

PETERBOROUGH



2016 Air Quality Annual Status Report (ASR)

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

June 2016

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Executive Summary: Air Quality in Our Area

The air quality review and assessment process forms part of local air quality management (LAQM) carried out by Peterborough City Council. LAQM provides a means of achieving improvements in air quality to help secure national air quality objectives. National air quality objectives are set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland.

In order to complete this Annual Status Report, the prescribed pollutants which are monitored in Peterborough have been analysed to see if they require further assessment.

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^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

Peterborough district covers an area of 343.44 km² and is made up of a variety of landscapes. Although dominated by the city of Peterborough, the eastern part of the district is composed of rich arable farmland, with the population dispersed across the flat land in many scattered farmsteads. In contrast, the western area is more undulating, with a more mixed farming economy and a population concentrated within the area's many villages. Figure 1.1 shows Peterborough and surrounding districts.

The main pollutants of concern in the Peterborough district, as in most areas of the UK, are associated with road traffic, in particular NO₂ and particulate matter (PM) at locations close to busy, congested roads where people may live, work or shop.

There is currently one Air Quality Management Area (AQMA) in Peterborough, for emissions of SO₂ resulting in exceedance of the relevant 15-minute mean values.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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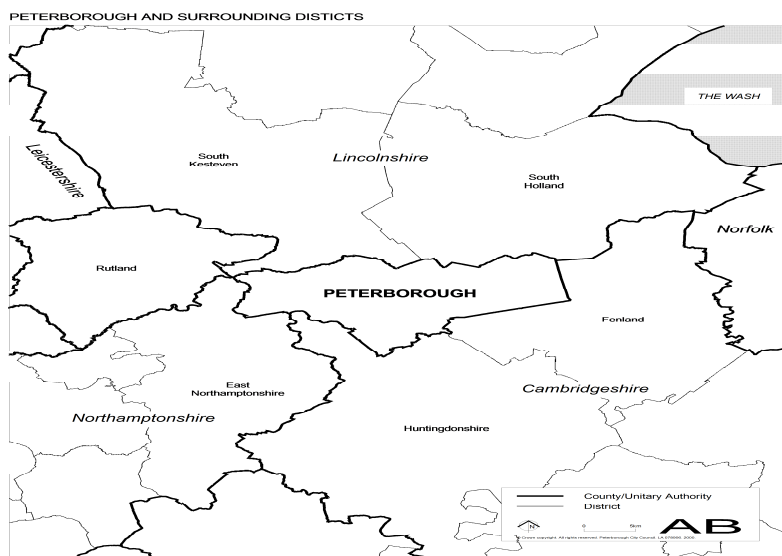
The source of these emissions is a brickworks located in the area administered by Fenland District Council (a neighbouring local authority). It was proposed in the 2015 Updating and Screening Assessment (USA) to revoke the AQMA, subject to the agreement of DEFRA. However the AQMA is still in force and Peterborough City Council remain in consultation with Fenland District Council about this. Further details of this AQMA can be found on our website at <https://www.peterborough.gov.uk/business/environmental-health/pollution/>.

The previous round of review and assessment (beginning with the 2012 Updating and Screening Assessment and continuing through the 2013 & 2014 Progress Reports and most recently 2015 USA) did not identify that any further detailed assessments were necessary beyond that already undertaken for the existing AQMA. However as reported in the 2015 USA changes have been made to the monitoring programme in Peterborough with the identification of an area within the city namely Taverners Road that requires closer attention due to concerns regarding potential exceedance of the NO₂ annual mean objective.

This Annual Status Report determines that no exceedances have been noted in any of the locations monitored. According to the latest monitoring results, the levels appear to be similar to those recorded last year.

However, due to the potential for exceedance, Taverners Road will continue to be closely monitored.

Figure 1.1 – Peterborough and Surrounding Districts



Summary of Previous Review and Assessments

Peterborough City Council's previous local air quality management reports are summarised as follows:

Table 1.2 Summary of Local Air Quality Management Reports

Report	Date	Summary/ Outcome
Review and Assessment	2000	The first round of review and assessment of air quality. Modelling and monitoring techniques identified four pollutants – carbon dioxide, Nitrogen dioxide (NO ₂), particulate matter (PM ₁₀) and sulphur dioxide – as potentially impacting upon local air quality. Further evaluation in accordance with technical guidance concluded that all objectives would be achieved by the relevant date.
Updating & Screening Assessment	2003	Second round of review and assessment. All objectives predicted to be achieved by the relevant date.
Progress Report	2004	Summary report of new monitoring data, new local developments and other air quality related information. NO ₂ monitoring estimated the village of Thorney would fail 2005 and 2010 Government targets. A by-pass of Thorney was scheduled to start in 2004 to take traffic away from Thorney and consequently reduce the NO ₂ to below the statutory limits.
Progress Report	2005	Summary report of new monitoring data, new local developments and other air quality related information. Village of Thorney by-pass underway which should consequently reduce NO ₂ levels below the objective. By-pass to be finished 2006. Possible exceedance of the 15 minute mean for SO ₂ from a brick making process which has applied for an A1 PPC permit. Process located on Fenland District Council's boundary. Ambient air monitoring data being collected to validate the exceedance model to determine the extent of any pollution exceedance.
Updating and Screening Assessment	2006	Third round of review and assessment. All air quality objectives to be met by relevant deadlines with the exception of SO ₂ which will be exceeded due to an industrial process located outside Peterborough in Fenland District Council. A detailed assessment necessary for the SO ₂ 15 minute mean value.
Detailed Assessment	2007	A Detailed Assessment of SO ₂ concentration for a brick manufacturer in Whittlesey, within the borders of Fenland District Council, which lies southeast of Peterborough, concluded that an Air Quality Management Area (AQMA) should be declared.

