Reigate & Banstead
BOROUGH COUNCIL
Banstead I Horley I Redhill I Reigate

2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: August 2023

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Report Reference Number	J10-12734C-10/D1
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Executive Summary: Air Quality in Our Area

Air Quality in Reigate and Banstead Borough Council

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 29,000 to 343,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Reigate and Banstead Borough is located in South East England, within the county of Surrey. To the south lies Crawley Borough, to the east Tandridge District, to the west Mole Valley District and to the north Epsom and Ewell Borough and the London Boroughs of Croydon and Sutton. The M25 runs through the borough. The main air quality issues identified are in relation to road traffic, particularly within the towns of Reigate and Horley and close to major roads (the A23 Brighton Road, as it passes through the village of Hooley and Junction 8 of the M25).

There are currently nine AQMAs, of varying size, declared in the towns of Reigate, Horley, Redhill, Banstead, and in Merstham, Hooley, and along the M25 (see http://uk-air.defra.gov.uk/aqma/list for further information). A specific action plan is currently in place for the M25 and Horley, which includes emissions from Gatwick Airport, and is considered in this report. Table 2.2 outlines both local and borough wide measures which are currently being implemented, with further measures being developed. Reigate and Banstead Borough Council is actively working to improve air quality in its area through the implementation of these measures, as well as implementation of their Local Transport Plan and through working in partnership with Planning and Public Health colleagues.

[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, January 2023

[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

Previous ASR reports concluded that, as a whole, there appears to be a downward trend in air pollution levels, i.e. improvement in air quality throughout Reigate and Banstead, particularly when evaluated over a number of years (graphs of 3-year rolling averages included in Appendix A of this report). This conclusion still stands. In 2022, there were no exceedances of the annual mean nitrogen dioxide objective either within, or outside of AQMAs. Nitrogen dioxide concentrations continue to be below the 1-hour mean at all real time sites.

All relevant objectives are met outside AQMAs. Measured concentrations of PM_{10} and benzene continue to be below the relevant air quality objectives at all locations.

To date RBBC has held back from revoking AQMAs as based on past experience, if an AQMA is revoked too early, it may need to be redeclared.

Therefore, before considering the revocation of an AQMA the authority is looking for the following:

i) Clear evidence of a long term downward trend in pollutant concentrations.
ii) Ideally concentrations of nitrogen dioxide below 32 µg/m^3 (20 % below the objective) for a period of five years – to allow for any modelling / measurement uncertainties.
iii) No potential future plans for further development that may impact air quality within the AQMA e.g. increasing the number of road lanes, runways, or other developments that would lead to an increase in emissions of the pollutant of concern.

The Council is also mindful of the fact that the health impacts of air pollution do not stop just because a legal limit / objective level has been met, and that there are health risks associated with a consistent low level of exposure[5] as recognised by the WHO[6] in setting an annual average air quality standard for nitrogen dioxide of 10 µg m^3, and no more than 3 days per annum over 25 µg m^3.

In the event that an AQMA is revoked, monitoring will remain in place, though the number of monitoring locations may be reduced. This is to ensure ongoing compliance with current and any future air quality standards, to enable ongoing trend analysis i.e. to ensure no deterioration in air quality, and to provide scientifically robust data for concerned local residents.

[5] Chief Medical Officers Report 2017. Recommendations 5 and 7.

[6] WHO (2021) Global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. ISBN 978-92-4-003421-1.https://apps.who.int/iris/handle/10665/345329.

Once revoked the authority expects to see ongoing improvements in nitrogen dioxide concentrations, and the headroom created is not to be used by a specific industry sector to increase its pollution output.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[7] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. New $PM_{2.5}$ targets have also been set in Regulations, to be achieved by 2040. The National Air Quality Strategy[8], published in April 2023, provides more information on local authorities' responsibilities to work towards these new targets and reduce $PM_{2.5}$ in their areas. The Road to Zero[9] details 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.

Reigate and Banstead Borough Council has taken forward a number of measures during the reporting year of 2022 in pursuit of improving local air quality. Since the last ASR a number of measures have been completed, and the Council has continued to progress other measures to both directly improve the borough's air quality through improved traffic management and promotion of lower emissions transport, promotion of lower emission energy plant, and on-going air quality monitoring, as well as to provide evidence for further air quality work.

