



# 2016 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the  
Environment Act 1995  
Local Air Quality Management

December 2016

## Solihull Metropolitan Borough Council

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## Executive Summary: Air Quality in Our Area

### Air Quality in Solihull Metropolitan Borough Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas<sup>1,2</sup>.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion<sup>3</sup>.

Improving air quality can benefit those who may find their conditions are made worse through exposure to air pollution, for example people with heart or lung conditions. More information about the health effects of air pollution can be found at:

<http://www.solihull.gov.uk/Portals/0/StrategiesPlansPolicies/PublicHealth/JSNA.pdf>

Monitoring of nitrogen dioxide occurred for many years in Solihull but ceased in 2013 as concentrations were well below the annual average air quality objective and there are no Air Quality Management Areas in the Borough. A site at the Old Station Road had an annual average of 39.7  $\mu\text{g m}^{-3}$  in 2011 as included in the 2012 Annual Progress report submission. However, this site was 67m<sup>4</sup> from the nearest receptor location. Therefore, using the NO<sub>2</sub> fall off with distance tool, the estimated concentration at the nearest receptor would have been <30.3  $\mu\text{g m}^{-3}$  in 2011. Using the NO<sub>2</sub> year adjustment factors this is estimated to be <25.5  $\mu\text{g m}^{-3}$  in 2015, which is substantially below the air quality objective of 40  $\mu\text{g m}^{-3}$ .

### Actions to Improve Air Quality

Solihull Metropolitan Borough Council has taken forward a number of initiatives during the current reporting year in pursuit of improving local air quality.

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<sup>1</sup> Environmental equity, air quality, socioeconomic status and respiratory health, 2010

<sup>2</sup> Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Abatement cost guidance for valuing changes in air quality, May 2013

<sup>4</sup> The maximum distance for the Defra NO<sub>2</sub> distance calculator is 50 m. The estimated concentration at 67 m would be less than that calculated for 50 m.

## Local Priorities and Challenges

Priority areas for action are firstly increasing public awareness and involvement in the solution to air pollution and secondly increasing multi-agency involvement in the air pollution problem. Specific priority actions include the promotion and establishment of Travel Plans, and the establishment of new and improvement of existing Walking and Cycling Schemes across the Borough. Through influencing the decisions members of the general public make every day with regard to transport mode selection, significant reductions in emissions can be achieved, resulting in health benefits to all.

## How to Get Involved

Road vehicles are a major source of many pollutants in urban areas. They produce over 50 per cent of the emissions of nitrogen oxides in the UK.

### Before using your car, ask yourself:

- do I really need to make this journey?
- could I walk or cycle instead of taking the car?
- could I take a bus, tram or train?
- are the levels of air pollution already too high today?

### If you must drive:

- drive smoothly. You'll save fuel, and your engine will also pollute less;
- don't rev your engine unnecessarily;
- maintain your car. Keep the engine properly tuned and the tyres at the right pressure; and
  - turn off the engine when your car is stationary.

### At home

- Buy water-based or low-solvent paints, varnishes, glues and wood preservatives.
- Avoid burning solid fuels if possible. If you live in a smoke control area, burn only authorised smokeless fuels (your local authority can advise you).
- Avoid lighting bonfires, but if you must, don't light them when pollution levels are high or while the weather is still and cold. Only burn dry material and never burn

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household waste, especially plastic, rubber, foam or paint. Levels of pollution can be quite high on bonfire night and other events/festivals with bonfires, and sensitive people, including people with respiratory conditions, may notice some effects. However exposure can be considerably reduced by remaining indoors and keeping windows closed.

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# 1 Local Air Quality Management

This report provides an overview of air quality in Solihull Metropolitan Borough Council during 2015. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Solihull Metropolitan Borough Council to improve air quality and any progress that has been made.

Solihull Metropolitan Borough Council carried out monitoring of NO<sub>2</sub> using diffusion tubes for many years and this stopped on 1<sup>st</sup> April 2012. With the exception of one site none showed any exceedances and many were vandalised repeatedly therefore it was decided to cease this type of monitoring.

