results at sites along all other roads.

Table A14.3 – Model Verification – Adjustment of Road-NO_x Concentrations

Category	Site ID	Monitored NO_2	Monitored Road NO_x	Modelled Road NO_x	Ratio Monitored / Modelled Road NO_x
Main Roads	BRT17	52.8	63.9	23.0	2.77
	BRT23	92.8	217.7	70.1	3.11
	BRT43	64.2	91.0	61.0	1.49
	BT4	76.0	137.7	59.5	2.31
	PBN19	50.0	51.7	25.8	2.01
	PBN6	60.1	82.7	16.7	4.95
	Waterman_DT1	78.4	152.9	37.4	4.09
	Waterman_DT12	71.5	125.2	25.9	4.83
	Average Ratio for Main Roads *				**2.682**
Other Roads	BRT29	75.8	141.5	15.2	9.31
	BRT30	64.6	99.3	12.8	7.76
	PBN20	52.5	58.2	8.3	7.02
	Waterman_DT11	72.8	132.9	17.5	7.61
	Waterman_DT14	60.6	83.5	10.2	8.17
	Waterman_DT3	57.9	76.4	10.5	7.25
	Waterman_DT5	49.5	50.2	5.3	9.52
	Waterman_DT6	37.9	17.9	3.4	5.25
	Waterman_DT9	76.0	142.2	11.6	12.21
	Average Ratio for Other Roads *				**8.515**

* Based on linear regression

14.1.40 **Table A14.4** shows the comparison of adjusted modelled results with monitored NO_2 concentrations. The results show a better agreement between modelled and monitored concentrations. In particular, all

monitored exceedence of the NO_2 annual mean objective are now predicted correctly by the model. The adjustment factors in **Table A14.3** were therefore used to correct modelled results at all sensitive receptors considered in this assessment. Sensitive receptors were assigned one of these two adjustment factors, depending on their location.

Table A14.4 – Comparison of NO_2 Adjusted Modelled and Monitored Concentrations (µg/m^3)

Category	Site ID	Adjusted Modelled Road-NO_x	Modelled Annual Mean NO_2	Monitored Annual Mean NO_2	% Difference
Main Roads	BRT17	61.8	**52.1**	**52.8**	-1%
	BRT23	187.9	**86.0**	**92.8**	-7%
	BRT43	163.6	**82.8**	**64.2**	29%
	BT4	159.5	**81.3**	**76.0**	7%
	PBN19	69.1	**55.7**	**50.0**	11%
	PBN6	44.8	**47.9**	**60.1**	-20%
	Waterman_DT1	100.2	**64.8**	**78.4**	-17%
	Waterman_DT12	69.5	**55.8**	**71.5**	-22%
Other Roads	BRT29	129.4	**72.8**	**75.8**	-4%
	BRT30	108.9	**67.2**	**64.6**	4%
	PBN20	70.5	**56.2**	**52.5**	7%
	Waterman_DT11	148.6	**76.4**	**72.8**	5%
	Waterman_DT14	87.0	**61.4**	**60.6**	1%
	Waterman_DT3	89.7	**61.6**	**57.9**	6%
	Waterman_DT5	44.9	**47.5**	**49.5**	-4%
	Waterman_DT6	29.1	**42.3**	37.9	12%
	Waterman_DT9	99.2	**64.4**	**76.0**	-15%

In bold, exceedence of the NO_2 annual mean objective of 40µg/m^3

Verification of Particulate Matter (PM_{10} and $PM_{2.5}$)

14.1.41 There is only one monitoring site measuring PM_{10} and $PM_{2.5}$ within the modelled area: site BT4, operated by LB Brent Council, along the A406 North Circular Road.

14.1.42 Results of the model verification for PM_{10} are provided in **Table A14.5**. For $PM_{2.5}$, it was not possible to determine a similar ratio, due to inconsistencies between the measured data and background $PM_{2.5}$ data. Modelled $PM_{2.5}$ concentrations have therefore been adjusted using the same adjustment factor than for PM_{10} (3.357).

Table A14.5 - Model Verification – Adjustment of Road-PM_{10} Concentrations

Site	PM_{10} Monitored Annual Mean	Background PM_{10}	Monitored Road-PM_{10}	Modelled Road-PM_{10}	Ratio Monitored / Modelled Road PM_{10}
BT4	32	23.4	8.6	2.6	3.357

Annexes

Annex A – Background Concentrations Used in the Assessment

Table A14.6 – Background Air Pollutant Concentrations

Receptor ID	X(m)	Y(m)	Z(m)	Background Annual Mean Concentrations (µg/m^3)					
				2012			2031 *		
				NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
1	523965	186160	2	30.0	22.6	15.7	20.9	20.3	13.6
2	524255	186114	2	28.5	22.7	15.7	19.5	20.6	13.7
3	524060	185908	2	29.5	22.0	15.3	20.6	19.8	13.2
4	524420	186190	2	28.5	22.7	15.7	19.5	20.6	13.7
5	524623	186236	2	28.5	22.7	15.7	19.5	20.6	13.7
6	525103	186045	2	28.2	21.9	15.2	19.0	19.7	13.2
7	525005	186073	2	28.2	21.9	15.2	19.0	19.7	13.2
8	524815	186112	2	28.5	22.7	15.7	19.5	20.6	13.7
9	524579	186310	2	28.5	22.7	15.7	19.5	20.6	13.7
10	524424	186841	2	28.5	22.7	15.7	19.5	20.6	13.7
11	524379	186847	2	28.5	22.7	15.7	19.5	20.6	13.7
12	524258	186696	2	28.5	22.7	15.7	19.5	20.6	13.7
13	524336	186392	2	28.5	22.7	15.7	19.5	20.6	13.7
14	524151	185067	2	29.5	22.0	15.3	20.6	19.8	13.2
15	523988	185474	2	29.7	22.8	15.8	20.7	20.6	13.7
16	523975	185843	2	29.7	22.8	15.8	20.7	20.6	13.7
17	524303	185626	2	29.5	22.0	15.3	20.6	19.8	13.2
18	524493	185330	2	29.5	22.0	15.3	20.6	19.8	13.2
19	524165	185488	2	29.5	22.0	15.3	20.6	19.8	13.2
20	524380	184987	0	31.2	23.1	15.9	22.3	20.9	13.9
21	524162	185241	0	29.5	22.0	15.3	20.6	19.8	13.2
22	524268	184933	0	31.2	23.1	15.9	22.3	20.9	13.9
23	523835	185233	0	29.7	22.8	15.8	20.7	20.6	13.7
24	523790	185150	0	29.7	22.8	15.8	20.7	20.6	13.7
25	523764	185029	0	29.7	22.8	15.8	20.7	20.6	13.7
26	523458	184655	0	30.1	22.4	15.5	21.3	20.2	13.5
27	523642	185269	0	29.7	22.8	15.8	20.7	20.6	13.7
28	523546	185417	0	29.7	22.8	15.8	20.7	20.6	13.7
29	523570	185634	0	29.7	22.8	15.8	20.7	20.6	13.7
30	523594	188027	0	29.6	23.7	16.3	19.5	21.4	14.1
31	524209	187189	0	29.4	22.9	15.9	19.6	20.7	13.7
32	524214	187284	0	29.4	22.9	15.9	19.6	20.7	13.7
33	523814	187838	0	29.3	24.5	16.8	20.0	22.3	14.6
34	523667	187954	0	29.3	24.5	16.8	20.0	22.3	14.6
35	523330	187574	0	29.3	24.5	16.8	20.0	22.3	14.6

