



2019 Air Quality Annual Status Report (ASR)

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

Sevenoaks District Council

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Executive Summary: Air Quality in Our Area

This report fulfils the requirements of the Local Air Quality Management 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.

Monitoring in 2018 has shown an increase in NO₂ levels at 29 passive monitoring sites and reductions at 18. A slight decrease in levels were reported at the continuous monitors for both NO₂ and PM₁₀. No breaches of the NO₂ hourly mean or PM₁₀ daily mean objectives were recorded within the District.

Sevenoaks District Council is currently working on the production of a new Air Quality Action Plan which will incorporate new measures to reduced levels of pollution within the declared AQMA's.

Air Quality in Sevenoaks

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

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

The primary source of air pollution within the district is from nitrogen dioxide and particulate matter from road 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.

Diffusion tube monitoring has shown increases in levels of NO₂ at 29 tube sites and decreases at 18 sites in comparison to the previous year's results. All results that

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

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

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

show any breaches of the annual objectives are within current AQMA's. A new site that was commissioned near to Sevenoaks Railway Station recorded a level of 34 µg/m³ which is below the objective level, however the council will continue to monitor at this site to confirm compliance with the objective level.

The majority of monitoring carried out within the district is at locations classified as being roadside, and consideration should be given that these results do not indicate the levels of exposure at the nearest receptor to the pollution source. Monitored levels have been corrected for distance to the nearest residential receptor where appropriate. This is displayed in table B1 and full details of the calculations can be found in Appendix C.

Automatic monitoring has shown slight decreases in levels of NO₂, and all automatic monitoring remains below the objective levels for all pollutants.

Actions to Improve Air Quality

The primary source of air pollution within the district is from road 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. Many of the actions require the input of highways authorities. Sevenoaks District Council continues to work closely with Kent County Council Highways. Air quality is a theme that is fed into the Sevenoaks Joint Transport Board.

As well as actions to improve air quality Sevenoaks District Council also operates a scheme with an aim to improve health and reduce exposure to air pollution.

Sevenoaks District Council provides a free messaging service that will send free messages to mobile or home telephones to inform vulnerable people that poor air quality is predicted in the area.

Sevenoaks District Council has carried out a procurement exercise for the production of a new Air Quality Action Plan which will incorporate new measures to reduced levels of pollution within the declared AQMA's.

The council now has eight electrical charging bays within the town centre Buckhurst car park as well as operating two electric vehicles as part of its fleet.

Conclusions and Priorities

Overall, monitoring obtained this year seems to indicate a slight increase in pollution levels at the majority of sites. Pollution levels have been distance corrected however

at some locations this has demonstrated little reduction particularly in small towns located along the A25 where residential dwellings are located in very close proximity to the kerb of the road. This represents a significant challenge as where there is congestion on the M25 and/or the M26 traffic overspill onto the local road network occurs, particularly on roads such as the A25.

The Council's main priority moving forward is the production of a new air quality action plan which is currently in the final stages of procurement. It is hoped that an updated plan will bring in new measures to reduce levels of pollution within the declared AQMA's. We also understand that AQMAs have been declared in the past based on modelling work carried out some time ago. There are gaps in the monitoring network in some of these AQMAs and it is proposed to carry out a review of the location of diffusion tubes to be carried out to identify if some of the AQMAs can be amended or revoked.

The airAlert scheme has been operating for a number of years in Sevenoaks District, Dartford and Sevenoaks Environmental Health Partnership are looking to expand this service into Dartford. It is proposed that this will be relaunched in Sevenoaks as part of this expansion.

Local Engagement and How to get Involved

Members of the public can help to improve air quality by making small changes to their everyday lives.

- Walking and cycling instead of making car journeys will reduce the amount of traffic on the local roads and reducing emissions and also helping to improve the congestion. Other small changes include not allowing car engines to idle when vehicles are stationary.
- Anticipate traffic flow, keeping in the highest gear possible and maintaining a steady speed at a low revs per minute (RPM). This will help to reduce pollution from your car, and save on fuel consumption.
- Consider purchasing a cleaner electric, hybrid vehicle or one that meets the euro 6 emission standard.
- Maintain your vehicle regularly, if a diesel, make sure the oil and filters are changed frequently. If you notice sooty emissions from the exhaust, take your

vehicle to a servicing garage as soon as possible. Ensure your tyres are maintained at the optimum pressure to achieve the best fuel consumption and save you money.

- For short journeys, walking, cycling and public transport can be the best and cheapest option.

Some areas of the District are subject to smoke control orders under the Clean Air Act 1993. Residents can check if their property is include by visiting the councils [Website](#).

In a Smoke Control area only fuel on the list of authorised fuels, or any of the following 'smokeless' fuels can be burned, unless an exempt appliance is used.

- Anthracite
- Semi-anthracite
- Gas
- Low volatile steam coal

Even if your property is not within a Smoke Control Area, you should be aware that appliances that burn solid fuel contribute to local air pollution and evidence is that their contribution is increasing due to the popularity of solid fuel burning for occasional heating requirements, especially in the winter time. Domestic solid fuel burning can generate significant levels of particulate pollution, and the council have noted an increase in complaints concerning smoke emitted from domestic properties. Non-compliance with the smoke control rules can result in a fine of up to £1000.

The Department for Environmental Food and Rural Affairs have produced [Guidance](#) should residents still wish to use solid fuels or solid fuel appliances.

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1 Local Air Quality Management

This report provides an overview of air quality in Sevenoaks District Council during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Sevenoaks Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMA)s are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMA)s declared by Sevenoaks District Council can be found in Table 2.1. Further information related to declared or revoked AQMA)s, including maps of AQMA boundaries are available online at

<http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality> or

see full list at <http://uk-air.defra.gov.uk/aqma/list> Alternatively, see Appendix D:

Map(s) of Monitoring Locations and AQMA)s, which provides a map of air quality monitoring locations in relation to the AQMA(s)

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration	Now			Name	Date of Publication	Link
AQMA 1	01/03/2002 Amended 2005	NO2 Annual Mean	SDC	Junction 3 of the M25 to the district boundary with Tonbridge and Malling Borough Council including part of the A20 at Farningham.	YES		45 $\mu\text{g}/\text{m}^3$	(DT26)	31.5 $\mu\text{g}/\text{m}^3$	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 2	01/03/2002	NO2 Annual Mean	SDC	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	YES		55 $\mu\text{g}/\text{m}^3$	(DT12)	30.2 $\mu\text{g}/\text{m}^3$	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality

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				A25 at Bessel's Green								
AQMA 3	01/03/2002	NO2 Annual Mean	SDC	M26 - from junction 5 of the M25 to the district boundary with Tonbridge and Malling Borough Council.	YES		50 µg/m ³	No current monitoring		Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 4	01/03/2002	NO2 Annual Mean	Swanley	Swanley Bypass - from junction 3 of the M25 to the district boundary with the London Borough of Bromley	YES		45 µg/m ³	No current monitoring		Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 6	01/09/2006	PM10 24 Hour Mean	SDC	Junction 5 to Kent / Surrey border	YES		Risk predicted	No current monitoring		Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 8	01/09/2006	NO2 Annual Mean	Swanley	Swanley – London Road (East); High Street; Bartholomew Way and parts of Central town area	YES		56.7 µg/m ³	(DT40)	32.8 µg/m ³	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality

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AQMA 10	10/01/2008	NO2 Annual Mean	Sevenoaks	Sevenoaks – High Street & London Road	YES		46.5 $\mu\text{g}/\text{m}^3$	(DT51)	34.9 $\mu\text{g}/\text{m}^3$	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 13	14/01/2014	NO2 Annual Mean	SDC	The entire length of the A25 from the border with Tonbridge and Malling in the east to the border with Tandridge in the west.	YES		55.3 $\mu\text{g}/\text{m}^3$	(DT32)	50.8 $\mu\text{g}/\text{m}^3$	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality
AQMA 14	14/01/2014	NO2 Annual Mean	Swanley	The junction of London Road and Birchwood Road, Swanley.	YES		48.8 $\mu\text{g}/\text{m}^3$	(DT83)	41.4 $\mu\text{g}/\text{m}^3$	Sevenoaks Air Quality Action Plan	2009	http://www.sevenoaks.gov.uk/services/community-and-living/pollution/air-quality

☐ **Sevenoaks Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

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

Due to delays with last year's report submission, we do not currently any feedback from DEFRA from last year's report.

Sevenoaks Council has taken forward a number of direct measures during the current reporting year of 2018 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Sevenoaks Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of declared AQMA's.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	The Sevenoaks Joint Transport Board will continue to consider and review options and proposals made under the Traffic Management Act and the LTP as well as via the Member/Officer air quality working group and both liaise and lobby KCC Highways Services to establish scheme acceptance, prioritisation and funding	Traffic Management	Other	SDC	2009-13	2009-13	N/A	<0.4ugm/3	Ongoing	N/A	
2	The District Council will continue to consider the impact new developments have on air quality and take appropriate steps to minimise any increase in air	Policy Guidance and Development Control	Other	SDC	2009-13	2009-13	N/A	<0.4ugm/4	Ongoing	N/A	
3	Set up an internal working group to identify, implement and monitor air quality mitigation measures secured by Section 106 Agreement.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	SDC	2009-13	2009-13	N/A	<0.4ugm/5	Working group set up and meeting regularly	N/A	Working group set up and meeting regularly

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4	For the KCC/SDC Member/officer air quality working group to make recommendations to the JTB regarding suitable traffic reducing proposals	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	SDC	2009-10	2011-13	N/A	<0.2ugm/6	Ongoing	Ongoing	Regular liaison and reporting of air quality issues to JTB
5	The Council will demonstrate best practice in the purchase and operation of its own vehicle fleet in order to cut harmful emissions where possible	Traffic Management	UTC, Congestion management, traffic reduction	SDC	Ongoing	Ongoing	N/A	No Specific Target	Ongoing	Ongoing	SDC currently operate 2 Electric cars used for parking enforcement, 2 electric bicycles and an electric road sweeper.
6	The District Council will continue to promote and publicise schemes including working with partners where appropriate to encourage a reduction in car use	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	SDC	2009-13	2009-13	N/A	No Specific Target	Ongoing	Ongoing	10 electric vehicle charging points recently installed in public car parks and a programme to install more points in districts car parks in coming year
7	Reducing congestion and improving air quality as a result through parking schemes	Promoting Travel Alternatives	Personalised Travel Planning	SDC	Ongoing	Ongoing	N/A	No Specific Target	Ongoing	Ongoing	Regular review of car parks to help ensure drivers can find convenient parking rather than searching for a space.
8	The District Council will promote a number of initiatives to reduce energy consumption, improve energy efficiency and recycling and develop its carbon management role	Traffic Management	Emission based parking or permit charges	SDC	Ongoing	Ongoing	N/A	<0.2umg/3	Ongoing	Ongoing	Retrofitting low carbon measures in housing stock encouraging switch and save.

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9	Continue to improve and raise the level of knowledge and publicity relating to air pollution	Policy Guidance and Development Control	Other policy	SDC	Ongoing	Ongoing	N/A	No Specific Target	Ongoing	Ongoing	SDC is a member of the London Air Quality Network which disseminates information and health advice via their website.
10	AirAlert: Provide AQ health warning for vulnerable people advising them about pollution levels in their area.	Public Information	Other	SDC	Ongoing	Ongoing	N/A	No Specific Target	Ongoing	Ongoing	AirAlert service has been supplemented by the development of an AirAlert app. Allowing information to be accessed by a wider audience.
11	Kent Planning Guidance	Other	Other	Kent and Medway Air Quality Partnership	Completed but not adopted				Whilst not adopted the guidance is being used informally as an advice note to developers		Guidance due for renewal before formal adoption
12	Kent Energy & Low Emission Strategy	Other	Other	KCC/Kent Air Quality Partnership					Working closely with Kent County Council over the formation of an Energy and Low Emissions Strategy. The aim of the strategy is to identify and prioritise action to reduce harmful emissions that contribute to climate change and poor air quality leading to impacts on people's health.	Draft strategy produced – Consultation being carried out June/July 2019	

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Sevenoaks District Council is working on producing a new Air Quality Action Plan that will include appropriate measures to reduce PM_{2.5} as well as other priority pollutants.

Parts of the District are subject to smoke control orders under the Clean Air Act 1993. Appliances that burn solid fuel contribute to local air pollution and evidence is that their contribution is increasing due to the popularity of solid fuel burning for occasional heating requirements, especially in the winter time. Non-compliance with the smoke control rules can result in a fine of up to £1000.

The Council will continue to work with developers and planners to reduce particulate emissions from construction site and if necessary take enforcement action if required.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Sevenoaks District Council undertook automatic (continuous) monitoring at 2 sites during 2018. Table A.1 in Appendix A shows the details of the sites.

National monitoring results are available at <https://uk-air.defra.gov.uk/data/>

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Sevenoaks District Council undertook non- automatic (passive) monitoring of NO₂ at 49 sites during 2018. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

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

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

Nitrogen dioxide diffusion tube monitoring has shown 12 roadside locations where results are above objective levels, all of which are within current AQMA's. There were no tubes that demonstrated a risk of a breach of the 1 hour mean objective. Overall there seems to be a slight increase in pollution levels at the majority of monitoring sites. In comparison to last year's results, levels at 29 sites have increased and 18 have shown a decrease.

Automatic monitoring for nitrogen dioxide is below the objective levels with no recorded breaches of the 1 hour mean objective.

3.2.2 Particulate Matter (PM₁₀)

Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

Table A.5 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

There were no recorded breaches of either the annual or 24 hour mean objectives at any of the monitoring locations. The Sevenoaks quarry site commenced monitoring in July 2015, however data capture for subsequent years was hindered by teething problems. Results from the monitoring have not shown any breaches of the objective levels. Therefore the site has now closed and no declaration of an AQMA will be required for this area.

3.2.3 Particulate Matter (PM_{2.5})

PM_{2.5} is not currently monitored for.

3.2.4 Sulphur Dioxide (SO₂)

Sulphur Dioxide is no longer monitored.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
CM1	Greatness	Urban Background	553603	156774	NO _x , NO, NO ₂ , PM ₁₀ , O ₃	NO	TEOM	Y	46m	1.8
CM2	Bat & Ball	Roadside	553044	156690	NO _x , NO, NO ₂ , PM ₁₀	YES	TEOM	N - (30m)	8m	1.8

Notes:

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

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT2	High Street South 1 (Guitar) Sevenoaks	Roadside	553157	154415	NO2	YES	Y	1	NO	2m
DT3	Garvock Drive Sevenoaks	Urban Background	552467	154167	NO2	NO	Y	0	NO	2m
DT27	High Street South 2 (Sev School) Sevenoaks	Roadside	553139	154259	NO2	YES	Y	3	NO	2.5m
DT28	High Street North 2 (Sev Sennockian) Sevenoaks	Kerbside	553043	154890	NO2	YES	N (2m)	0.5	NO	2.5m
DT29	High Street North 3 (Water Trough) Sevenoaks	Roadside	553073	155026	NO2	YES	N (3m)	2	NO	2.5m
DT48	73 London Road(Brunch) Sevenoaks	Roadside	552863	154873	NO2	YES	Y	1.5	NO	2m
DT49	20 London Road (Butchers) Sevenoaks	Roadside	553018	154654	NO2	YES	Y	2	NO	2m

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DT51	130 London Road (Opp Car Sales) Sevenoaks	Kerbside	552662	155153	NO2	YES	N (3m)	0.5	NO	2.5m
DT52	142 London Road (Lulworth) Sevenoaks	Roadside	552506	155272	NO2	YES	N (6m)	2	NO	2.5m
DT77	Montreal Cott/ Amherst Hill Sevenoaks	Roadside	551529	155967	NO2	NO	N (4m)	2	NO	2.5m
DT87	Bradbourne Vale Road South	Roadside	551640	156335	NO2	YES	N (10m)	2.5	NO	2.5m
DT88	Bradbourne Vale Road North	Roadside	552963	156583	NO2	YES	N (20m)	1.5	NO	2.5m
DT90	4a St Johns Hill Sevenoaks	Roadside	553140	155898	NO2	NO	N (4m)	1.5	NO	2.5m
DT23	Bat & Ball 1 Sevenoaks (Ferrari)	Roadside	553059	156624	NO2	YES	Y	4	NO	2.5m
DT30	Bat & Ball 2 Otford Road Sevenoaks	Roadside	553019	155692	NO2	YES	N (7m)	3	N	2.5m
DT31	Bat & Ball 3 Seal Road Sevenoaks	Roadside	553165	156685	NO2	YES	N (1.5m)	1.5	N	2.5m
DT32	Bat & Ball 4 St Johns Sevenoaks	Roadside	553151	156558	NO2	YES	Y	1.5	N	2.5m