Solihull MBC has recognised that a cleaner, healthier environment benefits people and the economy. Clean air is vital for people's health and the environment, essential for making sure Solihull is a welcoming place for people to live and work now and in the future, and to our prosperity. It has been decided that the provision of an air quality monitoring regime which can provide robust baseline data is essential and working towards this will commence in 2017.

The statutory air quality objectives applicable to LAQM in England can be found in Appendix C.

This report was commissioned on behalf of Solihull Metropolitan Borough Council by Ricardo Energy and Environment.

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of the objectives.

There is no evidence of the air quality objectives being exceeded in Solihull, largely due to the rural and suburban nature with few dwellings near to busy roads or junctions, and consequently no AQMAs have been declared.

### 2.2 Progress and Impact of Measures to address Air Quality in Solihull Metropolitan Borough Council

Although Solihull MBC does not require an Air Quality Action Plan, the Authority has taken forward a number of measures to improve air quality and has embedded air quality into various local policies including :

- Local Plan 2013, which includes the following policy statements:
  - Encourage better air quality in and around the Borough through the adoption of low emission zone initiatives such as those involving the use of electric vehicles for freight and public transport. Development that would contribute to air pollution, either directly or indirectly will be permitted only if it would not hinder or significantly harm the achievement of air quality objectives or any relevant Air Quality Management Plan and it incorporates appropriate attenuation, mitigation or compensatory measures
  - The Council is a partner in the West Midlands Low Emissions Towns and Cities (LET&C) Programme and will support proposals aimed at securing better air quality across the metropolitan area, such as the provision of infrastructure to encourage the use of electric vehicles for freight and public transport journeys within and beyond the Borough. Best Practice Planning Guidance has been produced to provide further guidance for local authorities and developers. Developers should have

regard to air quality objectives in considering the location and design of a new development.

- Traffic Management Strategy for Solihull, 2013 – 2018 which includes the following policy statements:
  - The principal aim of the West Midlands Traffic Managers Group is to seek to maximise the traffic management benefits, and to achieve contributions to congestion, accessibility, air quality and safety targets in line with Local Transport Plan objectives as set out in the Traffic Management Act 2004.
  - The traffic management strategy aims to improve air quality through affordable public transport, by supporting active modes such as walking and cycling. Transport policy behaviour-change programmes also aim to encourage people to shift their transport choices towards walking and cycling such as 20 mph speed limits.
- Joint Strategic Needs Assessment – Prevention of ill health through the provision of a clean environment which includes the following policy statements:
  - Priority areas for action are firstly increasing public awareness and involvement in the solution and secondly increasing multi-agency involvement in the air pollution problem. Specific priority actions include the promotion and establishment of Travel Plans, and the establishment of new and improvement of existing Walking and Cycling Schemes across the City. Through influencing the decisions members of the general public make every day with regard to transport mode selection, significant reductions in emissions can be achieved, resulting in health benefits to all Solihull residents. The overarching indicator of success for all Strategy Objectives will be an improvement in air quality across Solihull, thus reducing exposure to pollutants for people; which will in turn improve their health, reduce death rates and also reduce the costs of their healthcare to the NHS. Specific actions to achieve this are in Table 2.1 which sets the current status and challenges in Solihull

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recommended lines of action for achieving objectives, timescale and indicators for success related to air quality.

