2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: July 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Epsom and Ewell

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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

In common with much of the region, the principle pollutant of concern in Epsom and Ewell is nitrogen dioxide arising from road transport. The other potentially relevant pollutants contained within the national air quality strategy have long been screened out. In response to a local hotspot in Ewell High Street, the Council declared an Air Quality Management Area (AQMA) in 2007 and modified the boundary in 2011. Details on the Ewell High Street AQMA can be found here https://uk-air.defra.gov.uk/aqma/details?aqma_ref=508. An action plan to begin to take measures to improve air quality and reduce exposure was subsequently developed, consulted on and delivered to the extent that was possible. It is recognised that work to improve air quality depends on close cooperation with other Epsom & Ewell Borough Council (EEBC), departments such as planning and partner agencies. In particular the two tier working arrangements in this area require the local highways authority, Surrey County Council to be involved with air quality matters. This is achieved through the Surrey Air Alliance – a collaborative group of all councils in Surrey.

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[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

Within the Borough, a gradual improvement in air quality has been noted for over a decade which has been aided by no new major transport or industrial related sources of emissions, nor has there been any new AQMA declarations in the past year. However owing to the effect of the Covid-19 pandemic and the resulting effect on the volume of road traffic, it is not considered that 2020 was in any way a representative year.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Air Quality is featured within the Council's Climate Change Action Plan. This includes the introduction of the 'Don't be Idle' campaign in order to monitor and reduce idling within key areas of concern in the borough. Joint collaboration with external groups including Surrey Climate Change Officer groups helps to provide information for opportunities/funding relating to improving air quality. Furthermore, regular communication in terms of environmental topics has taken place in the last year. The Council's ambitious target to achieve net zero status by 2035 includes a range of sustainable principles, from which we aim to develop further work in relation to improving air quality and combatting climate change.

Through the Surrey Air Alliance, a DEFRA grant has been awarded enabling the Council and its partner authorities to deliver an electric taxi project seeking to support taxi and private hire drivers in making the switch to electric vehicles. This project is in the initial

[5] Defra. Clean Air Strategy, 2019

[6] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

stages at the time of writing this ASR and it is expected to be sufficiently advanced to report on for the 2022 ASR.

Conclusions and Priorities

The quality of the air in Epsom and Ewell remains very good with just one area, within an existing AQMA, continuing to record an exceedance of the national objective. The new area of study in London Road Ewell appears to be well within the national objective but this and all results in 2020 are heavily influenced by the national and local responses to Covid-19 which removed much of the road traffic for many weeks. For this reason the Council is not drawing strong conclusions from the results in 2020 as they cannot be said to be representative of an average year.

The Council is unlikely to be revisiting the Air Quality Action Plan for Ewell High Street, having delivered all of the viable measures. Instead it will concentrate on pursuing the adopted Climate Change Action Plan and the electric taxi project referred to in this report.

Local Engagement and How to get Involved

The Council encourages individuals to change their behaviour so as to reduce emissions from transport, their home and their work. The Epsom and Ewell borough is compact with public transport links through to areas of south and south west London as well as routes to Sussex and the south coast. The Council operates an electric enforcement vehicle and is close to signing an agreement to provide up to 20 electrical vehicle charging points in its carparks whilst working together with the County Council in considering opportunities for on street charging. On behalf of residents, the Council pays an annual fee for membership of the air alert system whereby anyone can sign up for free text messages and/or use an App to receive information about predicted periods of poor air quality. For vulnerable people or those with respiratory conditions, this helps to provide a warning to allow them to plan their activities. There are 70 residents who currently benefit from the text service with many more able to benefit from the app.

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Tables

1 Local Air Quality Management

This report provides an overview of air quality in Epsom & Ewell during 2021. 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 Epsom & Ewell Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Epsom & Ewell Borough Council can be found in Table 2.1. The table presents a description of the single AQMA that is currently designated within Epsom & Ewell. Appendix D: Map(s) of Monitoring Locations and AQMAs provides a map of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation is the NO_2 annual mean.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
Ewell High Street AQMA	09/07/2007	NO_2 Annual Mean	An area encompassing the section of High Street, Ewell from the junction with Spring Street to the junction with Cheam Road and continues a further 30 metres south on High Street Ewell	NO	63µg/m^3	46.1µg/m^3	Ewell High Street Air Quality Action Plan 2010	here

☒ **Epsom & Ewell Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

☒ **Epsom & Ewell Borough Council confirm that all current AQAPs have been submitted to Defra**

2.2 Progress and Impact of Measures to address Air Quality in Epsom & Ewell

Defra's appraisal of last year's ASR concluded it was well structured, detailed and provides the information specified in the Guidance. DEFRA were encouraged by the Council's consideration of the results of a detailed modelling exercise and that additional monitoring locations had been deployed. Further comments were as follows.

- A comment was received about the benefits of a borough wide map showing the monitoring locations and this has been included in this report.
- Whilst DEFRA acknowledge the single AQMA is on a downward trend and may be able to be revoked in 3-4 years, it still strongly recommended the Ewell High Street AQMA Action Plan be updated as it is now very old. Epsom & Ewell Borough Council agrees the action plan is old and that all of the viable measures contained within have been completed. However it does not intend to update this plan since it remains the case there are no cost effective viable measures which could be undertaken and the considerable cost of devising a further action plan is better deployed on active and practical measures of lasting effect to benefit the borough as a whole, as well as the AQMA. These measures are detailed elsewhere in this report.
- DEFRA identified a minor transcription error in the supporting table which meant that whilst the report itself was accurate, one of the cells in the accompanying spreadsheet quoted the non distance corrected NO_2 concentration rather than the distance corrected version. The Council is pleased there were no major errors identified in the report which was written by an officer heavily involved in the emergency response to the Covid-19 pandemic and has strived for full accuracy in the 2021 report.

Epsom & Ewell Borough Council has previously taken forward a number of direct measures in pursuit of improving local air quality.

More detail on these measures can be found in the existing action plan. Key completed measures are:

- The conversion of the mini roundabout in Ewell High Street into a conventional junction ensuring queuing traffic takes place outside the AQMA.
- The removal of on road parking during peak times promoting laminar traffic flow within the AQMA.
- The associated parking enforcement to ensure the junction is kept clear during peak times within the AQMA.

Details of all measures completed, in progress or planned are set out in **Error! Reference source not found.**.

The principal challenges and barriers to implementation that Epsom & Ewell Borough Council experiences in relation to the Ewell High Street AQMA is simply that it is narrow, with poor dispersal and at times congested and there are a lack of viable measures to ease these structural issues.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Remove the formally marked parking bays from 53 to 67 High Street	Transport Planning and Infrastructure	Other	Jun-14	2015	Surrey County Council	Surrey County Council	NO	Funded	< £10k	Completed	5 µg/m3	Complete Y/N	Completed	Combination of completed measures has contributed to a reduction of 20-25 µg/m3
2	Widen the road at 76 – 62 High Street	Transport Planning and Infrastructure	Other	Jun-14	2015	Surrey County Council	Surrey County Council	NO	Funded	£10k - 50k	Completed	5 µg/m3	Complete Y/N	Completed	Combination of completed measures has contributed to a reduction of 20-25 µg/m4
3	Remove on-street car parking on Church Street junction.	Transport Planning and Infrastructure	Other	-	2015	Surrey County Council	Surrey County Council	NO	Funded	< £10k	Completed	5 µg/m3	Complete Y/N	Completed	Combination of completed measures has contributed to a reduction of 20-25 µg/m5
4	Alter the junction of Cheam Road/High Street*	Transport Planning and Infrastructure	Other	2015	2015	Surrey County Council	Surrey County Council	NO	Funded	£50k - £100k	Completed	5 µg/m3	Complete Y/N	Completed	Combination of completed measures has contributed to a reduction of 20-25 µg/m6
5	Re-apply for traffic regulation order in relation to 7.5 tonne weight restriction	Freight and Delivery Management	Quiet & out of hours delivery	-		Surrey County Council	Surrey County Council	NO	Not Funded	< £10k	Aborted		none	Not proceeding	Not a priority for local transport service
6	Place restrictions on delivery times and stopping on High Street between Cheam Road and Spring Street junctions	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2015	2015	Epsom & Ewell Borough Council	Epsom & Ewell Borough Council	NO	Funded	< £10k	Completed		none	Completed	Combination of completed measures has contributed to a reduction of 20-25 µg/m6
7	Paint 'keep clear' lines at entrance to junctions of High Street with Church Street and West Street.	Transport Planning and Infrastructure	Other	-		Surrey County Council	Surrey County Council	NO	Not Funded	< £10k	Aborted		none	Not proceeding	No longer favoured by local transport service
8	Pedestrianise Ewell High Street in conjunction with Kiln Lane Link	Transport Planning and Infrastructure	Other	-		Surrey County Council	Surrey County Council	NO	Not Funded	£100k - £500k	Aborted		none	Not proceeding	Kiln Lane link presently not going ahead
9	Pedestrianise Ewell High Street without Kiln Lane Link	Alternatives to private vehicle use	Other	-		Surrey County Council	Surrey County Council	NO	Not Funded	£100k - £500k	Aborted		none	Not proceeding	Not a priority for local transport service
10	Implement a one-way system	Transport Planning and Infrastructure	Other	-		Surrey County Council	Surrey County Council	NO	Not Funded	£50k - £100k	Aborted		none	Not proceeding	Dependent on Kiln Lane Link
11	Remove the traffic lights at the junction between Spring Street and High Street	Traffic Management	UTC, Congestion management, traffic reduction	-		Surrey County Council	Surrey County Council	NO	Not Funded	£10k - 50k	Aborted		none	Not proceeding	Judgement that the worsening of pedestrian safety was unacceptable

