THURROCK COUNCIL

Thurrock Council

Air Quality and Action Plan Progress Report

April 2010

Executive Summary

This is the Air Quality and Action Plan Progress Report 2010 for Thurrock Council ("the Council"). This report is the latest report produced by the Council to fulfil this part of the continuing commitment to the Local Air Quality Management (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.

The report also includes a section on the Council's ozone monitoring. The monitored results for this pollutant confirm that the ozone objective was also exceeded in 2008, but for 2009 it was not exceeded in the Borough.

The purpose of the Council's Air Quality Action Plan is to ensure that air quality is considered corporately and to seek to reduce air pollution within the Borough, in pursuit of the Government's air quality objectives. The Council is however limited in its abilities to influence local air quality, firstly as a result of pollution arising elsewhere in London (and beyond) and secondly because it has limited responsibility for the main sources of emissions within the Borough. The major roads in the Borough are the responsibility of the Highways Agency and the oil refinery the responsibility of the Environment Agency. The action plan however includes measures to seek to reduce traffic flow and emissions that are consistent with other Council policies.

The Council's progress on the individual actions is given in Table 15 within the report. As referred to above the Council is maintaining, as well as seeking to enhance, both its monitoring and dissemination of data for planning and assessment purposes. The Action Plan originally included 35 actions. The report confirms that 5 further actions were either completed or no longer relevant from when the Action plan was published in 2004. The remaining actions are all on going.

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1.1 Overview

This is the Air Quality and Action Plan Progress Report 2010 for the Thurrock Council. This report fulfils this part of the Council's continuing commitment towards the Local Air Quality Management (LAQM) process.

1.2 Background – national level

The LAQM process forms a key part of the Government's Air Quality Strategy to achieve the air quality objectives prescribed in the Air Quality (England) Regulations 2000 and 2002. Air quality progress reports were introduced following a detailed evaluation of the first round of local authority Review and Assessment. This evaluation identified a need both to develop a longer-term vision for LAQM and encourage the integration of air quality into the routine work of local authorities.

Local Authorities are required by section 88 (2) of the Environment Act 1995 to have regard to the Government's guidance documents when carrying out their LAQM duties. To assist local authorities and provide guidance for the overall LAQM process, the Department for Environment, Food and Rural Affairs (Defra) issued the following policy and technical guidance documents: LAQM PG (03), LAQM PG (S) (03), LAQM TG (03) and LAQM.PGA (05), these have now been super-ceded and replaced by the new technical guidance: LAQM TG (09).

The Government published a revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland in July 2007. In formulating the new strategy a review was undertaken which included comprehensive environmental studies. The review also proposed potential new policy measures to improve air quality, and examined their costs and benefits, impact on exceedences of the strategy's air quality objectives, effect on ecosystems and qualitative impacts. The new Air Quality Strategy identifies the key measures to consider and where further work is needed.

The new strategy affirms that the quality of air has improved and that despite this there is still more to do as objectives for some pollutants are still exceeded. The areas of exceedence are relatively small, although significant numbers of people are likely to be exposed, as the exceedences tend to be in highly populated areas. The updated strategy provides a clear, long-term vision for improving air quality in the UK and offers options for further consideration to reduce the risk to health and the environment from air pollution. The strategy retains existing air quality objectives and includes a new objective for $PM_{2.5}$ in recognition of recent reviews by the WHO and the Committee on the Medical Effects of Air Pollutants (COMEAP) that suggested exposure to $PM_{2.5}$ gives a stronger association with the observed ill-health effects of particles.

LAQM TG (09) supplemented the above guidance and assists in the production of air quality progress reports. Based on this, local authorities are required to produce Progress Reports in those years when they are not carrying out an Updating and Screening Assessment (USA) or a Detailed Assessment of air quality.

The guidance also advises that the Progress Report is not designed to represent a further USA, although it states that, if at any time a risk is identified that an air quality objective might be exceeded, a Detailed Assessment should be carried out without delay.

1.3 Background – local level

In earlier rounds of review and assessment (R&A) of local air quality management, the Council identified areas where objectives were exceeded and where there was relevant public exposure. As a consequence, it designated parts of its area as Air Quality Management Areas (AQMA) for the annual mean nitrogen dioxide objective and daily mean PM_{10} objective and produced an Air Quality Action Plan.

The Council also completed the third round of review and assessment. A summary of the existing AQMAs for nitrogen dioxide and PM_{10} within the Council's area is given in Table 1

Table 1 Summary of existing Thurrock AQMAs

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

The overall aim of the Progress Report is to report on progress on implementing LAQM and report progress in achieving, or maintaining concentrations below the air quality objectives. The guidance considers that these aims can be best achieved by reporting on new results and on progress with implementation of the Action Plan. This, the 2010 progress report, provides the latest update for Thurrock.

The guidance further suggests that those local authorities monitoring ozone use this report to outline the results. (Note – ozone is not one of the identified seven LAQM pollutants, although it is included within the Government's Air Quality Strategy).

2 New monitoring results in Thurrock

2.1 Outline of monitoring undertaken

The Council continued monitoring, nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particles (PM_{10}) and ozone (O_3) in its area. The Government's adopted air quality objectives for each of these pollutants as shown in Table 2 below.

Table 2 Air quality strategy objectives for CO, NO_2, SO_2, PM_{10}, ozone and provisional objectives for $PM_{2.5}$

Pollutant	Objective		Date to be achieved by
	Concentration	Measured as	
Carbon Monoxide	10 mg m^{-3}	Daily Maximum Running 8 hour mean	31 Dec 2003
Nitrogen Dioxide (provisional)	200 μg m^{-3} not to be exceeded more than 18 times a year	1 hour mean	31 Dec 2005
	40 μg m^{-3}	Annual Mean	31 Dec 2005
Sulphur Dioxide (SO_2)	350 μg m^{-3} not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 μg m^{-3} not to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004
	266 μg m^{-3} not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
Particles (PM_{10})	50 μg m^{-3} not to be exceeded more than 35 times a year	Daily Mean	31 Dec 2004
	40 μg m^{-3}	Annual Mean	31 Dec 2004
Particles (PM2.5) (gravimetric) * All authorities	25 μg m^{-3} (target)	Annual mean	2020
	15% cut in urban background exposure	Annual mean	2010 - 2020
Ozone (O_3)	100 μg m^{-3} not to be exceeded more than 10 times a year	Daily maximum of 8 hour running mean	31 Dec 2005

** Not included in regulations at present*

The Council undertakes continuous monitoring at three fixed long-term sites:

- Thurrock 1 - an urban background site in Grays in the middle of the Borough. This site has been operating since January 1995 and is part of the Government's automated network (AURN).
- Thurrock 2 - a roadside site in Purfleet in the west of the Borough (this site started operating in May 2003 and closed in April 2008). The sample inlet was located 2m from the road.

- Thurrock 3 – a roadside site in Stanford Le Hope towards the east of the Borough (monitoring at this site commenced in August 2003).

- Thurrock 8 - a roadside site in Purfleet. This site replaced the Thurrock 2 site that had to be relocated approximately 35m to the west of the previous site for access reasons. It opened in April 2008.

A new roadside site has recently been setup in Tilbury, along Calcutta Road (Thurrock 4) from January 2010 to assess NO_2 concentrations, as the previous Progress report in 2008 identified from its diffusion tube results that levels went above the annual mean objective level for NO_2. A Detailed assessment will follow later this year once sufficient data has been gathered from this new monitoring station, it will not be used further in this report.

2.2 Summary of monitoring undertaken at Thurrock's automatic sites

Site	NOx*	PM_{10}	SO_2	Ozone
Thurrock 1	√	√ (TEOM FDMs)	√	√
Thurrock 2	√	√ (BAM)		
Thurrock 3	√	√ (TEOM FDMs)	√	
Thurrock 8	√	√ (BAM)		

(* Includes NO_2)

The above sites are also representative of relevant exposure. All the sites are part of the London Air Quality Network and therefore the standards of QA/QC are similar to those of the Government's AURN sites. The Thurrock 1 and Thurrock 3 sites are also part of the Government's AURN network. Regular calibrations are carried out, with subsequent data ratification undertaken by the ERG at King's College London. In all cases the data are fully ratified unless reported otherwise. Details of the sites can be found at www.londonair.org.uk

The Council also undertook the non-continuous monitoring of nitrogen dioxide in its area using diffusion tubes.

2.3 NO_2 Monitoring

The Council has continued to monitor nitrogen dioxide (NO_2) during 2009 using both diffusion tubes and continuous chemiluminescence analysers at Thurrock 1, Thurrock 3 & Thurrock 8 monitoring stations.

2.3.1 Continuous NO_2 and NOx monitoring in Thurrock

The annual mean results for the continuous monitoring sites are presented in Table 3 and Figure 1. The data capture for 2009 exceeded 90% at Thurrock 1, Thurrock 3 and Thurrock 8 sites (see Appendix 1).

Table 3 Annual mean NO_2 concentrations in Thurrock (2003 – 2009 inclusive)(µg m^{-3})

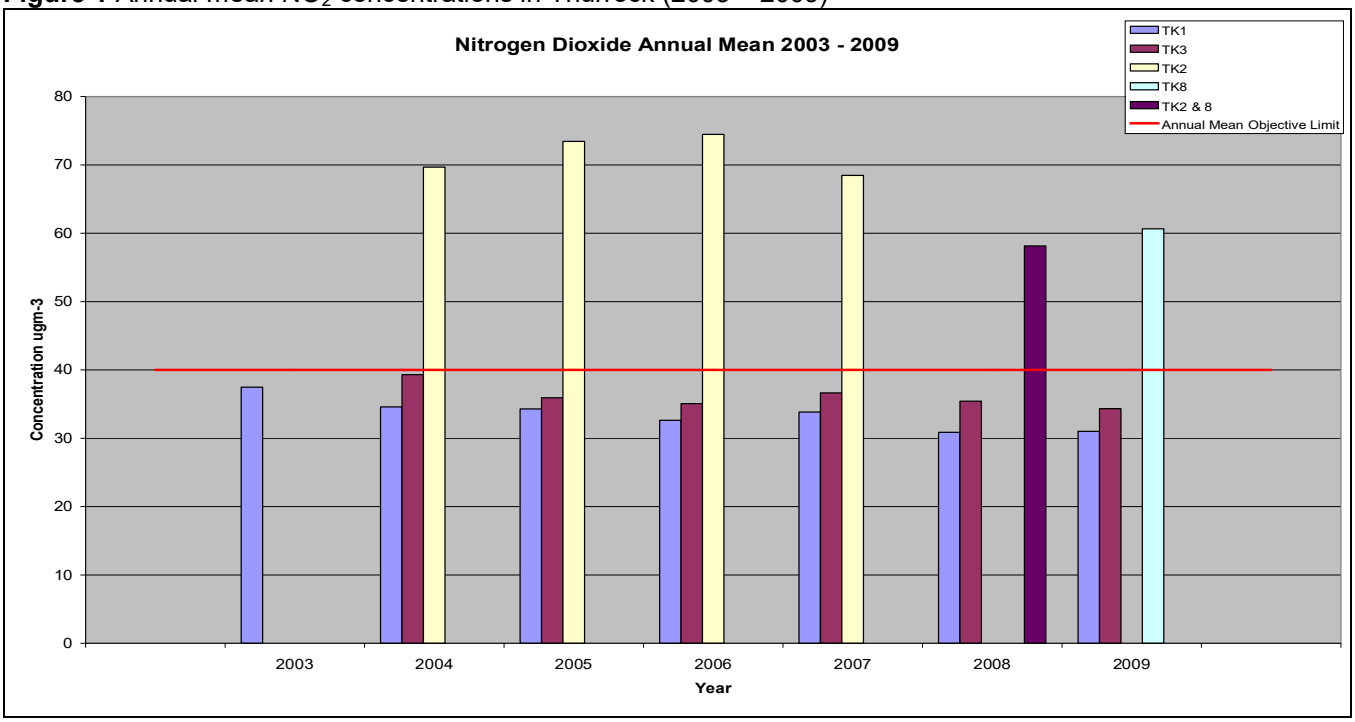
LAQN site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	U	37.41	34.64	*34.65*	32.57	*33.83*	30.86	31.01
Thurrock 2	R	***74.04***	**69.66**	**73.39**	**74.31**	**68.44**	***64.87****	
Thurrock 3	R	***42.5***	39.27	35.88	34.96	36.59	35.1	34.34
Thurrock 8	R						***55.89****	**60.64**
Thurrock 2&8	R						***60.38****	

(Note - italics indicates < 90% data capture; bold indicates > annual mean objective)

* (Orange indicates that for 2008 both results for Thurrock 2 and Thurrock 8 were combined as there was a relocation of Thurrock 2 to Thurrock 8 by 35 metres along the same road

The monitoring results for Thurrock 2 (formerly and now Thurrock 8 consistently exceed the annual mean objective by a considerable margin, these exceedences are showing a relative decrease in concentrations year on year, with 2003 at 74.04 µg m^{-3} and 2009 at 60.64 µg m^{-3}, based on this the decrease year on year is approximately 1.91 µg m^{-3}. The Thurrock 1 background has shown a lesser decline over the same period, with concentrations below the annual mean air quality objective in 2003 they were 37.41 µg m^{-3} and in 2009 were 31.01 µg m^{-3}, this indicates a yearly decrease of 0.92 µg m^{-3}. Thurrock 3 roadside has mirrored the background site Thurrock 1, with an average yearly decrease of 0.93 µg m^{-3}.

Figure 1 Annual mean NO_2 concentrations in Thurrock (2003 – 2009)



During 2009 only Thurrock 8 had any exceedences above 200 µg m^{-3} hourly objective for NO_2 with 1 in total, this did not breach the objective as there are a total of 18 permitted exceedences. In previous years this standard has been breached, most notably during 2006 and 2007. There was also an increase in the number of sites exceeding this objective in London during 2005 - 2006, compared to 2002, when there was only one London site that exceeded. (ERG, 2006). Eleven sites exceeded in 2005 and 14 exceeded in 2006, these included sites at both kerbside and roadside locations. No background locations exceeded in either year, although a number of sites exceeded the 200 µg m^{-3} standard. The rises in direct emissions of NO_2 are thought to be implicated in this, as indicated by recent research (Carslaw D.C and Beevers, S. D, 2005 and AQEG, 2007).

A widespread primary pollution episode arose in early December 2007. At this time weather conditions were cold and calm, with very light winds. Initial analysis suggests that this was the most significant nitrogen dioxide incident for 10 years, when NO_2 was elevated across the region, the hourly mean AQS objective of not more than 18 hours per year above 200 µg m^{-3} was breached at 9 sites, and equalled at 2 sites, on the basis of measurements during this episode alone. Parts of west and central London saw the most elevated levels of pollution. For 2008 and 2009 were not exceptionally special years for extreme meteorological conditions, and have reflected this in the numbers of hourly exceedences, which are much less than on previous years.

The highest hourly concentrations at the Thurrock sites in 2007 also arose during episodes in November/ December and also February and April/ May. The monitoring results for the hourly objective are given in Table 4.

Thurrock 1 and Thurrock 3 had no exceedences during 2009. In the past Thurrock 1 had 3 exceedences in 2007 and also 1 exceedence in 2003, Thurrock 3 has never had any exceedences since it has been operating.