Following on from work RBBC completed with the Energy Savings Trust in 2021 (reported on in the 2022 ASR report) to draw up a prioritisation list for the roll out of EV charge points to Council car parks, work began in 2022 on installing charge points in the Central car park in Horley which was identified as a high priority car park and close to the Horley AQMA.

[7] Defra. Environmental Improvement Plan 2023, January 2023

[8] https://www.gov.uk/government/publications/the-air-quality-strategy-for-england

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

Elsewhere the Council has been working with Gatwick Airport on mitigation measures that are likely to form part of its Development Consent Order (DCO) submission, including initial thoughts and suggestions around a new s106 agreement that might follow a successful DCO application.

A new replacement monitoring station was installed at the RG1 site in May 2022, which included a $PM_{2.5}$ analyser (Palas FIDAS) that will enable the Council to undertake compliance monitoring and to examine long term background trends in this pollutant. The station has been designed so that there is also bench space for ultrafine particle (UFP) monitoring equipment for visiting research groups, and / or in the event that the Council secures funding for such equipment.

RBBC (via the Surrey Air Alliance) has also been working with the Surrey Heartlands Children and Young People's Asthma Team on their project to develop an Asthma care bundle. As part of this work the Air Alliance via Reigate & Banstead drew up a prioritised list of schools based on modelled pollution concentrations at all schools within the county, so that the Asthma team could identify the initial tranche of schools to roll the project out to, and the group has been briefed on the pollution warning services available in Surrey including Surrey Air Alert. The Council will also be helping the group in 2023 in promoting the asthma work, including work around the importance of ozone pollution and not just road traffic pollution.

The Council also participated in a consortium bid led by Hertfordshire County Council and Global Action Plan for air quality funding from Defra for a public information campaign around an autumnal 'Clean Air Night' to raise awareness of the changes brought about by the Air Quality (Domestic Solid Fuels Standards) Regulations 2020 and the contribution of wood burning stoves to local air pollution and adverse health impacts. Unfortunately the bid was unsuccessful although the topic remains an issue for the council, given the potential contribution from wood burning to $PM_{2.5}$ concentrations within the borough. Work is continuing with Surrey County Council and Global Action Plan to seek funding to support the 'Clean Air Night' project and public information campaign.

Details of measures are included in Table 2.2.

External factors also play a part in air quality improvements. Within the Hooley AQMA the Mayor's plan to extend the Ultra Low Emission Zone (ULEZ) to the boundary of Greater London in August is likely to have an impact, as the AQMA is only 600 m from the Greater London boundary. As this AQMA is on a road managed by National Highways (formerly

Highways England) as part of the strategic road network this move by the GLA, in theory, is likely to have a far bigger impact than anything possible at a local level.

Within the Horley AQMA (near Gatwick) the airport is planning on a significant expansion program with aircraft movements up by around 33 % from 285,000 (2019) to 381,000 by 2032, and the number of passengers increasing from 46.5 mppa in 2019 to 72.3 million passengers per annum in 2032 a 55% increase. Consequently, until the airport undertakes its final modelling work on the air quality impact of this expansion it is difficult to produce a revised action plan for this area, and the majority of any air quality measures would be better addressed via the DCO process rather than the LAQM regime.

Conclusions and Priorities

Monitoring results for 2022 show that air quality is compliant within Reigate and Banstead both within and outside of existing AQMAs. Overall, there appears to be a downward trend in air quality throughout the borough since 2004. Reigate and Banstead Borough Council has taken forward a number of measures during the reporting year of 2022 in pursuit of improving local air quality. Since the last ASR a number of measures have been completed, and the Council has continued to progress other measures to both directly improve the borough's air quality through improved traffic management and promotion of lower emissions transport, promotion of lower emission energy plant and on-going air quality monitoring, as well as to provide evidence for further air quality work.

Local Engagement and How to get Involved

Members of the public can help improve air quality in Reigate and Banstead by travelling using sustainable transport options, such as walking, cycling, and using public transport. Car sharing is also a relatively easy way to reduce private car use see (https://surrey.liftshare.com/), and, if members of the public are considering buying a car, consider a hybrid or electric vehicle as an alternative to a pure petrol or diesel vehicle.

Local Responsibilities and Commitment

This ASR was prepared by Air Quality Consultants Ltd and in collaboration with Reigate and Banstead Borough Council with the support and agreement of the following officers and departments:

- Head of Environmental Health
- Planning Policy Lead
- Sustainability Projects officer
- Surrey air alliance (partners from other local authorities in Surrey, including Surrey County Council Public Health, SCC Transport, and SCC Trading Standards) .