Receptor ID	X(m)	Y(m)	Z(m)	Background Annual Mean Concentrations (µg/m^3)					
				2012			2031 *		
				NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
36	523156	188151	0	29.6	23.7	16.3	19.5	21.4	14.1
37	523096	188248	0	29.6	23.7	16.3	19.5	21.4	14.1
38	522930	188547	0	29.0	23.5	16.1	19.9	21.3	14.0
39	523694	188015	0	29.6	23.7	16.3	19.5	21.4	14.1
40	523712	188081	0	29.6	23.7	16.3	19.5	21.4	14.1
41	523794	188103	0	29.6	23.7	16.3	19.5	21.4	14.1
42	523890	188232	0	29.6	23.7	16.3	19.5	21.4	14.1
43	523887	188299	0	29.6	23.7	16.3	19.5	21.4	14.1
44	524102	188334	0	29.2	23.3	16.1	19.4	21.1	13.9
45	524214	188257	0	29.2	23.3	16.1	19.4	21.1	13.9
46	524279	188122	0	29.2	23.3	16.1	19.4	21.1	13.9
47	523901	188464	0	29.6	23.7	16.3	19.5	21.4	14.1
48	523978	188456	0	29.6	23.7	16.3	19.5	21.4	14.1
49	523795	188618	0	29.6	23.7	16.3	19.5	21.4	14.1
50	523652	188691	0	29.6	23.7	16.3	19.5	21.4	14.1
51	523761	188577	0	29.6	23.7	16.3	19.5	21.4	14.1
52	524211	187280	0	29.4	22.9	15.9	19.6	20.7	13.7
53	523901	187635	0	29.3	24.5	16.8	20.0	22.3	14.6
54	523115	186655	0	30.0	22.6	15.7	20.9	20.3	13.6
55	523254	186482	0	30.0	22.6	15.7	20.9	20.3	13.6
56	523553	186038	0	30.0	22.6	15.7	20.9	20.3	13.6
57	523707	185835	0	29.7	22.8	15.8	20.7	20.6	13.7
58	523774	185751	0	29.7	22.8	15.8	20.7	20.6	13.7
59	523816	185742	0	29.7	22.8	15.8	20.7	20.6	13.7
60	523804	185713	0	29.7	22.8	15.8	20.7	20.6	13.7
61	523666	186736	0	30.0	22.6	15.7	20.9	20.3	13.6
62	523656	186708	0	30.0	22.6	15.7	20.9	20.3	13.6
63	523848	186387	0	30.0	22.6	15.7	20.9	20.3	13.6
64	523350	185896	0	29.7	22.8	15.8	20.7	20.6	13.7
65	523016	186392	0	30.0	22.6	15.7	20.9	20.3	13.6
66	523227	186516	0	30.0	22.6	15.7	20.9	20.3	13.6
67	522780	186437	0	31.9	23.4	16.2	21.9	21.1	14.0
68	521135	185959	0	30.8	24.7	16.9	21.6	22.4	14.7
69	521160	186046	0	28.7	24.5	16.7	19.7	22.3	14.6
70	521170	186098	0	28.7	24.5	16.7	19.7	22.3	14.6
71	521218	186105	0	28.7	24.5	16.7	19.7	22.3	14.6
72	521287	186488	0	28.7	24.5	16.7	19.7	22.3	14.6
73	521320	186450	0	28.7	24.5	16.7	19.7	22.3	14.6
74	521741	186804	0	28.7	24.5	16.7	19.7	22.3	14.6
75	522705	187555	0	29.4	24.4	16.6	20.6	22.2	14.5
76	522576	187644	0	29.4	24.4	16.6	20.6	22.2	14.5
77	522217	188284	0	29.0	23.5	16.1	19.9	21.3	14.0

Receptor ID	X(m)	Y(m)	Z(m)	Background Annual Mean Concentrations (µg/m^3)					
				2012			2031 *		
				NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
78	522527	186636	0	31.9	23.4	16.2	21.9	21.1	14.0
79	522139	186570	0	31.9	23.4	16.2	21.9	21.1	14.0
80	522562	186784	0	31.9	23.4	16.2	21.9	21.1	14.0
81	522362	186761	0	31.9	23.4	16.2	21.9	21.1	14.0
82	522581	186239	0	31.9	23.4	16.2	21.9	21.1	14.0
83	521935	186529	0	28.7	24.5	16.7	19.7	22.3	14.6
84	521673	186319	0	28.7	24.5	16.7	19.7	22.3	14.6
85	521861	185977	0	30.8	24.7	16.9	21.6	22.4	14.7
86	521555	185793	0	30.8	24.7	16.9	21.6	22.4	14.7
87	521033	186184	0	28.7	24.5	16.7	19.7	22.3	14.6
88	520784	186312	0	28.1	22.2	15.5	19.3	20.1	13.4
89	521220	185538	0	30.8	24.7	16.9	21.6	22.4	14.7
90	520850	185125	0	31.5	23.4	16.3	22.1	21.1	14.1
91	520255	184555	0	32.1	24.7	16.9	22.5	22.6	14.9
92	525333	185590	0	29.8	22.7	15.7	20.6	20.5	13.6
93	525212	185796	0	29.8	22.7	15.7	20.6	20.5	13.6
94	523795	187815	5	29.3	24.5	16.8	20.0	22.3	14.6
95	524048	187954	0	29.4	22.9	15.9	19.6	20.7	13.7
96	524107	188982	0	29.2	23.3	16.1	19.4	21.1	13.9
97	524248	189219	0	27.1	23.6	16.1	18.0	21.4	14.1
98	524445	189318	0	27.1	23.6	16.1	18.0	21.4	14.1
99	523928	189600	0	28.9	22.4	15.6	19.4	20.1	13.5
100	523377	190224	0	25.5	21.0	14.7	16.9	18.8	12.7
101	522468	190635	0	24.7	22.4	15.5	17.0	20.4	13.5
102	522336	190639	0	24.7	22.4	15.5	17.0	20.4	13.5
103	522475	190278	0	24.7	22.4	15.5	17.0	20.4	13.5
104	522417	189831	0	26.6	22.8	15.7	18.3	20.7	13.7
105	522321	189136	0	26.6	22.8	15.7	18.3	20.7	13.7
106	522426	189119	0	26.6	22.8	15.7	18.3	20.7	13.7
107	522621	188929	0	29.0	23.5	16.1	19.9	21.3	14.0
108	522736	189103	0	26.6	22.8	15.7	18.3	20.7	13.7
109	522545	188777	0	29.0	23.5	16.1	19.9	21.3	14.0
110	521493	188680	0	27.7	21.7	15.2	19.5	19.5	13.1
111	521108	187535	0	27.6	21.3	15.0	18.6	19.2	12.9
112	520712	187526	0	27.1	21.0	14.8	18.4	18.8	12.7
113	522367	187934	0	29.4	24.4	16.6	20.6	22.2	14.5
114	522962	188120	0	29.0	23.5	16.1	19.9	21.3	14.0
115	523022	188066	0	29.6	23.7	16.3	19.5	21.4	14.1
116	522967	187714	0	29.4	24.4	16.6	20.6	22.2	14.5
117	522321	187565	0	29.4	24.4	16.6	20.6	22.2	14.5
118	522212	187823	0	29.4	24.4	16.6	20.6	22.2	14.5
119	522188	187911	0	29.4	24.4	16.6	20.6	22.2	14.5