Table 4 Hourly mean NO_2 periods > 200µg m^{-3} in Thurrock (2003 – 2009 inclusive)

LAQN site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	U	1	0	*0*	0	*3*	0	0
Thurrock 2	R	*4*	3	12	**26**	**48**	*7**	
Thurrock 3	R	*0*	0	0	0	0	0	0
Thurrock 8	R						*0**	1
Thurrock 2&8	R						*7**	

(Note- italics indicates < 90% data capture; bold indicates > hourly mean objective)

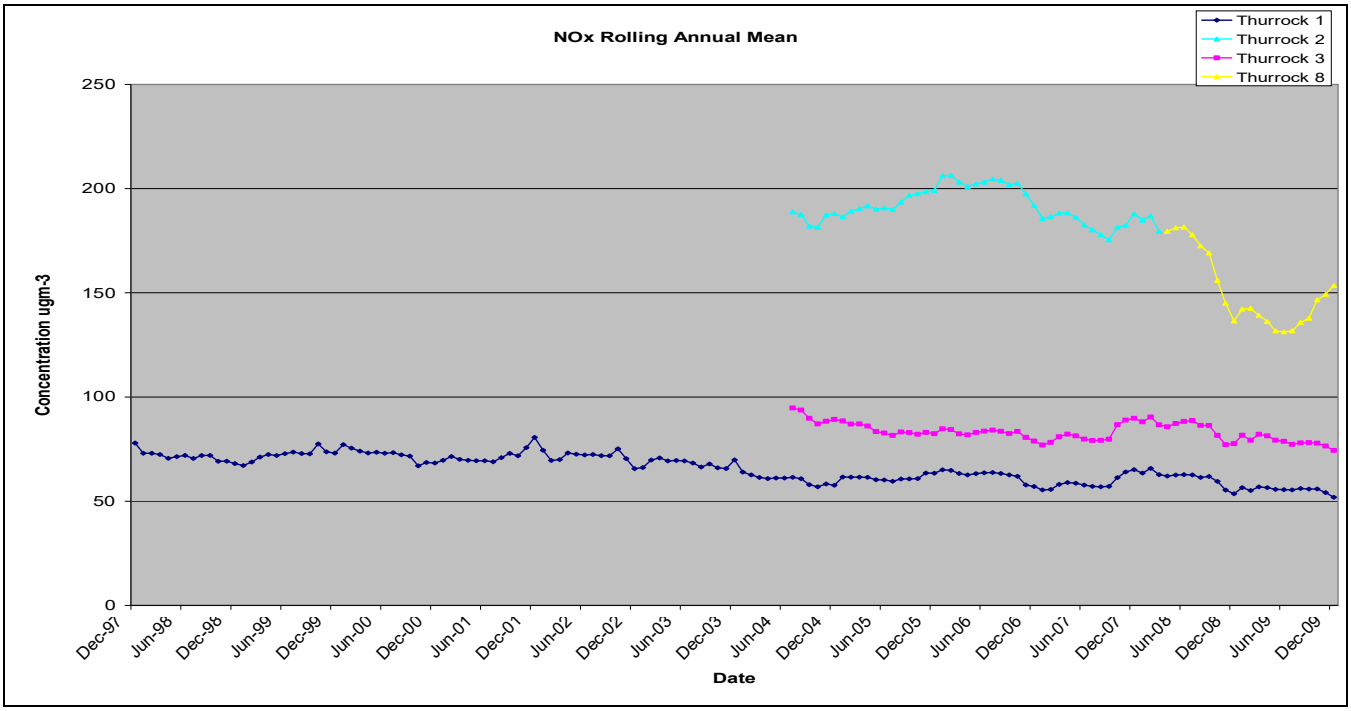
* (Orange indicates that for 2008 both results for Thurrock 2 and Thurrock 8 were combined as there was a relocation of Thurrock 2 to Thurrock 8 by 35 metres along the same road

2.3.2 NO_2 and NOx trends in Thurrock

Rolling annual mean plots can be used to indicate changing concentrations over time. The use of rolling annual mean concentrations, based on hourly averaged data, largely removes seasonal influences and provides a guide to changing trends. Plots have been produced for both NOx and NO_2.
NO_2 is a mainly secondary pollutant formed by chemical reactions in the atmosphere from NOx emissions produced by combustion sources. These reactions also involve ozone, which is scavenged by NO. The relationship between NOx and NO_2 is non-linear and it is also further complicated by changes in direct emissions of NO_2 from some road vehicles.

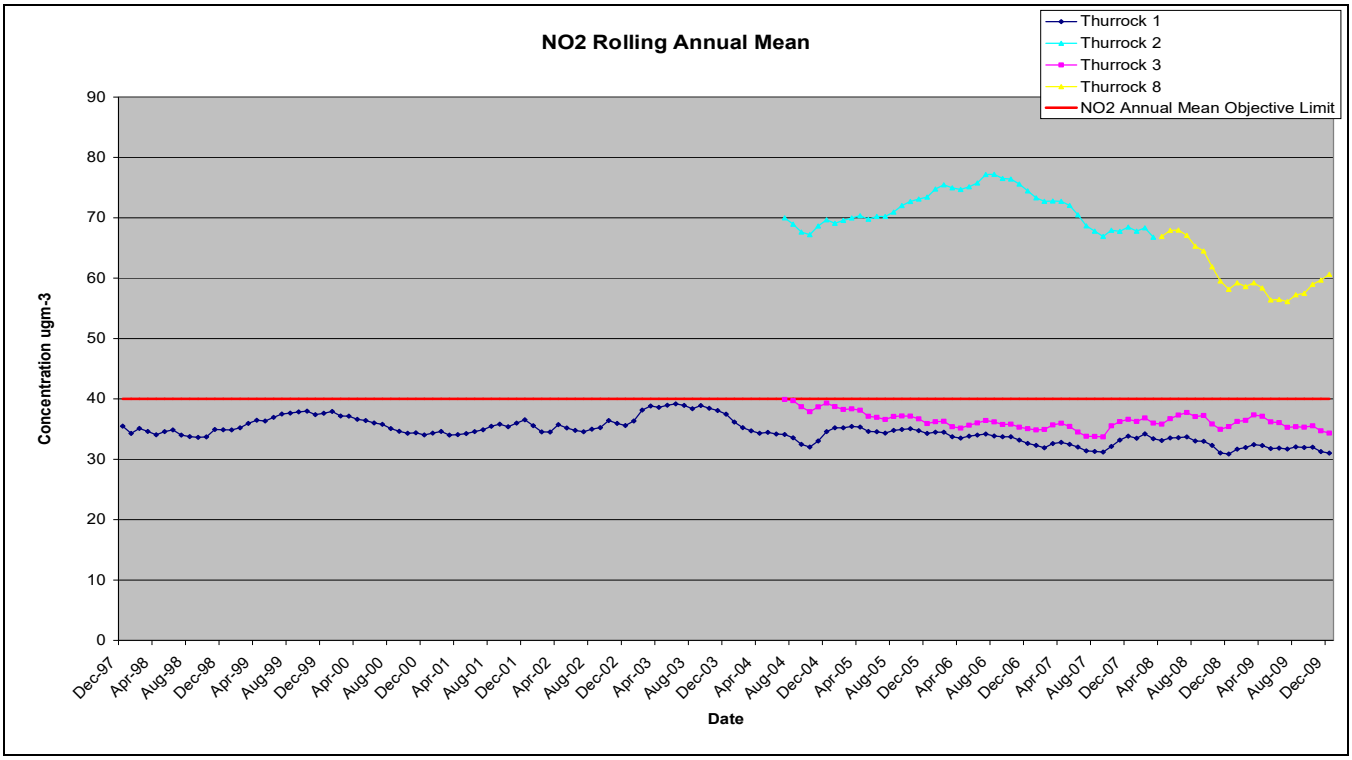
The rolling annual mean plots for both NOx and NO_2 concentrations at all three Thurrock sites are shown. This analysis is for an extended length of time from 1997 to the end of 2009, (please note the latter part of 2009 uses provisional data).

Figure 2 Rolling annual mean NOx concentrations for continuous monitoring sites in Thurrock



The rolling annual mean concentrations of NOx indicated a very slight downward trend at the Thurrock 1 urban background site over time in line with reductions in emissions. The downward trend for NOx as the primary pollutant at the site was approximately 26 $\mu g\ m^{-3}$, from the end of 1997 to the end of 2009, with very little reduction from 2004. The reduction of NOx at Thurrock 2 now known as Thurrock 8, showed little variation from 2004 to early 2008 with less than 10$\mu g\ m^{-3}$ decrease. From mid 2008 to the end of 2009 however there was much greater variation with an overall decrease over this period of 26.1 $\mu g\ m^{-3}$, this margin was much greater over the latter part of 2008, but has shown to be increasing in concentrations over the latter part of 2009. This could be due to meteorological conditions, and seasonal variations, but the decrease over this period in NOx concentrations does tie in with more efficient traffic flows along the London Road Purfleet, due to the junction improvement east of the site which has stopped traffic building up along this road and idling traffic does not occur as frequently as a result, and the traffic numbers have essentially stayed the same over this time period. For Thurrock 3 site, it has a similar pattern of change to the Thurrock 1 site from 2004 to the end of 2009 it has seen a steady decrease in NOx of approximately 20 $\mu g\ m^{-3}$ over this period.

Figure 3 Rolling annual mean NO_2 concentrations for continuous monitoring sites in Thurrock



The reductions for NO_2 were smaller than for NOx for all the sites. For Thurrock 1 concentrations reduced by approximately 4.2 μg m^{-3} from December 1997 at 35.5 μg m^{-3} to December 2009 at 31.3 μg m^{-3}, which is a decrease of 11.8% over 12 years and 0.98% decrease per year. The decline has lessened in recent years from 2007 onwards. In 2003, when there was higher pollution due to meteorological conditions and more recently in 2007.

The Thurrock 2 & (Thurrock 8 roadside sites as it is now known) has showed a different trend to the urban background site at Thurrock 1 overall the NO_2 has declined more. The two sites combined showed that from July 2004 to December 2009 NO_2 concentrations decreased by 9.3 μg m^{-3} which is 13.3% over this period and approximately 2.4% decrease per year. Most of this decrease has occurred while it has been under Thurrock 8 from April 2008 to December 2009, it decreased by 6.2 μg m^{-3} by 9.3% over this time period and approximately 5.5% per year. Most of this decrease occurred in the latter part of 2008, and over 2009 it has levelled off somewhat and started increasing again by the end of 2009.

For the Thurrock 3 roadside site the decrease, has been less pronounced that for Thurrock 2 & 8. From July 2004 to December 2009 NO_2 concentrations decreased by approximately 4 μg m^{-3} and decreased by 10% over this period, with an average decrease per year of 1.8%. These levels however have changed little over the last 3 years, most of this decrease occurred during 2004. Concentrations increased again during the latter part of 2007 and have decreased slowly since then.

2.3.3 Diffusion tube monitoring of NO_2 in Thurrock

The Council continued its programme of monitoring using diffusion tubes located at sites across the Borough. It also continued co-location studies at two of the Council's continuous sites (Thurrock 1 and Thurrock 3). The diffusion tubes were sited at 19 roadside sites and 9 background locations across the Borough, both inside and outside of the Council's AQMAs. The sites mostly represented locations relevant for public exposure.

Additional diffusion tube sites were set up in 2009, 5 new sites were put in place at various locations in Tilbury, to assess the extent of NO_2 exceedence identified in the 2008 Progress Report from the Calcutta Road Tilbury Tube. The new sites are shown in Figure 4 and in Figure 5 in some more detail, the grid references for these new sites are listed in Appendix 1.

Figure 4 New diffusion tube locations in Tilbury

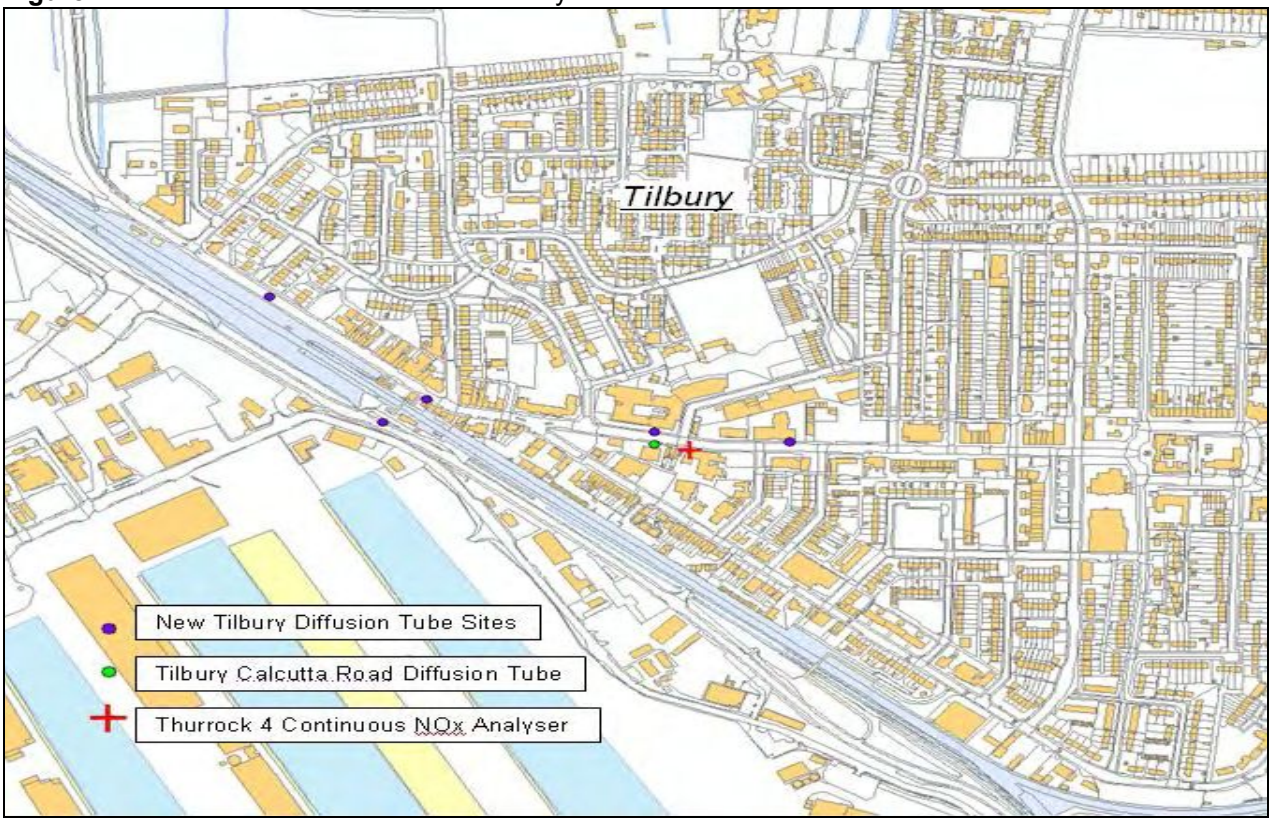
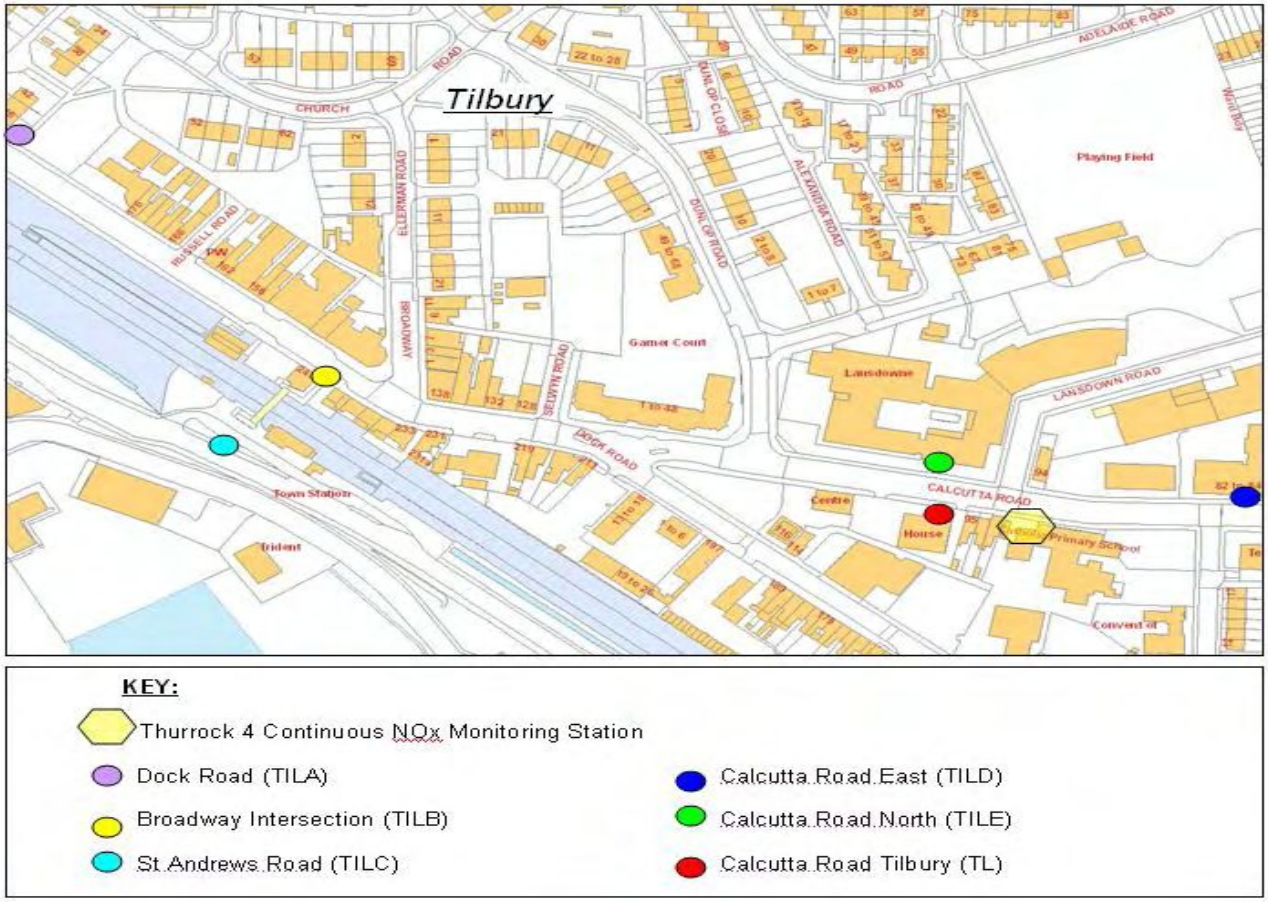


