2015 Updating and Screening Assessment for Thurrock Council

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

May 2015

Local Authority Officer	Dean Page
Department	Environmental Protection Team
Address	Thurrock Council, Civic Offices, New Road, Grays, Essex RM17 6SL
Telephone	01375 652096
e-mail	Air.Quality@thurrock.gov.uk
Report Reference number	USA2015
Date	May 2015

Executive Summary

This is the Updating & Screening Assessment Report 2015 for Thurrock Council. This report marks the start of the sixth round of review and assessment for Local Air Quality Management (LAQM) regime. This report is the latest report produced by the Council to fulfil this part of the continuing commitment to the LAQM process. This Report provides the most recent annual update of recent air quality issues in Thurrock, based on its air quality monitoring results in the Borough, as well as a focus on the Council's progress on reducing air pollution through its Air Quality Action Plan.

The Council's previous Review and Assessments of air quality confirmed that there were locations across the Borough with relevant public exposure where the Government's air quality objectives might be exceeded.

The Council's monitoring results for sulphur dioxide indicate that the objectives for this pollutant are not being exceeded. However the more up to date monitoring of nitrogen dioxide and PM_{10} in this report confirms that the Government's air quality objectives are still being exceeded widely at locations with relevant public exposure. The Council will therefore maintain its Air Quality Management Areas (AQMAs) for these two pollutants. However there have not been any new instances of breaches of the air quality standards for either NO_2 or PM_{10} within the borough.

The report also includes a section on the Council's ozone monitoring. The monitored results for this pollutant confirm that the ozone objective was not exceeded in 2014. The rolling annual mean over the period of 15 years of monitoring has shown a slight increasing trend, however this has levelled off in recent years.

Following a presentation on 'Air Quality, Regeneration and Health' at the Health and Well Being Overview and Scrutiny Committee, the Council has set up an officers' working group to develop a more integrated approach to managing air quality across the Borough. The group has agreed to produce an overarching Corporate Air Quality Action Plan (CAQAP) this year, which will form the basis of the Council's approach to air quality management and serve as a work plan for the group over the next 5 years.

The progression of the council's action plan measures continues, with the implementation of sustainable freight AQ measures, such as SAFED Eco-driver training, Freight Quality Partnership and Eco-Stars Freight Accreditation schemes. Other measures include Personalised Journey Planning, Sustainable Travel for Schools, Workplace Travel Planning, Land-use Planning, as well as a range of Air Quality Management Intervention measures targeted at specific Air Quality Management Areas.

Table of contents

List of Tables

List of Figures

Appendices

1 Introduction

1.1 Description of Local Authority Area

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 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. This table shows the objectives in units of micrograms per cubic metre µg/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 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 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/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 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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

Since December 1997 local authorities in the UK have been carrying out a review and assessment of air quality in their area, as they are required to do under Part IV of the Environment Act 1995. The review and assessment involves measuring air pollution and trying to predict how it will change in the next few years.

The aim is to ensure that the concentrations of seven key pollutants are below a particular level by a specific date. Where these objectives are unlikely to be met, the Local Authority is obliged to declare an Air Quality Management Area (AQMA), and prepare an Action Plan detailing how it intends to improve air quality for the health of residents in these areas.

In 1997 to 2000 the council undertook its first round of Review & Assessment for Air Quality. The reports identified that there were large areas along busy roads within Thurrock that were in breach of the air quality standards for NO_2 & PM_{10}.

In April 2001 Thurrock Council declared twenty AQMAs, for nitrogen dioxide and particulates (PM_{10}).

This was subsequently revised in the following the Stage 4 Review and Assessment resulting in seven being revoked and two new AQMAs totalling 15 AQMAs. All pollution problems are related to emissions from road traffic, with Heavy Goods Vehicles (HGV's) being the major contributors in most areas. Subsequently, a Draft Air Quality Action Plan was published in summer 2002 and a final full action plan was published in 2004.

In 2004 a Detailed Assessment was carried on the council's twenty AQMAs following newly modelled exceedence lines for NO_2 and PM10 during the Stage 4 R&A, because of this the Council decided to revoke seven of its AQMAs (numbers 6, 11,14,17,18,19 and 20) and decided to designate two new AQMAs (numbers 21 and 23) based on new modelling carried out in the 2004 Detailed Assessment, leaving the Council with fifteen AQMAs. Subsequently following this a new Air Quality Action Plan was published in late 2004.

In 2005 the council published it annual Progress Report. The monitoring results still showed exceedences of the Air Quality Standards within its AQMA's but no new areas were indentified.

A Detailed Assessment of SO_2 was published in July 2005, in order to assess the extent of exceedence of the 15-minute mean objective for SO2 away from Coryton based on modelling and monitoring data. The report found that the objectives were not exceeded at Thurrock 3, but it concluded by continuing to investigate potential for public exposure in areas where the SO_2 15-minute objective was predicted to exceed.

In 2006 the council published its Third round Updating Screening Assessment (USA), published in June 2006, no additional areas were identified as having problems, with the exception of sulphur dioxide (SO_2) with regards to relevant public exposure around Coryton. The report concluded that the a Further Assessment was to be undertaken with regards to the newly declared AQMA's in 2005 for nitrogen dioxide (NO_2) and for SO_2 for the Coryton Refinery.

In 2007 a Progress Report was published, the report did not identify any new significant issues with the air quality standards still being breached within its AQMA's.

Following the 2006 USA report, a further assessment for NO_2 was published in April 2007. Further more detailed modelling was carried out for newly declared AQMA's 21 and 23 and various scenarios were tested in order to ascertain what would be required in order to meet the annual mean air quality objective for NO_2. The Report concluded that both AQMA's 21 and 23 should be retained and monitoring should continue.

As part of the continuing assessment process for air quality a further Progress Report was published in 2008. The report identified a new exceedence of the annual mean objective for NO_2 in Calcutta Road, Tilbury, based on diffusion tube measurements.

In April 2009 the Council produced its fourth round Updating Screening assessment report. The report included the latest monitoring data for the Thurrock monitoring stations. It also included an update on the Calcutta Road NO_2 exceedence, by means of a Design Manual for Roads and Bridges (DMRB) Screening Tool, it indicated that there was not an exceedence of the NO_2 annual mean objective, based on the use of updated traffic survey data conducted in February 2009. However further analysis was needed and the council proposed to publish a Detailed Assessment. The report also noted the council's intention to carry out a Further Assessment for SO_2 around the Coryton Refinery, to carry out new detailed modelling in order to determine the extent of exceedence of the 15-minute SO_2 objective.

In April 2010 Thurrock Council produced its Air Quality Progress Report (2010). It reviewed all the Council's air quality monitoring data up to the end of 2010. The report indicated that nitrogen dioxide (NO_2) and particulate matter (PM_{10}) are still widely being exceeded across the borough. The report

also outlined the latest Air Quality Actions for tackling poor air quality and shows the prioritisation of these measures for the Council's Air Quality Management Areas (AQMA's).

The Council produced in April 2011 another Air Quality Progress Report (2011). The report included up to date monitoring data from the Council's air quality monitoring locations. They showed that nitrogen dioxide (NO_2) and particulate matter (PM_{10}) are still widely being exceeded across the borough. The report also showed that NO_2 concentrations at the Tilbury (Thurrock 4), Calcutta Road automatic monitoring station were above the air quality objective for 2010.

In 2011 the Council investigated in more detail the annual mean exceedence for NO_2 along Calcutta Road and Dock Road Tilbury. Continuous monitoring data and diffusion tube monitoring for 2010 confirmed that there was an exceedence. The report concluded that an AQMA should be declared for the annual mean NO_2 along Calcutta Road and Dock Road.

In 2012 the fifth round of review & assessment was carried out with the publication of the 2012 USA report. The report concluded that monitoring should continue along the Purfleet Bypass to see for certain is the annual mean air quality standard (AQS) for NO_2 is in breach. It also concluded that a Further Assessment for NO_2 for Tilbury was to be undertaken with detailed modelling to see the full extent of exceedence and then declare an AQMA based on the verified modelled results. The Council was to give a time extension to the Coryton Oil Refinery from declaring a new AQMA for SO_2 based on the new Sulphur Tail Gas Unit at the Coryton Refinery being installed at the Refinery which would make the SO_2 issue go away. If it did not demonstrate compliance then it would declare an AQMA.

In 2013 the annual Progress Report 2013 concluded that the annual mean objective for NO_2 was being breached at diffusion tube locations at Aveley Ship Lane and the Purfleet By-Pass. The Council intends to carry out detailed assessments based on these findings.

In 2013 the Council carried out a Further Assessment for NO_2 for Tilbury Dock Road, and Calcutta Road. A detailed modelling exercise was carried out to find out more precisely the locations which were exceeding the annual mean air quality objective. This modelling was verified by the monitoring data and showed a reasonably good agreement. It concluded that a large strip of Dock Road, and all of Calcutta Road and part of St Chad’s Road was above the objective level. An Air Quality Management Area was outlined which would incorporate all properties which fell within the modelled exceedence line. The report recommended that a formal declaration would be required. Source apportionment work was also carried out. The main sources identified were from passenger cars going along these roads and also from regional & local background. The majority of the traffic along these roads is predominantly from Cars.

Over 2014 the Council produced its next Progress Report 2014, the reports updated monitoring data for NO_2 showed that the annual mean objective was still in breach at diffusion tubes locations at Aveley Ship Lane and the Purfleet By-Pass, towards the end of 2014-15 the Council has been working on a Detailed Assessment for this, which includes detailed dispersion modelling to assess the full exceedence of NO_2 in order to declare an AQMA around the affected areas.

Figure 1 Map of AQMA Boundaries in Thurrock

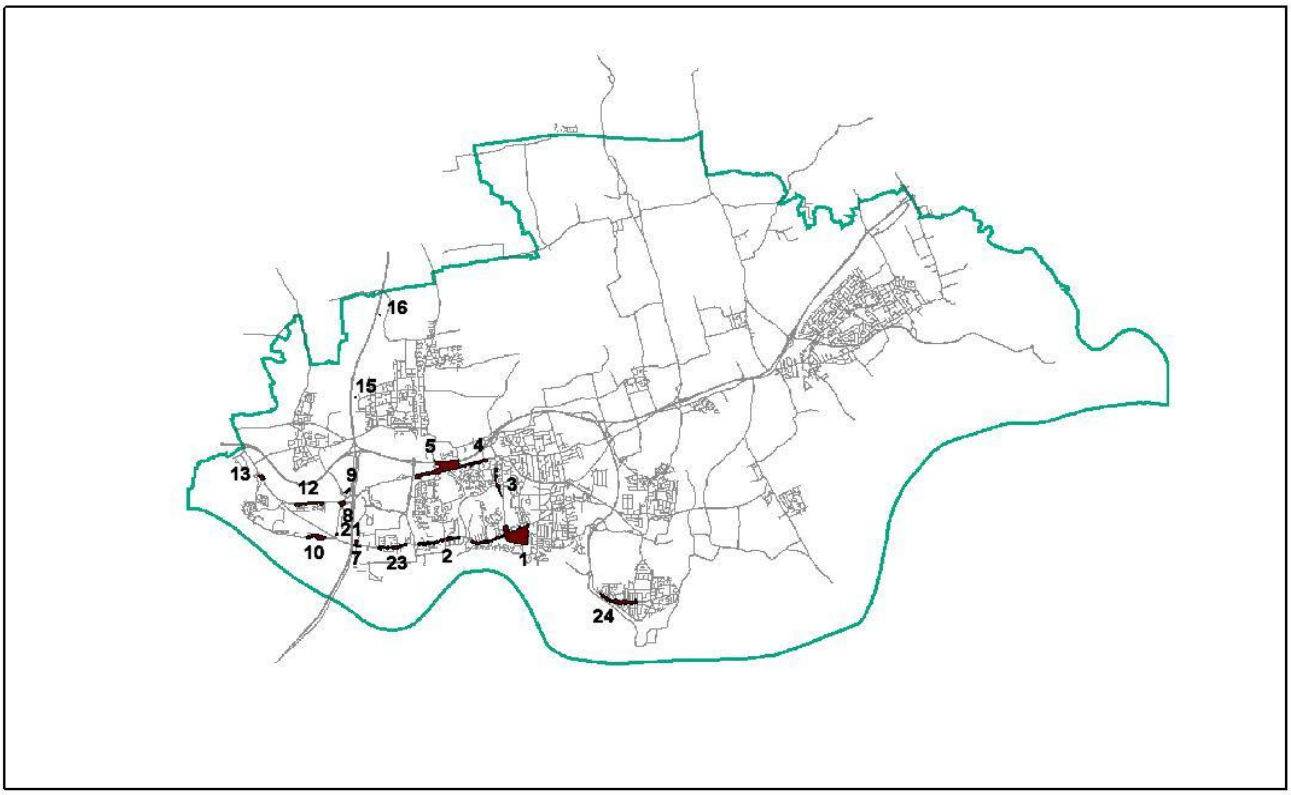


Table 2 Summary of existing Thurrock AQMA's

AQMA No.	Pollutant	Description of Air Quality Management Area
1	NO_2	Grays town centre and London Road Grays
2	NO_2	London Road South Stifford and adjoining roads
3	NO_2	East side of Hogg Lane and Elizabeth Road
4	NO_2	West of Chafford Hundred Visitor Centre
5	NO_2 and PM10	Warren Terrace, A13 and A1306
7	NO_2 and PM10	Hotels next to M25
8	NO_2 and PM10	Hotel next to Junction 31 of the M25
9	NO_2	Hotel next to Junction 31 of the M25
10	NO_2 and PM10	London Road Purfleet near to Jarrah Cottages
12	NO_2	Watts Wood estate next to A1306
13	NO_2	London Road Aveley next to A1306
15	NO_2	Near to M25 on edge of Irvine Gardens, South Ockendon
16	NO_2	Next to M25 off Dennis Road
21	NO_2	Hotel on Stonehouse Lane
23	NO_2	London Road West Thurrock
24	NO_2	Tilbury Calcutta Road, Dock Road & St Chads Road

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In 2014 the Council undertook air quality monitoring for a wide range of pollutants including, nitrogen dioxide (NO_2), particulate matter (PM_{10} & $PM_{2.5}$), ozone (O_3) and sulphur dioxide (SO_2), at four automatic monitoring stations, all of which are listed in (Table 3).