Receptor ID	X(m)	Y(m)	Z(m)	Background Annual Mean Concentrations (µg/m^3)					
				2012			2031 *		
				NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
120	523176	186577	0	30.0	22.6	15.7	20.9	20.3	13.6
121	523470	186224	6	30.0	22.6	15.7	20.9	20.3	13.6
122	521858	189453	0	27.6	21.2	14.9	19.9	19.0	12.8
123	522177	188883	0	29.0	23.5	16.1	19.9	21.3	14.0
124	522258	189330	0	26.6	22.8	15.7	18.3	20.7	13.7
125	521423	191877	0	23.9	22.5	15.5	16.5	20.4	13.5
126	512459	198979	0	22.8	21.3	14.6	15.5	19.3	12.7
127	512002	202144	0	21.8	20.5	14.2	14.2	20.7	12.3
128	523280	188132	0	29.6	23.7	16.3	19.5	21.4	14.1
129	522702	186585	0.0	31.9	23.4	16.2	21.9	21.1	14.0

* 2030 is the latest forecast year available for background pollution forecast. It was assumed that background values for years 2030 and 2031 will be the same

Annex B – NO_2 Modelled Annual Mean Results at all Sensitive Receptors

Table A14.7 – Effect Significance for NO_2 Annual Mean at Sensitive Receptors

Receptor ID	NO_2 Annual Mean Concentrations (µg/m^3)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
1	56.2	35.7	39.2	3.5	Medium	Moderate Adverse
2	53.6	29.8	31.8	2.0	Medium	Slight Adverse
3	56.6	33.2	37.4	4.2	Large	Moderate Adverse
4	59.6	32.6	33.9	1.3	Small	Negligible
5	45.5	26.0	26.3	0.3	Imperceptible	Negligible
6	92.7	48.6	50.1	1.6	Small	Slight Adverse
7	47.8	27.0	27.4	0.4	Small	Negligible
8	38.5	23.2	23.5	0.2	Imperceptible	Negligible
9	45.1	25.7	26.0	0.3	Imperceptible	Negligible
10	56.0	31.3	31.7	0.4	Small	Negligible
11	45.6	25.8	26.2	0.4	Imperceptible	Negligible
12	53.3	28.2	29.1	0.9	Small	Negligible
13	51.2	28.1	27.8	-0.3	Imperceptible	Negligible
14	40.5	27.0	27.3	0.3	Imperceptible	Negligible
15	62.0	34.0	33.4	-0.6	Small	Negligible
16	64.3	37.3	40.3	3.0	Medium	Moderate Adverse
17	48.2	29.8	30.4	0.7	Small	Negligible
18	47.2	29.3	30.0	0.7	Small	Negligible
19	50.1	30.8	27.9	-2.9	Medium	Slight Beneficial
20	52.7	32.9	31.9	-0.9	Small	Negligible
21	50.9	31.6	31.8	0.2	Imperceptible	Negligible
22	51.8	33.9	33.7	-0.2	Imperceptible	Negligible
23	42.0	27.1	27.9	0.8	Small	Negligible
24	46.1	31.1	32.8	1.7	Small	Negligible
25	49.2	31.1	32.1	1.1	Small	Negligible
26	46.2	29.6	30.3	0.8	Small	Negligible
27	55.8	32.7	33.9	1.2	Small	Negligible
28	48.4	30.8	29.0	-1.8	Small	Negligible
29	48.7	30.8	29.5	-1.3	Small	Negligible
30	55.1	29.3	29.6	0.3	Imperceptible	Negligible
31	41.5	24.2	24.7	0.5	Small	Negligible
32	51.4	28.0	30.1	2.1	Medium	Slight Adverse
33	73.4	38.8	39.5	0.8	Small	Slight Adverse
34	53.0	29.1	29.0	-0.1	Imperceptible	Negligible
35	57.4	31.9	31.0	-0.9	Small	Negligible
36	45.7	25.7	26.2	0.5	Small	Negligible
37	54.5	29.3	29.1	-0.1	Imperceptible	Negligible
38	50.9	28.4	28.0	-0.4	Small	Negligible
39	58.2	30.5	30.5	0.0	Imperceptible	Negligible
40	61.1	32.1	32.7	0.6	Small	Negligible
41	61.2	31.8	32.1	0.3	Imperceptible	Negligible
42	63.2	32.8	33.2	0.3	Imperceptible	Negligible
43	55.4	29.6	30.2	0.6	Small	Negligible
44	61.2	33.1	33.4	0.3	Imperceptible	Negligible
45	64.0	35.0	34.8	-0.2	Imperceptible	Negligible
46	62.5	35.1	36.4	1.3	Small	Slight Adverse
47	66.2	35.3	36.1	0.8	Small	Slight Adverse
48	59.6	31.4	32.8	1.4	Small	Negligible

Receptor ID	NO_2 Annual Mean Concentrations ($\mu g/m^3$)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
49	69.8	39.0	38.9	-0.1	Imperceptible	Negligible
50	57.6	32.0	31.9	-0.1	Imperceptible	Negligible
51	54.4	31.7	31.7	0.0	Imperceptible	Negligible
52	55.1	29.7	32.0	2.4	Medium	Slight Adverse
53	42.7	24.8	27.7	2.8	Medium	Negligible
54	62.8	36.2	33.8	-2.5	Medium	Moderate Beneficial
55	62.4	36.2	36.2	0.1	Imperceptible	Negligible
56	61.1	34.8	33.6	-1.2	Small	Negligible
57	62.3	34.2	33.7	-0.6	Small	Negligible
58	66.5	36.4	38.0	1.6	Small	Slight Adverse
59	88.2	45.9	50.8	5.0	Large	Substantial Adverse
60	71.6	38.3	41.2	3.0	Medium	Moderate Adverse
61	57.7	37.4	36.6	-0.8	Small	Slight Beneficial
62	46.3	29.5	29.5	0.0	Imperceptible	Negligible
63	56.0	36.2	40.5	4.3	Large	Substantial Adverse
64	42.0	27.6	26.2	-1.4	Small	Negligible
65	51.3	30.1	31.8	1.7	Small	Negligible
66	63.4	36.0	35.7	-0.2	Imperceptible	Negligible
67	55.5	34.9	34.2	-0.7	Small	Negligible
68	61.0	32.5	32.9	0.4	Small	Negligible
69	69.9	34.6	35.9	1.2	Small	Negligible
70	66.3	32.5	34.0	1.5	Small	Negligible
71	69.6	33.8	35.6	1.8	Small	Negligible
72	64.0	31.7	33.3	1.6	Small	Negligible
73	70.1	33.7	35.8	2.1	Medium	Slight Adverse
74	64.5	31.2	32.9	1.7	Small	Negligible
75	56.2	32.3	30.0	-2.3	Medium	Slight Beneficial
76	52.7	30.2	30.2	0.0	Imperceptible	Negligible
77	50.8	29.7	30.9	1.2	Small	Negligible
78	47.9	28.2	29.3	1.1	Small	Negligible
79	53.5	31.4	32.9	1.5	Small	Negligible
80	51.8	30.9	31.7	0.9	Small	Negligible
81	45.9	27.8	29.2	1.4	Small	Negligible
82	49.4	30.5	30.3	-0.2	Imperceptible	Negligible
83	56.4	32.1	33.3	1.2	Small	Negligible
84	53.3	30.1	30.4	0.3	Imperceptible	Negligible
85	58.0	34.7	36.5	1.9	Small	Slight Adverse
86	79.0	43.3	43.7	0.5	Small	Slight Adverse
87	47.5	28.0	27.5	-0.5	Small	Negligible
88	48.4	27.6	27.4	-0.1	Imperceptible	Negligible
89	72.8	37.9	38.4	0.4	Small	Slight Adverse
90	65.4	35.5	35.8	0.3	Imperceptible	Negligible
91	72.5	39.6	40.1	0.5	Small	Slight Adverse
92	51.5	29.5	30.1	0.6	Small	Negligible
93	81.8	44.2	45.4	1.1	Small	Slight Adverse
94	54.8	29.7	29.0	-0.8	Small	Negligible
95	51.8	29.2	32.0	2.9	Medium	Slight Adverse
96	52.8	27.8	29.7	1.9	Small	Negligible
97	56.8	29.9	32.7	2.9	Medium	Slight Adverse
98	82.6	40.0	40.5	0.5	Small	Slight Adverse
99	39.7	23.6	23.7	0.0	Imperceptible	Negligible