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
12	Replace the pelican crossing outside market parade with zebra crossing	Transport Planning and Infrastructure	Other	-		Surrey County Council	Surrey County Council	NO	Not Funded	£10k - 50k	Aborted		none	Not proceeding	Clarification was received that these lights were linked with traffic control signals and had no effect on traffic flow
13	Implement a one-way system on Church Street/West Street	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	-		Surrey County Council	Surrey County Council	NO	Not Funded	£50k - £100k	Aborted		none	Not proceeding	Non viable at present

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.

As was reported in the previous ASR, Epsom & Ewell Borough Council have modelled particulate concentrations across the borough in a greater resolution than provided by the national estimates. It found that the majority of $PM_{2.5}$ is background in nature with sources outside the borough but that concentrations remained within the EU Limit value. There is no one single source of $PM_{2.5}$ but instead road transport (exhaust and non exhaust fractions), and “other” (including combustion in commercial, institution and agricultural sectors) are the main contributors.

This modelling confirms the difficulties with any one single Council operating on its own in controlling $PM_{2.5}$. Nevertheless the Council will not completely disregard $PM_{2.5}$. It is concluded that actions to reduce other pollutants and particulates generally are appropriate to reduce $PM_{2.5}$ when combined with regional and national efforts through, for example, the Surrey Air Alliance.

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

This section sets out the monitoring undertaken within 2020 by Epsom & Ewell Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Epsom & Ewell Borough Council does not operate any automatic monitoring sites.

3.1.2 Non-Automatic Monitoring Sites

Epsom & Ewell Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 25 sites during 2020. Table A.2 in Appendix A presents the details of the non-automatic 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 (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the

location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2020 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The Council continued to monitor one single exceedance of the annual mean objective for NO_2 within the Ewell High Street Air Quality Management area which despite the national lockdown has remained broadly the same. It is however not considered robust enough to rely upon since it was necessary to adjust the data to compensate for missing tubes during the first five months of the year and these were the months during the first national lockdown. It is expected that had the data been available it would have followed the pattern seen elsewhere – that of a significant drop in concentration which itself would have been unrepresentative of a typical year. The Council therefore does not draw any strong conclusions from this evidence.

The Council completed the first year of monitoring of two additional sites which were added in 2019 because of indications, via modelling, that a previously unstudied area of the borough may be at risk of exceedance of the national objective for NO_2. Both these sites were significantly below the national objective but monitoring will continue as 2020 was so unrepresentative of a typical year.

3.2.2 Particulate Matter (PM_{10})

The Council does not undertake any monitoring of $PM_{2.5}$.

3.2.3 Particulate Matter ($PM_{2.5}$)

The Council does not undertake any monitoring of $PM_{2.5}$.

3.2.4 Sulphur Dioxide (SO_2)

The Council does not undertake any monitoring of SO_2.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

The Council does not operate any automatic monitoring sites

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EE1	The Clock Tower	Roadside	520732	160762	NO2		13.0	2.5	No	2.1
EE3	26 The Crescent	Urban Background	519293	160026	NO2		9.0	2.0	No	2.0
EE6	Jct Kingston Rd/ Worcester Park Rd	Kerbside	520525	165040	NO2		8.2	6.8	No	2.1
EE7	Jct Ruxley Lane/Kingston Rd	Kerbside	520916	164636	NO2		4.2	6.8	No	2.3
EE9	Chessington Road, Ewell	Roadside	519830	163740	NO2		2.4	3.2	No	2.4
EE10	High Street, Ewell	Kerbside	521998	162633	NO2	Yes Ewell High Street AQMA	0.5	1.3	No	2.1
EE14	Hook Road Epsom	Roadside	520885	161308	NO2		3.4	1.6	No	2.0
EE16	Church Street/High Street Ewell	Roadside	522026	162624	NO2		0..1	1.1	No	1.7
EE17	40A High Street Ewell	Roadside	522025	162563	NO2	Yes Ewell High Street AQMA	0.1	2.0	No	2.2
EE22	High Street, Epsom	Roadside	520965	160871	NO2		3.0	0.5	No	2.3
EE33	Travel Blank	Other			NO2				No	

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EE36	Capitol Square, Church Street	Urban Centre	521069	160817	NO2		0.2	9.2	No	2.1
EE37	British Heart Foundation, High Street	Roadside	520726	160857	NO2		0.6	4.5	No	2.4
EE38	Station approach south	Roadside	520726	160857	NO2		0.1	2.8	No	1.8
EE39	The Parade	Roadside	520844	160729	NO2		0.2	3.3	No	2.1
EE42	High Street/East Street	Roadside	521004	160901	NO2		0.0	7.7	No	2.1
EE43	Kiln Lane	Roadside	521478	161447	NO2		0.3	5.5	No	2.3
EE45	Castle Parade	Roadside	522211	163103	NO2		0.4	8.3	No	2.1
EE46	Waterloo Road	Kerbside	520724	161027	NO2		4.6	0.6	No	2.1
EE47	Chessington Road	Roadside	520713	162968	NO2		0.2	4.7	No	1.9
EE48	Ewell High Street South	Roadside	522022	162502	NO2	Yes Ewell High Street AQMA	0.4	1.7	No	2.1
EE49	37 South Street, Epsom	Roadside	520580	160586	NO2		0.2	3.5	No	2.2
EE50	Major Plaice Ewell High Street	Kerbside	521975	162677	NO2	Yes Ewell High Street AQMA	7.5	0.9	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EE51	Station approach north	Roadside	520702	160872	NO2		3.0	3.3	No	1.8
EE52	77 London Road, Ewell	Roadside	522303	163213	NO2		0.5	4.6	No	1.8
EE53	115 London Road, Ewell	Roadside	522369	163289	NO2		0.0	14.5	No	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.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Epsom & Ewell did not carry out any automatic monitoring in 2020.

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
EE1	520732	160762	Roadside	48.1	48.1	39.1	33.8	29.6	26.5	23.0
EE3	519293	160026	Urban Background	90.1	90.1	20.2	16.9	14.8	15.0	14.1
EE6	520525	165040	Kerbside	99.7	99.7	37.5	31.3	30.4	33.0	27.8
EE7	520916	164636	Kerbside	99.7	99.7	**41.8**	35.5	33.5	34.2	28.0
EE9	519830	163740	Roadside	92.0	92.0	29.8	23.2	23.5	24.4	20.6
EE10	521998	162633	Kerbside	51.6	51.6	**52.6**	**44.4**	34.8	**46.3**	**44.0**
EE14	520885	161308	Roadside	99.7	99.7	29.0	25.4	25.2	25.3	20.8
EE16	522026	162624	Roadside	51.6	51.6	33.6	30.7	25.5	27.8	22.3
EE17	522025	162563	Roadside	82.4	82.4	36.0	30.2	28.9	31.4	29.1
EE22	520965	160871	Roadside	82.4	82.4	**48.1**	39.3	35.1	35.4	31.3
EE33			Other	59.6	59.6	3.4	2.5	2.1	2.1	2.4
EE36	521069	160817	Urban Centre	84.3	84.3	29.1	26.3	23.5	23.3	19.9
EE37	520726	160857	Roadside	82.4	82.4	38.6	33.4	26.9	32.7	25.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
EE38	520726	160857	Roadside	76.6	76.6	29.0	25.1	23.3	24.2	16.2
EE39	520844	160729	Roadside	99.7	99.7	35.6	27.6	29.9	24.6	21.5
EE42	521004	160901	Roadside	92.0	92.0	32.9	28.8	23.1	24.5	20.1
EE43	521478	161447	Roadside	99.7	99.7	34.4	28.5	26.0	25.5	21.7
EE45	522211	163103	Roadside	92.0	92.0	28.3	22.5	23.9	21.3	17.7
EE46	520724	161027	Kerbside	82.7	82.7	23.0	24.6	27.1	27.9	21.5
EE47	520713	162968	Roadside	82.4	82.4	33.0	24.5	23.5	25.1	19.2
EE48	522022	162502	Roadside	99.7	99.7	32.2	29.0	27.8	28.4	22.1
EE49	520580	160586	Roadside	99.7	99.7		28.6	34.1	34.2	25.5
EE50	521975	162677	Kerbside	99.7	99.7		36.4	36.2	35.7	33.6
EE51	520702	160872	Roadside	99.7	99.7			30.1	25.0	21.0
EE52	522303	163213	Roadside	92.0	92.0				**40.0**	30.3
EE53	522369	163289	Roadside	92.0	92.0				23.0	16.0