Figure 2 Map of Automatic Monitoring Sites in Thurrock

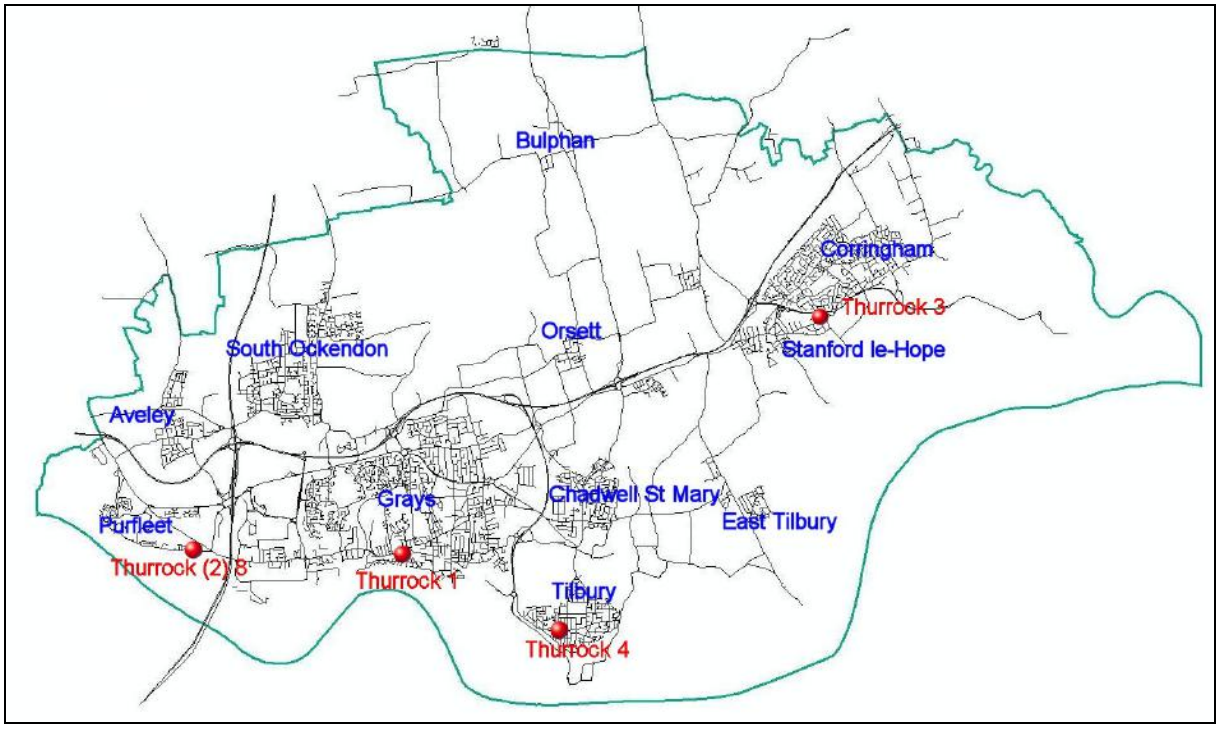


Table 3 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
Thurrock 1 (TK1)	Thurrock, Grays AURN	Urban Background	561066	177894	PM_{10} NO_2 SO_2 O_3	No	FDMS Chemiluminescent Fluorescent Photometry	No	38	No
Thurrock 8 (TK8) & Formerly *(TK2)	Purfleet, London Road	Roadside	556701 *(556737)	177937 *(177928)	PM_{10} NO_2	Yes	BAM Chemiluminescent	No	2.6	Yes
Thurrock 3 (TK3)	Stanford-le-Hope, Manorway	Roadside	569358	182736	PM_{10} $PM_{2.5}$ NO_2 SO_2	No	FDMS FDMS Chemiluminescent Fluorescent	No	3	No
Thurrock 4 (TK4)	Tilbury, Calcutta Road	Roadside	563900	176282	NO_2	Yes	Chemiluminescent	Yes (2m)	5.5	No

**Refers to former monitoring station Thurrock 2*

QA/QC of Automatic Monitoring

There are a number of different organisations responsible for carrying out QA/QC at various stations and equipment at Thurrock's automatic monitoring sites.

For Thurrock 1, Grays AURN site, the QA/QC is managed by Bureau Veritas (BV) and by Ricardo AEA, the site Audits are conducted by Ricardo AEA. Service contracts do vary, all the gas analysers are maintained by Enviro Technology, and the PM_{10} FDMs is maintained by Air Quality Monitors.

For Thurrock 3, Stanford-le-Hope site, this is an affiliated site on the AURN network and is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL), the site Audits are conducted by Ricardo AEA. The Service contracts are managed by Enviro Technology.

For Thurrock 4, Tilbury site, this is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL). The site Audits are conducted by Ricardo AEA. The Service contracts are managed by Enviro Technology.

For Thurrock 8, Purfleet site, this is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL). The site Audits are conducted by the National Physical Laboratory (NPL). The Service contracts are managed by Enviro Technology.

Calibrations for all sites are done every fortnight by Thurrock Council Environmental Health Officers & the Air Quality Officer.

2.1.2 Non-Automatic Monitoring Sites

The council also undertakes passive diffusion tube monitoring for nitrogen dioxide (NO_2) at a wide variety of locations at either the kerbside, roadside or background localities, all of which are listed in (Table 4).

Figure 3 Map(s) of Non-Automatic Monitoring Sites in Thurrock

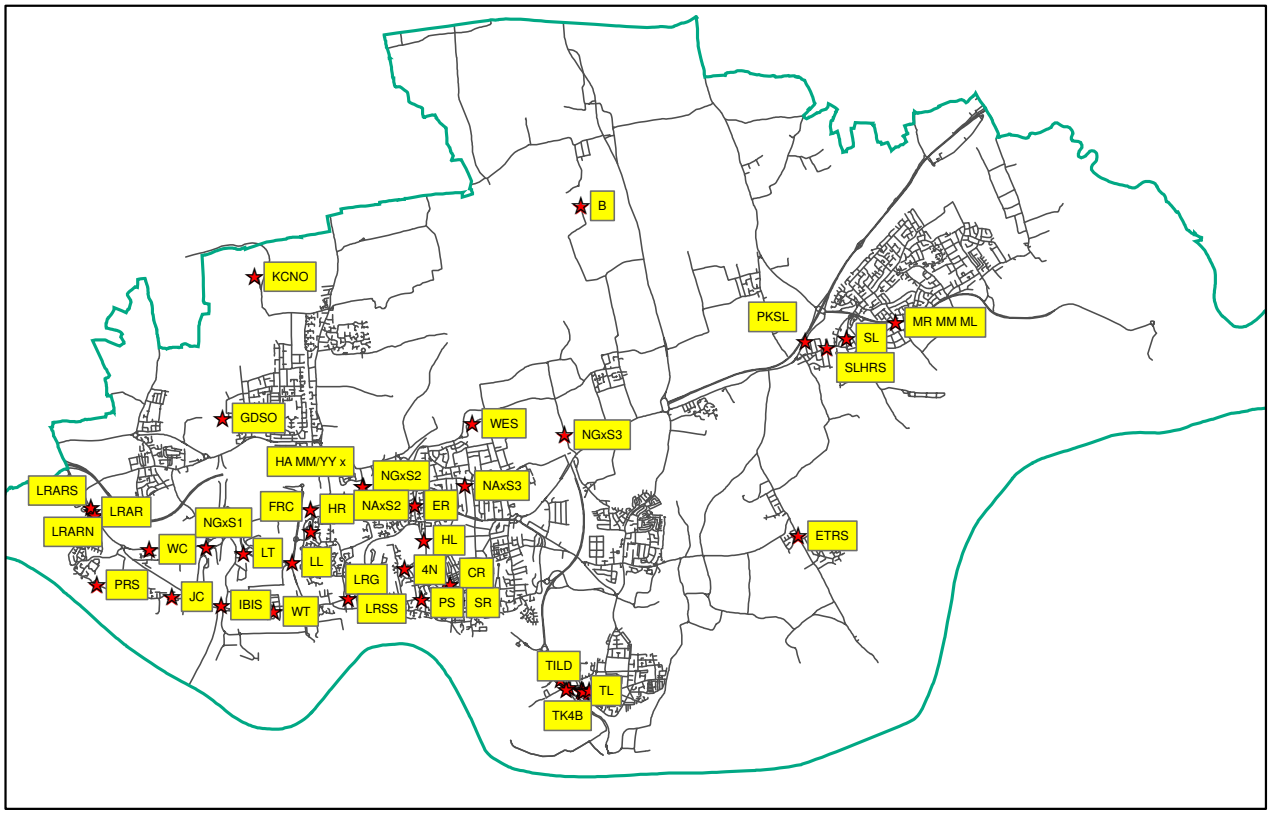


Figure 4 NO_2 Diffusion Tube locations and site designations in Tilbury

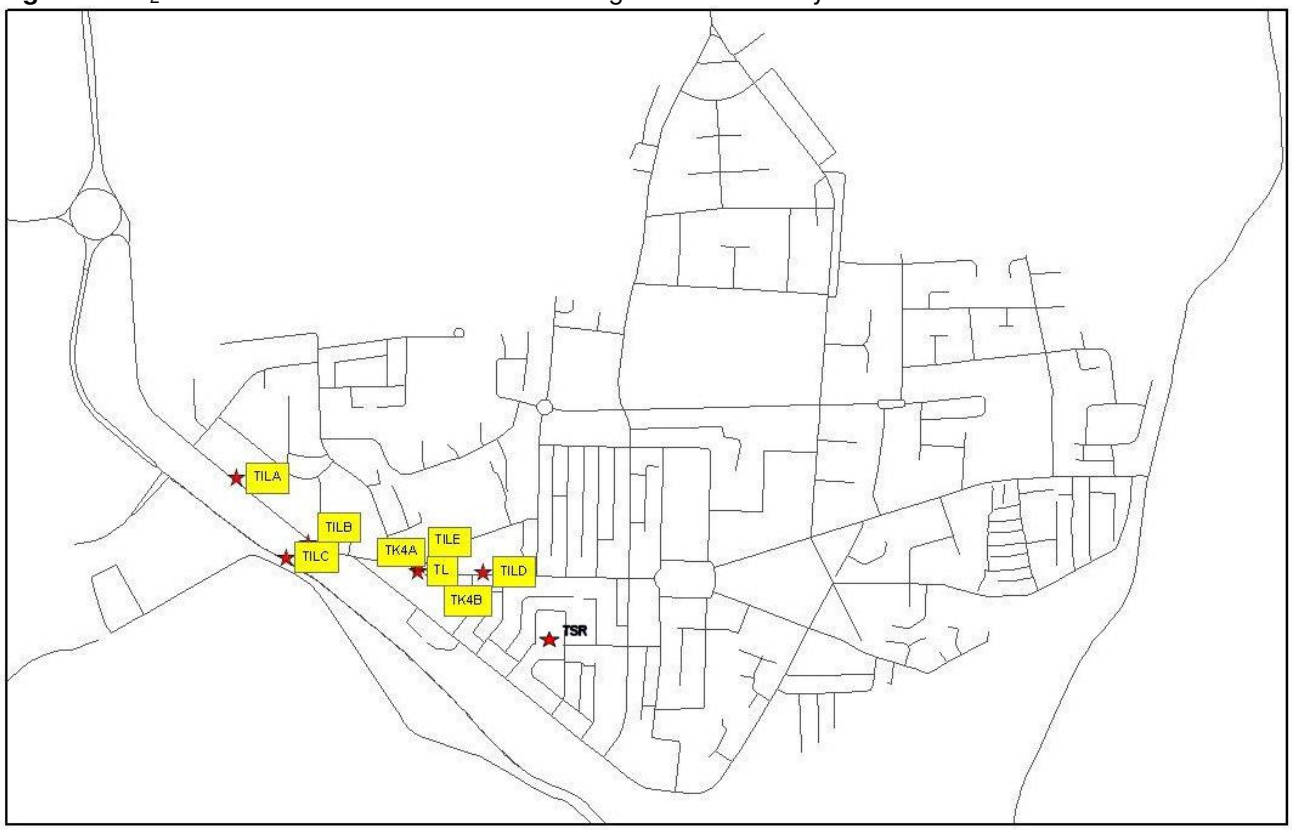


Figure 5 NO_2 Diffusion Tube locations and site designations in Purfleet, West Thurrock, Aveley, South Ockendon and Grays

