



2015 Updating and Screening Assessment for **Sevenoaks District Council**

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

2015

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Executive Summary

Monitoring has identified levels of nitrogen dioxide in excess of the annual average objective level at 19 roadside locations. All of these monitoring locations are within existing AQMAs. Levels monitored were in general lower than in previous years. No new significant sources have been identified.

One fugitive source has been identified in a previous round of review and assessment. Sevenoaks District Council has installed a PM₁₀ analyser. Data from this analyser will be used to produce a detailed assessment for this PM₁₀ at this location.

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1 Introduction

1.1 Description of Local Authority Area



Sevenoaks District is in West Kent, bordering Greater London, Surrey and East Sussex and covers an area of 142 square miles.

The main towns are Edenbridge, Sevenoaks and Swanley and there are many other small villages and settlements, of which the largest are Hartley, Hextable, New Ash Green, Westerham and West Kingsdown.

The primary source of air pollution is from traffic. The district is traversed by three major motorways and these have a considerable flow of continental HGVs using the port at Dover and the Channel Tunnel. Local journeys, school runs, commuting to London or connection with London contribute significantly to a number of hot spots in Sevenoaks, Swanley and Westerham.

Main communications and transport links

The M25, M20 and M26 motorways are easily accessible as they cross the District. Gatwick and Heathrow airports and the Channel Ports and Channel Tunnel Rail Link are all within easy reach.

The railway service to London is very good. The average journey time is 35 minutes.

A description of Sevenoaks District

All of Sevenoaks District is within the Green Belt. Much of the area is rural in character and it includes many picturesque villages and hamlets and large areas of beautiful countryside. The area is rich in historical sites including Penshurst Place, Hever Castle, Winston Churchill's former home at Chartwell, Lullingstone Castle and Roman Villa, and Knole Park.

Each of the major towns has its own character. Edenbridge is a popular point of call for visitors to the area, while Sevenoaks offers a range of small to medium sized shops in a traditional high street setting. Swanley's market attracts shoppers from a wide area.

Sevenoaks District is a popular place to live. Because of the close proximity to London, there is considerable pressure for development and local planning policies attempt to achieve a balance between legitimate development needs and conserving the District's environment.

There are a wide range of leisure facilities, including community sports and leisure centres at Edenbridge, Sevenoaks, Wilderness and Swanley. There are also sports grounds, recreation areas and scenic country walks.

There are no major industrial sources within the district or close to its boundary. There is one large sand quarry co-located with a landfill site. There are 32 authorised processes, mainly petrol stations and dry cleaners.

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 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

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

(gravimetric)	exceeded more than 35 times a year		
	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

Round 1

The first round of Air Quality Review and Assessment led to the designation of six AQMA.

AQMA 1	M20	Junction 3 of the M25 to the district boundary with Tonbridge and Malling Borough Council (6.9 miles).	For NO ₂
AQMA 2	M25	County border with Surrey to district border with Dartford, including Junctions 3, 4 and 5 and the extension of Junction 5 to connect with the A25 at Bessel's Green (13.5 miles).	For NO ₂
AQMA 3	M26	M26 - from junction 5 of the M25 to the district boundary with Tonbridge and Malling Borough Council (5.6 miles).	For NO ₂
AQMA 4	A20	(T) Swanley Bypass - from junction 3 of the M25 to the district boundary with the London Borough of Bromley (2.7miles).	For NO ₂
AQMA 5	A25	Riverhead - between its northern and southern junctions with the A224 (155m).	For NO ₂
AQMA 6	M25	Junction 5 to Kent / Surrey border	For PM ₁₀

Round 2

In September 2006, following the second round of reviews, 5 further areas were designated for traffic-related exceedance of NO₂.

AQMAs 8 – 12

Sevenoaks District Council

AQMA 8	B2173	Swanley – London Road (East); High Street; Bartholomew Way and parts of Central town area	For NO ₂
AQMA 9	A25	Seal – High Street	For NO ₂
AQMA 10	A225	Sevenoaks – High Street	For NO ₂
AQMA 11	A25	Westerham – High Street; Market Square; Vicarage Hill; London Road (A233)	For NO ₂
AQMA 12	A25	Sevenoaks – Bat & Ball junction with A225	For NO ₂

Please note: There is no AQMA 7

Round 3

Detailed Assessment and Further Assessment concluded that the boundaries of existing AQMA's 1, 5 and 10 should be extended because of traffic related exceedance of NO₂.

AQMA 1	M20	Extended to include part of the A20 at Farningham.	NO ₂
AQMA 5A	A25	Extended AQMA 5 to include London Road from Riverhead to Dunton Green (to Join AQMA 3). Also extended to cover the properties where exceedances were predicted to the west of the London Road and Maidstone Road (Bradbourne Vale) roundabout (London Road, Riverhead).	NO ₂
AQMA 10A	A225	Extended AQMA 10 to include part of London Road, Sevenoaks and to include the properties surrounding the London Road and Pembroke Road junction.	NO ₂

Round 4

The 2009 USA identified a road junction in Swanley (Birchwood Rd / London Rd) as an area of potential NO₂ (annual) exceedance and also an area adjacent to a large quarry/landfill in Sevenoaks for potential fugitive PM₁₀ exceedance.

In December 2011, a Detailed Assessment confirmed the likely exceedance of NO₂ in Swanley (Birchwood Rd/London Rd) and the need to declare an AQMA.

Round 5

The 2012 Updating and Screening Assessment confirmed continuing exceedances outside of the current AQMAs along the A25. The Council therefore extended and joined up the existing four AQMAs along this road to form one AQMA corridor.

The AQMA for Birchwood Road junction, Swanley was also designated.

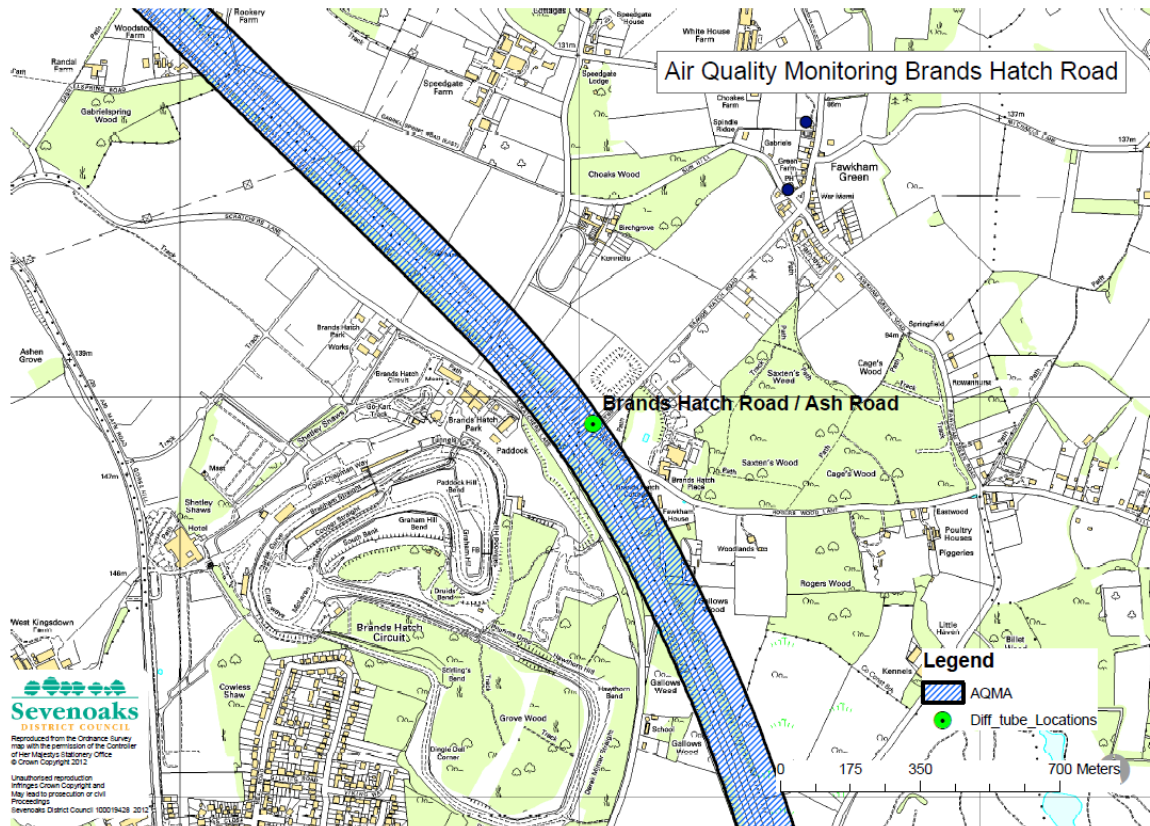
AQMA 13	A25	Replaces AQMA 5, 9, 11 and 12	For NO ₂
AQMA 14	B2173	Birchwood Road junction, Swanley	For NO ₂

PM10 monitoring was required to be undertaken near the Sevenoaks quarry to inform the Detailed Assessment. Unfortunately there have been significant delays in obtaining permission from Kent County Council to install monitoring equipment on their land.

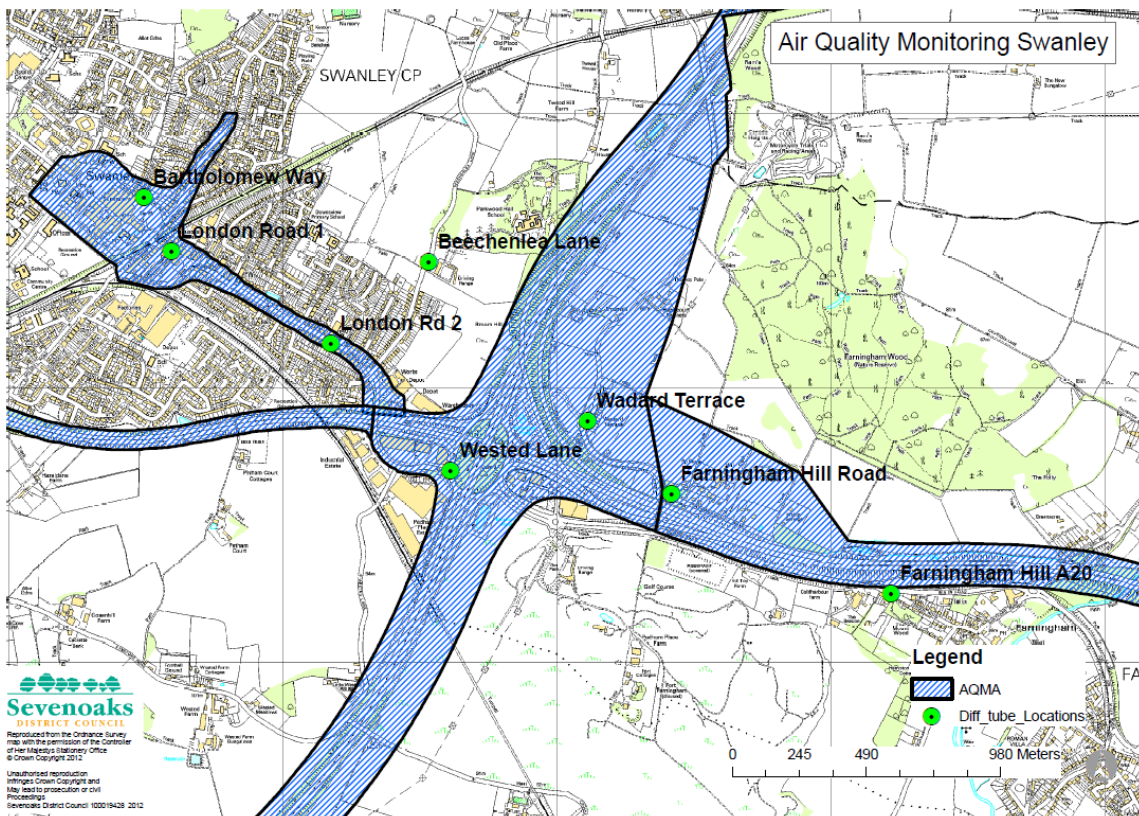
A new monitoring station has been installed however the unit is still not fully operational owing to power supply difficulties.

