London Borough of Southwark

2015 Updating and Screening Assessment for London Borough of Southwark

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

Date May, 2015

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Executive Summary

This report fulfils the Council statutory duty under part IV of the Environment Act 1995 and guidance to have a continuous mechanism for ensuring that action and measures pertaining to the Local Air Quality Management regime are managed, resourced, reviewed, assessed and reported.

As part of the Local Authority Air Quality Management Process, the borough has a duty to review and assess the local air quality against the objectives on the Air Quality Regulations 2000 (as amended) as part of a rolling three – year cycle. The air quality objectives to be assessed are for the following seven pollutants: - Carbon Monoxide, Benzene, 1,3-Butadiene, Lead, Nitrogen Dioxide, Sulphur Dioxide and Particulate Matter (PM_{10}).

The London Borough of Southwark has undertaken previous review and assessments of the local air quality. Areas of exceedences were identified against the air quality objectives, with relevant public exposure. As a result the majority of the London Borough of Southwark was designated as an Air Quality Management Area (AQMA), in 2003.

This report describes the sixth round "Updating and Screening Assessment" (USA) carried out to review and assess the current air quality in the borough and any changes since the last round of the USA in accordance with current air quality technical guidance, which might lead to an increase or decrease in the area of the Air Quality Management Area.

The conclusions of this sixth round of Updating and Screening Assessment are as follows: -

- **For Nitrogen Dioxide there is a significant risk that the national air quality objectives in the London Borough of Southwark will be exceeded.**
- **For Particulate Matter (PM_{10}) there is a significant risk that the national air quality objectives in the London Borough of Southwark will be exceeded.**
- **For the other regulated pollutants - Carbon Monoxide, Benzene, 1,3-Butadiene, Lead, Sulphur Dioxide there is no significant risk of exceeding the national air quality objectives in the London area.**
- **However, we have found that due to:-**
    - **The potential impact of Elephant & Castle road improvements and developments in the area;**
    - **The provisional monitoring data from the diffusion tube monitoring site in the Crystal Palace area; and**
    - **A review of the impact using the emissions data from aircraft and shipping sources within the London Atmospheric Emission Inventory which was not included in the last modelling undertaken by the Authority;**

  We have concluded the Authority will need to proceed to a further detailed assessment. This will be subject to a review of the data provided in the next version of the London Atmospheric Emission Inventory in the Autumn 2015 by the GLA.

Table of contents

List of Tables

List of Figures

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1 Introduction

1.1 Description of Local Authority Area

The London Borough of Southwark is situated to the south of the Thames in the southeast quadrant of the Greater London area extending from Blackfriars in the west to Rotherhithe in the east to Crystal Palace in the south. The north part of the borough is mainly a commercial area, with a mainly residential area in the central area and a leafy suburban area to the south. The borough experiences air quality, similar to other London Boroughs. The Authority has part of the London Congestion Zone, the South Circular Road and radial roads A2, A200, A202 and A215 within its area. The major source of air pollution is traffic; with a significant Part A process on the eastern boundary in the L.B. Lewisham (SELCHP).

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedences are considered likely, the local authority must then 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.

The objective of this Updating and Screening Assessment (USA) is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre $\mu g.m^{-3}$ (milligrammes per cubic metre, $mg.m^{-3}$ for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu g.m^{-3}$	Running annual mean	31.12.2003
	5.00 $\mu g.m^{-3}$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g.m^{-3}$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g.m^{-3}$	Annual mean	31.12.2004
	0.25 $\mu g.m^{-3}$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g.m^{-3}$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g.m^{-3}$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g.m^{-3}$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g.m^{-3}$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g.m^{-3}$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g.m^{-3}$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g.m^{-3}$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

1.4.1 First Round of Review and Assessment 2003

As part of the Local Authority Air Quality Management Process, the borough has a duty to review and assess the local air quality against the objectives on the Air Quality Regulations 2000 (as amended) as part of a rolling three – year cycle. The air quality objectives to be assessed are for the following seven pollutants: - Carbon Monoxide, Benzene, 1,3-Butadiene, Lead, Nitrogen Dioxide, Sulphur Dioxide and Particulate Matter (PM_{10}).

The First Round of Review and Assessment in the borough was carried out in four stages[i,ii iii]

The result of the First Round found that the National Air Quality Strategy objectives for Nitrogen Dioxide and Particulate Matter would be exceeded in the borough. An Air Quality Management Area (AQMA) was declared for whole of the borough, except for an area of the Authority south of the South Circular Road. See Figure 1.1.

The Authority produced an Air Quality Strategy and Improvement Plan in January 2003[iv] introducing 83 measures to enable the Authority to work towards meeting the National Air Quality Strategy objectives.

1.4.2 Second Round of Review and Assessment 2006

The Second Round of Review and Assessment was done in a two phased approach with an Updating and Screening Assessment and a Detailed Assessment where there was the likelihood of an air quality objective being exceeded at locations with relevant exposure on a three – year cycle commencing in 2003 for London.

The result of the second round was the Updating and Screening Assessment indicated that the borough was likely to exceed the standards for the following pollutants Nitrogen Dioxide, Particulate Matter PM_{10} and Benzene[v].

This led to the Authority to carry out a Detailed Assessment for the pollutants for the whole of the borough. However due to problems with the London Atmospheric Emission Inventory 2003 not containing the projected emissions data for 2010, then staffing resources, the detailed assessment was carried out in parallel with the Third Round Updating and Screening Assessment in 2006.

1.4.3 Third Round of Review and Assessment 2006

The Third Round of Review and Assessment (September 2006)[vi] continued the two - phased approach with an Updating & Screening Assessment and then, where appropriate, a detailed assessment is carried out.

The Authority carried out the Updating and Screening Assessment of the air quality in the borough in accordance with the amended technical guidance LAQM TG (03)[vii].

It was found that Carbon Monoxide, 1,3-Butadiene, Lead and Sulphur Dioxide concentrations in the borough would be below the relevant national air quality objectives.

From the delayed Detailed Assessment[viii] from the second round, it was concluded that Benzene would also meet the relevant national air quality objective. For Nitrogen Dioxide and Particulate Matter (PM_{10}) there were exceedences of the various objectives, however, circumstances have not significantly changed in the borough to require a change or revocation of the London Borough of Southwark Air Quality Management Area.

1.4.4 Fourth Round of Review and Assessment 2009

The report used the standardised template and technical guidance provided by Defra for the purpose of Review and Assessment of Air Quality.

The conclusions of this fourth round of Updating and Screening Assessment were as follows: -

- **For Carbon Monoxide, Benzene, 1,3-Butadiene, Lead, Sulphur Dioxide there is no significant risk of exceeding the National Air Quality Objectives in the London Borough of Southwark.**

- **For Nitrogen Dioxide there is a significant risk that the National Air Quality Objectives in the London Borough of Southwark will be exceeded. There are no significant changes in the emissions from previous assessments of the pollutant in the borough to warrant a Detailed Assessment to amend or revoke the Air Quality Management Area for the Authority.**

- **For Particulate Matter (PM_{10}) there is a significant risk that the National Air Quality Objectives in the London Borough of Southwark will be exceeded.**

- **There are no significant changes in the emissions from previous assessments of the pollutant in the borough to warrant a Detailed Assessment to amend or revoke the Air Quality Management Area for the Authority.**

The overall conclusions of the report were that the authority was not required to undertake Detailed Assessment for any pollutants.

1.4.5 Fifth Round of Review and Assessment 2012

The fifth "Updating and Screening Assessment" report fulfilled the Council statutory duty under part IV of the Environment Act 1995 and guidance to have a continuous mechanism for ensuring that action and measures pertaining to the Local Air Quality Management regime are managed, resourced, reviewed, assessed and reported.

The London Borough of Southwark has undertaken previous review and assessments of the local air quality. Areas of exceedences were identified against the air quality objectives, with relevant public exposure. As a result the majority of the London

London Borough of Southwark May 2015

Borough of Southwark was designated as an Air Quality Management Area (AQMA), in 2003.
The report describes the review and assessment of the current air quality in the borough and any changes since the fourth round of the regime in accordance with current air quality technical guidance, which might have lead to an increase or decrease in the Air Quality Management Area.

The conclusions of the fifth round of Updating and Screening Assessment were as follows: -

- **For Nitrogen Dioxide there is a significant risk that the national air quality objectives in the London Borough of Southwark will be exceeded.**
- **For Particulate Matter (PM_{10}) there is a significant risk that the national air quality objectives in the London Borough of Southwark will be exceeded.**
- **For the other regulated pollutants - Carbon Monoxide, Benzene, 1,3-Butadiene, Lead, Sulphur Dioxide there is no significant risk of exceeding the national air quality objectives in the London area**
- **There are no significant changes in the emissions from previous assessments of Nitrogen Dioxide and Particulate Matter (PM_{10}) in the Authority to warrant a Detailed Assessment to amend or revoke the Air Quality Management Area for the Authority.**

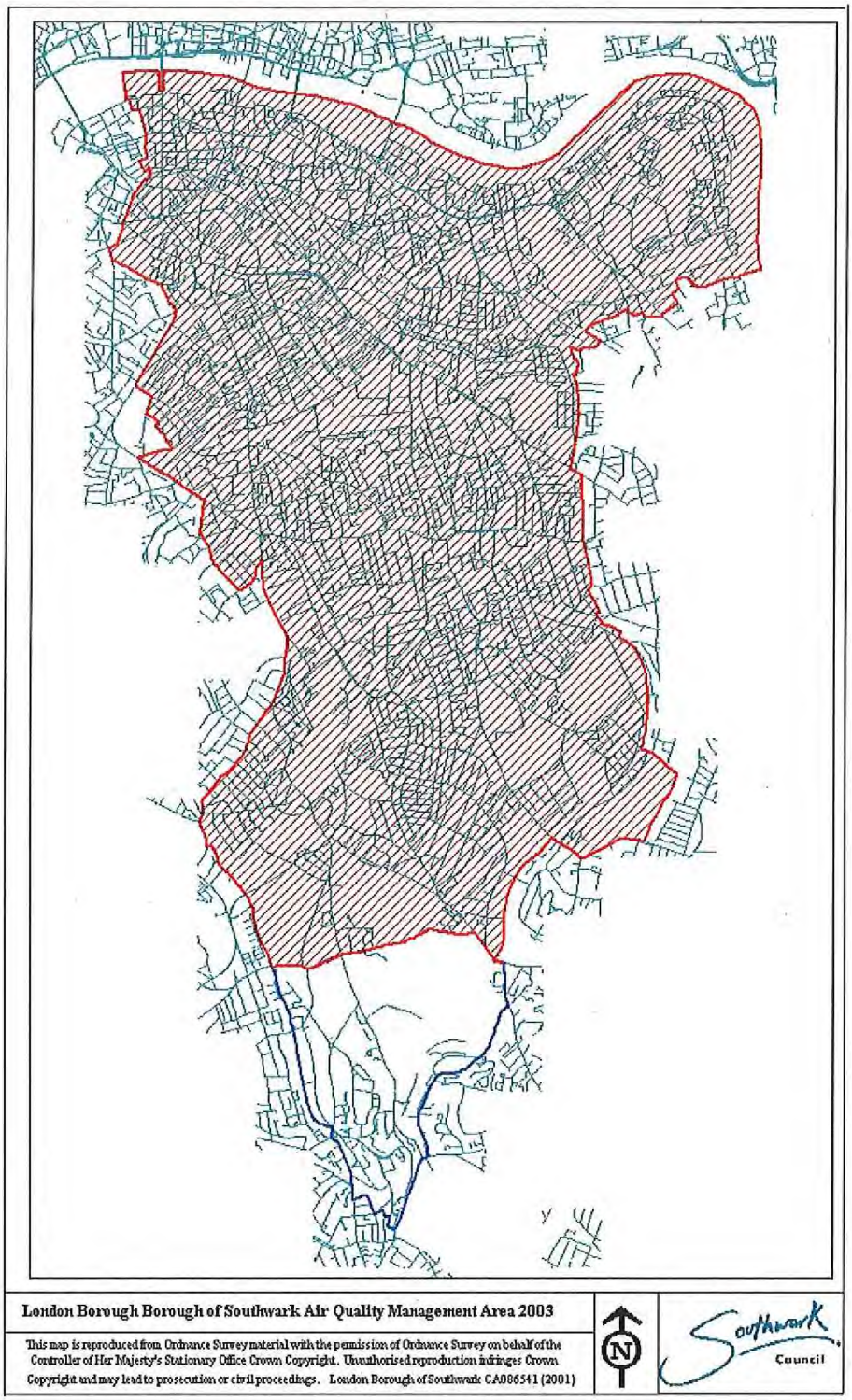

Figure 1.1 Map of the Southwark Air Quality Management Area Boundary

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In November 2010 the Authority re-established an air quality monitoring station on the Old Kent Road – Southwark 5[1] after the closure of the Livesey Museum – Southwark 2 in 2006. In January 2013 the authority commenced monitoring the air quality at St Mary's Churchyard Elephant & Castle – Southwark 6, after the closure of Larcom Street – Southwark 1 in 2009. The location of these air quality monitoring stations in shown in Figure 2.1 below.