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☒ **Diffusion tube data has been bias adjusted**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

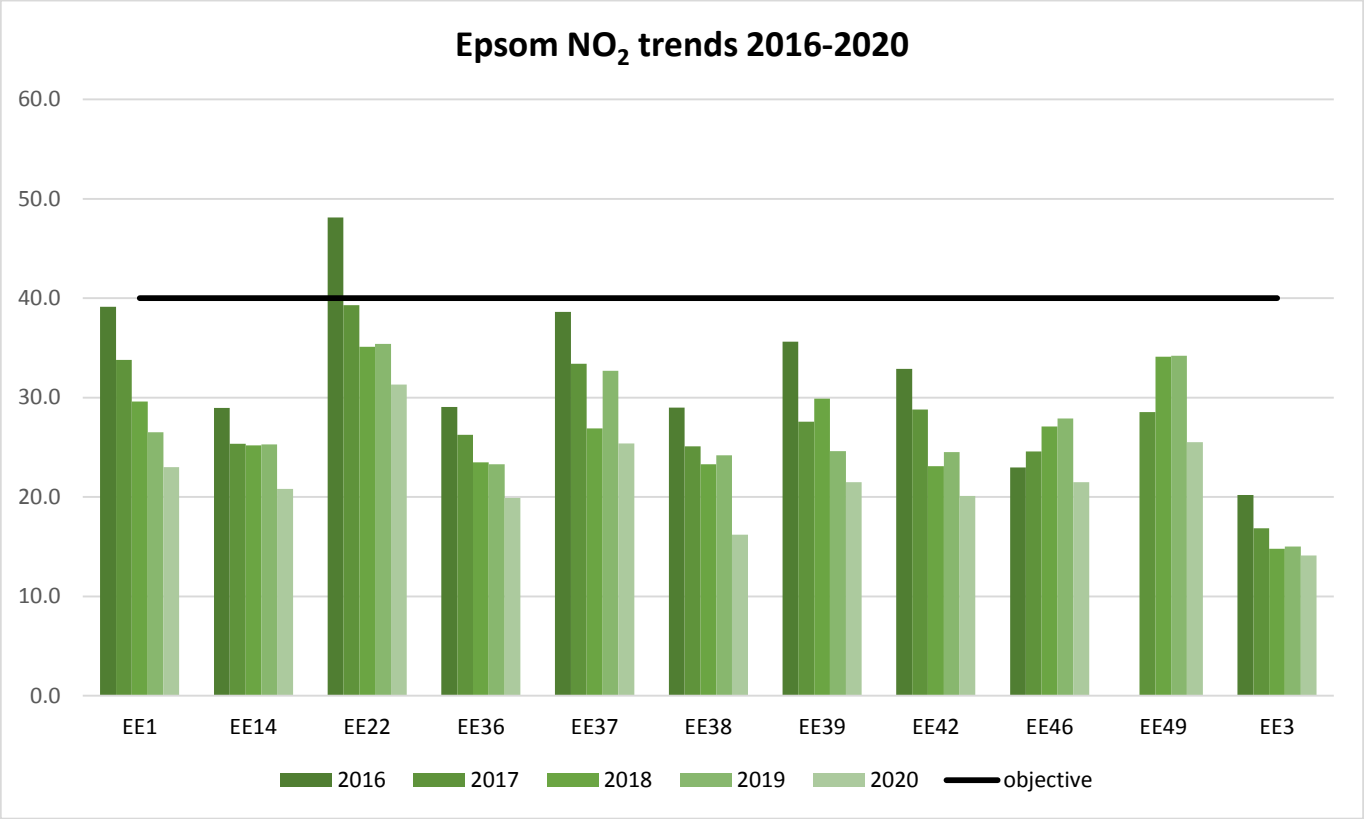
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

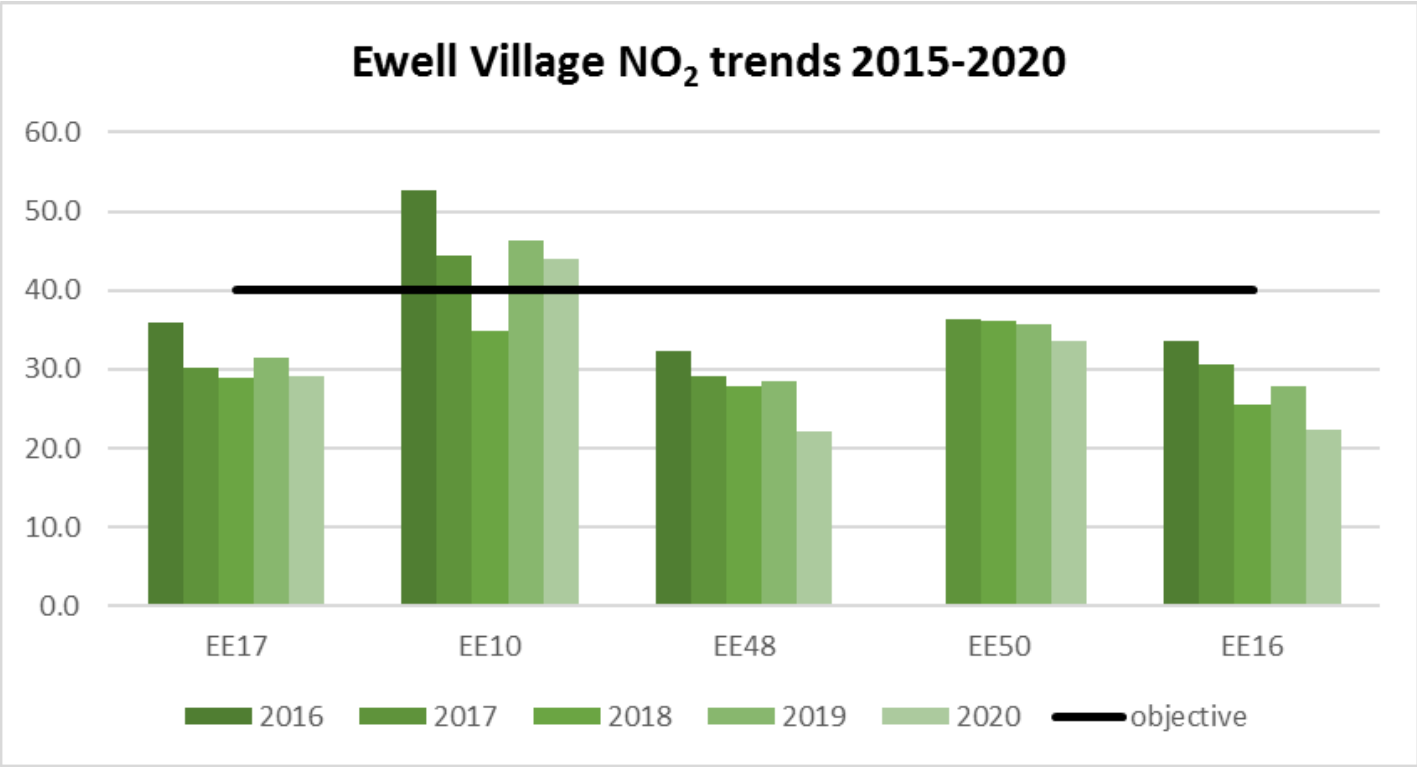
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations




Ewell Village NO2 trends 2015-2020
60.0
50.0
40.0
30.0
20.0
10.0
0.0
EE17
EE10
EE48
EE50
EE16
2016
2017
2018
2019
2020
objective

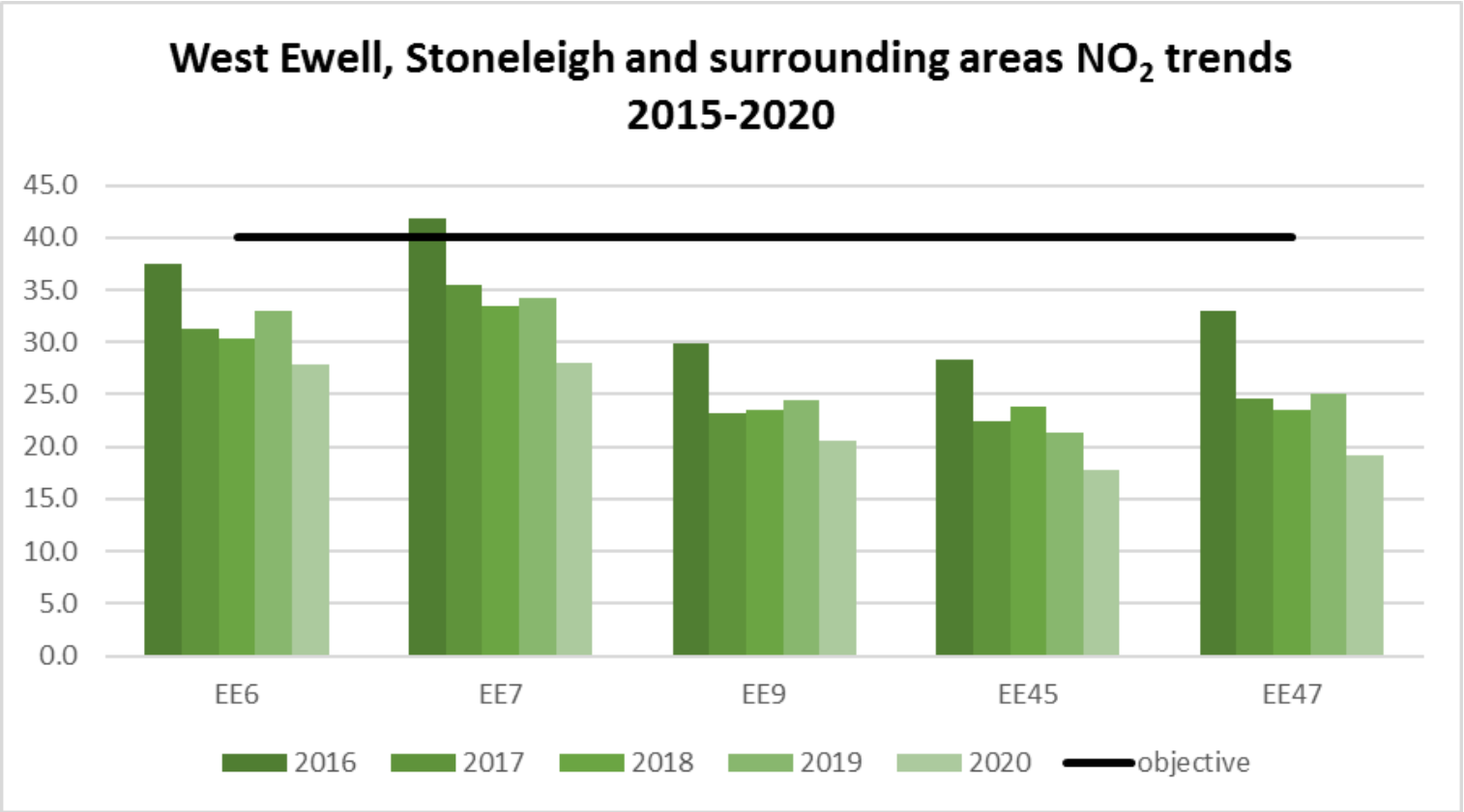


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Automatic monitoring is not carried out by the Council

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

Automatic monitoring is not carried out by the Council

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Particulate monitoring is not carried out by the Council

Figure A.3 – Trends in Annual Mean PM_{10} Concentrations

Particulate monitoring is not carried out by the Council

Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50$\mu g/m^3$

Particulate monitoring is not carried out by the Council

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50$\mu g/m^3$

Particulate monitoring is not carried out by the Council

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Particulate monitoring is not carried out by the Council

Figure A.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations

Particulate monitoring is not carried out by the Council

Table A.9 – SO_2 2020 Monitoring Results, Number of Relevant Instances

SO_2 monitoring is not carried out by the Council

Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.97	Annual Mean: Distance Corrected to Nearest Exposure	Comment
EE1	520732	160762	29.0		22.0			21.0	16.0				34.0	24.0	24.3	23.0	-	
EE3	519293	160026	36.0	18.0	12.0	10.0	7.0	9.0	10.0	12.0	13.0	13.0	20.0		14.5	14.1	-	
EE6	520525	165040	39.0	25.0	20.0	19.0	16.0	37.0	25.0	31.0	34.0	33.0	33.0	32.0	28.7	27.8	-	
EE7	520916	164636	39.0	37.0	26.0	15.0	17.0	27.0	29.0	31.0	34.0	34.0	33.0	24.0	28.8	28.0	-	
EE9	519830	163740	30.0	22.0		12.0	14.0	18.0	18.0	23.0	24.0	25.0	23.0	25.0	21.3	20.6	-	
EE10	521998	162633						31.0		65.0	45.0	38.0	47.0	42.0	44.7	**44.0**	**42.0**	
EE14	520885	161308	33.0	19.0	16.0	12.0	13.0	14.0	14.0	26.0	23.0	25.0	38.0	24.0	21.4	20.8	-	
EE16	522026	162624					11.0	17.0	20.0	24.0	27.0			23.0	20.3	22.3	-	
EE17	522025	162563	35.0	27.0	16.0	19.0			23.0	34.0	30.0	46.0	36.0	34.0	30.0	29.1	-	
EE22	520965	160871	21.0	29.0	37.0	21.0			32.0	36.0	45.0	34.0	39.0	29.0	32.3	31.3	-	
EE33			3.0			1.0	1.0	2.0	2.0	3.0				5.0	2.4	2.4	-	This is the travel blank
EE36	521069	160817	27.0		17.0	11.0	11.0	12.0		33.0	24.0	23.0	25.0	22.0	20.5	19.9	-	
EE37	520726	160857	37.0	35.0		17.0	13.0	29.0	23.0	31.0	27.0		30.0	20.0	26.2	25.4	-	
EE38	520726	160857	29.0			11.0	9.0	13.0	12.0	17.0	20.0	19.0		20.0	16.7	16.2	-	
EE39	520844	160729	31.0	19.0	23.0	16.0	17.0	18.0	19.0	26.0	26.0	23.0	27.0	21.0	22.2	21.5	-	
EE42	521004	160901	29.0	21.0	21.0	13.0	14.0	21.0		20.0	25.0	22.0	25.0	17.0	20.7	20.1	-	
EE43	521478	161447	33.0	24.0	18.0	14.0	14.0	18.0	16.0	23.0	23.0	27.0	31.0	28.0	22.4	21.7	-	
EE45	522211	163103	23.0		15.0	15.0	12.0	15.0	14.0	23.0	23.0	20.0	27.0	14.0	18.3	17.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.97	Annual Mean: Distance Corrected to Nearest Exposure	Comment
EE46	520724	161027	31.0	26.0	16.0	15.0	13.0	20.0	19.0			33.0	28.0	21.0	22.2	21.5	-	
EE47	520713	162968	23.0	20.0	14.0	17.0	12.0	16.0		24.0	26.0		24.0	22.0	19.8	19.2	-	
EE48	522022	162502	29.0	26.0	21.0	12.0	11.0	18.0	19.0	28.0	27.0	27.0	27.0	28.0	22.8	22.1	-	
EE49	520580	160586	33.0	21.0	28.0	19.0	20.0	25.0	21.0	33.0	34.0	33.0	30.0	18.0	26.3	25.5	-	
EE50	521975	162677	49.0	51.0	20.0	17.0	17.0	30.0	29.0	39.0	39.0	44.0	37.0	44.0	34.7	33.6	-	
EE51	520702	160872	34.0	27.0	17.0	15.0	12.0	13.0	16.0	23.0	27.0	22.0	33.0	21.0	21.7	21.0	-	
EE52	522303	163213		36.0	23.0	25.0	24.0	16.0	24.0	40.0	48.0	43.0	39.0	26.0	31.3	30.3	-	
EE53	522369	163289		19.0	15.0	13.0	10.0	7.0	15.0	18.0	19.0	19.0	25.0	21.0	16.5	16.0	-	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column**

☒ **Epsom & Ewell Borough Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Epsom and Ewell During 2020

Epsom & Ewell Borough Council has not identified any new sources relating to air quality within the reporting year of 2020

Additional Air Quality Works Undertaken by Epsom & Ewell Borough Council During 2020

Epsom & Ewell Borough Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by Lambeth Scientific Services. The method of preparation is 50% TEA in acetone. The lab follows the procedures set out in the Practical Guidance Documents.