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DT5	Riverhead 2 (Laundry) North West	Kerbside	551414	156197	NO2	YES	N (1.5m)	0.5	N	2.5m
DT6	Riverhead 3 (Opp shops) East	Roadside	551440	156165	NO2	YES	N (6m)	3	N	2.5m
DT42	62 London Road Riverhead	Roadside	551318	156373	NO2	YES	N (2m)	2	N	2.5m
DT76	Worships Hill/ Witches Lane, Riverhead	Roadside	551026	155710	NO2	YES	N (36m)	2	N	2.5m
DT7	High Street East 1 (Road Sign) Seal	Roadside	555092	156694	NO2	YES	Y	1	N	2.5m
DT8	High Street West 1 (Garage) Seal	Roadside	554991	156726	NO2	YES	N (3m)	3	N	2.5m
DT33	High Street East 2 (Pizza) Seal	Roadside	555068	156711	NO2	YES	Y	1.5	N	2m
DT34	16 Main Road, Sundridge Dunbrik	Roadside	549427	155691	NO2	YES	16.26	2.2	N	2.5
DT35	Seal Hollow Road/ A25	Roadside	554093	156798	NO2	YES	N (18m)	2.5	N	2.5m
DT43	Miners Arms, London Road, Dunton Green	Roadside	551281	156860	NO2	YES	N (2.5m)	2	N	2.5m
DT54	57 London Road, Dunton Green	Roadside	551216	157007	NO2	YES	N (8m)	2	N	2.5m

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DT74	Westerham Road, (Devon Cott) Bessels Green	Roadside	550768	155584	NO2	YES	N (8m)	2	N	2.5m
DT86	59 Westerham Road, Bessels Green	Roadside	550308	155593	NO2	YES	Y	1.5	N	2m
DT71	204 Main Road, Sundridge	Roadside	548239	155353	NO2	YES	N (1.5m)	1	N	2.5m
DT12	Station Road (M25) Brasted	Roadside	546816	155851	NO2	YES	N (42m)	7m to M25	N	2m
DT84	West End Brasted	Roadside	546802	155000	NO2	YES	Y	1	N	2.5m
DT85	Chart Lane Brasted	Roadside	547097	155099	NO2	YES	Y	1	N	2.5m
DT24	High Street, (Wells Close) Westerham	Roadside	544415	153914	NO2	YES	N (3m)	1	N	2.5m
DT25	Vicarage Hill, Westerham	Roadside	544770	154000	NO2	YES	N (3m)	1	N	2.5m
DT36	Market Square, Westeham	kerbside	544594	154025	NO2	YES	N (3m)	1	N	2.5m
DT13	Wested Lane, Swanley	Roadside	552504	167700	NO2	YES	N (14m)	5	N	2.5m
DT14	Wadard Terrace, Button St Swanley	Roadside	553107	167868	NO2	YES	N (15m)	115m to M25	N	2.5m
DT39	Bartholomew Way, Swanley	Roadside	551492	168695	NO2	YES	N (13m)	2	N	2.5m

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DT40	London Road 1(traffic lights) Swanley	Kerbside	551575	168508	NO2	YES	N (2m)	0.5	N	2.5m
DT41	London Road 2 (Bus) Swanley	Roadside	552174	168162	NO2	YES	N (6m)	1.5	N	2.5m
DT81	Farningham Hill Road, Swanley	Urban	553416	167615	NO2	YES	N (17m)	27m to M20	N	2.5m
DT83	Jessamine Terrace, Birchwood Road Swanley	Roadside	550297	169682	NO2	YES	N (0.5m)	1	N	2.5m
DT93	Pucknells, Birchwood Road, Swanley	Roadside	550283	169743	NO2	YES	N (10m)	2	N	2.5m
DT94	Birchwood Road Junction London Road	Roadside	550258	169575	NO2	YES	N (10m)	2	N	2m
DT95	Malvern, Birchwood Road, Swanley	Roadside	550351	169499	NO2	YES	N (20m)	2	N	2.5m
DT26	Farningham Hill (A20)	Roadside	554217	167252	NO2	YES	Y	5m to A20/ 90m to M20	N	2m
BC1	Greatness AQ Station 1	Urban Background	553603	156774	NO2	NO	Y	46	Y	2m
BC2	Greatness AQ Station 2	Urban Background	553603	156774	NO2	NO	Y	46	Y	2m

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BC3	Greatness AQ Station 3	Urban Background	553603	156774	NO2	NO	Y	46	Y	2m
BC4	Bat & Ball AQ Station 1	Roadside	553044	156690	NO2	YES	N (30m)	8	Y	2m
BC5	Bat & Ball AQ Station 2	Roadside	553044	156690	NO2	YES	N (30m)	8	Y	2m
BC6	Bat & Ball AQ Station 3	Roadside	553044	156690	NO2	YES	N (30m)	8	Y	2m
DT96 (1)	Sevenoaks Station	Roadside	552371	155345	NO2	NO	1.8	2.9	NO	2.5
DT96 (2)	Sevenoaks Station	Roadside	552371	155345	NO2	NO	1.8	2.9	NO	2.5
DT96 (3)	Sevenoaks Station	Roadside	552371	155345	NO2	NO	1.8	2.9	NO	2.5

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	NO ₂ Annual Mean Concentration (µg/m ³) (3)				
					2014	2015	2016	2017	2018
CM1: Greatness	Urban Background	Automatic		99	17	17	17	16	15
CM2 : Bat & Ball	Roadside	Automatic		99	29	31.8	31	28	25
DT02 High Street South 1 (Guitar) Sevenoaks	Roadside	Diffusion Tube		100	56.7	53.6	54.7	48.1	49.9
DT03 Garvock Drive Sevenoaks	Urban Background	Diffusion Tube		91.6	12.3	10.8	12.7	11.1	11.8
DT05 Riverhead 2 (Laundry) North West	Kerbside	Diffusion Tube		91.6	48.2	42.8	47	42.7	39.3
DT06 Riverhead 3 (Opp shops) East	Roadside	Diffusion Tube		91.6	47.1	44.1	47.1	40.2	41.7
DT07 High Street East 1 (Road Sign) Seal	Roadside	Diffusion Tube		100	49.5	44.3	46.8	42.7	41.3
DT08 High Street West 1 (Garage) Seal	Roadside	Diffusion Tube		100	31.6	31.1	35.2	26.9	28.3
DT12 Station Road (M25) Brasted	Roadside	Diffusion Tube		100	43.3	46.5	43.1	40	39.8
DT13 Wested Lane, Swanley	Roadside	Diffusion Tube		100	37.1	31.4	36.5	30.5	32.9
DT14 Wadard Terrace, Button St Swanley	Roadside	Diffusion Tube		100	35.4	32.4	32.6	30.1	27.6
DT23 Bat & Ball 1 Sevenoaks (Ferrari)	Roadside	Diffusion Tube		100	38.8	35.6	40.5	34.3	39.2

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DT24 High Street, (Wells Close) Westerham	Roadside	Diffusion Tube		83.3	35	32.7	35.3	30.4	35.8
DT25 Vicarage Hill, Westerham	Roadside	Diffusion Tube		100	30.1	28.3	29.8	25.9	26.1
DT26 Farningham Hill (A20)	Roadside	Diffusion Tube		100	42.3	41.7	45.8	41.8	42.7
DT27 High Street South 2 (Sev School) Sevenoaks	Roadside	Diffusion Tube		100	39.4	37.2	39.8	38.2	37.7
DT28 High Street North 2 (Sev Sennockian) Sevenoaks	Kerbside	Diffusion Tube		100	46	42.4	44.1	36.7	36.8
DT29 High Street North 3 (Water Trough) Sevenoaks	Roadside	Diffusion Tube		100	30	27.8	31.5	28	28.2
DT30 Bat & Ball 2 Otford Road Sevenoaks	Roadside	Diffusion Tube		100	35.1	32.2	36.1	32.4	35.1
DT31 Bat & Ball 3 Seal Road Sevenoaks	Roadside	Diffusion Tube		100	52	46.9	57.9	51.2	51.1
DT32 Bat & Ball 4 St Johns Sevenoaks	Roadside	Diffusion Tube		100	55.3	49.9	56.3	47.6	51.9
DT33 High Street East 2 (Pizza) Seal	Roadside	Diffusion Tube		91.6	46.7	42.5	48.1	40.5	40.5
DT34 16 Main Road, Sundridge Dunbrik	Roadside	Diffusion Tube		100	35.3	30.9	31.7	27.5	26.1
DT35 Seal Hollow Road/ A25	Roadside	Diffusion Tube		100	40.5	36.3	39.6	32.5	33.7
DT36 Market Square, Westeham	Kerbside	Diffusion Tube		100	51.7	44.6	45.1	39.6	40.1
DT39 Bartholomew Way, Swanley	Roadside	Diffusion Tube		100	38.4	34.7	40.9	34.5	36.4

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DT40 London Road 1(traffic lights) Swanley	Kerbside	Diffusion Tube		100	48.5	42.3	51.5	40.9	45.6
DT41 London Road 2 (Bus) Swanley	Roadside	Diffusion Tube		100	43	37.5	42.7	40.1	38.6
DT42 62 London Road Riverhead	Roadside	Diffusion Tube		100	44.4	37.1	39.3	35.5	34.5
DT43 Miners Arms, London Road, Dunton Green	Roadside	Diffusion Tube		100	33.9	28	34.1	29.5	28.5
DT48 73 London Road(Brunch) Sevenoaks	Roadside	Diffusion Tube		83.3	32.6	25.6	27.7	40.7	23.9
DT49 20 London Road (Butchers) Sevenoaks	Roadside	Diffusion Tube		91.6	34.9	30.4	33.7	28.2	29.1
DT51 130 London Road (Opp Car Sales) Sevenoaks	Kerbside	Diffusion Tube		91.6	39.2	36.1	40.4	35.1	39.0
DT52 142 London Road (Lulworth) Sevenoaks	Roadside	Diffusion Tube		83.3	39.6	37.9	38.3	33.1	34.0
DT54 57 London Road, Dunton Green	Roadside	Diffusion Tube		75	38.1	35.6	36	33.8	32.7
DT71 204 Main Road, Sundridge	Roadside	Diffusion Tube		100	32.4	29.8	33.5	30	31.3
DT74 Westerham Road, (Devon Cott) Bessels Green	Roadside	Diffusion Tube		100	39.7	35.5	37.1	35.4	35.9
DT76 Worships Hill/ Witches Lane, Riverhead	Roadside	Diffusion Tube		100	36.2	35.6	40	33.9	37.9
DT77 Montreal Cott/ Amherst Hill Sevenoaks	Roadside	Diffusion Tube		100	42.8	40.7	40	38.8	38.7
DT81 Farningham Hill Road, Swanley	Urban Background	Diffusion Tube		91.6	32	32.2	32.9	30.9	28.6

DT83 Jessamine Terrace, Birchwood Road Swanley	Roadside	Diffusion Tube		91.6	48.8	55.6	<u>60.5</u>	49.8	46.7
DT84 West End Brasted	Roadside	Diffusion Tube		100	34.9	32.8	35.4	31.2	32.5
DT85 Chart Lane Brasted	Roadside	Diffusion Tube		100	48.3	45	51.1	43.9	43.7
DT86 59 Westerham Road, Bessels Green	Roadside	Diffusion Tube		100	39.4	36.7	40.8	36	34.7
DT87 Bradbourne Vale Road South	Roadside	Diffusion Tube		100	53.8	48.1	51.7	45.7	47.0
DT88 Bradbourne Vale Road North	Roadside	Diffusion Tube		100	35.1	29.1	32.9	28.7	30.3
DT90 4a St Johns Hill Sevenoaks	Roadside	Diffusion Tube		100	35.3	32.4	36.9	31.5	34.5
DT93 Pucknells, Birchwood Road, Swanley	Roadside	Diffusion Tube		100	31.5	29.3	32.4	27.2	28.8
DT94 Birchwood Road Junction London Road	Roadside	Diffusion Tube		83.3	35.1	33.7	36.9	32.2	33.8
DT95 Malvern, Birchwood Road, Swanley	Roadside	Diffusion Tube		100	35.2	34.1	38	33.6	33.0
DT96 Sevenoaks Rail Station (Triplicate Average)	Roadside	Diffusion Tube		100					34.5

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

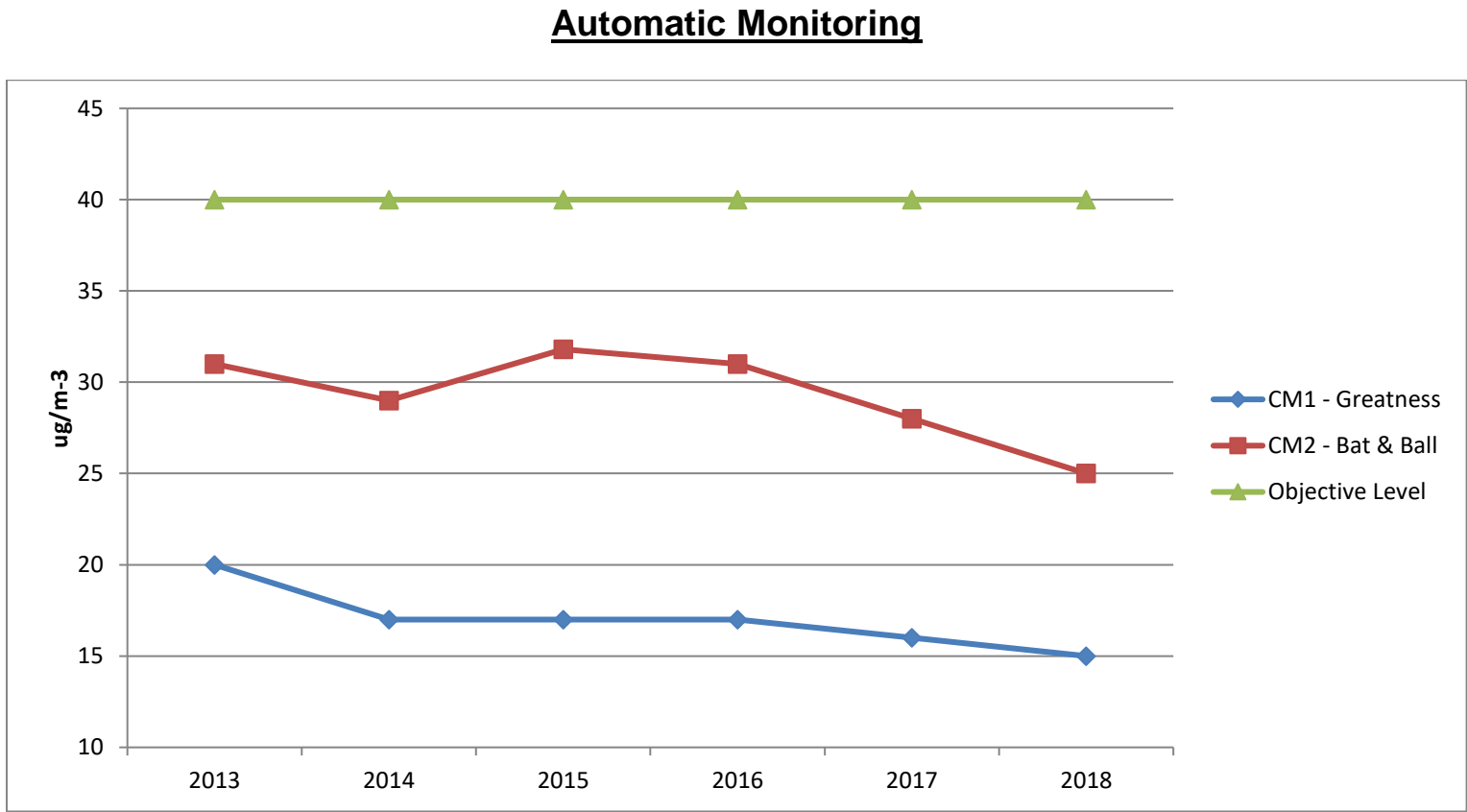
Notes:

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

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

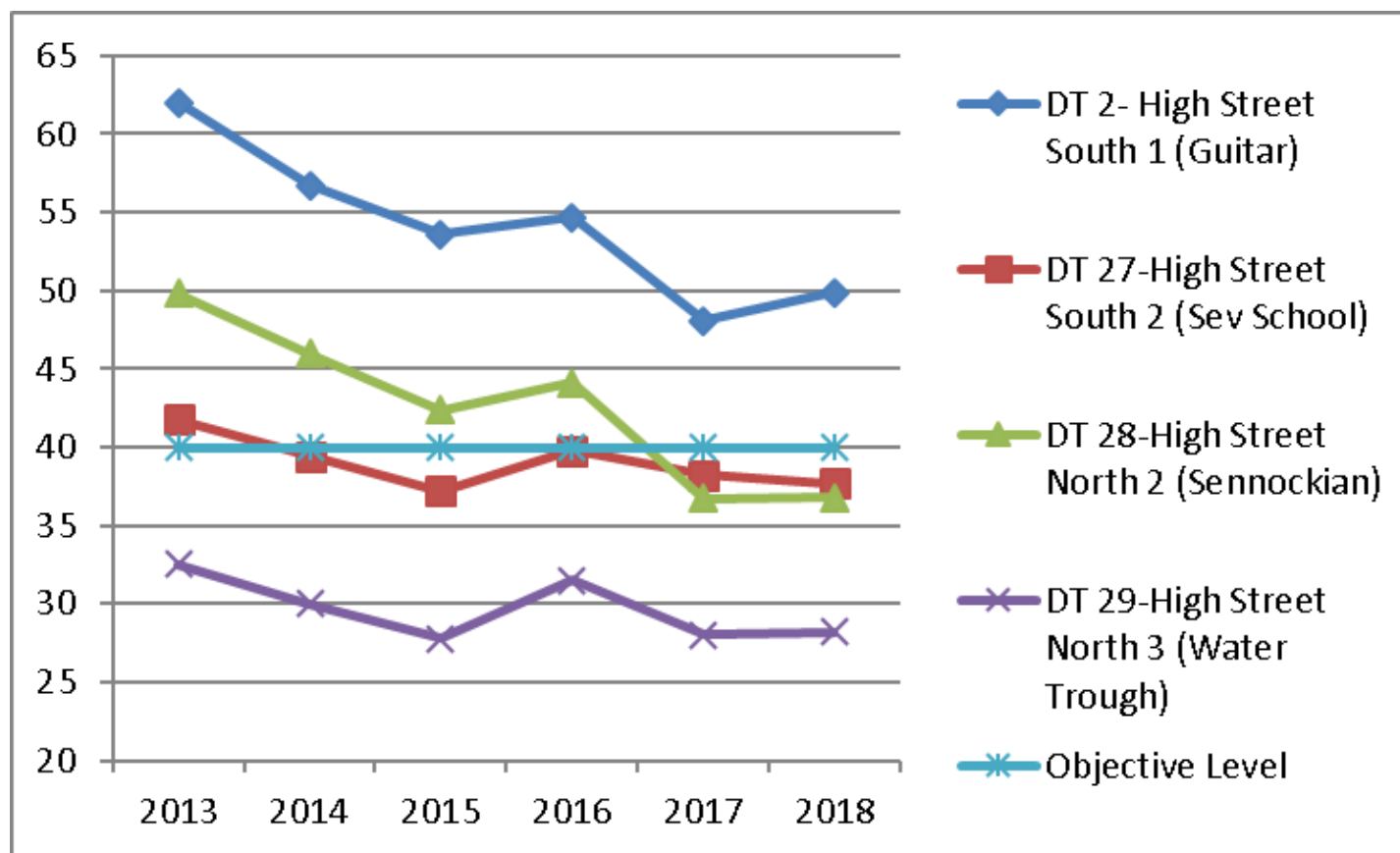
- (1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- (2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).
- (3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.1 – Trends in Annual Mean NO₂ Concentrations