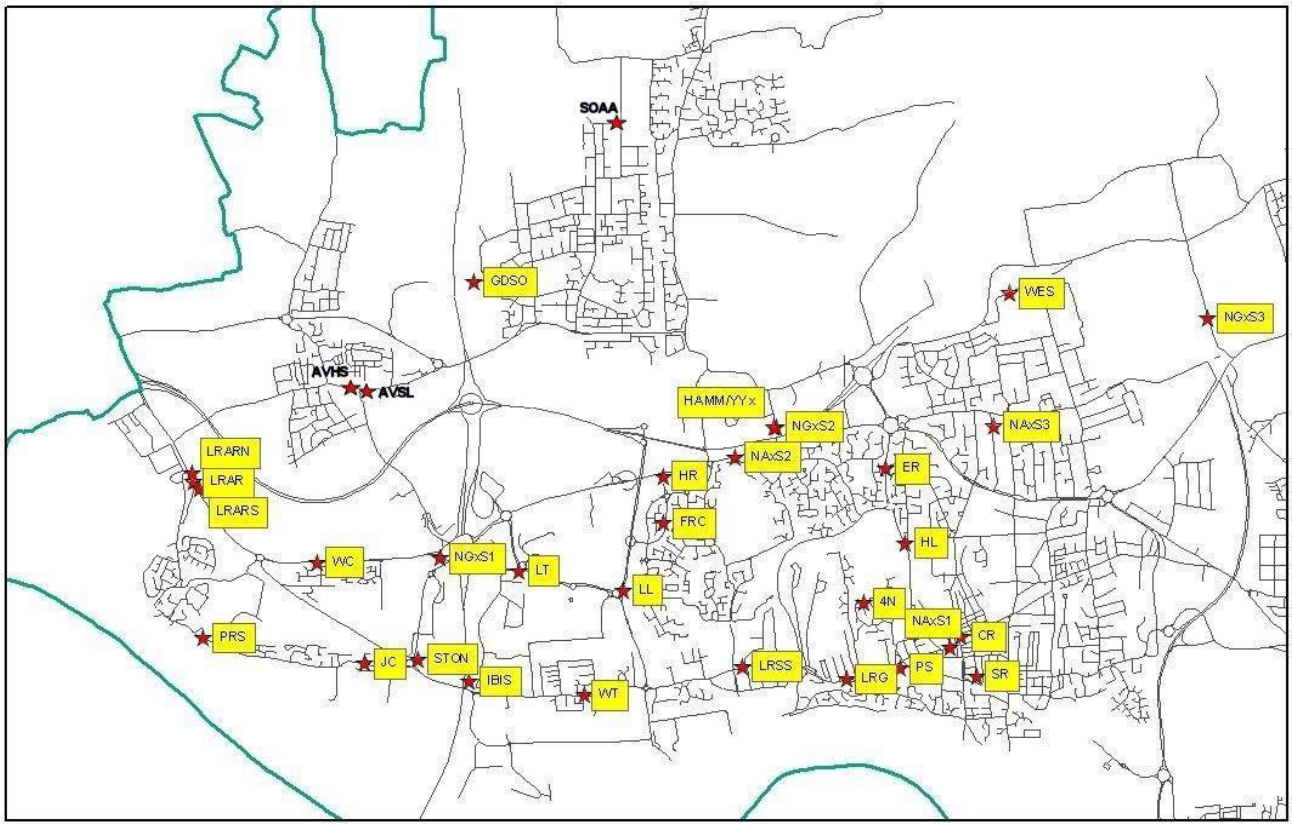


Table 4 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	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?
LRAR	London Road Arterial Road	R	555301	179438	1.5	NO_2	13	N	N	0.5	N
PRS	Purfleet Rail Station	R	555389	178145	2	NO_2	No	N	N	1.5	N
WC	Watts Crescent	R	556314	178765	2	NO_2	12	N	N	2	N
JC	Jarrah Cottages	R	556701	177937	1.5	NO_2	10	Y (TK8)	N	2.6	N
STON	Stonehouse Lane	R	557132	177970	1.5	NO_2	21	N	N	30	N
IBIS	Ibis Hotel	UB	557570	177789	2	NO_2	7	N	N	52	N
GDSO	Gatehope Drive	UB	557595	181060	1.25	NO_2	15	N	Y (23m)	105	Y
LT	Lakeside Tesco Roundabout	R	557981	178700	2	NO_2	No	N	N	1	N
KCNO	Kemps Cottage	UB	558148	183532	2	NO_2	16	N	Y (10m)	57	Y
WT	London Road W Thurrock	R	558483	177678	1.5	NO_2	23	N	N	4	N
HR	Howard Road	R	559118	179462	1.5	NO_2	5	N	Y (0m)	29	Y
NAS2	A1306	R	559720	179630	2	NO_2	5	N	N	4.5	N
LRSS	London Road South Stifford	R	559785	177910	2	NO_2	2	N	N	3.5	N
LRG	London Road Grays	R	560624	177811	2	NO_2	1	N	N	2.5	N
NAS4	Wingfield Grays	UB	560772	178434	1.5	NO_2	No	N	Y	N/A	N
ER	Elizabeth Road	R	560954	179535	2	NO_2	3	N	N	0.5	N
PS	Poison Store AURN Site	UB	561066	177894	3.5	NO_2	1	Y (TK1)	N	38	N
HL	Hogg Lane	R	561108	178922	2	NO_2	3	N	N	1.2	N
NAS1	Queensgate Centre Grays	R	561469	178063	2	NO_2	1	N	Y (0m)	5	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	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?
CR	Cromwell Road Grays	I	561572	178154	2	NO_2	1	N	N	0.5	N
SRG	Stanley Road Grays	R	561685	177833	2	NO_2	1	N	Y (2.5m)	5	N
NAS3	Chestnut Avenue Grays	UB	561830	179878	1.5	NO_2	No	N	Y	N/A	N
WES	William Edwards School	R	561958	180967	2	NO_2	No	N	N	N/A	N
B	Bulphan	RB	563855	184772	2	NO_2	No	N	N	N/A	N
TL	Calcutta Road Tilbury	R	563867	176293	2	NO_2	No	N	N	0.5	N
PKSL	Park Road	R	567781	182400	2	NO_2	No	N	Y (22m)	9	N
SL	Stanford Library	UB	568501	182459	2	NO_2	No	N	N	N/A	N
M	Manorway Monitoring Station	R	569357	182737	2.75	NO_2	No	Y (TK3)	N	3	N
FRC	Francisco Close (Chafford Hundred)	I	559136	179084	2	NO_2	No	N	Y (10m)	17	N
SLHRS	Stanford-le-Hope Railway Station	R	568162	182296	2	NO_2	No	N	N	4.5	N
ETRS	East Tilbury Rail Station	R	567655	179003	1.5	NO_2	No	N	Y	2.5	N
TILA	Dock Road (Tilbury)	R	563498	176483	2	NO_2	{ 24 }	N	N	2.5	N
TILB	Broadway Intersection (Tilbury)	R	563645	176348	2	NO_2	{ 24 }	N	N	2.5	N
TILC	St Andrews Road (Tilbury)	R	563600	176321	1.5	NO_2	No	N	N	2.5	N
TILD	Calcutta Road East (Tilbury)	R	563995	176291	2	NO_2	{ 24 }	N	N	0.5	N

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	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?
TILE	Calcutta Road North (Tilbury)	R	563870	176305	2	NO_2	{ 24 }	N	N	2	N
TK4 (A&B)	Thurrock 4 (co-located duplicated site)	R	563900	176282	1.5	NO_2	{ 24 }	Y (TK4)	Y	5.5	Y
PBP	Purfleet By-pass	R	556257	178438	1.5	NO_2	No	N	Y (5.5m)	9.5	Y
LYD	Lydden	UB	560057	179873	2	NO_2	4	N	Y (26m)	18	Y
AVSL	Aveley Ship Lane	R	556713	180167	2	NO_2	No	N	Y (1m)	2	Y
AVHS	Aveley High Street	R	556661	180180	2	NO_2	No	N	N	0.75	N
SOAA	South Ockendon Arisdale Avenue	R	558785	182323	2	NO_2	No	N	Y (6 m)	7	Y
TSR	Tilbury Sydney Road	UB	564122	176152	2	NO_2	No	N	N	N/A	N
DR	Devonshire Road	R	560279	178944	1.5	NO_2	No	N	Y (10.5m)	6	Y
LRARN	London Road Art Road (North)	R	555286	179501	2	NO_2	13	N	Y (0.5m)	19.5	Y
LRARS	London Road Art Road (South)	R	555357	179362	1	NO_2	13	N	Y (40m)	15	Y
LRARMN	London Road Art Road (Mid-North)	R	555299	179453	2	NO_2	13	N	N	8	N
LRARMS	London Road Art Road (Mid-South)	R	555329	179397	2	NO_2	13	N	N	7	N

QA/QC of Diffusion Tube Monitoring

Diffusion Tube studies for Gradko analysis using 20% TEA in water over 2012 demonstrated overall Good Precision
http://laqm.defra.gov.uk/documents/Tube_Precision_2014_version_03_14-Final.pdf

http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-117-124-(April-2012--March-2014)-NO2-report.pdf

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Nitrogen dioxide (NO_2) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides (NO_x). All combustion processes produce NO_x emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide, mainly as a result of reaction with ozone in the atmosphere. It is nitrogen dioxide that is associated with adverse effects upon human health. At high concentrations NO_2 causes inflammation of the lung. Long-term exposure is also considered to affect lung function and exposure to NO_2 is particularly important for people with asthma and related diseases. NO_x is also important in the formation of ozone and secondary particle formation.

Nitrogen dioxide continues to be the main pollutant of concern not only for Thurrock but for the entire U.K. as a whole. What is clear is there will be significant challenges ahead to try and achieve compliance with both the long-term and short-term air quality objectives for this pollutant nationwide. It is important to state that local authorities have limited resources to bring about the improvements necessary on their own and more action measures need to be undertaken by central government to bring worth while improvements in air quality for NO_2.

Automatic Monitoring Data

Table 5 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration µg/m^3				
					2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]
Thurrock 1	Urban Background	N	98.3	98.3	*29.2*	*28.17*	28.72	27.46	26.46
Thurrock 3	Roadside	N	98.4	98.4	37.93	33.92	32.76	30.04	25.07
Thurrock 4	Roadside	Y	90.4	90.4	**40.2**	38.56	39.3	34.55	32.77
Thurrock 8	Roadside	Y	98.9	98.9	**68.29**	**62.27**	***62.65***	**62.84**	**61.04**

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.
*Annual mean concentrations for previous years are optional.

Figure 6 Trends in Annual Mean Oxides of Nitrogen (NOx) Concentrations measures at Automatic Monitoring Sites

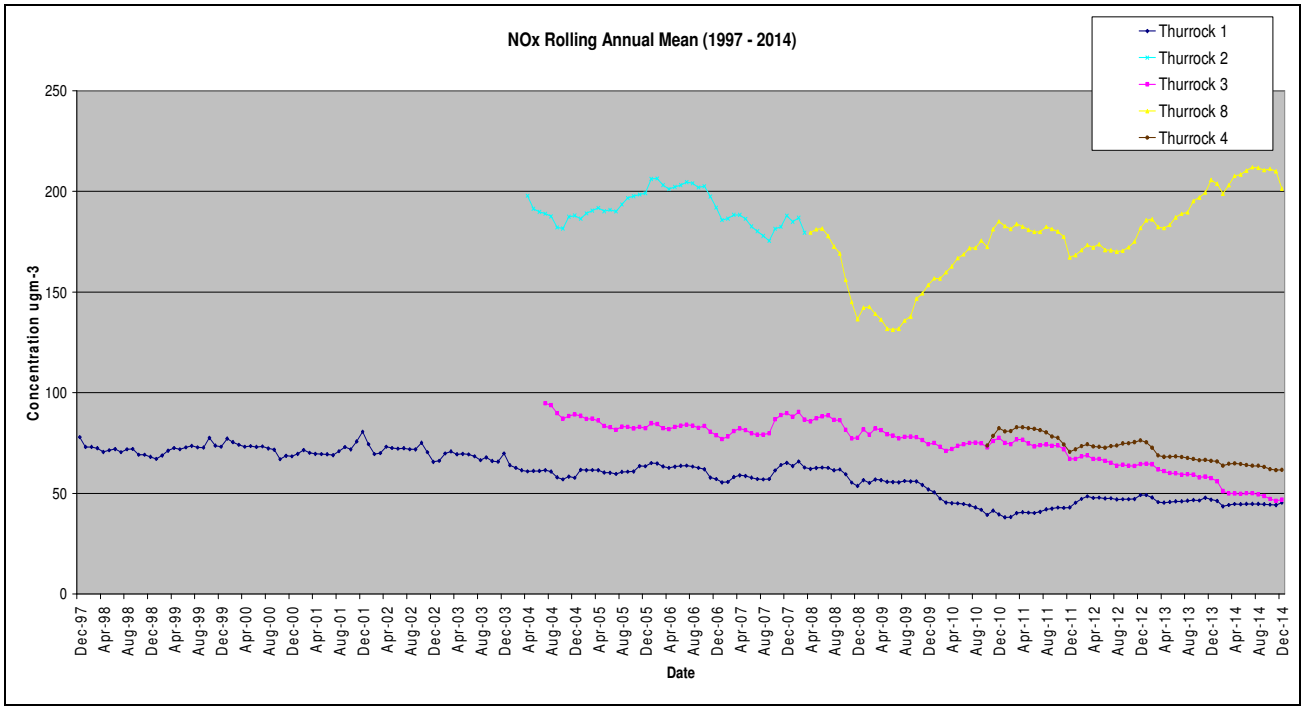
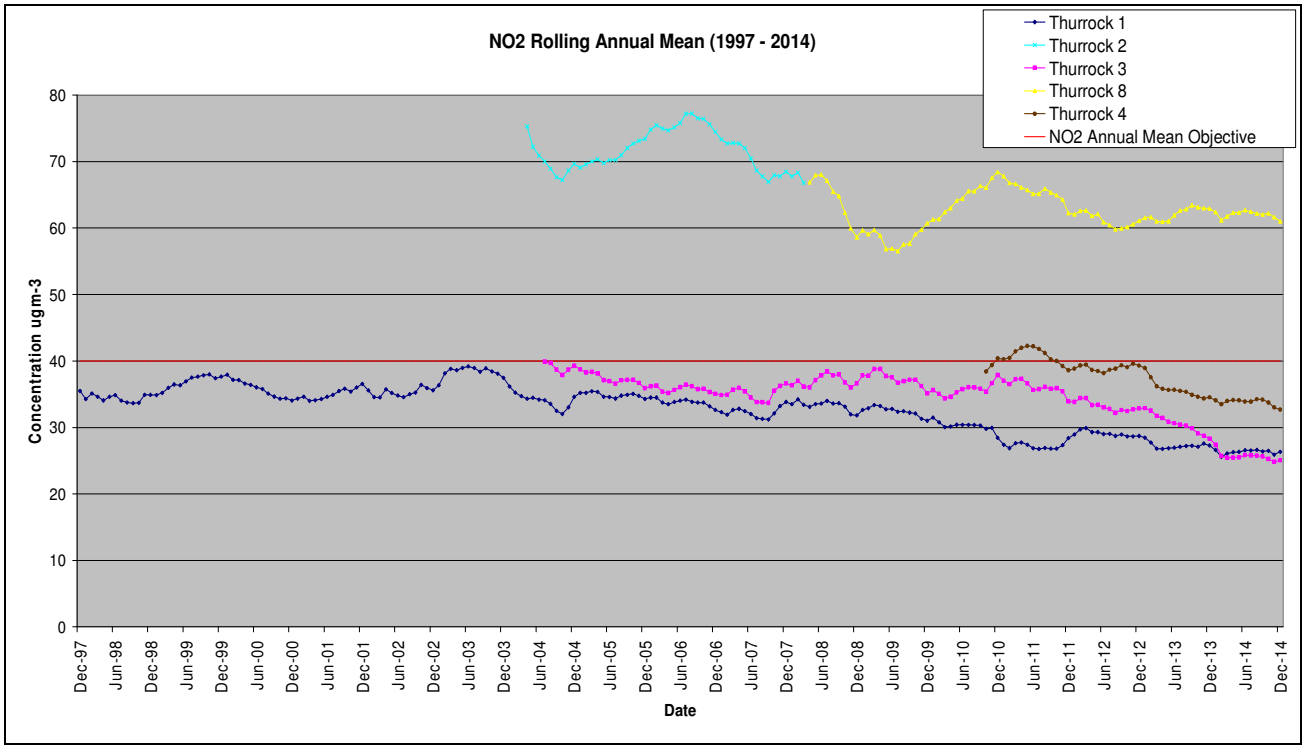
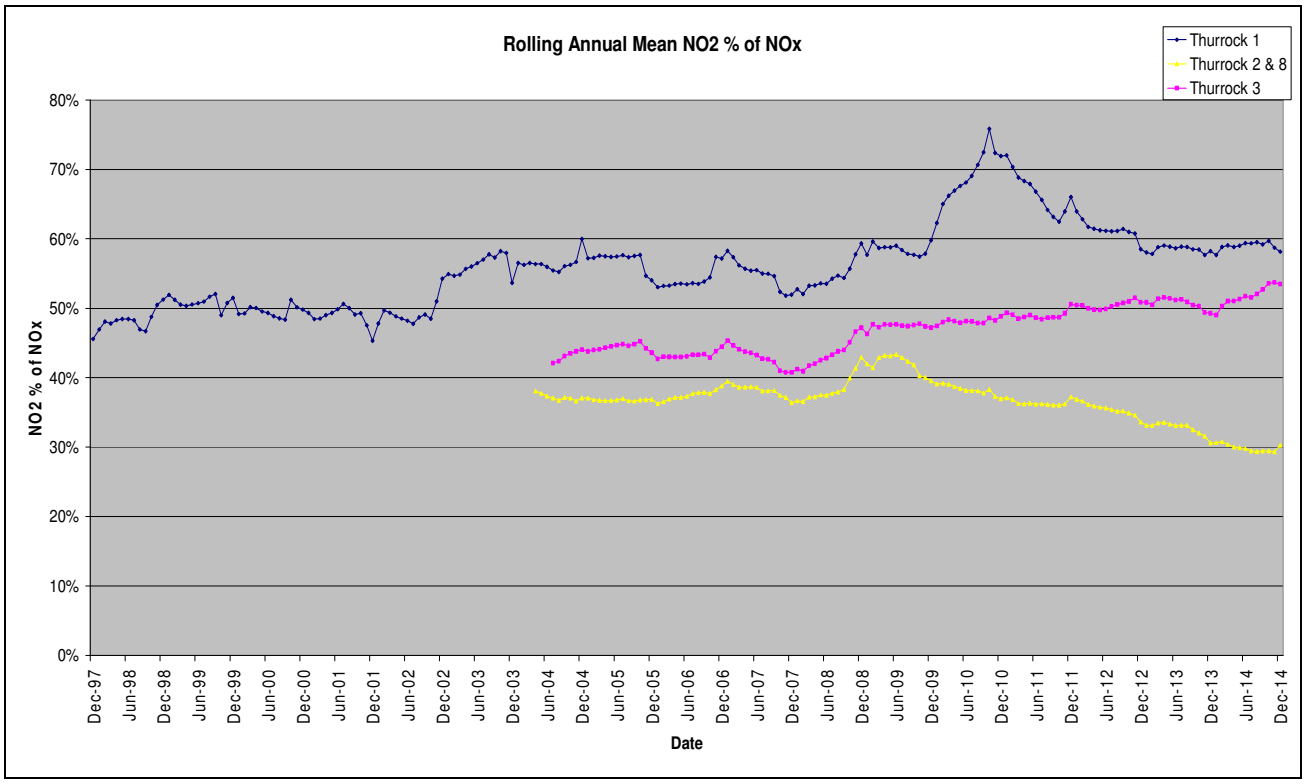


Figure 7 Trends in Annual Mean Nitrogen Dioxide (NO_2) Concentrations measures at Automatic Monitoring Sites



Both the rolling annual mean NOx & NO2 trends show a gradual overall decline over the last 17 years. With the most significant decline in NO_2 seen in the last two years for both Thurrock 3 & Thurrock 4 sites. Thurrock 8 has seen wide variations but no overall downward trend. And the urban background site Thurrock 1 has been steadily falling over the last 17 years.