The analysing laboratory participates in the AIR NO_2 Proficiency Testing Scheme for diffusion tubes which provides Quality Assurance / Quality Control (QA/QC).

Diffusion Tube Annualisation

Annualisation was required for three sites – EE1, EE10 and EE16 and this year the calculations were performed using the Diffusion Tube Data Processing tool using real time analyser results from a site near Gatwick Airport operated by Reigate & Banstead Borough Council and a site in Teddington operated by Bureau Veritas. These automatic sites were selected as they met the requirements outlined in box 7.9 of LAQM.TG16

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under

or over-read relative to the reference chemiluminescence analyser. LAQM.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Epsom & Ewell Borough Council was able to utilise the partnership resources within the Surrey Air Alliance to compute a regional bias adjustment factor of 0.97 which compares favourably with the equivalent national bias adjustment of 0.95 taken from the national bias adjustment spreadsheet for the relevant laboratory and preparation method combination. The calculations for this appear in table C.3.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	County	-	0.97
2019	County	-	0.92
2018	National	06/19	1.03
2017	National	06/18	0.9
2016	National	06/17	1.05

NO_2 Fall-off with Distance from the Road

One location – EE10 has been subject to the fall off calculator now embedded within the Diffusion tube Data Processing Tool and presented in Table B.1. All other locations are either background or representative of exposure.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Gatwick Airport	Annualisation Factor Teddington	Annualisation Factor	Annualisation Factor	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
EE1	0.9229	1.0225			0.9727	24.3	23.7	
EE10	0.9341	1.0974			1.0157	44.7	45.4	
EE16	1.1346	1.1254			1.1300	20.3	23.0	

Table C.3 – County Bias Adjustment Calculation

	Data Capture (total)	Data Capture for period (where CV >20%)	Bias factor A	Bias B
Oaks Rd	92%	75%	1.04	-4%
Sunbury Cross	100%	92%	1.03	-3%
RG1	100%	83%	0.84	18%
RG3	100%	83%	0.91	10%
RG6	100%	100%	0.96	4%
Hampton Ct	100%	92%	1.05	-4%
Weybridge	100%	92%	0.97	3%
			Av Bias B	**3**
			Factor	**0.03**
			Add 1	**1.03**
			Inverse	**0.97**

Notes:

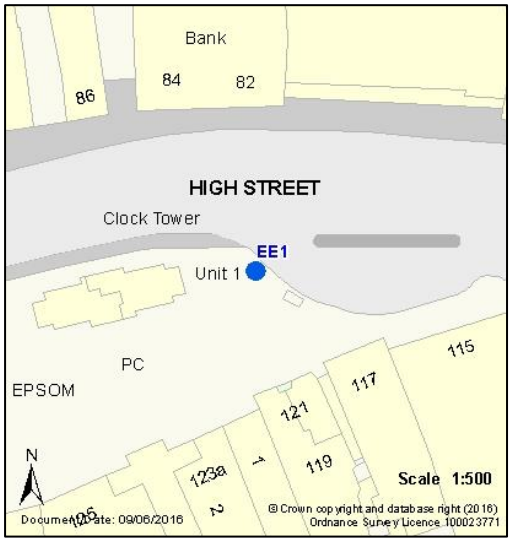
A single local bias adjustment factor has been used to bias adjust the 2020 diffusion tube results.

Table C.4 – NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

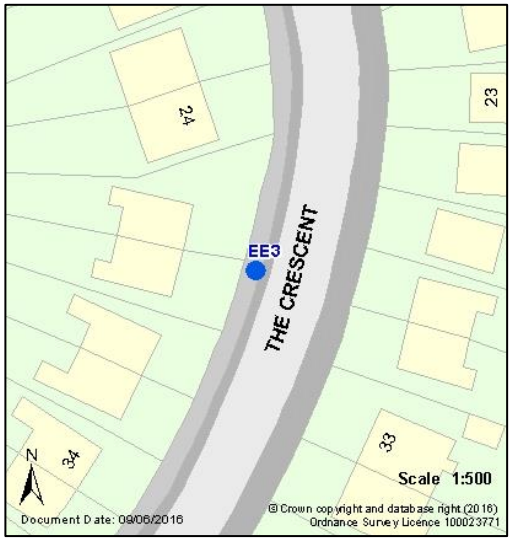
Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
EE10	1.3	1.8	44	14.5	42	Predicted concentration at Receptor above AQS objective.

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

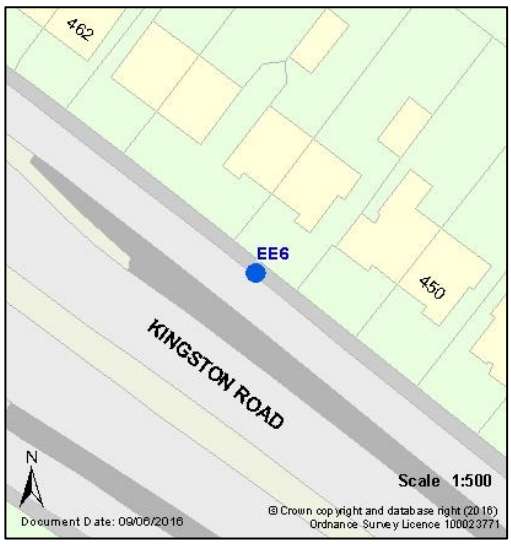
Figure D.1 – Map of Non-Automatic Monitoring Sites