Figure 5 New diffusion tube locations with designations in Tilbury



All the sites had greater than 75% data capture. The locations of the sites of the diffusion tubes and reference number are given in
Table 5 and Figure in the Appendix. Gradko supplied and analysed the diffusion tubes using a preparation method of 50% TEA in water, but as of February 2009 the diffusion tubes were prepared with 20% TEA in water method.

Table 5 Diffusion tube locations in Thurrock

Site	Designation	Type	Site number	AQMA no
London Road Arterial Road (R)	LRAR	R	1	13
Purfleet Rail Station (R)	PRS	R	2	No
Watts Crescent (R)	WC	R	3	12
Jarrah Cottages (R)	JC	R	4	10
Stonehouse Lane (R)	STON	R	5	21
Ibis Hotel (UB)	IBIS	UB	6	7
Gatehope Drive (UB)	GDSO	UB	7	15
Lakeside Tesco Roundabout (R)	LT	R	8	No
Kemps Cottage (UB)	KCNO	UB	9	16
London Road W Thurrock (R)	WT	R	10	23
Howard Road (R)	HR	R	11	5
A1306 (R)	NAS2	R	12	5
London Road South Stifford (R)	LRSS	R	13	2
London Road Grays (R)	LRG	R	14	1
Wingfield Grays (UB)	NAS4	UB	15	No
Elizabeth Road (R)	ER	R	16	3
Poison Store AURN Site (UB)	PS	UB	17	1
Hogg Lane (R)	HL	R	18	3
Queensgate Centre Grays (R)	NAS1	R	19	1
Cromwell Road Grays (I)	CR	I	20	1
Stanley Road Grays (R)	SRG	R	21	1
Chestnut Avenue Grays (UB)	NAS3	UB	22	No
William Edwards School (R)	WES	R	23	No
Bulphan (RB)	B	RB	24	No
Calcutta Road Tilbury (R)	TL	R	25	No
Park Road (R)	PKSL	R	26	No
Stanford Library (UB)	SL	UB	27	No
Manorway Monitoring Station	M	R	28	No
New Sites				
Dock Road (Tilbury)	TILA	R	29	No
Broadway Intersection (Tilbury)	TILB	R	30	No
St Andrews Road (Tilbury)	TILC	R	31	No
Calcutta Road East (Tilbury)	TILD	R	32	No
Calcutta Road North (Tilbury)	TILE	R	33	No

Co-location studies to determine suitable local bias factors were undertaken at the Council's automatic sites. One tube was co-located at the Thurrock 1 background site and three tubes were co-located at the Thurrock 3 roadside site. The local bias factors were derived from these (see table 6) and the results compared to the default bias adjustment factor for 2009 of 0.93 (obtained from the Defra helpdesk v09/08). The comparison indicates reasonable agreement between this factor and the locally derived factors for the two co-located studies.

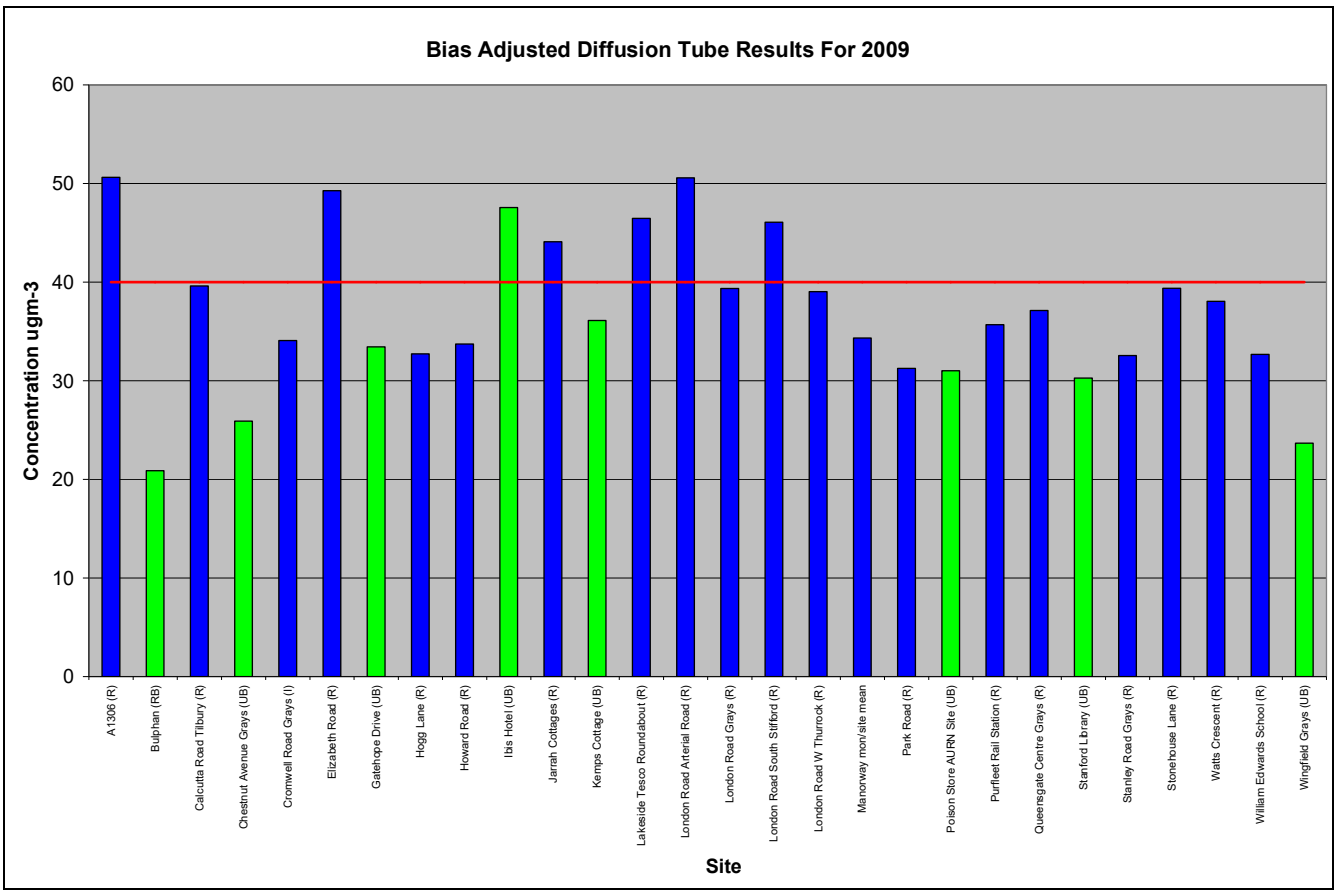
Table 6 2009 Thurrock bias correction factor

	TK1 (Background)	TK3 (Roadside)
Cm	**31.01**	**34.34**
		39.19
		39.96
	33.06	40.75
Mean Dm	**33.06**	**39.97**
Bias factor = Cm/ mean Dm	**0.938**	**0.859**

The derived mean local bias factor for background and roadside sites indicates that the diffusion tube result over reads slightly in comparison with continuous monitoring in 2009. The adjusted 2009 results using these factors are presented in Figure 6 (note the blue bars indicate the roadside sites and green background sites).

The 2009 bias adjusted results in Figure 6 indicated that one background site exceeded 40 μg m^{-3} objective at the Ibis Hotel and Kemps cottage has now fallen below the objective. Both of these sites are currently in AQMA's. All the other background sites were below the objective limit, with the lowest concentrations found at the rural background site at Bulphan which had concentrations of 20.17 μg m^{-3}. Six roadside sites exceeded the objective in 2009, as apposed to 12 sites in 2007, the Queensgate site has seen a dramatic decrease over 2008 and 2009, and is below the objective at 38.08 μg m^{-3}.

Figure 6 NO_2 diffusion tube results for Thurrock in 2009



(The blue bars indicate roadside locations, green bars indicate background locations)

Table 7 Bias adjusted results for all Thurrock sites 2003 to 2009 (µg m^{-3})

Site	2003	2004	2005	2006	2007	2008	2009
A1306 (R)	**74**	**58.9**	**61.3**	**63.2**	**64**	**58.1**	**50.62**
Bulphan (RB)	21.3	24.1	27.2	22.4	23	20.6	20.88
Calcutta Road Tilbury (R)	37.6	32.9	32.2	33.3	**42.5**	**43.2**	39.61
Chestnut Avenue Grays (UB)	39.1	37	36.2	34.6	33.4	26.1	25.91
Cromwell Road Grays (I)	**43.3**	32.1	35.2	36.4	37.4	37.6	34.07
Elizabeth Road (R)	**50.6**	**44.1**	**51.9**	**50.4**	**53.8**	**53.5**	**49.28**
Gatehope Drive (UB)	37.4	**44.5**	**44.7**	38.9	39.2	35.4	33.43
Hogg Lane (R)	**41.9**	34.6	38.6	37.9	38.1	37.4	32.72
Howard Road (R)	**41.5**	36	36.2	36.6	38.1	38.3	33.72
Ibis Hotel (UB)	**59.8**	**57.8**	**62.2**	**54.5**	**58**	**50.1**	**47.56**
Jarrah Cottages (R)	**57**	**56**	**54.1**	**56.2**	**50.5**	**48.7**	**44.1**
Kemps Cottage (UB)	38.8	**47.3**	**46.1**	39.6	**41.5**	34.9	36.11
Lakeside Tesco Roundabout (R)	**46.5**	**46.1**	**45**	**49.2**	**51.8**	**45**	**46.46**
London Road Arterial Road (R)	**43.1**	**49.6**	**50.8**	**54.2**	**57.6**	**56.1**	**50.58**
London Road Grays (R)	**45.8**	36.8	39.8	**40.8**	**43.6**	**43**	39.36
London Road South Stifford (R)	**49.5**	**43.1**	**44.8**	**47.9**	**50.2**	**48**	**46.08**
London Road W Thurrock (R)	**49.4**	**49.5**	**45.9**	**44.2**	**46.1**	**45.8**	39.04
Manorway mon/site mean	37.5	39	36	35	37	35.8	34.33
Park Road (R)	35.3	32.1	32.8	33.1	35.9	34.4	31.26
Poison Store AURN Site (UB)	35.5	38.3	35.1	32.9	33.9	30.8	31.01
Purfleet Rail Station (R)	**40.3**	36.5	35.7	37.5	39.3	36.7	35.68
Queensgate Centre Grays (R)	**62.7**	**43.9**	**45.5**	**49.1**	**47.2**	**41.8**	37.12
Stanford Library (UB)	33.5	39.5	36.2	32.7	33.1	29.9	30.27
Stanley Road Grays (R)			34.7	35.1	35	35.5	32.55
Stonehouse Lane (R)			**47.6**	**46.4**	**43.8**	**42.8**	39.37
Watts Crescent (R)	**47.7**	**45.4**	**45.1**	**42.8**	**46.4**	**44**	38.06
William Edwards School (R)	39.2	37.5	37.2	37.2	39	39.1	32.67
Wingfield Grays (UB)	32.1	30.4	30.9	29.4	29.7	23.9	23.68

Table 7 shows that most diffusion tube locations have declined from 2008 to 2009, with the exception of the Lakeside Tesco Roundabout, Kemps Cottage, Bulphan, Stanford Library and Poison Store, they have increased slightly. Kemps cottage however is well below the objective. Overall the changes have not been significant over this period, except with regards to the Queensgate Centre Grays site in (AQMA 1) which has fell below the annual mean objective for NO_2 for the first time.