Figure 1.1 Map(s) of AQMA Boundaries

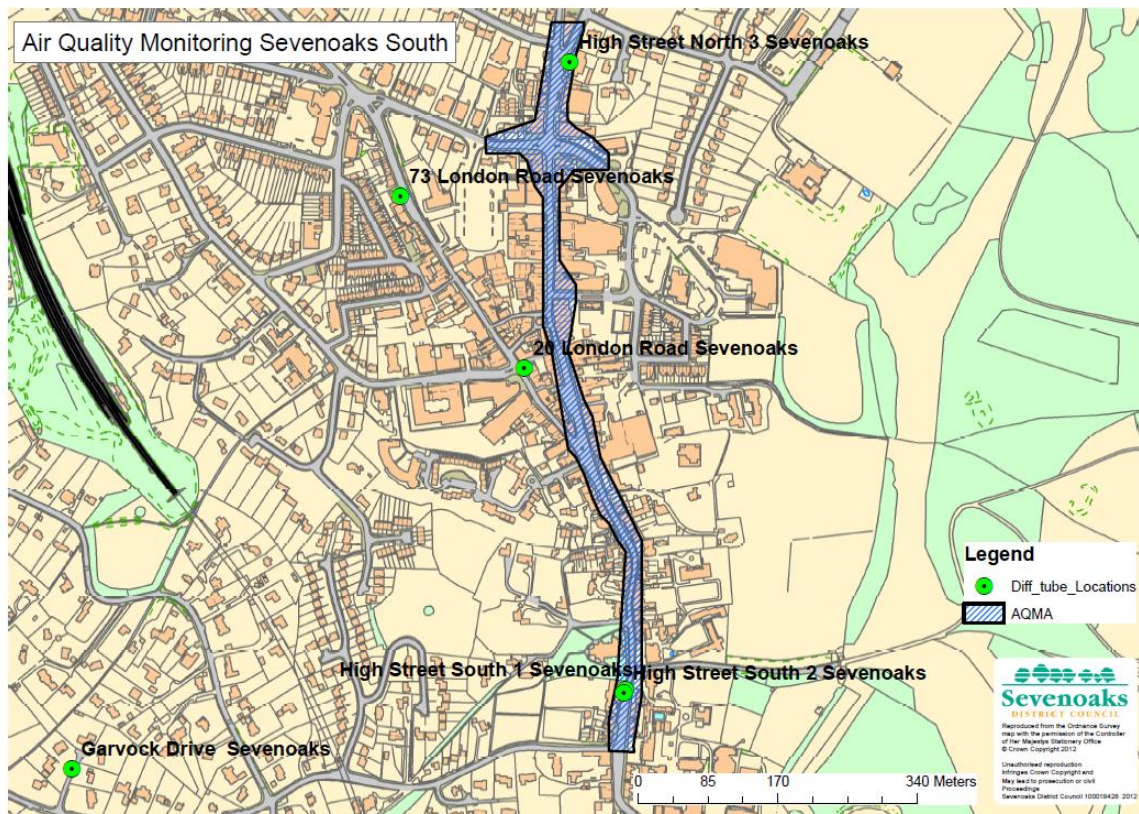
Current M20 AQMA



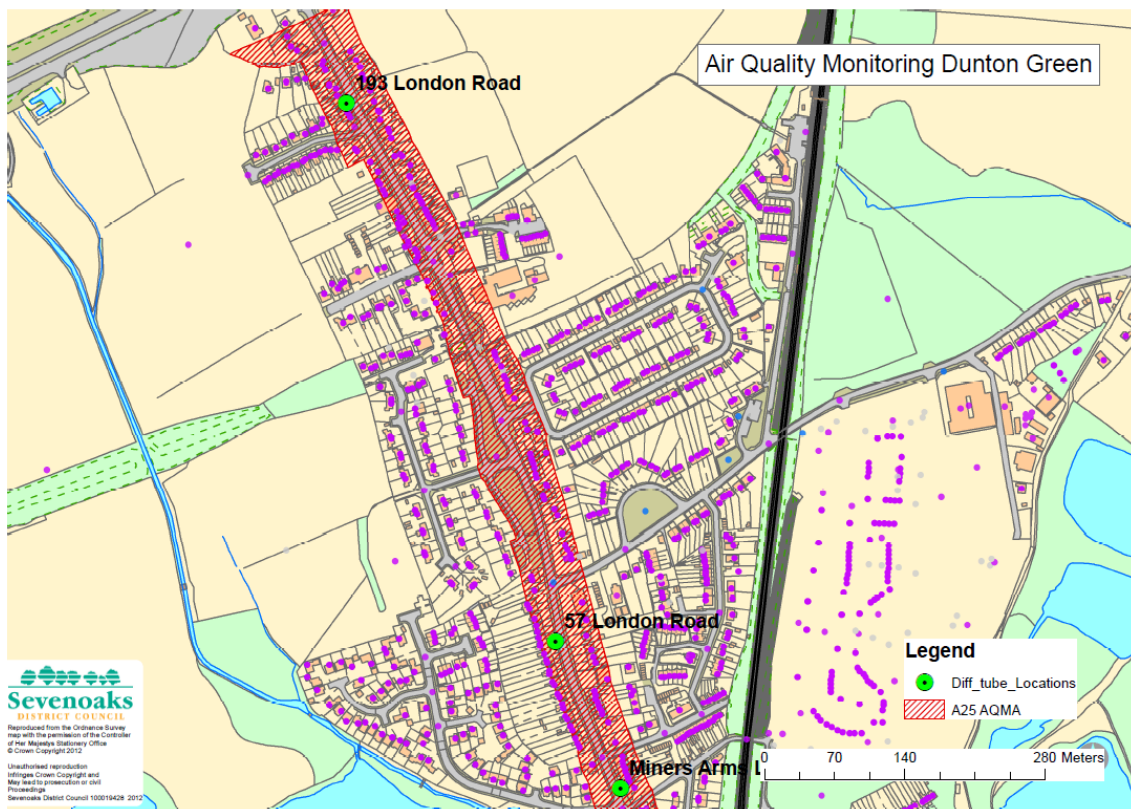
Current Swanley Town Centre, M25 and M20 AQMA