- Proposed West Midlands Low Emission Vehicle Strategy, 2016 which includes the following policy statements:
  - Low Emissions Vehicles (LEVs) strategy focus on vehicles emissions, embracing new, cleaner vehicle technology and specifically promotes the use of low and ultra-low emission vehicles.
  - The emerging Tackling Transport Emissions Framework (TEF) initiative was approved by the West Midlands Integrated Transport Authority in January 2016 and forms part of the West Midlands Strategic Transport Plan. It includes measures that will be developed during 2016/2017 and implemented by the West Midlands Combined Authority. Key measures include the following:
    - Developing and adopting agreed metropolitan wide policies and targets towards the accelerated uptake and adoption of Ultra Low Emission Vehicles and associated infrastructure including hydrogen and gas refuelling opportunities. This could be potentially supported through the Planning System.
    - Developing and adopting agreed West Midlands wide policies and actions for Low Emission Zones or Clean Air Zones – in specific and suitable locations.
    - Accelerated timescales to clean up West Midlands buses, through the Integrated Transport Authority Bus Alliance and the West Midlands Low Emissions Bus Plan.
    - Making traffic management and regulation smarter through a West Midlands Key Route network.
    - Developing and adopting West Midlands specific policies to encourage the wider roll out of Car Clubs and active travel measures.
    - Further development of the Metropolitan Strategic Cycle Network – linked to the Integrated Transport Authority Cycle Charter.

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- Developing targeted policies toward zero emission taxis and private hire fleets.
  - Exploring the development of Low Emission Neighbourhoods and Green Travel Districts and ;
  - Developing an agreed funding, development and delivery framework.
- West Midlands Low Emissions Towns and Cities Good Practice Procurement Guidance which includes the following policy statements:
    - Innovative procurement practices can be adopted by public sector organisations (and others as required) to promote the uptake of cleaner vehicles and fuels. The guidance recognises the potential influence the public sector can have on transforming vehicle emissions including:
      - Local Sourcing initiatives and their ability to reduce road transport movements.
      - Integration of environmental performance criteria within public sector supply contracts.
      - Building on significant low emission vehicle development and demonstration activity within the West Midlands region to inform business cases for accelerated deployment of LEVs.
      - Legislative requirements for clean and fuel efficient procurement, including the consideration of Whole Life Costs and regional and national buying standards for transport.
      - Low emission vehicle and infrastructure cost reduction through joint procurement initiatives /public private partnerships, assisted by economies of scale.
      - Stimulating regional economic development and supporting the activity of the Local Enterprise Partnerships.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure and current status	Challenges in Solihull	Recommended lines of Action	Partners	Timescales	Recommended indicator for success
1	Solihull MBC produced both a walking and cycling strategy in 2009	Significant cost implication of implementing and running promotional schemes	Increased input from partner organisations in the promotion and development of schemes to promote both walking and cycling	LA Businesses and organisations in Solihull Public	On-going	>2 new schemes established in each year
2	Solihull Council has devised its own Green Travel Plan for Council staff	Resources are required to establish and maintain a Travel Plan effectively	Increase promotion and establishment of Travel Plans amongst organisations (schools and employers) across Solihull including walking and cycling programmes	LA Businesses and organisations in Solihull Public	On-going	>2 new travel plans established in each year
3	Schemes are in place in Solihull to improve public transport such as the scheme around the NEC and airport including a new interchange, new bus stops and improvement for disabled travellers, real time information board's cycle and footpaths	Cost implications and public resistance to modal shift	Ensure proposed public transport improvements go ahead as planned and that momentum to improve service provision is maintained	LA CENTRO Travel West Midlands	On-going	All proposed public transport improvements are delivered to deadline

## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and or Concentrations

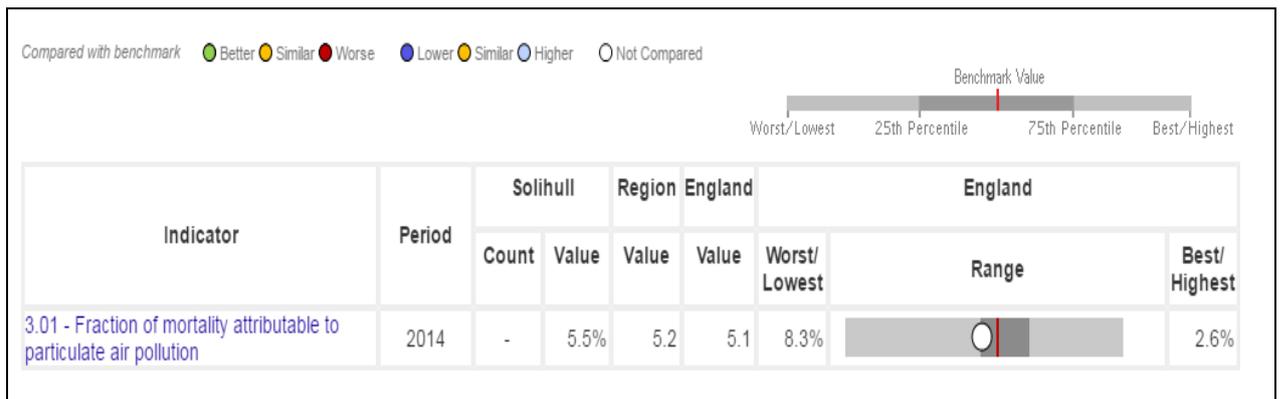
As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Work carried out by Public Health England as part of the Public Health Outcomes Framework (PHOF) shows that the mortality associated with particulate air pollution within Solihull Metropolitan Borough Council is 5.5 %. This information is available from the following web link:

<http://www.phoutcomes.info/search/air%20quality#page/1/gid/1/pat/6/par/E12000008/ati/101/are/E07000062/iid/30101/age/230/sex/4>

Figure 2- shows shows that the mortality calculated for Solihull Metropolitan Borough Council is slightly more than that calculated for West Midalnds region (5.2 %) and England (5.1 %) as a whole.

**Figure 2-1 Fraction of mortality attributed to particulate air pollution in Solihull Metropolitan Borough Council**



Solihull Metropolitan Borough Council is currently developing its approach to address PM<sub>2.5</sub> in partnership with public health local authority officers. The approach to address PM<sub>2.5</sub> will be reported on in the 2017 Annual Status report but it will follow on from actions already being taken to reduce emission as described in section 2.2.

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As detailed in Policy Guidance LAQM.PG16 (Chapter 7), Local Authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

## 3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Diffusion Tube Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Solihull Metropolitan Borough Council ceased monitoring on 1<sup>st</sup> April 2012 as previous monitoring for many years had showed no exceedance of the air quality objectives noting the following points:

- During 2008 18 locations were monitored for NO<sub>2</sub>. The highest concentration recorded as an annual average at a location representative of personal exposure was 35.5 µg m<sup>-3</sup> at Warwick Road in Olton. The same site had an annual average of 23.1 µg m<sup>-3</sup> in 2009. Monitoring at this site ceased in 2010.
- During 2009 16 locations were monitored for NO<sub>2</sub>. The highest concentration recorded as an annual average at a location representative of personal exposure was 33.9 µg m<sup>-3</sup> at Warwick Road in Solihull.
- Following a review of monitoring resources in May 2010, the number of monitoring locations was reduced to 5. A full year of data was reported for 2011 in the 2012 progress report submission. The highest concentration recorded as an annual average at a location representative of personal exposure was 29.2 µg m<sup>-3</sup> at Bluebell Drive near Marston Green.
- Previously there have been a number of monitoring sites which did not have any relevant personal exposure (there were no residential housing in the vicinity). In 2008, two such sites were above the air quality objective. The Technical Guidance supports a tool which enables the distance from the monitoring site to the nearest relevant receptor to be taken into account. The tool can be found at <http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html> and an estimate of an annual average NO<sub>2</sub> concentration at the

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nearest receptor can be calculated. The site “island at Streetsbrook Road” had an annual average NO<sub>2</sub> of 60.4 µg m<sup>-3</sup> in 2008, the nearest receptor is 25 m from the monitoring site where the estimated annual average concentration was 37.2 µg m<sup>-3</sup>. Using the NO<sub>2</sub> year adjustment factors from the Technical Guidance 2009 this is estimated to be 27.7 µg m<sup>-3</sup> in 2015. Similarly, this site had a recorded annual average of 64.7 µg m<sup>-3</sup> in 2009, which is estimated to be 38.7 µg m<sup>-3</sup> at the nearest receptor and to be 29.9 µg m<sup>-3</sup> in 2015.