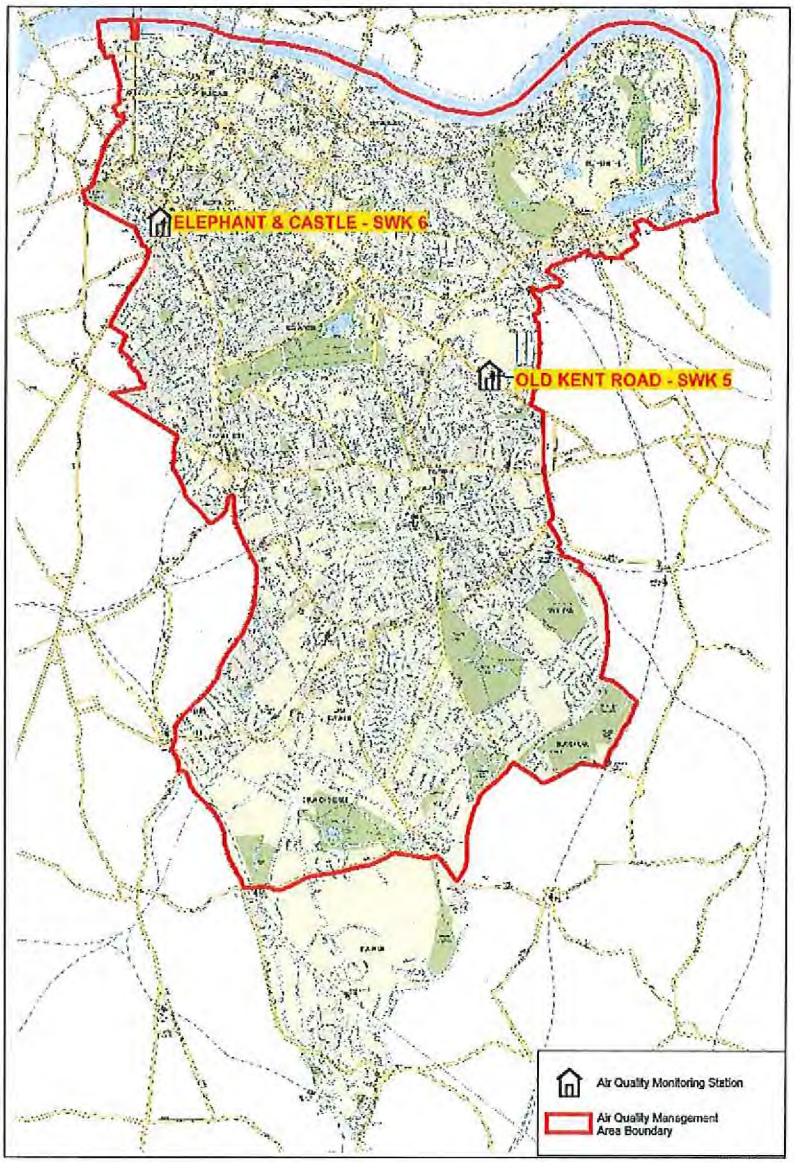

Figure 2.1 Map of Automatic Monitoring Sites (if applicable)

[1] Southwark 3 & 4 was assigned by ERG King College to the separate Particulate monitors previously at the Larcom Street and Livesey Museum.

The Authority had a contract with SupportingU Ltd to perform routine calibrations and maintenance and service contract for the sites at Old Kent Road – SWK 5 and Elephant & Castle - SWK6 until the liquidation of the company in November 2014. The poor performance of SupportingU Ltd has affected the data capture which is low (32%) at SWK5 and 84% at SWK6. There had been no outwards signs that the company was in financial difficulty when challenged with the faults by the Authority or King's College London.

The data ratifications of all the data has been carried in accordance with the London Air Quality Network procedures by King's College London.

2.1.2 Old Kent Road – Southwark 5 (SWK5)

The Authority has an air quality monitoring station on the Old Kent Road. The Authority had a previous monitoring station on the Old Kent Road at the Liversey Museum until 2006. The current site opened in November 2010 and is classified as a Roadside site and it is QA/QC to the AURN Standard.

Figure 2.1 The Old Kent Road Air Quality Monitoring Site

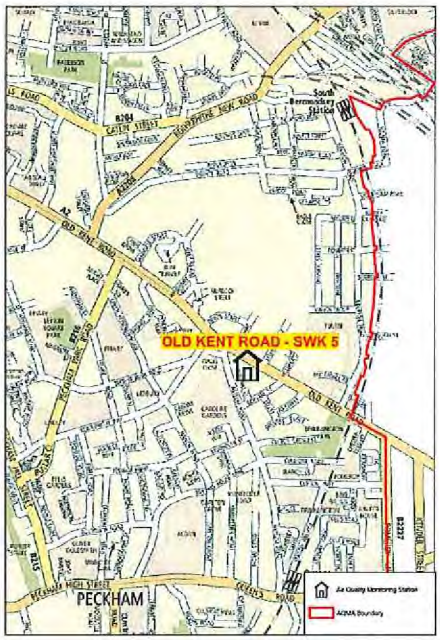

Figure 2.2 Location of Old Kent Road Air Quality Monitoring Station

2.1.3 Elephant & Castle – Southwark 6 (SWK6)

The Authority has an air quality monitoring station in the Elephant & Castle area. The Authority had a previous monitoring station at Larcom Street until 2009. The current site opened in January 2013 and is classified as an Urban Background site and it is QA/QC to the London Air Quality Network (LAQN) Standard.

Figure 2.3 The Elephant & Castle AQMS

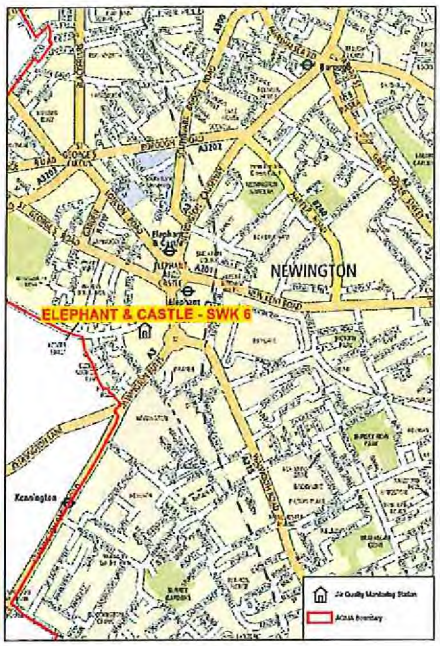

Figure 2.4 Location of Elephant & Castle AQMS

Table 2.1. Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
SWK 5	Old Kent Road	Roadside	534844	177515	2.0	NO_x & NO_2 and PM_{10}	Yes	Chemiluminescence and FDMS TEOM	Yes (1m)	5m	Yes
SWK 6	Elephant and Castle	Urban background	531884	178835	3.5	NO_x NO_2, O_3 & PM_{10}	Yes	Chemiluminescence, UV Absorption & TEOM	Yes (10m)	25m	No

2.1.4 Non-Automatic Monitoring Sites

The Authority recommenced non – automatic monitoring using Nitrogen Dioxide diffusion tubes in April 2012. The locations are shown on page 12 with details in connection with the sites in Table 2.2 and Table 2.3. The separate plans showing detailed location of the sites are in Appendix B. The monitoring locations are at pollution hotspots and background sites and are spread across the Authority's Community Council areas. The results from April 2012 onwards are presented in Table 2.11.

In March 2014, the diffusion tube survey was extended to include two London Mayor Air Quality Fund projects involving an Anti –Idling campaign on Tower Bridge and the construction work on the Heygate Regeneration Project in conjunction with Lend Lease the developer. The locations around Tower Bridge are shown on page 15 and the details of the location of the sites are shown in Table 2.4 and
Table 2.5. With the locations details for the Heygate project shown on page 18 and the details on the sites in Table 2.6 and Table 2.7.

The Authority is using Gradko International as the supplier and for the analysis of the diffusion tubes. The preparation of the tubes is 20% Triethanolamine (TEA) / water and they are prepared and analysed in accordance with Gradko International UKAS Procedures GLAM 07 & GLAM 09 which is based on the guidance given in Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users[ix].

The laboratories that offered Nitrogen Dioxide Diffusion Tubes were strongly advised to participate in an independent analytical proficiency – testing scheme. Until April 2014, this was the Workplace Analysis Scheme for Proficiency (WASP) NO_2 Proficiency Testing scheme. In April 2014 the WASP PT scheme was combined with the LGC Standards STACKS PT scheme and is known now known as AIR and is operated by LGC Standards.

Gradko International participated in the (WASP) NO_2 Proficiency Testing scheme and now participates in the AIR PT scheme. The summary results of the laboratory's participation in the WASP's and AIR PT Schemes are shown in the Tables within Appendix A.

Table A. 1 include the results from Gradko International Laboratory during the first regime of the proficiency testing scheme. In April 2010 the scoring changed, however the laboratory's results were backdated and all the results using this scoring methodology are shown in Table A.2. Precision results for the Gradko International Laboratory are shown in Table A.3 of this report.

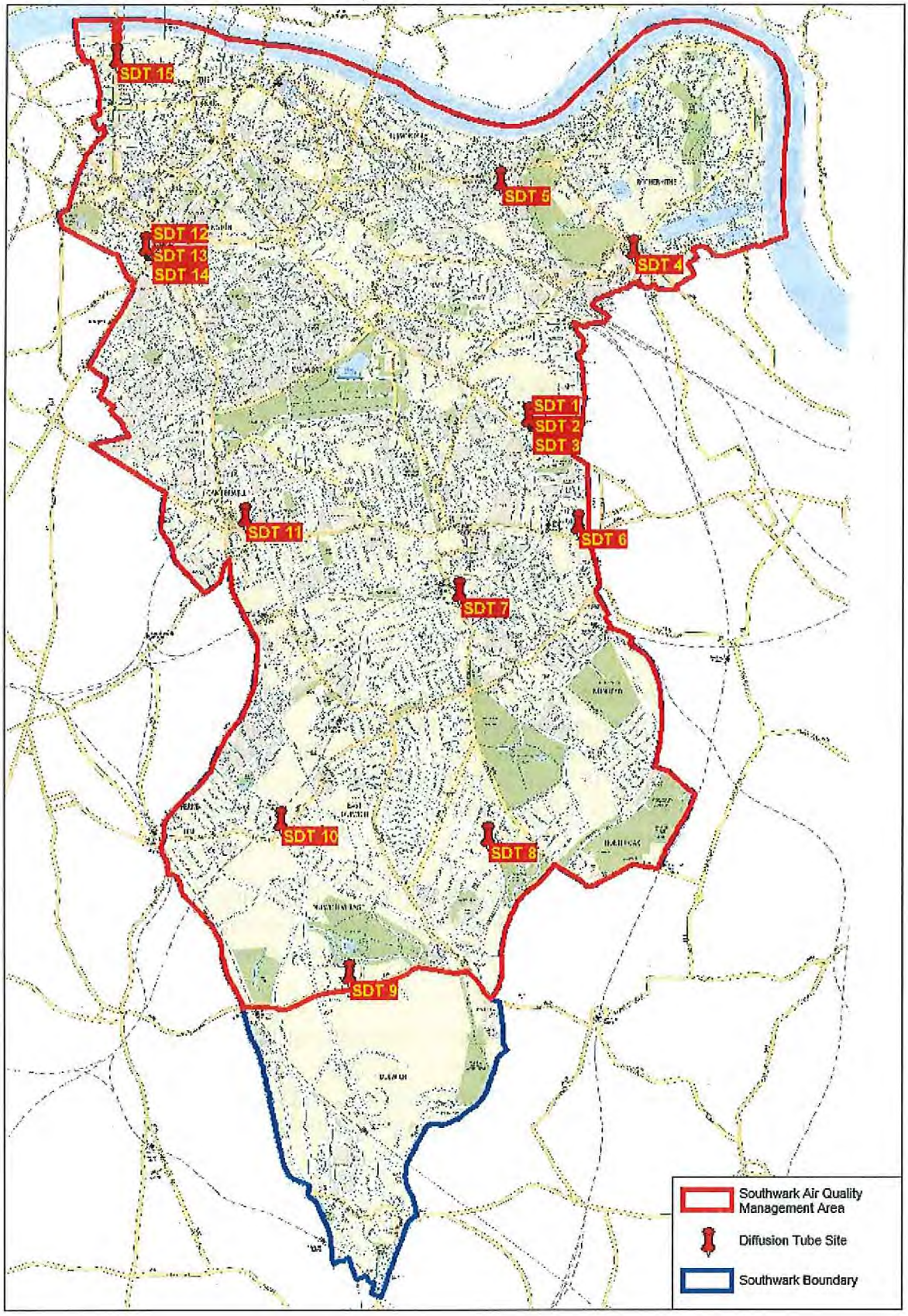

Figure 2.5 Map of Non-Automatic Monitoring Sites

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser	Relevant Exposure? *distance (m) to relevant exposure)*	Distance to kerb of nearest road	Does this location represent worst-case exposure?
SDT 1	Roadside	534844	177515	2.5m	NO_2	Yes	Yes	Yes 1m	5m	Yes
SDT 2	Roadside	534844	177515	2.5m	NO_2	Yes	Yes	Yes 1m	5m	Yes
SDT 3	Roadside	534844	177515	2.5m	NO_2	Yes	Yes	Yes 1m	5m	Yes
SDT 4	Kerbside	535668	178818	2.5m	NO_2	Yes	No	Yes 2m	0.5m	Yes
SDT 5	Kerbside	534638	179335	2.5m	NO_2	Yes	No	Yes 6m	0.5m	Yes
SDT 6	Kerbside	535243	176679	2.5m	NO_2	Yes	No	Yes 14m	0.5m	Yes
SDT 7	Kerbside	534332	176157	2.5m	NO_2	Yes	No	Yes 2m	0.5m	Yes
SDT 8	Kerbside	534560	174270	2.5m	NO_2	Yes	No	Yes 8m	0.5m	Yes
SDT 9	Kerbside	533473	17246	2.5m	NO_2	Yes	No	Yes 3m	0.5m	Yes
SDT 10	Kerbside	532937	174390	2.5m	NO_2	Yes	No	Yes 13m	0.5m	Yes
SDT 11	Kerbside	532673	176738	2.5m	NO_2	Yes	No	Yes 2m	0.5m	Yes
SDT 12	Urban background	531884	178835	2.5m	NO_2	Yes	Yes	Yes 10m	25m	No
SDT 13	Urban background	531884	178835	2.5m	NO_2	Yes	Yes	Yes 10m	25m	No
SDT 14	Urban background	531884	178835	2.5m	NO_2	Yes	Yes	Yes 10m	25m	No
SDT 15	Kerbside	531637	180293	2.5m	NO_2	Yes	No	Yes 3m	0.5m	Yes