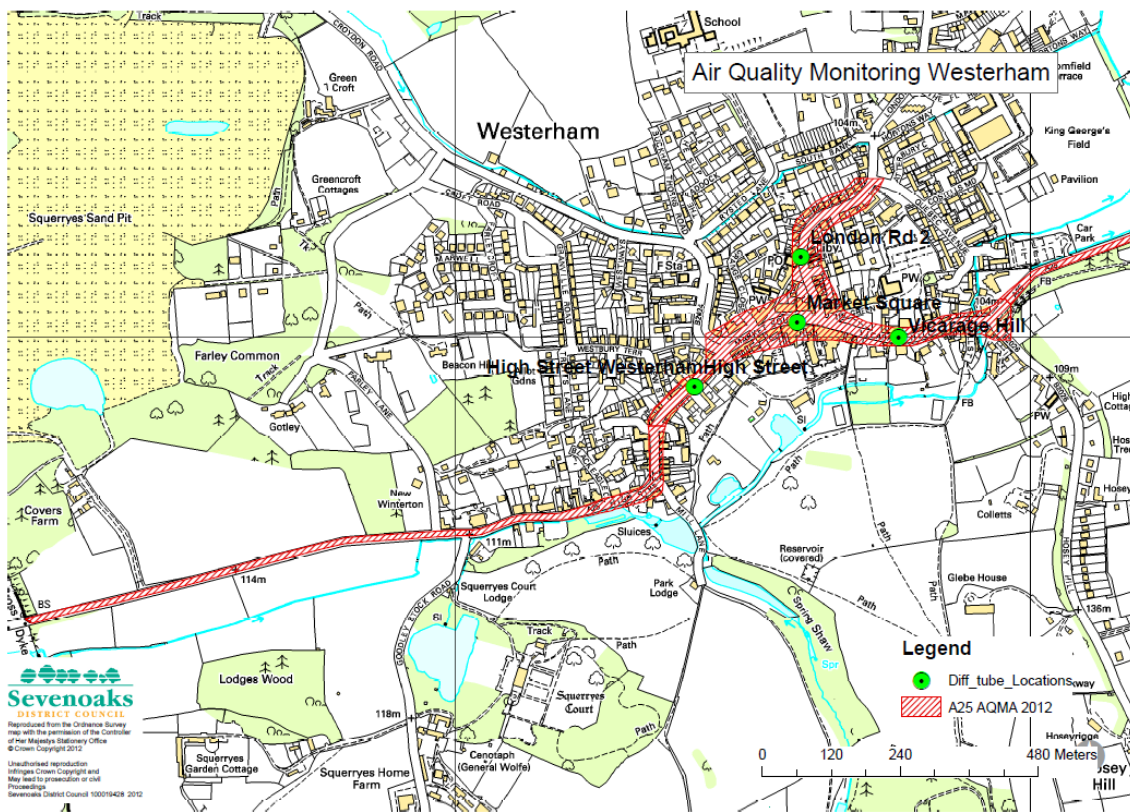
London Road Sevenoaks AQMA



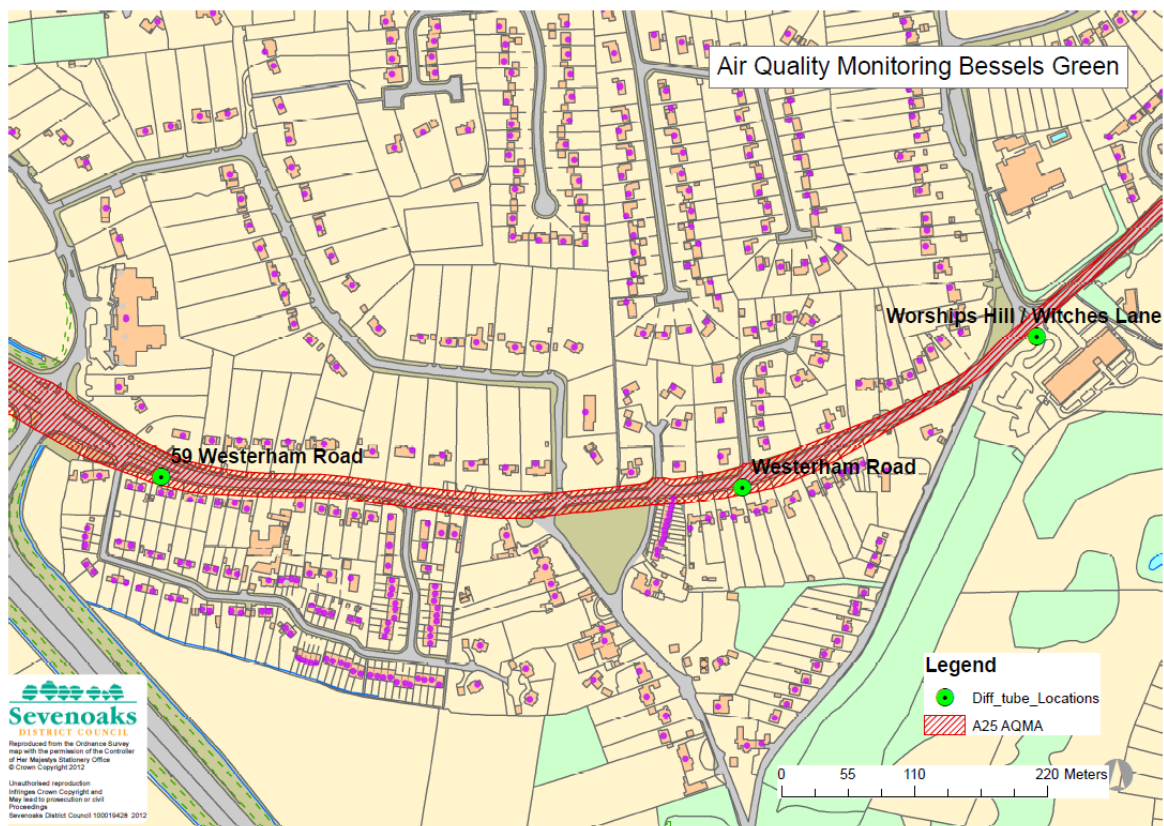
London Road, Dunton Green AQMA



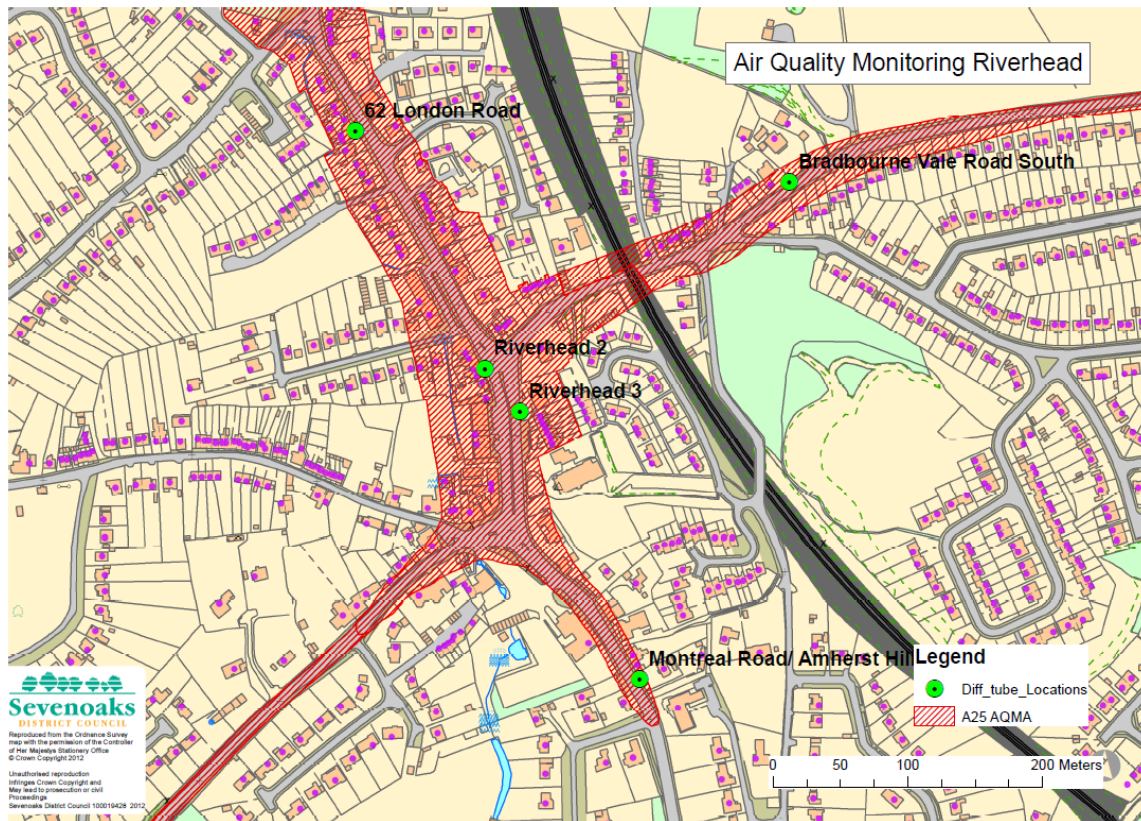
Westerham & A25 AQMA



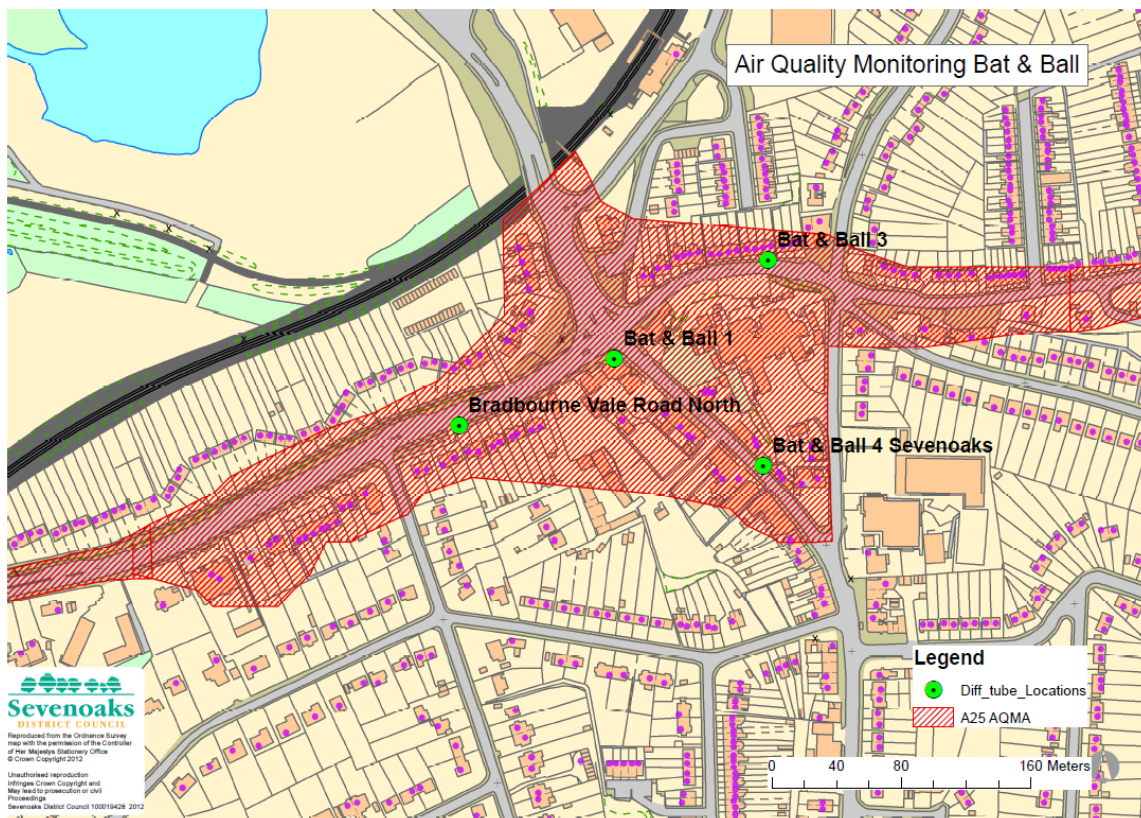
Bessels Green A25 AQMA



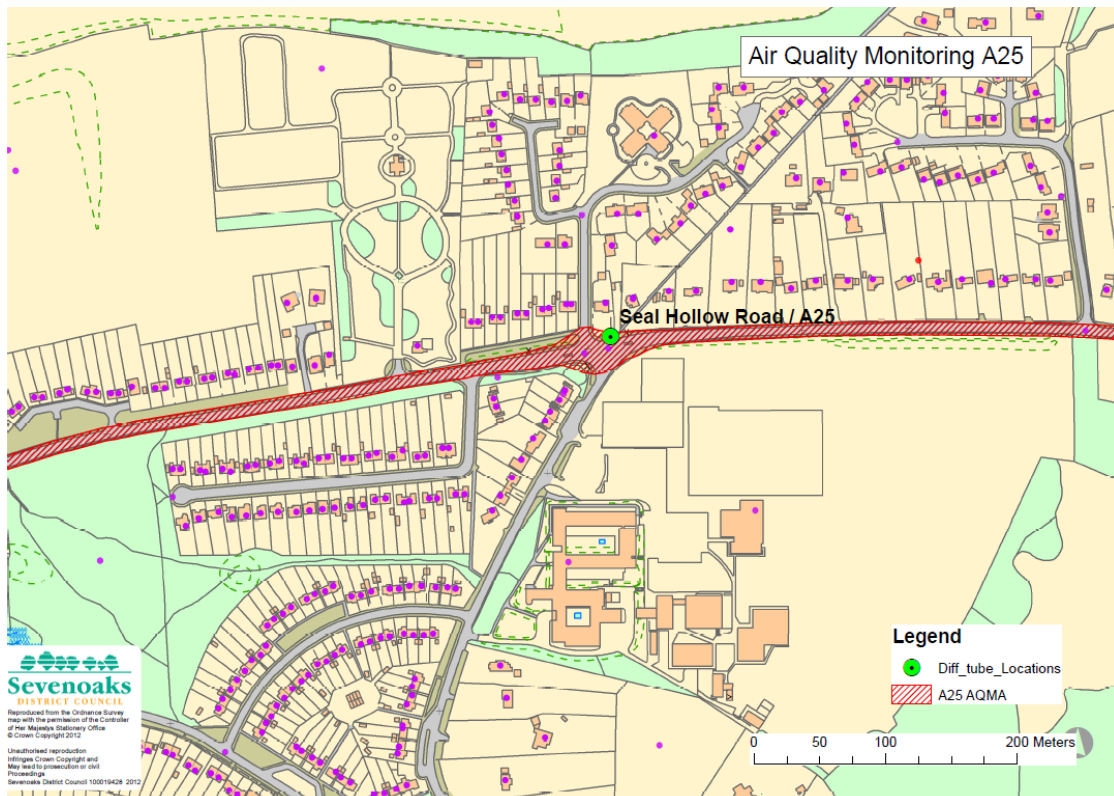
Riverhead A25 & London Road AQMA



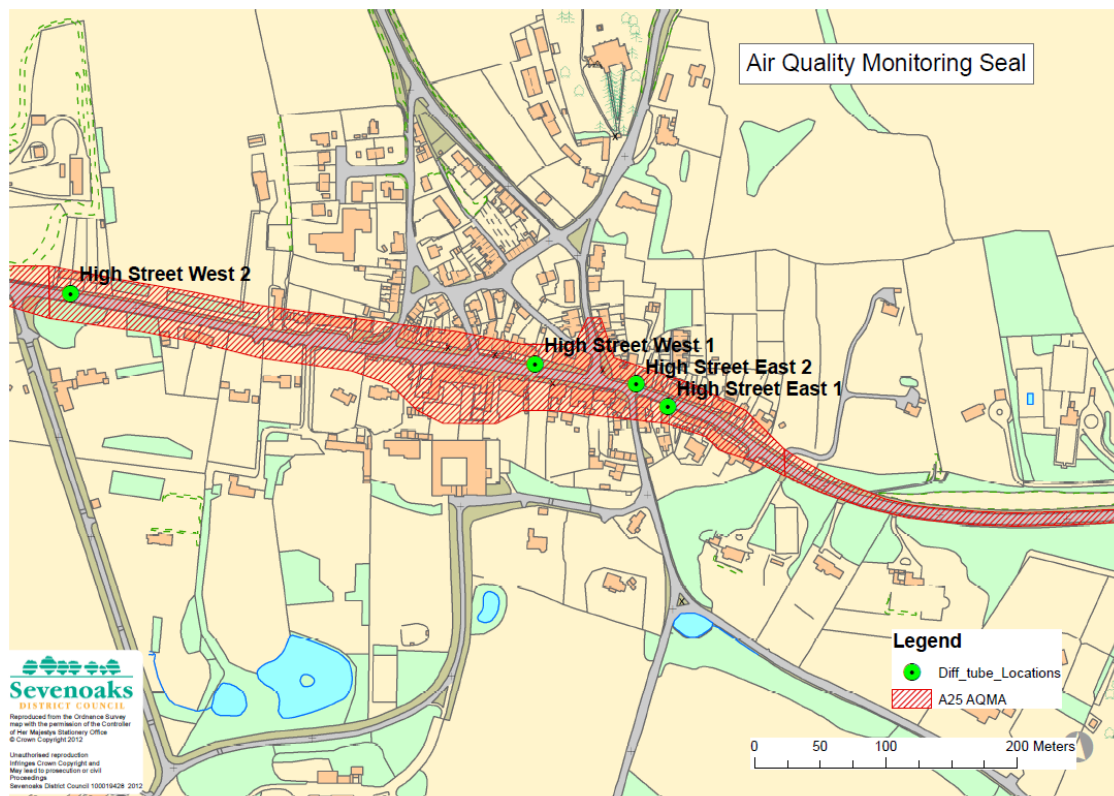
Bat & Ball A25 AQMA



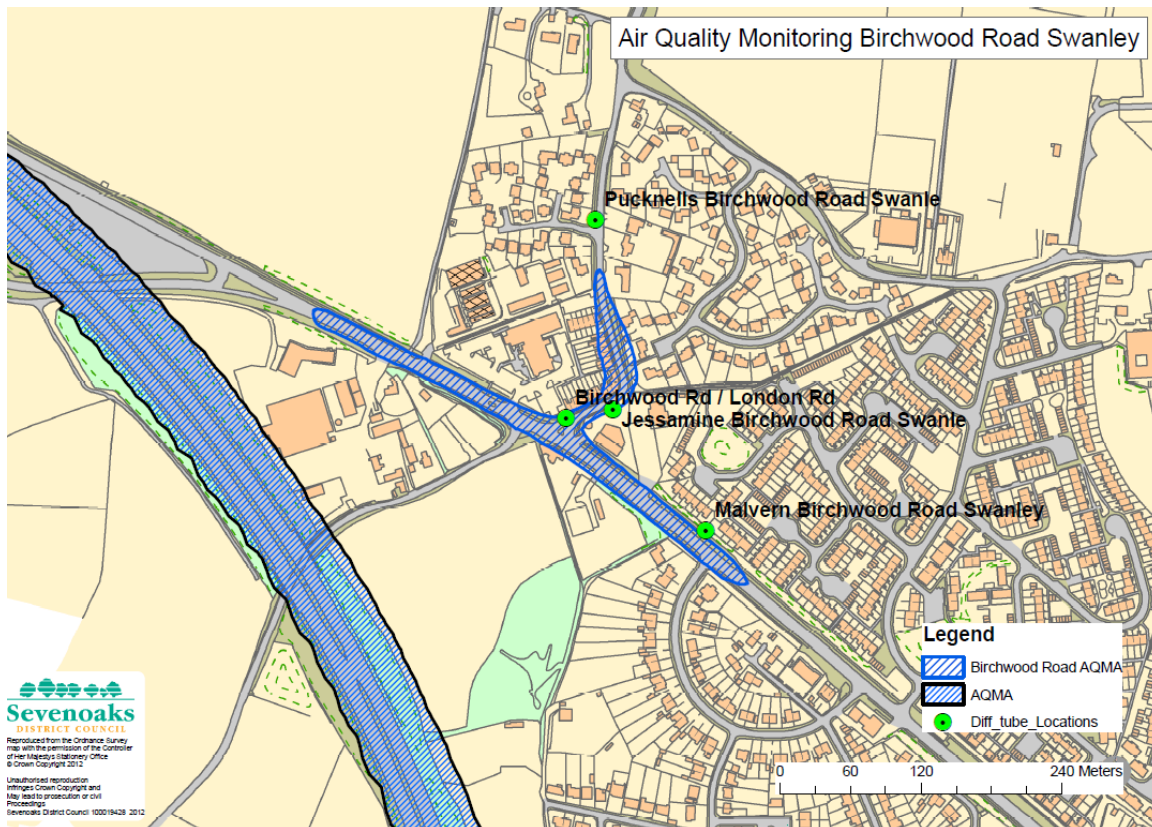
Seal A25 AQMA



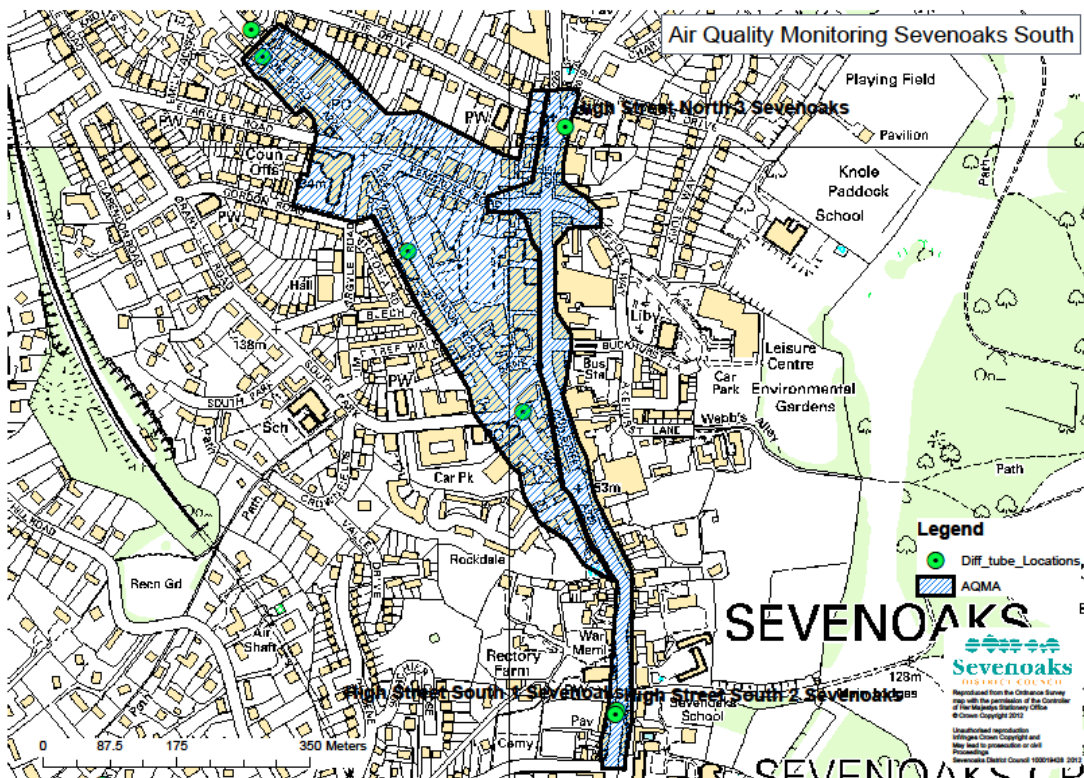
Seal A25 AQMA



Birchwood Road Junction Swanley & A20 Swanley Bypass AQMA



London Road and High Street Sevenoaks AQMA



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The District Council currently has two operating continuous automatic monitoring sites (CMS) both in the Sevenoaks town urban area.

The Greatness background site has monitored 3 pollutants (NO_x, PM₁₀ & O₃) since 1997. The Bat & Ball roadside site has monitored NO_x and PM₁₀ since 2006.

The District Council is currently in the process of commissioning a third continuous automatic monitoring site (CM 3) at Greatness Quarry to monitor PM₁₀. It is intended that information from this site will be used by the council to perform a detailed assessment of particulate in this area. Unfortunately the District Council has encountered difficulties in setting up CM3. However, it is expected that this analyser will be in operation later in 2015.

Local site operations and routine calibration/maintenance are carried out under contract by ERG Kings College London with service contract work by ESU1. The sites are audited twice a year by NPL and the data collected, validated and ratified by ERG.

Annual reports are published and all data including current concentrations are available via the London Air Quality Network web site. The site is operated to the same standards as the rest of the London Air Quality Network.

2008 and earlier PM₁₀ Data measured by TEOM has been corrected by applying a 1.3 factor.

From 2009 data has been corrected by ERG using their volatile correction model.

Figure 2.1 Map(s) of Automatic Monitoring Sites

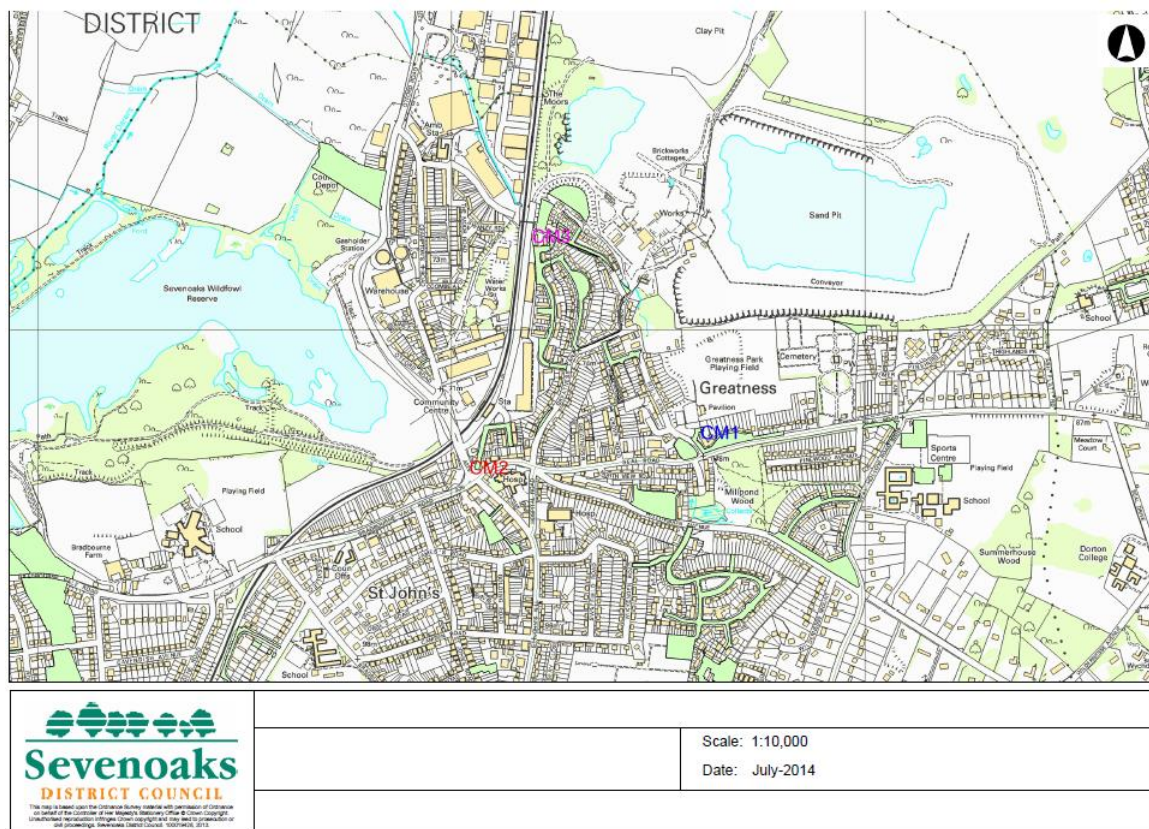


Table 2.1 Details of Automatic Monitoring Sites

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?
CM1	<i>Greatness</i>	<i>Urban background</i>	553603	NO _x , NO, NO ₂ , PM ₁₀ , O ₃	N	TEOM	Y	46m	N
CM2	<i>Bat & Ball</i>	<i>Roadside</i>	553044	NO _x , NO, NO ₂ , PM ₁₀	Y	TEOM	N (30m)	8m	N
CM3	<i>Sevenoaks Quarry</i>	<i>Roadside</i>	553195	PM ₁₀	N	BAM	N (6m)	1m	Y