This ASR has been approved by:

The Head of Environmental Health and the council's Executive Portfolio Holder for Place, Planning and Regulatory Services.

This ASR has not been signed off by the Director of Public Health at SCC given the council actively works with Public Health Colleagues on actions to improve air quality via the Surrey Air Alliance. This approach has been agreed by SCC and all eleven boroughs and districts.

If you have any comments on this ASR please send them to Environmental Health at:

Reigate & Banstead Borough Council,
Town Hall,
Castlefield Road,
Reigate,
Surrey, RH2 0SH.

Telephone: 01737 276000

Or email:

environmental.protection@reigate-banstead.gov.uk

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Tables

1 Local Air Quality Management

This report provides an overview of air quality in Reigate and Banstead Borough during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Reigate and Banstead 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 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

The AQMAs declared by Reigate and Banstead Borough Council are shown in Figure 2.1 to Figure 2.7 and found in Table 2.1. Also, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides a map of air quality monitoring locations in relation to the AQMAs. The air quality objective pertinent to the current AQMA designations is related to annual mean nitrogen dioxide concentrations.

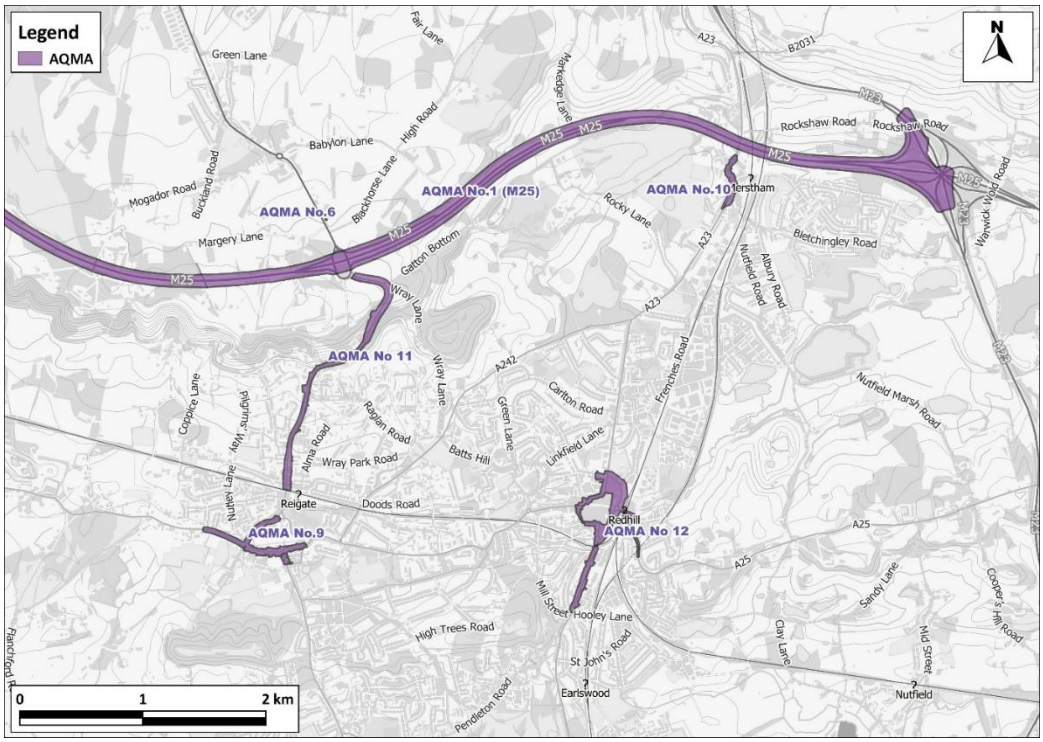

Figure 2.1: AQMAs No.1 (M25), No. 6 (Blackhorse Lane), No.9 (Reigate High St / West St / Bell St), No. 10 (Merstham), No. 11 (Reigate Hill) and No. 12 (Redhill)