- More recently a site at the Old Station Road had an annual average of 39.7 µg m<sup>-3</sup> in 2011 as included in the 2012 Annual Progress report submission. However, this site was 67m<sup>5</sup> from the nearest receptor location. Therefore, using the NO<sub>2</sub> fall off with distance tool, the estimated concentration at the nearest receptor would have been <30.3 µg m<sup>-3</sup> in 2011. Similarly, using the NO<sub>2</sub> year adjustment factors this is estimated to be <25.5 µg m<sup>-3</sup> in 2015.

Solihull Metropolitan Borough Council has demonstrated that at the locations which have been monitored and representative of exposure there is no exceedance of the air quality objectives, no detailed assessment is required and there is no requirement to declare an Air Quality Management Area.

Appendix A shows the details of the sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem.

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<sup>5</sup> The maximum distance for the Defra NO<sub>2</sub> distance calculator is 50 m. The estimated concentration at 67 m would be less than that calculated for 50 m.

## Appendix A: Monitoring Results

**Table A.1 – Details of Non-Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure ?	Distance to kerb of nearest road (m)
1	Station Road	Roadside	414830	279612	NO <sub>2</sub>	N	N	16
2	The Crescent	Roadside	414744	279746	NO <sub>2</sub>	N	Y	13
3	Island at **Streetsbrook Road	Roadside	414736	279663	NO <sub>2</sub>	N	N	25
4	*Solihull College	Roadside	414709	279641	NO <sub>2</sub>	N	N	13
5	The Grove	Suburban	420067	282003	NO <sub>2</sub>	N	Y	1.5
6	Oak Lane	Rural	420685	278463	NO <sub>2</sub>	N	Y	n/a
7	Stratford Road Aldi	Roadside	411885	279200	NO <sub>2</sub>	N	N	15
8	*Stratford Rd, PDSA	Roadside	411893	279356	NO <sub>2</sub>	N	N	22
9	Stratford Road, Swallow pine	Roadside	411757	279606	NO <sub>2</sub>	N	N	13
10	Olton Mere	Roadside	413377	282096	NO <sub>2</sub>	N	Y	7.5
11	Olton Library	Roadside	413325	282215	NO <sub>2</sub>	N	N	9
12	Warwick Road	Roadside	413081	282435	NO <sub>2</sub>	N	Y	16
13	Warwick Rd, Olton	Roadside	412955	282667	NO <sub>2</sub>	N	Y	4.5
14	Needlers End Lane	Suburban	422875	276968	NO <sub>2</sub>	N	Y	13

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure ?	Distance to kerb of nearest road (m)
15	Broadfern Road	Suburban	417822	277885	NO <sub>2</sub>	N	Y	12
16	Coventry Road Nr Clock Inn	Roadside	418409	282918	NO <sub>2</sub>	N	Y	11
17	The Foredrift	Suburban	417474	284499	NO <sub>2</sub>	N	Y	1
18	12 Coventry Road	Roadside	417229	283135	NO <sub>2</sub>	N	N	6
19	Stratford Road Aldi	Roadside	411885	279200	NO <sub>2</sub>	N	N	15
20	Partridge Close	Roadside	418710	287420	NO <sub>2</sub>	N	Y	6.5
21	Blackfirs	Suburban	419496	285227	NO <sub>2</sub>	N	N	98
22	Old Station Road	Roadside	419860	282921	NO <sub>2</sub>	N	N	67
23	Bluebell Drive	Roadside	417356	289946	NO <sub>2</sub>	N	Y	0.5