Table 2.3 Details of Non-Automatic Monitoring Sites

SITE NUMBER	SITE DESCRIPTION
SDT 1	Collocation Tube at Roadside Air Quality Monitoring Site Old Kent Road - Tube 1
SDT 2	Collocation Tube at Roadside Air Quality Monitoring Site Old Kent Road - Tube 2
SDT 3	Collocation Tube at Roadside Air Quality Monitoring Site Old Kent Road - Tube 3
SDT 4	Lamppost (141-02) Rotherhithe Old Road SE16
SDT 5	Lamppost (180 - 31) Drummond Road SE16
SDT 6	Lamppost (2330 - 37) adjacent to 168 Queens Road
SDT 7	Lamppost (Unmarked) adjacent to 167A Rye Lane SE5
SDT 8	Lamppost (2051 - 11) Dunstans Road adjacent to 215 Underhill Road
SDT 9	Lamppost 05-35 Dulwich Common adjacent to 23 Hambledon Place
SDT 10	Lamppost (2076 - 02) adjacent to 2 Village Way
SDT 11	Lamppost (Unmarked) adjacent to 11 Camberwell Church Street
SDT 12	Collocation Tube at Background Air Quality Monitoring Site Elephant & Castle - Tube 1
SDT 13	Collocation Tube at Background Air Quality Monitoring Site Elephant & Castle - Tube 2
SDT 14	Collocation Tube at Background Air Quality Monitoring Site Elephant & Castle - Tube 3
SDT 15	Lamppost (1390 - 58) Blackfriars Road

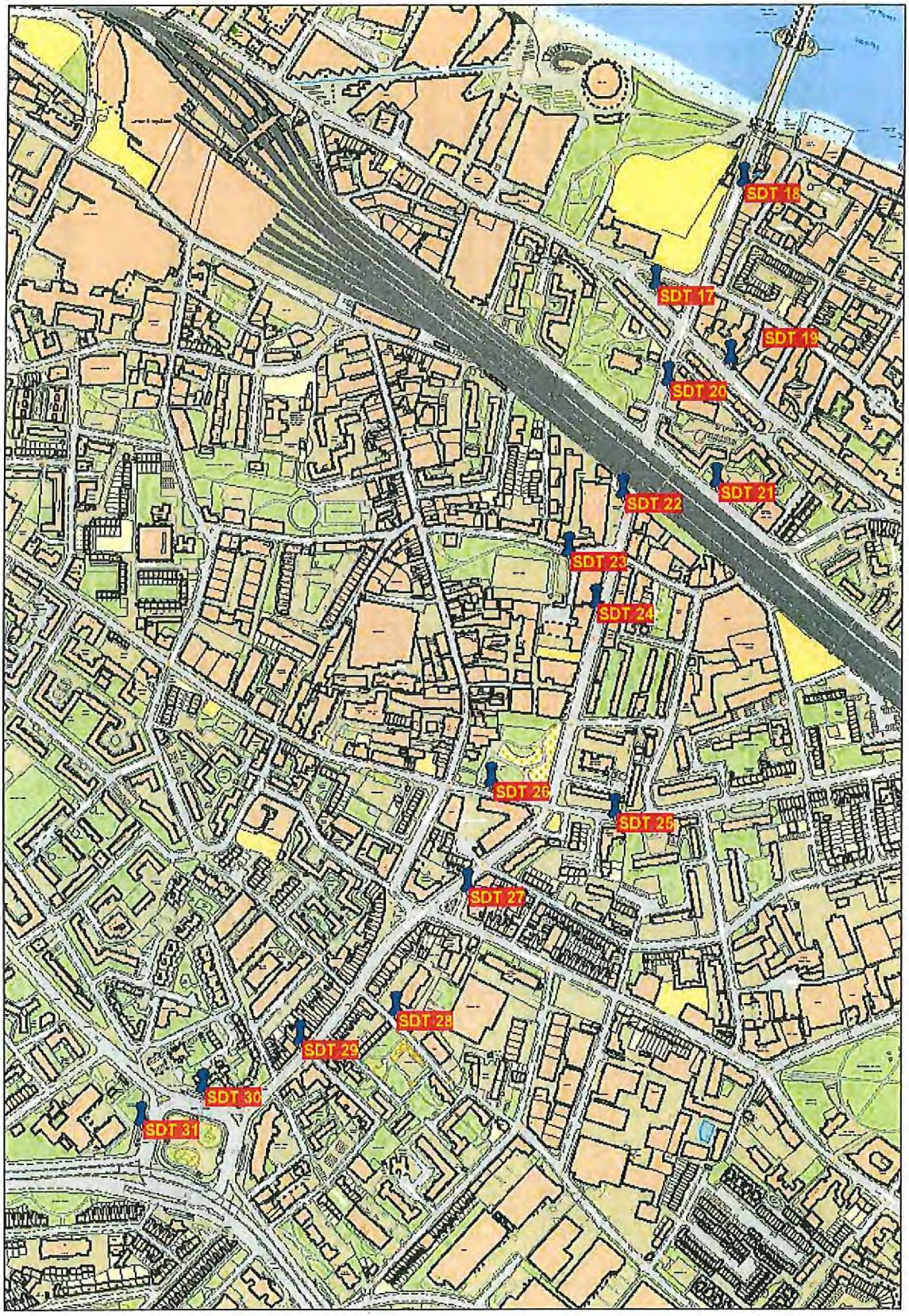

Figure 2.6 Map of Non-Automatic Monitoring Sites – Tower Bridge Project

Table 2.4 Details of Non-Automatic Monitoring Sites – MAQF Tower Bridge Project

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser	Relevant Exposure? *distance (m) to relevant exposure)*	Distance to kerb of nearest road	Does this location represent worst-case exposure?
SDT 17	Roadside	533503.4	179949.5	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 18	Roadside	533599.4	180062.2	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 19	Roadside	533586.4	179867.1	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 20	Kerbside	533517.7	179843.6	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 21	Kerbside	533572	179731.7	2.5m	NO_2	Yes	No	6m	0.5m	Yes
SDT 22	Kerbside	533468.7	179720.6	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 23	Kerbside	533408.6	179656.8	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 24	Kerbside	533438.7	179599.5	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 25	Kerbside	533460.4	179368.7	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 26	Kerbside	533323.8	179404.1	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 27	Kerbside	533296.5	179288.5	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 28	Kerbside	533216.6	179152.9	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 29	Kerbside	533111.3	179121.3	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 30	Kerbside	533002.9	179068.6	2.5m	NO_2	Yes	No	10m	0.5m	Yes
SDT 31	Kerbside	533503.4	179949.5	2.5m	NO_2	Yes	No	10m	0.5m	Yes

Table 2.5 Details of Non-Automatic Monitoring Sites – MAQF Tower Bridge Project

SITE NUMBER	SITE DESCRIPTION
SDT 17	MAQF Tower Bridge Project 1 - Tooley Street Memorial Bus Stop North side of road
SDT18	MAQF Tower Bridge Project 2 - Tower Bridge Lamppost No 1 East side
SDT 19	MAQF Tower Bridge Project 3 - Tooley Street / Boss Street lamppost 159/04 North side
SDT 20	MAQF Tower Bridge Project 4 - Tower Bridge school fence Tower Bridge Road East side
SDT 21	MAQF Tower Bridge Project 5 - Druid Street adjacent to playground North Side
SDT 22	MAQF Tower Bridge Project 6 - Tower Bridge Road South of Rail Bridge West side
SDT 23	MAQF Tower Bridge Project 7 - Tanner Street West Camera Pole by park South side
SDT 24	MAQF Tower Bridge Project 8 - Opposite Papa Johns West side
SDT 25	MAQF Tower Bridge Project 9 - Abbey Street By phone Box South side
SDT 26	MAQF Tower Bridge Project 10 - Long Lane by St Mary's Churchyard North side
SDT 27	MAQF Tower Bridge Project 11 - Grange Road Triangle by Barclays Bank North side
SDT 28	MAQF Tower Bridge Project 12 - Webb Street By school post 48/03
SDT 29	MAQF Tower Bridge Project 13 - Opposite Haddon Hall, West side
SDT 30	MAQF Tower Bridge Project 14 - Bricklayers Arms North side
SDT31	MAQF Tower Bridge Project 15 - Bricklayers Arms Roundabout - by St Olave's School, West side

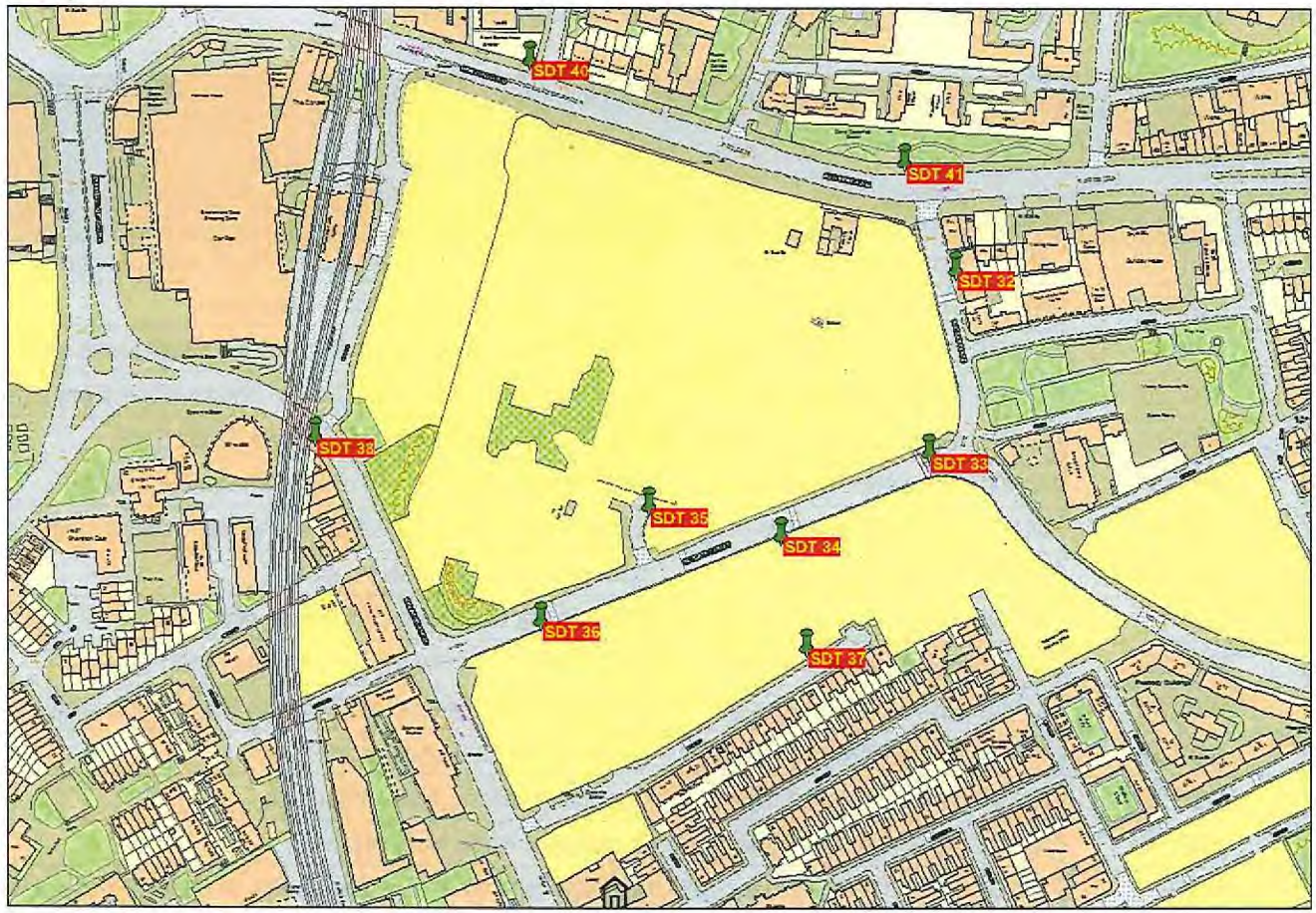

Figure 2.7 Map of Non-Automatic Monitoring Sites – Heygate Project

Table 2.6 Details of Non-Automatic Monitoring Sites – MAQF Heygate Project

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser	Relevant Exposure? *distance (m) to relevant exposure)*	Distance to kerb of nearest road	Does this location represent worst-case exposure?
SDT 32	Roadside	533503.4	179949.5	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 33	Roadside	533599.4	180062.2	2.5m	NO_2	Yes	No	10m	0.5m	No
SDT 34	Roadside	533586.4	179867.1	2.5m	NO_2	Yes	No	10m	0.5m	No
SDT 35	Kerbside	533517.7	179843.6	2.5m	NO_2	Yes	No	10m	0.5m	No
SDT 36	Kerbside	533572	179731.7	2.5m	NO_2	Yes	No	10m	0.5m	No
SDT 37	Kerbside	533468.7	179720.6	2.5m	NO_2	Yes	No	12m	0.5m	Yes
SDT 38	Kerbside	533408.6	179656.8	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 39	Kerbside	533438.7	179599.5	2.5m	NO_2	Yes	No	3m	0.5m	Yes
SDT 40	Kerbside	533460.4	179368.7	2.5m	NO_2	Yes	No	2m	0.5m	Yes
SDT 41	Kerbside	533323.8	179404.1	2.5m	NO_2	Yes	No	2m	0.5m	Yes