Figure 8 Rolling annual mean proportion % of NO_2 of NOx concentrations for continuous monitoring sites in Thurrock



The trend for of total percentage of NO_2 of NO_x has remained largely the same for the Thurrock 1 background site. Only in recent years from 2010 onwards has the proportion of NO_2 of NO_x increased. It is unclear why this sudden jump occurred in 2010, and was not the case at any of the other sites.

The Thurrock 3 site which is a roadside site has shown a steady increase in proportion of NO_2 of NO_x. This would confirm that road traffic emissions, which are proportionally dominated by Cars along this section of road rather than HGV's are emitting more direct NO_2 from the tail pipe than they were in the past, and the steady uptake of diesel vehicles overtime is contributing to this increase.

The Thurrock 8 site which is also a roadside site, but differs from the Thurrock 3 site as it has a much higher percentage of HGV road traffic. This has shown in recent years a decline in total percentage of NO_2 of NO_x. This would suggest that the HGV's are emitting much more direct NO than NO_2, this would confirm that in more recent years there are more HGV's using either selective or non-selective catalysts to filter out the NO_2 in the exhaust. However it must be said that overall they emit much higher quantities of NO_2 than Cars, and hence this is the main reason why levels of NO_2 are much higher at this site. There is also the secondary reaction of NO to NO_2 in the atmosphere to consider which will ultimately lead to more NO_2 in the air as well.

Table 6 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Number of Exceedences of Hourly Mean (200 µg/m^3)				
					2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]
Thurrock 1	Urban Background	N	98.3	98.3	0 (97.1)[c]	0 (97.6)[c]	0	0	0
Thurrock 3	Roadside	N	98.4	98.4	0	0	0	0	0
Thurrock 4	Roadside	Y	90.4	90.4	0	0	0	0	0
Thurrock 8	Roadside	Y	98.9	98.9	12	4	7 (181)[c]	5	5

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets
*Number of exceedences for previous years are optional.

Diffusion Tube Monitoring Data

Thurrock continues to employ the use of NO_2 diffusion tube samplers across relevant areas within its borough. In 2013 it operated at 49 locations, this has since been revised with only 45 locations being monitored during 2014. The reason for scraping the four sites at Stonehouse Road (STON), East Tilbury Railway Station (ETRS), Stanford le-Hope Railway Station (SLHRS) and Wingfield Road (NAS4) was because they are either no longer giving useful information or did not demonstrate that there was any likely risk of the annual mean objective being breached in the future, as the monitored trend was well below the objective level.

Table 7 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (µg/m^3)
LRAR	London Road Arterial Road	R	13	Single	12 months	Not Applicable	N	**58.52**
PRS	Purfleet Rail Station	R	No	Single	12 months	Not Applicable	N	34.7
WC	Watts Crescent	R	12	Single	11 months	Not Applicable	N	**40.68**
JC	Jarrah Cottages	R	10	Single	12 months	Not Applicable	N	**56.76**
STON	Stonehouse Lane	R	21	Single	N/A	Not Applicable	N	Site Ended 12/2013
IBIS	Ibis Hotel	UB	7	Single	12 months	Not Applicable	N	**49.12**
GDSO	Gatehope Drive	UB	15	Single	11 months	Not Applicable	N	28.58
LT	Lakeside Tesco Roundabout	R	No	Single	11 months	Not Applicable	N	**50.05**
KCNO	Kemps Cottage	UB	16	Single	11 months	Not Applicable	N	34.25
WT	London Road W Thurrock	R	23	Single	12 months	Not Applicable	N	38.68
HR	Howard Road	R	5	Single	12 months	Not Applicable	N	31.01
NAS2	A1306	R	5	Single	12 months	Not Applicable	N	**50.02**
LRSS	London Road South Stifford	R	2	Single	12 months	Not Applicable	N	**40.63**
LRG	London Road Grays	R	1	Single	12 months	Not Applicable	N	37.73
NAS4	Wingfield Grays	UB	No	Single	N/A	Not Applicable	N	Site Ended 12/2013
ER	Elizabeth Road	R	3	Single	10 months	Not Applicable	N	**52.69**
PS	Poison Store AURN Site	UB	1	Single	12 months	Not Applicable	N	26.23
HL	Hogg Lane	R	3	Single	11 months	Not Applicable	N	35.09
NAS1	Queensgate Centre Grays	R	1	Single	12 months	Not Applicable	N	32.86
CR	Cromwell Road Grays	I	1	Single	12 months	Not Applicable	N	33
SRG	Stanley Road Grays	R	1	Single	11 months	Not Applicable	N	30.52
NAS3	Chestnut Avenue Grays	UB	No	Single	12 months	Not Applicable	N	21.71
WES	William Edwards School	R	No	Single	12 months	Not Applicable	N	30.28
B	Bulphan	RB	No	Single	12 months	Not Applicable	N	17.51

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (µg/m^3)
TL	Calcutta Road Tilbury	R	No	Single	12 months	Not Applicable	N	35.17
PKSL	Park Road	R	No	Single	12 months	Not Applicable	N	28.62
SL	Stanford Library	UB	No	Single	12 months	Not Applicable	N	25.55
M	Manorway Monitoring Station	R	No	Triplicate and Co-located	12 months	Not Applicable	N	25.44
FRC	Francisco Close (Chafford Hundred)	I	No	Single	9 months	Not Applicable	N	33.66
SLHRS	Stanford-le-Hope Railway Station	R	No	Single	N/A	Not Applicable	N	Site Ended 12/2013
ETRS	East Tilbury Rail Station	R	No	Single	N/A	Not Applicable	N	Site Ended 12/2013
TILA	Dock Road (Tilbury)	R	24	Single	11 months	Not Applicable	N	39.79
TILB	Broadway Intersection (Tilbury)	R	24	Single	12 months	Not Applicable	N	39.25
TILC	St Andrews Road (Tilbury)	R	No	Single	11 months	Not Applicable	N	37.44
TILD	Calcutta Road East (Tilbury)	R	24	Single	12 months	Not Applicable	N	33.53
TILE	Calcutta Road North (Tilbury)	R	24	Single	12 months	Not Applicable	N	35.46
TK4 (A&B)	Thurrock 4 (co-located duplicated site)	R	24	Duplicate and Co-located	12 months	Not Applicable	N	30.72
PBP	Purfleet By-pass	R	No	Single	12 months	Not Applicable	N	38.09
PBPA	Purfleet By-pass (a)	R	No	Single	12 months	Not Applicable	N	35.66
LYD	Lydden	UB	4	Single	12 months	Not Applicable	N	34.11
AVSL	Aveley Ship Lane	R	No	Single	12 months	Not Applicable	N	**45.43**
AVHS	Aveley High Street	R	No	Single	12 months	Not Applicable	N	38.5
SOAA	South Ockendon Arisdale Avenue	R	No	Single	12 months	Not Applicable	N	32.68
TSR	Tilbury Sydney Road	UB	No	Single	12 months	Not Applicable	N	26.87
DR	Devonshire Road	R	No	Single	10 months	Not Applicable	N	32.91

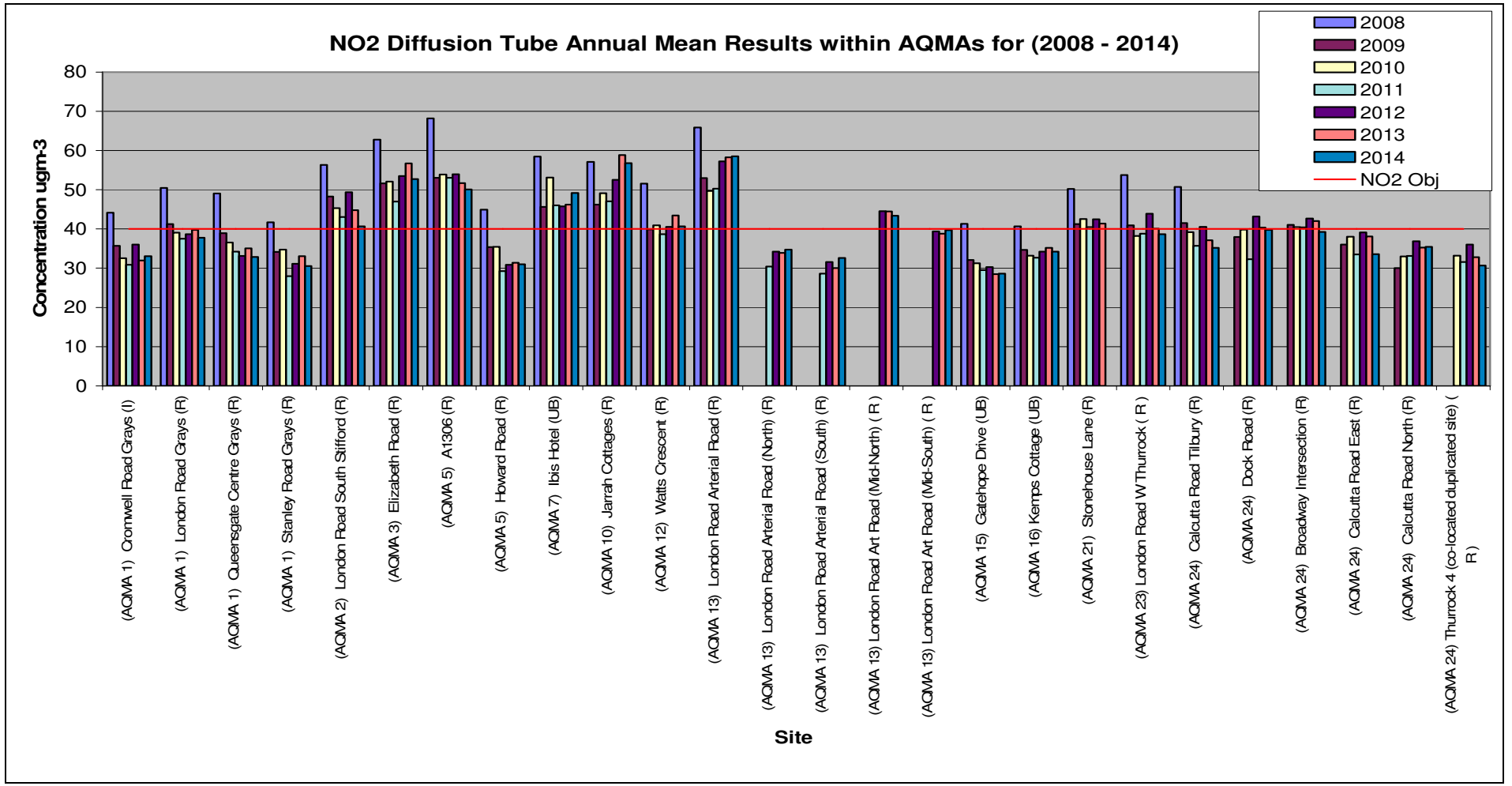
Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (µg/m^3)
LRARN	London Road Art Road (North)	R	13	Single	12 months	Not Applicable	N	34.73
LRARS	London Road Art Road (South)	R	13	Single	12 months	Not Applicable	N	32.6
LRARMN	London Road Art Road (Mid-North)	R	13	Single	12 months	Not Applicable	N	**43.39**
LRARMS	London Road Art Road (Mid-South)	R	13	Single	12 months	Not Applicable	N	39.67

Table 8 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2010* (Bias Adjustment Factor = 0.92)	2011* (Bias Adjustment Factor = 0.9)	2012* (Bias Adjustment Factor = 0.96)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
LRAR	R	13	**49.68**	**50.27**	**57.23**	**58.28**	**58.52**
PRS	R	No	36.48	31.88	35.71	35.26	34.7
WC	R	12	**40.89**	38.7	**40.54**	**43.43**	**40.68**
JC	R	10	**49.11**	**47.03**	**52.51**	**58.84**	**56.76**
STON	R	21	**42.55**	**40.5**	**42.49**	**41.38**	Site Ended 12/2013
IBIS	UB	7	**53.11**	**46.02**	**45.78**	**46.25**	**49.12**
GDSO	UB	15	31.21	29.47	30.28	28.46	28.58
LT	R	No	**52.14**	**52.31**	**53.73**	**61.99**	**50.05**
KCNO	UB	16	33.2	32.63	34.22	35.21	34.25
WT	R	23	38.19	38.8	**43.9**	**40.13**	38.68
HR	R	5	35.45	29.2	30.85	31.41	31.01
NAS2	R	5	**53.82**	**53.04**	**53.93**	**51.69**	**50.02**
LRSS	R	2	**45.3**	**43.08**	**49.33**	**44.76**	**40.63**
LRG	R	1	39.05	37.51	38.69	39.74	37.73
NAS4	UB	No	20.96	21.51	21.75	20.88	Site Ended 12/2013
ER	R	3	**52.07**	**46.95**	**53.48**	**56.68**	**52.69**
PS	UB	1	29.19	26.04	27.11	27.72	26.23
HL	R	3	35.28	29.93	33.87	33.3	35.09
NAS1	R	1	36.58	34.19	33.12	35.01	32.86
CR	I	1	32.57	30.84	36.06	31.95	33
SRG	R	1	34.72	27.95	31.14	33.09	30.52
NAS3	UB	No	25.01	22.48	23.69	22.67	21.71
WES	R	No	31.54	28.37	31.77	31.38	30.28
B	RB	No	20.57	18.36	20.61	18.44	17.51
TL	R	No	39.22	35.74	**40.54**	37.13	35.17
PKSL	R	No	31.3	30.69	33.34	31.01	28.62
SL	UB	No	28.82	26.34	25.93	27.34	25.55
M	R	No	36.51	32.65	34.35	32.74	25.44
FRC	I	No	(<75%) 34.58	29.50	32.6	34.34	33.66
SLHRS	R	No	(<75%) 29.8	30.21	28.12	29.45	Site Ended 12/2013