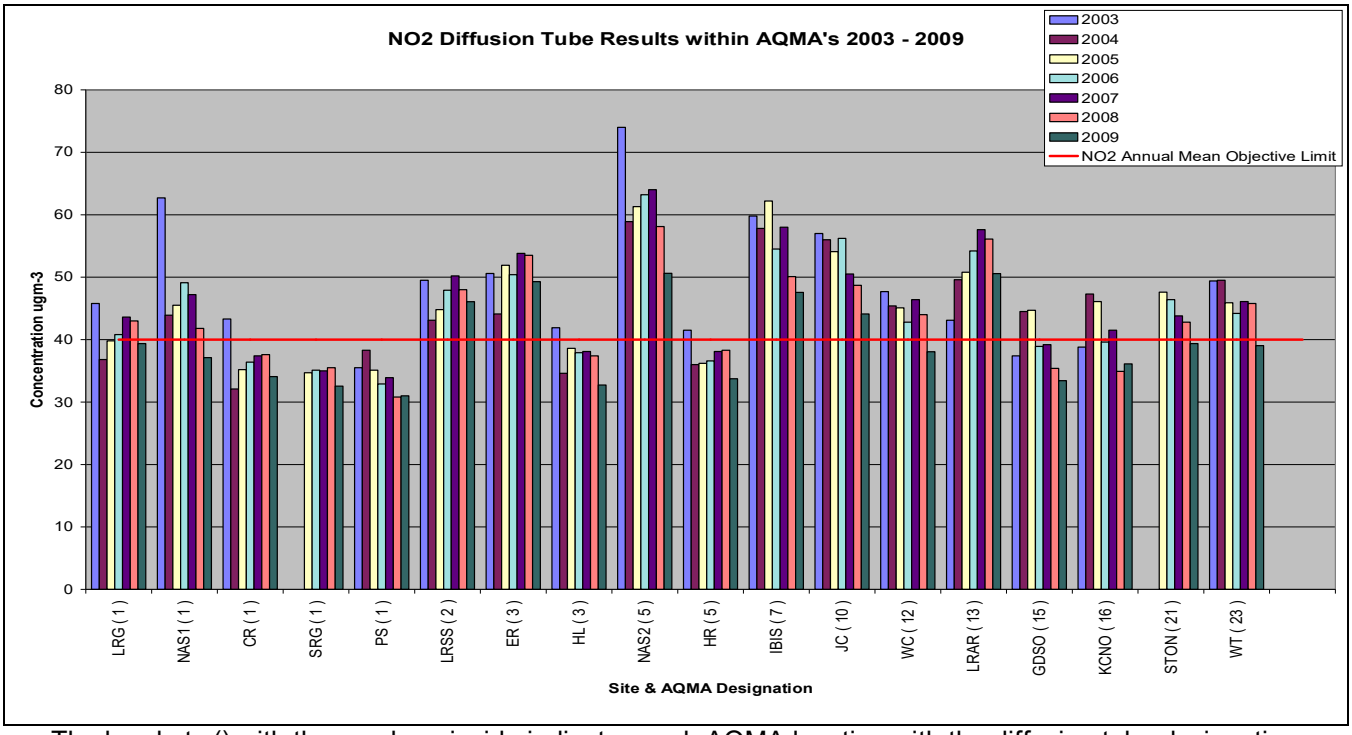
Table 8 Raw and bias adjusted diffusion tube results for new site locations in Tilbury

Date	TILA	TILB	TILC	TILD	TILE
06/2009	33.26	44.54	38.68	42.84	26.29
07/2009	39.87	38.45	40.44	37.03	MISSING
08/2009	38.69	47.21	41.26	36.65	39.28
09/2009	39.19	34.98	36.32	38.89	24.42
10/2009	46.55	45.25	47.37	42.29	37.89
11/2009	54.05	54.34	44.96	42.71	MISSING
12/2009	43.49	54.42	43.91	24.12	38.89
Raw Tube Average	**42.16**	**45.6**	**41.85**	**40.07**	**33.35**
Bias Adjusted Average	**36.22**	**39.17**	**35.95**	**34.42**	**28.65**

(Results based on six month period only)

(Pink indicates result is an outlier and is not counted in the average calculations)

Figure 7 Bias adjusted results for all Thurrock sites 2003 to 2009 (µg m^{-3}) within AQMAs



The brackets () with the numbers inside indicates each AQMA location with the diffusion tube designation

The results in Figure 7 indicate that the concentrations regularly exceed the Government's objectives in all the Council's AQMAs, although not always at every site monitored within the AQMA.

For those sites outside of AQMAs Figure 8, the AQS objective of 40 µg m^{-3} was exceeded consistently at the Lakeside Tesco roundabout, although as reported in previous Council progress reports this site does not represent relevant exposure. The only other site outside of AQMAs that exceeded the objective is Calcutta Road in Tilbury, although in 2009 fell just short of the objective. This location now has a continuous analyser in place to try and determine more accurately the NO_2 concentrations, a Detailed Assessment will follow this Progress Report, to determine whether an AQMA should be declared or not based on the findings of the continuous analyser.

Figure 8 Bias adjusted results for all Thurrock sites 2003 to 2009 (µg m^{-3}) outside of AQMAs

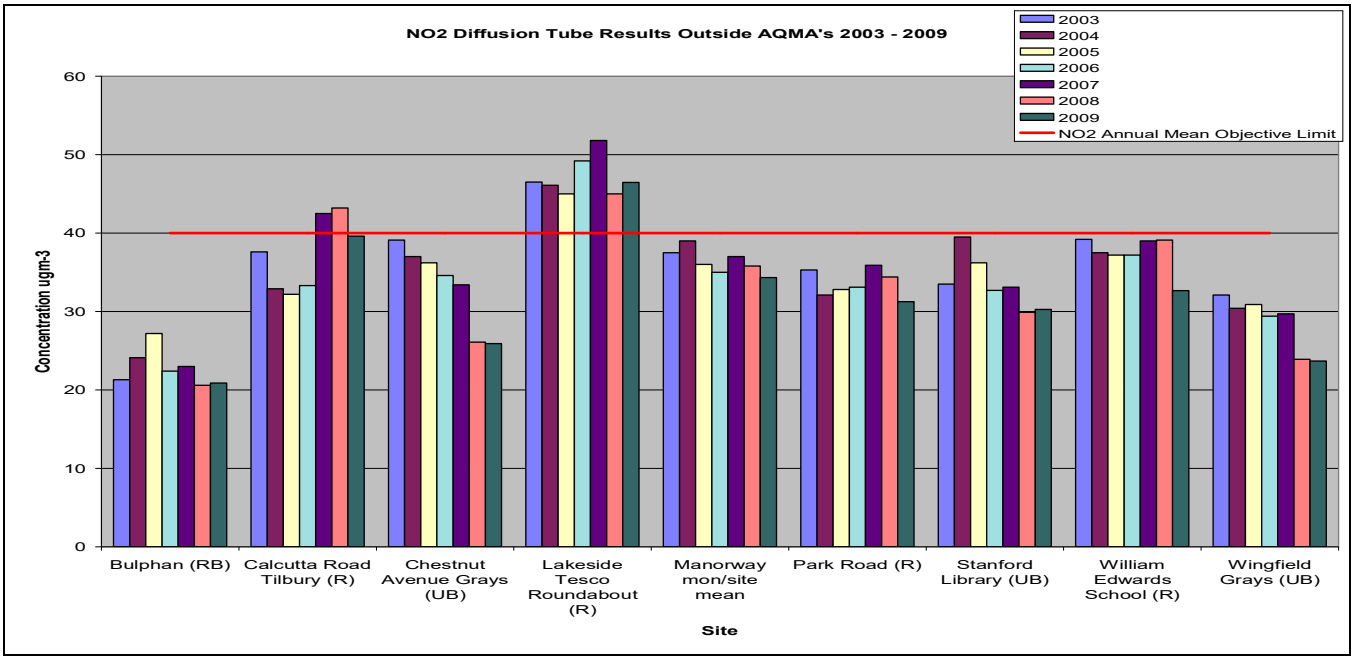
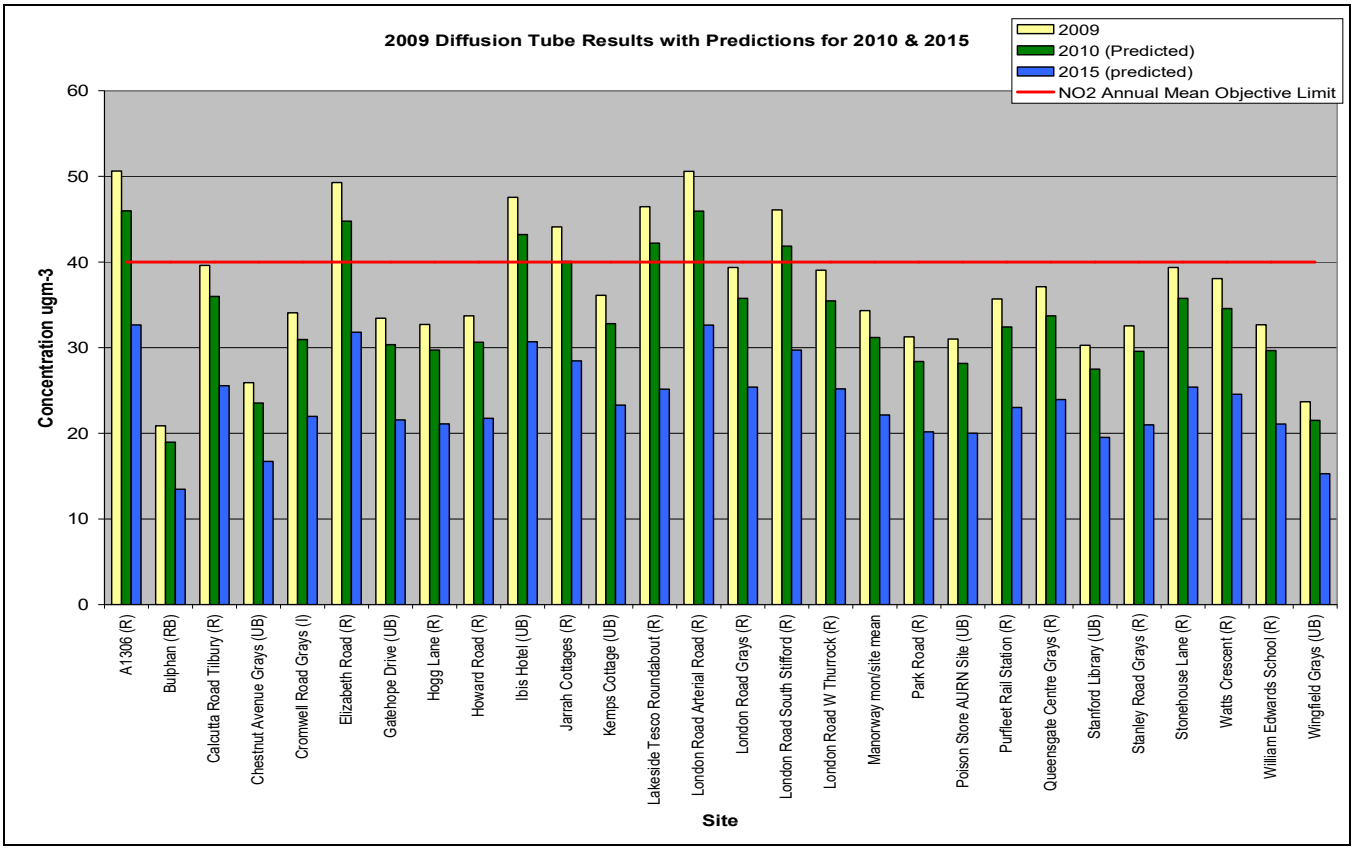


Figure 9 NO_2 diffusion tube results for sites in Thurrock (2009 and estimated 2010 & 2015 concentrations)



Predictions of 2010 concentrations were made using the Defra year adjustment factors, based on 2009 measurements. These are shown in Figure 9, with the 2010 predictions (in green) & 2015 predictions (in blue). For 2009 there are seven sites exceeding the annual mean objective. The estimates indicate that despite the predicted reduction in concentrations, the same seven locations will still exceed the objective in the Borough in 2010, and none of the sites are predicted to exceed in 2015, this 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.

2.4 PM_{10} monitoring

During 2009 the particulate monitors at Thurrock 1 & 3 were upgraded from standard Tapered Element Oscillating Microbalances (TEOM's) to TEOM Filter Dynamic Measurement System (FDMS) which are equivalent to the EU reference method. During the years 2006 to 2008 the Volatile Correction Model (VCM) created by Kings College London, Environmental Research Group (ERG) was used which converts normal TEOM measurements by combining measurements from 3 local FDMS, which makes the TEOM measurements equivalent to the EU reference method, the previous years pre-dating 2006 were not converted using this method as there were not enough FDM's measurements to do the correction and hence these results are based on the old 1.3 correction factor.

The monitoring results for these sites are given in Table 9. Not all the sites meet the 90% data capture for 2009, due mainly to issues with the installation of the new FDMs upgrades and problems with the air conditioning unit at Thurrock 3 the data capture was only 79.9%, and also mechanical issues with the BAM monitor at Thurrock 8 caused the monitor to be out of service for extended periods, it only managed 80.6% data capture for 2009. Thurrock 1 maintained a high level of data capture over 2009 at 96.7% the FDMs upgraded analyser performing reliably at this site.

Table 9 PM_{10} monitoring in Thurrock (2003 – 2009)

Site		2003	2004	2005	2006	2007	2008	2009
Thurrock 1	Annual mean	29.9	24.9	23.4	19.9	18.92	19.1	21.36
	Data capture %	98.1	95.3	94.56	97.38	98.16	97.96	96.77
	Maximum 1 hour	720	489	191	244.8	152.5	110.4	117
	Maximum 24 hour	135.7	79.7	72.3	77.6	83.1	66.3	83
	Days > 50 μg m^{-3}	**40**	7	5	5	10	3	6
Thurrock 3	Annual mean	*27.69*	26.3	26.53	22.28	20.84	21	*21.35*
	Data capture %	*32.78*	99.64	99.04	98.72	97.82	99.69	*79.9*
	Maximum 1 hour	*241*	220	236	252.1	406.2	115.7	*153*
	Maximum 24 hour	*61.9*	73.4	63.6	85.8	80.8	77.8	*77*
	Days > 50 μg m^{-3}	*7*	10	10	9	11	4	*4*
Thurrock 2	Annual mean					*36.52*	*34.81**	
	Data capture %					*70.1*	*20.34**	
	Maximum 1 hour					*356.3*	*354.4**	
	Maximum 24 hour					*96.2*	*92.3**	
	Days > 50 μg m^{-3}					***51***	*14**	
Thurrock 8	Annual mean						*24.43**	*25.85*
	Data capture %						*70.41**	*80.61*
	Maximum 1 hour						*356.3**	*200.9*
	Maximum 24 hour						*73**	*79.3*
	Days > 50 μg m^{-3}						*8**	*5*
Thurrock 2 & 8	Annual mean						29.62*	
	Data capture %						90.75*	
	Maximum 1 hour						356.3*	
	Maximum 24 hour						92.3*	
	Days > 50 μg m^{-3}						22*	

(Note- italics indicates < 90% data capture; bold indicates > daily mean objective)
(Blue indicates that ERG's VCM was used in order to meet equivalence for TEOM data)
* (Orange indicates that for 2008 both results for Thurrock 2 and Thurrock 8 were combined as there was a relocation of Thurrock 2 to Thurrock 8 by 35 metres along the same road

The monitoring results are also presented in Figure 10 and Figure 11 (note – those results with less than 90% data capture are indicated with pink outlines).

The results for 2009 show that there were days the daily mean air quality threshold for PM_{10} of 50 μg m^{-3} was exceeded. Although the air quality objective standard was not breached at any of the monitoring sites. An important thing to note for Thurrock 8 formerly Thurrock 2 site, is the decreasing trend of exceedences during

2008 to 2009. Both years are well below the objective, but the data capture was less than 90% in 2009 so the actual exceedences were probably a bit higher, but unlikely to be above the objective, with only 5 recorded exceedences of (35 permitted) under the objective. All these results are shown in Figure 10.