Table 2.7 Details of Non-Automatic Monitoring Sites – MAQF Heygate Project

SITE NUMBER	SITE DESCRIPTION
SDT 32	MAQF Heygate Project 1 - Rodney Place Post 113-905
SDT 33	MAQF Heygate Project 2 - Heygate Street Island by Bridge
SDT 34	MAQF Heygate Project 3 - Heygate South Site entrance on green fence
SDT 35	MAQF Heygate Project 4 - Heygate North Site Entrance on green fence
SDT 36	MAQF Heygate Project 5 - Heygate Street post 04 South site
SDT 37	MAQF Heygate Project 6 - Wansey Street Lamppost North side Reference
SDT 38	MAQF Heygate Project 7 - Walworth Road opposite junction to Elephant Road - west side
SDT 39	MAQF Heygate Project 8 - New Kent Road Lamppost 3 North Side (Metro Central)
SDT 40	MAQF Heygate Project 9 - New Kent Road Lamppost 15, North side (Meadow Road)
SDT 41	MAQF Heygate Project 10 - New Kent Road Lamppost 29 North side (Rodney Place)

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

The statistics for Nitrogen Dioxide (NO_2) are presented in Table 2.8 for the Old Kent Road (SWK5) and Elephant & Castle (SWK6) monitoring stations. Examination of the data shows that the annual mean concentration is exceeded the objective of 40 $\mu g.m^{-3}$ at both stations until this year, when it is indicated that the objective has been met. However, because of the poor data capture achieved, the authority is disregarding this information. The trend at the Old Kent Road over the period from 2011 - 2013 shows that the annual mean is increasing. If you analyse the average results from all the monitoring stations in the Greater London Area in the London Air Quality Network[x]. This clearly shows that the mean background Nitrogen Dioxide has slightly reduced from 2008. Where as the mean Roadside sites has remained relatively stable above the objective level.

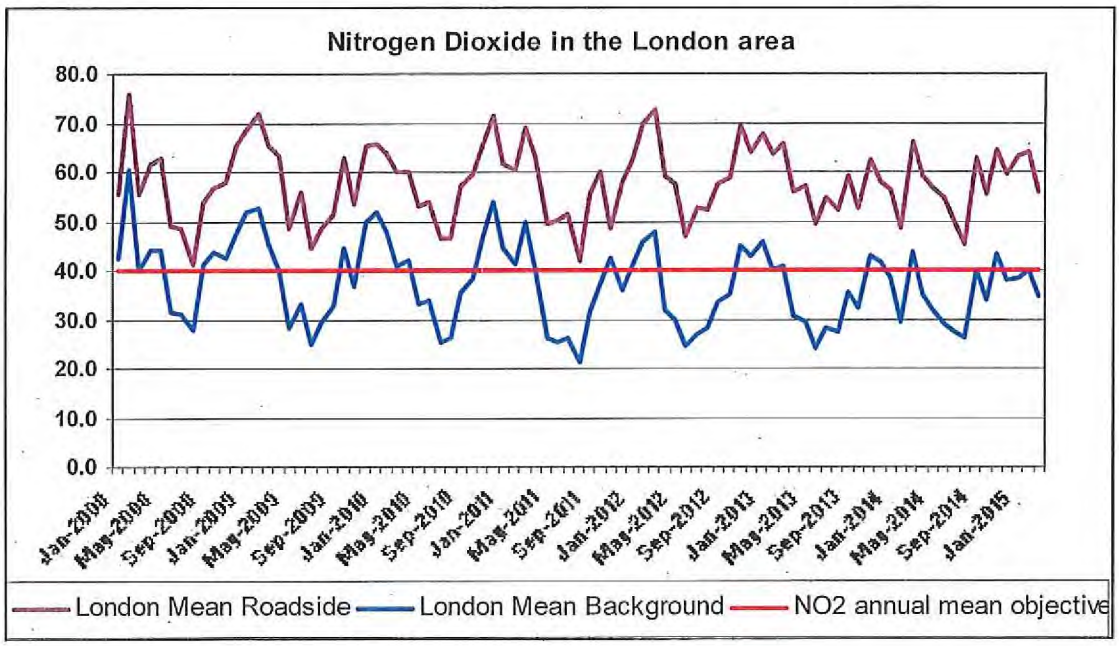

Figure 2.8 Trends of the monthly mean Nitrogen Dioxide concentrations at roadside and background sites in the London area.

The local trends at the local air quality monitoring stations are shown in Figure 2.9. The graph indicates that since 2000 air quality was slowly improving until 2006, but when the air quality monitoring station was re – introduced in 2010, the measured concentration was initially lower, but the levels are increasing.

However, the Air Quality Strategy objective for the number of hourly means exceeding 200$\mu g.m^{-3}$ not to be exceeded more than 18 times a year has been met at the monitoring stations in the borough. The data can be seen in Table 2.9.

Table 2.8 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2014 %	Annual Mean Concentration ($\mu g.m^{-3}$) (Data capture rate given in the brackets)				
					2010	2011	2012	2013	2014
SWK5	Roadside	Yes	32	32	N / A	**46** (73%)	**52** (80%)	**55**	38
SWK6	Urban Background	Yes	84	84	N / A	N / A	N / A	**42**	37
CP1	Roadside	No	N / A	N / A	**47** (56%)	N / A	N / A	N / A	N / A

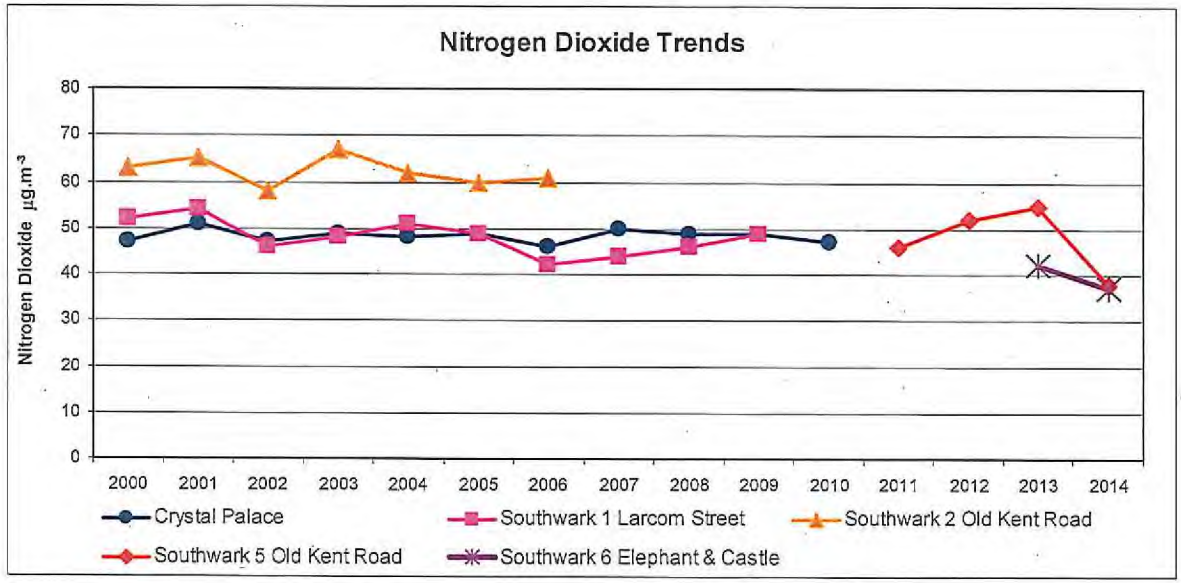

Figure 2.9Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

Table 2.9 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2014 % [b]	Number of Hourly Means > 200µg.m^{-3} (Data capture rate given in the brackets)				
					2010	2011	2012	2013	2014
SWK5	Roadside	Yes	32	32	0 (8%)	10 (73%)	6(80%)	4(>90%)	1
SWK6	Urban Background	Yes	84	84	N / A	N / A	N / A	0(85%)	0
CP1	Roadside	No	N/ A	N / A	0	N / A	N / A	N / A	N / A

2.2.2 Diffusion Tube Monitoring Data

The bias adjusted results for the Nitrogen Dioxide diffusion tube survey is presented in Table 2.10 with the individual monthly results presented in Appendix B

In Table 2.10 and Table 2.11 if the annual concentrations are shown as a **bold** value, then the result shows an exceedence of the NO_2 annual mean AQS objective of 40µg.m^{-3} at that location. If the annual concentrations is greater than 60µg.m^{-3} this is shown as **bold & underlined**, and this indicates that there a potential exceedence of the NO_2 hourly mean AQS objective at that location.

Table 2.10 Results of NO_2 Diffusion Tubes 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube T or C	Full Calendar Year Data Capture 2014 (Number of Months) [a]	2014 Annual Mean Concentration ($\mu g.m^{-3}$)	2014 Annual Mean Concentration ($\mu g.m^{-3}$) (Bias corrected) Bias Adjustment factor = 0.71
SDT 1	Old Kent Road AQMS	Roadside	Yes	Yes	12	**59.73**	**42.41**
SDT 2	Old Kent Road AQMS	Roadside	Yes	Yes	12	**59.54**	**42.27**
SDT 3	Old Kent Road AQMS	Roadside	Yes	Yes	12	**58.68**	**41.66**
SDT 4	Rotherhithe New Road	Kerbside	Yes	No	12	**73.85**	**52.43**
SDT 5	Drummond Road	Kerbside	Yes	No	12	**41.79**	29.67
SDT 6	Queens Road	Kerbside	Yes	No	11	**86.92**	**61.71**
SDT 7	Rye Lane	Kerbside	Yes	No	12	**73.34**	**52.07**
SDT 8	Dunstans Road	Kerbside	Yes	No	12	**39.27**	27.88
SDT 9	South Circular Road	Kerbside	Yes	No	12	**68.89**	**48.91**
SDT 10	Village Way	Kerbside	Yes	No	12	**43.21**	30.68
SDT 11	Camberwell Church Street	Kerbside	Yes	No	12	**85.61**	**60.78**
SDT 12	E & C AQMS	Urban background	Yes	Yes	12	**67.74**	**48.10**
SDT 13	E & C AQMS	Urban background	Yes	Yes	12	**58.07**	**41.23**
SDT 14	E & C AQMS	Urban background	Yes	Yes	11	**72.78**	**51.67**
SDT 15	Blackfriars Road	Kerbside	Yes	No	11	**82.21**	**58.37**

Table 2.11 Results of NO_2 Diffusion Tubes (2012 to 2014)

Site ID	Site Name	Within AQMA?	Annual Mean Concentration ($\mu g.m^{-3}$) - Adjusted for Bias		
			2012 (Bias Adjustment Factor = 1.04)	2013 (Bias Adjustment Factor = 0.96)	2014 (Bias Adjustment Factor = 0.71)
SDT 1	Old Kent Road AQMS	Yes	**49.59**	**57.95**	**42.41**
SDT 2	Old Kent Road AQMS	Yes	**48.57**	**58.27**	**42.27**
SDT 3	Old Kent Road AQMS	Yes	**49.09**	**57.60**	**41.66**
SDT 4	Rotherhithe New Road	Yes	**57.72**	**70.53**	**52.43**
SDT 5	Drummond Road	Yes	37.28	**41.08**	29.67
SDT 6	Queens Road	Yes	**71.13**	**78.24**	**61.71**
SDT 7	Rye Lane	Yes	**58.43**	**66.25**	**52.07**
SDT 8	Dunstans Road	Yes	35.80	**44.28**	27.88
SDT 9	South Circular Road	Yes	**55.65**	**63.28**	**48.91**
SDT 10	Village Way	Yes	38.95	**45.01**	30.68
SDT 11	Camberwell Church Street	Yes	**85.78**	**97.45**	**60.78**
SDT 12	E & C AQMS	Yes	**47.06**	**57.59**	**48.10**
SDT 13	E & C AQMS	Yes	**48.33**	**57.88**	**41.23**
SDT 14	E & C AQMS	Yes	**47.39**	**58.44**	**51.67**
SDT 15	Blackfriars Road	Yes	**61.82**	**72.59**	**58.37**