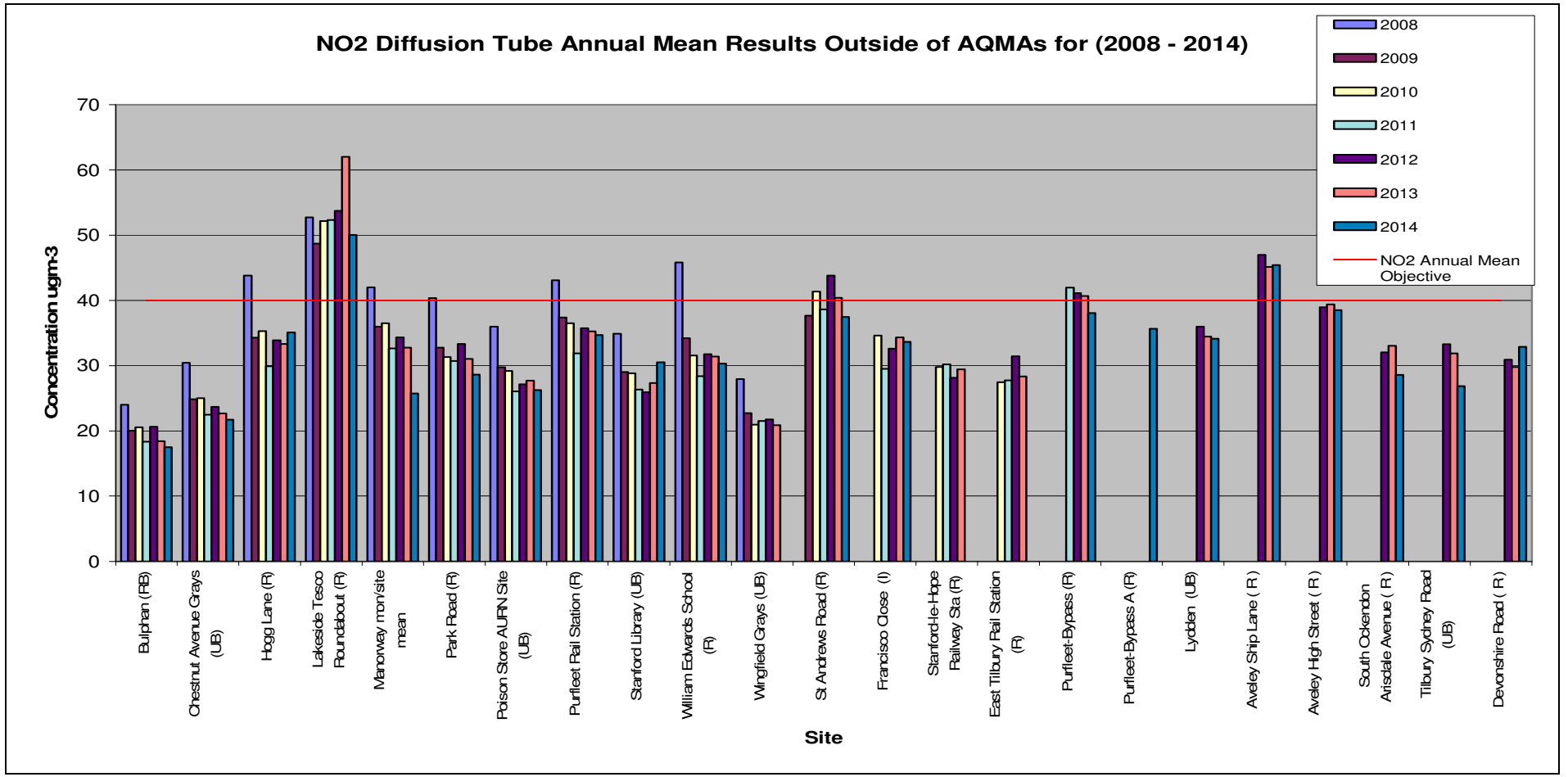
Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2010* (Bias Adjustment Factor = 0.92)	2011* (Bias Adjustment Factor = 0.9)	2012* (Bias Adjustment Factor = 0.96)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
ETRS	R	No	(<75%) 27.47	27.75	31.46	28.35	Site Ended 12/2013
TILA	R	24	39.86	32.3	**43.15**	**40.32**	39.79
TILB	R	24	**40.48**	**40.44**	**42.64**	**42.03**	39.25
TILC	R	No	**41.36**	38.64	**43.83**	**40.39**	37.44
TILD	R	24	38.07	33.52	39.09	38.08	33.53
TILE	R	24	32.97	33.12	36.9	35.26	35.46
TK4 (A&B)	R	24	33.17	31.54	36.06	32.79	30.72
PBP	R	No	No Data	(<75%) **41.96**	**41.11**	**40.69**	38.09
PBPA	R	No	No Data	No Data	No Data	No Data	35.66
LYD	UB	4	No Data	No Data	35.97	34.42	34.11
AVSL	R	No	No Data	No Data	**46.99**	**45.15**	**45.43**
AVHS	R	No	No Data	No Data	(<75%) 38.96	39.41	38.5
SOAA	R	No	No Data	No Data	32.01	33.03	32.68
TSR	UB	No	No Data	No Data	33.27	31.88	26.87
DR	R	No	No Data	No Data	(<75%) 30.93	29.79	32.91
LRARN	R	13	No Data	30.46	34.26	33.93	34.73
LRARS	R	13	No Data	28.62	31.55	30	32.6
LRARMN	R	13	No Data	No Data	(<75%) **44.52**	**44.51**	**43.39**
LRARMS	R	13	No Data	No Data	(<75%) 39.35	38.79	39.67

Figure 9 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites within Thurrock's AQMAs



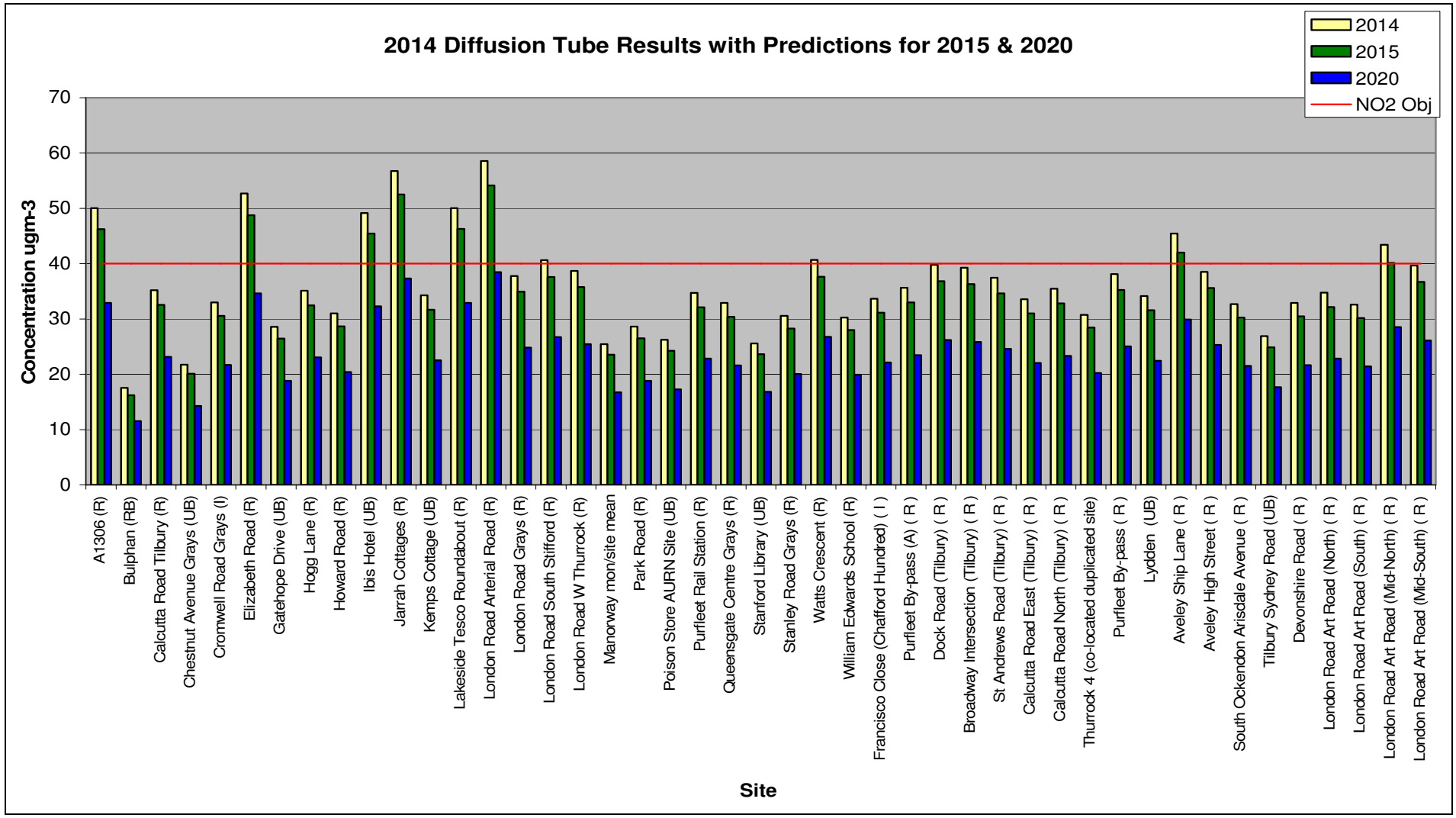
In 2014 there were still 7 diffusion tube sites within Thurrock's AQMA's which were still above the annual mean objective for NO_2. Most sites have either shown no change in recent years or a slight improvement, there have been no dramatic increases either at any location.

Figure 10 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites outside Thurrock's AQMAs



In 2014 there were 2 diffusion tube sites outside Thurrock's AQMA's which were above the annual mean objective for NO_2. The first at Lakeside Tesco Roundabout does not represent relevant public exposure. The second at Aveley Ship Lane has recently been identified in its 2014 Detailed Assessment Report as needing to be declared as an AQMA, this was confirmed with air quality modelling which was verified by the monitoring data. Overall the trend for most sites has shown either a slight decrease in concentration or little or no change.

Figure 11 Predicted Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites for 2015 & 2020



Predictions of post 2014 concentrations were made using the Defra year adjustment factors, based on 2014 measurements. These are shown in (Figure 11) with the 2015 predictions (in green) & 2020 predictions (in blue). For 2014 there are 10 sites still exceeding the annual mean objective. The estimates indicate that despite the predicted reduction in concentrations, of the same 10 locations 8 are predicted to be exceeding the annual mean objective in 2015 and 0 sites will still be exceeded in 2020. This prediction must be taken with some scepticism as the diffusion tube results have not shown this level of decrease in previous years, and are unlikely to follow this trend, so hence it is more likely most of these sites will still exceed the annual mean objective in 2015 and for 2020.

2.2.2 PM_{10}

PM_{10} Monitoring

Thurrock continues monitoring PM_{10} within the Borough, it currently operates three automatic monitoring sites with automatic analysers for PM_{10}. Both Thurrock 1 Grays AURN (urban background site) and Thurrock 3 Stanford le-Hope (roadside site) operate Tapered Element Oscillating Microbalance systems (TEOM's) with Filter Dynamic Measurement Systems (FDMS). The third site at Thurrock 8 Purfleet operates a Beta Attenuated Mass (BAM) analyser, both of these instruments produce high quality data which can be directly comparable to both the short-term and long term air quality objectives for PM_{10}.

Table 9 Results of Automatic Monitoring of 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 NA)	Annual Mean Concentration µg/m^3				
						2010*[c]	2011*[c]	2012*[c]	2013*[c]	2014[c]
Thurrock 1	Urban Background	N	97.7	97.7	Y	24.3	24.85	17.65	19.16	19.28
Thurrock 3	Roadside	N	95.7	95.7	Y	*20.69*	23.37	*22.57*	24.33	19.76
Thurrock 8	Roadside	Y	99.1	99.1	Y	29.43	27.71	23.91	27.43	26.83

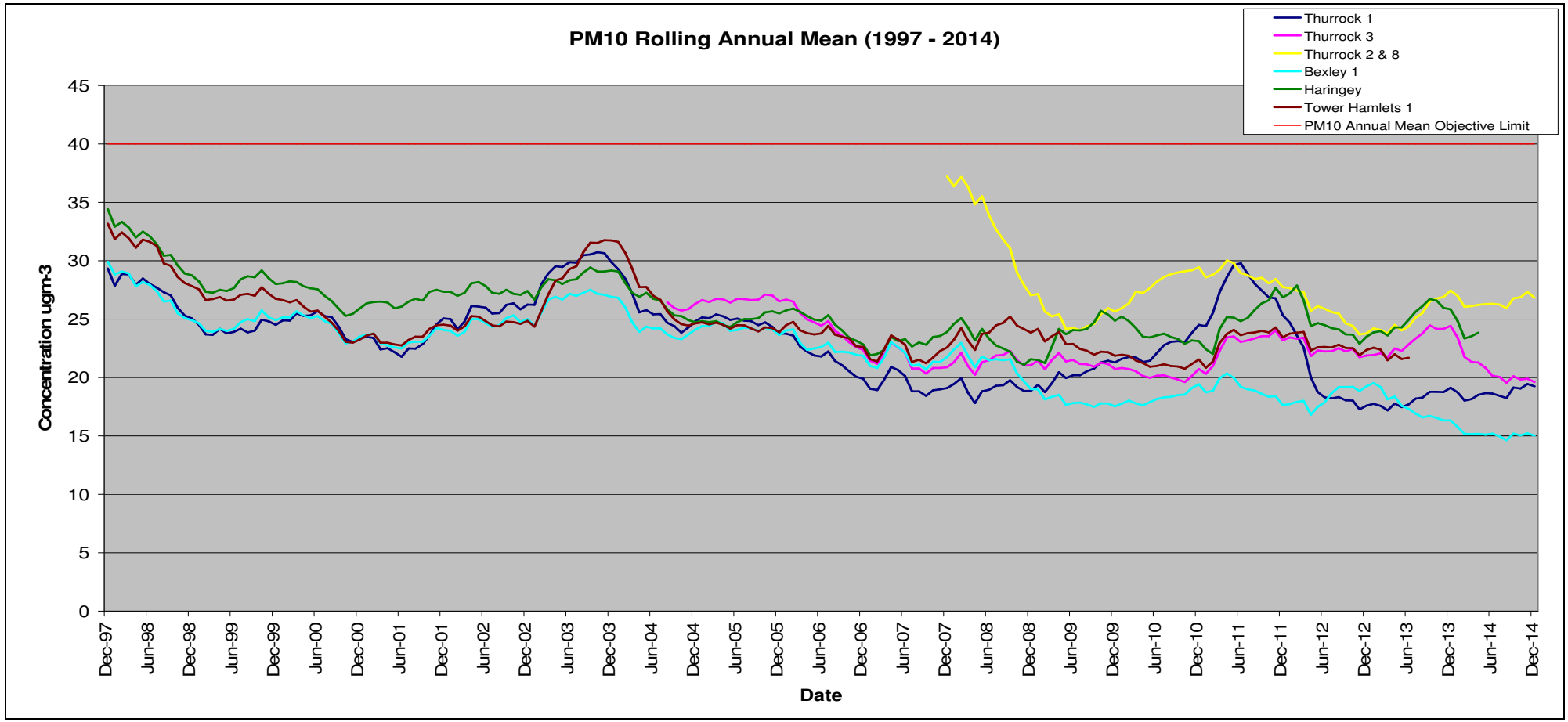
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.
* Optional