Figure 10 Number of days PM_{10} greater than 50 μg m^{-3} in Thurrock (2003 to 2009) (Note – Pink outlines indicate < 90% data capture)

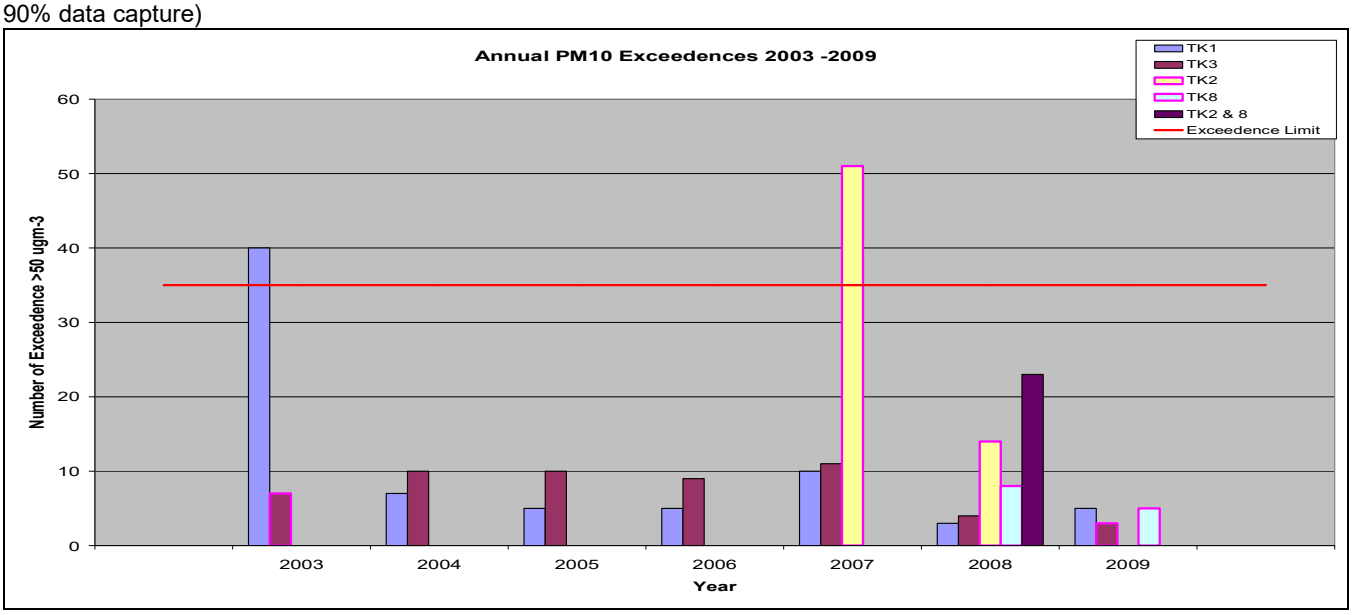
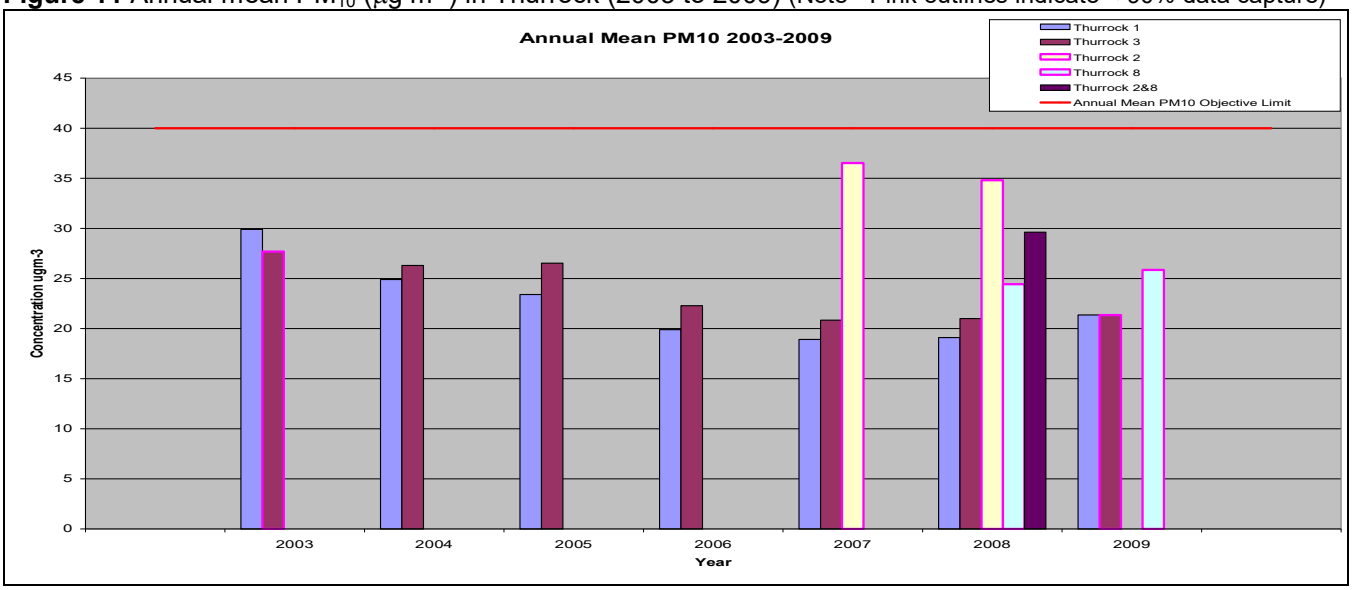
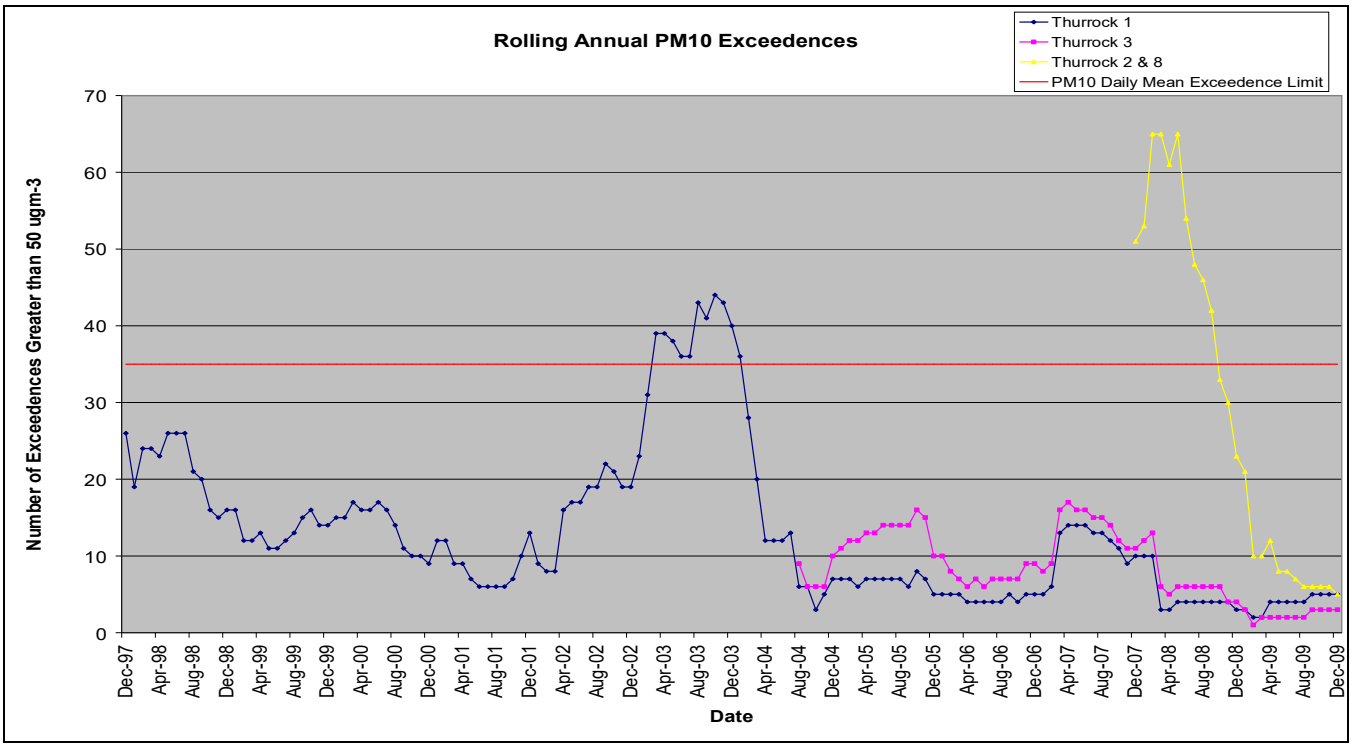


Figure 11 Annual mean PM_{10} (μg m^{-3}) in Thurrock (2003 to 2009) (Note - Pink outlines indicate < 90% data capture)



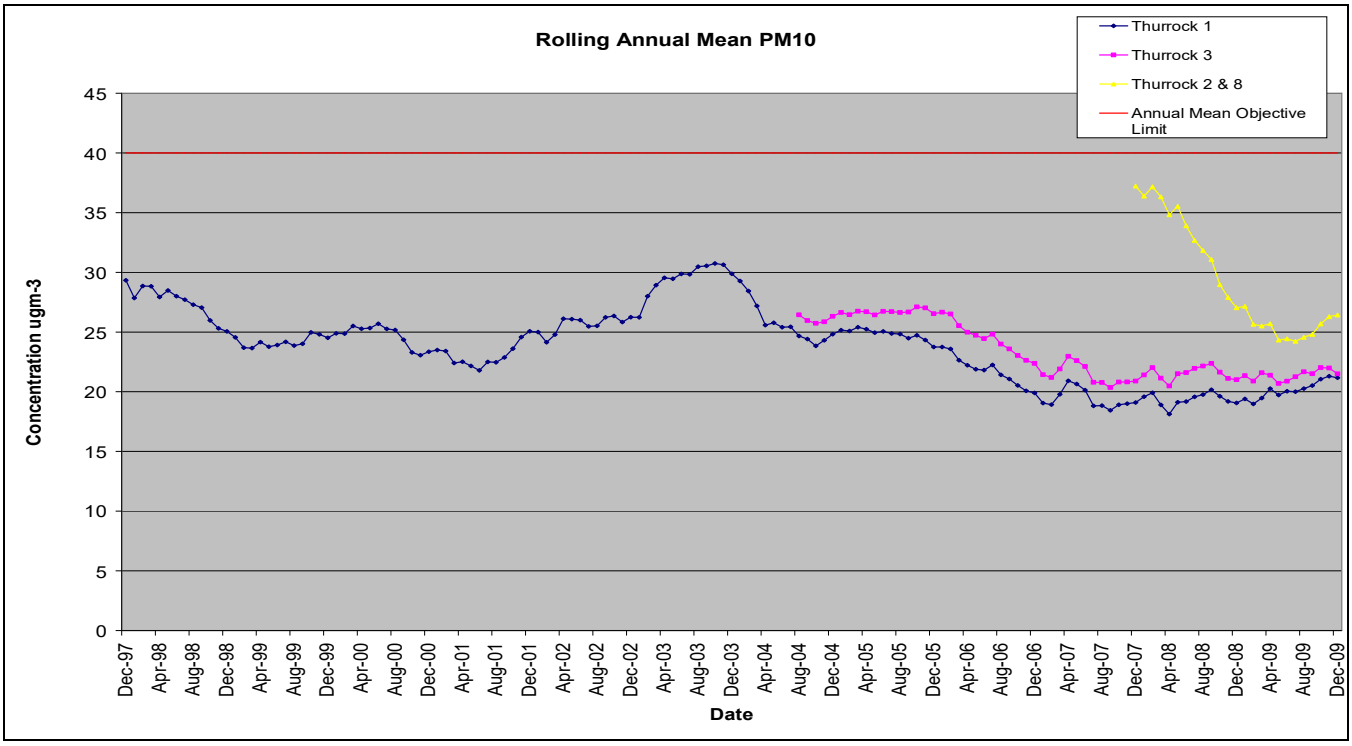
The annual mean PM_{10} concentrations in 2009 for all the monitoring sites in Figure 11, show that levels have changed very little since 2008. The urban background site Thurrock 1 has actually increased slightly, the roadside site at Thurrock 3 shows similar results from previous years, but the data capture is only 79.9% for 2009, so it could be higher or lower than it suggests, most of the problems with data capture occurred over spring and summertime, usually PM_{10} is lower over the summer period than for the winter. Thurrock 8 in 2009 when compared to the Thurrock 2 and Thurrock 2 & 8 results combined for 2007, and 2008 shows that concentrations have decreased, fairly substantially, by approximately 10 μg m^{-3} from 2007 to 2009, careful consideration must be applied to this as the site is not in exactly the same place, but it does lie the same distance from the roadside as the previous site on the same section of road, so the results have been combined to try and account for the transition between the two sites in 2008.

Figure 12 Rolling number of days PM_{10} > 50 µg m^{-3} in Thurrock (1997 to 2009)



The number of rolling annual daily mean exceedences greater than 50 µg m^{-3} in Figure 12 are at the lowest they have ever been for the whole of 2009 at all the monitoring locations. The change at Thurrock 1 and 3 has been small, but for Thurrock 2 & 8 the decline has been much more rapid, particularly during 2008, but has started to level off over 2009. There has not been any seasonal episodes occurring over the last two years unlike in previous years, most notably that of 2003 or to a lesser extent those of 2007.

Figure 13 Rolling annual mean PM_{10} trends in Thurrock (1997 to 2009)



The rolling annual mean PM_{10} trends in Figure 13 have, shown very little change over recent years for Thurrock 1 and Thurrock 3 sites, also the data capture is low for Thurrock 3, with large sections over the late spring and summer months very little data was gathered, so care should be used analysing these results. In 2009 they have shown a slight upward trend in concentrations. For Thurrock 2 & 8 the decrease over 2008 and early 2009 has been dramatic, by over 10 µg m^{-3}, this trend has tailed off by the end of 2009, and has shown some indication of an increase, also the data capture for 2009 is less than 90% so some caution should be exercised in analysing the results for 2009. The latest published (London Air Quality Network (LAQN) report 2006-07) carried out by Kings College London, Environmental Research Group shows a similar trend in the rolling annual mean PM_{10} concentrations across all sites within the LAQN.

2.5 $PM_{2.5}$ monitoring

During the Spring of 2009 Thurrock 3 was upgraded with a $PM_{2.5}$ TEOM FDMs analyser, which was funded by Defra as under its obligations to the EU it needed to increase the number of $PM_{2.5}$ monitoring locations across the UK, Thurrock 3 was selected as one of those new sites.

The results for 2009 have been outlined below in Table 10, these results however are associated with very low data capture of 58.7%, due mainly to the late installation of the analyser, and also from problems with the analyser after it was installed, the data should be analysed with caution as it has higher concentrations than expected in relation to the PM_{10} monitor at the same location, the issues with the monitor may not be completely resolved, and hence the data may not give a true representation of the actual levels.

Table 10: $PM_{2.5}$ monitoring in Thurrock at Thurrock 3 Stanford-le-Hope Roadside monitoring station

$PM_{2.5}$	2009
Annual Mean	15.68
1 Hour Maximum	144.6
24 Hour Maximum	66.7
Data Capture	58.75%

The low data capture results at 58.7% show an annual mean value of 15.68 µg m^{-3} for $PM_{2.5}$, as opposed to the PM_{10} results at Thurrock 3 with an annual mean of 21.35 µg m^{-3} with a slightly higher data capture of 79.9%. This would suggest that the very fine particle element ($PM_{2.5}$) as a fraction of PM_{10} is approximately 73.4% for 2009. This ratio does not reflect what is happening at other $PM_{2.5}$ and PM_{10} co-located stations near to Thurrock. Bexley 2 for example has a $PM_{2.5}$ % of PM_{10} of 51%, Bexley 7 has 49%, and Hackney 6 has 54% for 2009. There have been many outstanding issues with the $PM_{2.5}$ monitor since it was installed, the evidence displayed here suggests it might not be working adequately.

2.6 SO_2 monitoring

The Council has continued to monitor SO_2 at two of its automatic monitoring sites (Thurrock 1 background and Thurrock 3 Roadside). Details of data capture for the period 1996 to 2009 are given in Appendix 1.
The results indicated that the 15-minute mean standard of 266 µg m^{-3} was not exceeded at the site during 2009, although this standard was exceeded occasionally in previous years at Thurrock 1 site. The most recent exceedence was in 2004. The Maximum values for the 15-minute mean for each year of monitoring are shown in Table 11 and the number of 15-minute exceedences in a given year shown in Table 12.