Receptor ID	NO_2 Annual Mean Concentrations (µg/m^3)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
100	46.8	25.8	25.5	-0.4	Imperceptible	Negligible
101	45.7	24.7	25.1	0.4	Imperceptible	Negligible
102	38.5	22.8	23.1	0.3	Imperceptible	Negligible
103	42.9	24.3	24.7	0.4	Imperceptible	Negligible
104	42.9	24.9	25.5	0.7	Small	Negligible
105	45.9	26.9	27.5	0.6	Small	Negligible
106	48.0	26.8	27.1	0.3	Imperceptible	Negligible
107	42.0	25.3	25.4	0.1	Imperceptible	Negligible
108	61.1	33.6	34.4	0.8	Small	Negligible
109	51.7	30.8	31.0	0.2	Imperceptible	Negligible
110	52.5	31.5	31.9	0.4	Small	Negligible
111	54.9	30.8	32.2	1.4	Small	Negligible
112	48.4	27.8	28.8	1.0	Small	Negligible
113	46.0	27.6	28.7	1.1	Small	Negligible
114	52.2	28.4	29.9	1.5	Small	Negligible
115	52.6	24.9	29.5	4.6	Large	Slight Adverse
116	61.7	25.1	34.4	9.3	Large	Slight Adverse
117	39.1	23.5	24.8	1.3	Small	Negligible
118	48.5	29.7	31.5	1.8	Small	Negligible
119	46.0	27.8	27.9	0.1	Imperceptible	Negligible
120	61.0	34.2	34.5	0.3	Imperceptible	Negligible
121	76.3	42.6	40.6	-2.0	Small	Slight Beneficial
122	65.1	38.4	39.5	1.1	Small	Slight Adverse
123	44.0	26.5	27.8	1.3	Small	Negligible
124	44.5	26.1	27.6	1.5	Small	Negligible
125	53.6	31.1	32.3	1.2	Small	Negligible
126	34.0	20.1	20.0	-0.1	Imperceptible	Negligible
127	41.4	22.6	22.7	0.2	Imperceptible	Negligible
128	55.2	28.0	30.5	2.5	Medium	Slight Adverse
129	49.7	31.1	33.4	2.3	Medium	Slight Adverse

Table A14.8 – Effect Significance for NO_2 Annual Mean at Sensitive Receptors – NO_x Sensitivity Test

Receptor ID	NO_2 Annual Mean Concentrations (µg/m^3)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
1	56.2	66.5	75.1	8.6	Large	Substantial Adverse
2	53.6	55.3	61.3	6.0	Large	Substantial Adverse
3	56.6	61.7	72.7	11.0	Large	Substantial Adverse
4	59.6	61.3	65.6	4.4	Large	Substantial Adverse
5	45.5	47.9	48.8	0.9	Small	Slight Adverse
6	92.7	104.4	107.4	3.0	Medium	Moderate Adverse
7	47.8	52.0	52.7	0.7	Small	Slight Adverse
8	38.5	40.4	40.9	0.5	Small	Slight Adverse

Receptor ID	NO_2 Annual Mean Concentrations (µg/m^3)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
9	45.1	47.2	47.7	0.5	Small	Slight Adverse
10	56.0	60.7	61.2	0.5	Small	Slight Adverse
11	45.6	47.1	47.7	0.5	Small	Slight Adverse
12	53.3	52.4	53.8	1.4	Small	Slight Adverse
13	51.2	51.6	51.1	-0.6	Small	Slight Beneficial
14	40.5	44.9	45.6	0.6	Small	Slight Adverse
15	62.0	64.9	63.9	-1.0	Small	Slight Beneficial
16	64.3	70.9	80.2	9.3	Large	Substantial Adverse
17	48.2	52.2	54.2	2.0	Medium	Moderate Adverse
18	47.2	51.0	53.1	2.1	Medium	Moderate Adverse
19	50.1	57.9	51.5	-6.5	Large	Substantial Beneficial
20	52.7	55.9	54.2	-1.7	Small	Slight Beneficial
21	50.9	55.8	56.7	0.9	Small	Slight Adverse
22	51.8	57.2	56.6	-0.6	Small	Slight Beneficial
23	42.0	45.1	47.0	1.9	Small	Slight Adverse
24	46.1	53.8	57.4	3.6	Medium	Moderate Adverse
25	49.2	53.8	56.2	2.4	Medium	Moderate Adverse
26	46.2	48.9	50.4	1.5	Small	Slight Adverse
27	55.8	60.1	63.8	3.6	Medium	Moderate Adverse
28	48.4	54.0	51.0	-3.0	Medium	Moderate Beneficial
29	48.7	52.9	50.6	-2.3	Medium	Moderate Beneficial
30	55.1	56.5	56.7	0.2	Imperceptible	Negligible
31	41.5	42.9	44.3	1.4	Small	Slight Adverse
32	51.4	53.5	57.9	4.4	Large	Substantial Adverse
33	73.4	77.1	78.0	0.9	Small	Slight Adverse
34	53.0	54.5	53.8	-0.8	Small	Slight Beneficial
35	57.4	61.2	58.9	-2.3	Medium	Moderate Beneficial
36	45.7	47.5	48.6	1.1	Small	Slight Adverse
37	54.5	56.7	55.8	-0.9	Small	Slight Beneficial
38	50.9	53.0	51.3	-1.8	Small	Slight Beneficial
39	58.2	60.1	59.7	-0.4	Small	Slight Beneficial
40	61.1	63.5	64.8	1.3	Small	Slight Adverse
41	61.2	63.5	63.9	0.4	Imperceptible	Negligible
42	63.2	65.7	66.2	0.5	Small	Slight Adverse
43	55.4	57.7	59.2	1.6	Small	Slight Adverse
44	61.2	63.8	64.6	0.8	Small	Slight Adverse