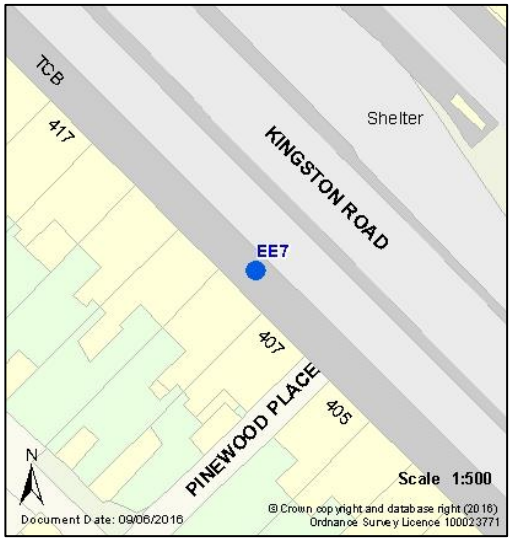
EE1 Clock Tower Epsom



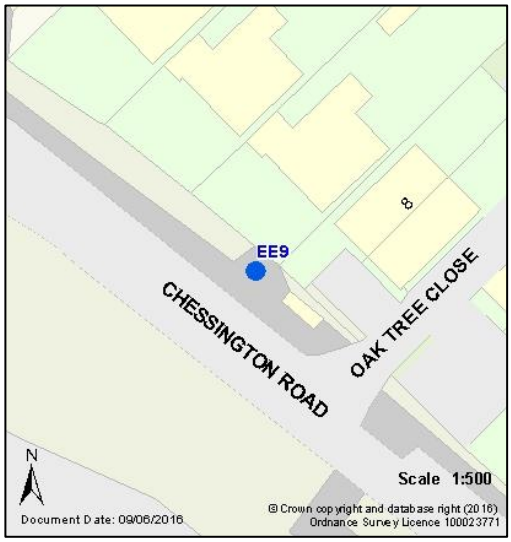
EE3 The Crescent Epsom



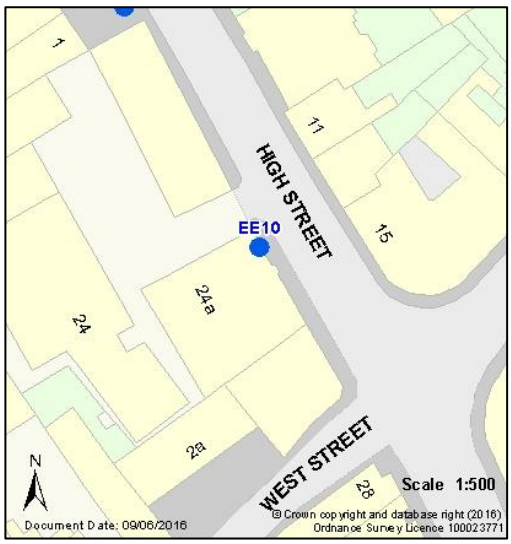
EE6 Kingston Road, Ewell



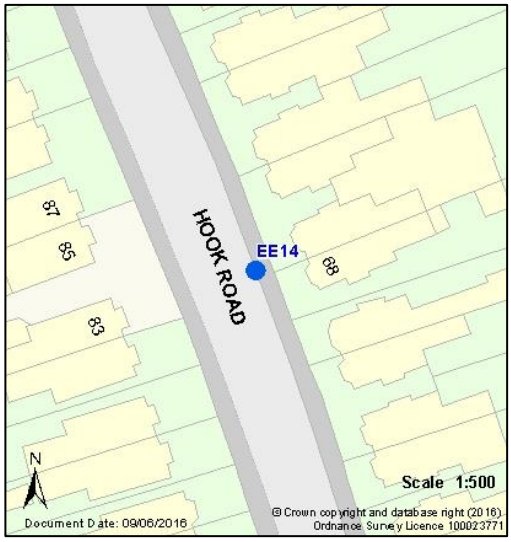
EE7 Kingston Road Ewell



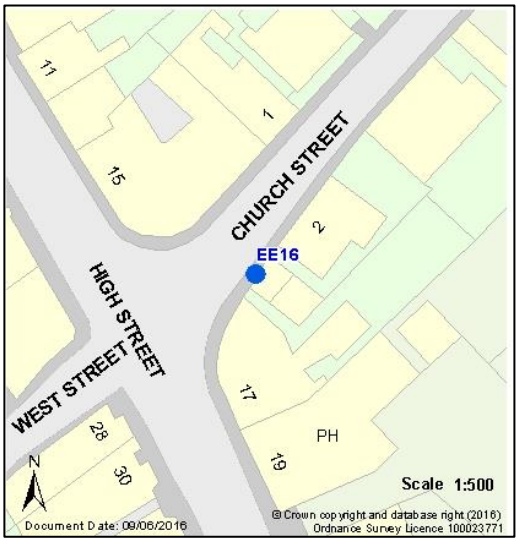
EE9 Chessington Road Ewell



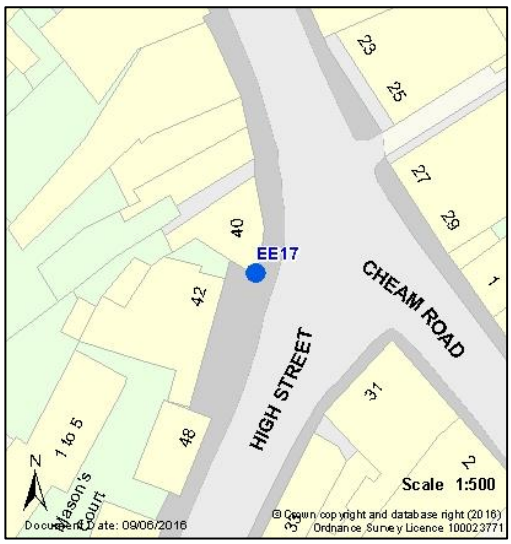
EE10 High Street Ewell



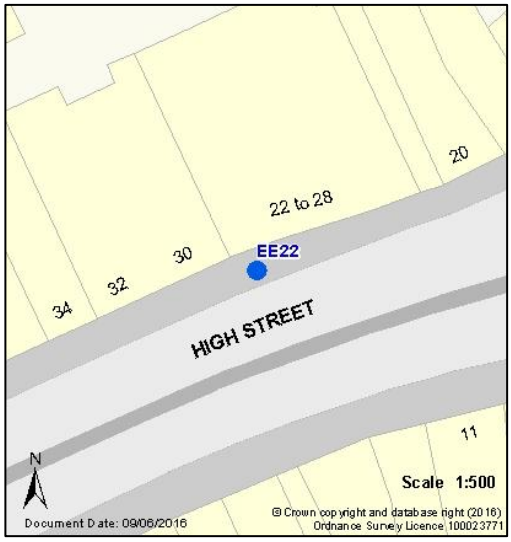
EE14 Hook Road Epsom



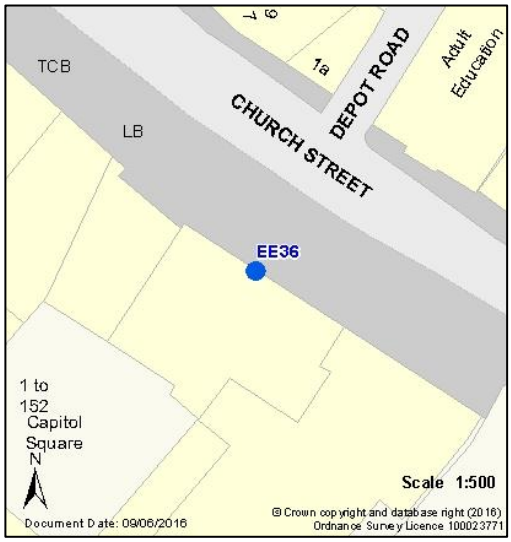
EE 16 Church Street Ewell



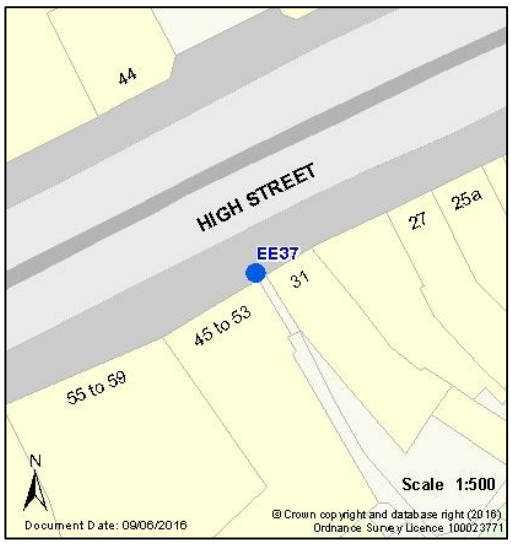
EE17 High Street Ewell



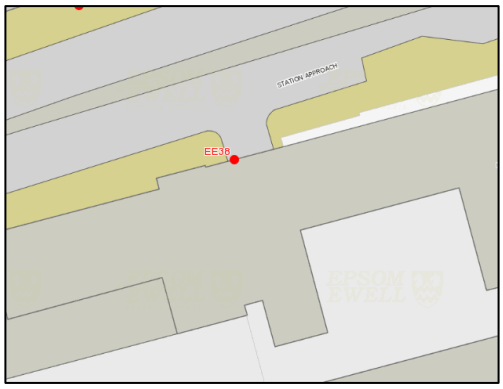
EE22 High Street Epsom



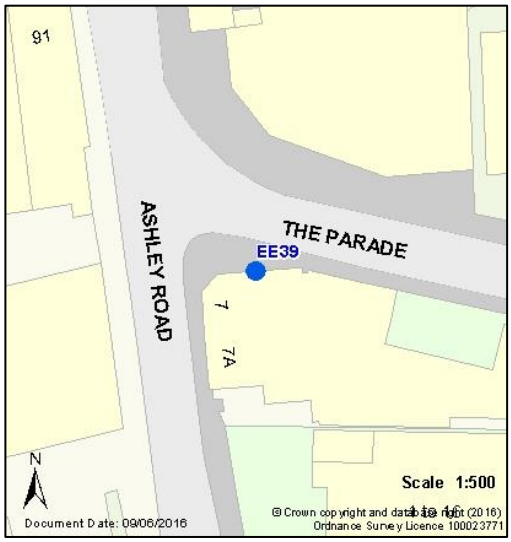
EE36 Church Street Epsom



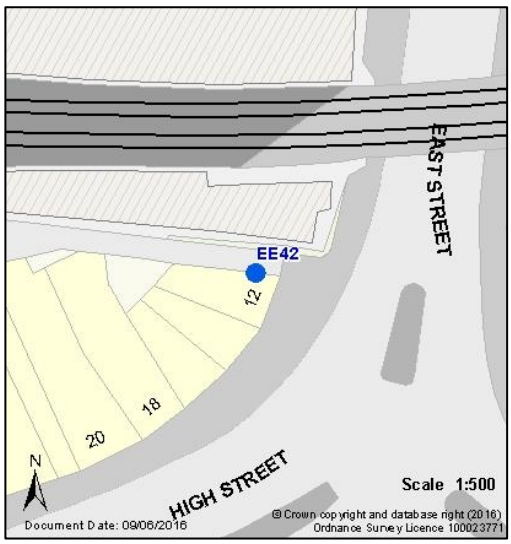
EE37 High Street Epsom



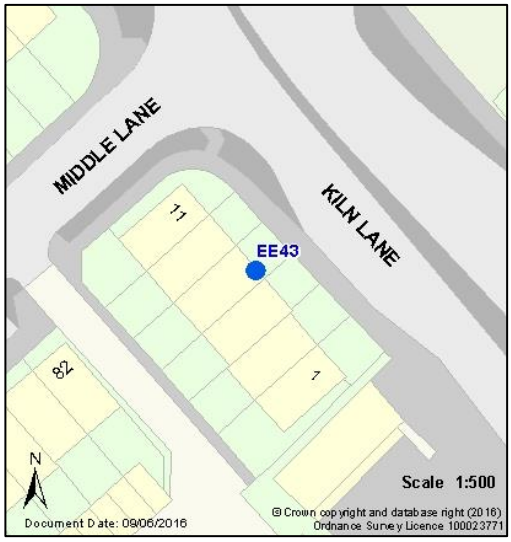
EE38 Station Approach
South Epsom



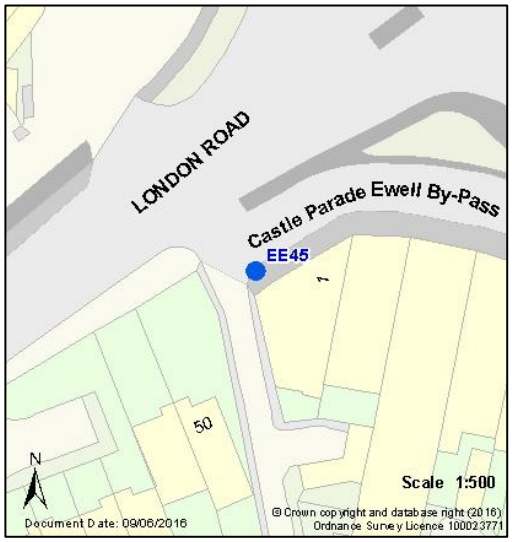
EE39 The Parade Epsom



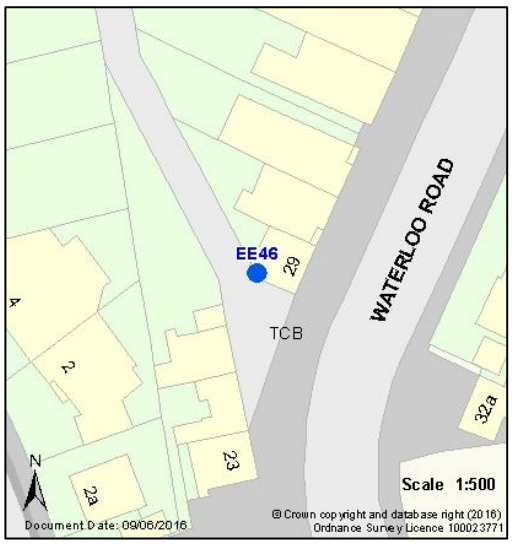
EE42 East Street Epsom



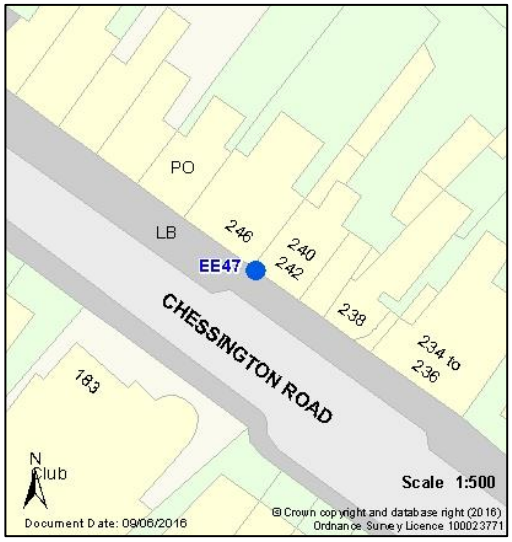
EE43 Kiln Lane Epsom



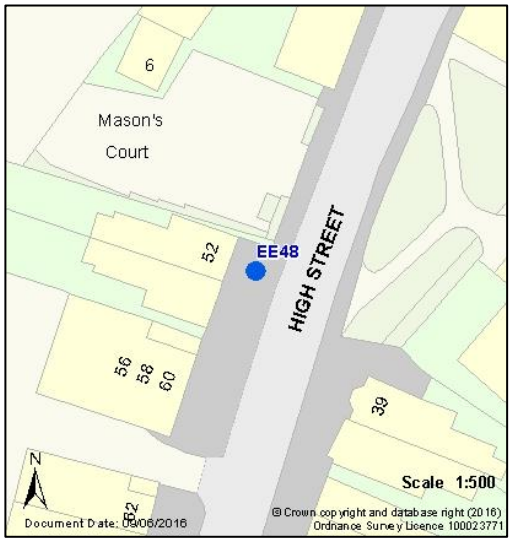
EE45 Castle Parade Ewell



EE46 Waterloo Road
Epsom

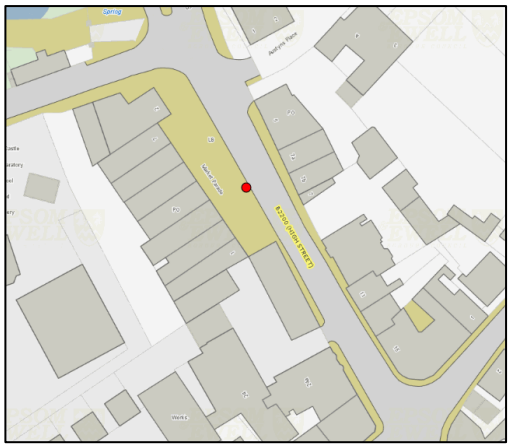


EE47 Chessington Road
Ewell

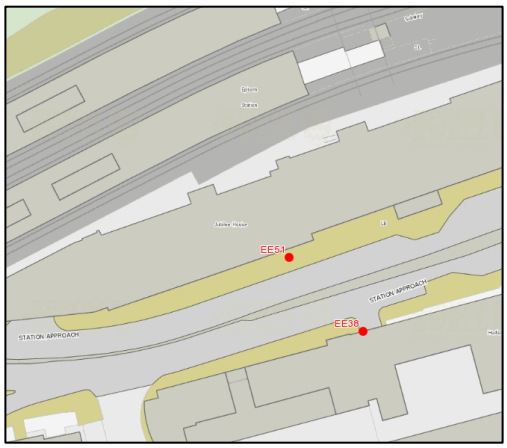


EE48 High Street Ewell

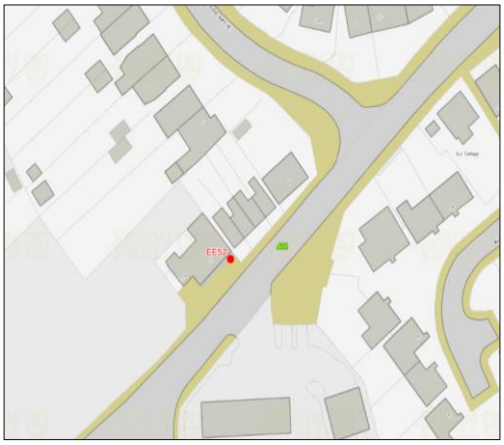
EE49 – South Street Epsom



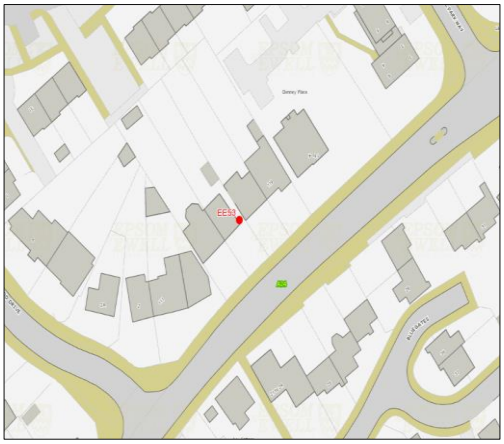
EE50 High Street Ewell



EE51 Station Approach North



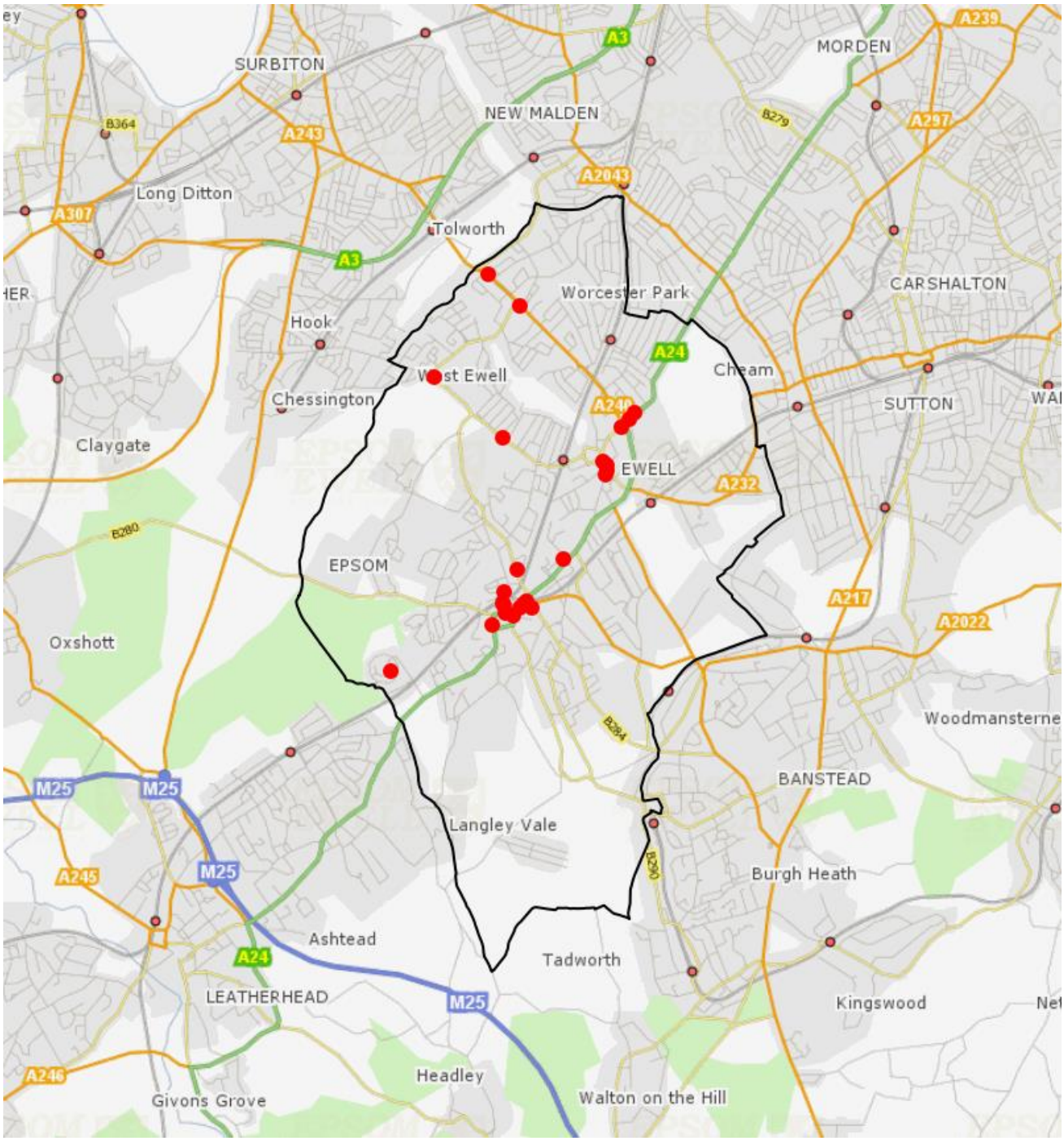
EE52 – London Road Ewell (1)



EE53 – London Road Ewell (2)

Map of monitoring locations within Ewell High Street Air Quality Management Area

Map of monitoring locations in Epsom and Ewell



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[7] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

[8] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[9] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within the Epsom & Ewell Area