In bold, exceedence of the NO_2 annual mean AQS objective of $40\mu g.m^{-3}$. Underlined, annual mean > $60\mu g.m^{-3}$, indicating a potential exceedence of the NO_2 hourly mean AQS objective

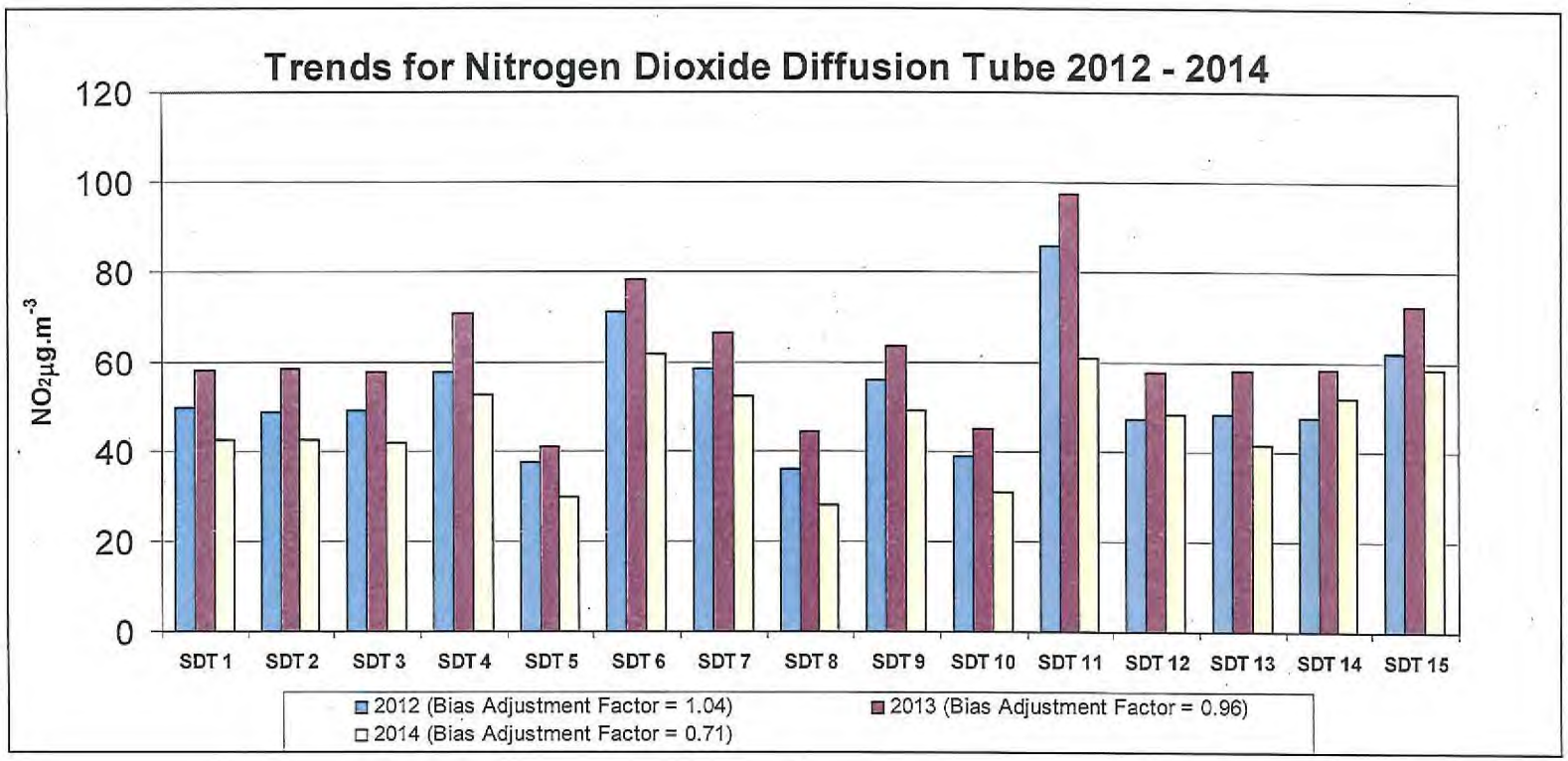

Figure 2.10 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

The figure above shows the trends in the annual Nitrogen Dioxide diffusion tube results since the restart in the borough since 2012. the results shown that the majority of the sites indicate are above the national air quality objective for Nitrogen Dioxide of 40µg.m^{-3}.

2.2.3 Particulate Matter (PM_{10})

The Authority monitors Particulate Matter (PM_{10}) at both automatic air quality monitor stations in the borough. The PM_{10} monitor at the Old Kent Road site (SWK5) uses the TEOM FDMS (Filter Dynamic Measurement System) instrument. At the Elephant & Castle (SWK6) the authority operates a TEOM (Tamper Element Oscillating Microbalance) instrument.

It was anticipated that the two monitoring stations would incorporate similar instrumentation but the decision to fit a TEOM instrument at the Elephant & Castle was ultimately taken having regard to the monitoring stations position adjacent to an ongoing significant construction site. The chemical construction of particles emitted during the construction process would affect a TEOM FDMS instrument.

Table 2.12 Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA ?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2014 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration ($\mu g.m^{-3}$) (Data capture rate given in the brackets)				
						2010	2011	2012	2013	2014
SWK5	Roadside	Yes	32	32	Y	29 (8%)	27 (80%)	25 (82%)	30 (85%)	23
SWK6	Urban Background	Yes	>90	>90	Y	N / A	N / A	N / A	23 (80%)	19
CP1	Roadside	No	N / A	N / A	Y	23 (55%)	N / A	N / A	N / A	N / A

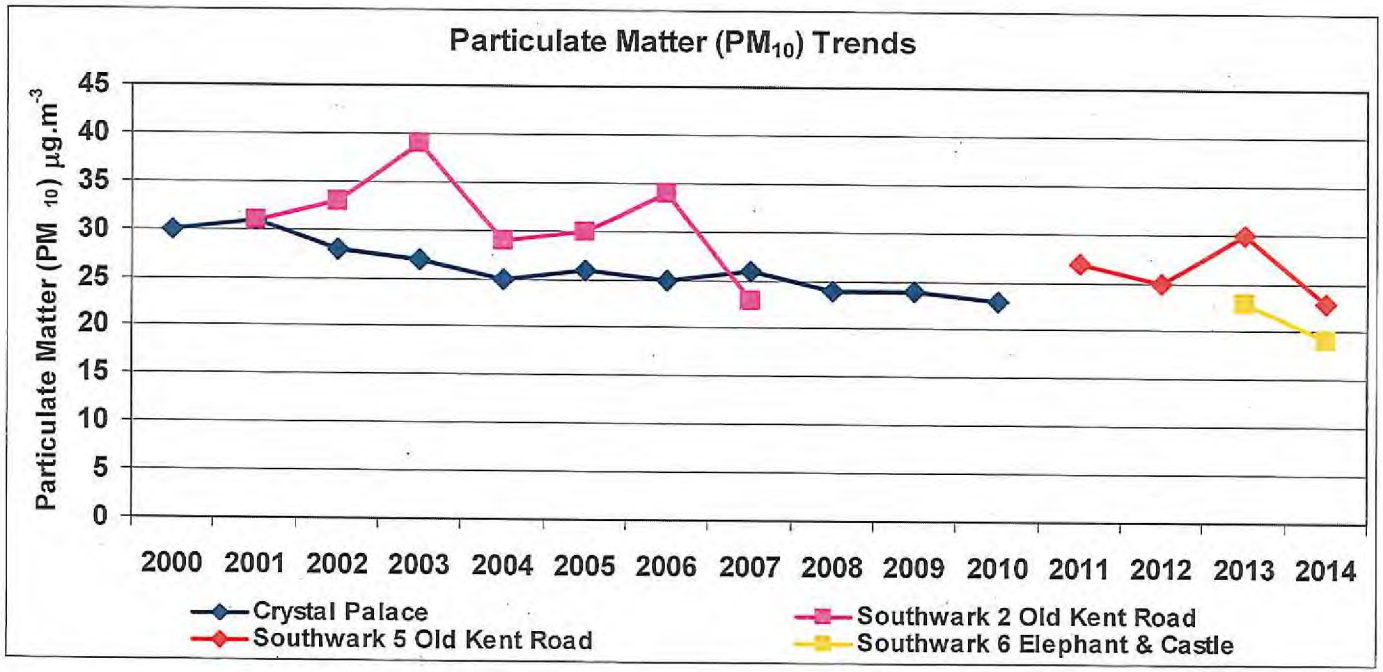

Figure 2.11 Trends in Annual Mean PM_{10} Concentrations

Comparison of the annual mean with the national air quality objective of an annual mean of 40µg.m^{-3} reveals that all the sites have met the standard over the last few years. Examining the objective for the 24-hour mean (Table 2.9) not to exceed more than 50µg.m^{-3} more than 18 times a year, it has been not met at the Old Kent Road (Southwark 6) monitoring station. However, these results do not take into account whether the exceedence may be due to natural sources.

Table 2.13 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2014 %	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg.m^{-3}				
						2010	2011	2012	2013	2014
SWK5	Roadside	Yes	32	32	Y	0 (8%)	31 (80%)	19 (82%)	30(85%)	10
SWK6	Urban Backgrd	Yes	84	84	Y	N/A	N/A	N/A	3 (80%)	0
CP1	Roadside	No	N / A	N / A	Y	1 (56%)	N/A	N/A	N/A	N/A

2.2.4 Other Pollutants Monitored - Ozone O_3

At the Urban Background air quality monitoring station at Elephant & Castle, the Authority monitors ozone using the Ultra Violet interference method. There is an ozone objective in the National Air Quality Strategy in respect of the maximum number of rolling 8-hour means are greater than 100µg.m^{-3} not to exceed 10 days in a year. This national air quality objective has not been included in the Air Quality Regulations for the purpose of Local Air Quality Management. This is due to its trans-boundary nature, but the Authority monitors the pollutant, because of it's oxidative reaction with Oxides of Nitrogen.

Table 2.14 Results of Automatic Monitoring for Ozone: Comparison with 8-hour Mean Objective

Site ID	Site Type	Valid Data Capture for Monitoring Period %	Valid Data Capture 2014 %	Number of 8 hour mean > 100µg.m^{-3}	
				2013	2014
SWK6	Urban Background	>90	>90	1	2

The ozone 8-hour objective in the borough has been met at the Elephant & Castle (SWK6) air quality monitoring station

2.2.5 Summary of Compliance with AQS Objectives

The London Borough of Southwark has examined the results from monitoring in the borough.

Concentrations within the AQMA still exceed the annual objective for Nitrogen Dioxide within the borough and the AQMA should remain.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

The LAQM TG (09)[xi] guidance states in section A.1 of Box 5.3 the assessment does not need to consider locations within an AQMA declared for road traffic sources for the specific pollutant under question, in this case Nitrogen Dioxide.

L.B. Southwark confirms that there are no new / newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

The Authority is regenerating the Elephant and Castle area, with the demolition of the Heygate Estate and the Elephant and Castle Leisure Centre. There has been a masterplan approved by the Authority[xii] which included an environmental assessment. As part of the regeneration project, Transport of London is redesigning the road layout in the area, with the removal of the Southern Elephant and Castle roundabout, this was assessed during the Authority's air quality modelling assessment in 2011.[xiii] In March 2015, construction work started to remove the northern roundabout, and the southern – eastern arm of the northern roundabout to construct a new plaza with proposed cafés where people can spend 1 hour or more. There has been an air quality assessment produced for this road project. When completed there are areas where air quality has been reduced for new and existing residents in the area and on the plaza.

The LAQM TG (09)[xi] guidance states in section A.2 of Box 5.3 the Authority does not need to consider locations within an AQMA declared for road traffic sources for the specific pollutant under question, in this case Nitrogen Dioxide, but may assume that there is an exceedence of the 1 hour mean objective in addition to the annual mean objective within the AQMA. We are therefore advised to review our Air Quality Action Plan.

L.B. Southwark has assessed new / newly identified busy streets where people may spend 1 hour or more close to traffic, that were not assessed in previous rounds of Review and Assessment, and concluded that it will not be necessary to proceed to a Detailed Assessment as it is situated within the Authority's AQMA.

3.3 Roads with a High Flow of Buses and/or HGVs.

The LAQM TG (09) guidance states in section A.3 of Box 5.3 the assessment does not need to consider locations within existing AQMA declared for Nitrogen Dioxide (NO_2) and Particulates (PM_{10})

The L. B. Southwark confirms that there are no new / newly identified roads with high flows of buses / HDVs.

3.4 Junctions

The redesign in the northern roundabout at Elephant & Castle meets the criteria within LAQM TG (09) guidance section A.4 of Box 5.3. The air quality assessment for the project predicts annual mean NO_2 concentrations greater than $40\mu g.m^{-3}$. Therefore it is advised that will necessary to proceed to a Detailed Assessment.