Peterborough City Council

Progress Report	2008	Summary Report of new monitoring data, new local developments and other air quality related information. Thorney by-pass completed resulting in successful reduction of NO ₂ levels to below the objective levels. AQMA declared 2007 action plan being developed with Fenland District Council, A1 process operator and the Environment Agency (EA).
Updating and Screening Assessment	2009	Fourth round of review and assessment. All air quality objectives will be met in relevant guidelines, with the exception of SO ₂ in area declared previously. Detailed assessment being carried out by Fenland since the process causing the exceedances are in their area.
Progress Report	2010	Summary report of new monitoring data, new local developments and other air quality related information. No exceedances other than already declared AQMA. Continued liaison with Fenland District Council and EA to complete and monitor the action plan for the AQMA.
Progress Report	2011	Summary report of new monitoring data, new local developments and other air quality related information. No exceedances other than already declared AQMA. Continued liaison with Fenland District Council and EA to complete and monitor the action plan for the AQMA.
Updating and Screening Assessment	2012	Fifth round of review and assessment. All air quality objectives will be met in relevant guidelines, with the exception of SO ₂ in area declared previously. Action Plan currently in draft stage as a partnership effort between Peterborough City Council, Fenland District Council and the EA.
Progress Report	2013	Summary report of new monitoring data, new local developments and other air quality related information. No exceedances other than already declared AQMA. Continued liaison with Fenland District Council and EA to complete and monitor the action plan for the AQMA.
Progress Report	2014	Summary report of new monitoring data, new local developments and other air quality related information. No exceedances other than already declared AQMA. Continued liaison with Fenland District Council and EA to complete and monitor the action plan for the AQMA.
Updating and Screening Assessment	2015	Sixth round of review and assessment. All air quality objectives will be met in relevant guidelines, with the exception of SO ₂ in area declared previously.

Actions to Improve Air Quality

In order to reduce congestion & improve air pollution in and around Peterborough city centre, a major scheme was undertaken to improve some of the main roads in and out of the city. This will significantly reduce delays at several critical city centre locations which will help to improve the air quality in the area.

Bourges Boulevard

Bourges Boulevard Phase I improvements have recently been completed, and have significantly transformed Bourges Boulevard in the vicinity of the rail station and shopping centre car parks. Work on the Phase I improvements began in spring 2014 and were completed in summer 2015 and consisted of the following elements:

- Creation of an all movement signalised junction at Bourges Boulevard/ Station Rd.
- Installation of two pedestrian crossings over Bourges Boulevard (Waitrose and Great Northern Hotel)
- Installation of a pedestrian crossing over Bright Street
- Improvements to public realm, including creation of a widened shared use footway along the western side of the carriageway
- Significant landscape improvements, including tree planting along the central reservation and re-paving throughout the area.



Images showing traffic flowing on the old look Bourges Boulevard (**left**) & after the improvement works has been completed (**right**).

A series of further improvements to the Bourges Boulevard area (Bourges Boulevard Corridor Improvements Phase II) to improve congestion and significantly reduce delay at several critical City Centre locations, as well as improving the public realm

are due to commence in the near future. The planned improvements will include: widening roads (including extra lanes) and footpaths, improvements to signalling and refurbished pedestrian areas.

A scheme currently being considered is The Peterborough Sustainable Future scheme. This involves the introduction of Intelligent or 'Smart' transport system on Peterborough's strategic road network & the introduction of Active Traffic Management (ATM) on parts of Peterborough's parkway network. This will help road users to obtain up to date information on traffic levels on the roads, enabling them to avoid getting caught up in traffic and thus reducing levels of congestion and air pollution.

Local Priorities and Challenges

Over 2016 Peterborough City Council has the following priorities with regards to local air quality.

- To reduce the number of trips made by fossil fuelled vehicles.
- To minimise the effects of noise created by vehicles using the Peterborough road network.
- To continue to develop a council fleet of electric or low emission vehicles.
- Explore the opportunities to introduce short term measures to reduce exposure to traffic related air pollution.
- To promote sustainable travel modes as a solution for the increasing demand for travel to reduce the impact on local air quality.
- To continue to seek contributions from new developments to implement measures identified in travel plans to support sustainable travel
- To encourage new and existing businesses to embrace the use of an electric vehicle fleet.
- Work with private bus companies to reduce emissions from the public transport fleet
- Consider introducing incentives for low emission vehicles for taxis.
- To develop a fleet of council electric vehicles or other low emission fuels as appropriate

The implementation of the above priorities face a number of challenges including:

- The implementations of some transport interventions are reliant on the expected growth coming forward as set out in the existing Core Strategy and the forthcoming Local Plan.
- Some transport schemes rely on specific developments coming forward; if the development does not come forward then neither will the transport scheme.
- The outcomes of the Long Term Transport Strategy (LTTS) and Local Transport Plan, April 2016 (LTP4) in terms of the targets set in the monitoring section are dependent on schemes being implemented and those interventions can only come forward if the necessary funding is available. Peterborough City Council will attempt to fund transport interventions from a number of sources including:
 - Local Growth Fund
 - Developer Funding
 - Developer Site Specific (Section 106 and Planning Conditions)
 - Community Infrastructure Levy
 - Rail Sources

Funding might not be available, given competing transport priorities both locally and nationally.