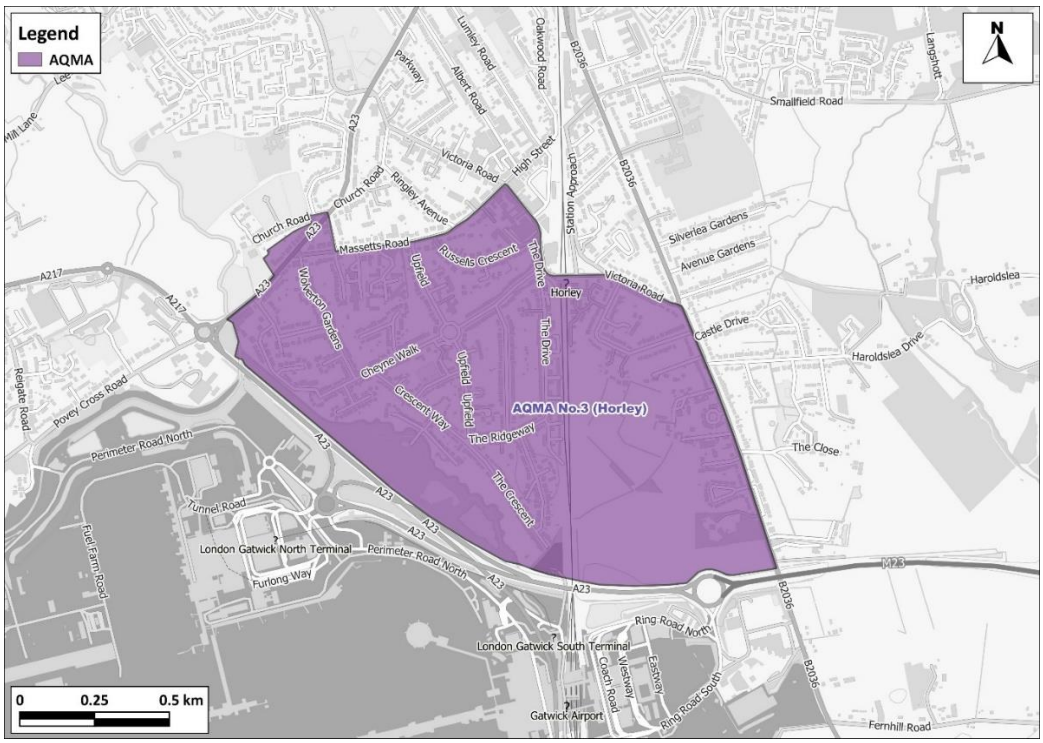

Figure 2.2: AQMA No.3 (Horley)

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Figure 2.3: AQMAs No.1 (M25) and No. 6 (A217 / Blackhorse Lane)

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Figure 2.4: AQMA No. 8 (Drift Bridge)

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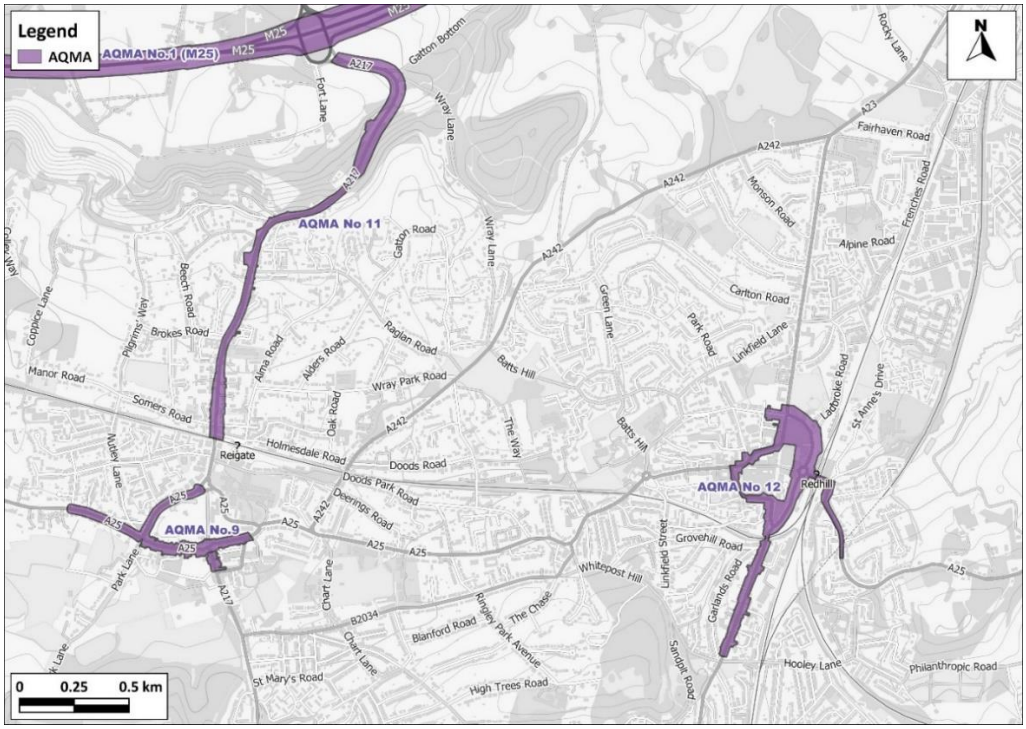