L.B. Southwark has assessed new / newly identified junctions meeting the criteria in Section A.4 of Box 5.3 in TG(09), and concluded that **it will be necessary to proceed to a Detailed Assessment for Nitrogen Dioxide.**

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

The LAQM TG (09) guidance states in section A.5 of Box 5.3 that assessment does not need to consider new roads constructed or proposed since the last round of review and assessment. Therefore this is not applicable in this review and assessment as there no confirmed new roads to be constructed in the borough that have not been subjected to a previous assessment.

L.B Southwark confirms that there are no new / proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

The LAQM TG (09) guidance states in section A.6 of Box 5.3 that this assessment only need to consider roads with significant changed traffic flows that have not been considered in the above – mentioned paragraphs.

L.B. Southwark confirms that there are no new / newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

The LAQM TG (09) guidance states in section A.7 of Box 5.3 that this assessment only need to consider bus and coach stations where there is relevant exposure. At the new operational bus station at London Bridge Railway Station, there is no relevant exposure within 10m of the bus station.

L.B Southwark confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

4.1.1 Updating and Screening

Within the Greater London Area there are several airports within the region.

Battersea
Biggin Hill
Denham
Elstree
Lippits Hill
London City
Northolt
Stapleford
London Heathrow

Table 4.1 Airports within the Greater London Area

Following the procedure as set in Section B.1 of Box 5.4 of TG(09). There are no airports within 1km of the Authority's boundary, therefore, there is no relevant exposure of the population of L.B. Southwark. There is no need to proceed any further with this source.

L.B. Southwark confirms that there are no airports within 1km of the Local Authority area.

4.1.2 Aviation sources within the LAEI 2010

Only the aircraft serving London City Airport and London Heathrow Airport and the helicopters using Battersea are identifiable over the borough. The aircraft using London Heathrow Airport are seen to be flying from the holding stack to join the final approach flight path and are usually about 3000m – 5000m above the ground, therefore, are not taken into account within the emission inventory of the borough.

However the aircraft serving London City Airport are either cruising in or on final approach to the airport or climbing out or cruising out from the airport within the grid squares that are included within the emission inventory of the borough.

Within the aviation tables of the LAEI for the London City Airport the sources are categorised as either as an area, a line or as a grid sources. There are no area sources within the Southwark emission inventory only line or grid sources.

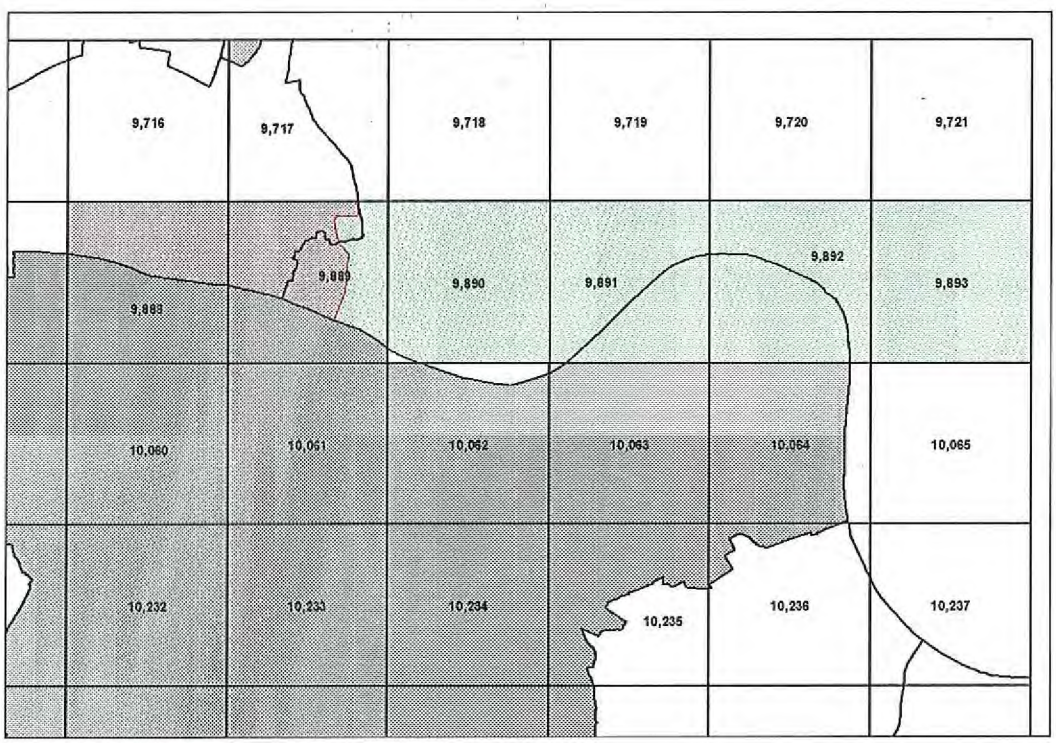

Figure 4.1 London City Airport Line sources grid squares

Figure 4.1 illustrates the spatial distribution of the line source within the 2010 LAEI associated with the London City Airport. The line source is connected with the aircraft either on final approach to or climbing out from the airport. It is assumed within the LAEI that 60% of all arrivals approach from the east of the airport and 60% of all departures taking off towards the west.

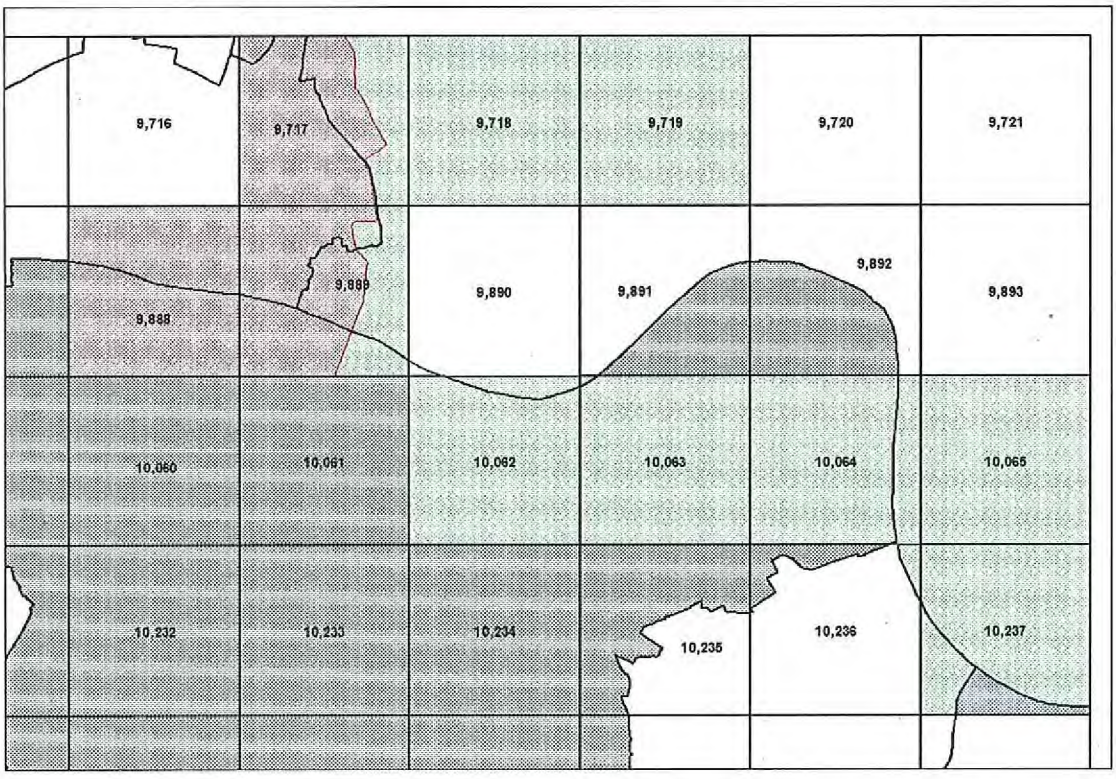

Figure 4.2 London City Airport Line sources grid squares

Figure 4.2 illustrates the spatial distribution of the grid source within the 2010 LAEI associated with the London City Airport. The grid source is connected with the aircraft that are either cruising in or cruising out from the airport.

When comparing the emission data with the 2008 LAEI data, the above information was not included in the emission inventory. The last Authority's air quality modelling assessment was completed using the 2008 emission data, this source has not been included in the air quality modelling maps. **It is concluded the Authority will need to proceed with a detailed assessment to include this source.**

4.2 Railways (Diesel and Steam Trains)

4.2.1 Updating and Screening

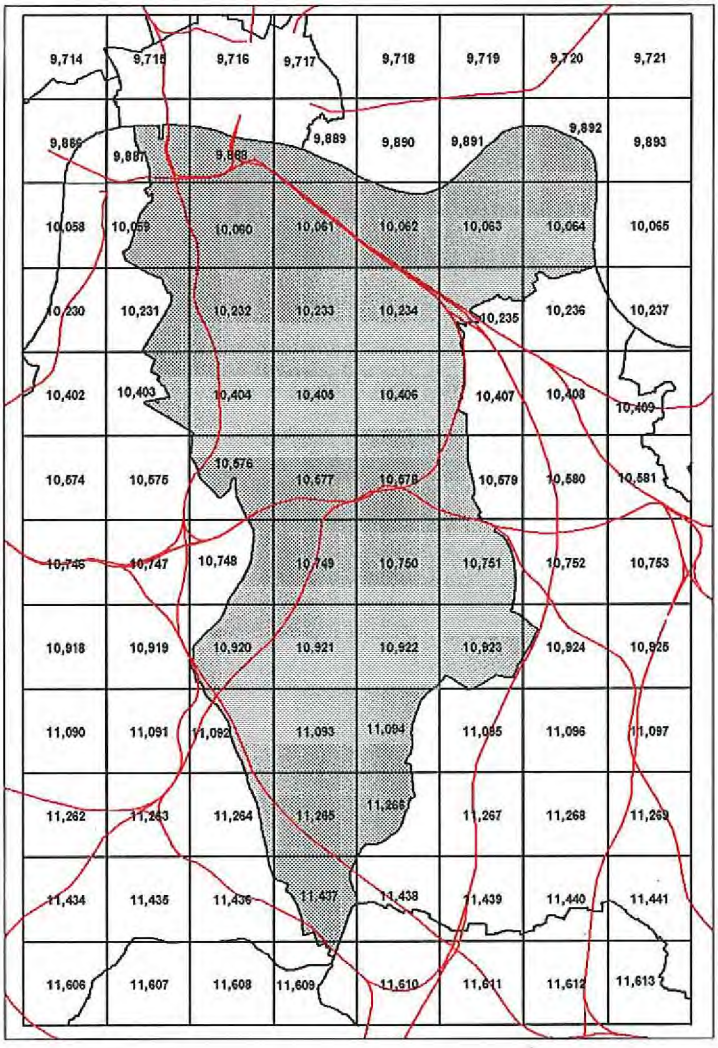

Figure 4.3 The Railway sources within the Southwark Emission Inventory area

Figure 4.3 illustrates the spatial distribution of the Railway sources within the Southwark Emission Inventory.

4.2.2 Stationary Trains

Following the procedure as set in Section B.2 Approach 1 of Box 5.4 of TG(09). The trains using the Terminus Section (Low Level) of London Bridge Station could be stationary for +15 minutes but there is no relevant exposure in this area within 15m, therefore, there is no need to proceed with this source.

L.B. Southwark confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.3 Moving Trains

Following the procedure as set in Section B.2 Approach 2 of Box 5.4 of TG(09). Examining the Table 5.1 of TG (09) none of the rail lines listed in this table are situated in the borough therefore there is no need to proceed with this source.

L.B. Southwark confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.2.4 Railway sources within the LAEI 2010

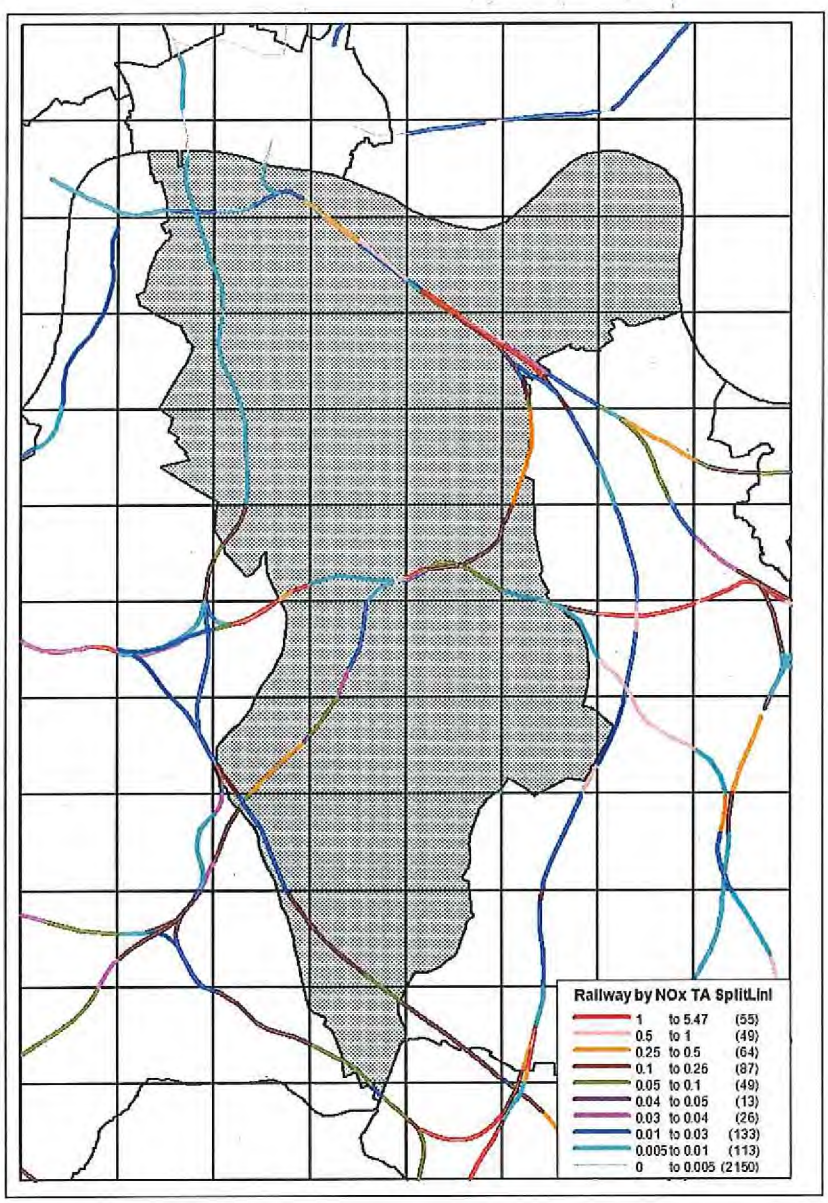

Figure 4.4 Railway NO_X emissions (tonnes per annum) within the Southwark Inventory.