A direct comparison of passive tube data between 2020 and the average of the previous 5 years indicates an average of 27 percent reduction in NO_2 concentrations over 2020 than the historic trend which is consistent with the national picture. This is not uniform however with some sites measuring close to a 60 percent reduction and one (the main indicator within the AQMA), just 1.2 percent which is within the error range of the methodology. The locations which appeared to exhibit the greater reductions were roadside but not kerbside sites whilst those sites very close to main roads didn't register as great a reduction.

It is difficult to draw conclusions from the main AQMA result since regretfully there was a problem with tube loss for much of the duration of the initial national lockdown and had to be annualised. The indications from the other tube locations within and close by to the AQMA to indicate a wide effect from 7.4 percent to 33 percent reduction but again the greater reductions appeared to be away from the kerbside. These results may indicate the concentrations recorded in the AQMA, particularly in site EE10 are being driven not necessarily by the numbers or volumes of vehicles but in a significant way, by the proximity of the receptors to the roadside. Although even the monitoring relevant to the nearby receptor at this location has shown a downward trend, these results suggest there is a limit to the likely reduction even with a large reduction in road traffic.

Presented below is the comparison of the average of the years 2016-2019 compared with the results for 2020 showing the effect of COVID-19 lockdown.

	2016	2017	2018	2019	average	2020	% change
EE1	39.1	33.8	29.6	26.5	32.3	23.0	-40.5%
EE3	20.2	16.9	14.8	15.0	16.7	14.1	-18.5%
EE6	37.5	31.3	30.4	33.0	33.0	27.8	-18.8%
EE7	**41.8**	35.5	33.5	34.2	36.3	28.0	-29.6%
EE9	29.8	23.2	23.5	24.4	25.2	20.6	-22.3%
EE10	**52.6**	**44.4**	34.8	**46.3**	**44.5**	**44.0**	-1.2%
EE14	29.0	25.4	25.2	25.3	26.2	20.8	-26.1%
EE16	33.6	30.7	25.5	27.8	29.4	22.3	-31.9%
EE17	36.0	30.2	28.9	31.4	31.6	29.1	-8.7%
EE22	**48.1**	39.3	35.1	35.4	39.5	31.3	-26.0%