Figure 2.5: AQMAs No. 1 (M25), No. 9 (Reigate High St / West St / Bell St), No. 11 (Reigate Hill) and No. 12 (Redhill)

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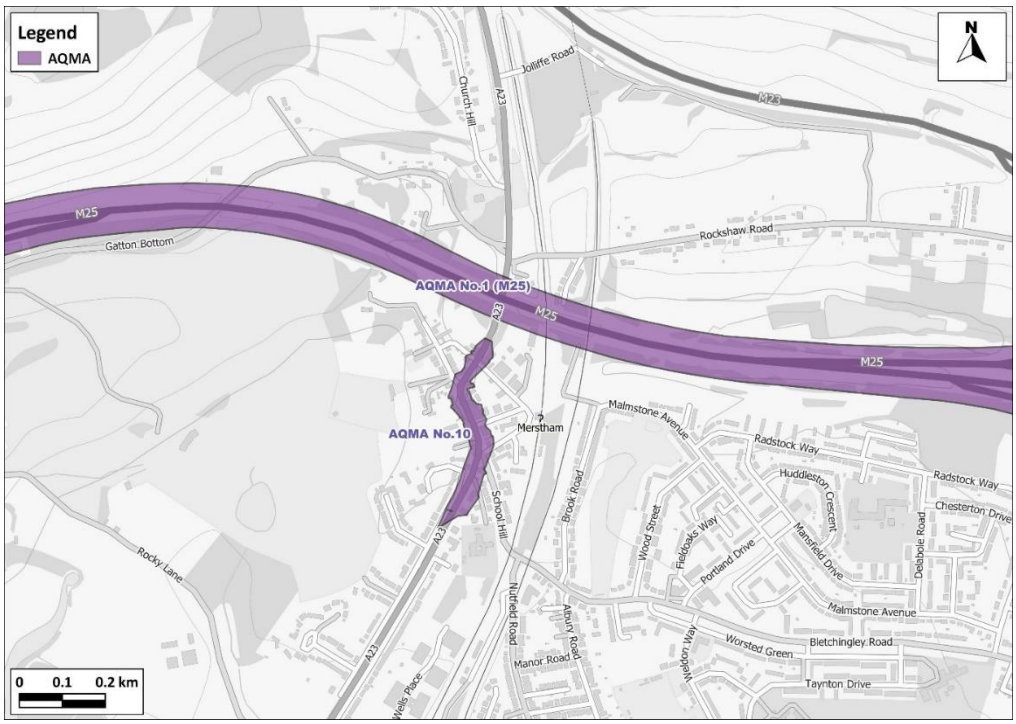

Figure 2.6: AQMAs No. 1 (M25) and No. 10 (Merstham)

Contains Ordnance Survey data © Crown copyright and database right 2020. Ordnance Survey licence number 100046099. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v1.0.

Figure 2.7: AQMA No. 13 (Hooley)

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The Council is also mindful of the fact that the health impacts of air pollution do not stop just because a legal limit / objective level has been met, and that there are health risks associated with a consistent low level of exposure[10] as recognised by the WHO[11] in setting an annual average air quality standard for nitrogen dioxide of 10 µg/m^3, and no more than 3 days per annum over 25 µg/m^3.

In the event that an AQMA is revoked monitoring will remain in place, though at some sites with a number of diffusion tubes the number of monitoring locations may be reduced. This is to ensure on going compliance with current and any future air quality standards, to enable on going trend analysis i.e. to ensure no deterioration in air quality, and to provide scientifically robust data for concerned local residents.

Once revoked the authority expects to see on going improvements in nitrogen dioxide concentrations, and the headroom created is not to be used by a specific industry sector to increase its pollution output.

[10] Chief Medical Officers Report 2017. Recommendations 5 and 7.

[11] WHO (2021) Global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. ISBN 978-92-4-003421-1.https://apps.who.int/iris/handle/10665/345329.