Further information on the below listed priorities and challenges are outlined in the LTTS and LTP4 which can be found here:

<https://www.peterborough.gov.uk/council/strategies-policies-and-plans/transport-strategies/local-transport-plan/>.

How to Get Involved

There are many simple things residents in Peterborough can do to help improve air quality locally, for example:

- Walking/ cycling wherever possible rather than driving.
- Catch the bus.

- Sign up to a car sharing scheme.
- Create a car pool with other parents if you need to take kids to school by car.
- Turn your car engine off when at a standstill.
- Choosing a low emission vehicle such as electric or hybrid.

People who may be particularly affected by poor air quality (such as the young, the elderly & those with breathing difficulties) can find information of current pollution levels on the Defra Healthy Air website. This information helps you plan your day to avoid exposing yourself to higher levels of NO₂. For example, on bad days stick to pedestrianised areas and avoid as much as possible heavily congested streets, exercise in areas with lower pollution levels and avoid driving in congested areas, as air quality in cars can be worse than outside.

If you would like more information on air quality locally, or on how you can do your bit to help improve the air you breathe, please visit the air quality pages on our website at: <https://www.peterborough.gov.uk/business/environmental-health/pollution/#AirQuality>.

We welcome your thoughts on this document and our Action Plan, please use the contact details listed at the start of this report to get in touch.

Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in Peterborough City Council	ii
Actions to Improve Air Quality	v
Local Priorities and Challenges	vi
How to Get Involved	vii
1 Local Air Quality Management	1
2 Actions to Improve Air Quality	2
2.1 Air Quality Management Areas	2
2.2 Progress and Impact of Measures to address Air Quality in Peterborough City Council	3
2.3 PM _{2.5} – Local Authority Approach to Reducing Emissions and or Concentrations	8
3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	9
3.1 Summary of Monitoring Undertaken	9
3.1.1 Automatic Monitoring Sites	9
3.1.2 Non-Automatic Monitoring Sites	10
3.2 Individual Pollutants	10
3.2.1 Nitrogen Dioxide (NO ₂)	11
3.2.2 Particulate Matter (PM ₁₀)	11
3.2.3 Particulate Matter (PM _{2.5})	11
3.2.4 Sulphur Dioxide (SO ₂)	11
Appendix A: Monitoring Results	14
Appendix B: Full Monthly Diffusion Tube Results for 2015	18
Appendix C: Map(s) of Monitoring Locations	20
Appendix D: Summary of Air Quality Objectives in England	21
Glossary of Terms	22
References	23

List of Tables

Table 1.2 – Summary of Local Air Quality Management Reports	iv
Table 2.1 – Declared Air Quality Management Areas	3
Table 2.2 – Progress on Measures to Improve Air Quality	5

List of Figures

Figure 1.1 – Map of Peterborough and Surrounding Districts 2
Figure 2.2 – Progress on Measures to Improve Air Quality 5
Figure 3.1 – Map Showing Monitoring Locations for SO₂ 12
Figure 3.2 – Map Showing Close-up of AQMA 13

1 Local Air Quality Management

This report provides an overview of air quality in Peterborough City 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 Peterborough City Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in **Error! Reference source not found.** in Appendix D.

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.

In September 2006 Fenland District Council's Detailed Assessment declared an Air Quality Management Area based on modelling carried out by Hanson Brick Products in their Air Quality Management plan (Hanson, 2004).

This modelling indicated that the 15-minute SO₂ objective was also being exceeded at relevant locations within Peterborough. Following consideration of the information supplied by Fenland District Council, Peterborough City Council determined an Air Quality Management Area to the north-west of the works in April 2007; figure 1.2 shows a map of the AQMA boundaries. The AQMA is in relation to emissions of sulphur dioxide from a point source industrial premise, exceeding the 15-minute mean objective level of 266 µg/m³ not to be exceeded more than 35 times a year. The Air Quality Action Plan is currently with Fenland District Council for finalisation following liaison with the Environment Agency; Peterborough City Council continues to work with both agencies on this.

It is important to note that this exceedance is modelled, not measured. To date there has been no measured exceedance of SO₂ in the area administered by Peterborough City Council.

A summary of AQMAs declared by Peterborough City Council can be found in Table 2.1. Further information relating to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/details?aqma_id=96.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	One Line Description	Action Plan
AQMA No. 1	<ul style="list-style-type: none"> SO₂ 15 minute mean 	Peterborough	Two rural areas near Flag Fen, to the east of Peterborough between the City and Whittlesey. Declared due to emissions from the brickworks outside the Local Authority area at Whittlesey.	Draft Action Plan currently being considered by Fenland District Council.

2.2 Progress and Impact of Measures to address Air Quality in Peterborough

Peterborough City Council has had no requirement to declare any further Air Quality Management Areas, and cannot economically justify a formal action plan to address air quality issues. However, the Council is committed to improving air quality in general, and does this through supporting, promoting and implementing numerous schemes and measures throughout the city. The Council also encourages standalone measures that may have beneficial impact on air quality.