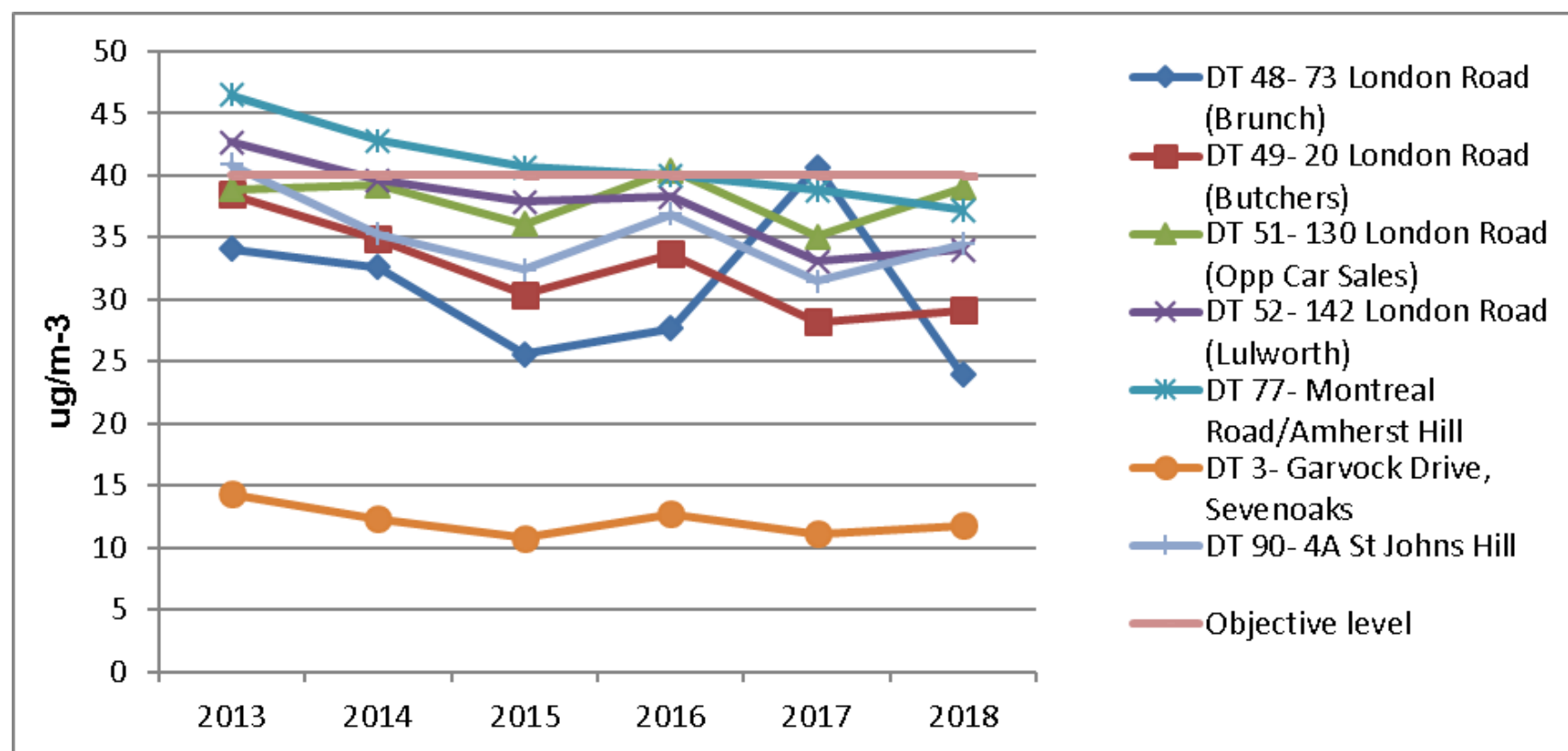


Diffusion Tube Network

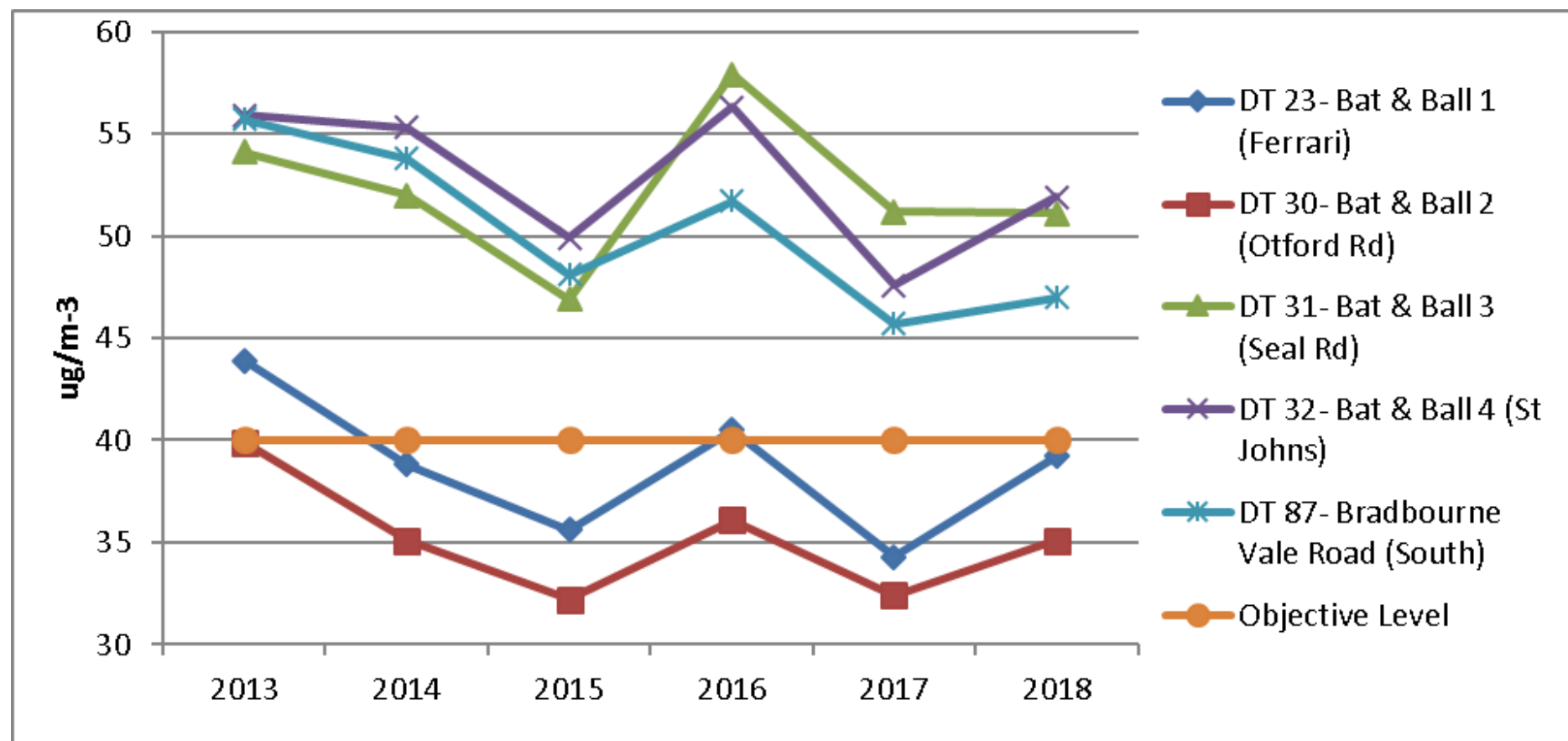
Sevenoaks High Street



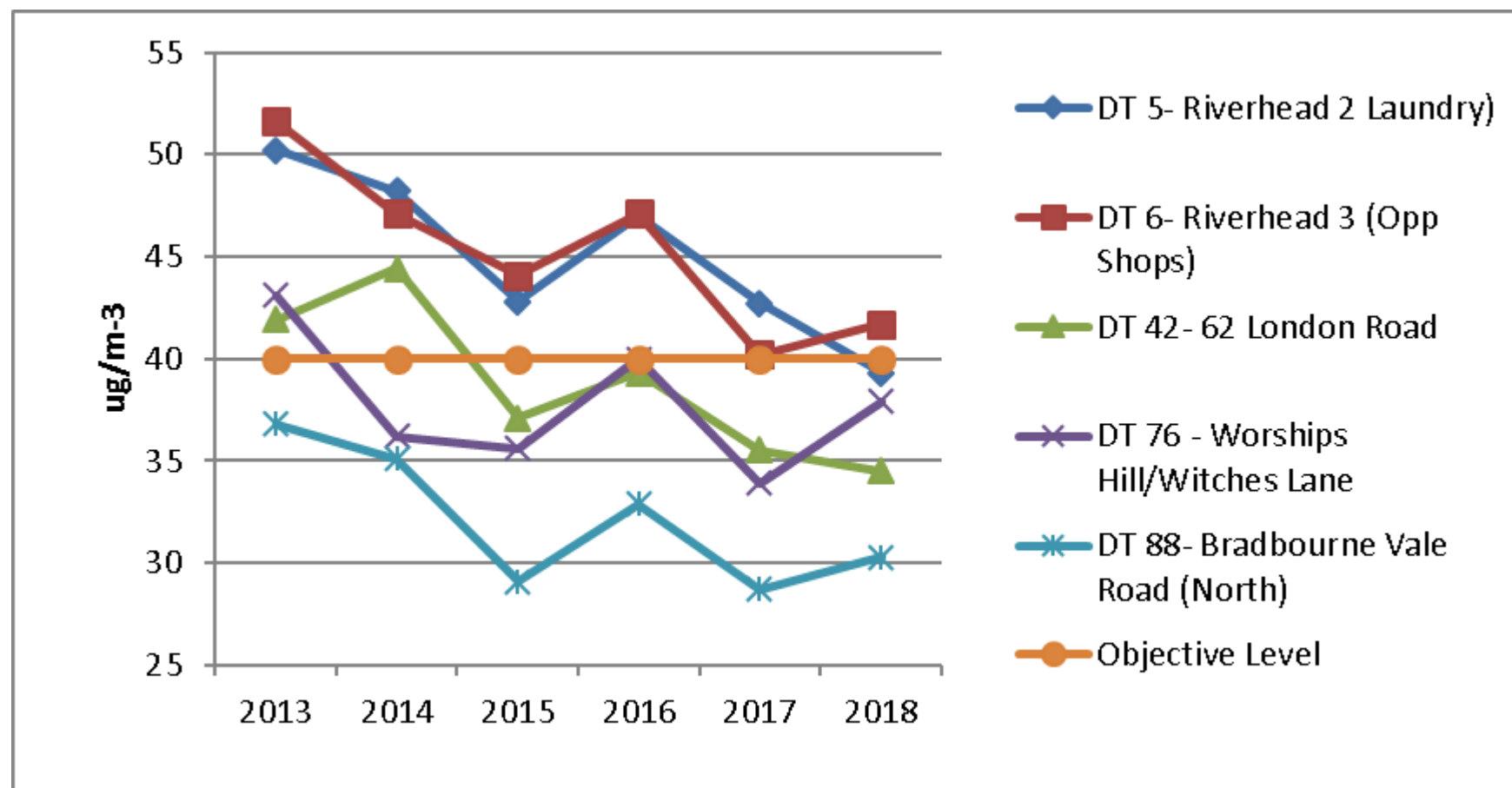
Sevenoaks



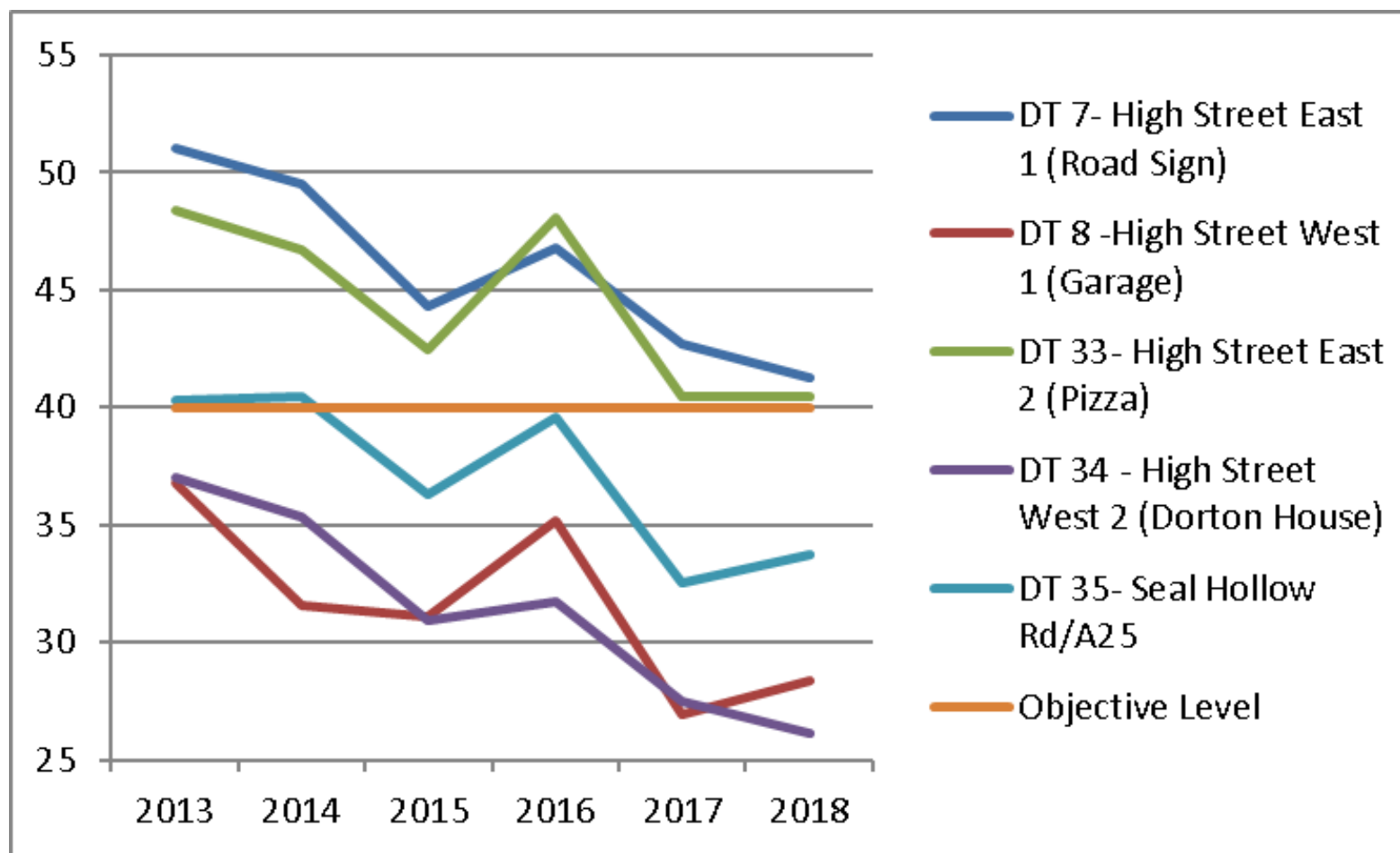
Bat and Ball



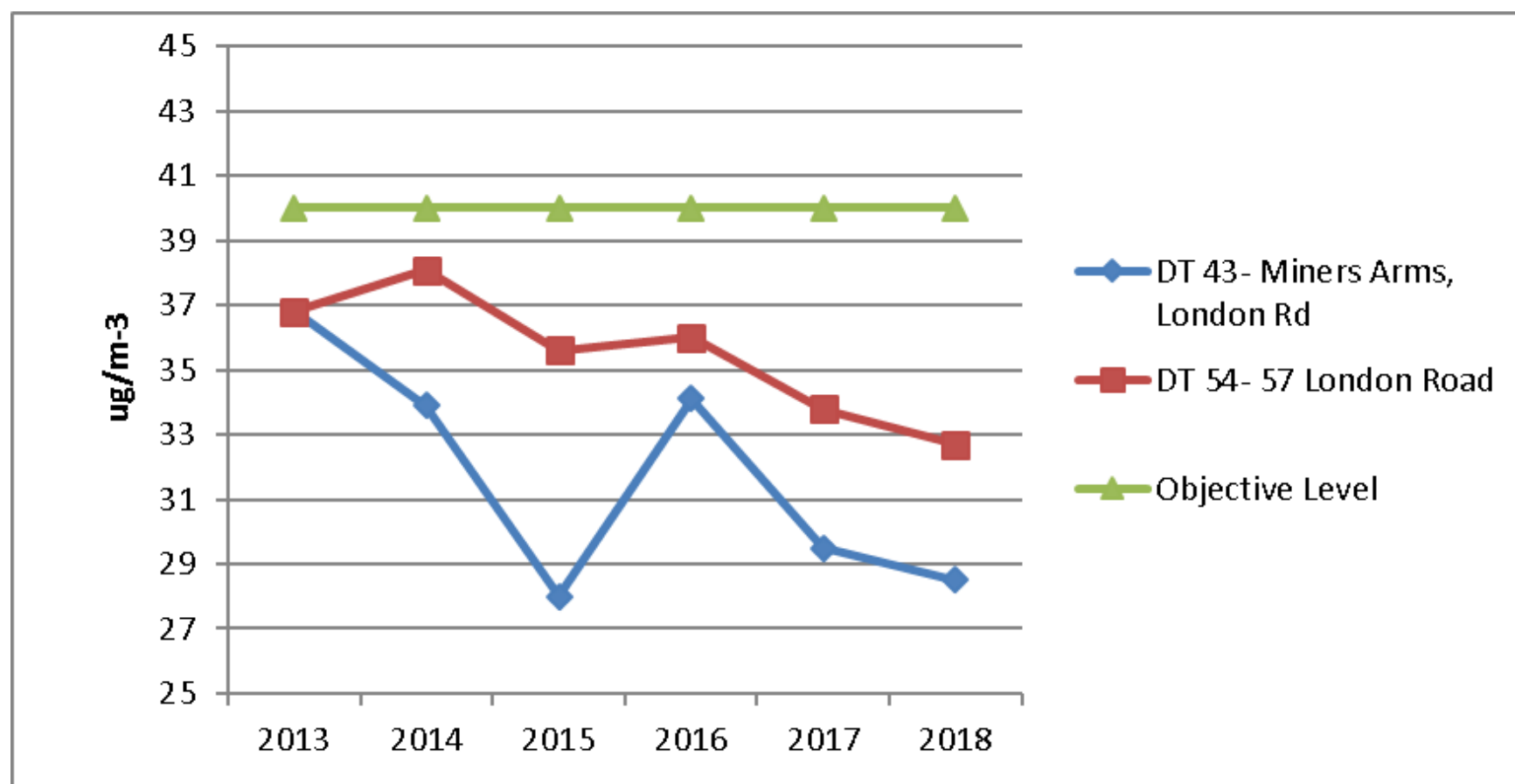
Riverhead



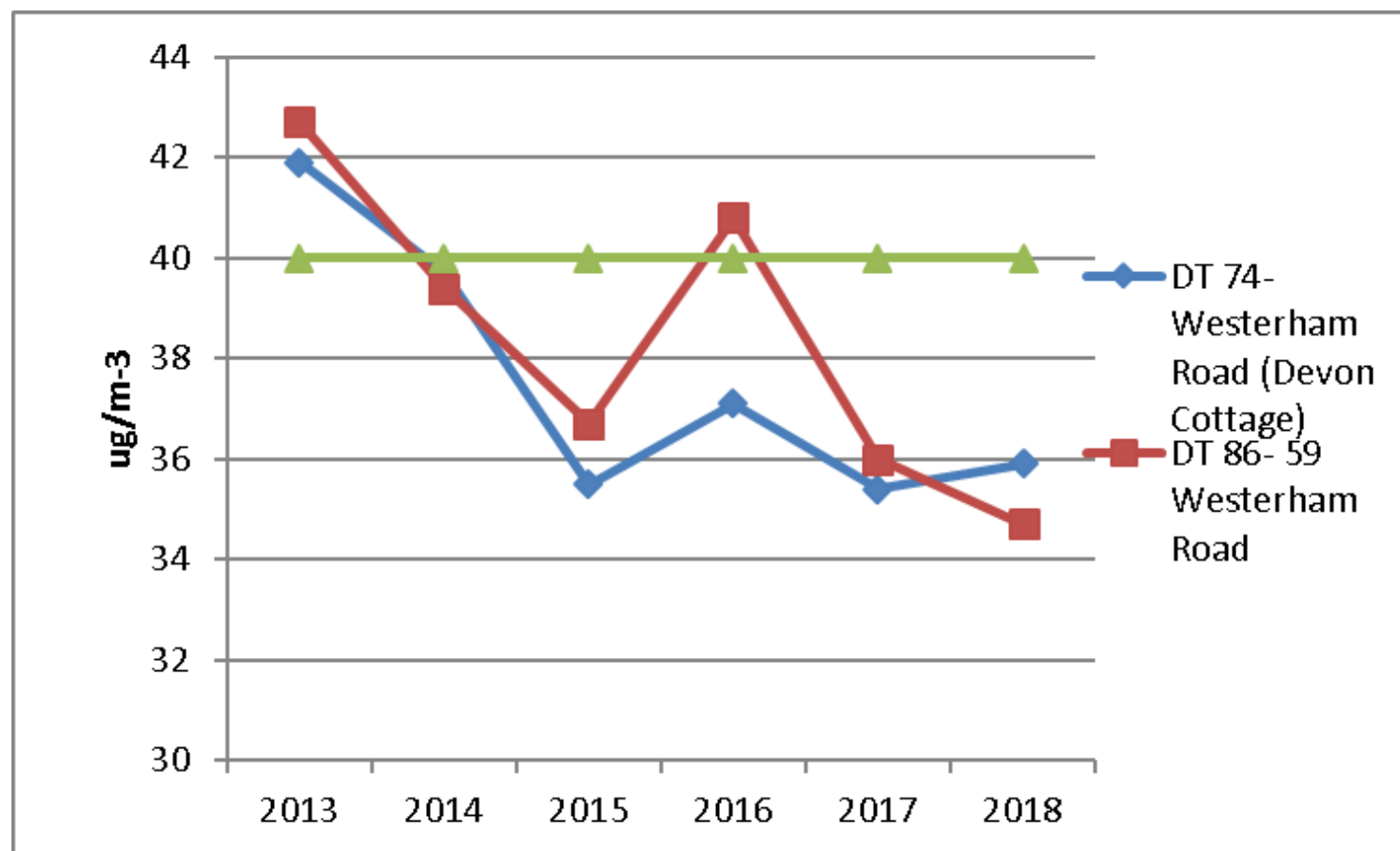
Seal



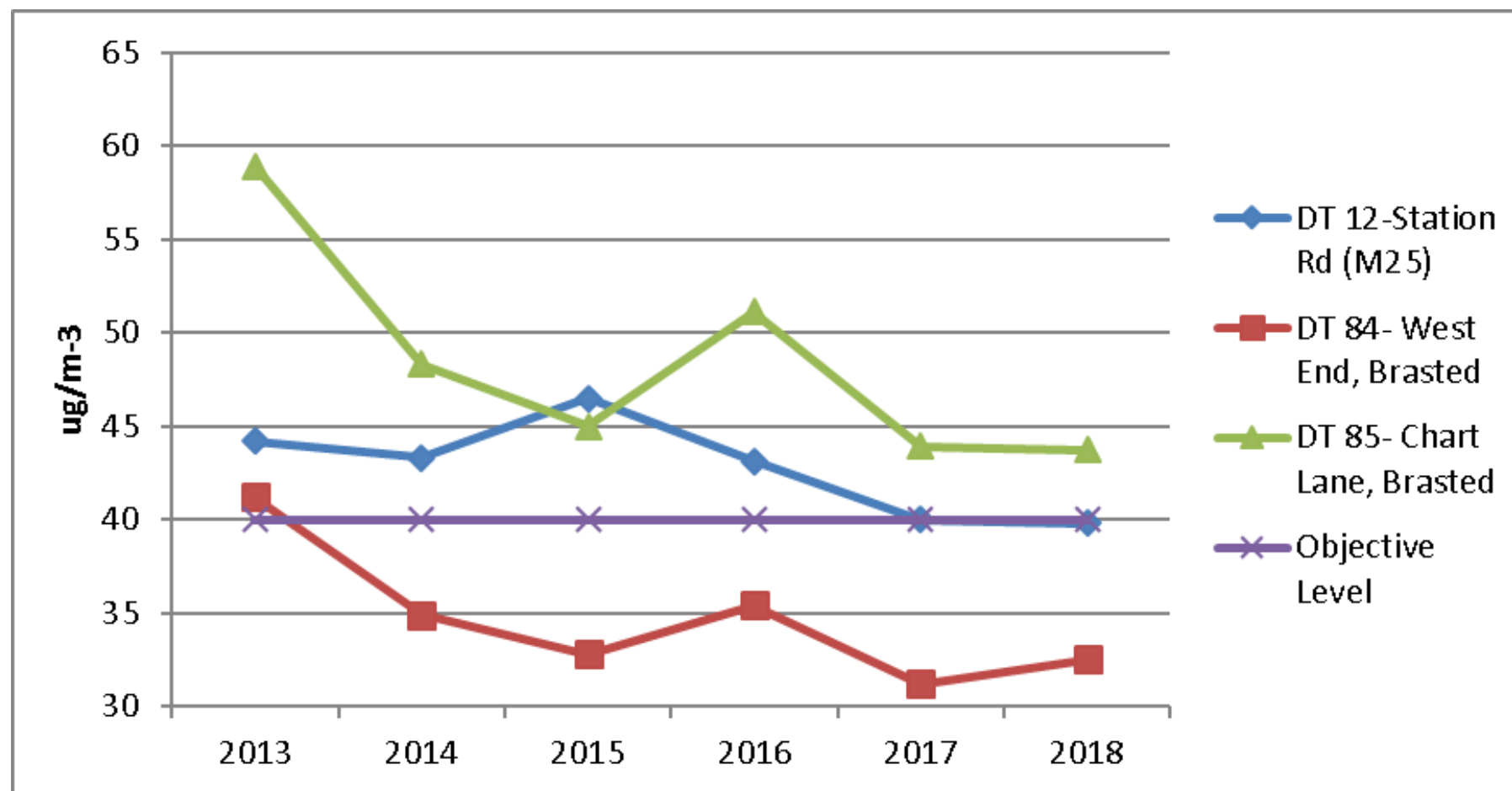
Dunton Green



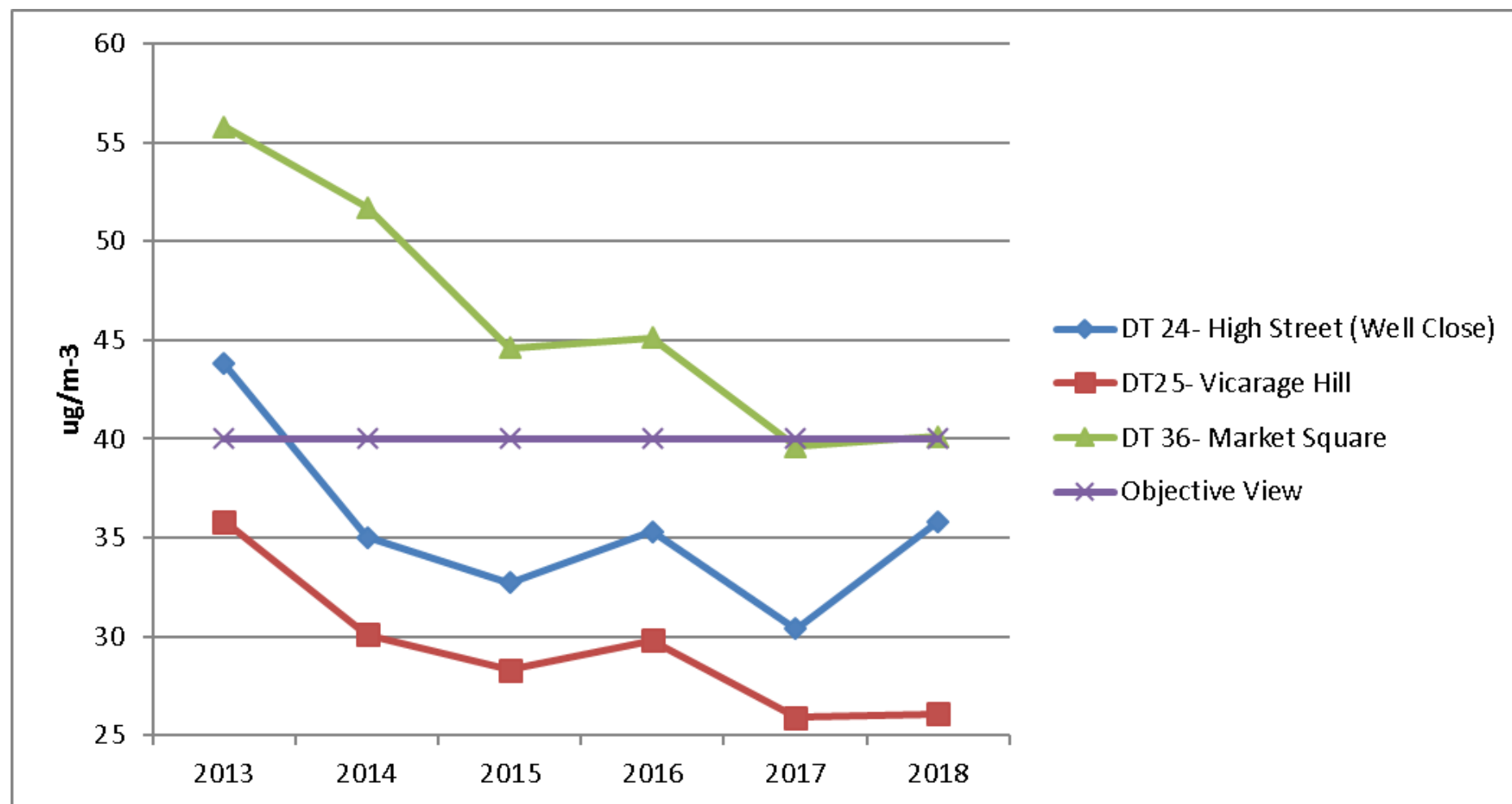
Bessels Green



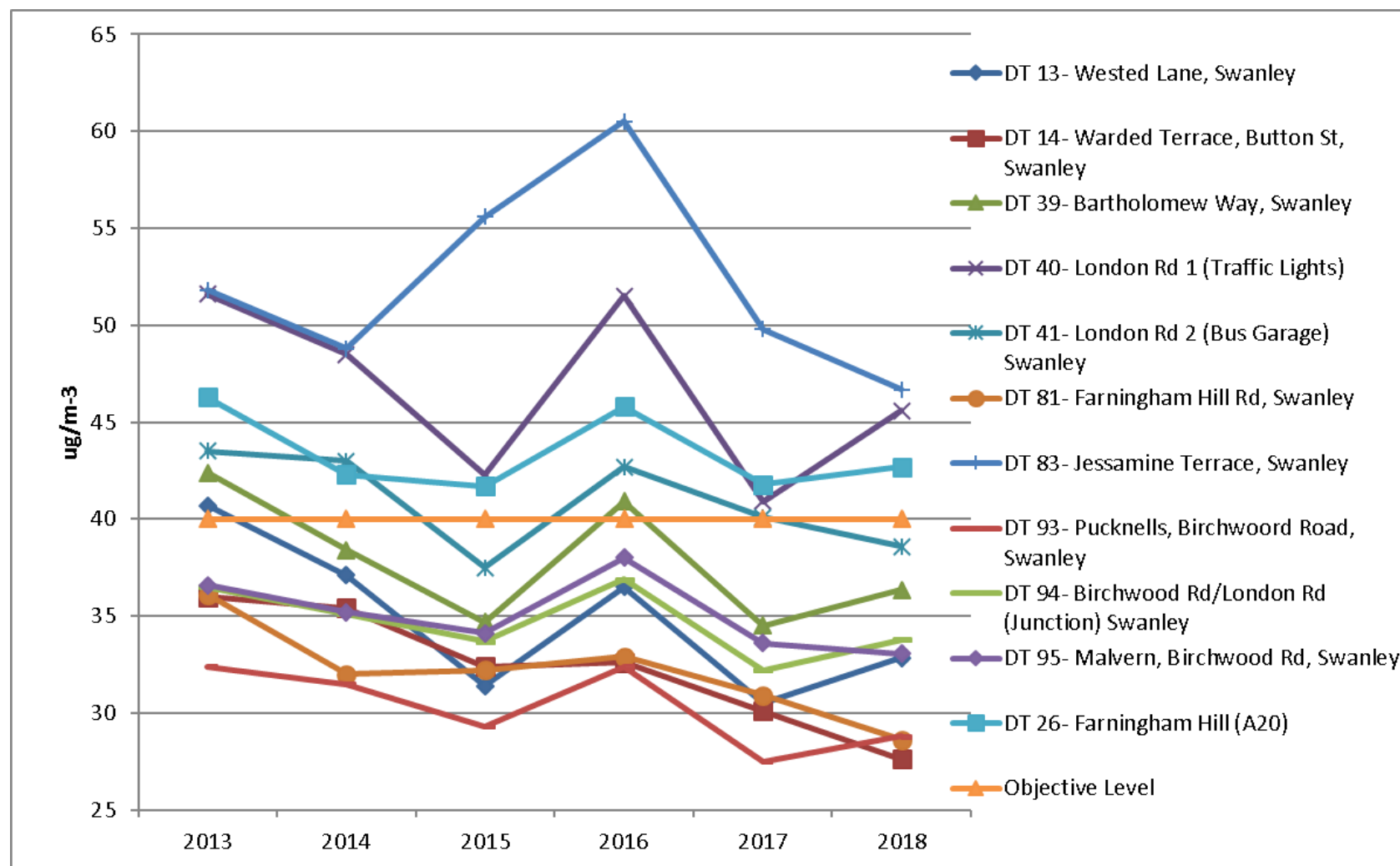
Brasted



Westerham



Swanley



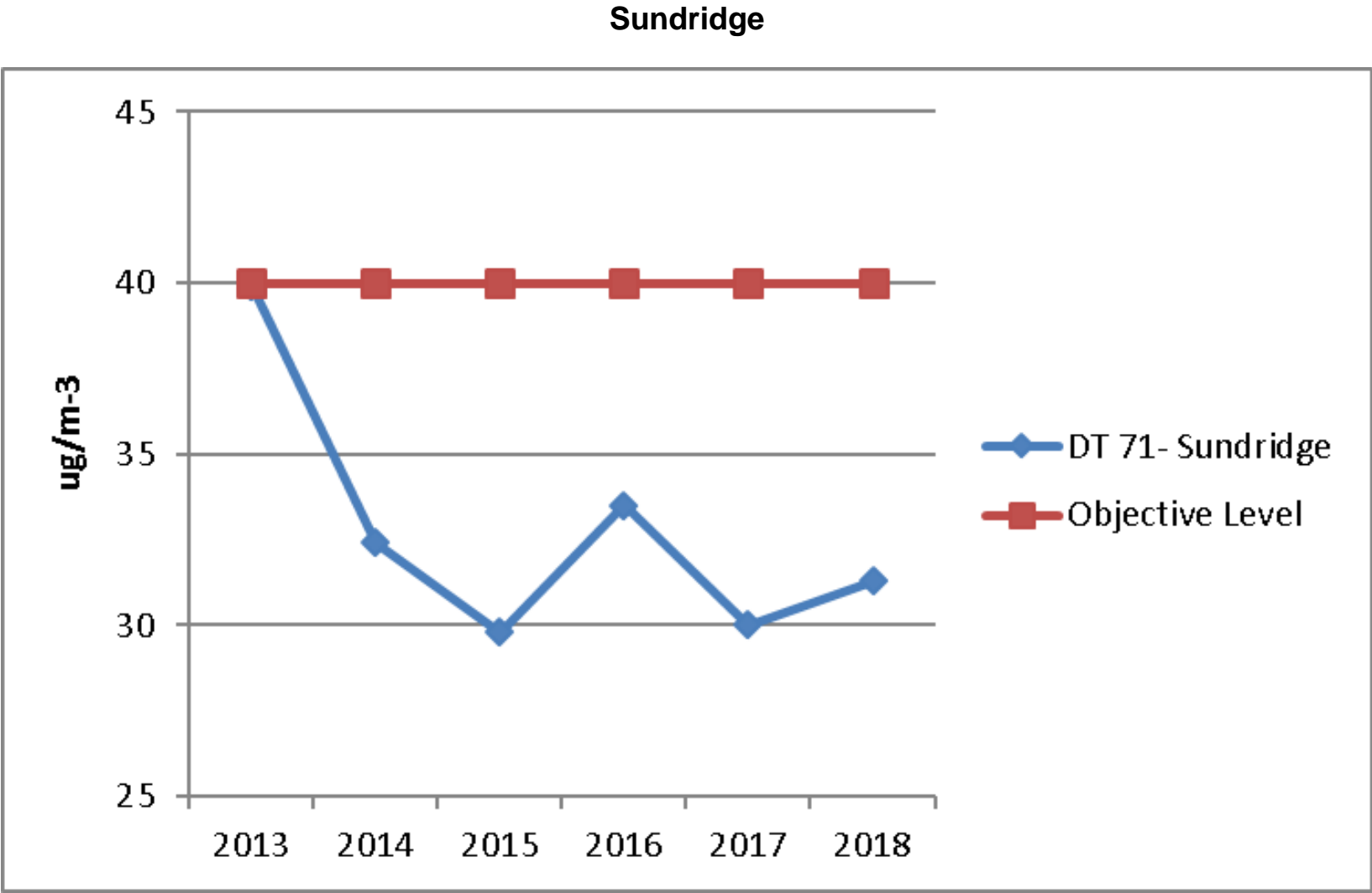


Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2014	2015	2016	2017	2018
CM1: Greatness	Urban Background	Automatic		99	0	0	0	0	0
CM2 : Bat & Ball	Roadside	Automatic		99	1	1	3	0	0

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

(3) If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM10 Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
CM1: Greatness	Urban Background		99	19	21	18	18	19
CM2 : Bat & Ball	Roadside		99	21	21	21	20	21

☒ Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

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

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2014	2015	2016	2017	2018
CM1: Greatness	Urban Background		99	5	2	0	4	1
CM2 : Bat & Ball	Roadside		99	4	3	7	5	8

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

(3) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2018

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.80) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
BC01	22.5	23.2	20.7	15.7	14.2	11.7	12.4	14.7	16.5	19.9	18.2	18.3	17.3	13.9	N/A
BC02	23.5	21.7	21.0	14.5	13.5	10.9	12.1	14.6	17.5	22.8	16.7	20.1	17.4		
BC03	20.7	21	21.4	14.4	13	11.8	Missing	14.3	16.7	19.1	20	20.5	17.5		
BC04	39.6	34.1	38.5	31.2	29.2	25.6	31.2	30.8	35.5	33	39.8	33.6	33.5	26.9	N/A
BC05	38.2	32	39.7	30.9	26.4	24.6	33.9	27.8	33.9	38.3	38.8	34.2	33.2		
BC06	39.8	31.5	38.8	31.3	30.2	25	32.8	29.3	37	38.6	40	35.9	34.2		
DT02	66.1	66.4	77.4	56.8	61.5	53.8	61.1	54.5	57.2	67.1	66.1	60.3	62.4	49.9	46.2
DT03	19.6	18.8	18.5	11.6	Missing	9.9	9.8	10.3	13.2	17.1	17.8	15.2	14.7	11.8	11.8
DT05	55.5	50.6	56.5	49.7	48.9	41.3	50.9	42.5	Missing	52.8	48.1	43.5	49.1	39.3	33.6
DT06	49.5	63.2	57.9	50.3	61	56.3	56.9	41.9	39.1	Missing	53.6	43.3	52.1	41.7	32.1
DT07	56.2	47	62.5	40.4	48.5	41.8	56.3	47.1	49	56	59.6	55	51.6	41.3	39.7
DT08	35.8	41.4	43	33.6	31.7	30.1	30.1	30.5	32.8	42.5	38.1	35.4	35.4	28.3	24.6
DT12	62.3	53.1	59.4	46.8	56.9	47	46.6	44.6	49.1	49.1	32.3	50.3	49.8	39.8	30.2
DT13	39	47	50.8	39.5	47.9	43.4	36.9	30.8	35.2	46.2	40	36.1	41.1	32.9	28.4
DT14	37.5	32	43.3	35.9	30.1	22.8	30.9	33.1	35.9	38.8	33.8	40.2	34.5	27.6	29.6

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DT23	50.5	52.3	58.5	43.1	53.2	48.1	49.4	43	44.6	46	54.1	44.6	49.0	39.2	29.3
DT24	43.8	53.6	41.8	41.3	48.2	48.8	38.3	Missing	Missing	41.2	49.6	41	44.8	35.8	28.1
DT25	38.4	35	37.1	32.4	32.1	29.5	29	28.4	31	37.9	33.4	26.9	32.6	26.1	23.3
DT26	54.2	53.1	59.7	54.1	58	51.8	48.7	48.9	51.4	54.3	56.1	49.6	53.3	42.7	31.5