When comparing the emission data with the 2008 LAEI data, emissions from railways was included in the inventory. The last Authority's air quality modelling assessment was completed using the 2008 emission data, therefore this source was included in the air quality modelling maps. Examining the spatial positioning of the railway line in the 2010 LAEI database there are positional corrections required of the graphical representation lines in the Peckham station area.

The database for the emission inventory of 2015 and 2020 is missing the data for the London Overground route from Surrey Quays to New Cross Gate, New Cross and Crystal Palace.

4.3 Ports (Shipping)

4.3.1 Updating and Screening

Following the procedure as set in Section B.3 of Box 5.4 of TG(09). There are less than 5,000 movements of large ships on the river adjacent to the London Borough of Southwark. Therefore there is no need to proceed with this source.

L.B Southwark confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

4.3.2 Shipping sources within the LAEI 2010

Figure 4.5 Shipping sources within the Southwark Emission Inventory Area.

Within the Southwark Emission Inventory Area, there is shipping activity consisting of freight and passenger shipping on the River Thames adjacent to the Authority. The freight activity consists of movement of refuse from Wandsworth and City of London and aggregates to Hanston Concrete (Pier Wharf), Cemex Fulham & Cemex Cringle Wharf. There is new data provided in the LAEI 2010 with a detailed methodology for emissions of the largest passenger shipping operators – Thames Clipper, City Cruises, Bateaux London and a simple methodology for Thames River Services, Thames Executive Charters and LRS operators.

The last Authority's air quality modelling assessment was completed using the 2008 emission data, this source has not been included in the air quality modelling maps. **It is concluded the Authority will need to proceed with a detailed assessment to include this source.**

5 Industrial Sources

5.1 Industrial Installations

5.1.1 Updating and Screening

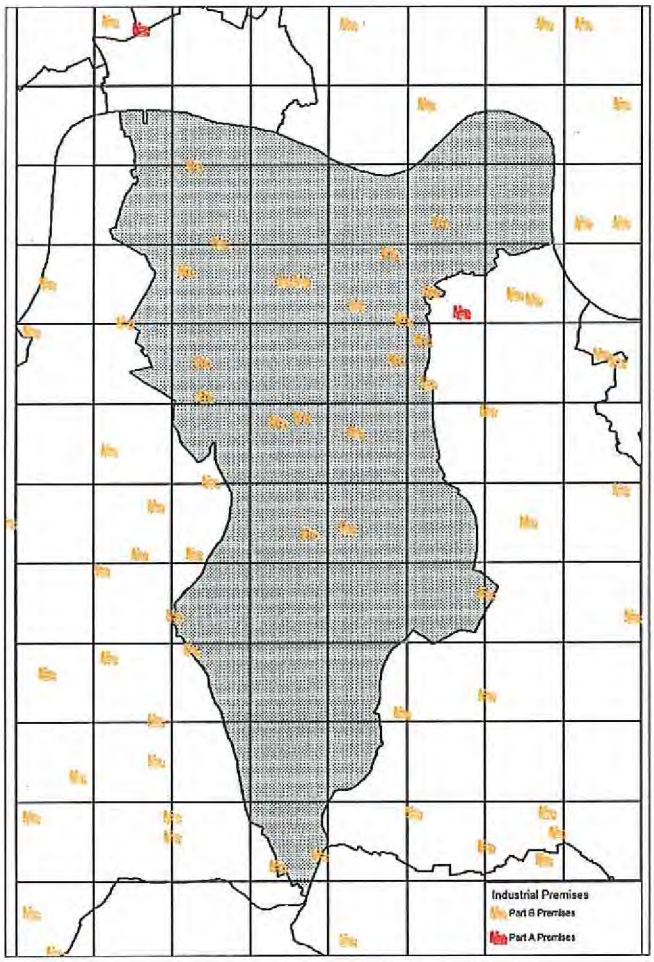

Figure 5.1 Industrial Installations in the L.B. of Southwark

5.1.2 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Following the procedure as set in Section C.1 using Approach 1of Box 5.5 of TG(09). There are no new or proposed industrial installations within Authority's boundary, therefore, there is no need to proceed any further with this source.

L.B. Southwark confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.3 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Following the procedure as set in Section C.1 using Approach 2 of Box 5.5 of TG(09). There are no existing Installations where emissions have increased substantially or new relevant exposure has been introduced within Authority's boundary, therefore, there is no need to proceed any further with this source.

L.B. Southwark confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.4 New or Significantly Changed Installations with No Previous Air Quality Assessment

Following the procedure as set in Section C.1 of Box 5.5 of TG(09). There are no new or significantly changed Installations that have taken place within Authority's boundary, therefore, there is no need to proceed any further with this source.

L.B Southwark confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

Following the procedure as set in Section C.2 of Box 5.5 of TG(09). There are no major fuel petrol storage depots within Authority's boundary, therefore there is no need to proceed any further with this source.

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Following the procedure as set in Section C.3 of Box 5.5 of TG(09). There are petrol stations that meet the criteria of a throughput of more than 2000m^3 on busy roads within Authority's boundary but all have stage 2 recovery systems, but there are not petrol stations with any relevant exposure within 10m of the pumps. Therefore, there is no requirement to proceed any further with this source.

L.B. Southwark confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Following the procedure as set in Section C.4 of Box 5.4 of TG(09). There are no poultry farms within Authority's boundary, therefore, there is no relevant exposure of the population of L.B. Southwark. There is no need to proceed any further with this source.

L.B. Southwark confirms that there are no poultry farms meeting the specified criteria.

5.4.1 Poultry Farms sources within the LAEI 2010

There is no separate data within the LAEI 2010 dataset.

5.5 Industrial sources within the LAEI 2010

The industrial sources within the LAEI 2010, is correct for the Part A premises in or adjacent to the Authority.

The industrial sources within the LAEI 2010, is incorrect for the Part B premises for the borough. There has been several closures of properties in the borough recently and the location for dry cleaners are missing from the database. The GLA are updating the database and the Authority has provided updated information to the GLA for the next version of the LAEI.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Following the procedure set out in section D1a of chapter 5 TG(09) and data from the authority's planning database, the authority has assessed the biomass combustion plants in the borough and have concluded that there are no individual installations meet the threshold for the authority to proceed to a detailed Assessment.

L.B. Southwark has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

The LAQM TG (09) guidance states in section D.1b of Box 5.8 that the Local Authority needs to identify areas in 500m x 500m squares with the highest densities of house and service sector biomass combustion appliances and compare with the relevant nonogram in the guidance. The authority has used its planning database and has concluded that there is no exceedence of the thresholds requiring the borough to proceed to a Detailed Assessment.

L.B. Southwark has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

The LAQM TG (09) guidance states in section D.2 of Box 5.8 that the Local Authority is required to assess whether the density of coal burning premises exceed 100 per 500m x 500m area. Using local knowledge the authority, the borough estimates that there are no emissions which would exceed the threshold, which would warrant the requirement to a Detailed Assessment.

L.B. Southwark confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

The LAQM TG (09) guidance states in section E of Box 5.10 that the Local Authority should proceed to a assessment if there are any new locations identified since previous rounds of Review and Assessment or where there is new relevant exposure in their vicinity. There are many locations within the borough where there are construction and developments These have been by assessed within the Construction Environmental Management Plans and Environmental Assessments and these have been sufficient to for Review and Assessment purposes.

L.B. Southwark confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The new monitoring data presented in this report has confirmed that there are exceedences within the Air Quality Management Area. The Authority has reviewed the location of the diffusion tube monitoring sites and have placed a site in the Crystal Palace area and the early data from the new monitoring site indicates that the Local Authority needs to consider to amend the current Air Quality Management Area and will need to proceed to a Further Detailed Assessment subject to a review of the data provided in the next version of the LAEI in the Autumn 2015.

8.2 Conclusions from Assessment of Sources

This assessment has considered the different sources within the London Borough of Southwark Air Quality Management Area due to the changing of the road layout in the Elephant & Castle area and the improved details to shipping and aircraft data sources. These sources were not included within the last detailed assessment of the air quality in the borough. Therefore, the Authority has concluded that there is a requirement to proceed to a Further Detailed Assessment

There are no significant changed sources identified for any potential exceedences outside the existing London Borough of Southwark Air Quality Management Area.

8.3 Proposed Actions

The review of the neighbouring Local Authorities Air Quality Management Areas see Figure 8.1 below and the early results from the new Nitrogen Dioxide diffusion tube monitoring site on Crystal Palace Parade, are indicating that the Authority will need to proceed to a detailed assessment.

The alteration of the northern roundabout at the Elephant & Castle and the announcement from the London Mayor in respect of the introduction of a Central London area Ultra Low Emission Zone have not been included in past borough's air quality review and assessments. In accordance with the LAQM Technical Guidance TG (09)[xi] the Authority may need to proceed to review the data in the next version of LAEI and the proposed modelling being provided with it.

As a result of the detailed assessment the Authority will review its current Air Quality Strategy and Action Plan to ensure that the authority is taking all the appropriate actions to improve the air quality in the borough.

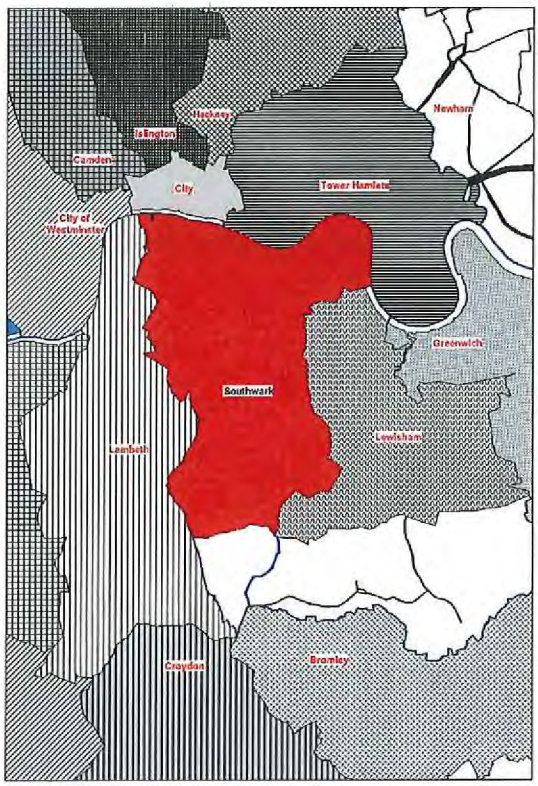

Figure 8.1 Southwark Air Quality Management Area and the AQMA of the surrounding boroughs

Appendices

Appendix A: QA/QC Data

Appendix B: Nitrogen Dioxide Diffusion Tube Results 2014

Appendix C: References

Appendix A QA/QC Data

Diffusion Tube Bias Adjustment Factors

The Authority incorporates two local co-location diffusion tube studies, by exposing triplicate tubes at the two air quality monitoring sites in the borough at the Elephant & Castle (Urban Background) and on the Old Kent Road (Roadside). The Authority then uses the Local Air Quality Management Helpdesk spreadsheets to calculate the bias factors, which are included in the results being presented in Table 2.10 and Table 2.11 of this report.

QA/QC of Automatic Monitoring

The authority is a member of the London Air Quality Network and all the data is ratified in accordance with Kings College London QA / QC procedures for the network.

QA/QC of Diffusion Tube Monitoring

The Authority has appointed Gradko International Ltd to provide and analysis the Nitrogen Dioxide Diffusion Tube for borough. On the next page are the results for Gradko International from the WASP proficiency testing scheme and the new AIR PT scheme. The Didcot laboratory of Environmental Services Group and Gradko International submit two sets of results, where as the other laboratories in the scheme only submit one set of results.