Each year the Council implements a programme of schemes funded through the Integrated Transport Programme Funding. The schemes vary year on year but are focussed around the following key themes:

- Public transport – bus stop improvements, real time passenger information, improvements to core bus routes.
- Walking and cycling – improvements to the walking and cycling network, cycle parking and crossing schemes.
- Network management – congestion ‘hot spot’ schemes, small highway improvement schemes.
- Safer roads – local safety schemes, safer journey to school schemes.
- Accessibility – dropped kerbs, accessibility improvements.

Peterborough City Council

Peterborough City Council has taken forward a number of measures during the current reporting year of 2016 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Access Fund for Sustainable Travel	Promoting travel alternatives	Promotion of cycling/ walking & workplace travel planning	Peterborough City Council	Ongoing	2017	Number of Users	N/A	In Progress	N/A	-
2	Lift share Week (Peterborough)	Alternatives to private vehicle use	Car & lift sharing schemes	Peterborough City Council	Completed	2016	Number of Users	N/A	In Progress	2016	-
3	Promotion of new 'Faxi car pool app'	Alternatives to private vehicle use	Car & lift sharing schemes	Peterborough City Council	Ongoing	2016	Number of Users	N/A	In Progress	Ongoing	-
4	Bourges Boulevard corridor improvements	Traffic management	UTC, congestion management, traffic reduction	Peterborough City Council	Completed	2016	Number of Users	N/A	Completed	2016	-
5	Promotion of 'Smarter Choices' travel	Promoting travel alternatives	Promotion of cycling/ walking & workplace travel planning	Peterborough City Council	Ongoing	2016	Number of Users	N/A	In Progress	Ongoing	-
6	Fletton Quays	Transport Planning & Infrastructure	Cycle Network	Peterborough City Council	Planning	2016	N/A	N/A	In Progress	Ongoing	-
7	Electric vehicle charging points	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote low emission vehicles, EV recharging, gas fuel recharging.	Peterborough City Council	Ongoing	2016	Number of Users	N/A	In Progress	Ongoing	-

Peterborough City Council

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
8	Civil Parking Enforcement	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Peterborough City Council	Ongoing	Ongoing	Enforcement Stats	N/A	In Progress	Ongoing	-
9	Staff home working	Promoting Travel Alternatives	Encourage/ Facilitate home-working	Peterborough City Council	Ongoing	Ongoing	Uptake	N/A	In Progress	Ongoing	-
10	Improvements to the Core Bus Network	Alternatives to Private Vehicle Use	Bus based Park & Ride	Peterborough City Council	Ongoing	Ongoing	Number of Users	N/A	In Progress	Ongoing	-
11	Well developed and safe pedestrian connections throughout the City.	Promoting Travel Alternatives	Promotion of walking	Peterborough City Council	Ongoing	Ongoing	N/A	N/A	In Progress	Ongoing	-
12	Hackney Carriage (Taxi) & Private Hire Vehicle (PHV) licensing.	Promoting Low Emission Transport	Taxi Licensing conditions	Peterborough City Council	Ongoing	Ongoing	Number of Users	N/A	In Progress	Ongoing	-
13	Rural Transport	Public Information	Via the internet	Peterborough City Council	Ongoing	Ongoing	N/A	N/A	In Progress	Ongoing	-
14	Use of Intelligent Transport Systems (ITS) & Urban Traffic Management Control (UTMC).	Traffic Management	UTC, Congestion Management, traffic reduction	Peterborough City Council	Ongoing	Ongoing	N/A	N/A	In Progress	Ongoing	-

Peterborough City Council

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
15	Joint initiative between Peterborough Environment City Trust (PECT) & Travelchoice.	Promoting Travel Alternatives	Promotion of cycling/ walking & workplace travel planning.	Peterborough City Council	Completed	Aug & Sept 2016	Number of Users	N/A	Ongoing	2017	-

2.3 PM_{2.5} – 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_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Peterborough City Council is taking the following measures to address PM_{2.5}:

- Regular inspections of industrial processes permitted by Peterborough City Council where combustion and non-combustion processes could lead to anthropogenic emissions of PM_{2.5}. Peterborough City Council will continue to work with operators to ensure that adequate measures are in place to reduce fugitive dust emissions from these industrial sites.
- Various departments across the Council working closely alongside one another to deliver Major Improvement schemes. In addition to reduced exhaust emissions, these schemes will reduce non-exhaust emissions from brake and tyre wear by making traffic flows smoother.
- Air quality is being considered at the planning stage and particulate implications are being considered for individual planning applications.
- Controlled schemes and construction management plans are required for activities likely to generate emissions.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Peterborough City Council has no automatic (continuous) monitoring sites, but national monitoring results are available at <http://uk-air.defra.gov.uk/data/>.

3.1.2 Non-Automatic Monitoring Sites

Peterborough City Council undertook non- automatic (passive) monitoring of NO₂ at 16 sites within the Local Authority Area during 2015. One of these sites have co-located tubes to give a total of 17 results. **Error! Reference source not found.** in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Other sites have been monitored around Peterborough in previous years, however monitoring at these sites ceased following the completion of planned monitoring programmes for these locations. Only the current locations have been considered for this report. These sites are a mixture of urban background, roadside and kerbside. Table A.1 shows the different site types and a brief description of the sites that were monitored in 2015.

The samples are analysed in accordance with Environmental Scientifics Group standard operating procedure HSWI/1015 issue 15. This method meets the guidelines set out in DEFRA's Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance.