EE33	3.4	2.5	2.1	2.1	2.5	2.4	-
EE36	29.1	26.3	23.5	23.3	25.5	19.9	-28.4%
EE37	38.6	33.4	26.9	32.7	32.9	25.4	-29.5%
EE38	29.0	25.1	23.3	24.2	25.4	16.2	-57.1%
EE39	35.6	27.6	29.9	24.6	29.4	21.5	-36.8%
EE42	32.9	28.8	23.1	24.5	27.3	20.1	-35.9%
EE43	34.4	28.5	26.0	25.5	28.6	21.7	-31.5%
EE45	28.3	22.5	23.9	21.3	24.0	17.7	-35.4%
EE46	23.0	24.6	27.1	27.9	25.6	21.5	-19.0%
EE47	33.0	24.5	23.5	25.1	26.5	19.2	-38.1%
EE48	32.2	29.0	27.8	28.4	29.4	22.1	-33.1%
EE49		28.6	34.1	34.2	32.3	25.5	-26.8%
EE50		36.4	36.2	35.7	36.1	33.6	-7.4%
EE51			30.1	25.0	27.6	21.0	-31.1%
EE52				**40.0**	**40.0**	30.3	-
EE53				23.0	23.0	16.0	-
						Average	-27.5%

Opportunities Presented by COVID-19 upon LAQM within Epsom and Ewell

An early opportunity to eradicate a large part of motorised transport from within the AQMA through an active travel scheme was not progressed. From an air quality point of view this was regrettable since it would have eliminated air quality concerns in the area. However one other scheme was implemented in the borough to remove a lane of traffic so as to promote pedestrian movement. This did not appear to have any ill effects on air quality and if there were, it was more than offset by the overall reduction in vehicles.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Epsom and Ewell

Epsom & Ewell Borough Council was able to prioritise the collection and exposure of passive diffusion tubes although officer time was at a premium owing to the emergency response it was possible to submit the ASR albeit later than usual. Broadly speaking there was no impact to LAQM duties associated with COVID-19.

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: Large
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

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	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
EEBC	Epsom & Ewell Borough Council
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 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

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.