DT27	58.1	46.5	54.2	45.9	43.5	37.4	43.9	43.5	52.1	52.3	42.5	45.6	47.1	37.7	37.9
DT28	55.9	40.4	45.4	45.1	45.1	40	46.1	41.9	48.7	50.4	47.9	45.1	46.0	36.8	35.2
DT29	37.8	38.2	45.8	35.5	33.4	30	31.6	31.6	30.5	37.3	37.9	33	35.2	28.2	24.5
DT30	50.9	45.1	51.9	40.4	42.2	39.8	44	38.6	37.3	49.9	46.3	40.5	43.9	35.1	25.6
DT31	75.6	58.7	74.2	56.5	60.5	53.5	72.8	61.5	64.7	69.7	58.5	60.4	63.9	51.1	41.2
DT32	69.5	72.4	62.7	61.8	72.2	57.3	64.7	53.1	57.2	78.4	72.4	57	64.9	51.9	50.8
DT33	Missing	47.3	52.3	47	54.4	55.6	49	46.9	48	56.8	50.8	48.8	50.6	40.5	38.2
DT34	37.3	39.2	36.3	31.9	29.1	28.2	29.6	28.1	31	33.9	38.2	29	32.7	26.1	19.3
DT35	44.8	41	46.7	40.2	47.8	42.4	42.2	39.5	40.7	40.7	41.4	38.4	42.2	33.7	22.2
DT36	60.3	48.9	60.4	53.1	44.8	40.4	49.5	48.1	46.6	51.5	50.5	47.8	50.2	40.1	32.7
DT39	43.6	46.6	52.1	44.6	41	30.2	41.6	41.4	48.2	51.1	55.4	49.5	45.4	36.4	27.6
DT40	56.4	65.4	64.7	52.1	64.6	52.5	58.9	46.5	50.3	66	53.4	52.9	57.0	45.6	32.8
DT41	50.5	49.6	61	49.2	46.4	40.2	47.3	39.5	46.7	51.6	45.3	51.3	48.2	38.6	31.0
DT42	50.4	45.7	49.6	44.3	35.5	29.2	*2.7	38.4	43.4	46.3	45.4	46.2	43.1	34.5	32.0
DT43	38.1	40.4	43.7	22.5	35.3	28.6	34.9	31	35.1	39.2	42.5	*1.8	35.6	28.5	25.3
DT48	Missing	Missing	38.7	26.6	27.8	22.6	28.3	25.7	28.3	33.3	36.4	31.1	29.9	23.9	23.8
DT49	Missing	38.7	47.4	31.9	34.4	32.8	34.6	30.2	30.8	40	43.3	36.3	36.4	29.1	29.0
DT51	55.2	48.8	53.7	41.3	49.9	44.3	Missing	43.1	45.1	55.1	50.4	49.6	48.8	39.0	34.9
DT52	Missing	41.9	43.1	40	Missing	46.2	43.7	40.9	40.7	45.2	45.3	38.3	42.5	34.0	27.0
DT54	Missing	Missing	Missing	36.6	30.9	31.6	45	44.1	43.8	45.3	46.4	44.6	40.9	32.7	25.6
DT71	44.8	46.5	47	37.8	32.5	33.4	31.3	33.9	37.7	39.7	42.8	42.1	39.1	31.3	24.3
DT74	52.2	49.2	52.3	40.5	42.9	36.1	43.2	38.3	41.4	47.4	51.2	44.4	44.9	35.9	24.4
DT76	55.7	40.3	46.7	40.7	54	54.3	44.4	44.2	47.6	52.2	44.9	42.9	47.3	37.9	19.7

Sevenoaks District Council

DT77	47.6	45.5	56.8	49.3	51.6	43.4	47.6	43.4	41.9	50.1	52.6	50.8	48.4	38.7	37.8
DT81	43.8	38.7	43.4	33.4	31.2	*11.2	25.9	25.6	Missing	38.6	41.4	35.7	35.8	28.6	28.5
DT83	Missing	48.7	59.6	55.1	52.2	43.9	63.7	61.4	70.2	67	55.6	64.3	58.3	46.7	41.4
DT84	46.2	45.1	46.5	35.6	37.6	37.5	38	35	41.3	40.4	45.7	39.2	40.7	32.5	28.0
DT85	64.3	60	66.5	32.7	52.7	50.1	54.5	50.9	57.3	56.5	55.9	54.8	54.7	43.7	43.0
DT86	52.8	48.8	51.9	34.2	40.6	35.5	40.2	38.6	40.7	47.6	39.7	50.1	43.4	34.7	26.9
DT87	72.6	55.7	62.5	53.6	50.2	49.6	63.7	55.6	58.9	71.2	64.6	46.2	58.7	47.0	39.6
DT88	43.5	41.1	43.4	34.8	37.9	34.8	36.8	31.9	37.3	39.3	37.1	36.9	37.9	30.3	22.8
DT90	46.2	50.3	45.1	36	42.9	37.7	37.6	34.5	43.7	49.9	51.4	41.9	43.1	34.5	26.0
DT93	34.8	41.1	39.7	35	39.9	30.8	35.6	28.3	31.8	42.7	40.3	32	36.0	28.8	23.7
DT94	Missing	46.2	50.4	39.6	Missing	36.8	39.5	34.5	39.2	42.1	48.5	45.6	42.2	33.8	32.1
DT95	48.6	46.5	49.2	28.6	41.4	35.1	39.1	37.8	41.1	44.2	37.7	46.4	41.3	33.0	25.2
DT96	52.5	31.4	48.2	46.2	37.8	30.7	44.1	41.3	42.4	38.3	50.7	46.6	42.5	34.5	29.8
DT96	53.6	44.5	49.3	46.4	36.4	29.9	45	38.3	39.7	41.4	50	48.3	43.6		
DT96	47.3	43	47.6	44.3	37.5	30.6	43.9	36.3	41.6	44.3	54.5	47.7	43.2		