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 National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
No. 1: M25	30/04/2002	Nitrogen dioxide – annual mean	The length of the M25 to a distance 30m either side of the carriageway between Junction 7 and the point to the west of Junction 8 where the motorway meets the borough boundary.	Yes: M25	43	No measured exceedance	5 years	Action Plan for the M25 Air Quality Management Area. April 2004	https://www.reigate-banstead.gov.uk/downloads/file/1587/action_plan_for_the_m25_air_quality_management_area
No. 3: Horley	30/04/2002	Nitrogen dioxide – annual mean	An area of the south-west quadrant of Horley near to Gatwick airport.	Yes: Airport Way (A23)	43	No measured exceedance	3 years	Air Quality Action Plan for the Non Airport sources of nitrogen dioxide within the Horley Air Quality Management Area (2007)	Available at: http://www.reigate-banstead.gov.uk/downloads/file/1588/action_plan_for_non_airport_pollution_within_the_horley_air_quality_management_area_jan_2007
No. 6: A217 / Blackhorse Lane	24/05/2006	Nitrogen dioxide – annual mean	An area encompassing the house "Highlands" near the junction of the A217 Brighton Road with Margery Lane and Blackhorse Lane	No	63	No measured exceedance	5 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26	

No. 8: Drift Bridge	05/11/2007	Nitrogen dioxide – annual mean	An area encompassing a couple of residential properties immediately to the north of the junction of the A240 (Reigate Road) and A2022 (Fir Tree Road).	No	48	No measured exceedances	5 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26
No. 9: Reigate High St / West St / Bell St	05/11/2007	Nitrogen dioxide – annual mean	An area encompassing Reigate High Street, the section of Church Street between the High Street and Bancroft Road, properties with a frontage to Bell Street (between the High Street and the southern end of Bancroft Road) and land and properties within 15m of either side of West Street (between High St and Evesham Rd) and along London Road (between West St and Castlefield Rd).	No	47	No measured exceedances	5 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26
No. 10: Merstham	30/04/2008	Nitrogen dioxide – annual mean	An area encompassing all properties facing on to part of the A23 in Merstham. The area commences on London Road South (south of the junction with School	No	52	No measured exceedances	5 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26

			Hill) and extends north along Merstham High Street and then just to the north of the junction with Station Road North.					
No. 11: Reigate Hill	24/06/2011	Nitrogen dioxide – annual mean	Properties within the area of Reigate Hill covering either partially or entirely properties between the level crossing in Reigate Town and J8 of the M25.	No	43	No measured exceedances	5 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26
No. 12: Redhill	24/06/2011	Nitrogen dioxide – annual mean	Properties within the Redhill area covering either partially or entirely Cromwell Road, Queensway, A25 Redstone Hill between the junction with the A23 and the junction with Hillfield Road, A23 between the junction of Hooley Lane and Mill St and the A23 junction with Gloucester Road.	No	48	No measured exceedances	4 years	As no current exceedances, under long term monitoring with a view to revocation. Revised borough wide measures in development – see measures 1 to 26

No. 13: Hooley	04/09/2013	Nitrogen dioxide – annual mean	Properties within the Hooley area covering either partially or entirely properties of the following roads, A23 Brighton Road, Star Lane and Church Lane	Yes: Brighton Road (A23)	77	No measured exceedances	1 year (although when distance corrected longer)	Revised borough wide measures in development – see measures 1 to 26. Highways England announced plans to widen the A23 in Hooley from one to two lanes in both directions with a narrowing to one lane within the village southbound. Consultation on the scheme ran into 2019, but no dispersion modelling was undertaken as part of the plans by Highway England. Work is ongoing in trying to fully engage with National Highways at this location

☒ **Reigate and Banstead Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Reigate and Banstead Borough Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Reigate and Banstead Borough Council

Defra's appraisal of last year's ASR concluded on the basis of the evidence provided by the local authority the conclusions reached are **accepted** for all sources and pollutants. A number of comments were made which supported the approach taken in the ASR. It was recommended that he AQMA designations were reviewed, as there are a number of AQMAs which have demonstrated consecutive years of low concentrations.

Reigate and Banstead Borough Council has taken forward a number of measures during the reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

Since the last ASR a number of measures have been completed, and the Council has continued to progress other measures to both directly improve the borough's air quality through improved traffic management and promotion of lower emissions transport, promotion of lower emission energy plant and on-going air quality monitoring, as well as to provide evidence for further air quality work.