Table 11 Maximum 15 minute mean concentrations of SO_2 monitoring (µg m^{-3}) (2003-2009)

LAQN Site	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	1041.3	280.3	192.2	237.6	101.5	144	237
Thurrock 3	*133.3*	187	148.6	248.7	136	192	*101*

(Note - italics indicates < 90% data capture)

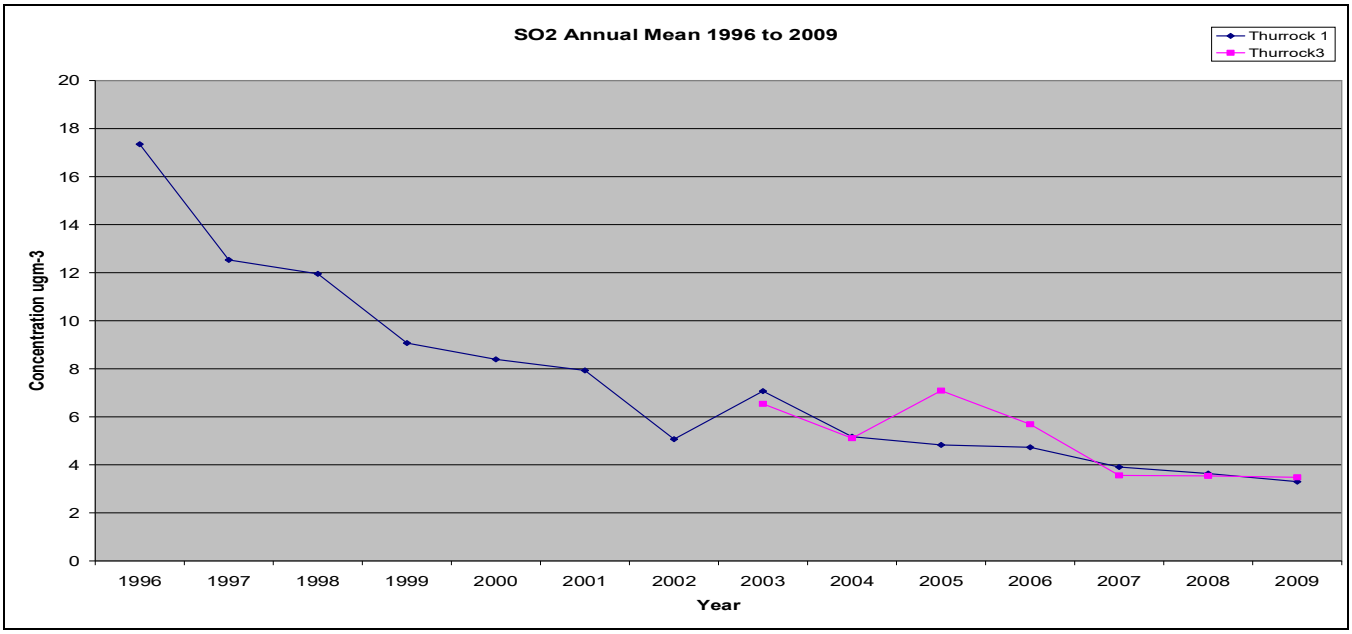
Table 12 Number of 15 minute periods > 266 µg m^{-3} at the Thurrock monitoring sites (2003 - 2009)

LAQN Site	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	9	2	0	0	0	0	0
Thurrock 3	*0*	0	0	0	0	0	*0*

The 15-minute mean objective is the most stringent of the three SO_2 objectives; and there were no recorded periods where the hourly or daily mean standards were exceeded at either site. The results confirm that all the SO_2 objectives have been met during 2009, as in all previous years for both Thurrock's monitoring sites.

The SO_2 objectives and standards relate to short periods with high concentrations based on the impact of episodes of high pollution on human health. An examination of annual mean concentrations over time however can provide an insight to changes that are taking place, although it should be noted that the relationship between annual mean concentrations and the standards is not straightforward. Figure 14 shows the annual mean concentrations for both monitoring sites have mainly reduced over the past 14 years as a result of reductions in SO_2 emissions. This has arisen from the burning of gas rather than oil in industrial/ commercial and domestic settings, as well as reductions in S levels in the petrol and diesel fuels used by road vehicles.

Figure 14 Annual mean SO_2 concentrations monitored at Thurrock sites (1996 – 2009)



2.7 Ozone monitoring

The continuous measurement of ozone during 2009 in the Borough was undertaken at the Thurrock 1 urban background monitoring site in Grays.

The results for the period 2003 – 2009 are given in Table 13 the data capture for all years exceeded 90% at the Thurrock 1 site; full details for the site are given in the Appendix.

Table 13 Number of daily maxima exceeding 100 µg m^{-3} based on 8-hour running mean (2003-2009)

Site	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	**40**	**16**	**13**	**25**	**11**	**12**	**6**

The Government's air quality objective, not to exceed 10 periods in a calendar year, was not exceeded in 2009 at the Thurrock 1 site. The objective was exceeded in all previous years however at the site. 2003 in particular was notable for a very hot dry summer conducive to the formation of ozone; hence the much higher of periods during this particular year. In other years, 2004 and 2005, the weather was less conducive to the formation of ozone. In 2008 and 2009 the summer was notable for being very wet and again these conditions were not conducive to the formation of ozone.

3 New local developments

This section outlines those local developments that may take place and may affect air quality in the Borough. These are not for consideration now but are listed for a more thorough assessment during the next round of Review and Assessment. The guidance identifies the following developments that should be considered:

- New industrial processes included in the list of Annex 2 of LAQM. (TG 09).
- New developments with an impact on air quality, especially those that will significantly change traffic flows. Only those developments with planning permission granted are included.
- New landfill sites, quarries, etc with planning permission granted and nearby relevant exposure.

Table 14 New Local Developments since 2009

Development	Location
New Part A or B industrial processes	See below
New retail or mixed residential/ commercial development	None
New road scheme	None
New mineral or landfill development	None

3.1 Industrial processes

The Borough regulates Part A2 and Part B installations in its area (see details of the installations permitted by the Council in the Appendix). Recent permits issued include those for dry cleaning installations, vehicle resprayers, small waste oil burners and mineral related industries, these additions however are not considered sufficiently important to require the Council to undertake further LAQM actions, other than to note the change.

Details of the Part A2 installations permitted by the Council are also given in the Appendix and no new installations were permitted by the Environment Agency in the Borough during 2009. However the Air Quality Impact report for the Coryton refinery, produced in December 2006 as part of the PPC application for the installation examined air pollution at the site using both screening and modelling techniques (Enviros, 2006). The dispersion modelling undertaken indicated that levels of NO_2 and PM_{10} would not exceed the government's objectives for these pollutants. The modelling further indicated that two of the Government's objectives for SO_2 could however be exceeded when modelling the anticipated future base case. Possible improvements for reducing the impact were outlined in the assessment of Best Available Techniques (BAT) and these were modelled. Six of the options studied were found to indicate compliance with the SO_2 objectives. Further discussions are required with the Environment Agency and operator to confirm the latest position for the installation.

For Part B installations, there were 5 new approved processes. Including 1 small waste oil burner, 2 mineral related industries, 1 vehicle resprayer and 1 dry cleaner. Details of which are shown in the appendix, the new processes are highlighted in (yellow). There have also been a number of processes which have ceased operating with 10 in total which are listed at the end of the appendix highlighted in (grey).

3.2 Thurrock Local development framework (LDF)

The Planning & Compulsory Purchase Act 2004 introduced a new development plan system to streamline the local planning process and enable a Local Development Framework (LDF) to replace previous Unitary Development Plans (UDP). The Council is working on its LDF that will set out the spatial strategy, policies and proposals to guide the future development and use of land in Thurrock up to the year 2021. It will replace the existing adopted Thurrock Borough Local Plan (1997), which is the current statutory plan.

The first stage is the Local Development Scheme (LDS). This is a programme for the preparation of the new Local Development Documents (LDD). Three of these will become statutory plans and they are called Development Plan Documents (DPD); these are:

Core Strategy and Policies for Control of Development (DPD) – these set out a spatial vision, objectives and strategy for the development of the Thurrock area and a framework for development control, minerals and waste.

Site Specific Allocations and Policies (DPD) – which contain detailed policies and site proposals that deliver the core strategy.

Minerals and Waste (DPD) – which contain detailed policies and proposals for the extraction and processing of minerals and the handling of commercial and residential waste.

In addition non-statutory Supplementary Planning Documents (SPD) will be prepared to accompany the above plans. These will be for Affordable Housing, Development Control Standards, Developer Contributions and the Green Grid.

The DPD, together with the Regional Spatial Strategy for the East of England will form the Statutory Development Plan for Thurrock.

The Council produced its first Local Development Scheme (LDS) in 2005. A revised local development scheme was subsequently approved and published in August 2007. The main effects of the changes in the revision to the local development scheme are summarised below:

- The programme for the preparation of the Core Strategy and Policies for Control of Development has been altered with the adoption date now October 2009.
- The stages of the Site Specific Allocations and Policies Development Plan Document have been slipped back and the Examination and Adoption stages have moved to September 2009 and April 2010 to follow on after publication of the Inspector's Report into the Examination of the Core Strategy Development Plan Document.
- The preparation of the Minerals and Waste Development Plan Document has been slipped with Adoption in June 2010.
- The Introduction of Interim Supplementary Planning Documents for Affordable Housing, Green Grid, Developer Contributions and Urban Character linked to "Saved Policies" and to be adopted in 2008.
- A new Urban Character and Design Supplementary Planning Document is added to the programme. The programme of Supplementary Planning Documents linked to Development Plan Documents is altered with adoption in March 2010.

3.3 Thurrock Transport Strategy

The Council's draft Thurrock Transport Strategy describes the transport strategy in Thurrock for the period 2008 to 2021 and will provide the main strategic focus for the third and fourth Local Transport Plans, as well as influence the on-going delivery of the second Local Transport Plan. It was produced in July 2008.

Key aims to meet the Council's vision relate to:

- Delivering Accessibility by improving accessibility by walking, cycling and public transport to services, as well as education, employment and healthcare
- Tackling Congestion by delivering a targeted programme of measures to reduce the need to travel, encourage a modal shift to more sustainable modes of transport such as walking and cycling, particularly in the urban areas, and improve the efficiency of the transport network, especially increasing the capacity of routes providing access to strategic employment hubs
- Improving Air Quality and Addressing Climate Change by seeking to reduce the need to travel and encouraging a modal shift (as per the congestion strategy above).
- Safer Roads – by supporting other strategy areas. The strategy, whilst aiming to reduce casualties where people are killed or seriously injured, will take a broader and proactive approach, aiming to reduce road danger and thereby promote modal shift and community regeneration, even where large numbers of collisions are not apparent. The strategy will also aim to create a safer transport system through implementing measures that will reduce collision severity.

3.4 Thurrock Thames Gateway Development Corporation

The Thurrock Thames Gateway Development Corporation TTGDC was established in October 2003 by Statutory Instrument as a special purpose delivery vehicle introduced to facilitate the realisation of the growth of homes and jobs within the Borough. TTGDC has significant powers to effect change. Specifically it is able to:

- Acquire, hold, manage, reclaim and dispose of land and other property
- Carry out building and other operations
- Seek to ensure the provision of water, electricity, gas, sewerage and other services
- Carry on any business or undertaking for the purposes of regenerating its area

TTGDC recognises that the development of appropriate transport and infrastructure are critical in meeting the growth targets. The Draft East of England Plan targets of 18,500 new homes and 26,000 new jobs to be delivered within Thurrock by 2021, this will clearly impact on a transport network that is already congested on a number of strategic routes (A13, M25 Junction 30 and 31) as well as locally around Lakeside and Grays Town Centre.

The Development Corporation has been developing the policy that will underpin the sustainable development of Thurrock and the realisation of these targets. A number of documents have recently emerged which will shape the way forward.

As from 12th October 2005 TTGDC became responsible for determining certain strategic and other planning applications in Thurrock. TTGDC prepared a 'Regeneration Framework' and a 'Spatial Plan'. In addition TTGDC is preparing local area master plans for (a) Purfleet, (b) Lakeside/West Thurrock, (c) Grays Town Centre, (d) Aveley & South Ockendon and (e) Tilbury.

3.5 London Gateway (Shellhaven)

A 1,500 acre major port and employment development (known as ‘London Gateway’) is proposed by P&O at the former Shellhaven refinery site, located at the eastern edge of the Borough. The developers of the scheme aim to create 16,500 new jobs, with the first business unit occupied in 2010 and the first container berths operational by 2011. It is envisaged that both the Port and the Business Park will be built in phases to meet market demand and that they will take between 10 and 15 years to complete fully.

The proposed London Gateway port will be capable of handling the largest deep-sea container ships. P&O’s proposals include a 2,300 metre long container quay with a fully developed capacity of 3.5 million TEU (standard containers) a year and a roll-on roll-off (ro-ro) freight facility. The Logistics and Business Park will cover a development area of 300 hectares (700 acres) and provide for the distribution, manufacturing and high-tech sectors. The Park will be able to accommodate buildings in excess of 100,000 sq m and will offer linkage to the rail network

3.6 Infrastructure Planning Commission

From 1 March 2010 a new planning body was introduced and will be involved in planning decisions for nationally important infrastructure projects:

The Infrastructure Planning Commission is the independent body that decides applications for nationally significant infrastructure projects. These are the large projects that support the economy and vital public services, including railways, large wind farms, power stations, reservoirs, harbours, airports and sewage treatment works.

IPC Commissioners make these decisions within the framework of National Policy Statements, also weighing the national benefit of proposals against the local impact.

On 1 October 2009, we opened for business providing advice to all parties who are involved in the process. From 1 March 2010, we were switched on to start receiving applications by government Minister John Healey MP.

The IPC was set up under the Government’s 2008 Planning Act, alongside other reforms, to make the application process for nationally significant infrastructure projects faster, fairer and easier for people to get involved in.

Proposals for nationally significant infrastructure projects will be submitted to the IPC by applicants (such as energy companies, ports developers, rail and water companies).

4 Action Plan Progress Report

4.1 Introduction

The Council adopted the Thurrock Air Quality Action Plan in 2004 following full consultation with relevant stakeholders. The plan focused on measures to reduce traffic flow and vehicle emissions that are consistent with other Council wide policies, principally in relation to both transport and planning. The main aim was to reduce NO_X and PM_{10} emissions. Other actions include reducing emissions from buildings and industry, measures to raise public awareness of air pollution and greener travel. The Council through its Action Plan, and other policies, also supports other initiatives proposed and undertaken by other authorities to reduce emissions in Thurrock.

4.2 Achievement of objectives

The Council's Action Plan applies to the whole of the Borough, although the Air Quality Management Areas cover only parts of Thurrock. This recognises that, although not everyone in the Borough will be exposed to concentrations that exceed the air quality objectives, it is the intention of the Action Plan is to reduce pollution levels, wherever possible, in pursuit of the achievement of the objectives.

4.3 Summary of key measures

This section provides a brief summary of some of the key measures to be included in the Action Plan and also the Council's progress on these actions.

4.3.1 Monitoring air quality

The Council has maintained its commitment to monitoring air quality in the Borough and reporting to other bodies, including Defra since release of its plan. As reported earlier the Council monitors air quality using real-time monitoring static stations, as well as with nitrogen dioxide passive diffusion tubes which are located around the Borough. The Council is part of the London Air Quality and the AURN monitoring Networks. Current monitoring data and historic data for the sites can be viewed on the www.londonair.org.uk site. The council has added additional continuous monitoring for NOx at the beginning of 2010 in Tilbury to assess air quality their.

4.3.2 Planning Policy and Control

The Council is using the planning system to bring air quality benefits, through imposing planning conditions and through using section 106 agreements for new developments.

4.3.3 Travel Plans in Thurrock

The Council's supports the provision for School Travel plans and Work travel plans. And has 100% uptake for schools.