2.1.2 Non-Automatic Monitoring Sites

There are currently 55 nitrogen dioxide diffusion tube sites around the district.

Details of these sites can be found in table 2.2

NO₂ diffusion tubes are supplied and analysed by ESG Scientifics (formerly Harwell Scientifics at Didcot). This laboratory is UKAS accredited.

The tubes were prepared by spiking acetone: triethanolamine (50:50) on to grids prior to the tubes being assembled.

The laboratory confirms it follows the procedures set out in the Harmonisation Practical Guidance and that it is ranked 'Good' in the WASP inter-comparison scheme.

The tubes have been compared with the reference method by a triplicate co-location study with the chemiluminescent NO_x analysers at Greatness Park, Sevenoaks.

The nationally derived Bias Factor for 2014 was 0.81

The locally derived Bias Factor from the above co-location study for 2013 was 0.84

The Local Bias factor has been used.

Table 2.2 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?
DT2	High Street South 1 (Guitar) Sevenoaks	Roadside	553141	154263	2m	NO2	Y	N	Y	1m	Y
DT3	Garvock Drive Sevenoaks	Urban Background	552467	154167	2m	NO2	N	N	Y	0m	N
DT27	High Street South 2 (Sev School) Sevenoaks	Roadside	553139	154259	2.5m	NO2	Y	N	Y	3m	Y
DT28	High Street North 2 (Sev Sennockian) Sevenoaks	Kerbside	552045	154883	2.5m	NO2	Y	N	N (2m)	0.5m	Y
DT29	High Street North 3 (Water Trough) Sevenoaks	Roadside	553073	155026	2.5m	NO2	Y	N	N (3m)	2m	N
DT48	73 London Road (Brunch) Sevenoaks	Roadside	552867	154863	2m	NO2	Y	N	Y	1.5m	Y
DT49	20 London Road (Butchers) Sevenoaks	Roadside	553018	154654	2m	NO2	Y	N	Y	2m	Y

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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?
DT51	130 London Road (Opp Car Sales) Sevenoaks	Kerbside	552662	155153	2.5m	NO2	Y	N	N (3m)	0.5m	Y
DT52	142 London Road (Lulworth) Sevenoaks	Roadside	552506	155272	2.5m	NO2	Y	N	N (6m)	2m	Y
DT77	Montreal Road/ Amherst Hill Sevenoaks	Roadside	551529	155967	2.5m	NO2	N	N	N (4m)	2m	Y
DT87	Bradbourne Vale Road South	Roadside	551640	156335	2.5m	NO2	Y	N	N (10m)	2.5m	Y
DT88	Bradbourne Vale Road North	Roadside	552963	156583	2.5m	NO2	Y	N	N (20m)	1.5m	Y
DT89	133 London Road (Showroom) Sevenoaks	Kerbside	552677	155117	2.5m	NO2	Y	N	N (3m)	0.5m	N
DT90	4a St Johns Hill Sevenoaks	Roadside	553140	155898	2.5m	NO2	N	N	N (4m)	1.5m	Y
DT91	Egden Walk St Johns Sevenoaks	Roadside	553123	155709	2.5m	NO2	N	N	N (5m)	1.5m	N
DT23	Bat & Ball 1 Sevenoaks (Ferrari)	Roadside	553059	156624	2.5m	NO2	Y	N	Y	4m	N