The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow auto analyser with ultraviolet detection.

In the WASP intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, Environmental Scientifics Group is currently ranked as a Category Good laboratory.

The bias adjustment factor being applied to the annual means from the diffusion tubes is **0.79**. This came from the Review and Assessment website at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for "annualisation" and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2015 dataset of monthly mean values is provided in Appendix B.

Table A.2 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

3.2.2 Particulate Matter (PM₁₀)

PM₁₀ is not currently monitored at any location within the district of Peterborough City Council.

3.2.3 Particulate Matter (PM_{2.5})

PM_{2.5} is not currently monitored at any location within the district of Peterborough City Council.

3.2.4 Sulphur Dioxide (SO₂)

Sulphur Dioxide is not monitored at any location by Peterborough City Council, however, Hanson Building Products Limited carry out monitoring of their Whittlesey brickworks in relation to the AQMA. The results of this monitoring for 2015 are included as Appendix D. The monitoring locations utilised by Hanson are shown on Figure 3.1 below. The location to the north west of the map is of importance for Peterborough. Figure 3.2 provides a more useable version of Figure 3.1 (showing the air quality management area) for comparison. These maps have been reproduced from a document produced on behalf of Fenland District Council by Air Quality Consultants Ltd (2008).

Figure 3.1 Map showing Monitoring Locations for SO₂

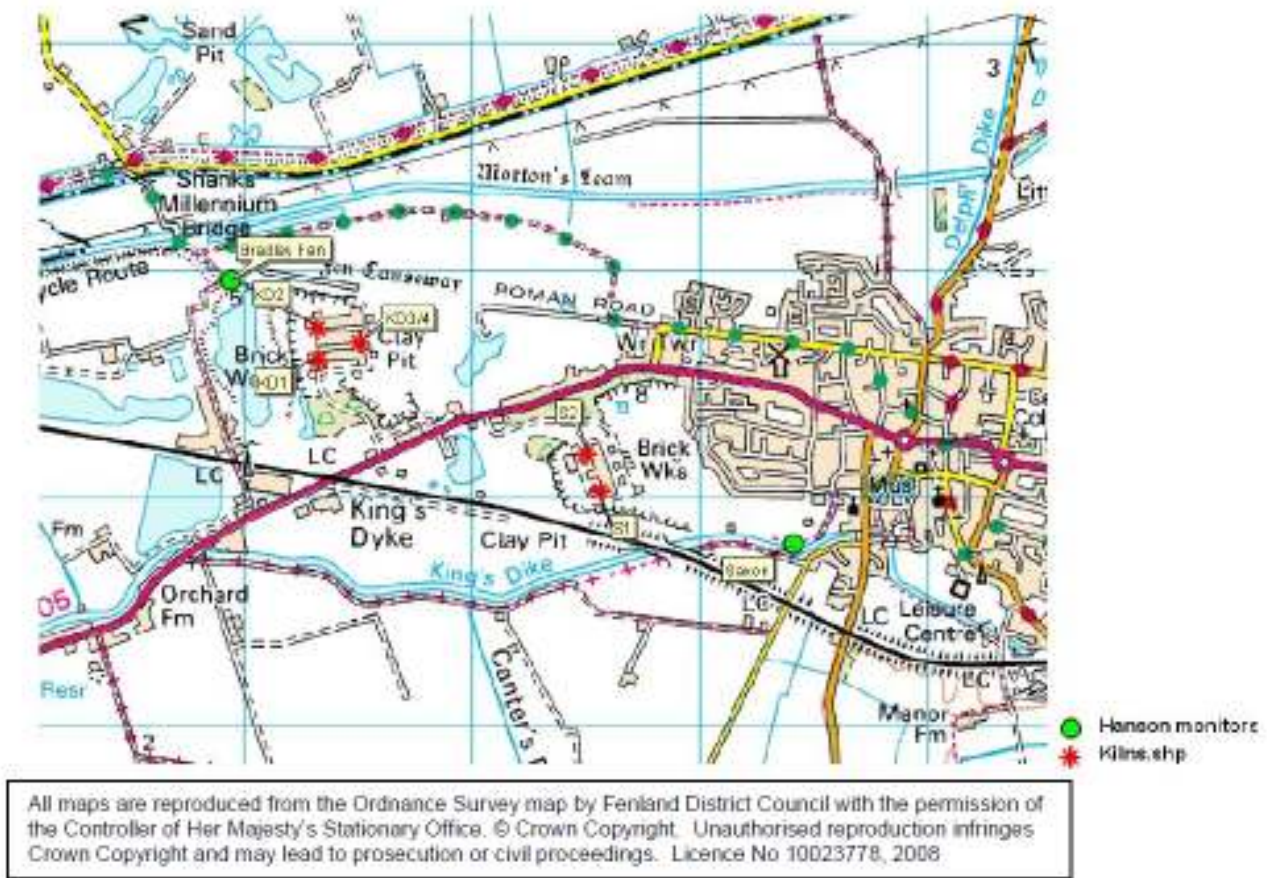
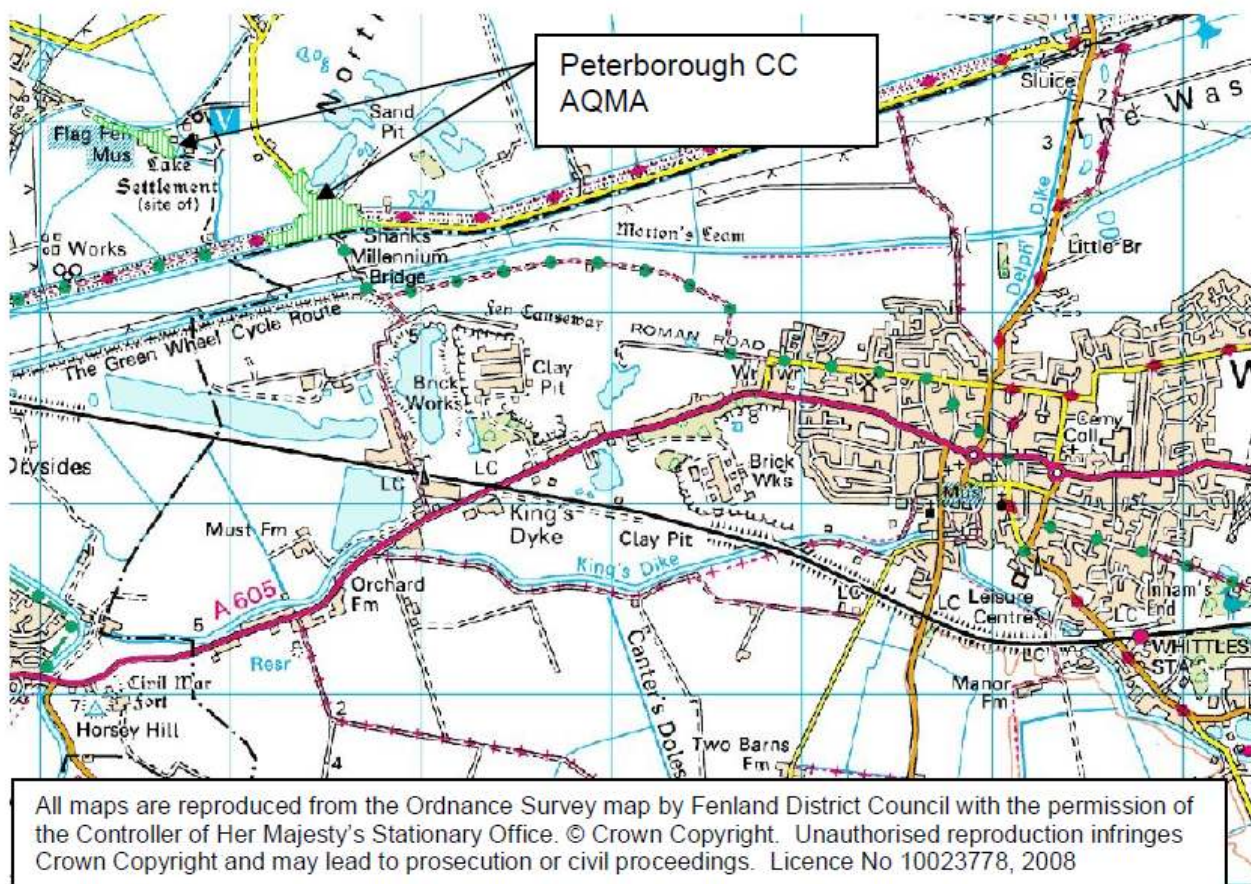