The AIR PT scheme has up 38 regular different samples and 3 trial different standards for the analytic laboratories to analysed. The LGC has a programme to send out different combinations of the 41 samples in six rounds throughout the year. (The trail samples are only available for one round only.) Sample 11 contains 4x dynamically loaded Palmes type diffusion tubes are only available in 2014 – 2015 financial year for rounds AR 001, 003, 004 and 006. The results for these rounds for Gradko international are included in Table A.2. For the 2015 – 2016 financial year, sample 11 is available for rounds AR 007, 009, 010 and 012.

The summary of the tube precision from the National database for Gradko International is detailed on page 51

Table A. 1 Performance of Gradko Laboratory using the Rolling Performance Scheme for WASP Rounds 79 – 109 (Scheme in operation until April 2010).

	Rounds	Performance on basis of RPI, OLD CRITERIA, best 4 out of the 5 rounds	Performance on basis of RPI, NEW CRITERIA, best 4 out of the 5 rounds
April 2007 – April 2008	97 - 101	Good	Good
July 2007 – July 2008	98 - 102	Good	Good
October 2007 – October 2008	99 - 103	Good	Good
January 2008 – January 2009	100 -104	Good	Good
April 2008 – April 2009	101 - 105	Good	Good
July 2008 – July 2009	102 - 106	Good	Good
October 2008 – October 2009	103 - 107	Good	Good
January 2009 – January 2010	104 - 108	Good	Good
April 2009 – April 2010	105 - 109	Good	Good

Table A.2 Performance of Gradko Laboratory using the New Performance Scheme for WASP Rounds 105 – 124 (Scheme in operation from April 2010 with backdated results) and AIR NO_2 PT rounds AR001, 3,4 and 6

WASP Round	WASP R105	WASP R106	WASP R107	WASP R108	WASP R109	WASP R110	WASP R111	WASP R112	WASP R113	WASP R114	WASP R115	WASP R116
Round conducted in the period	Apr. – Jun. 2009	Jul. – Sept. 2009	Oct. – Dec. 2009	Jan. – Mar. 2010	Apr – Jun 2010	Jul – Sept. 2010	Oct. – Dec. 2010	Jan. – Mar. 2011	Apr – Jun 2011	Jul. – Sept. 2011	Oct. – Dec. 2011	Jan. – Mar. 2012
Gradko International	100%	100%	100%	100%	87.5%	100%	100%	100%	100%	100%	37.5%	100%
WASP Round	WASP R117	WASP R118	WASP R119	WASP R120	WASP R121	WASP R122	WASP R123	WASP R124	AIR PT AR001	AIR PT AR003	AIR PT AR004	AIR PT AR006
Round conducted in the period	Apr. – Jun. 2012	Jul. – Sept. 2012	Oct. – Dec. 2012	Jan. – Mar. 2013	Apr. – Jun. 2013	Jul. – Sept. 2013	Oct. – Dec. 2013	Jan. – Mar. 2014	Apr. – May 2014	July – Aug. 2014	Oct. – Nov. 2014	Jan. – Feb. 2015
Gradko International	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table A.3 Summary of the precision performance of Gradko Laboratory

Summary of Precision Results for the National Nitrogen Dioxide Diffusion Tube Collocation Studies, for Gradko Laboratory (20% TEA in Water)

2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	P	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	P	2011	G	2012	G	2013	G	2014	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G
2008	G	2009	P	2010	P	2011	G	2012	G	2013	G		
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G		
2008	G	2009	P	2010	G	2011	G	2012	G	2013	G		
2008	G	2009	P	2010	G	2011	G	2012	G	2013	G		
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	P	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
		2009	G	2010	G	2011	G	2012	G	2013	G		
				2010	G	2011	G	2012	G	2013	G		
				2010	G	2011	G	2012	P	2013	G		
				2010	G	2011	G	2012	P	2013	G		
				2010	G	2011	G			2013	G		
				2010	G	2011	G			2013	P		
P	Poor Precision			2010	G	2011	G			2013	P		
				2010	G	2011	G						
G	Good precision					2011	P						
						2011	P						

Appendix B Nitrogen Dioxide Diffusion Tube Results 2014

Period	Month	Start of Period	End of Period	Duration (weeks)	SDT 1	SDT 2	SDT 3	SDT 4	SDT 5	SDT 6	SDT 7	SDT 8	SDT 9	SDT 10	SDT 11	SDT 12	SDT 13	SDT 14	SDT 15	SDT 16
1	J	08/01/2014	06/02/2014	4	54.13	55.47	50.72	62.33	46.87	83.73	65.96	39.09	62.27	36.18	74.25	49.97	53.38	59.01	76.13	0.04
2	F	06/02/2014	06/03/2014	4	48.1	41.35	43.35	60.21	42.9	71.28	62.58	38.98	59.74	36.69	68.16	56.12	60.32	61.63		
3	M	06/03/2014	02/04/2014	4	67.3	69.69	68.46	81.6	50.64	108.5	83.34	49.29	74.03	50.94	87.49	73.48	80.79	66.83	77.89	0.27
4	A	02/04/2014	30/04/2014	4	64.69	64.72	63.04	75.47	37.53	89.16	83.4	37.3	66.09	39.51	106.08	57.06	58.95	44.55	71.98	0.22
5	M	30/04/2014	28/05/2014	4	51.83	58.56	50.65	79.93	32.82	89.77	70.47	34.25	68.97	40.86	96.27	53.91	54.08	53.76	77.64	0.21
6	J	28/05/2014	02/07/2014	5	65.55	67.92	66.89	84.53	32.41	92.24	81.62	34.6	67.87	45.2	109.48	63.17	61.86	62.42	74.28	0.1
7	J	02/07/2014	30/07/2014	4	70.53	65.74	69.13	81	33.68		76.83	36.11	70.6	43.42	120.6	60.51	60.94	59.44	74.99	0.27
8	A	30/07/2014	27/08/2014	4	44.76	45.09	45.85	65.42	34.42	84.53	60.7	29.23	67.57	34.53	88.27	40.17	48.59	45.96	65.65	0.1
9	S	27/08/2014	01/10/2014	5	73.82	72.26	76.57	91.1	43.28	90.28	87.62	42.99	82.98	56.48	121.04	70.9	69.62	72.38	81.11	0.15
10	O	01/10/2014	29/10/2014	4	49.39	48.29	44.91	66.88	42.35	81.99	68.38	33.84	59.32	36.75	88.93	57.36	58.5	64.36	67.78	0.2
11	N	29/10/2014	03/12/2014	5	66.92	65.81	65.87	74.99	49.93	88.93	81.19	45.22	81.12	55.43	98.86	69.32	76.19	67.24	79.5	0.13
12	D	03/12/2014	07/01/2015	5				62.79	54.69	75.74	57.97	50.28	66.07	42.49	85.61	67.74	58.07	72.78	82.21	0.13
		Average			**59.73**	**59.54**	**58.68**	**73.85**	**41.79**	**86.92**	**73.34**	**39.27**	**68.89**	**43.21**	**95.42**	**59.98**	**61.77**	**60.86**	**75.38**	**0.23**
		Bias Corrected Average (0.71)			**42**	**42**	**42**	**52**	**30**	**62**	**52**	**28**	**49**	**31**	**68**	**48**	**41**	**52**	**54**	
		95% Confidence						**47-50**	**27-34**	**56-70**	**47-59**	**25-32**	**44-56**	**28-35**	**61-77**				**48-61**	

Period	Month	Start of Period	End of Period	Duration (weeks)	SDT 17	SDT 18	SDT 19	SDT 20	SDT 21	SDT 22	SDT 23	SDT 24	SDT 25	SDT 26	SDT 27	SDT 28	SDT 29	SDT 30	SDT 31
1	J	08/01/2014	06/02/2014	4															
2	F	06/02/2014	06/03/2014	4															
3	M	06/03/2014	02/04/2014	4	94.68	95.78	71.99	84.41	83.87	99.27	62.21	96.28	73.46	77.43	92.59	58.38	86.93	97.14	83.4
4	A	02/04/2014	30/04/2014	4	80.46	92.28	69.01	78.61	70.32	88.82	46.53	87.27	60.88	66.96	88.05	44.57	89.59	80.96	74.48
5	M	30/04/2014	28/05/2014	4	93.3	95.29	75.28	81.34		69.18	42.75	103.78	62.9	70.92	92.27	41.75	94.69	85.21	79.83
6	J	28/05/2014	02/07/2014	5	85.58	97.44	68.8	83.41	66.64	94.67	45.66	71.57	57.78	71.88	83.66	33.37	79.43	74.88	66.49
7	J	02/07/2014	30/07/2014	4	94.58	92.63	73.88	89.57	67.85	93.36	43.3	107.43	65.53	67.05	85.31	40.53	102.65	75.73	64.81
8	A	30/07/2014	27/08/2014	4	73.9	89.72	69.84	70.34	54.46	72.16	37	105.64	48.68	62.78	73.73	38.85	95.57	66.03	63.96
9	S	27/08/2014	01/10/2014	5	107	98.55	86.98	80.44	74.86	105	61.05	89.23	65.5	80.85	94.04	43.17	101.65	90.15	79.42
10	O	01/10/2014	29/10/2014	4	84.56	86.98	77	75.74	67.68	76.61	45.99	106.83	60.16	74.13	89.63	47.05	95.73	93	77.02
11	N	29/10/2014	03/12/2014	5	101.07	101.04	73.51	78.43	69.36		59.62	87.54	73.78	70.64	89.95	54.49		85.81	83.66
12	D	03/12/2014	07/01/2015	5	61.22	83.88	66.71	71.4	59.09	74.03	53.97	114.46	78.18	63.07	74.24	59.99	85.54	85.49	68.1
		Average			**87.64**	**93.36**	**73.30**	**79.37**	**68.24**	**85.90**	**49.81**	**97.00**	**64.69**	**70.57**	**86.35**	**46.22**	**92.42**	**83.44**	**74.12**
		Bias Corrected Average			**62**	**66**	**52**	**56**	**48**	**61**	**35**	**69**	**46**	**50**	**61**	**77**	**60**	**59**	**53**
		95% Confidence			**56-71**	**60-76**	**47-59**	**51-64**	**44-55**	**55-70**	**32-40**	**62-79**	**41-52**	**45-57**	**55-70**	**70-88**	**54-69**	**53-68**	**47-60**

London Borough of Southwark May 2015

Period	Month	Start of Period	End of Period	Duration (weeks)	SDT 32	SDT 33	SDT 34	SDT 35	SDT 36	SDT 37	SDT 38	SDT 39	SDT 40	SDT 41	SDT 42	SDT 43	SDT 44	SDT 45	SDT 46
1	J	08/01/2014	06/02/2014	4															
2	F	06/02/2014	06/03/2014	4															
3	M	06/03/2014	02/04/2014	4	64.88		60.27	56.58	67.41	52.01		81.22	106.45	103.99	54.89	69.81	70.01	39.77	50.72
4	A	02/04/2014	30/04/2014	4	61.98	58.58	49.53	44.73	58.04	39.61	100.66	77.36	109.1	91.26		59.23	62.25	30	41.9
5	M	30/04/2014	28/05/2014	4	58.86	53.64	27.75	46	50.63	33.86	113.46	79.96	111.55	93.08	92.78	58.62	67.25	27.15	38.83
6	J	28/05/2014	02/07/2014	5	52.19	56.12	45.84	40.19	66.37	34.5	96.56	71.48	100.76	92.77	40.61	58.00	60.75	25.88	39.55
7	J	02/07/2014	30/07/2014	4	61.55	62.04	50.9	39.06	70.45	37.01	120.6		119.52	100.3	38.35		65.59	29.41	39.25
8	A	30/07/2014	27/08/2014	4	55.27	54.23	41.4	37.37	61.77	33.71	110.57	88.47	137.8	93.44	36.72	59.55	59.71	25.72	39.26
9	S	27/08/2014	01/10/2014	5	57.75	60.59	54.22	47.24	84.41	44.98	101.97	76.95	101.55	109.17	52.51	78.45	78.87	33.77	50.14
10	O	01/10/2014	29/10/2014	4	50.9	58.57	50.51	47.62	61.33	40.34	117.15	81.42	136.71	124.23	51.64	55.36	57.91	32.1	50.93
11	N	29/10/2014	03/12/2014	5	59.03	62.87	56.51	51.6	74.01	52.32	93.87	76.14	114.82	115.25	53.78		76.94	42.32	57.14
12	D	03/12/2014	07/01/2015	5	72.12	73.56	58.61	54.73	70.14		123.07	95.58	129.31	115.08	53.82	74.66	73.37	37.51	57.59
		Average			**59.45**	**60.02**	**49.55**	**46.51**	**66.46**	**40.93**	**108.66**	**80.95**	**116.76**	**103.86**	**52.79**	**64.21**	**67.27**	**32.36**	**46.53**
		Bias Corrected Average			**42**	**43**	**35**	**33**	**47**	**29**	**77**	**57**	**83**	**74**	**37**	**46**	**48**	**23**	**33**
		95% Confidence			**38-48**	**38-49**	**32-40**	**30-37**	**43-54**	**26-33**	**70-88**	**52-66**	**75-95**	**66-84**	**34-43**	**41-52**	**43-54**	**21-26**	**30-37**

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