Sevenoaks District Council

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?
DT30	Bat & Ball 2 Otford Road Sevenoaks	Roadside	553019	155692	2.5m	NO2	Y	N	N (7m)	3m	N
DT31	Bat & Ball 3 Seal Road Sevenoaks	Roadside	553154	156685	2.5m	NO2	Y	N	N (1.5m)	1.5m	Y
DT32	Bat & Ball 4 St Johns Sevenoaks	Roadside	553151	156558	2.5m	NO2	Y	N	Y	1.5m	Y
DT5	Riverhead 2 (Laundry) North West	Kerbside	551414	156197	2.5m	NO2	Y	N	N (1.5m)	0.5m	Y
DT6	Riverhead 3 (Opp shops) East	Roadside	551440	156165	2.5m	NO2	Y	N	N (6m)	3m	Y
DT42	62 London Road Riverhead	Roadside	551318	156373	2.5m	NO2	Y	N	N (2m)	2m	Y
DT76	Worships Hill/ Witches Lane, Riverhead	Roadside	551026	155710	2.5m	NO2	Y	N	N (36m)	2m	Y
DT7	High Street East 1 (Road Sign) Seal	Roadside	555092	156694	2.5m	NO2	Y	N	Y	1m	Y
DT8	High Street West 1 (Garage) Seal	Roadside	554991	156726	2.5m	NO2	Y	N	N (3m)	3m	N
DT33	High Street East 2 (Pizza) Seal	Roadside	555068	156711	2m	NO2	Y	N	Y	1.5m	Y

Sevenoaks District Council

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?
DT34	High Street West 2 (Dorton House) Seal	Roadside	554637	156780	2.5m	NO2	Y	N	N (7m)	2m	Y
DT35	Seal Hollow Road/ A25	Roadside	554093	156798	2.5m	NO2	Y	N	N (18m)	2.5m	Y
DT43	Miners Arms, London Road, Dunton Green	Roadside	551281	156860	2.5m	NO2	Y	N	N (2.5m)	2m	Y
DT54	57 London Road, Dunton Green	Roadside	551216	157007	2.5m	NO2	Y	N	N (8m)	2m	Y
DT57	193 London Road, Dunton Green	Roadside	551007	155585	2m	NO2	Y	N	N (1.5m)	2m	N
DT74	Westerham Road, (Devon Cott) Bessels Green	Roadside	550782	155585	2.5m	NO2	Y	N	N (8m)	2m	N
DT86	59 Westerham Road, Bessels Green	Roadside	550872	155585	2m	NO2	Y	N	Y	1.5m	Y
DT96	High Street Eynsford	Roadside	554007	165477	2.5m	NO2	N	N	Y	1m	N
DT71	204 Main Road, Sundridge	Roadside	548251	155354	2.5m	NO2	Y	N	N (1.5m)	1m	Y
DT92	8 Chevening Road, Sundridge	Roadside	548474	155424	2.5m	NO2	Y	N	N (8m)	1.5m	N

Sevenoaks District Council

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?
DT12	Station Road (M25) Brasted	Roadside	546815	155866	2m	NO2	Y	N	N (42m)	7m to M25	Y
DT84	West End Brasted	Roadside	546802	155000	2.5m	NO2	Y	N	Y	1m	Y
DT85	Chart Lane Brasted	Roadside	547097	155099	2.5m	NO2	Y	N	Y	1m	N
DT24	High Street, (Wells Close) Westerham	Roadside	544415	153914	2.5m	NO2	Y	N	N (3m)	1m	N
DT25	Vicarage Hill, Westerham	Roadside	544770	154000	2.5m	NO2	Y	N	N (3m)	1m	N
DT36	Market Square, Westeham	kerbside	544594	154025	2.5m	NO2	Y	N	N (3m)	1m	Y
DT75	London Road 2, (Antique Shop) Westerham	Roadside	544600	154139	2.5m	NO2	Y	N	N (5m)	1m	Y
DT13	Wested Lane, Swanley	Roadside	552610	167700	2.5m	NO2	Y	N	N (14m)	5m	Y
DT14	Wadard Terrace, Button St Swanley	Roadside	553109	167880	2.5m	NO2	Y	N	N (15m)	115m to M25	N
DT39	Bartholomew Way, Swanley	Roadside	551492	168695	2.5m	NO2	Y	N	N (13m)	2m	Y
DT40	London Road 1 (traffic lights) Swanley	Kerbside	551592	168162	2.5m	NO2	Y	N	N (2m)	0.5m	Y

Sevenoaks District Council

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?
DT41	London Road 2 (Bus) Swanley	Roadside	552174	168162	2.5m	NO2	Y	N	N (6m)	1.5m	Y
DT81	Farningham Hill Road, Swanley	Urban	553416	167615	2.5m	NO2	Y	N	N (17m)	27m to M20	N
DT83	Jessamine Terrace, Birchwood Road Swanley	Roadside	550298	169582	2.5m	NO2	Y	N	N (0.5m)	1m	Y
DT93	Pucknells, Birchwood Road, Swanley	Roadside	550283	169743	2.5m	NO2	N	N	N (10m)	2m	Y
DT94	Birchwood Road Junction London Road	Roadside	550258	169575	2m	NO2	Y	N	N (10m)	2m	Y
DT95	Malvern, Birchwood Road, Swanley	Roadside	550377	169479	2.5m	NO2	Y	N	N (20m)	2m	Y
DT26	Farningham Hill (A20)	Roadside	554217	167252	2m	NO2	Y	N	Y	5m to A20/ 90m to M20	N
DT67	Brands Hatch/Ash Road	Roadside	558033	164933	2m	NO2	Y	N	Y	0.5m	N
BC1	Greatness AQ Station 1	Urban Background	553603	156774	2m	NO2	N	Y	Y	46m	N
BC2	Greatness AQ Station 2	Urban Background	553603	156774	2m	NO2	N	Y	Y	46m	N
BC3	Greatness AQ Station 3	Urban Background	553603	156774	2m	NO2	N	Y	Y	46m	N

Sevenoaks District Council

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?
BC4	Bat & Ball AQ Station 1	Roadside	553044	156690	2m	NO2	Y	Y	N (30m)	8m	N
BC5	Bat & Ball AQ Station 2	Roadside	553044	156690	2m	NO2	Y	Y	N (30m)	8m	N
BC6	Bat & Ball AQ Station 3	Roadside	553044	156690	2m	NO2	Y	Y	N (30m)	8m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Greatness Continuous Monitoring Station (CM1) is a suburban background monitoring site in a park and is approximately 46 meters away from the nearest busy road (A25). Greatness CMS shows a relatively steady background level of NO₂.

Bat & Ball Continuous Monitoring Station (CM2) is alongside a busy and congested junction which is within an AQMA and is approximately 8m from the roadside due to location difficulties. Since some housing in parts of the AQMA is only 1 m from the kerb, the site does not represent the worst case exposure.

In 2014 neither of the continuous monitoring sites recorded any exceedance of the air quality objectives.

Of the 54 NO₂ diffusion tubes that were deployed in 2014 19 sites exceeded the 40µg/m³ objective. All of these sites are within existing AQMAs.

Table 2.3 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 $\mu\text{g}/\text{m}^3$				
					2010	2011	2012	2013	2014
Greatness CM1	Urban Background	N	84	84	21	19	19	20	17
Bat & Ball CM2	Roadside	Y	94	94	31	30	29	31	29

^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 2.3 Trends in Annual Mean NO₂ Concentrations Measured at Automatic Monitoring Sites

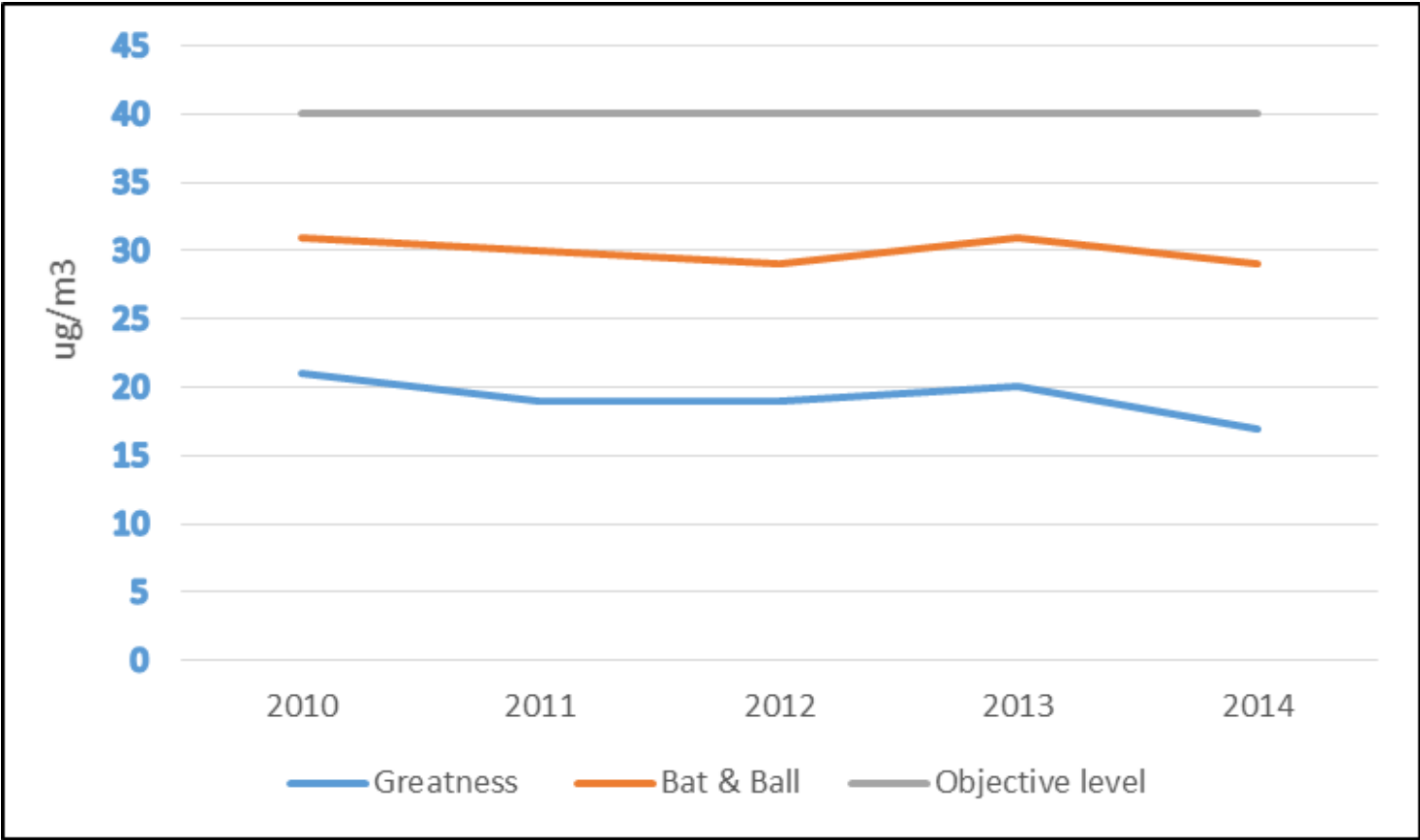


Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

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	2011	2012	2013	2014
Greatness (CM1)	Urban Background	N	84	84	0	0	0	0	0
Bat & Ball (CM2)	Roadside	Y	94	94	0	0	0	0	1

^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

Table 2.5 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 = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
DT2	High Street South 1 (Guitar) Sevenoaks	Roadside	Y	N	100%	-	N	56.7
DT3	Garvock Drive Sevenoaks	Urban Background	N	N	100%	-	N	12.3
DT27	High Street South 2 (Sev School) Sevenoaks	Roadside	Y	N	100%	-	N	39.4
DT28	High Street North 2 (Sev Sennockian) Sevenoaks	Kerbside	Y	N	100%	-	N	46.0
DT29	High Street North 3 (Water Trough) Sevenoaks	Roadside	Y	N	83%	-	N	30.0
DT48	73 London Road (Brunch) Sevenoaks	Roadside	Y	N	92%	-	N	32.6
DT49	20 London Road (Butchers) Sevenoaks	Roadside	Y	N	100%	-	N	34.9

Sevenoaks District Council

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 = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
DT51	130 London Road (Opp Car Sales) Sevenoaks	Kerbside	Y	N	100%	-	N	39.2
DT52	142 London Road (Lulworth) Sevenoaks	Roadside	Y	N	100%	-	N	39.6
DT77	Montreal Road/ Amherst Hill Sevenoaks	Roadside	N	N	100%	-	N	42.8
DT87	Bradbourne Vale Road South	Roadside	Y	N	92%	-	N	53.8
DT88	Bradbourne Vale Road North	Roadside	Y	N	100%	-	N	35.1
DT90	4a St Johns Hill Sevenoaks	Roadside	N	N	100%	-	N	35.3
DT23	Bat & Ball 1 Sevenoaks (Ferrari)	Roadside	Y	N	100%	-	N	38.8
DT30	Bat & Ball 2 Otford Road Sevenoaks	Roadside	Y	N	100%	-	N	35.1
DT31	Bat & Ball 3 Seal Road Sevenoaks	Roadside	Y	N	100%	-	N	52.0
DT32	Bat & Ball 4 St Johns Sevenoaks	Roadside	Y	N	100%	-	N	55.3
DT5	Riverhead 2 (Laundry) North West	Kerbside	Y	N	92%	-	N	48.2