Figure 3.2 Map showing close up of AQMA



Following discussion with Fenland District Council, it is the opinion of Peterborough City Council that the AQMA declared in respect of SO₂ should be revoked. This decision is made on the basis that the exceedence was modelled and this has not, at any time, been supported by a subsequent measures exceedence at any location.

Since the AQMA was declared, the second site shown on Figure 2.3 above (where kilns S1 and S2 are located) has been closed down. This will have had a considerable impact on the emission modelled and it is unlikely that any increase in production at the existing site (the capacity for which is limited) would have a substantial effect on air quality. It was therefore proposed in the 2015 Updating and Screening Assessment that the AQMA be revoked without the need for a detailed assessment. However, at the time of writing this Annual Status Report, the AQMA continues to remain in force and Peterborough City Council continue to remain in consultation with Fenland District Council about this.

The figures show there have not been any exceedences of the air quality objectives.

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 ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
1	BORG	Roadside	(5)19123	(2)98369	NO ₂	N	N	1m	N	3m
2	Taverners TR1	Roadside	(5)18534	(2)99845	NO ₂	N	Y	3m	N	3m
3	Barnard Way	Urban Background	(5)15782	(2)99220	NO ₂	N	Y (5m)	N/A	N	3m
4	Lythemere	Urban Background	(5)17188	(2)95966	NO ₂	N	Y (1m)	N/A	N	3m
5	Wittering	Roadside	(5)05698	(3)02775	NO ₂	N	Y(5m)	3m	N	3m
6	Lincoln Road	Roadside	(5)17717	(3)01621	NO ₂	N	Y (5m)	3m	N	3m
7	Taverners TR2	Kerbside	(5)18563	(2)99846	NO ₂	N	Y	1m	N	3m
8	Taverners TR3	Roadside	(5)18543	(2)99874	NO ₂	N	Y (5m)	5m	N	3m