Following on from work RBBC completed with the Energy Savings Trust in 2021 (reported on in the 2022 ASR report) to draw up a prioritisation list for the roll out of EV charge points to Council car parks, work began in 2022 on installing charge points in the Central car park in Horley which was identified as a high priority car park and close to the Horley AQMA.

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Reigate and Banstead Borough Council expects further charge points to be installed in Council car parks to be completed over the course of the next reporting year. The Council's air quality priorities for the coming year are to continue to work with Gatwick

Airport to ensure that air quality measures are set out within the DCO application for expansion.

Reigate and Banstead Borough Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Neighbouring local authorities;
- National Highways; and
- Surrey County Council

The principal challenges and barriers to implementation that RBBC anticipates facing are funding for Action Plan measures, and officer time to implement projects.

Reigate and Banstead Borough Council anticipates that the measures stated above and in Table 2.2 will maintain compliance within the AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	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	Trial of Rapid Charging point (50 kWh) for electric vehicles.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Oct 2015	Oct 2018 Extended to Oct 2025 (using new kit installed below)	RBBC – Env. Health	OLEV / Sussex Air	No	Funded	£10 - £50K	Implemented	<0.1 µg/m^3 But variable, depending on uptake of electric vehicles during 2015 to 2018.	Steady growth in number of charges and kWh of electricity supplied.	Ongoing. Jan – Jun ’16: total charges 37 (396.9 kWh) Jan – June ’17: total charges 217 (3366.2 kWh) Jan – June ’20: total charges 287 (5,269 kWh) Jan – June 21: total charges 28 (404.7 kwh) Jan – June 22: total charges 731 (14,942 kwh) Jan – June 23: total charges 702 (15,400 kwh)	Trial project to look at - demand for rapid electric vehicle charging in the borough, and how this changes with time. - to understand the practicalities and costs of running such equipment. Ultimately aim is to see if one or more rapid chargers are needed in the borough. Note between 2017 and 2020 three new rapids opened in the vicinity of the current unit. Low usage for 2021 due to site works. In period July to Sept 21 (3 months) 189 charges 3,171 kWh. Significant growth in 2022 reflects increase in EVs in the road fleet and larger batteries in the vehicles. Figure for 2023 suggest a plateau, which may reflect increasing reliability of surrounding chargers.
2	Replacement of existing rapid charger with a permanent installation	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Nov 2019	Jan 2021 (installation) Then on going.	RBBC – Env. Health	RBBC	No	Funded	£10 - £50K	Implemented	1+ µg m^{-3} and much higher as fleet goes electric.	Steady growth in number of charges and kWh of electricity supplied.	Installed and operational from July 2021. See progress to date above.	Charger capable of delivering power at up to 920v (at 43kW) for the newer battery packs on the market. Unit has contactless payment rather than the need for apps. Kit now in use – see information above.
3	Trial of destination charging of electric vehicles using fast (7 -22 kWh) chargers.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2017	End 2024	RBBC – Env. Health	RBBC / Gatwick	No	Funded	£10 - £50K	Implemented	1+ µg m^{-3} but variable, depending on uptake of electric vehicles.	Installation of charge points. Steady growth in number of charges and kWh of electricity supplied.	Victoria Road car park (22kW) installed April 2018. Reigate Town Hall installed Aug 2018. Victoria Road Extension March 2020. Banstead High Street due to go live end 2023 / Q1 2024	Complementary project to rapid charging project, to look at demand and usage pattern of destination chargers and gain practical experience of running such equipment including costs. Demand at Victoria Road was such that additional two sockets installed Match 2020. Usage Victoria Road: July to Dec 2020: 10,073kWh (431 sessions) July to Dec 2021: 8,740 kWh (406 sessions) with 1 post down) July to Dec 2022: 42,053 kWh (1,817 sessions) Significant growth in use in 2022/23 reflecting use by local taxi drivers. Banstead high St delayed from 2023 due to legal issues.
4	Evaluation of fast charger installation costs (22kW) at the main council car parks - Bell St / Bancroft Rd, Reigate - High St Banstead - Gloucester Rd, Redhill	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Jan 2021	Nov 2021	RBBC – Env. Health	RBBC	No	Part Funded	£50 to £100K	Implemented	1+ µg m^{-3} and much higher as fleet goes electric. Note this is to feed into future work.	Completion of costings.	On going – Costings completed, potential funding sources identified. High St Banstead complete. Initial work on other car parks also complete.	Desktop exercise so that have costings in place as funding becomes available. Funding agreed for installation of points in High St. Banstead car park in 2021/22. Initial works complete now waiting on legal. Final completion Banstead due 2023/24.