Receptor ID	NO_2 Annual Mean Concentrations ($\mu g/m^3$)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
45	64.0	67.0	66.6	-0.3	Imperceptible	Negligible
46	62.5	66.2	69.0	2.8	Medium	Moderate Adverse
47	66.2	69.7	71.5	1.8	Small	Slight Adverse
48	59.6	61.6	65.1	3.4	Medium	Moderate Adverse
49	69.8	75.6	75.7	0.1	Imperceptible	Negligible
50	57.6	61.2	61.0	-0.1	Imperceptible	Negligible
51	54.4	60.1	60.1	0.1	Imperceptible	Negligible
52	55.1	57.6	62.4	4.7	Large	Substantial Adverse
53	42.7	44.2	50.9	6.8	Large	Substantial Adverse
54	62.8	67.7	63.6	-4.1	Large	Substantial Beneficial
55	62.4	67.7	69.2	1.5	Small	Slight Adverse
56	61.1	65.5	64.0	-1.5	Small	Slight Beneficial
57	62.3	65.1	65.0	-0.2	Imperceptible	Negligible
58	66.5	69.8	74.0	4.2	Large	Substantial Adverse
59	88.2	92.3	106.1	13.9	Large	Substantial Adverse
60	71.6	75.1	82.9	7.8	Large	Substantial Adverse
61	57.7	69.1	69.5	0.4	Imperceptible	Negligible
62	46.3	52.2	53.2	1.0	Small	Slight Adverse
63	56.0	67.2	77.4	10.2	Large	Substantial Adverse
64	42.0	46.3	43.4	-2.9	Medium	Moderate Beneficial
65	51.3	51.9	55.6	3.7	Medium	Moderate Adverse
66	63.4	67.5	68.5	1.1	Small	Slight Adverse
67	55.5	61.5	60.6	-0.8	Small	Slight Beneficial
68	61.0	61.7	62.4	0.7	Small	Slight Adverse
69	69.9	69.3	71.5	2.2	Medium	Moderate Adverse
70	66.3	64.7	67.4	2.7	Medium	Moderate Adverse
71	69.6	67.3	70.5	3.2	Medium	Moderate Adverse
72	64.0	62.4	65.5	3.1	Medium	Moderate Adverse
73	70.1	67.1	70.9	3.8	Medium	Moderate Adverse
74	64.5	61.9	65.1	3.2	Medium	Moderate Adverse
75	56.2	60.4	55.2	-5.2	Large	Substantial Beneficial
76	52.7	54.6	55.3	0.7	Small	Slight Adverse

Receptor ID	NO_2 Annual Mean Concentrations (µg/m^3)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
77	50.8	54.1	56.4	2.3	Medium	Moderate Adverse
78	47.9	48.6	51.1	2.5	Medium	Moderate Adverse
79	53.5	54.7	57.8	3.1	Medium	Moderate Adverse
80	51.8	53.9	55.7	1.8	Small	Slight Adverse
81	45.9	47.7	50.8	3.1	Medium	Moderate Adverse
82	49.4	53.1	53.8	0.6	Small	Slight Adverse
83	56.4	58.3	60.6	2.3	Medium	Moderate Adverse
84	53.3	54.4	55.0	0.6	Small	Slight Adverse
85	58.0	61.8	66.2	4.4	Large	Substantial Adverse
86	79.0	84.0	85.1	1.1	Small	Slight Adverse
87	47.5	50.7	49.7	-1.0	Small	Slight Beneficial
88	48.4	50.4	50.0	-0.4	Imperceptible	Negligible
89	72.8	73.3	74.0	0.7	Small	Slight Adverse
90	65.4	66.1	66.4	0.3	Imperceptible	Negligible
91	72.5	73.8	74.6	0.8	Small	Slight Adverse
92	51.5	55.5	56.6	1.1	Small	Slight Adverse
93	81.8	91.1	93.2	2.1	Medium	Moderate Adverse
94	54.8	57.0	54.1	-3.0	Medium	Moderate Beneficial
95	51.8	54.5	61.2	6.6	Large	Substantial Adverse
96	52.8	53.8	58.6	4.8	Large	Substantial Adverse
97	56.8	59.9	66.4	6.5	Large	Substantial Adverse
98	82.6	82.1	83.4	1.3	Small	Slight Adverse
99	39.7	41.1	41.6	0.5	Small	Slight Adverse
100	46.8	48.8	48.4	-0.3	Imperceptible	Negligible
101	45.7	45.9	46.9	1.0	Small	Slight Adverse
102	38.5	40.5	41.1	0.6	Small	Slight Adverse
103	42.9	45.4	45.7	0.4	Imperceptible	Negligible
104	42.9	45.0	46.1	1.1	Small	Slight Adverse
105	45.9	49.2	50.2	1.0	Small	Slight Adverse
106	48.0	50.2	50.3	0.1	Imperceptible	Negligible
107	42.0	44.1	44.1	0.0	Imperceptible	Negligible
108	61.1	63.4	64.8	1.4	Small	Slight Adverse
109	51.7	56.4	57.0	0.7	Small	Slight Adverse
110	52.5	57.8	59.7	1.9	Small	Slight Adverse
111	54.9	55.7	59.6	3.9	Medium	Moderate Adverse

Receptor ID	NO_2 Annual Mean Concentrations (µg/m³)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
112	48.4	49.1	52.3	3.2	Medium	Moderate Adverse
113	46.0	47.9	50.0	2.2	Medium	Moderate Adverse
114	52.2	55.9	55.4	-0.5	Small	Slight Beneficial
115	52.6	55.7	56.5	0.9	Small	Slight Adverse
116	61.7	64.3	65.5	1.2	Small	Slight Adverse
117	39.1	40.4	41.8	1.3	Small	Slight Adverse
118	48.5	53.5	57.6	4.2	Large	Substantial Adverse
119	46.0	47.9	48.6	0.7	Small	Slight Adverse
120	61.0	66.3	67.1	0.8	Small	Slight Adverse
121	76.3	82.5	79.6	-2.9	Medium	Moderate Beneficial
122	65.1	71.2	73.7	2.5	Medium	Moderate Adverse
123	44.0	45.7	48.5	2.8	Medium	Moderate Adverse
124	44.5	46.4	49.5	3.0	Medium	Moderate Adverse
125	53.6	57.5	60.2	2.7	Medium	Moderate Adverse
126	34.0	34.9	35.2	0.3	Imperceptible	Negligible
127	41.4	43.7	44.5	0.8	Small	Slight Adverse
128	55.2	58.0	58.8	0.8	Small	Slight Adverse
129	49.7	54.5	58.7	4.2	Large	Substantial Adverse

Table A14.9 – Effect Significance for PM_{10} Annual Mean at Sensitive Receptors

Receptor ID	PM_{10} Annual Mean Concentrations (µg/m³)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
1	24.4	22.4	23.1	0.7	Small	Negligible
2	24.6	22.0	22.3	0.3	Imperceptible	Negligible
3	23.9	21.4	21.9	0.5	Small	Negligible
4	25.2	22.4	22.6	0.2	Imperceptible	Negligible
5	26.3	23.7	23.9	0.2	Imperceptible	Negligible
6	27.3	24.7	25.0	0.3	Imperceptible	Negligible
7	26.0	23.5	23.7	0.2	Imperceptible	Negligible
8	24.9	22.6	22.7	0.1	Imperceptible	Negligible
9	26.2	23.5	23.6	0.1	Imperceptible	Negligible
10	29.2	26.0	26.3	0.2	Imperceptible	Negligible
11	26.2	23.3	23.5	0.2	Imperceptible	Negligible