4.3.4 Low Emission Zone

The Council in its Action Plan recognised that the London-wide Low Emission Zone (LEZ) could play an important part in determining air quality in the Borough. The Mayor of London has now introduced the LEZ, to cut harmful emissions from the most polluting lorries, coaches and buses. It was launched in February 2008, with the aim of improving air quality across the capital. From February 2008 the LEZ applied to lorries over 12 tonnes. Since the beginning of July 2008 the LEZ also applied to lighter lorries, buses and coaches.

4.3.5 Thurrock actions

These are shown in Table 15.

Table 15 Air Quality Actions

No.	Action	Timescale	Progress with measure	Outcome to date	Comments
Traffic Engineering and Management Schemes					
	Three major road schemes: A) West Thurrock Marshes Relief road, B) Grays Town Centre regeneration, C) Hedley Avenue extension	2004) Complete Or no urther rogress	Schemes A and B completed Scheme C has been cancelled		
1	The pollution team will ensure that it is consulted about future traffic management schemes so that the effect on air quality is considered. This will be through attendance of Local Transport Plan and Traffic Liaison meetings	On-going	Improved relations with transport	This is an ongoing action.	
2	The Council will liaise with the Highways Agency to ensure that air quality in the Borough is a consideration Environmental Impact Assessment for all relevant strategic road projects.	On-going	Improved relations with HA	Traffic data provided by both HA and DfT	
3	The pollution team will continue to liaise with the strategic transport team to ensure that air quality is an integral part of the local transport plan (LTP).	On-going	The 2006-2011 LTP was published in March 2006 with air quality included in section 4.	Improved liaison between departments	
4	The Council will work towards reducing traffic levels, using the strategies laid out in the Road Traffic Reduction Plan.	On-going	The Road Traffic Reduction Plan has superseded as a result of Thames Gateway proposals.	Similar measures are incorporated into LTP	
5	The Council will continue to work towards a rail freight terminal in Thurrock.	On-going	A draft Sustainable Distribution Strategy for Freight was produced for Essex.	Thurrock participates in the Essex Freight Forum	
6	The Council will aim to reduce congestion by effective parking measures as soon as it has the powers to do s	Completed	The Council has designated controlled parking areas in Aveley, Chadwell, Corringham, Grays, Purfleet, South Ockendon, Stanford Tilbury		These have made it safer for drivers and pedestrians, supported town centre needs, and increased Blue Badge benefits.
7	The Passenger Transport Unit will continue to promote sustainable modes of transport by implementing the Council's Local Transport Plan. Details of performance are contained in the Annual Progress Report.	On-going	An integrated system allowing elderly and disabled residents to easily get their free bus passes and library cards was introduced to improve and encourage usage		
8	The Council will continue to implement the cycle network across Thurrock.	On-going	The Thurrock Cycle Strategy was produced in 2007		Increased cycling provides health benefits to cycle users

No.	Action	Timescale	Progress with measure	Outcome to date	Comments
9	The Council will continue to make walking an attractive option by providing street furniture and a public rights of way map. It will explore the possibility of working with local companies to improve local footpaths.	On-going	LTP introduced a Walking Strategy seeking to increase walking in the Borough		
10	The Council will continue to implement Safer Routes to School as outlined in the Road Safety Plan. It will support schools that are preparing School Travel Plans	On-going Complete	Every school in Thurrock now has a School Travel Plan.		Thurrock is the first local authority nationwide to have achieved this.
11	The pollution control team will continue to work with planning colleagues to ensure that air quality policy in the UDP is updated and relevant. It will continue to develop supplementary planning guidance for air quality assessments.	On-going	Air quality is incorporated into the Council's LTP and LDF		
12	The Council will continue to take into account a development's impact on air quality when considering planning applications, and use conditions to mitigate these impacts where appropriate. It will also investigate possibilities of using Section 106 agreements for air quality.	On-going	The Council is using the planning system to bring air quality benefits, through imposing planning conditions and through using section 106 agreements for new developments		
13	We will work with the new Urban Development Corporation to ensure that air quality is considered as a priority in the regeneration of Thurrock	On-going	The Council is working with the TTGDC to bring air quality benefits, through recommending planning conditions and through using section 106 agreements for new developments		
14	The Council will continue to promote the Green Grids initiative, to provide non-car access to the countryside	On-going	A new Thurrock Green Infrastructure Framework Plan was prepared in 2007		
15	The Council will assist local businesses in drawing up Green Travel Plans. It will ensure that they are implemented.	On-going	S.106 agreements have been agreed for new developments		
Actions to reduce road vehicle emissions					
16	The Council will publicise the availability of grants fo cleaner vehicles to individuals and businesses.	Grants ended March 200	No grants are available	No plans to reinstate promotion at present	

No.	Action	Timescale	Progress with measure	Outcome to date	Comments
17	The Council will look at the results of the London-wide LEZ feasibility study. It will make sure the implications For air quality in Thurrock are considered and will make representations as appropriate	2008	The London LEZ was introduced in February 2008.	The LEZ applied to lorries over 12 tonnes initially and from July 2008 it also applies to lighter lorries, buses and coaches.	
18	The Council will continue to lead by example and reduce the emissions from its own fleet of vehicles.	On-going	The fleet contract is currently being tendered and the council is to trial electric vehicles.	Further information on the outcome of the tender process end 2007.	
19	The Council will encourage the take-up of alternatively fuelled lease car vehicles by providing information to employees.	Grants ended March 200	Lease car scheme ended April 2006	This scheme intended use Powershift grants	
20	The Council will continue to work towards a Green Travel Plan for its employees.	On-going	A draft was approved but not taken forward		
21	The Council will continue to use procurement strategies to buy goods and services from providers who show a commitment to the environment.	On-going	Included in conditions of contract where appropriate		
22	The Council will continue to work with businesses. It will provide information on best practise, including using cleaner fuel technologies.	On-going	This is provided on request through information packs		
23	The Council will continue to test emissions on a voluntary basis. It will explore the possibility of using the Vehicle Inspectorate for issuing Fixed Penalty Notices.	On-going	Testing undertaken on 150 cars as part of initiatives such Green Transport Week.		
24	The Licensing team will continue to work with the Vehicle Inspectorate to test the emissions of taxis in Thurrock.	On-going			
Actions to reduce emissions from non-road sources					
25	The Council will continue to inspect all of its permitted processes to ensure compliance. Permits will be updated as and when appropriate so that operation conditions are up to date.	On-going	Visits to all relevant industrial installations are undertaken based on risk assessments on a regular basis	Annual returns are sent to Defra	
26	The Council will continue to use planning conditions to control dust emissions. The Council will continue to action to abate nuisance from fugitive dust emissions	On-going	New London-wide guidance has been used with all relevant construction projects in Thurrock.		
27	The Council will continue to work to improve energy efficiency in the Borough. Details of this improvemer can be found within the Council's annual HECA (Home Energy Conservation Act) report.	On-going	The Council supports the Thurrock Energy Partnership		

No.	Action	Timescale	Progress with measure	Outcome to date	Comments
28	The Council will continue to enforce the Clean Air Act 1993 and encourage local businesses to dispose of waste in a responsible manner, so as to prevent dark smoke bonfires.	On - going	This is undertaken as part of the Council's regulatory actions		
29	The Council will continue to educate residents and businesses to use smokeless fuel or an approved appliance for smokeless combustion.	On-going	Thurrock has several Smoke Control Areas		Advice is issued to residents & Businesses, information is found on On www.http://smokecontrol.defra.gov.uk
30	The Council will continue to promote alternatives to domestic bonfires. We will encourage residents to recycle or compost as much waste as possible or dispose of it responsibly at a civic amenity site.	On-going	The Council offers advice and publicises its enforcement policy to try to avoid nuisance	The Council implements fortnightly green waste collection and promotes disposal at civic amenity site to discourage domestic bonfires	
31	The Council will investigate the feasibility of pursuing Environmental Management Systems in other departments. It will also work to disseminate EMS to local businesses and other parts of the public sector.	On-going	The Council retained its ISO 14001 certification in 3 departments in 2005		
32	Air quality will remain an integral part of the Community Strategy.	On-going	The Sustainable Community Strategy for Thurrock was launched in 2007		
33	Achievement of Air Quality Objectives will continue to be included in the Local Health Plan	On-going	Details are forwarded annually		
	Public awareness raising and education				
34	The Council will continue to explore and implement the best ways of working together with schools to improve awareness of air quality issues in Thurrock.	On-going	Information provided on Council website and on request		
35	The Council will continue to promote air quality issues at public awareness events.	On-going	Ensuring Air Quality issues are highlighted at public events.		

4.4 AQMA prioritisation for action under the LTP

In September 2009 Thurrock's AQMAs were prioritised in order of importance to assign air quality measures to best counteract poor air quality from transport related sources of air pollution. By prioritising each AQMA in terms of importance for air quality actions, this would increase the focus and spending of money in certain AQMAs which have more air quality issues.

A few of the AQMA's were excluded from prioritisation, due to them either having sources attributable from Highways Agency controlled roads, i.e. AQMA's 15 & 16, and secondly that some AQMA's do not represent relevant exposure as they are Hotels, this was confirmed with the UWE Review and Assessment Helpdesk, those excluded were AQMA's 7, 8, 9 & 21.

The prioritisation was determined using a points based system with 1 scoring the lowest and 5 scoring the highest using four criteria, which each score would be multiplied by in order to get an overall score the higher the number the higher the priority, overall scores ranged from 1 to 625.

The four criteria for scoring are listed below:-

Table 16 The four criteria for AQMA prioritisation and assignment of scoring

Score	(1) In Health Deprived Area	(2) Receptor Placement: Metres from NO_2 measurement	(3) 2010 Estimated NO_2 concentration ($\mu g\ m^{-3}$)	(4) Source Apportionment: % Road Transport Contribution
1	No	Roadside: <30m	>40.0	>24.3%
2	Not Applicable	Roadside: 20m-30m	40.1-43.5	24.4%-39.2%
3	Not Applicable	Roadside: 10m-20m	43.6-47.0	39.3%-54.0%
4	Not Applicable	Roadside: >10m	47.1-50.5	54.1%-68.9%
5	Yes	At receptor facade	50.6-54.0	69.0%-83.7%

Table 17 Each AQMA individual and overall scoring under the four criteria

AQMA	In Health Deprived Area	NO2 Measurement Location: Metres from receptor	Highest 2010 Estimated NO2 Concentration ($\mu g\ m^{-3}$)	Source Contributions: % Road Transport	Score Total	Priority #
1	5	4	1	1	**20**	**8**
2	1	4	3	2	**24**	**7**
3	1	3	4	4	**48**	**5**
4	1	2	5	5	**50**	**3**
5	1	2	5	5	**50**	**3**
10	1	4	3	5	**60**	**2**
12	1	1	2	3	**6**	**9**
13	1	4	5	5	**100**	**1**
23	1	4	2	4	**32**	**6**

Table 18 AQMA prioritisation ranking

Prioritisation Rank	AQMA
1	13
2	10
3	4
3	5
5	3
6	23
7	2
8	1
9	12

AQMA 13 was identified as being the most important for air quality improvement measures, the measures suggested for improving air quality with timescales were:-

2010/2011:

- Pollution barrier (AQMA 13)
- D-NOx paint trials (AQMA 10 & 13)
- Urban Traffic Management and Control (AQMA 3, 4, 5 & 13)
- Low Emissions Zone – Feasibility work
- Eco Driver Training for HGV's

2011/2012

- Road System Design Review (AQMAs 2 & 23)
- Retrofit Pollution Reduction Equipment for HGV's
- Low Emissions Zone – Further Feasibility work
- Lakeside Travelling Planning (AQMA 4 & 5)

2012/2013

- Workplace Travel Planning (AQMA 2, 3 & 23)
- Road System Re-Design (AQMA 2 & 23)
- Low Emissions Zone – Design
- Retrofit Pollution Reduction Equipment for HGV's

2013/2014

- Road System Re-design implementation (AQMA 2 & 23)
- Low Emission Zone – Design and/or implementation

It is hoped that these measures will bring about some improvement to air quality locally within the AQMAs, but real overall improvement will result from a national level by improving background concentrations for NO_2 based on better vehicle abatement technology and engine design efficiency for new motor vehicles which will gradually phase out older more polluting vehicles as time goes on.

5 Conclusion/ Recommendations

This Air Quality and Action Plan Progress Report for 2010 fulfils the requirements of the Defra LAQM (PG 09) guidance and has updated monitoring results in the Borough and noted new relevant local developments and other initiatives. It also advises on the Council's progress in implementing its Action Plan.

The up to date monitoring results continue to indicate that the Government's current air quality objectives for NO_2 and PM_{10} are exceeded widely at locations across the Borough where there is relevant public exposure. Based on the findings in this report there is no need for the Council to progress to a Detailed Assessment to revoke its existing AQMAs.

The monitoring result from the Calcutta Road site in Tilbury during 2007 however confirmed that the site exceeded the NO_2 annual mean objective for the first year in this area. The monitoring site in Calcutta Road was relocated in late 2006 and the Council will assess whether or not there is relevant exposure nearby and undertake a Detailed Assessment as appropriate.

The Council examined a report for the Coryton Refinery and noted that the dispersion modelling has indicated that the Government's sulphur dioxide objectives could be exceeded as a result of emissions from the site. The Council will therefore seek confirmation from the Environment Agency that measures to reduce this pollution have been installed or undertaken. If necessary it will carry out a Detailed Assessment and designate an AQMA in the area.

The purpose of the Council's Air Quality Action Plan is to ensure that air quality is considered corporately and to seek to reduce air pollution within the Borough, in pursuit of the Government's air quality objectives. The Council is however limited in its abilities to influence local air quality directly as outlined in its Stage 4 Further Assessment report, partly as a result of pollution arising elsewhere in London (and beyond) and also because it has limited responsibility for the main sources of emissions within the Borough. The major roads in the Borough are the responsibility of the Highways Agency, rather than the Council. The Action Plan does however include measures to seek to reduce traffic flow and vehicle emissions that are consistent with other Council policies.

The Council's progress on the individual actions was given in Table 15. The Action Plan originally included 35 actions. The report confirms that 5 were completed or are no longer relevant. The remaining actions are all on going.

The Council will continue its air quality monitoring programme and prepare for the next round of review and assessment, including the next Updating and Screening Assessment in 2012.