☒ Local bias adjustment factor used

☐ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

☒ Where applicable, data has been distance corrected for relevant exposure

Notes:

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

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

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Distance Correction Calculations

	Tube Location	Distance from Kerb to measurement (in metres)	Distance from Kerb to receptor (in metres)	Local mean background NO ₂ concentration (µ/m ³)	measured annual mean NO ₂ concentration (µ/m ³)	The predicted annual mean NO ₂ concentration (in µg/m ³) at receptor
DT02	High Street South 1 (Guitar) Sevenoaks	1.6	2.5	12.5	49.9	46.2
DT03	Garvock Drive Sevenoaks			12.16	11.8	11.8
DT05	Riverhead 2 (Laundry) North West	0.6	2.1	14.24	39.3	33.6
DT06	Riverhead 3 (Opp shops) East	2.5	10.3	14.24	41.7	32.1
DT07	High Street East 1 (Road Sign) Seal	0.6	0.8	11.56	41.3	39.7
DT08	High Street West 1 (Garage) Seal	2.4	6.1	12.17	28.3	24.6
DT12	Station Road (M25) Brasted	19	50	19.66	39.8	30.2
DT13	Wested Lane, Swanley	3.8	18.6	22.68	32.9	28.4
DT14	Wadard Terrace, Button St Swanley	114	108	19.36	27.6	29.6
DT23	Bat & Ball 1 Sevenoaks (Ferrari)	5.7	20.1	13.93	39.2	29.3
DT24	High Street, (Wells Close) Westerham	2	7.8	11.51	35.8	28.1
DT25	Vicarage Hill, Westerham	1	7.3	19.27	26.1	23.3
DT26	Farningham Hill (A20)	5	23.4	18.52	42.7	31.5
DT27	High Street South 2 (Sev School) Sevenoaks	4	3.9	12.15	37.7	37.9
DT28	High Street North 2 (Sev Sennockian) Sevenoaks	2.7	3.5	12.15	36.8	35.2
DT29	High Street North 3 (Water Trough) Sevenoaks	2.7	7.1	13.1	28.2	24.5
DT30	Bat & Ball 2 Otford Road Sevenoaks	2	12.6	13.11	35.1	25.6
DT31	Bat & Ball 3 Seal Road Sevenoaks	2.1	6.5	13.93	51.1	41.2
DT32	Bat & Ball 4 St Johns Sevenoaks	1.3	1.5	13.93	51.9	50.8
DT33	High Street East 2 (Pizza) Seal	2.3	3.2	11.56	40.5	38.2
DT34	16 Main Road, Sundridge Dunbrik	2.5	19.8	12.88	26.1	19.3
DT35	Seal Hollow Road/ A25	2.8	23.1	12.17	33.7	22.2
DT36	Market Square, Westeham	0.7	4.7	19.27	40.1	32.7
DT39	Bartholomew Way, Swanley	2.8	16.9	17.11	36.4	27.6
DT40	London Road 1(traffic lights) Swanley	0.2	3.8	17.11	45.6	32.8
DT41	London Road 2 (Bus) Swanley	1.6	8.8	18.72	38.6	31.0
DT42	62 London Road Riverhead	3.2	5.1	14.24	34.5	32.0
DT43	Miners Arms, London Road, Dunton Green	2.3	5.8	14.24	28.5	25.3
DT48	73 London Road(Brunch) Sevenoaks	2.8	2.9	12.16	23.9	23.8
DT49	20 London Road (Butchers) Sevenoaks	2.9	3	12.15	29.1	29.0
DT51	130 London Road (Opp Car Sales) Sevenoaks	2.2	4.3	13.24	39.0	34.9
DT52	142 London Road (Lulworth) Sevenoaks	2.5	9.8	13.24	34.0	27.0
DT54	57 London Road, Dunton Green	1.8	10.9	15.42	32.7	25.6
DT71	204 Main Road, Sundridge	1.9	9.2	12.22	31.3	24.3
DT74	Westerham Road, (Devon Cott) Bessels Green	1.4	18.2	15.21	35.9	24.4
DT76	Worships Hill/ Witches Lane, Riverhead	1.3	42	13.33	37.9	19.7
DT77	Montreal Cott/ Amherst Hill Sevenoaks	1.7	2	13.34	38.7	37.8
DT81	Farningham Hill Road, Swanley	51.2	51.8	19.36	28.6	28.5
DT83	Jessamine Terrace, Birchwood Road Swanley	1.1	2.6	16.76	46.7	41.4
DT84	West End Brasted	1.5	7.4	19.66	32.5	28.0
DT85	Chart Lane Brasted	1.8	2	13.31	43.7	43.0
DT86	59 Westerham Road, Bessels Green	1.9	10.7	15.21	34.7	26.9
DT87	Bradbourne Vale Road South	2.1	5.4	14.24	47.0	39.6
DT88	Bradbourne Vale Road North	1.7	12.5	13.6	30.3	22.8
DT90	4a St Johns Hill Sevenoaks	0.2	2.7	13.11	34.5	26.0
DT93	Pucknells, Birchwood Road, Swanley	2	12.4	16.76	28.8	23.7
DT94	Birchwood Road Junction London Road	2.5	3.7	16.76	33.8	32.1
DT95	Malvern, Birchwood Road, Swanley	2.3	16.9	16.76	33.0	25.2
DT96	Sevenoaks Station	1.8	4.7	13.24	34.5	29.8

Automatic Stations:

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.

Local site operations and routine calibration/maintenance are carried out under contract by ERG Kings College London with service contract work by Matts Monitors. The sites are audited 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.

Diffusion Tubes:

NO₂ diffusion tubes are supplied and analysed by SOCOTEC 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 and Bat & Ball, Sevenoaks. Using data from the Greatness and Bat & Ball automatic stations which are both part of colocation studies.

Greatness		Bat & Ball	
Automatic Mean	= 15	Automatic Mean	= 25
Triplicate Tube Means	= 17.4	Triplicate Mean	= 33.6
Correction Factor	= $\frac{15}{17.4} = \mathbf{0.86}$	Correction Factor	= $\frac{25}{33.6} = \mathbf{0.74}$
Greatness Correction Factor + Bat & Ball Correction Factor			
= 0.86 + 0.74 = $\frac{1.6}{2} = \mathbf{0.80}$			

The nationally derived diffusion tube bias adjustment factor for 2018 is 0.76 as detailed below.

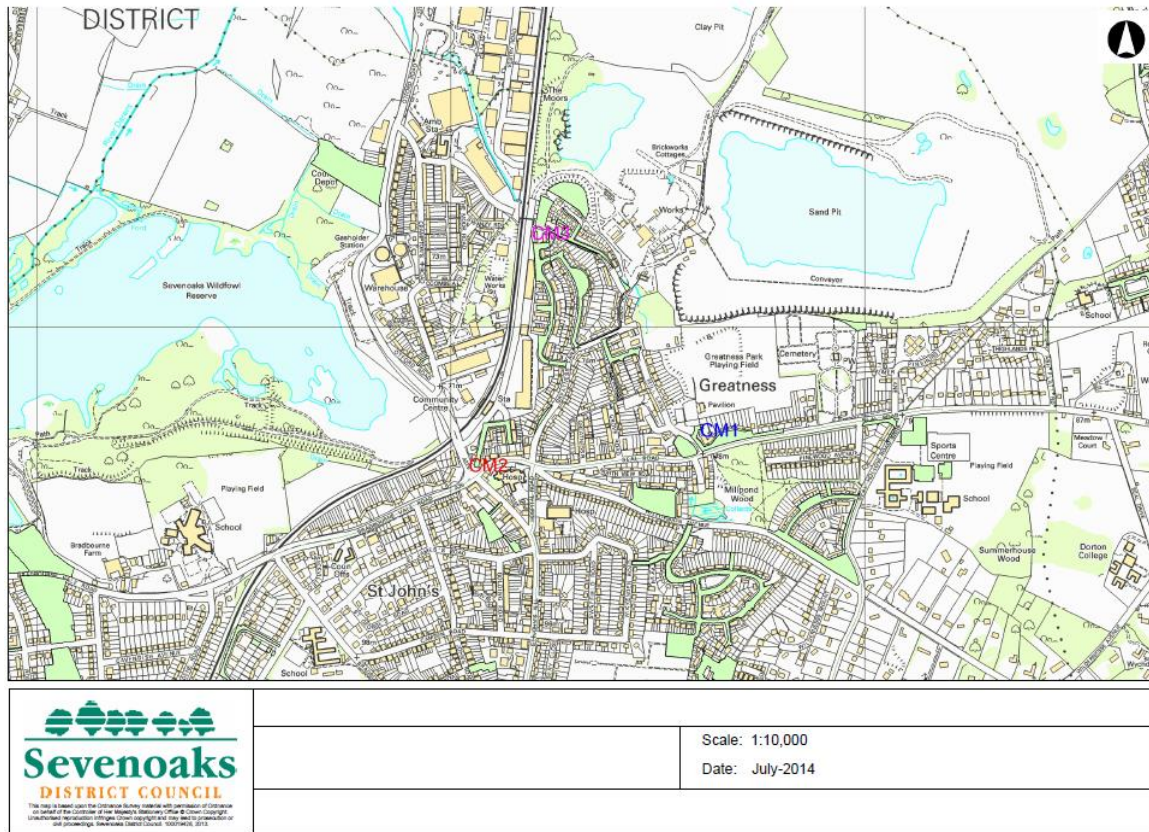
National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/19				
Follow the steps below in the correct order to show the results of relevant co-location studies								This spreadsheet will be updated at the end of June 2019		
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.								LAQM Helpdesk Website		
The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.						Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.				
Step 1:		Step 2:	Step 3:	Step 4:						
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ⁵ shown in blue at the foot of the final column.						
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data ²	If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953						
Analysed By ¹	Method <small>To make your selection, choose (All) from the pop-up list</small>	Year ² <small>To make your selection, choose (All)</small>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁴	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	50% TEA in acetone	2018	R	Dumfries and Galloway Council	12	36	30	19.8%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2018	R	Knowsley MBC	12	47	38	26.5%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2018	R	Suffolk Coastal DC	11	44	33	32.4%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2018	R	Thanet District Council	10	26	21	25.4%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2018	R	Horsham District Council	11	33	23	42.2%	G	0.70
SOCOTEC Didcot	50% TEA in acetone	2018	R	Horsham District Council	12	33	29	17.2%	G	0.85
SOCOTEC Didcot	50% TEA in acetone	2018	R	Horsham District Council	12	30	26	16.1%	G	0.86
SOCOTEC Didcot	50% TEA in acetone	2018	UB	Slough Borough Council	10	38	31	25.6%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2018	SU	Slough Borough Council	11	32	22	46.7%	G	0.68
SOCOTEC Didcot	50% TEA in acetone	2018	R	Slough Borough Council	11	39	32	22.5%	G	0.82
SOCOTEC Didcot	50% TEA in acetone	2018	R	Vale of Glamorgan	12	39	25	57.8%	G	0.63
SOCOTEC Didcot	50% TEA in acetone	2018	KS	Marylebone Road Intercomparison	9	95	87	9.1%	G	0.92
SOCOTEC Didcot	50% TEA in acetone	2018		Overall Factor ⁵ (21 studies)					Use	0.76

Diffusion Tube Bias Adjustment Factors

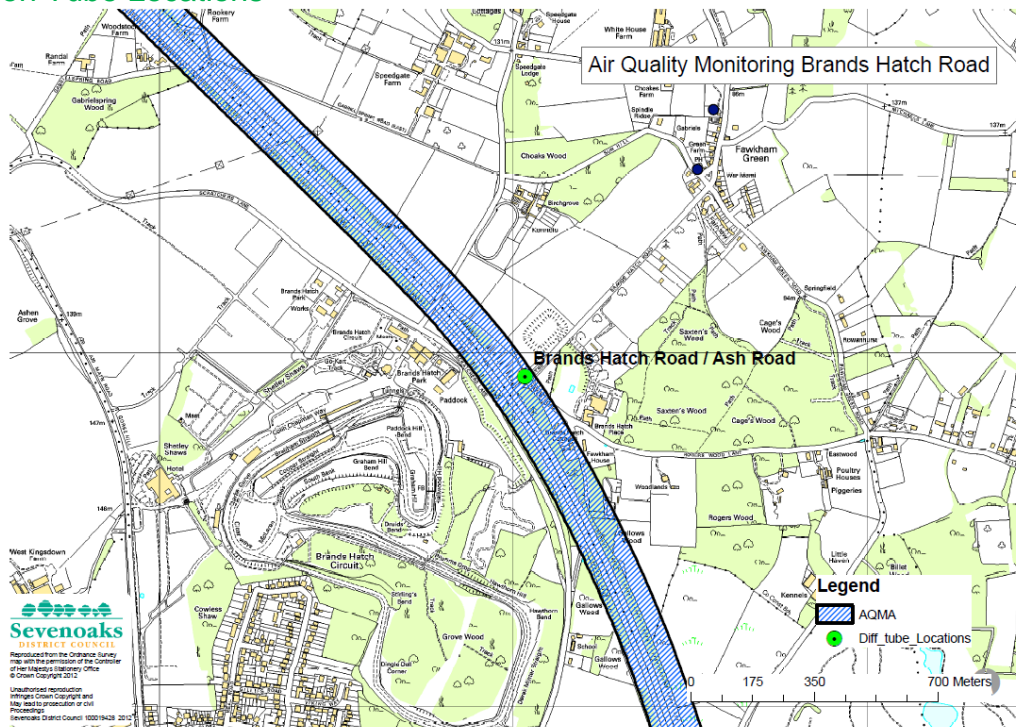
As there is very little difference between the national and locally derived bias adjustment factors, the more conservative local factor of 0.80 has been used to adjust the data.