Receptor ID	PM_{10} Annual Mean Concentrations ($\mu g/m^3$)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
12	24.4	21.7	21.8	0.1	Imperceptible	Negligible
13	24.3	21.7	21.7	0.0	Imperceptible	Negligible
14	22.7	20.6	20.7	0.0	Imperceptible	Negligible
15	24.8	22.2	22.2	0.0	Imperceptible	Negligible
16	25.4	22.7	23.3	0.6	Small	Negligible
17	23.3	21.0	21.0	0.1	Imperceptible	Negligible
18	23.2	20.9	21.0	0.1	Imperceptible	Negligible
19	23.2	21.0	20.7	-0.4	Imperceptible	Negligible
20	24.6	22.2	22.1	-0.1	Imperceptible	Negligible
21	23.5	21.3	21.3	0.0	Imperceptible	Negligible
22	24.7	22.4	22.4	0.0	Imperceptible	Negligible
23	23.6	21.4	21.5	0.1	Imperceptible	Negligible
24	24.0	21.9	22.2	0.2	Imperceptible	Negligible
25	24.3	22.0	22.1	0.2	Imperceptible	Negligible
26	23.5	21.2	21.3	0.1	Imperceptible	Negligible
27	24.6	22.1	22.3	0.2	Imperceptible	Negligible
28	24.1	21.8	21.6	-0.2	Imperceptible	Negligible
29	24.2	21.8	21.6	-0.2	Imperceptible	Negligible
30	28.5	24.9	25.1	0.1	Imperceptible	Negligible
31	25.6	22.9	22.8	-0.1	Imperceptible	Negligible
32	28.4	25.4	25.4	0.1	Imperceptible	Negligible
33	28.3	25.4	25.6	0.2	Imperceptible	Negligible
34	29.2	25.8	26.0	0.2	Imperceptible	Negligible
35	29.7	26.2	26.0	-0.2	Imperceptible	Negligible
36	27.5	24.7	24.7	0.0	Imperceptible	Negligible
37	30.8	27.5	27.3	-0.2	Imperceptible	Negligible
38	28.6	25.4	25.4	0.0	Imperceptible	Negligible
39	29.0	25.1	25.3	0.2	Imperceptible	Negligible
40	29.4	25.5	25.7	0.2	Imperceptible	Negligible
41	29.4	25.4	25.5	0.1	Imperceptible	Negligible
42	29.8	25.7	25.8	0.1	Imperceptible	Negligible
43	28.1	24.5	24.7	0.2	Imperceptible	Negligible
44	25.5	22.7	22.7	0.0	Imperceptible	Negligible
45	26.0	23.3	23.2	-0.1	Imperceptible	Negligible
46	26.0	23.3	23.5	0.2	Imperceptible	Negligible
47	26.0	23.2	23.2	0.0	Imperceptible	Negligible
48	29.0	25.1	25.2	0.1	Imperceptible	Negligible
49	26.6	23.8	23.7	0.0	Imperceptible	Negligible
50	25.6	23.0	22.9	-0.1	Imperceptible	Negligible
51	25.3	22.9	22.8	0.0	Imperceptible	Negligible
52	29.6	26.4	26.4	0.1	Imperceptible	Negligible

Receptor ID	PM_{10} Annual Mean Concentrations ($\mu g/m^3$)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
53	27.7	25.0	25.3	0.3	Imperceptible	Negligible
54	24.8	22.2	21.7	-0.4	Small	Negligible
55	24.7	22.1	22.2	0.1	Imperceptible	Negligible
56	24.7	22.2	22.0	-0.2	Imperceptible	Negligible
57	24.9	22.2	22.1	0.0	Imperceptible	Negligible
58	25.0	22.3	22.5	0.3	Imperceptible	Negligible
59	27.0	23.7	25.0	1.3	Small	Negligible
60	25.5	22.6	23.2	0.6	Small	Negligible
61	24.7	22.9	22.9	0.0	Imperceptible	Negligible
62	23.6	21.5	21.5	0.0	Imperceptible	Negligible
63	24.5	22.6	23.0	0.4	Imperceptible	Negligible
64	23.6	21.4	21.2	-0.2	Imperceptible	Negligible
65	24.1	21.5	21.7	0.2	Imperceptible	Negligible
66	24.8	22.1	22.0	0.0	Imperceptible	Negligible
67	25.2	22.8	22.7	-0.1	Imperceptible	Negligible
68	29.9	26.0	26.0	0.0	Imperceptible	Negligible
69	32.3	27.4	27.6	0.2	Imperceptible	Negligible
70	30.8	26.2	26.4	0.2	Imperceptible	Negligible
71	31.2	26.4	26.6	0.1	Imperceptible	Negligible
72	30.0	25.6	25.7	0.1	Imperceptible	Negligible
73	31.0	26.1	26.3	0.1	Imperceptible	Negligible
74	29.9	25.4	25.5	0.1	Imperceptible	Negligible
75	28.5	25.0	25.1	0.1	Imperceptible	Negligible
76	28.5	25.0	25.2	0.2	Imperceptible	Negligible
77	27.8	24.6	24.8	0.2	Imperceptible	Negligible
78	24.4	21.8	22.0	0.1	Imperceptible	Negligible
79	24.9	22.3	22.5	0.2	Imperceptible	Negligible
80	24.7	22.2	22.3	0.1	Imperceptible	Negligible
81	24.2	21.7	21.9	0.2	Imperceptible	Negligible
82	24.7	22.2	22.2	0.0	Imperceptible	Negligible
83	26.4	23.9	24.0	0.2	Imperceptible	Negligible
84	26.1	23.6	23.6	0.0	Imperceptible	Negligible
85	26.7	24.1	24.4	0.3	Imperceptible	Negligible
86	28.7	25.7	25.8	0.0	Imperceptible	Negligible
87	28.0	25.4	25.2	-0.2	Imperceptible	Negligible
88	25.6	22.6	22.6	-0.1	Imperceptible	Negligible
89	31.5	26.4	26.5	0.1	Imperceptible	Negligible
90	28.4	23.6	23.7	0.1	Imperceptible	Negligible
91	31.3	26.5	26.6	0.1	Imperceptible	Negligible
92	24.1	21.8	21.9	0.1	Imperceptible	Negligible
93	27.2	24.7	24.9	0.2	Imperceptible	Negligible

Receptor ID	PM_{10} Annual Mean Concentrations ($\mu g/m^3$)				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
94	30.7	27.5	26.9	-0.6	Small	Negligible
95	24.5	21.9	22.3	0.3	Imperceptible	Negligible
96	26.9	23.4	23.5	0.1	Imperceptible	Negligible
97	28.1	24.4	24.5	0.1	Imperceptible	Negligible
98	31.7	25.7	25.8	0.1	Imperceptible	Negligible
99	24.0	21.2	21.2	0.0	Imperceptible	Negligible
100	23.9	20.5	20.5	0.0	Imperceptible	Negligible
101	25.7	22.5	22.5	0.1	Imperceptible	Negligible
102	24.5	21.8	21.9	0.1	Imperceptible	Negligible
103	26.0	23.1	23.2	0.1	Imperceptible	Negligible
104	25.9	23.0	23.1	0.1	Imperceptible	Negligible
105	27.1	24.4	24.6	0.1	Imperceptible	Negligible
106	28.0	25.0	25.0	0.1	Imperceptible	Negligible
107	26.2	23.5	23.5	0.0	Imperceptible	Negligible
108	25.5	22.8	22.9	0.1	Imperceptible	Negligible
109	25.1	22.6	22.6	0.0	Imperceptible	Negligible
110	23.5	21.1	21.2	0.1	Imperceptible	Negligible
111	23.5	20.7	21.0	0.2	Imperceptible	Negligible
112	22.6	20.0	20.2	0.2	Imperceptible	Negligible
113	27.4	24.4	24.5	0.1	Imperceptible	Negligible
114	25.1	22.6	22.5	-0.1	Imperceptible	Negligible
115	25.1	22.6	22.6	-0.1	Imperceptible	Negligible
116	26.4	23.7	23.8	0.1	Imperceptible	Negligible
117	26.1	23.6	23.8	0.2	Imperceptible	Negligible
118	28.6	25.9	26.4	0.4	Small	Negligible
119	27.8	24.9	24.8	-0.1	Imperceptible	Negligible
120	24.5	21.9	21.8	-0.2	Imperceptible	Negligible
121	25.9	23.0	22.8	-0.2	Imperceptible	Negligible
122	24.4	21.8	21.9	0.1	Imperceptible	Negligible
123	26.0	23.0	23.2	0.3	Imperceptible	Negligible
124	25.9	22.9	23.2	0.3	Imperceptible	Negligible
125	27.7	23.8	24.2	0.4	Small	Negligible
126	23.1	20.5	20.5	0.1	Imperceptible	Negligible
127	23.6	22.8	22.8	0.1	Imperceptible	Negligible
128	30.7	27.5	27.5	-0.1	Imperceptible	Negligible
129	24.6	22.3	22.6	0.3	Imperceptible	Negligible