Table 10 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 %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 µg/m^3)				
						2010*[c]	2011*[c]	2012*[c]	2013*[c]	2014[c]
Thurrock 1	Urban Background	N	97.7	97.7	Y	9	25	10	4	11
Thurrock 3	Roadside	N	95.7	95.7	Y	4 (36)[c]	18	14 (43)[c]	16	13
Thurrock 8	Roadside	Y	99.1	99.1	Y	21	24	14	21	22

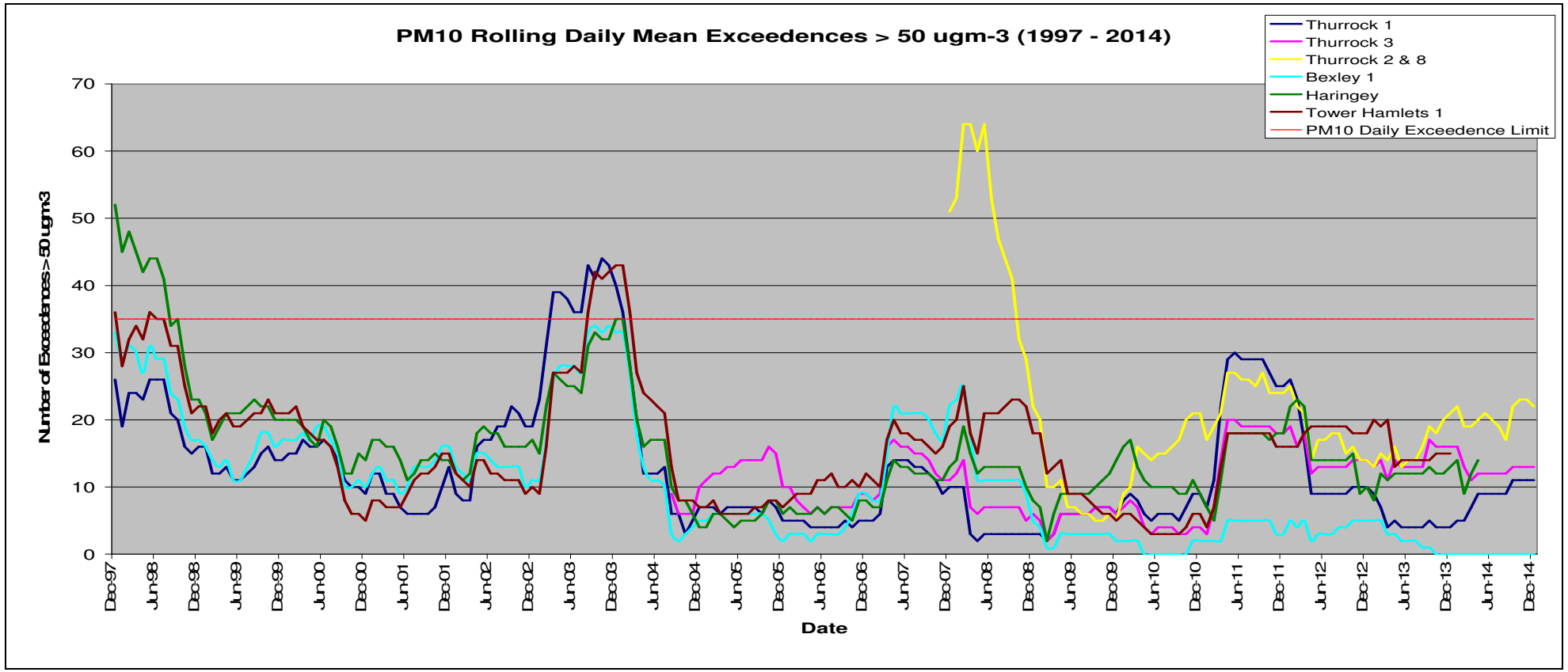
[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets
* Optional

Figure 12 Trends in Annual Mean PM_{10} Concentrations for sites in and around Thurrock



Over 2014 there has been little or no change in PM_{10} concentrations at Thurrock 1 and Thurrock 8. Thurrock 3 has noticed a rapid decline over 2014, this is partly due to roadwork improvements taking place along the Manorway dual-carriageway adjacent to the site and also the installation of a substantial noise barrier next to the monitoring station. This is clearly having an effect on the flow of air masses around the inlet of the site, and restricting the flow of pollutants at the site.

Figure 13 Trends in the numbers of rolling daily mean exceedences for PM_{10} at sites in and around Thurrock



2014 has seen little variation on the number of reported daily exceedences of PM_{10} leading to a fairly insignificant year. Most of these exceedences occurred during March – April 2014 and also over September, this resulted in Thurrock 8 having 22 reported exceedences, this is well below the permitted 35 exceedences per calendar year.

Conclusion for PM_{10}

There have been no significant changes to PM_{10} concentrations or emissions in the area since the fifth round USA and as a result a Detailed Assessment for PM_{10} will not be required.

2.2.3 Sulphur Dioxide

SO_2 monitoring

The Council has continued to monitor SO_2 at two of its automatic monitoring sites. During 2013 However with the de-affiliation by DEFRA for SO_2 at Thurrock 3 site, the Council decided not to continue monitoring at this location, also with the closure of the Petroplus Oil Refinery and also because low levels of SO_2 monitored at this site. This analyser has since been re-deployed to the Thurrock 4 site in Tilbury and results are available below for 2014.

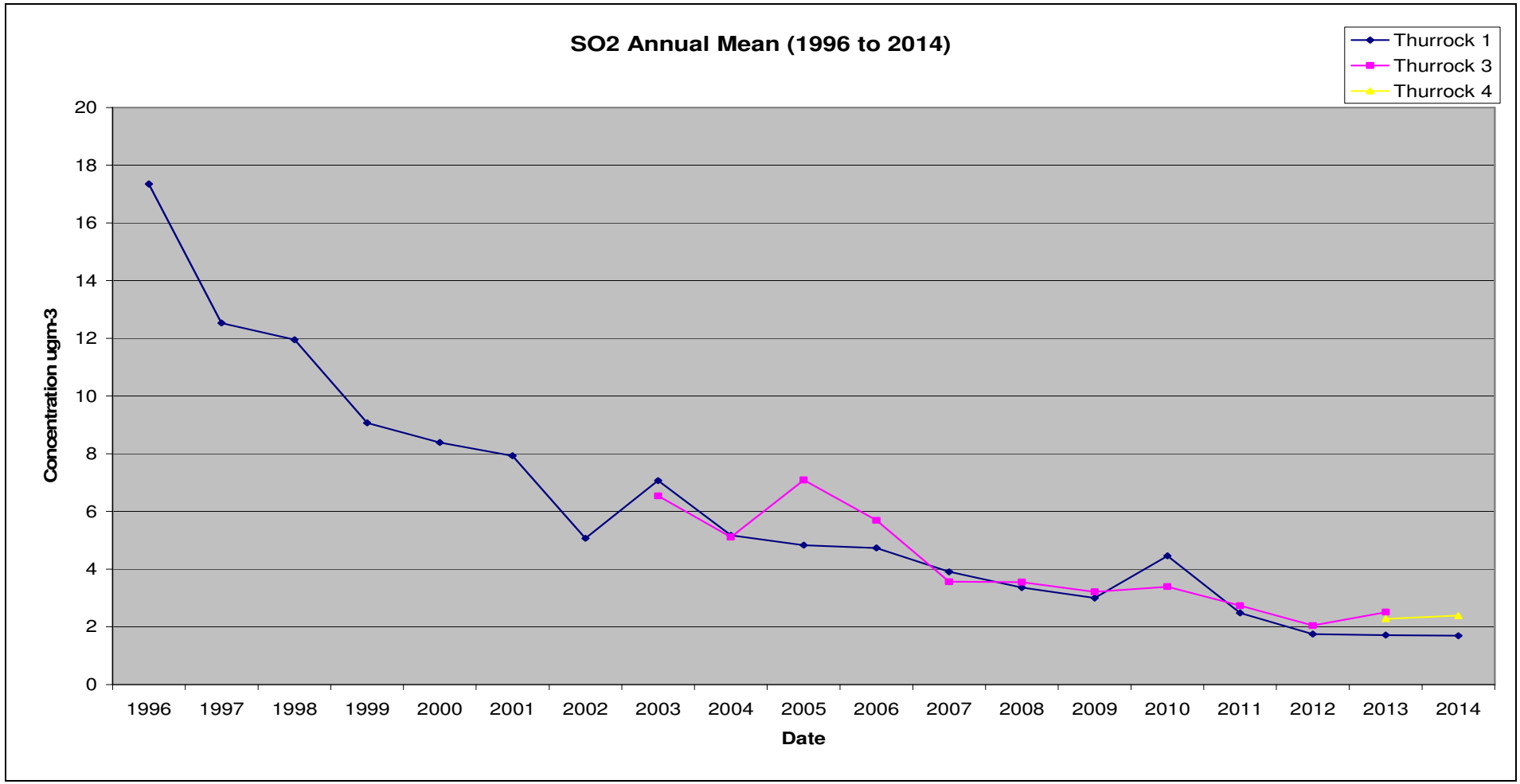
Table 11 Results of Automatic Monitoring of SO_2: Comparison with Annual Mean Objectives

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Number of Exceedences (percentile in bracket µg/m^3)[c]		
					15-minute Objective (266 µg/m^3)	1-hour Objective (350 µg/m^3)	24-hour Objective (125 µg/m^3)
Thurrock 1	Urban Background	N	97.2	97.2	0	0	0
Thurrock 4	Roadside	Y	94	94	0	0	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] if data capture is less than 90%, include the relevant percentile in brackets

The rolling annual mean trend for Thurrock 1 (Figure 13) demonstrates how much things have improved over the years with concentrations approaching the limit of detection in recent years.

Figure 14 Trends in SO_2 Concentrations in Thurrock



Conclusion for SO_2

There have been no significant changes to sulphur dioxide concentrations or emissions in the area since the fifth round USA and as a result a Detailed Assessment for sulphur dioxide will not be required.

2.2.4 Benzene

The Council does not undertake monitoring for Benzene this was screened out in the first round of review & assessment. There have not been any significant changes in either Industry, Petrol Stations, busy roads which might represent any relevant exposure.

Very busy roads or junctions in built up areas

All roads and junctions were considered in the previous USA and none were found to exceed the criteria for the benzene objective. This assessment indicated that no road and junction had flows >80,000 vehicles per day for single carriageways, >120,000 vehicles per day for dual carriageways and >140,000 vehicles per day for motorways. Estimated 2010 background concentrations were also below the annual mean threshold of 2 µg m^{-3} for benzene. Based on these findings it is considered that the objective is very unlikely to be exceeded in the area as a result of road traffic emissions.

Industrial sources

There are no new industrial processes or significant increased emissions of benzene from existing industrial processes of relevance in the area, or neighbouring areas.

Petrol stations

The previous USA did not identify any petrol stations in the area requiring further assessment based on the TG(09) criteria. There has been no change to this position. (See Appendix for list of permitted petrol stations in the area).

Conclusion

There have been no significant changes to benzene concentrations or emissions in the area since the fifth round USA and as a result a Detailed Assessment for benzene will not be required.

2.2.5 Other pollutants monitored

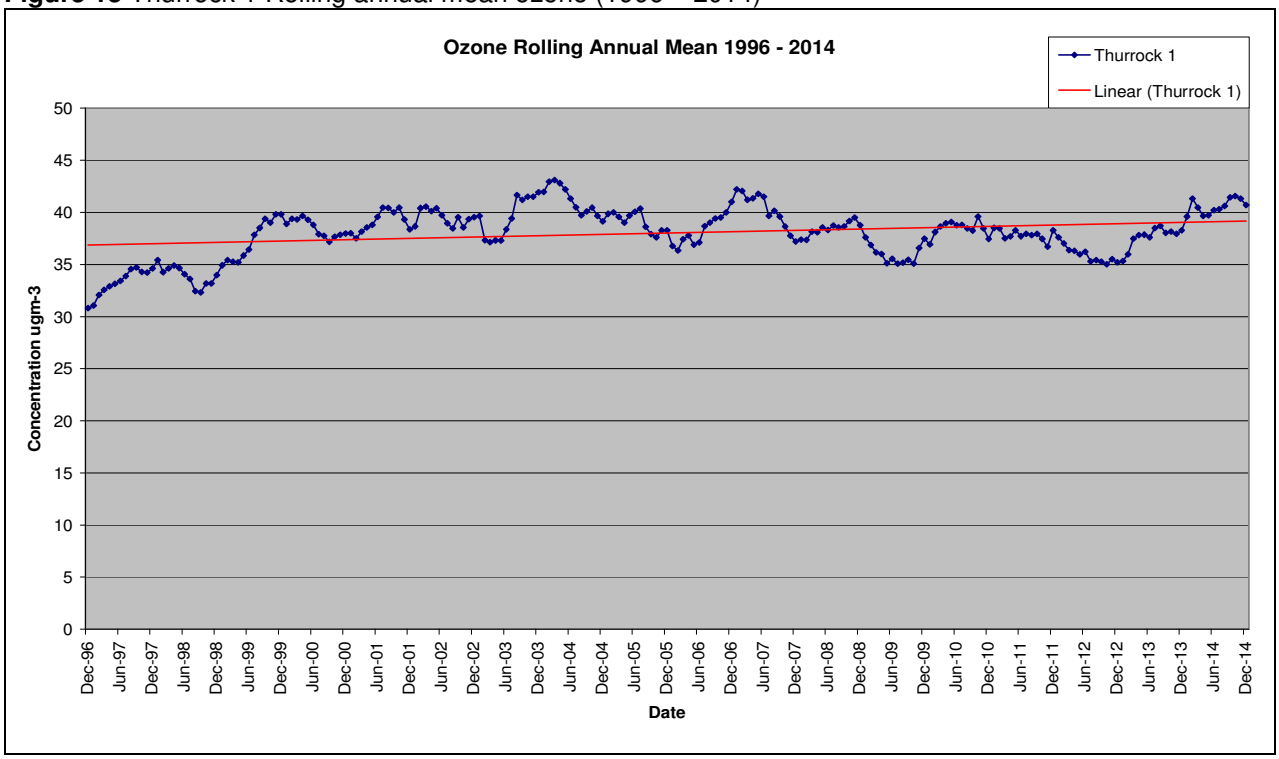
Ozone

The Council does undertake monitoring for ozone (O_3) at one of its monitoring stations at the urban background site at Thurrock 1 in Grays.

Table 12 Ozone statistics for Thurrock 1 (2010 – 2014)

	2010	2011	2012	2013	2014
No Exceedences of the Daily Maximum 100 ug/m-3	**7**	**11**	**8**	**5**	**3**
Annual Mean	**38**	**38**	**36**	**38**	**42**
Annual mean Daily Max 8-hr	**55**	**56**	**52**	**55**	**60**

Figure 15 Thurrock 1 Rolling annual mean ozone (1996 – 2014)



The last 18 years monitoring for ozone at Thurrock 1, have shown a slight increase in the rolling annual mean concentrations, most of this occurred however in the first 5 years of monitoring and the levels since have remained relatively static (Figure 14).