Peterborough City Council

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
9	Taverners TR4	Roadside	(5)18624	(2)99869	NO ₂	N	Y (7m)	5m	N	3m
10	Maxwell	Industrial	(5)17945	(2)96724	NO ₂	N	N	N/A	N	3m
11	Alexandra	Roadside			NO ₂	N	Y (3m)	1m	N	3m
12	Taverners TR5	Kerbside	(5)18677	(2)99860	NO ₂	N	Y (3m)	1m	N	3m
13	Taverners TR6	Kerbside	(5)18780	(2)99872	NO ₂	N	Y (2m)	1m	N	3m
14	Taverners TR7	Kerbside	(5)18861	(2)99873	NO ₂	N	Y (3m)	1m	N	3m
15	Taverners TR8	Kerbside	(5)18870	(2)99892	NO ₂	N	Y (3m)	1m	N	3m
16	2TA PAR	Kerbside	(5)19932	(2)96056	NO ₂	N	Y (12m)	0.5m	N	3m
17	2TA PAR	Kerbside	(5)19932	(2)96056	NO ₂	N	Y (12m)	0.5m	N	3m

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2015 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2011	2012	2013	2014	2015
1	Roadside	Diffusion Tube	100	100	41.7	33.4	39.9	32.7	31.8
2	Roadside	Diffusion Tube	84	84	n/a	n/a	n/a	30.9	29.5
3	Urban Background	Diffusion Tube	100	100	20.4	14.6	16.9	15.8	15.1
4	Urban Background	Diffusion Tube	100	100	20.3	15.9	16.9	16.0	15.6
5	Roadside	Diffusion Tube	100	100	30.4	23.9	25.0	23.2	21.9
6	Roadside	Diffusion Tube	100	100	38.4	30.0	31.1	29.0	30.8
7	Kerbside	Diffusion Tube	100	100	n/a	n/a	n/a	40.2	37.5
8	Roadside	Diffusion Tube	100	100	n/a	n/a	n/a	24.2	23.4
9	Roadside	Diffusion Tube	76	76	n/a	n/a	n/a	27.2	26.0
10	Industrial	Diffusion Tube	33	33	n/a	n/a	n/a	n/a	19.7
11	Roadside	Diffusion Tube	42	42	n/a	n/a	n/a	n/a	26.3
12	Kerbside	Diffusion Tube	100	100	n/a	n/a	n/a	30.9	29.9
13	Kerbside	Diffusion Tube	100	100	n/a	n/a	n/a	31.9	30.2
14	Kerbside	Diffusion Tube	92	92	n/a	n/a	n/a	33.7	31.6
15	Kerbside	Diffusion Tube	92	92	n/a	n/a	n/a	32.2	30.5
16	Kerbside	Diffusion Tube	100	100	36.5	31.8	34.9	32.2	34.5
17	Kerbside	Diffusion Tube	100	100	39.1	33.3	33.0	29.2	33.9

Notes: Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

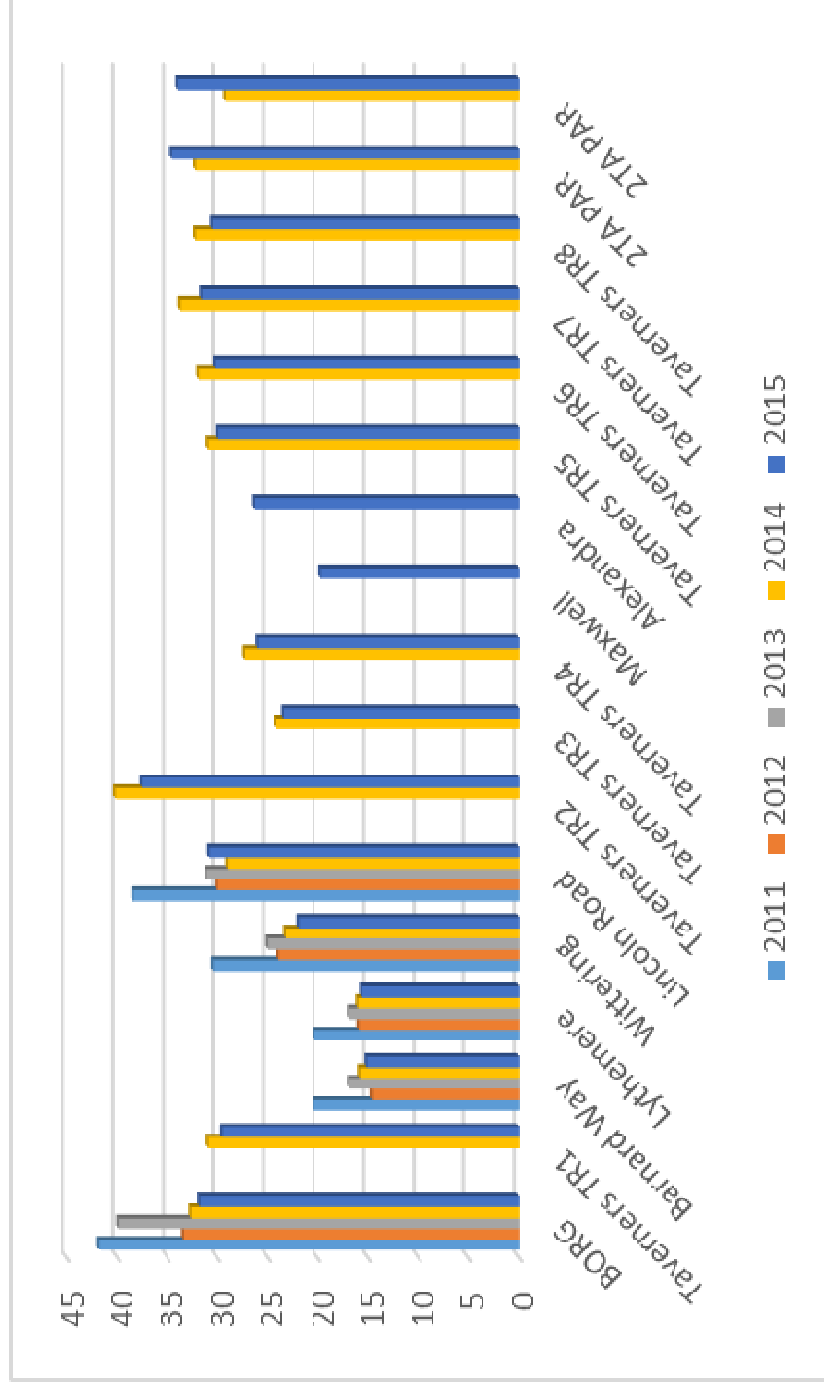
NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) 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.