Table A14.10 – Effect Significance for PM_{10} 24-Hour Mean at Sensitive Receptors

Receptor ID	N.o. PM_{10} 24-Hour Mean Concentrations > 50 µg/m³				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
1	11	7	8	1	Small	Negligible
2	12	6	7	1	Imperceptible	Negligible
3	10	5	6	1	Imperceptible	Negligible
4	13	7	7	0	Imperceptible	Negligible
5	16	9	10	1	Imperceptible	Negligible
6	18	12	12	0	Imperceptible	Negligible
7	15	9	10	1	Imperceptible	Negligible
8	12	7	8	1	Imperceptible	Negligible
9	15	9	9	0	Imperceptible	Negligible
10	25	15	16	1	Imperceptible	Negligible
11	16	9	9	0	Imperceptible	Negligible
12	11	6	6	0	Imperceptible	Negligible
13	11	6	6	0	Imperceptible	Negligible
14	8	4	4	0	Imperceptible	Negligible
15	12	7	7	0	Imperceptible	Negligible
16	13	8	9	1	Small	Negligible
17	9	5	5	0	Imperceptible	Negligible
18	8	5	5	0	Imperceptible	Negligible
19	8	5	4	-1	Imperceptible	Negligible
20	12	7	6	-1	Imperceptible	Negligible
21	9	5	5	0	Imperceptible	Negligible
22	12	7	7	0	Imperceptible	Negligible
23	9	5	5	0	Imperceptible	Negligible
24	10	6	7	1	Imperceptible	Negligible
25	11	6	7	1	Imperceptible	Negligible
26	9	5	5	0	Imperceptible	Negligible
27	11	7	7	0	Imperceptible	Negligible
28	10	6	6	0	Imperceptible	Negligible
29	10	6	6	0	Imperceptible	Negligible
30	22	12	13	1	Imperceptible	Negligible
31	14	8	8	0	Imperceptible	Negligible
32	22	13	13	0	Imperceptible	Negligible
33	22	13	14	1	Imperceptible	Negligible
34	25	14	15	1	Imperceptible	Negligible
35	27	16	15	-1	Imperceptible	Negligible
36	19	12	12	0	Imperceptible	Negligible
37	30	19	19	0	Imperceptible	Negligible
38	23	13	13	0	Imperceptible	Negligible
39	24	13	13	0	Imperceptible	Negligible
40	25	14	14	0	Imperceptible	Negligible
41	25	13	14	1	Imperceptible	Negligible

Receptor ID	N.o. PM_{10} 24-Hour Mean Concentrations > 50 µg/m^3				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
42	27	14	14	0	Imperceptible	Negligible
43	21	11	12	1	Imperceptible	Negligible
44	14	8	8	0	Imperceptible	Negligible
45	15	9	9	0	Imperceptible	Negligible
46	15	9	9	0	Imperceptible	Negligible
47	15	8	8	0	Imperceptible	Negligible
48	24	13	13	0	Imperceptible	Negligible
49	17	10	10	0	Imperceptible	Negligible
50	14	8	8	0	Imperceptible	Negligible
51	13	8	8	0	Imperceptible	Negligible
52	26	16	16	0	Imperceptible	Negligible
53	20	12	13	1	Imperceptible	Negligible
54	12	7	6	-1	Imperceptible	Negligible
55	12	6	7	1	Imperceptible	Negligible
56	12	7	6	-1	Imperceptible	Negligible
57	12	7	7	0	Imperceptible	Negligible
58	12	7	7	0	Imperceptible	Negligible
59	18	9	12	3	Medium	Negligible
60	14	7	9	2	Small	Negligible
61	12	8	8	0	Imperceptible	Negligible
62	9	5	5	0	Imperceptible	Negligible
63	11	7	8	1	Imperceptible	Negligible
64	9	5	5	0	Imperceptible	Negligible
65	10	5	6	1	Imperceptible	Negligible
66	12	6	6	0	Imperceptible	Negligible
67	13	8	8	0	Imperceptible	Negligible
68	27	15	15	0	Imperceptible	Negligible
69	37	19	19	0	Imperceptible	Negligible
70	30	15	16	1	Imperceptible	Negligible
71	32	16	16	0	Imperceptible	Negligible
72	28	14	14	0	Imperceptible	Negligible
73	31	15	16	1	Imperceptible	Negligible
74	27	13	14	1	Imperceptible	Negligible
75	22	12	13	1	Imperceptible	Negligible
76	22	12	13	1	Imperceptible	Negligible
77	20	11	12	1	Imperceptible	Negligible
78	11	6	6	0	Imperceptible	Negligible
79	12	7	7	0	Imperceptible	Negligible
80	12	7	7	0	Imperceptible	Negligible
81	11	6	6	0	Imperceptible	Negligible
82	12	7	7	0	Imperceptible	Negligible

Receptor ID	N.o. PM_{10} 24-Hour Mean Concentrations > 50 µg/m^3				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
83	16	10	10	0	Imperceptible	Negligible
84	15	9	9	0	Imperceptible	Negligible
85	17	10	11	1	Imperceptible	Negligible
86	23	14	14	0	Imperceptible	Negligible
87	21	13	13	0	Imperceptible	Negligible
88	14	7	7	0	Imperceptible	Negligible
89	34	16	16	0	Imperceptible	Negligible
90	22	9	9	0	Imperceptible	Negligible
91	33	16	17	1	Imperceptible	Negligible
92	10	6	6	0	Imperceptible	Negligible
93	18	12	12	0	Imperceptible	Negligible
94	30	19	18	-1	Small	Negligible
95	11	6	7	1	Imperceptible	Negligible
96	17	9	9	0	Imperceptible	Negligible
97	21	11	11	0	Imperceptible	Negligible
98	34	14	14	0	Imperceptible	Negligible
99	10	5	5	0	Imperceptible	Negligible
100	10	4	4	0	Imperceptible	Negligible
101	14	7	7	0	Imperceptible	Negligible
102	11	6	6	0	Imperceptible	Negligible
103	15	8	9	1	Imperceptible	Negligible
104	15	8	8	0	Imperceptible	Negligible
105	18	11	11	0	Imperceptible	Negligible
106	21	12	12	0	Imperceptible	Negligible
107	15	9	9	0	Imperceptible	Negligible
108	14	8	8	0	Imperceptible	Negligible
109	13	7	7	0	Imperceptible	Negligible
110	9	5	5	0	Imperceptible	Negligible
111	9	4	5	1	Imperceptible	Negligible
112	7	3	4	1	Imperceptible	Negligible
113	19	11	11	0	Imperceptible	Negligible
114	13	7	7	0	Imperceptible	Negligible
115	13	7	7	0	Imperceptible	Negligible
116	16	10	10	0	Imperceptible	Negligible
117	15	9	10	1	Imperceptible	Negligible
118	23	15	16	1	Small	Negligible
119	20	12	12	0	Imperceptible	Negligible
120	11	6	6	0	Imperceptible	Negligible
121	15	8	8	0	Imperceptible	Negligible
122	11	6	6	0	Imperceptible	Negligible
123	15	8	9	1	Imperceptible	Negligible