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Appendix 1

Table 19 NO_2 data capture for year (%)

LAQN Site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	UB	97.14%	97.86%	84.70%	93.68%	87.30%	94.71%	97.47%
Thurrock 2	R	56.67%	94.74%	94.41%	94.74%	96.64%	20.46%	
Thurrock 3	R	35.42%	99.12%	99.10%	97.88%	98.92%	97.45%	96.72%
Thurrock 8	R						68.71%	97.96%
Thurrock 2 & 8	R						89.17%	

Table 20 SO_2 data capture for year (%)

LAQN Site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	UB	91.10%	97.80%	94%	98.18%	97.66%	95.43%	95.25%
Thurrock 3	R	35%	99%	99%	94.92%	99.32%	99.29%	83.35%

Table 21 PM_{10} data capture for year (%)

LAQN Site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	UB	98.10%	95.30%	94.56%	97.38%	98.16%	97.76%	96.77%
Thurrock 2	R					70.12		
Thurrock 3	R	32.78%	99.64%	99.04%	98.72%	97.82%	99.69%	79.90%
Thurrock 8	R						70.41%	80.61%
Thurrock 2 & 8	R						90.75%	

Table 22 $PM_{2.5}$ data capture rate for year (%)

LAQN Site	2009
Thurrock 3	58.75%

Table 23 Ozone data capture rate for year (%)

LAQN Site	Type	2003	2004	2005	2006	2007	2008	2009
Thurrock 1	UB	97.51%	98.43%	94.16%	98.17%	96.58%	96.31%	98.64%

Figure 15 Location of diffusion tube sites in Thurrock

(Tube site number marked)

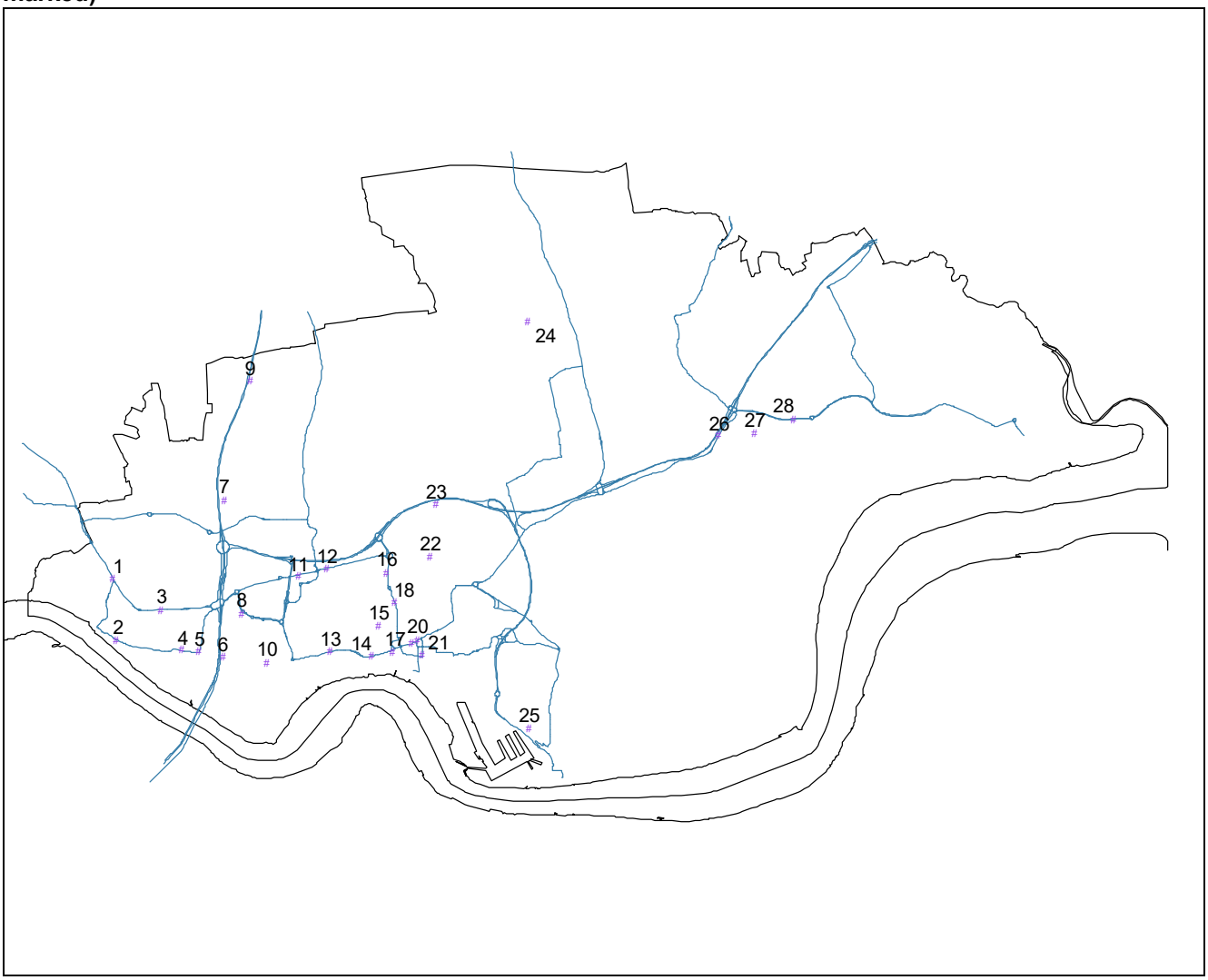

Table 24 Diffusion tube referenced locations

Site	Type	Easting	Northing	Site number	AQMA no
London Road Arterial Road (R)	R	555311	179417	1	13
Purfleet Rail Station (R)	R	555389	178145	2	No
Watts Crescent (R)	R	556314	178765	3	12
Jarrah Cottages (R)	R	556738	177926	4	10
Stonehouse Lane (R)	R	557087	177904	5	21
Ibis Hotel (UB)	UB	557570	177789	6	7
Gatehope Drive (UB)	UB	557595	181060	7	15
Lakeside Tesco Roundabout (R)	R	557959	178698	8	No
Kemps Cottage (UB)	UB	558148	183532	9	16
London Road W Thurrock (R)	R	558483	177678	10	23
Howard Road (R)	R	559130	179471	11	5
A1306 (R)	R	559711	179629	12	5
London Road South Stifford (R)	R	559785	177910	13	2
London Road Grays (R)	R	560623	177810	14	1
Wingfield Grays (UB)	UB	560772	178434	15	No
Elizabeth Road (R)	R	560946	179549	16	3
Poison Store AURN Site (UB)	UB	561066	177894	17	1
Hogg Lane (R)	R	561108	178922	18	3
Queensgate Centre Grays (R)	R	561469	178063	19	1
Cromwell Road Grays (I)	I	561572	178154	20	1
Stanley Road Grays (R)	R	561683	177833	21	1
Chestnut Avenue Grays (UB)	UB	561830	179878	22	No
William Edwards School (R)	R	561958	180967	23	No
Bulphan (RB)	RB	563855	184772	24	No
Calcutta Road Tilbury (R)	R	563864	176308	25	No
Park Road (R)	R	567781	182400	26	No
Stanford Library (UB)	UB	568501	182459	27	No
Manorway Monitoring Station	R	569306	182737	28	No

Table 25 2009 Raw NO_2 diffusion tube results for Thurrock ($\mu g\ m^{-3}$)

Site name	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
Bulphan (RB)	30.81	32.74	24.37	20.02	15.53	15.55	13.03	17.5	19.04	25.77	25.23	27.56
Cromwell Road (I)	51.59	56.92	44.6	38.1	32.68	31.38	29.3	34.49	31.63	41.58	42.34	41.37
Elizabeth Road (R)	66.81	71.13	70.48	55.91	51.36	38.87	43.64	54.61	51.44	64.71	66.37	53.08
Gatehope Drive, South Ockendon (UB)	46.49	49.89	45.61	35.18	30.43	26.09	29.85	31.95	26.64	32.89	41.12	31.48
Hogg Lane (R)	47.16	52.22	50.73	39.46	27.31	31.38	26.99	29.07	33.69	42.25	36.5	40.3
Howard Road (R)	40.3	55.75	48.72	39.84	35.55	29.7	29.66	28.1	33.73	41.91	43.19	44.6
IBIS Hotel (UB)	51.63	57.32	55.41	50.69	38.93	BAD DATA	43.45	50.83	44.69	50.39	62.95	51.46
Jarrah Cottages (R)	46.55	63.77	48.07	60.83	49.66	43.3	40.97	37.93	45.4	62.4	64.27	52.91
Kemps Cottage, North Ockendon (UB)	41.26	47.96	47.81	35.56	35.3	32.34	35.74	36.08	33.18	38.49	40.76	37.49
London Road Arterial Road (R)	73.69	78.94	60.89	65.95	33.83	57.11	40.17	49.79	46.99	66.56	68.02	64.63
London Road Grays (R)	54.65	64.16	57.64	45.71	40.85	36.6	29.07	36.08	41.62	51.17	44.2	48.11
London Road South Stifford (R)	57.03	70.31	68.4	57.03	50.37	48.9	37.17	MISSING	48.32	54.53	49.55	48.44
Lakeside Tesco Roundabout (R)	49.47	71.07	63.66	54.22	56.1	39.84	41.71	42.8	53.46	57.47	66.54	52.72
Manorway Monitoring Station (R)	41.43	57.38	48.07	38.89	35.16	32.78	24.35	28.55	40.63	41.91	34.04	47.08
Manorway Monitoring Station (R)	48.07	50.59	52.74	36.67	36.84	31.88	MISSING	29.39	39.37	37.09	36.4	40.72
Manorway Monitoring Station (R)	43.87	60.76	55.58	43.45	34.06	38.01	23.88	28.69	40.13	41.28	33.85	45.44
Park Road, Stanford-le-Hope (R)	46.07	44.08	47.6	37.93	30.67	27.85	26.74	25.4	36.1	35.16	41.39	37.63
Purfleet Rail Station (R)	55.75	59.97	43.4	48.49	38.96	33.48	27.03	26.68	37.32	40.11	40.99	46.2
Poison Store AURN Site (UB)	44.03	48.82	40.74	32.99	26.47	29.55	20	22.82	28.04	36.81	30.43	35.98
Stanford Library (UB)	40.28	40.82	41.68	30.71	27.06	21.41	22.94	25.69	26.95	35.62	35.51	38.64
Stanley Road Grays (R)	46.6	45.15	45.55	41.6	32.43	29.24	26.49	26.61	35.2	40.68	39.69	45.5
Stonehouse Lane (UB)	52.1	53.08	46.11	42.98	42.96	42.33	38.49	36.79	48.95	46.32	47.6	52.3
Calcutta Road, Tilbury (R)	50.27	61.46	53.58	36.67	37.23	44.46	40.68	39.82	41.49	46.81	48	52.89
Watts Crescent (R)	56.59	63.93	43.64	50.56	35.93	46.83	32.89	35.81	45.27	45.59	48.67	25.96
William Edwards School (R)	50.65	58.77	46.62	37.86	29.45	34.17	25.21	28.8	36.46	33.81	33.96	40.64
London Road, West Thurrock (R)	53.37	62.13	58.77	35.18	34.63	35.43	41.39	41.5	38.56	45.99	49.14	49.34
Queensgate Centre, Grays (R)	48.9	45.17	51.46	54.95	37.15	41.37	26.55	38.43	37.74	48.11	40.34	48.46
A1306 (R)	62.5	75.88	55.92	65.34	63.87	52.28	47.33	52.37	57.64	58.85	60.41	54.76
Chesnut Avenue, Grays (UB)	36.84	40.01	33.46	27.6	20.32	22.04	17.9	22.14	22.39	31.52	26.89	30.37
Wingfield, Grays (UB)	30.6	36.81	28.15	23.82	20.17	16.35	MISSING	18.43	21.16	27.08	26.03	29.11

Table 26 Part A2 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
Industrial Chemicals Limited	DP3637SG	TITAN WORKS,TITAN INDUSTRIAL ESTATE, GRAYS, ESSEX	INORGANIC CHEMICALS
Kerneos Limited	BL0863IG	Dolphin Way PURFLEET Essex	CEMENT AND LIME
Pura Foods Limited	BU7677IZ	Pura Foods London Road PURFLEET Essex	ANIMAL, VEGETABLE AND FOOD

Table 27 Part B installations in Thurrock (excluding dry cleaners)

Reference number	Operator	Address	Process / activity undertaken
A2 001 V2	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
B103	Hanson Thermalite Limited	Motherwell Way, WT, Essex RM20 3LB	Blend / pack / load / use of bulk cement
B104 V2	William Ball Limited	Gumley Road, Grays, Essex RM16 1BB	Timber and wood-based products
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	Foster Yeoman 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
B119	Brett Concrete Limited	Magnet Industrial Estate, WT RM16 1DB	Blend / pack / load / use of bulk cement
B122	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
B124	Bardon Concrete	Botany Way, Purfleet, RM16 1RR	Blend / pack / load / use of bulk cement
B128	Hanson Building products Limited	Botany Way, Purfleet, Essex RM19 1SR	Blend / pack / load / use of bulk cement
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
B148	Calor Gas Limited	Manorway, Coryton, SLH SS17 9LW	Odorising natural gas & liquid pet. gas
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
B153 V1	Enterprise Coachworks Limited	Oliver Close, West Thurrock, RM20 3EE	Respraying of road vehicles
B157 V2	National Grid PLC	Robinson Road, Horndon SS17 8PU	Odorising natural gas & liquid pet. gas
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
B162	Malling Precast Limited	Wouldham Road, Grays RM20 4YB	Blend / pack / load / use of bulk cement
B164	Commodore Kitchens	Gumley Road, Grays RM20 4XP	Timber and wood-based products
B165	CdMP Purfleet Limited	London Road, Purfleet RM19 1PD	Respraying of road vehicles
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 Li	Oliver Road, West Thurrock RM20 3EY	Storage, loading, unloading of petrol
B171	BP Oil UK Limited	Manorway, Coryton, SLH SS17 9LQ	Storage, loading, unloading of petrol
B174	Kaneb Terminals Limited	London Road, West Thurrock RM17 5YZ	Storage, loading, unloading of petrol
B177	Shell UK Limited	Shellhaven, Manorway, SLH SS17 9LR	Bitumen and tar processes
B178	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
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
B184	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
B186	G Killoughery Limited	Beacon Hill Ind. Est. Purfleet RM19 1SR	Mobile crushing and screening
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
B191	Flavin Consulting Limited	1 One Tree Hill, SLH SS17 9NH	Small waste oil burner
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
B195	Fairlight Vehicles Limited	Patricia Drive, Fobbing SS17 9HR	Small waste oil burner
B198	Thurrock 4x4 Centre	Oliver Road West Thurrock Essex	Small waste oil burner
B199	S Walsh and Sons Limited	Sleepers Farm, Chadwell St Mary	Mobile crushing and screening
B200 *(new)	Pullman Fleet Services	Sartoria Business Park, WT, RM20 3NL	Small waste oil burner
B201 *(new)	Industrial Chemicals Group Limited	Stoneness Road, WT RM20 3AG	Blend / pack / load / use of bulk cement
B202 *(new)	Mordernmix Limited	Baldwins Farm, Uppminster RM14 2YB	Blend / pack / load / use of bulk cement
B203 *(new)	Spectrum Vehicle Resprayers	Sandy Lane, WT RM20 4BH	Respraying of Road Vehicles

Table 28 Part B installations in Thurrock – Service Stations

Reference number	Operator	Address
SSP1	Mr S Ramachandran	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	26-28 Southend Road, Stanford-le-Hope SS17 0PE
SSP6	BP Oil UK Limited	A13 Eastbound, Grays RM16 3BG
SSP7	BP Oil UK Limited	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	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 29 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
DC4	Paul's Dry Cleaners	8 Canterbury Parade, South Ockendon, 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 *(new)	Corringham Dry Cleaners	18 Grover Walk, Corringham, Essex	perchloroethylene

Table 30 Part B installations no longer in operation

Reference n	Operator	Address	Process/ activity undertaken
B102	Benchsound Limited	47 Kings Street, Stanford-le-Hope SS17 0HJ	Small waste oil burner
B113	Hanson Building Products	Tunnel Industrial Estate, Jodrell Way, WT RM16 1WY	Blend / pack / load / use of bulk cement
B114	CEMEX Materials UK	Linford Road, Stanford-le-Hope WV8 2HZ	Blend / pack / load / use of bulk cement
B118	Tarmac Topmix	Jodrell Way, WT RM20 3FE	Blend / pack / load / use of bulk cement
B163	Trelleborg Stanton Limited	London Road, WT RM20 3LG	Adhesive Coating Process
B179	Trelleborg Stanton Limited	853 London Road, WT RM20 3LG	Di-isocyanate Processes
B181	Select Plant Hire Company Limited	Wouldham Road, Grays RM20 4YB	Mobile Crushing and Screening Processes
DC5	Richclean Limited	18 Grover Walk, Corringham SS17 7LY	Dry Cleaning
DC9	Chris's Dry Cleaners	10 Broxbourne Parade, South Ockendon RM15 5QZ	Dry Cleaning
DC10	APS	Flemming Road, Chafford Hundred RM16 6EW	Dry Cleaning