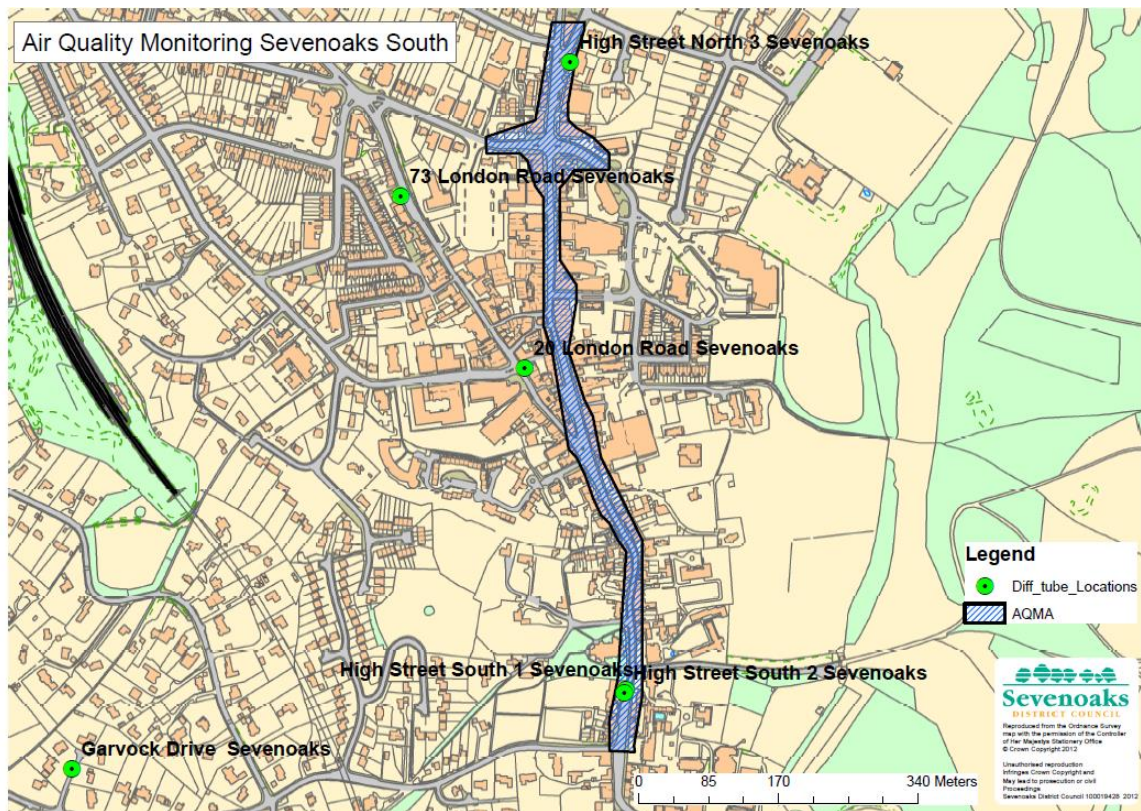
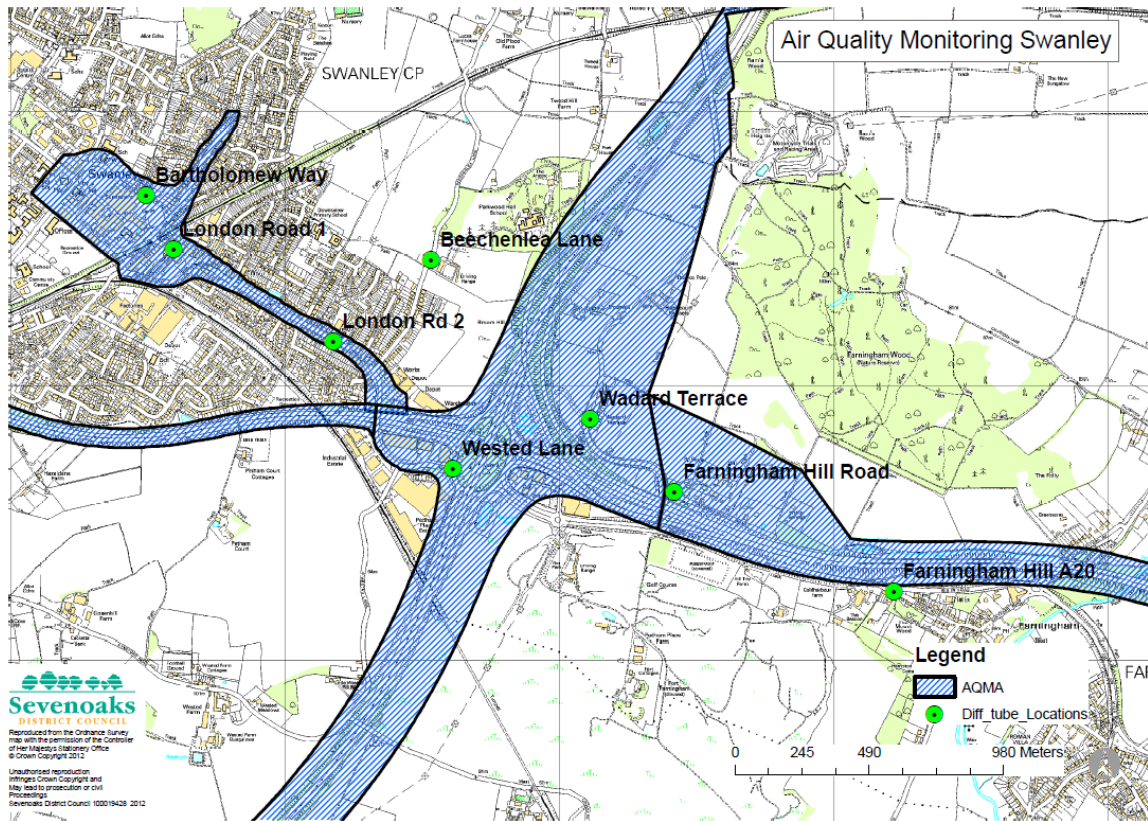
Appendix D: Map(s) of Monitoring Locations and AQMAs

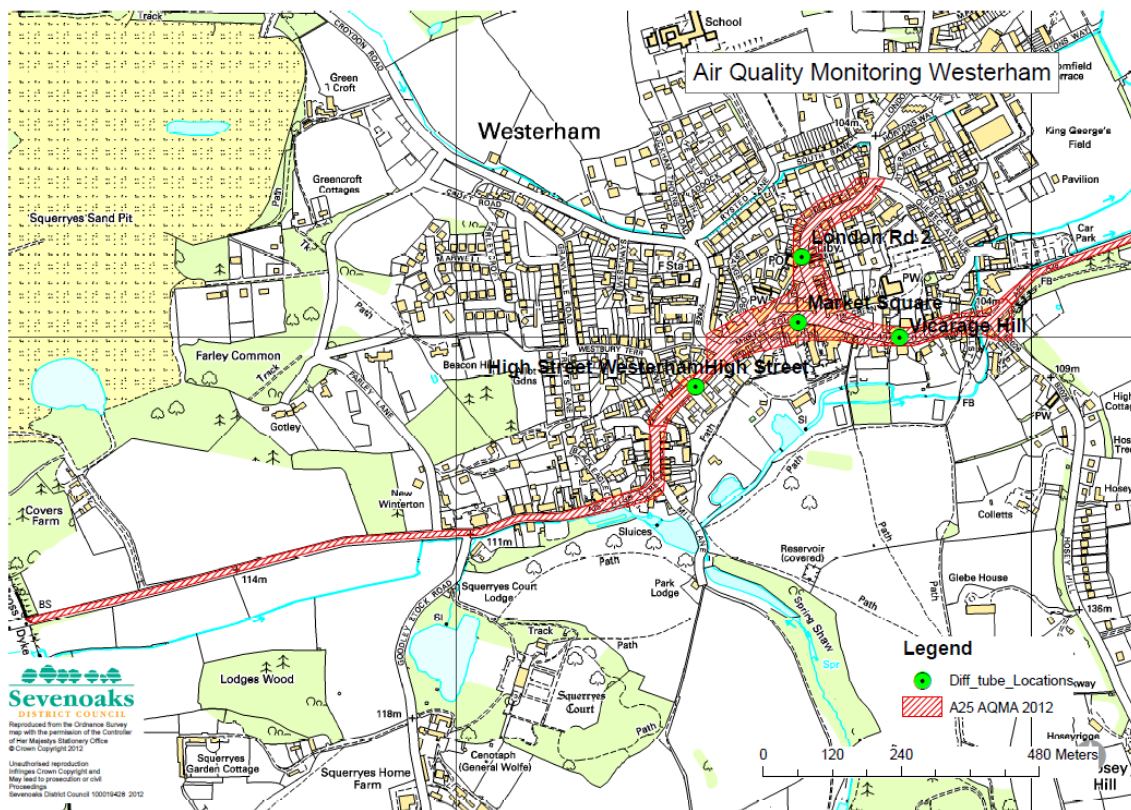
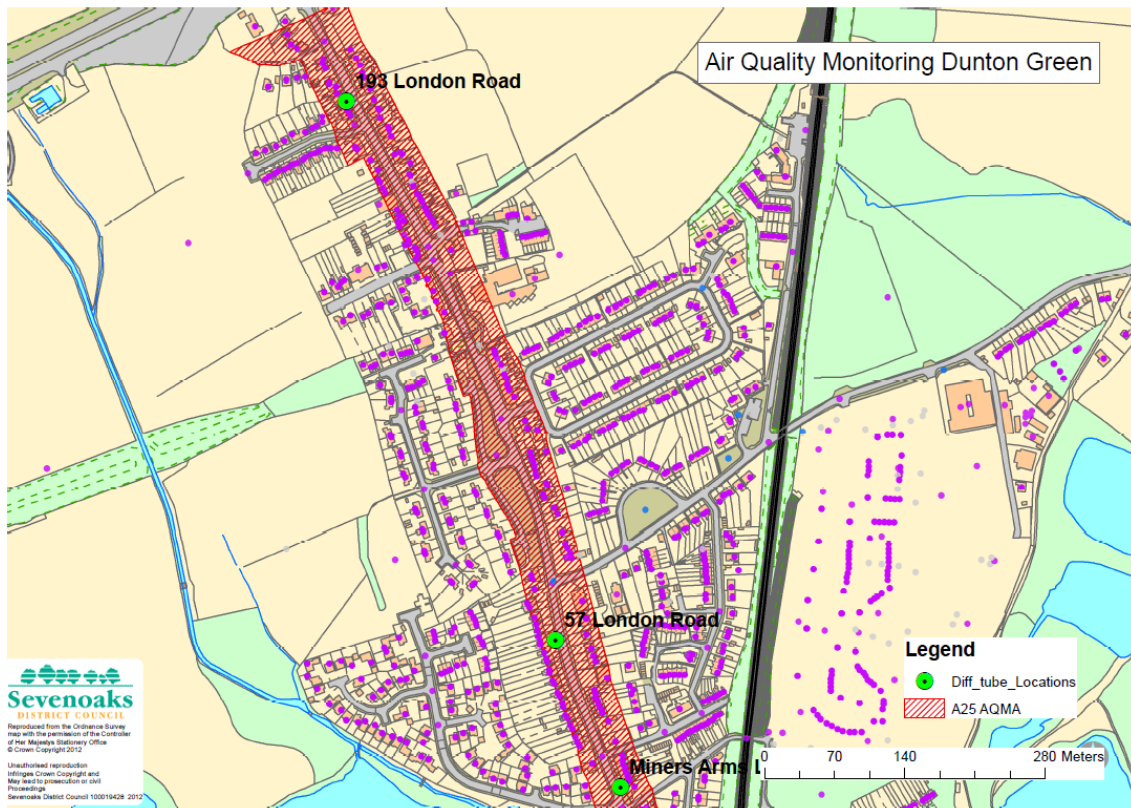
Automatic Monitoring Stations

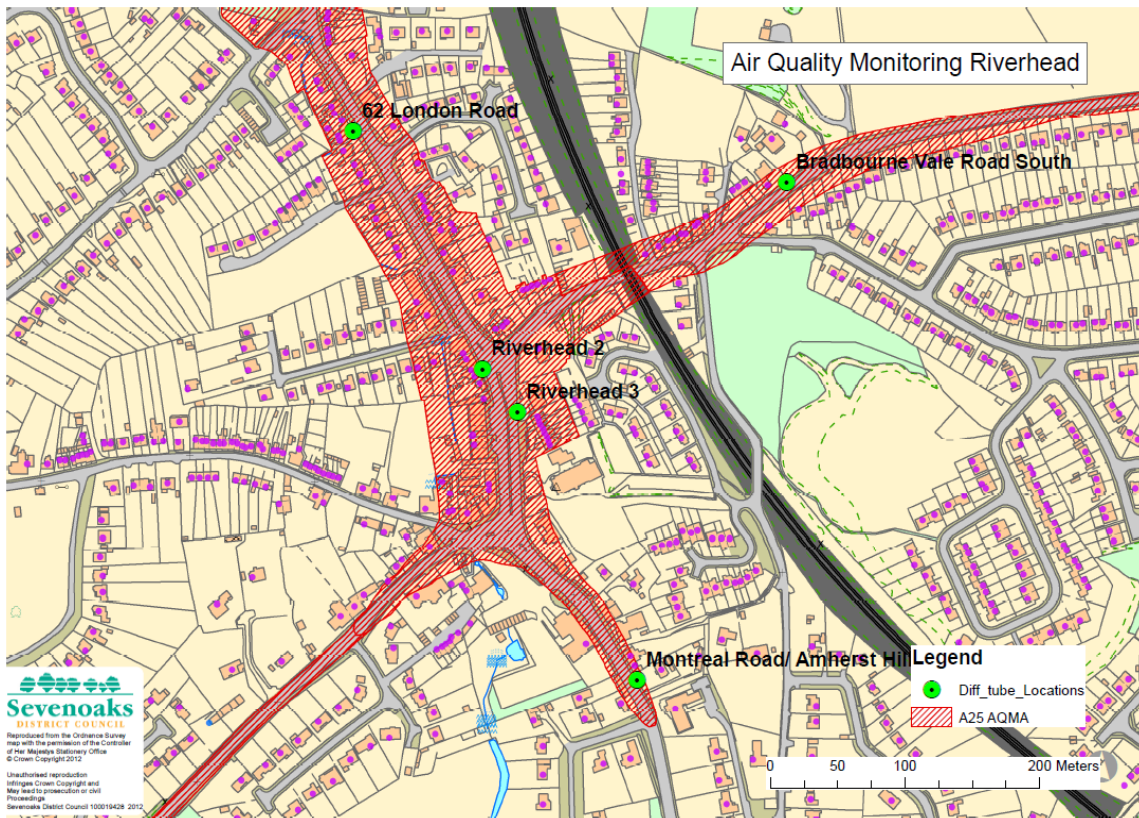
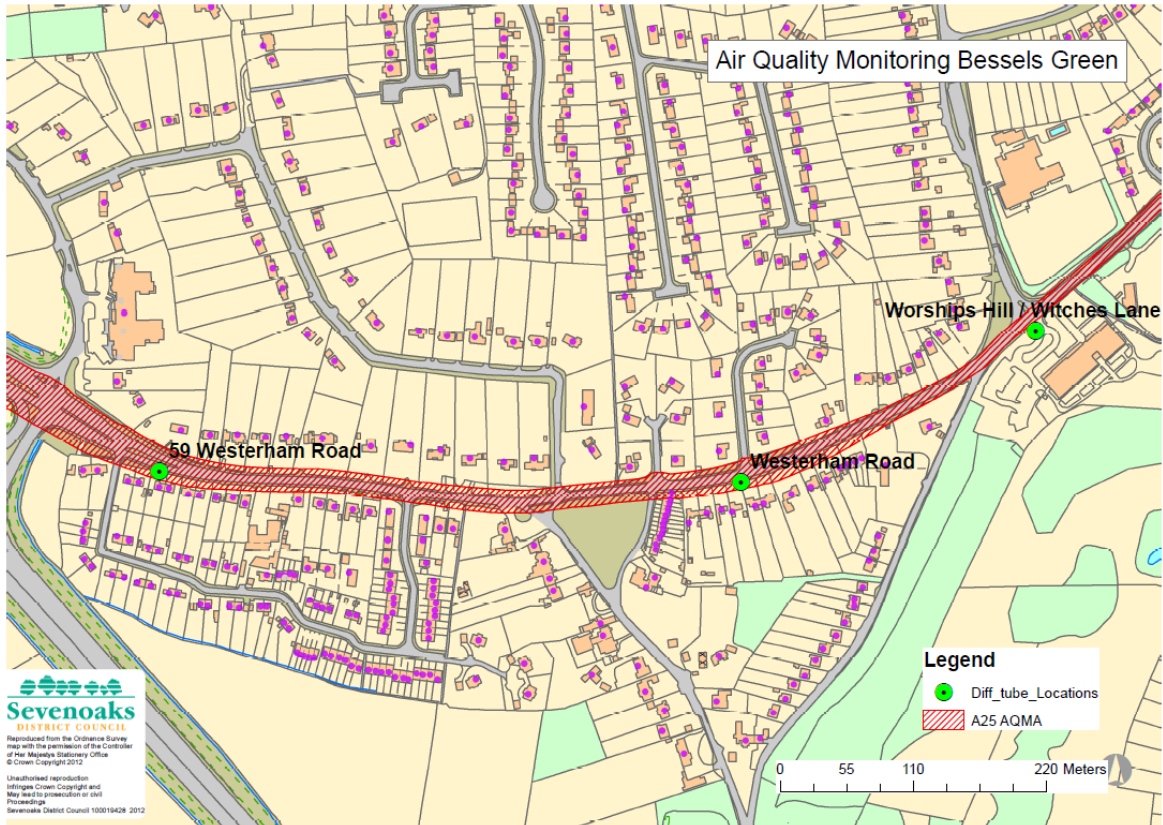