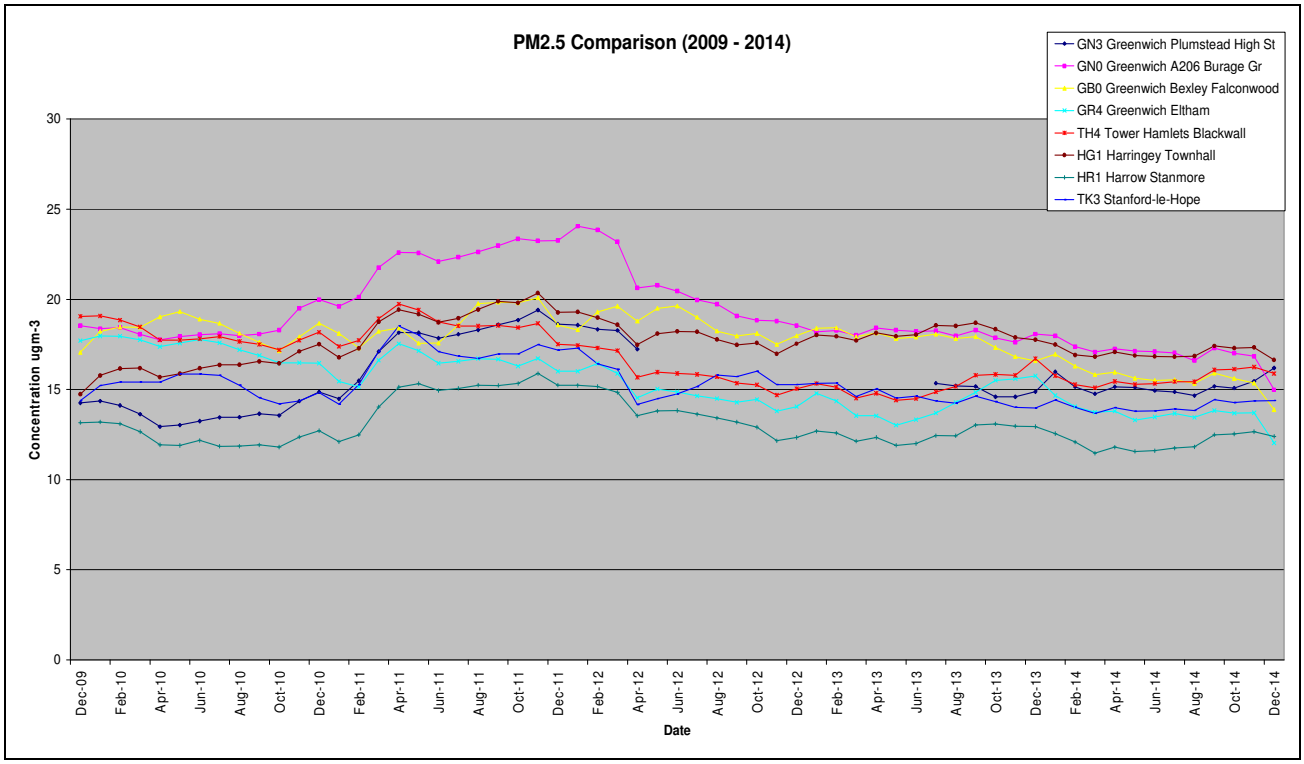
$PM_{2.5}$

The Council does undertake monitoring for $PM_{2.5}$ at one of its monitoring stations at the roadside site at Thurrock 3 in Manorway in Stanford le-Hope.

Table 13 $PM_{2.5}$ statistics for Thurrock 3 (2009 – 2014)

$PM_{2.5}$	2009	2010	2011	2012	2013	2014
Annual Mean	14.54	15.77	17.93	15.25	14.07	14.52
1-Hour Maximum	145	229	120	92	109	93
Data Capture	44.43%	58.66%	77.65%	81.60%	89.66%	95.77%

Figure 16 Rolling annual mean $PM_{2.5}$ for Thurrock 3 and surrounding authority sites



The $PM_{2.5}$ concentrations measured at Thurrock 3 site, tend to fall in line with those measured across other monitoring locations within the London Air Quality Network (LAQN) as shown in (Figure 15), and has so far followed the same trends, levels remain fairly consistent over this time period, (albeit for a relatively short time-fame).

2.2.6 Summary of Compliance with AQS Objectives

Thurrock Council has examined the results from monitoring in the borough Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Thurrock Council 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

Thurrock Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

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

Thurrock Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Thurrock Council confirms that there are no new/newly identified busy junctions/busy roads.

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

There have been no major new roads constructed which could potentially give rise to any new sources of air pollution at surrounding receptors.

Thurrock Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

There have been no significant changes in traffic flow numbers on any of Thurrock's main roads. Recently the Devonshire road, Grays was opened up for HGV movements to divert away HGV movements through Grays Centre. A diffusion tube was placed along Devonshire road as a precaution, this site has not shown any breach of the annual mean objective for NO_2. The Council will continue monitoring at this location in the future.

Thurrock Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Thurrock Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Thurrock Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

Thurrock Council does have railways which run through many parts of the borough, these lines operate both commuter and freight traffic. Since the last USA there have been no significant changes in the numbers or frequency of any trains.

4.2.1 Stationary Trains

Thurrock Council 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.

4.2.2 Moving Trains

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

4.3 Ports (Shipping)

Thurrock does contain a number of Ports that operate within the borough. These include Tilbury Port, Purfleet Esso Terminal, and the new DP World Freight Distribution Hub in Corringham. There has been no significant change at either Tilbury Port or the Purfleet Esso Terminal since the last USA report.

The new DP World development is an ongoing development and will be the largest container port in Europe. It is located well away from any potential receptors, this was looked at by Thurrock Council during the planning phase and determined that it would not be an issue.

Thurrock Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

There have been no new industrial installations which will have any significant impact on nearby receptors. Appendix C has a list of all current permitted processes within Thurrock.

Over 2014 there have been two new B2 processes operating in the borough, the first is a small waste oil burner (SWOB) *(permit number 205)*. The second is a mobile crusher *(permit number 212)*. Permission has also been granted for three additional mobile roadstone coating processes to start in 2015 *(permit numbers 209, 210 & 211).*

There is currently a new potential A2 process coming to the borough which is currently pending its permit, it will be a timber treatment process, this process will have no air quality impact resulting from emissions.

Also one B2 process a vehicle resprayer has been classed as mothballed, while it still in operation, it is operating at a substantially reduced rate below its permitted status, *(permit number 165.*

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

Thurrock Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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

Thurrock Council 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.

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

Thurrock Council 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

Thurrock currently has four major Bulk Storage Depots within the borough, however since the last review and assessment there has been no major changes to these installations.

Thurrock Council has assessed a major petrol storage depot, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.3 Petrol Stations

Thurrock Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Thurrock Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Thurrock currently has no Biomass Combustion Plants (BCP) in the borough, however there are two currently proposed which are still in the planning phase. The first is Tilbury Green Power, Tilbury which is a proposed waste Incinerator Plant. The second is a proposed BCP at the current A1 process at Proctor & Gamble, West Thurrock.

Thurrock Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Thurrock Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Thurrock Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Thurrock Council 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 monitoring for all pollutants over 2014 has not highlighted any new potentially poor air quality areas within the borough other than the ones which are already AQMA's. So on this basis a Detailed Assessment is not necessary. However some monitored results for NO_2 in certain AQMA's have shown in recent years that they are below the objective level. It will be the Council's intention to review some of these AQMA's with the intention of either reducing the current size of them or revoking some of them entirely. The Council will in the near future (2016/17) produce a Detailed Assessment for NO_2 to review and amend some of its AQMA's.

8.2 Conclusions from Assessment of Sources

There have been no new sources within the borough either commercial, industrial, domestic, transport based or fugitive emissions which have had any significant impact on any areas outside or within AQMA's.

8.3 Proposed Actions

The findings of this Updating Screening Assessment Report show that there is no need to proceed to a Detailed Assessment for any new potential AQMA's, however this Council will produce a Detailed Assessment in 2016/17 on its current AQMA's to either amend or revoke some of its AQMA's as the monitoring indicates that some of these AQMA's may be below the annual mean objective for NO_2. It is the Council's intention to carry out detailed dispersion modelling using ADMS-Roads on its current AQMA's.

- The Council will continue its monitoring regime at all its current monitoring sites and review this data annually.
- The Council will continue produce and submit an annual Progress Report in 2016
- The Council will carry out a Detailed Assessment for NO_2 reviewing its current AQMA's over 2016/17.

9 References

Defra, 2009. Local Air Quality Management, Technical guidance LAQM.TG09. Defra, London.

Defra, 2009. Local Air Quality Management, Policy Guidance LAQM. PG09. Defra, London.

Thurrock (2012). Local Air Quality Management – Updating and Screening Assessment 2012

Thurrock (2014) Local Air Quality Management – Air Quality Progress Report. 2013

Thurrock (2014) Local Air Quality Management - Detailed Assessment for NO_2. 2014

Appendices

Appendix A: QA/QC Data

Appendix B: Air Quality Action Plan Progress Report

Appendix C: List of Prescribed Industrial Processes in the Borough

Appendix A: QA/QC Data

Factor from Local Co-location Studies (if available)

N/A

Diffusion Tube Bias Adjustment Factors

Thurrock Council undertook monitoring at 45 NO_2 diffusion tubes sites in 2014.

The diffusion tubes are supplied and analysed by Gradko Environmental.
Preparation method : 20% TEA in water
United Kingdom Accreditation Services (Testing Laboratory number 2187).

The national adjustment factor can be sourced from this website: http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html by inputting the above supplier and preparation method within the link to the excel spreadsheet. *(Spreadsheet version number 03/15)*

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/15

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2015
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data[2]

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To make your selection, choose [All] from the pop-up list)	Year[5] (To make your selection, choose [All])	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2014	UC	Belfast City Council	11	33	32	5.6%	G	**0.95**
Gradko	20% TEA in water	2014	R	Borough Council of King's Lynn & West Norf	12	29	21	37.7%	G	**0.73**
Gradko	20% TEA in water	2014	R	Brighton & Hove City Council	12	55	48	15.2%	G	**0.87**
Gradko	20% TEA in water	2014	R	Brighton & Hove City Council	11	60	57	6.2%	G	**0.94**
Gradko	20% TEA in water	2014	R	Cheshire West and Chester	11	40	40	-1.0%	G	**1.01**
Gradko	20% TEA in water	2014	R	Dudley MBC	12	36	31	18.1%	G	**0.85**
Gradko	20% TEA in water	2014	UB	Dudley MBC	12	26	23	11.2%	G	**0.90**
Gradko	20% TEA in water	2014	R	Dudley MBC	12	41	35	15.2%	G	**0.87**
Gradko	20% TEA in water	2014	R	Dudley MBC	12	52	60	-12.6%	G	**1.14**
Gradko	20% TEA in water	2014	R	Gateshead Council	10	35	32	10.8%	G	**0.90**
Gradko	20% TEA in water	2014	R	Gateshead Council	12	36	36	-0.1%	G	**1.00**
Gradko	20% TEA in water	2014	R	Gateshead Council	12	34	32	6.4%	G	**0.94**
Gradko	20% TEA in water	2014	UB	Luton Borough Council	9	36	37	-4.0%	G	**1.04**
Gradko	20% TEA in water	2014	KS	Marylebone Road Intercomparison	12	115	80	42.8%	G	**0.70**
Gradko	20% TEA in water	2014	R	Monmouthshire County Council	10	42	38	10.1%	G	**0.91**
Gradko	20% TEA in water	2014	R	NOTTINGHAM CITY COUNCIL	12	44	39	14.9%	G	**0.87**
Gradko	20% TEA in water	2014		**Overall Factor[3] (16 studies)**					**Use**	**0.91**

Discussion of Choice of Factor to Use

As of 2015 Thurrock Council has switched from using its own locally derived Bias adjustment factors to using a national bias adjustment factor, as Defra have encouraged us to adopt this method, as to limit the amount of bias generated in our data. We do not entirely agree with this assessment however as the national bias adjustment does not relate to what we see when looking at our own local factors. There is a reason for this because there is a wide degree of variation at specific sites within Thurrock which do not show the national trend. For example the west of the borough is heavily influenced by Heavy Goods Vehicles and Light Goods Vehicles whereas the East side of the borough is more typical of a national factor where the road traffic is more mixed with a higher percentage of Cars in relation to Heavy Goods Vehicles. But we are happy to follow Defra's recommendations for this and all future reporting of it monitoring data if they wish it.

PM Monitoring Adjustment

No adjustment in the data is necessary as this data gets adjusted externally by Environmental Research Group at Kings College London and by Ricardo AEA on the UK-AIR websites from which our monitoring data is sourced.

Short-term to Long-term Data Adjustment

N/A

QA/QC of Automatic Monitoring

There are a number of different organisations responsible for carrying out QA/QC at various stations and equipment at Thurrock's automatic monitoring sites.

For Thurrock 1, Grays AURN site, the QA/QC is managed by Bureau Veritas (BV) and by Ricardo AEA, the site Audits are conducted by Ricardo AEA. Service contracts do vary, all the gas analysers are maintained by Enviro Technology, and the PM_{10} FDMs is maintained by Air Quality Monitors.

For Thurrock 3, Stanford-le-Hope site, this is an affiliated site on the AURN network and is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL), the site Audits are conducted by Ricardo AEA. The Service contracts are managed by Enviro Technology.

For Thurrock 4, Tilbury site, this is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL). The site Audits are conducted by Ricardo AEA. The Service contracts are managed by Enviro Technology.

For Thurrock 8, Purfleet site, this is also part of the London Air Quality Network (LAQN). The QA/QC is managed by Environmental Research Group (ERG) at King College London (KCL). The site Audits are conducted by the National Physical Laboratory (NPL). The Service contracts are managed by Enviro Technology.

Calibrations for all sites are done every fortnight by Thurrock Council Environmental Health Officers & the Air Quality Officer.

QA/QC of Diffusion Tube Monitoring

Diffusion Tube studies for Gradko analysis using 20% TEA in water over 2012 demonstrated overall Good Precision http://laqm.defra.gov.uk/documents/Tube_Precision_2014_version_03_14-Final.pdf

http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-117-124-(April-2012--March-2014)-NO2-report.pdf

Appendix B: Air Quality Action Plan Progress Report

THURROCK COUNCIL

Progress Report May 2015

1.0 INTRODUCTION

1.1 In 2013 the Council produced an Air Quality Action Plan for Transport, outlining measures that could be implemented to help reduce emissions and improve local air quality. This progress report provides an update on the implementation of those actions.

1.2 For further background information and descriptions of the Air Quality Management Areas (AQMAs) and actions please refer to the 2013 report found in *Appendix 1* of this report.

2.0 BOROUGH-WIDE ACTIONS

2.1 Following a presentation on 'Air Quality, Regeneration and Health' at the Health and Well Being Overview and Scrutiny Committee, the Council has set up an officers' working group to develop a more integrated approach to managing air quality across the Borough. With representation from Transport, Public Health, Environment and Planning the group is well placed to identify opportunities to work collaboratively to both reduce emissions and limit exposure.

2.2 The group has agreed to produce an overarching Corporate Air Quality Action Plan (CAQAP) this year, which will form the basis of the Council's approach to air quality management and serve as a work plan for the group over the next 5 years. Based on current expertise and areas of work the group has identified a number of key areas and priorities for action in the short-term which will also feed into the new CAQAP; these are:

- Reducing pollution from idling vehicles;
- Encouraging smarter travel behaviour;
- Living streets – public realm, pedestrian and cycleway improvements
- Planning for Health
- Cleaner air for schools
- Vulnerable persons campaign and alerts

2.3 In addition to the initiatives outlined above the Local Sustainable Transport Fund (LSTF) project has continued to deliver infrastructure and initiatives including:

2.4 **Sustainable Freight**

2.4.1 **SAFED - Eco-driver training:**

Training for public transport and HGV drivers on more environmentally friendly driving techniques, to reduce fuel consumption and associated emissions.