Sevenoaks District Council

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 = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
DT6	Riverhead 3 (Opp shops) East	Roadside	Y	N	100%	-	N	47.1
DT42	62 London Road Riverhead	Roadside	Y	N	92%	-	N	44.4
DT76	Worships Hill/ Witches Lane, Riverhead	Roadside	Y	N	100%	-	N	36.2
DT7	High Street East 1 (Road Sign) Seal	Roadside	Y	N	100%	-	N	49.5
DT8	High Street West 1 (Garage) Seal	Roadside	Y	N	100%	-	N	31.6
DT33	High Street East 2 (Pizza) Seal	Roadside	Y	N	100%	-	N	46.7
DT34	High Street West 2 (Dorton House) Seal	Roadside	Y	N	83%	-	N	35.3
DT35	Seal Hollow Road/ A25	Roadside	Y	N	92%	-	N	40.5
DT43	Miners Arms, London Road, Dunton Green	Roadside	Y	N	100%	-	N	33.9
DT54	57 London Road, Dunton Green	Roadside	Y	N	100%	-	N	38.1
DT74	Westerham Road, (Devon Cott) Bessels Green	Roadside	Y	N	100%	-	N	39.7

Sevenoaks District Council

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 = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
DT86	59 Westerham Road, Bessels Green	Roadside	Y	N	100%	-	N	39.4
DT71	204 Main Road, Sundridge	Roadside	Y	N	100%	-	N	32.4
DT12	Station Road (M25) Brasted	Roadside	Y	N	100%	-	N	43.3
DT84	West End Brasted	Roadside	Y	N	100%	-	N	34.9
DT85	Chart Lane Brasted	Roadside	Y	N	100%	-	N	48.3
DT24	High Street, (Wells Close) Westerham	Roadside	Y	N	100%	-	N	35.0
DT25	Vicarage Hill, Westerham	Roadside	Y	N	92%	-	N	30.1
DT36	Market Square, Westeham	kerbside	Y	N	67%	N	N	51.7
DT13	Wested Lane, Swanley	Roadside	Y	N	100%	-	N	37.1
DT14	Wadard Terrace, Button St Swanley	Roadside	Y	N	100%	-	N	35.4
DT39	Bartholomew Way, Swanley	Roadside	Y	N	92%	-	N	38.4
DT40	London Road 1 (traffic lights) Swanley	Kerbside	Y	N	83%	-	N	48.5

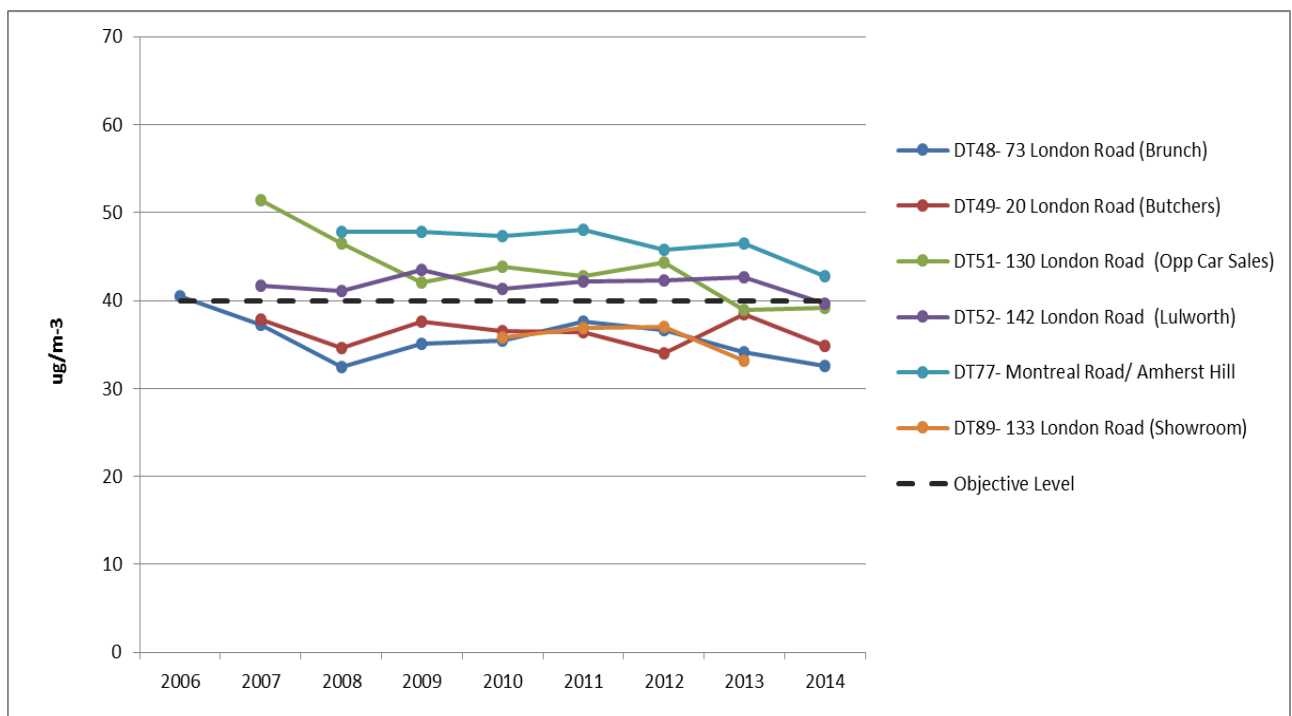
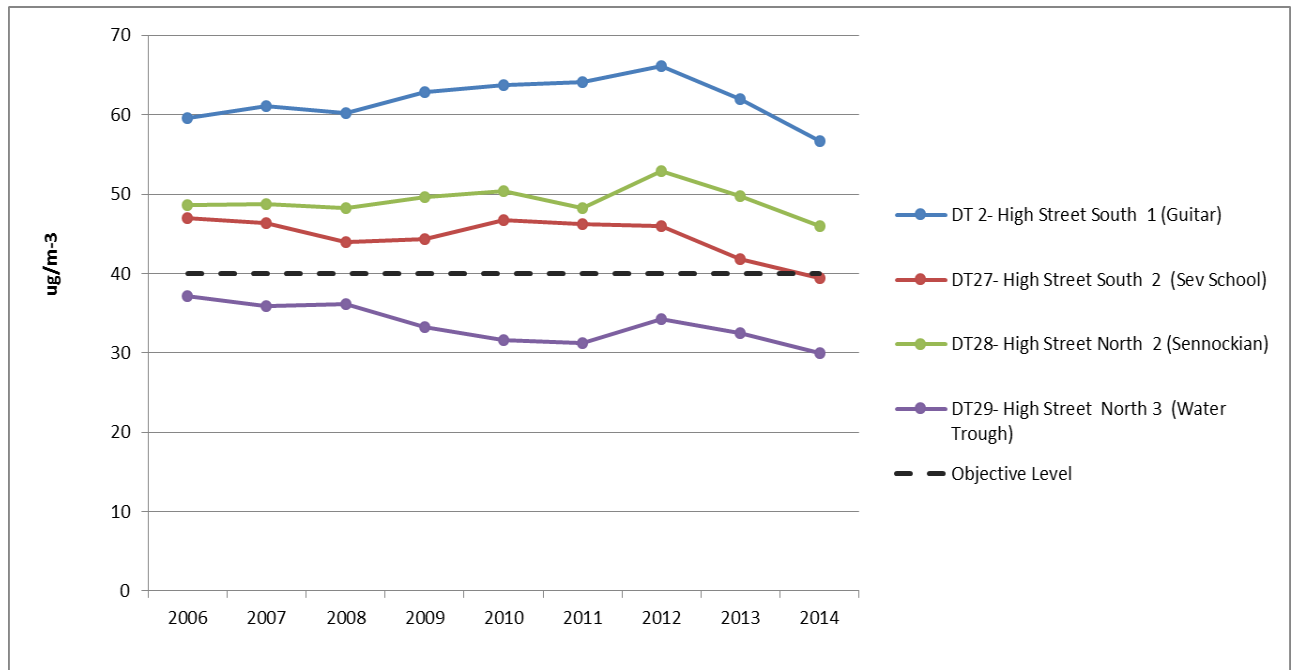
Sevenoaks District Council

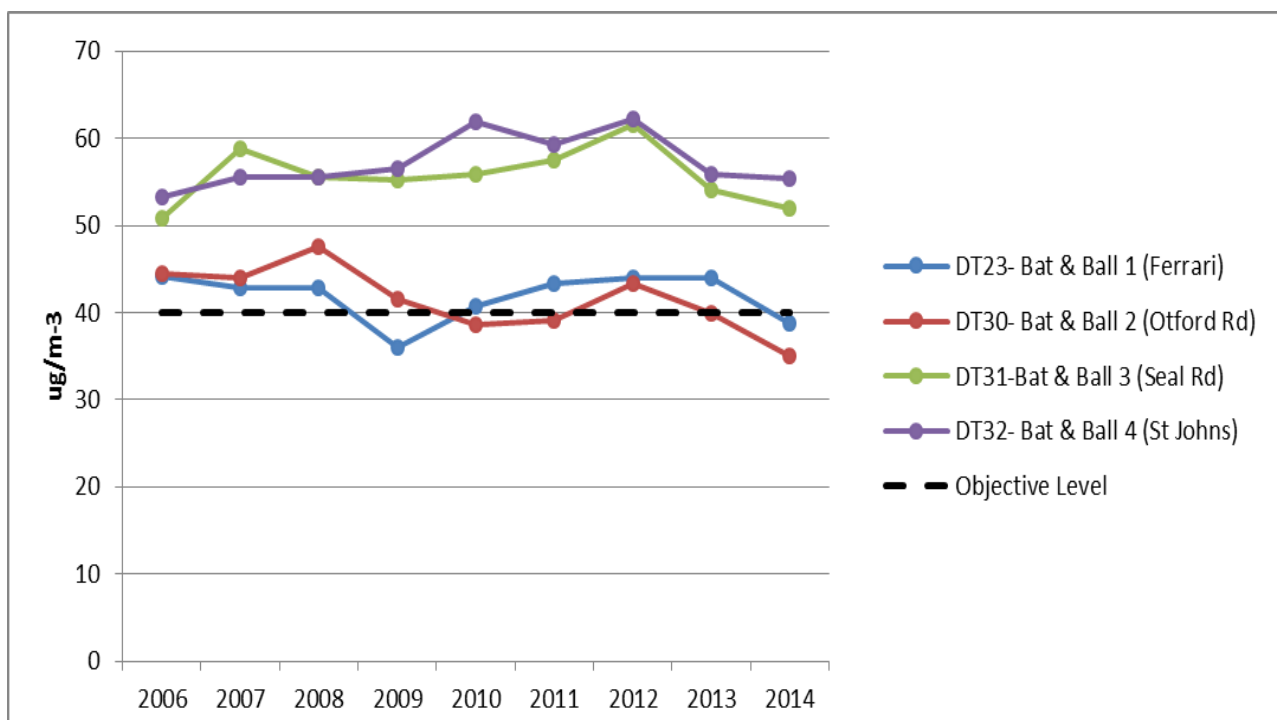
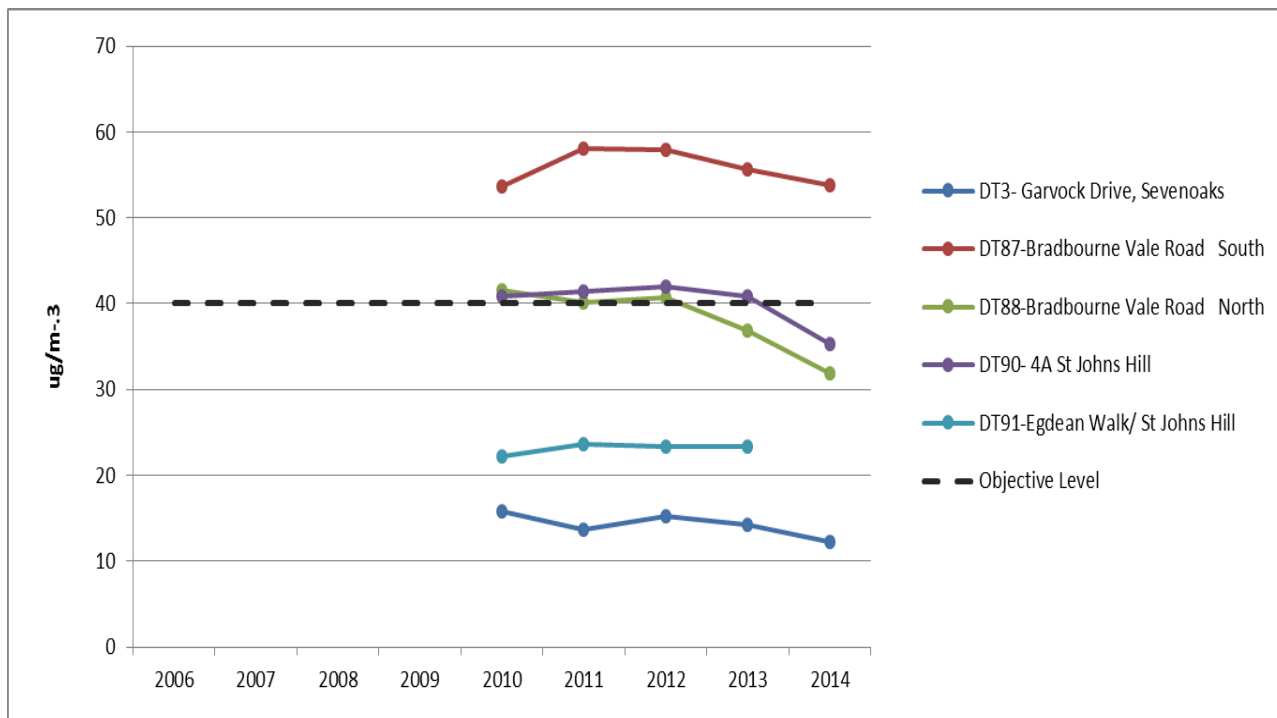
Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
DT41	London Road 2 (Bus) Swanley	Roadside	Y	N	100%	-	N	43.0
DT81	Farningham Hill Road, Swanley	Urban	Y	N	100%	-	N	32.0
DT83	Jessamine Terrace, Birchwood Road Swanley	Roadside	Y	N	100%	-	N	48.8
DT93	Pucknells, Birchwood Road, Swanley	Roadside	N	N	100%	-	N	31.5
DT94	Birchwood Road Junction London Road	Roadside	Y	N	92%	-	N	35.1
DT95	Malvern, Birchwood Road, Swanley	Roadside	Y	N	92%	-	N	35.2
DT26	Farningham Hill (A20)	Roadside	Y	N	100%	-	N	42.3
BC1	Greatness AQ Station 1	Urban Background	N	Y	100%	-	N	18.0
BC2	Greatness AQ Station 2	Urban Background	N	Y	100%	-	N	18.5
BC3	Greatness AQ Station 3	Urban Background	N	Y	100%	-	N	19.0
BC4	Bat & Ball AQ Station 1	Roadside	Y	Y	100%	-	N	39.4
BC5	Bat & Ball AQ Station 2	Roadside	Y	Y	100%	-	N	38.7