Table A.2 – Annual Mean NO<sub>2</sub> Monitoring Results

Site ID	Site Name	Site Type	Monitoring Type	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(1)</sup>		
				2008	2009	2011
1	Station Road	Roadside	DT	33.4	34.7	-
2	The Crescent	Roadside	DT	28.2	27.5	-
3	Island at **Streetsbrook Road	Roadside	DT	<b>**60.4</b>	<b>64.7</b>	-
4	*Solihull College	Roadside	DT	36.8	<b>40.3*</b>	-
5	The Grove	Suburban	DT	19.1	20.7	-
6	Oak Lane	Rural	DT	12.5	16.0	-
7	Stratford Road Aldi	Roadside	DT	37.7	37.0	-
8	*Stratford Rd, PDSA	Roadside	DT	31.4	32.7*	-
9	Stratford Road, Swallow pine	Roadside	DT	33.6	34.7	-
10	Olton Mere	Roadside	DT	22.9	23.1	-
11	*Olton Library	Roadside	DT	38.3	38.4**	-
12	Warwick Road	Roadside	DT	25.0	25.6	-
13	Warwick Rd, Olton	Roadside	DT	35.5	33.9	-
14	Needlers End Lane	Suburban	DT	12.8	11.8	-
15	Broadfern Road	Suburban	DT	17.5	15.2	-
16	Coventry Road Nr Clock Inn	Roadside	DT	32.3	31.5	-
17	The Foredrift	Suburban	DT	21.4	-	-
18	12 Coventry Road	Roadside	DT	30.9	-	-
19	Stratford Road Aldi	Roadside	DT	-	-	22.3
20	Partridge Close	Roadside	DT	-	-	28.6
21	Blackfirs	Suburban	DT	-	-	22.5
22	Old Station Road	Roadside	DT	-	-	39.7
23	Bluebell Drive	Roadside	DT	-	-	29.2

Notes: Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Technical Guidance LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

- \* These site have duplicate tubes installed and the figures quoted is the average of the results
- \*\* See Section 3.3.1

Figure A.1 NO<sub>2</sub> fall off with distance result for Island at Streetsbrook Road in 2008




Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	<b>1</b>	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	<b>25</b>	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>24.6</b>	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>60.4</b>	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	<b>37.2</b>	µg/m <sup>3</sup>

Warning: your receptor is more than 20m further from the kerb than your monitor, treat result with caution

Figure A.2 NO<sub>2</sub> fall off with distance result for Island at Streetsbrook Road in 2009



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Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	<b>1</b>	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	<b>25</b>	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>24.6</b>	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>64.7</b>	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	<b>38.7</b>	µg/m <sup>3</sup>

Warning: your receptor is more than 20m further from the kerb than your monitor, treat result with caution