Receptor ID	N.o. PM_{10} 24-Hour Mean Concentrations > 50 µg/m^3				Magnitude	Significance
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change		
124	15	8	8	0	Imperceptible	Negligible
125	20	10	11	1	Imperceptible	Negligible
126	8	4	4	0	Imperceptible	Negligible
127	9	8	8	0	Imperceptible	Negligible
128	30	19	19	0	Imperceptible	Negligible
129	11	7	7	0	Imperceptible	Negligible

Table A14.11 – Modelled $PM_{2.5}$ Annual Mean Concentrations at Sensitive Receptors

Receptor ID	$PM_{2.5}$ Annual Mean Concentrations (µg/m^3)			
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change
1	16.9	14.6	15.0	0.4
2	16.9	14.4	14.6	0.2
3	16.5	14.1	14.4	0.3
4	17.3	14.6	14.8	0.1
5	18.0	15.3	15.4	0.1
6	18.7	15.9	16.0	0.1
7	17.9	15.2	15.3	0.1
8	17.1	14.7	14.8	0.1
9	17.9	15.2	15.3	0.1
10	19.8	16.6	16.7	0.1
11	18.0	15.1	15.2	0.1
12	16.8	14.2	14.3	0.1
13	16.7	14.3	14.2	0.0
14	15.8	13.7	13.7	0.0
15	17.1	14.6	14.6	0.0
16	17.5	14.8	15.1	0.3
17	16.1	13.9	13.9	0.0
18	16.1	13.8	13.9	0.0
19	16.1	13.9	13.7	-0.2
20	16.9	14.5	14.5	-0.1
21	16.3	14.0	14.0	0.0
22	16.9	14.7	14.6	0.0
23	16.3	14.1	14.2	0.1
24	16.6	14.4	14.5	0.1
25	16.8	14.4	14.5	0.1
26	16.3	14.0	14.1	0.0
27	17.0	14.5	14.6	0.1
28	16.6	14.3	14.2	-0.1
29	16.7	14.3	14.3	-0.1
30	19.6	16.1	16.2	0.1

Receptor ID	$PM_{2.5}$ Annual Mean Concentrations (µg/m^3)			
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change
31	17.6	14.9	14.9	-0.1
32	19.3	16.2	16.3	0.0
33	19.2	16.3	16.4	0.1
34	19.9	16.5	16.6	0.1
35	20.4	16.8	16.7	-0.1
36	18.8	15.9	15.9	0.0
37	20.7	17.4	17.3	-0.1
38	19.4	16.2	16.2	0.0
39	20.0	16.3	16.4	0.1
40	20.4	16.5	16.6	0.1
41	20.4	16.4	16.5	0.1
42	20.8	16.6	16.7	0.1
43	19.5	15.9	16.0	0.1
44	17.6	14.8	14.8	0.0
45	17.9	15.1	15.1	0.0
46	17.9	15.1	15.2	0.1
47	17.9	15.1	15.1	0.0
48	20.1	16.3	16.3	0.1
49	18.3	15.4	15.4	0.0
50	17.6	15.0	14.9	0.0
51	17.4	14.9	14.9	0.0
52	20.1	16.8	16.8	0.0
53	18.8	16.0	16.2	0.2
54	17.1	14.5	14.3	-0.2
55	17.1	14.5	14.5	0.0
56	17.1	14.5	14.4	-0.1
57	17.2	14.5	14.5	0.0
58	17.3	14.6	14.7	0.2
59	18.6	15.3	16.1	0.7
60	17.6	14.8	15.1	0.3
61	17.1	14.9	14.9	0.0
62	16.4	14.2	14.2	0.0
63	16.9	14.8	15.0	0.2
64	16.3	14.1	14.0	-0.1
65	16.7	14.2	14.3	0.1
66	17.1	14.5	14.5	0.0
67	17.3	14.9	14.8	-0.1
68	20.6	16.7	16.8	0.0
69	22.3	17.6	17.7	0.1
70	21.3	16.9	17.0	0.1
71	21.7	17.0	17.1	0.1
72	20.8	16.6	16.6	0.1

Receptor ID	$PM_{2.5}$ Annual Mean Concentrations (µg/m^3)			
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change
73	21.6	16.9	17.0	0.1
74	20.8	16.4	16.5	0.1
75	19.7	16.2	16.2	0.1
76	19.7	16.2	16.3	0.1
77	19.2	15.9	16.0	0.1
78	16.8	14.4	14.4	0.1
79	17.2	14.6	14.7	0.1
80	17.1	14.5	14.6	0.1
81	16.7	14.3	14.4	0.1
82	17.0	14.6	14.5	0.0
83	18.0	15.5	15.5	0.1
84	17.8	15.3	15.3	0.0
85	18.2	15.6	15.8	0.1
86	19.5	16.5	16.5	0.0
87	19.0	16.3	16.2	-0.1
88	17.7	14.8	14.8	0.0
89	22.1	17.1	17.2	0.1
90	20.2	15.6	15.6	0.0
91	22.0	17.3	17.3	0.1
92	16.6	14.3	14.4	0.1
93	18.6	15.8	16.0	0.1
94	20.7	17.4	17.1	-0.3
95	16.9	14.4	14.6	0.2
96	18.8	15.3	15.4	0.1
97	19.5	15.9	15.9	0.1
98	22.5	16.7	16.7	0.0
99	16.8	14.1	14.1	0.0
100	17.0	13.7	13.7	0.0
101	17.9	14.7	14.8	0.0
102	17.0	14.3	14.4	0.0
103	17.8	15.0	15.1	0.0
104	17.8	15.0	15.1	0.1
105	18.6	15.7	15.8	0.1
106	19.0	16.0	16.0	0.0
107	17.9	15.2	15.2	0.0
108	17.5	14.9	14.9	0.1
109	17.2	14.8	14.8	0.0
110	16.4	14.0	14.0	0.0
111	16.4	13.8	13.9	0.1
112	15.8	13.4	13.5	0.1
113	18.8	15.8	15.8	0.1
114	17.2	14.8	14.7	-0.1

Receptor ID	$PM_{2.5}$ Annual Mean Concentrations (µg/m^3)			
	Baseline 2012	Do Minimum 2031	Do Something 2031	Change
115	17.3	14.8	14.8	0.0
116	18.1	15.4	15.4	0.0
117	17.8	15.3	15.4	0.1
118	19.4	16.6	16.8	0.2
119	18.9	16.0	15.9	-0.1
120	17.0	14.4	14.3	-0.1
121	17.9	15.0	14.9	-0.1
122	17.0	14.4	14.4	0.1
123	18.0	15.0	15.2	0.2
124	18.0	15.0	15.1	0.2
125	19.5	15.5	15.8	0.2
126	16.0	13.4	13.4	0.0
127	16.5	13.5	13.6	0.0
128	20.7	17.4	17.4	0.0
129	17.0	14.6	14.7	0.1

1 Defra (2012) Local Air Quality Management: Note on Projecting NO2 Concentrations

2 Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1 – HA/207 – Air Quality

3 Defra (June 2014) UK Background Air Pollution Maps. http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html (Accessed October 2014)

4 AEA (September 2012) NOX to NO2 Calculator. http://laqm1.defra.gov.uk/review/tools/monitoring/calculator.php (Accessed October 2014)

5 AEA (2008) Analysis of the relationship between annual-mean nitrogen dioxide concentration and exceedances of the 1-hour mean AQS Objective