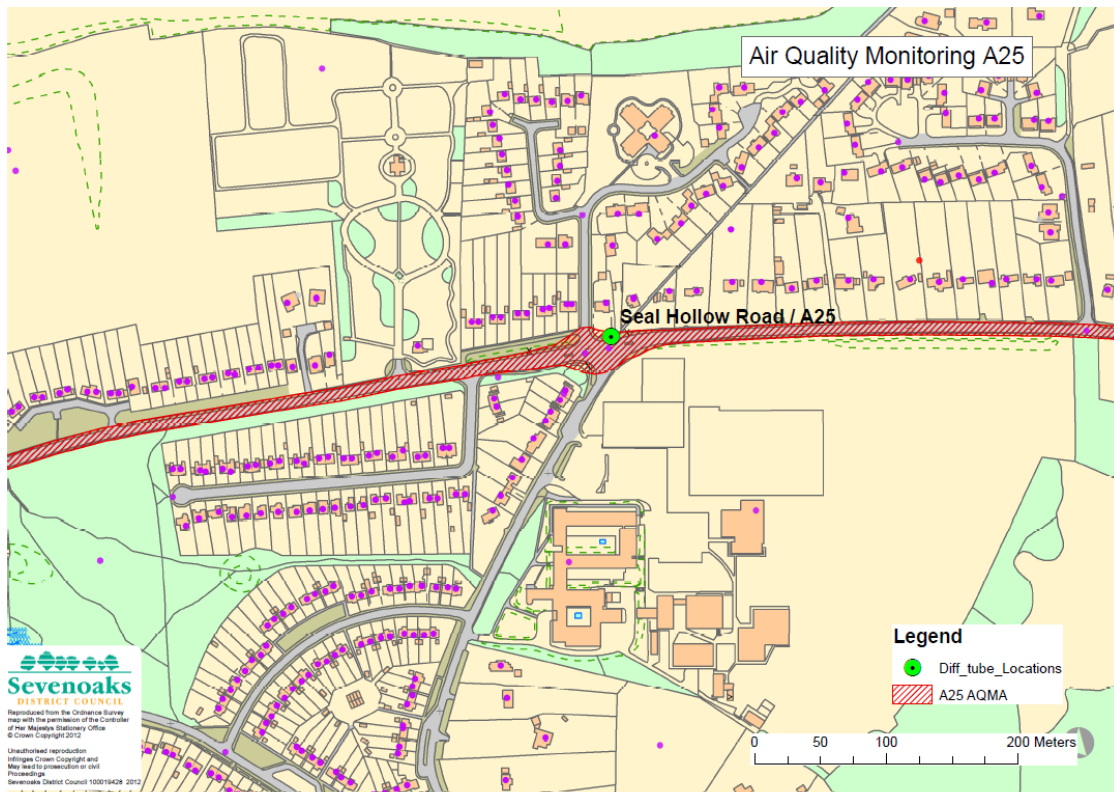
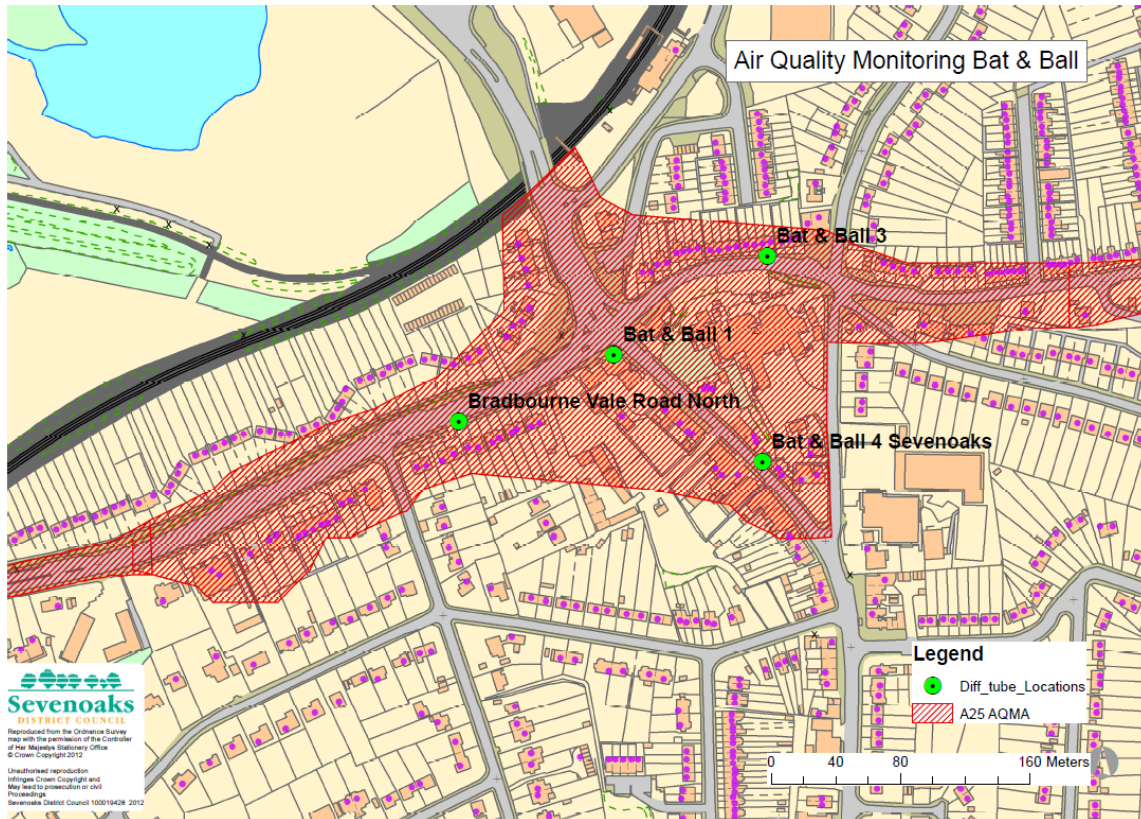
Diffusion Tube Locations

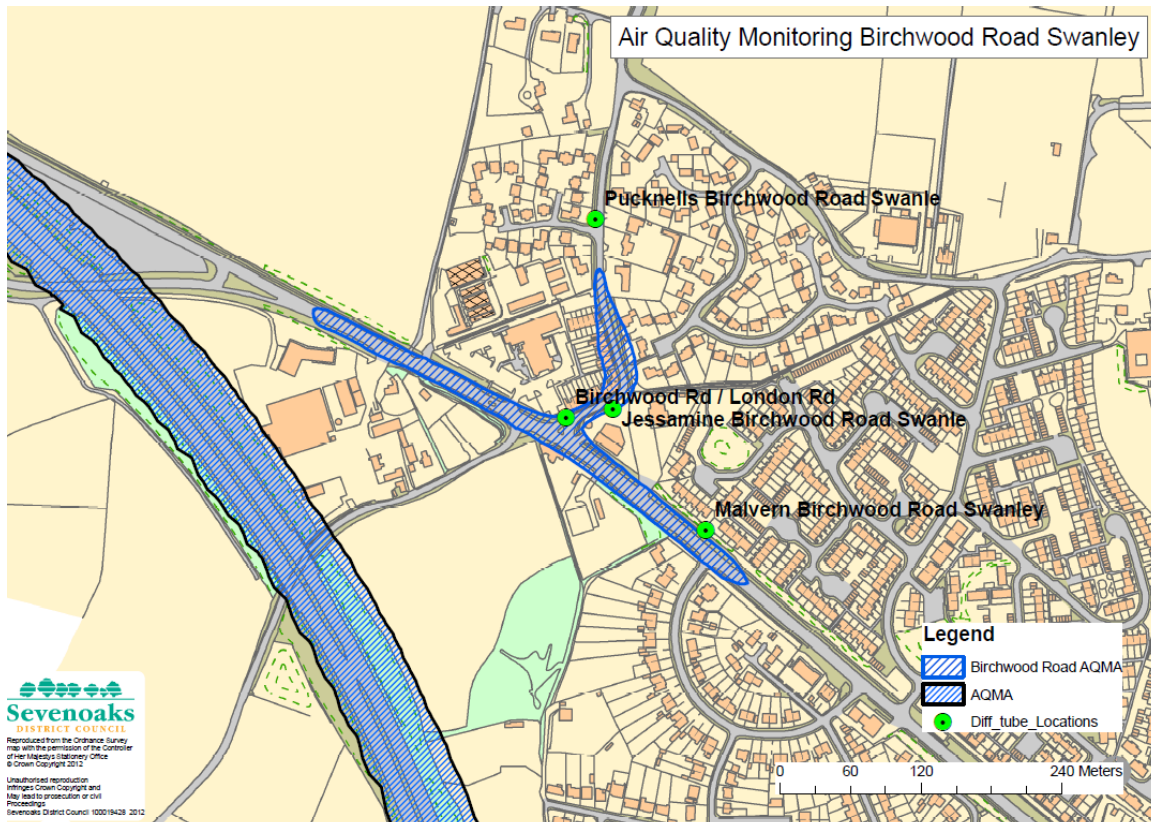
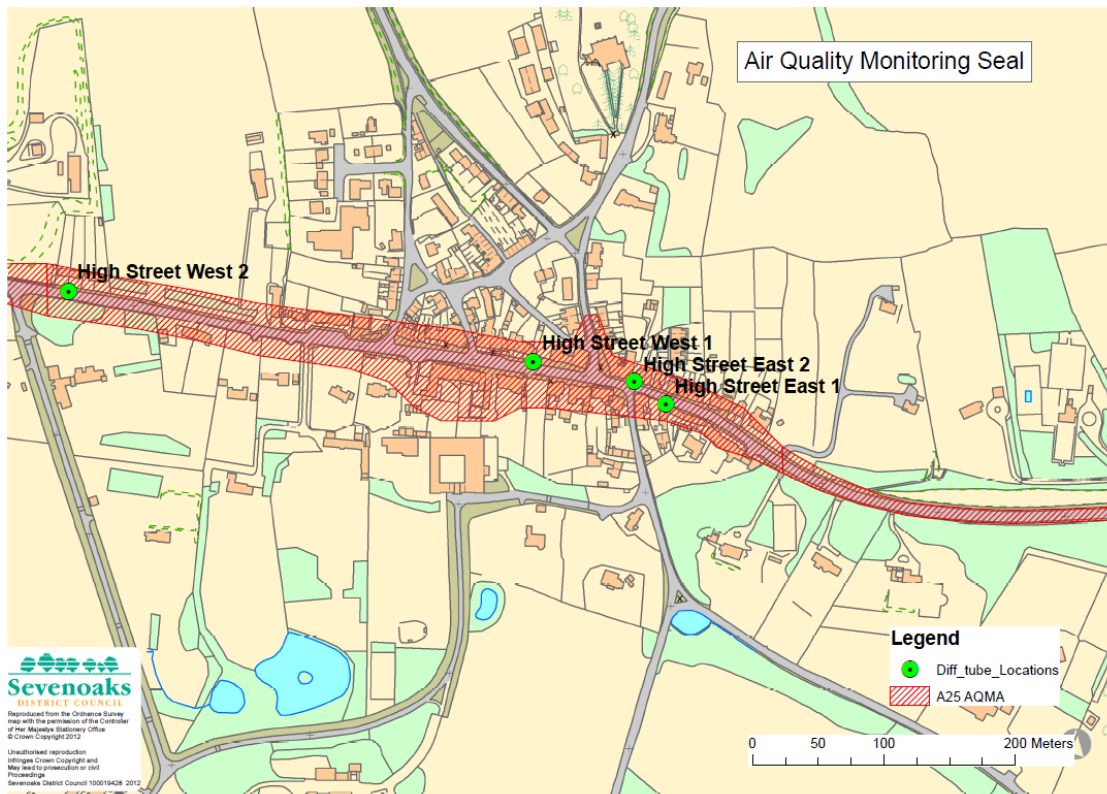


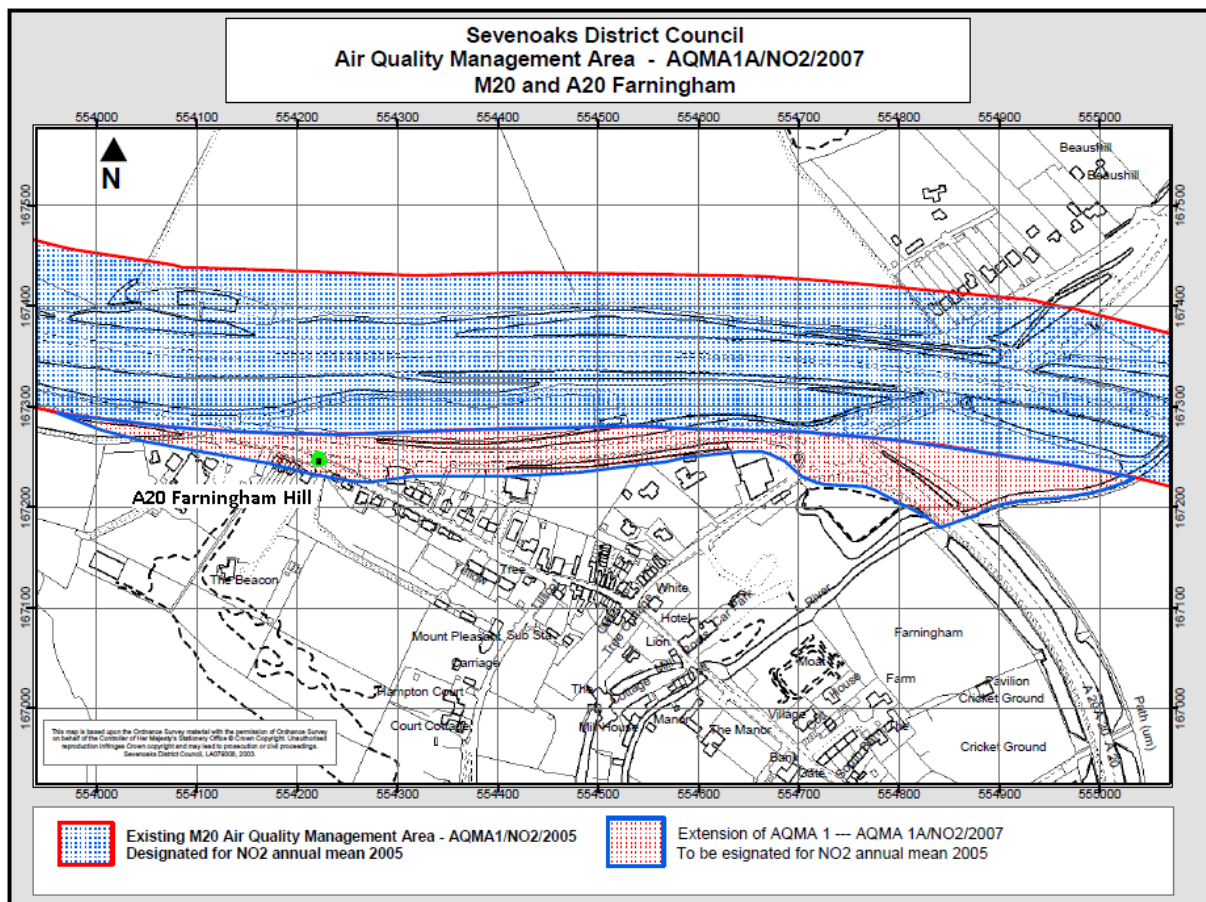
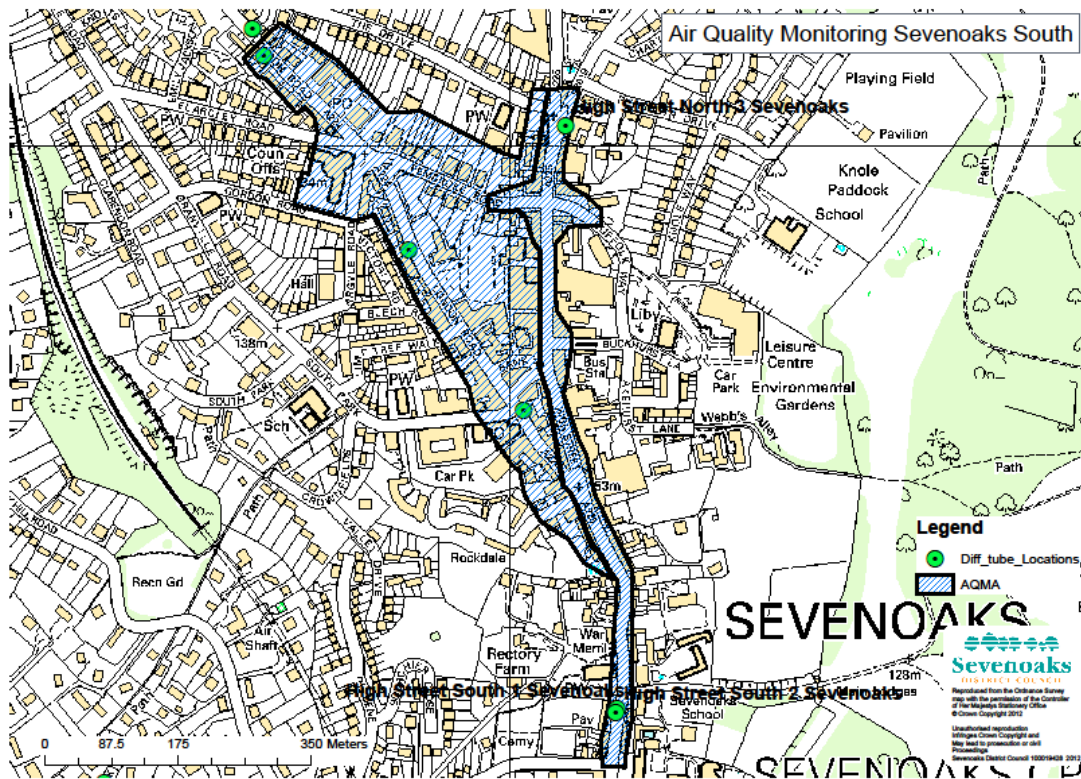












Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

Defra - Local Air Quality Management Technical Guidance (TG16) (2016)

Defra - Local Air Quality Management Policy Guidance (PG16) (2016)

Kent County Council - Local Transport Plan: Delivering Growth without Gridlock (2016)

Sevenoaks District Council – Annual Status Report (2018)