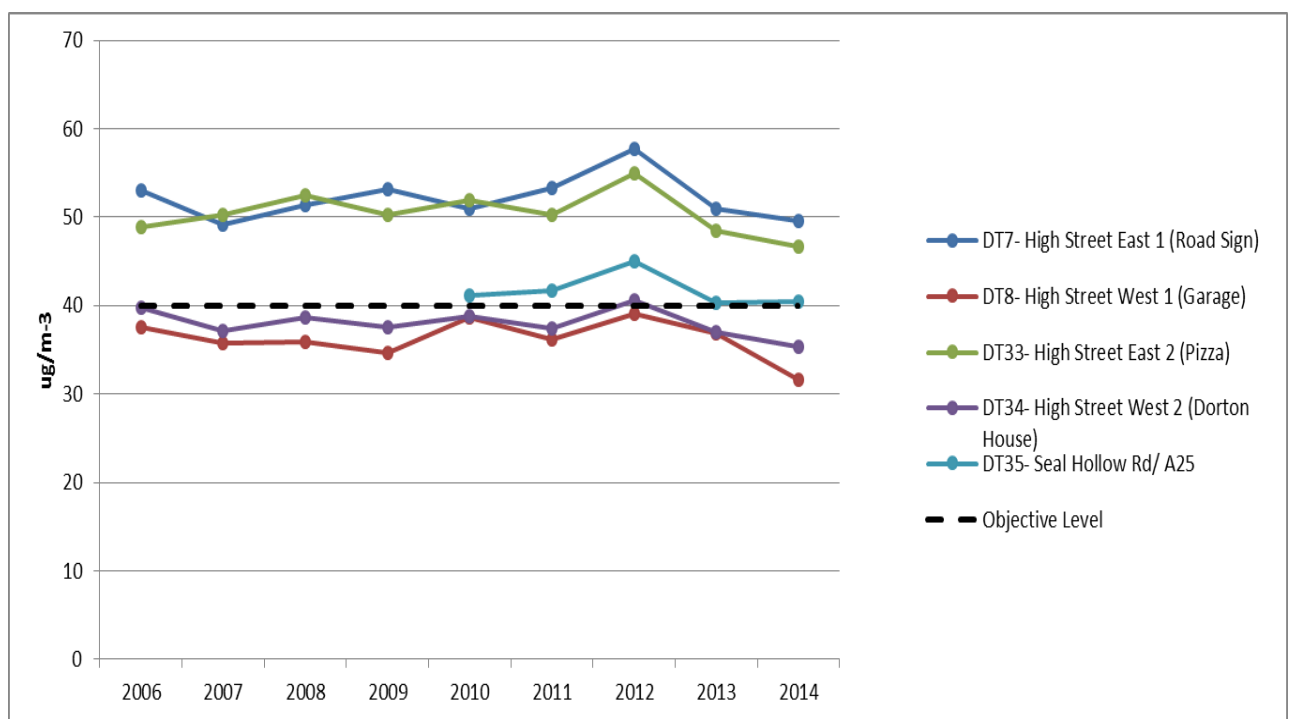
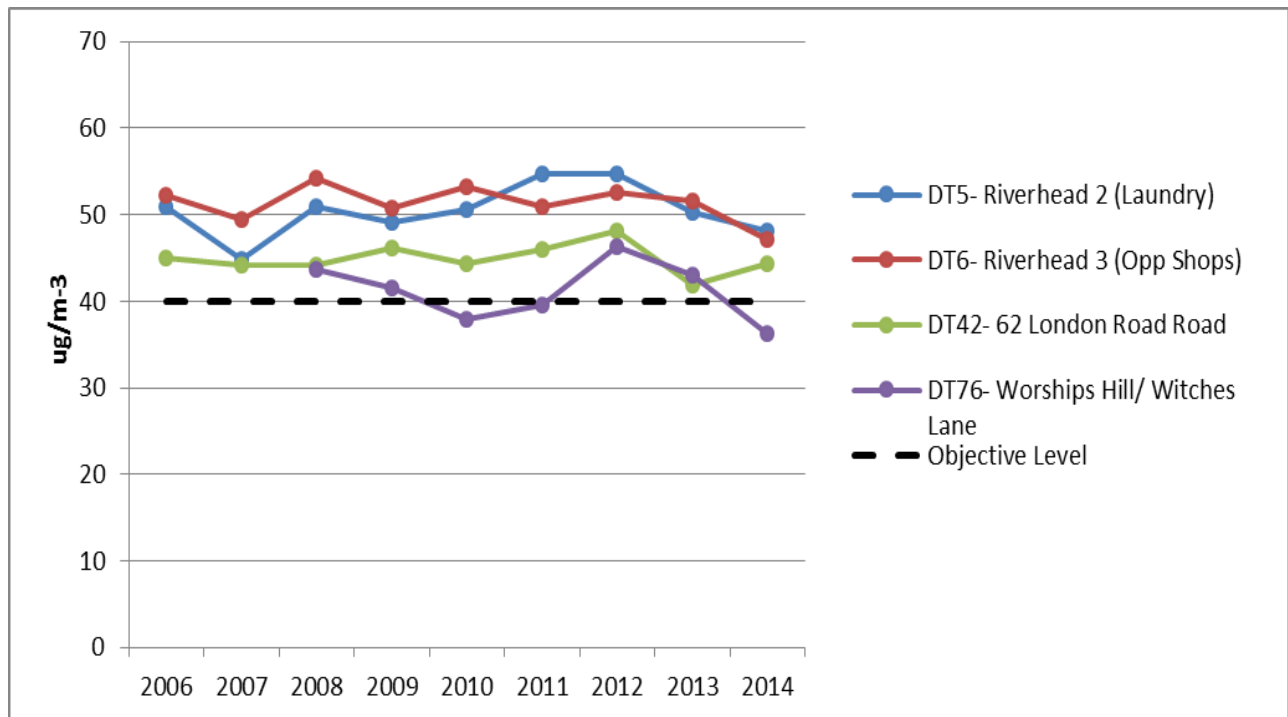
Sevenoaks District Council

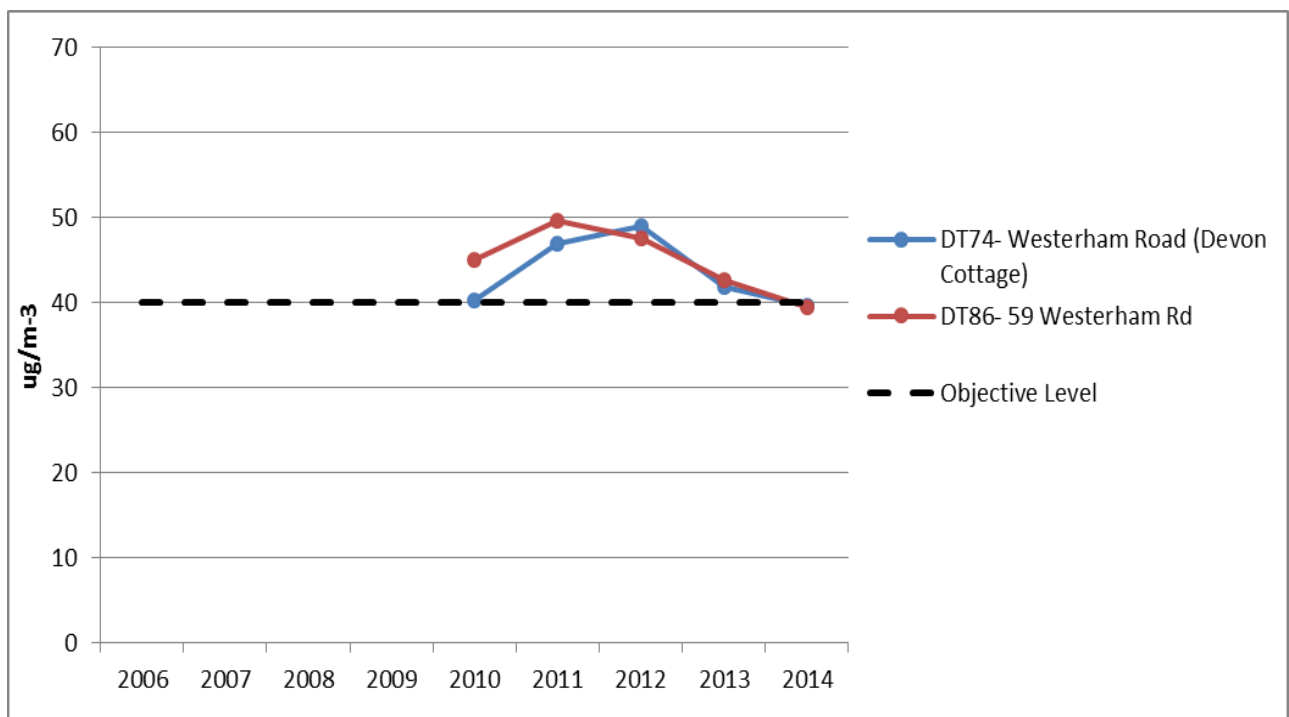
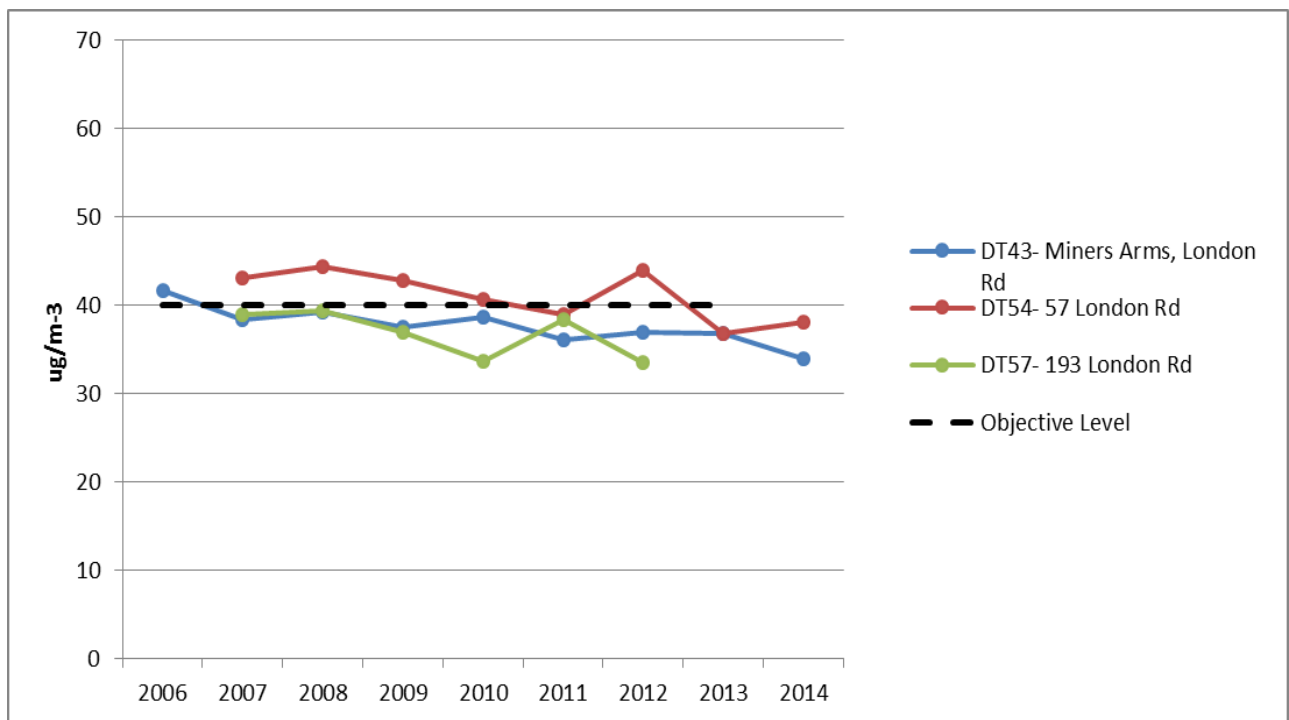
Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = XX)
								2014 ($\mu\text{g}/\text{m}^3$)
BC6	Bat & Ball AQ Station 3	Roadside	Y	Y	100%	-	N	37.3