Figure A.4 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



Appendix B: Full Monthly Diffusion Tube Results for 2015

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2015

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted ⁽¹⁾
BORG	25.9	25.5	24.2	15.2	15.4	13.8	16.5	16.6	26.2	28.7	19.6	19.2	20.6	16.3
Taverners TR1	-	25.1	22.9	17.3	13.2	14.5	15.4	17.4	22.2	22.8	missing	19.7	19.1	15.1
Barnard Way	13.9	15.8	10.0	8.0	6.0	5.8	6.2	7.1	8.9	11.2	10.7	13.8	9.8	7.7
Lythemere	13.4	13.6	11.4	7.6	7.4	6.6	7.4	8.2	11.5	12.2	10.4	11.4	10.1	8.0
Wittering	18.5	16.4	12.6	13.3	8.4	10.3	10.4	11.5	20.8	23.5	11.6	12.2	14.1	11.1
Lincoln Road	21.8	30.5	21.2	14.1	14.9	17.8	16.3	15.9	15.2	19.9	20.5	26.7	19.9	15.7
Taverners TR2	31.6	33.2	20.6	22.0	20.7	11.5	22.3	21.5	26.9	27.4	26.3	27.0	24.3	19.2
Taverners TR3	19.9	18.2	15.6	11.6	11.9	11.1	12.6	12.2	13.6	17.5	17.1	20.0	15.1	11.9
Taverners TR4	24.5	26.0	-	-	9.7	13.0	14.6	13.0	13.6	20.7	16.2	missing	16.8	13.3
Maxwell	15.2	12.0	12.5	11.3	-	-	-	-	-	-	-	-	12.8	10.1
Alexandra	-	-	-	-	14.6	missing	15.6	16.2	missing	missing	17.7	21.0	17.0	13.4
Taverners TR5	20.9	24.2	18.7	16.9	16.8	12.4	17.3	17.0	25.2	25.4	18.7	18.7	19.4	15.3
Taverners TR6	26.3	25.3	21.8	15.8	15.0	14.2	16.0	15.2	23.5	25.4	20.2	15.6	19.5	15.4
Taverners TR7	24.3	26.8	24.1	21.3	15.6	13.9	14.9	18.4	missing	23.7	18.9	22.9	20.4	16.1

Peterborough City Council

Site ID	NO ₂ Mean Concentrations (µg/m ³)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted ⁽¹⁾
Taverners TR8	25.7	24.3	-	17.8	14.6	16.6	15.5	14.4	22.1	23.3	21.7	17.4	19.7	15.6
2TA PAR	30.1	32.5	29.8	21.1	16.5	15.9	17.1	21.7	18.9	23.4	23.0	17.6	22.3	17.6
2TA PAR	32.3	27.0	26.2	15.6	21.4	21.0	16.5	19.6	16.9	24.5	24.6	17.6	21.9	17.3

(1) See Appendix C for details on bias adjustment

Appendix C: Map(s) of Monitoring Locations



Appendix D: Summary of Air Quality Objectives in England

Table D.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁴ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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 ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

AEA Energy & Environment (2008) Report to Defra and the Devolved Administrations, Diffusion Tubes For Ambient NO₂ Monitoring: Practical Guidance for Laboratories and Users.

DEFRA (2007) 'The Air Quality Strategy for England, Wales and Northern Ireland'

DEFRA (2016) 'Local Air Quality Management Technical Guidance (TG16)'

DEFRA (2016) 'Local Air Quality Management Policy Guidance (PG16)'

Defra Diffusion Tube Bias Adjustment Factors Spreadsheet available at; http://laqm.defra.gov.uk/documents/Database_Diffusion_Tube_Bias_Factors_v03_16_Final_v2.xls.

Peterborough City Council (2015) 'Air Quality Updating and Screening Assessment'

Peterborough City Council (2014) 'Air Quality Progress Report'

Peterborough City Council (2013) 'Air Quality Progress Report'

Peterborough City Council (2012) 'Air Quality Updating and Screening Assessment'

Peterborough City Council (2016) 'Peterborough Long Term Transport Strategy (2011 to 2026) and Peterborough Local Transport Plan 4 (2016 to 2021).'

The Air Quality (England) Regulations 2000 No 928

The Air Quality (England) (Amendment) Regulations 2002 No. 3043

The Environment Act 1995 c.25