Figure A.3 Location of Diffusion tube at Old Station Road

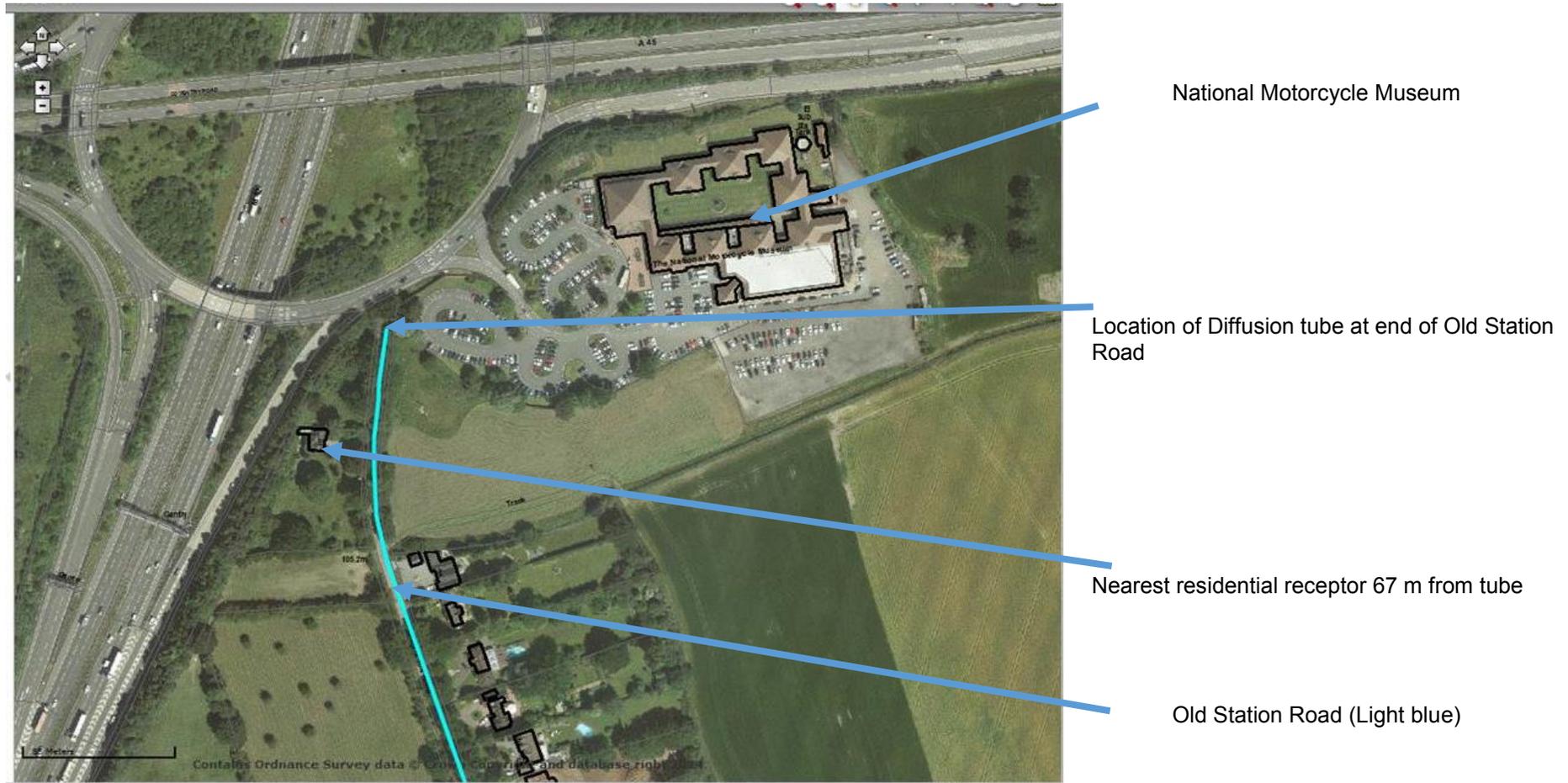


Figure A.4 NO<sub>2</sub> fall off with distance result for Old Station Road in 2011




Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	<b>1</b>	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	<b>50</b>	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>27.8</b>	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	<b>39.7</b>	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	<b>30.3</b>	µg/m <sup>3</sup>

**Warning: your receptor is more than 20m further from the kerb than your monitor, treat result with caution**

## Appendix B: Supporting Technical Information / Air Quality Monitoring Data QA/QC

### QA/QC of diffusion tube monitoring

#### Bias adjustment factory and laboratory QA/QC

The diffusion tubes deployed by Solihull Metropolitan Borough council are supplied and analysed by the UKAS accredited laboratory Gradko International Ltd who fully ratify the data. They participate in the Workplace Analysis Scheme for Proficiency (WASP) operated by the Health and Safety Executive. The tubes used are 50% TEA/Acetone .

Due to the over/under reading of diffusion tubes in general the figures have been presented with a bias factor. This factor varies each year and for 2008 the figure used was 0.93 and in 2009 was 0.97 and 0.93 for 2011 which was taken from the Review and Assessment website ([www.uwe.ac.uk/aqm/review/guidance\\_05.html](http://www.uwe.ac.uk/aqm/review/guidance_05.html))

Sites are classified as defined in the Department of Food and Rural Affairs technical guidance LAQM TG09 as follows:

Kerbside	0-1 m of a busy road
Roadside	1-15m of a busy road
Urban Background	distanced from the source
Suburban	residential area on outskirts of city

## Appendix C: Summary of Air Quality Objectives in England

Table C.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>6</sup>	
	Concentration	Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>6</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	Sulphur Dioxide

## References

TG (09) Local Air Quality Management Technical Guidance (TG09), February 2009

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TG(16) Local Air Quality Management Technical Guidance (TG16), April 2016

<http://laqm.defra.gov.uk/documents/LAQM-TG16-16-v1.pdf>