Output: 161 drivers trained since the programme began in 2012, with 44 drivers trained in 2014/15

Impact: The average fuel saving is 4.4% per driver – the minimum was 1% and the maximum was 35%!

2.4.2 **Freight Quality Partnership:**

A Thurrock Partnership with local freight and logistics sector to provide forum for local businesses to discuss transport issues.

Output: 100 members in FQP (May 2015), three partnership meetings took place in 2014/15, with attendance from 50 representatives.

Impact: Provided a platform between freight and logistical businesses and Thurrock Council to work collaboratively.

2.4.3 **Eco-Stars Accreditation:**
The ECOstars initiative works with freight and logistics sector that are either based in or have major operations in the Borough by providing them with support to assess and improve the environmental effectiveness of their fleet.

Output: 63 businesses in 2014/15 have been provided ECO-stars support and accredited as follows:

ECO Star Rating	Number of Organisations	Number of Vehicles
1	2	18
2	4	92
3	6	157
4	19	557
5	32	2175

Impact: 2,999 vehicles have been assessed as part of the initiative.

2.5 **Personalised Journey Planning (PJP):**
PJP provides bespoke advice and information to Thurrock residents about alternative travel options to private vehicles in their local area. This year, the initiative was focussed in the east of the Borough.

Output: In 2014/15, 14,453 households were visited with 32% participating in the project. Over 15,000 pieces of information or supporting incentives were provided to participants. In addition, 43 community events were organised engaging with 3,048 individuals.

Impact: 9% of respondents to the post-intervention survey indicated they had made a change to the way they travelled; with a further 20% stating they are due to make a change. Analyses indicated that walking trips increased by 66% resulting in an increase of 4% mode-share.

2.6 **Sustainable Travel to Schools:**
Support has been provided to a number of schools in the Borough to help pupils and parents travel to school by more sustainable modes.

Output: 500 pupils were provided with Level 1 Bikeability training and a further 1611 pupils provided with scooter training. In addition, five schools in the Borough have received Modeshift STARS 'bronze award'. To complement this support, a further 15 schools were intensively engaged in the 'Bike It' project, with one school reporting 25% of pupils cycling regularly to school.

Impact: Awaiting STP mode share results

2.7 **Smarter Choices – Workplace Travel Planning:**
The Council require the development and adoption of travel plans as part of planning approval for any large-scale new development in the Borough to help mitigate their traffic impacts. The travel plans set out how the new occupier will promote and facilitate more sustainable modes of transport to reduce dependency on single occupancy vehicle journeys.

Output: 7 Travel Plans adopted in 2014/15

Impact: Modal shift monitoring data to be collected.

2.8 **Land-use Planning:**
The redevelopment of commercial and logistics site in Arisdale Avenue (South Ockendon) to residential use has resulted in significant reductions in heavy goods vehicle movements.

3.0 Air Quality Management Area Interventions

Air Quality Management Area	Measure	Air Quality Impact	Status	Comments
AQMA 1	**New Road, Grays:** Redevelopment of car park into South Essex College Campus	Reduction in vehicle movements	Complete	
	Lodge Lane – Train Station: Cycle route signing	Promotion of non-car modes	Complete	
AQMA 2	**Gumley Road, Grays:** Landuse change from B2/B8 to residential Lodge Lane	Reduction in HGV movements	Ongoing	
	London Road, Grays: Weight limit restriction >7.5t	Reduction in HGV movements	Complete	
AQMA 3/4/5	**Hogg Lane/ Elizabeth Road/Devonshire Road, Grays:** Transport Network Improvements	To be confirmed	Ongoing	AQMAs 3/4/5: Defra funded study to undertake integrated traffic and AQ modelling, to determine cost effective measures to bring about improvements in AQ
AQMA 10	**Purfleet Bypass FP167:** Shared use Toucan crossing	Promotion of sustainable transport alternatives	Complete	
AQMA 13	**Tank Lane, Purfleet:** Pollution suppressing fencing and upgraded traffic signals (MOVA)	To be confirmed	Complete	
AQMA 23	London Road/Motherwell Road: Change in priority to re-enforce HGV ban	Routing to reduce HGV movements	Complete	

Appendix C: List of Prescribed Industrial Processes in the Borough

Table 14 Part A1 installations in Thurrock

Operator Name	Permit No.	Site address	Process type
Allied Mills Ltd	BM9688IS	Sunblest Mill Port of Tilbury Essex	ANIMAL, VEGETABLE AND FOOD
Petroplus Refining and Marketing	AF8050	CORYTON REFINERY, THE MANORWAY, STANFORD-LE-HOPE, ESSEX	GASIFICATION, REFINING ETC
Chemviron Carbon Limited	AP3338SP	434 LONDON ROAD, GRAYS, ESSEX	RECOVERY OF WASTE
Chemviron Carbon Limited	FP3033BD	434 London Road West Thurrock Essex	CARBON DISULPHIDE, AMMONIA
Industrial Chemicals Limited	BJ7298IF	STONE NESS ROAD, WEST THURROCK, GRAYS, ESSEX	ORGANIC CHEMICALS
Inustrial Chemicals Limited	DP3637SG	TITAN WORKS,TITAN INDUSTRIAL ESTATE, GRAYS, ESSEX	INORGANIC CHEMICALS
Pura Foods Limited	BU7677IZ	Pura Foods London Road PURFLEET Essex	ANIMAL, VEGETABLE AND FOOD
Proctor & Gamble	BT8864IT	Hedley Avenue, West Thurrock, Grays	ORGANIC/ INORGANIC CHEMICAL

Table 15 Part B installations in Thurrock (excluding dry cleaners)

Reference numb	Operator	Address	Process / activity undertaken
A2 001 V3	Civil & Marine Slag Cement Limited	London Road, Grays, Essex RM20 3NL	Blend / pack / load / use of bulk cement
B101	Bulphan Service Station	Brentwood Road, Essex RM14 3SS	Small waste oil burner
B102	Benchsound Limited	47 Kings Street, Stanford-le-Hope SS17 0HJ	Small waste oil burner
B106	C.Y Repair Services	Manorway Ind. Est. Grays RM17 6PG	Small waste oil burner
B110 V1	Lafarge Cement	Oliver Close, WT, Essex RM20 3EE	Blend / pack / load / use of bulk cement
B111	Yeoman Ashphalt Limited	Jurgens Road, Purfleet, Essex RM16 1SH	Roadstone coating processes
B115	CEMEX Materials UK	London Road, Grays RM20 3NL	Blend / pack / load / use of bulk cement
B116	Tarmac Topblock Limited	Buckingham Road, Linford SS17 0PY	Blend / pack / load / use of bulk cement
B122	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B135	Calor Gas Limited	Manorway, Coryton, SLH SS17 9LW	Coating of metal and plastic
B141	Palmer and Klein Limited	Brentwood Road, Orsett, RM16 3HU	Veg. oil extraction/ refining process
B151 V1	West Thurrock Coachworks Limited	Unit39, Purfleet Indust. Aveley RM15 4YG	Respraying of road vehicles
B152 V1	West Thurrock Coachworks Limited	Unit 2, Curzon Drive, Grays RM17 6BG	Respraying of road vehicles
B159	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B160 V1	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B161 V2	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B164	Commodore Kitchens	Gumley Road, Grays RM20 4XP	Timber and wood-based products
B167	Clearserve Limited	Holford Road, Linford SS17 0PJ	Mobile crushing and screening

B168	Esso Petroleum Limited	London Road, Purflleet RM19 1RS	Storage, loading, unloading of petrol
B169	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B170	Vopak Tank Terminal London BV Ltd	Oliver Road, West Thurrock RM20 3EY	Storage, loading, unloading of petrol
B174	Kaneb Terminals Limited	London Road, West Thurrock RM17 5YZ	Storage, loading, unloading of petrol
B180	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B183	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM191SR	Mobile crushing and screening
B185 V1	Balgores Motors 1982 Limited	Unit3 Manor Road, WT RM20 4BA	Respraying of road vehicles
B187 V1	DWS Bodyworks	Unit 1&2 Magnet Way, Grays RM20 4DP	Respraying of road vehicles
B188	Clearserve Limited	Holford Road, Linford SS17 0PJ	Mobile crushing and screening
B189 V1	Tony le Voi	Unit C8 Motherwell Way, WT RM20 3WE	Respraying of road vehicles
B192	Sejoc Auto Repairs	Dock Road, Tilbury RM18 7PT	Small waste oil burner
B193	Derek Mean Vehicle Services	69/71 Victoria Road, SLH SS17 0HZ	Small waste oil burner
B194	Euromix Limited	Oliver Close, West Thurrock RM20 3AD	Blend / pack / load / use of bulk cement
B199	S Walsh and Sons Limited	Sleepers Farm, Chadwell St Mary	Mobile crushing and screening
B200	Pullman Fleet Services	Sartoria Business Park, WT, RM20 3NL	Small waste oil burner
B203	Spectrum Vehicle Resprayers	Sandy Lane, WT RM20 4BH	Respraying of Road Vehicles
B205	Walker Crane Services	Hainault Trading Estate, Motherwell Way, WT	Small waste oil burner
B206	Seales Road Haulage Ltd	7A Juliette Way, Purfleet Ind Est, Purfleet	Mobile crushing and screening
B208	Thurrock Auto Care	611 London Rd, West Thurrock, RM20 3BJ	Small waste oil burner
B207	International Timber	London Rd, Purfleet, Essex, RM19 1RE	Timber and wood-based products
B209	OCL Regeneration Limited	21 Lodge Lane, Grays, Essex RM17 5RY	Mobile roadstone coating
B210	OCL Regeneration Limited	21 Lodge Lane, Grays, Essex RM17 5RY	Mobile roadstone coating
B211	OCL Regeneration Limited	21 Lodge Lane, Grays, Essex RM17 5RY	Mobile roadstone coating
B212	John F Hunt	Europa Park, London Rd, Grays, Essex	Mobile crushing and screening
A2002	Kerneos Limited	Dolphin Way PURFLEET Essex	CEMENT AND LIME
A2003	Rookery Hill Timber Treatment	Manorway, Corringham, Essex	Chemical Preservation of Timber

**Pink indicates that process has changed from an A2 to a Part B installation*
**Dark Green indicates process is an A2 process*
**Yellow indicates a new A2 process currently pending a Permit*
**Light Blue indicates it is a new process application and is approved but not yet in operation*
**Light Green indicates a new part B2 process*

Table 16 Part B installations in Thurrock – Service Stations

Reference number	Operator	Address
SSP1	Mr S Ramachandran	College Service Sta. 36/38 Southend Road, Grays RM17 5NJ
SSP2	TOTAL UK Limited	Aveley Service Station, Purfleet Road, Aveley RM15 4DJ
SSP3	ASDA Stores Limited	Thurrock Park Way, Tilbury, RM18 7HJ
SSP4	Tesco Stores Limited	Cygnet View, Lakeside, Thurrock RM20 1TX
SSP5	Mr M Gopalakrishnan	Stanford Autopoint 26-28 Southend Road, Stanford-le-Hope SS17 0PF
SSP6	BP Oil UK Limited	Orsett Cock North Petrol Filling Sta. A13 Eastbound, Grays RM16 3BG
SSP7	BP Oil UK Limited	Orsett Cock North Petrol Filling Sta. A13 Westbound, Grays RM16 3BG
SSP9	Murco Petroleum Limited	London Road, Stanford-le-Hope SS17 0WL

SSP10	Esso Petroleum Limited	Granada Thurrock Services, M25 Thurrock RM16 3BG
SSP11	ROC (UK) Limited	Meads Service Station, London Road, Purfleet RM16 1TD
SSP12	Esso Petroleum Limited	Chafford Service Station, Hogg Lane, Grays RM17 5QT
SSP13	Sainsbury's Supermarkets Limited	Burghley Road, Chafford Hundred, RM16 6QQ
SSP14	Pace Petroleum Limited	Daneholes Service Station, Stanford Road, Grays RM16 4XS
SSP15	Murco Petroleum Limited	The Broadway, Dock Road, Grays RM17 6EW
SSP16	Mr S V Chandrakumar	712 London Road, West Thurrock RM20 3PZ
SSP17	Tesco Stores Limited	11-13 Brentwood Road, Chadwell St Mary RM16 4JD
SSP18	George Payne	Corringham Motoring Centre, Church Road, Corringham SS17 9AP
SSP19	Tesco Stores Limited	North Road, South Ockendon, Essex RM15 6QJ
SSP20	Central Garage	31 Lampits Hill, Corringham SS17 9AA
SSP21	Wm Morrison Supermarkets PLC	1 London Road, Grays RM17 5XZ
SSP23	Bell Corner Service Station	London Road, Fobbing Essex SS17 0LE

Table 17 Part B installations in Thurrock – Dry Cleaners

Reference number	Operator	Address	Solvent
DC1	Royal Express Dry Cleaners	10 Kings Parade, Stanford le Hope, Essex	perchloroethylene
DC2	Braiden Dry Cleaners	11 Calcutta Road, Tilbury Essex	perchloroethylene
DC3	Tip Top Dry Cleaners	55 Lampits Hill, Corringham, Essex	perchloroethylene
DC6	Jems Dry Cleaners	59 Lodge Lane, Grays, Essex	perchloroethylene
DC7	Jems Dry Cleaners	Sainsburys, Burghley Road, Chafford Hundred, Essex	perchloroethylene
DC8	Sangana International	25 High Street, Grays, Essex	Hydrocarbon
DC11	Classic Dry Cleaners	15-17 The Broadway, Grays, Essex	perchloroethylene
DC12	Corringham Dry Cleaners	18 Grover Walk, Corringham, Essex	perchloroethylene

Table 18 Part B installations no longer in operation (as of 2010 onwards)

Reference n	Operator	Address	Process/ activity undertaken
B198	Thurrock 4x4 Centre	Oliver Road West Thurrock Essex	Small waste oil burner
B191	Flavin Consulting Limited	1 One Tree Hill, SLH SS17 9NH	Small waste oil burner
B204	Steintec Paving Systems	728 London Road, WT RM20 3LU	Blend / pack / load / use of bulk
B103	Hanson Thermalite Limited	Motherwell Way, WT, Essex RM20 3LB	Blend / pack / load / use of bulk
B119	Brett Concrete Limited	Magnet Industrial Estate, WT RM16 1DB	Blend / pack / load / use of bulk
B184	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM191SR	Mobile crushing and screening
B186	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B153 V1	Enterprise Coachworks Limited	Oliver Close, West Thurrock, RM20 3EE	Respraying of road vehicles

Table 19 Inactive Part B installations

Reference n	Operator	Address	Process/ activity undertaken
B171	Morzine Limited	Stanford-le-Hope, Coryton, SLH SS17 9LQ	Storage, loading, unloading of petrol
*B201	Industrial Chemicals Group Limited	Stoneness Road, West Thurrock	Blend / pack / load / use of bulk cement
B165	CdMP Purfleet Limited	London Road, Purfleet RM19 1PD	Respraying of road vehicles