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites









2.2.2 **PM₁₀**

SDC only monitors PM10 at the Greatness background site and at the roadside Bat & Ball site.

PM10 monitoring is by TEOM which has been corrected using VCM

The annual mean at both sites did not exceed 40 µg/m³

Neither site had more than 35, 24-hour exceedences of 50 µg/m³

Greatness is a background site and there is no relevant exposure. Bat & Ball is in an AQMA but not located close to exposed housing duty sitting issues.

Table 2.7 Results of Automatic Monitoring of PM₁₀: 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 $\mu\text{g}/\text{m}^3$				
						2010	2011	2012	2013	2014
Greatness (CM1)	Urban Background	N			Y	20	23	20	20	19
Bat & Ball (CM2)	Roadside	Y			Y	23	25	-	22	21

^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 2.8 Results of Automatic Monitoring for PM₁₀: 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	2011	2012	2013	2014
Great ness (CM1)	Urban Background	N	95	92	Y	1	13	12	4	5
Bat & Ball (CM2)	Roadside	Y				2	18	8	-	4

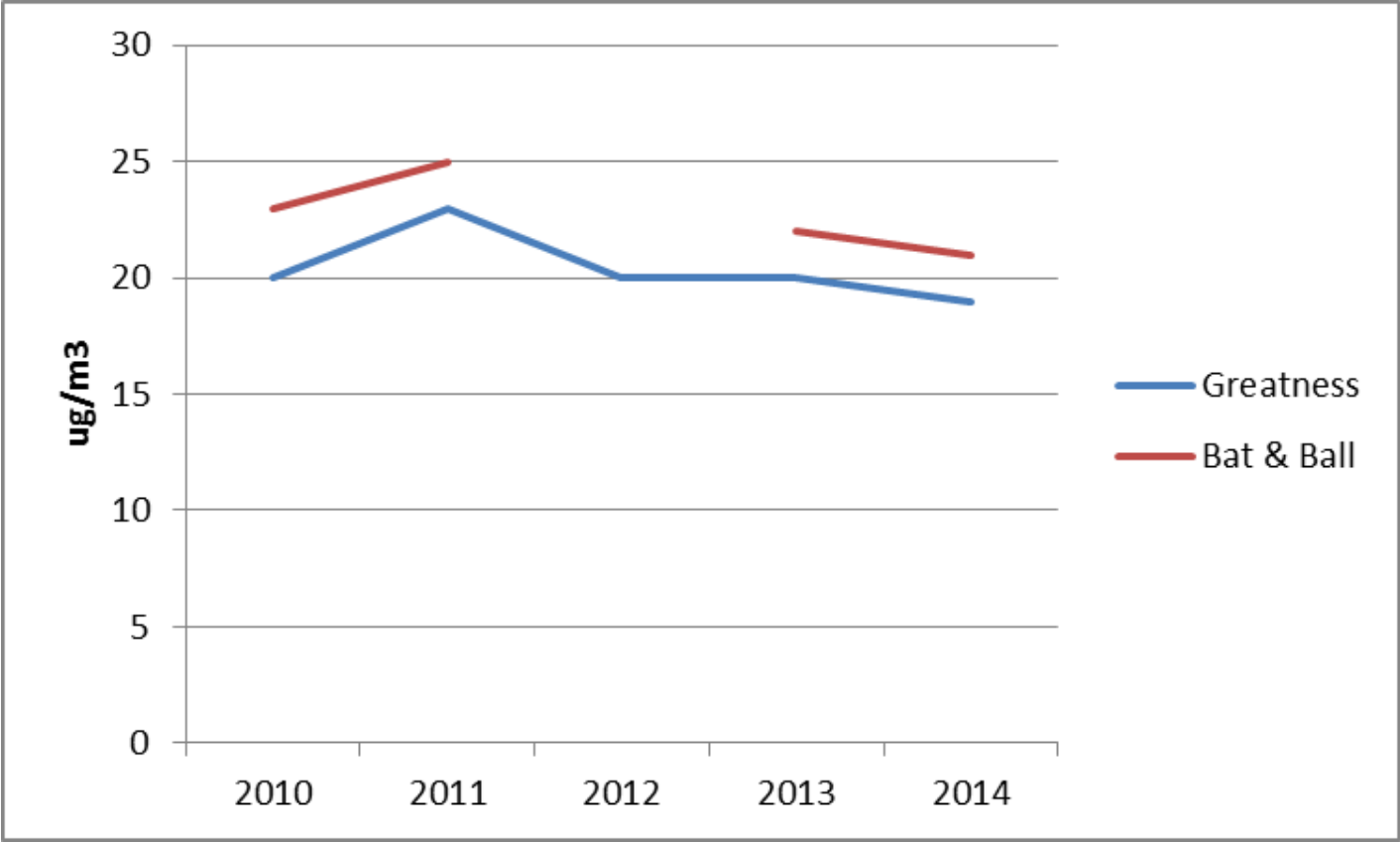
^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^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 2.5 Trends in Annual Mean PM₁₀ Concentrations



Levels of monitored PM₁₀ showed a slight reduction in 2014 from previous years. Levels remain below the objective level.

2.2.3 Sulphur Dioxide

Sulphur dioxide is no longer monitored

2.2.4 Benzene

Benzene is not monitored in Sevenoaks District.

2.2.5 Summary of Compliance with AQS Objectives

Sevenoaks District Council has examined the results from monitoring in the district. 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

Sevenoaks District 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

Sevenoaks District 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.

Sevenoaks District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

Sevenoaks District 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

Sevenoaks District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

The development of a new superstore along London Road Sevenoaks was highlighted in the previous progress report as requiring consideration in this USA. Having spoken with colleagues from Kent County Council Highways they have advised that traffic flows have improved as a result of this development. This road/junction has therefore not been assessed

Sevenoaks District Council has assessed new/newly identified roads with significantly changed traffic flows, and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.7 Bus and Coach Stations

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

Sevenoaks District Council has assessed new/newly identified bus stations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

Train services through the district consist of 3rd rail electric commuter trains and a mixture of electric and diesel freight primarily electric channel tunnel services. There are no depots or freight yards.

4.2.1 Stationary Trains

Sevenoaks District 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

Sevenoaks District 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)

Sevenoaks District 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

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

Sevenoaks District 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.

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

Sevenoaks District 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

Sevenoaks District 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

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

5.3 Petrol Stations

Sevenoaks District Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Sevenoaks District Council confirms that there are no known poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Sevenoaks District Council does not know of the existence of any biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Sevenoaks District Council does not know of the existence of any biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

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

7 Fugitive or Uncontrolled Sources

One fugitive source has been identified in a previous round of review and assessment. Sevenoaks District Council has installed a PM₁₀ analyser. Data from this analyser will be used to produce a detailed assessment for this PM₁₀ at this location.

Sevenoaks District Council has identified potential sources of fugitive particulate matter that meet specified criteria. Monitoring equipment has been installed which will go live later in the year. This data will be used in the production of a **Detailed Assessment for PM₁₀**.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Monitoring has identified levels of nitrogen dioxide in excess of the annual average objective level at 19 roadside locations. All of these monitoring locations are within existing AQMAs. Levels monitored were in general lower than in previous years.

8.2 Conclusions from Assessment of Sources

No new significant sources have been identified. One fugitive source has been identified in a previous round of review and assessment. Sevenoaks District Quarry has installed a PM₁₀ analyser. Data from this analyser will be used to produce a detailed assessment for this PM₁₀ at this location

8.3 Proposed Actions

Following completion of a suitable period of monitoring, complete the Detailed Assessment for PM10 fugitive emissions from Sevenoaks quarry/landfill site.

9 References

- Local Air Quality Management Technical Guidance
- LAQM LA Tools
- Sevenoaks District Council Action Plan 2009
- Sevenoaks District Council NO₂ Diffusion Tube monitoring data.
- Sevenoaks District Council continuous monitoring data – ERG, Kings College London

Appendices

Appendix A: QA/QC Data

Appendix A: QA/QC Data

Factor from Local Co-location Studies

Greatness					
	TUBE 1	TUBE2	TUBE3		Average
2014					
JAN	23.3	24.8	20.4		
FEB	15.9	20.6	18.9		
MAR	20.5	23	21.6		
APR	17.9	17.7	19.3		
MAY	11.1	13.8	15.3		
JUNE	10.1	9.6	10.2		
JULY	12.5	11	13.8		
AUG	16.5	16.1	16.6		
SEPT	20.1	20.3	19.6		
OCT	16.8	16.5	17.4		
NOV	24.1	22.7	23.7		
DEC	27.4	26.2	30.7		
ave	18.01667	18.525	18.95833		18.5
			continuous Analyser		17
				Bias factor	0.918919

Bat & Ball					
	TUBE 1	TUBE2	TUBE3		AVERAGE
2014					
JAN	59.7	49.7	46.4		
FEB	43.3	48.4	47.7		
MAR	41.3	39.9	32.9		
APR	34.7	34.1	36.3		
MAY	32.6	35.2	27.5		
JUNE	24.7	28.3	27.6		
JULY	28	30.5	27		
AUG	34.9	36	34.3		
SEPT	35.6	34.4	34.3		
OCT	44.8	37.5	45.4		
NOV	48	45.4	44		
DEC	45.1	45.1	43.8		
ave	39.39167	38.70833	37.26667		38.45556
			continuous Analyser		29
				Bias factor	0.754117

Average Bias = 0.84

Diffusion Tube Bias Adjustment Factors

The tubes have been compared with the reference method by a triplicate co-location study with the chemiluminescent NOX. analysers at Greatness Park, Sevenoaks.

The nationally derived Bias Factor for 2014 was 0.81

The locally derived Bias Factor from the above co-location study for 2014 was 0.84

Discussion of Choice of Factor to Use

The Local Bias factor has been used for consistency and it is the more conservative.

PM Monitoring Adjustment

All PM10 monitoring is by TEOM. Data is collected and ratified by ERG Kings College London. They have corrected all results using their Volatile Correction Model.

QA/QC of Automatic Monitoring

LSO, routine calibration/span checks, etc are carried out by ERG Kings College London to London Air Quality Network standards and the National Physical Laboratory visit twice a year to undertake full calibration checks.

QA/QC of Diffusion Tube Monitoring

Diffusion tube supply and analysis is carried out by Environmental Services Group (ESG). ESG take part in the Workplace Analysis Scheme for Proficiency (WASP) 100% of results submitted were deemed to be satisfactory for this time period.