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5	Installation of fast (22kW) charging points in Central Car Park Horley	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Jan 2023	June 2025	RBBC – Policy / Projects.	RBBC	No	Funded	£50 to £100K	Planning	1+ µg m^{-3} and much higher as fleet goes electric.	Installation of equipment	Contractors for work secured / suppliers appointed Q1 2023.	Forms first of the council's formal EV charging stations, which are to be rolled out to all carparks based on a priority list as and when funding becomes available.
6	Gridserve EV charging hub at Gatwick. (Horley)	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging.	From 2020	Late 2022- revised to Q3 2023.	Main funding: GAL GridServe RBBC / SCC LA support.	Gatwick / Private	No	Funded	.£1 to £10 million private company	Implemented	1+ µg m^{-3}	Completion of works and operational.	On going	Assist the airport with introductions to contacts / landowners associated with the mains grid connection. Site will accommodate 36 chargers up to 350 kW. Important for both the Horley AQMA, and encouraging EV uptake amongst the local taxi fleet who operate on the airport run as lack of charging has been an issue. Project now due to finish Q3 2023 (from late 2022).
7	On street charge point provision - evaluation project.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging.	March 2021	Late 2021	RBBC – Env. Health / Sustainability	RBBC / Energy Saving Trust	No	Funded	<£10K	Completed	1+ µg m^{-3} (1)	Project completion	Completed. Nov 2021	Work is to draw up a priority list of areas where charging is needed on street as there is no off road parking, and feasible to go on street. Work also to take account of socio economic factors so areas are not left behind, and to examine council car parks that might be prioritised for overnight charging by local residents with no off road or no charging point. Work to be used for Surrey on street charging project – suppliers to project appointed in 2023.
8	Study to examine the practicalities of linking UTC (traffic lights) to pollution monitor enabling gating of traffic outside of street canyon when pollution levels are rising.	Traffic Management.	UTC, Congestion management, traffic reduction	Jan 2018	Jan 2020	RBBC – Env. Health / SCC (Tim Brown)	RBBC	No	Funded	<£10K	Completed	Up to 1 µg m^{-3}.	i) Data collection ii) Data analysis to determine if workable option. iii) Scheme implementation	Complete Jan 2020.	Trial project centred on Reigate High Street now complete. Work not taken forward as AQ objectives on High St now met.
9	Changes in Physical Road Layouts to improve air quality (Redhill).	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	April 2013	Final Phase starts 2020	RBBC – Env. Health / Planning Policy	RBBC Policy	No	Funded	£1 to £10 million	Implemented	Up to 1 µg m^{-3}.	Road Layout changes and building development complete.	On track – changes in road layout complete. Marketfield carpark redevelopment began in 2020 as part of the final phase of works and is on track (2023).	Aim of work is to ensure that residential housing built as part of redevelopment of Redhill town centre is set back from the road to minimise pollution, while existing housing benefits from moving traffic away from building facades via pavement widening schemes. Nitrogen dioxide concentrations in Redhill AQMA now meeting relevant objectives. Final phase of this building works due to complete Q3 / Q4 2023.
10	Changes in Physical Road Layouts to improve air quality (Hooley).	Traffic Management	UTC, Congestion management, traffic reduction	Jan 2018 subject to funding, and availability of suitable emissions data set.	Jan 2025	RBBC – Env. Health, HA.	RBBC	No	Not funded	£50K to £100K	Planning	Up to 1 µg m^{-3}.	i) Micro-simulation scoping study. ii) implementation of scheme (if appropriate)	On going - Funding sources being sought. Lack of up to date instantaneous emissions database identified as possible problem in 2017. However following discussion with Leeds Uni. and others (Dec 2019) workable data set now exists. 2018 and 2019 HE looking to make layout changes without AQ modelling.	Work is to focus on the A23 Hooley AQMA. Aim of the microsimulation study is to look at changes in the physical road layout especially in the vicinity of the Star Lane Junction, with a view to reducing pollution levels by moving the road away from residential properties, along with the impact of speed changes following on from similar work at Drift Bridge Banstead. Lack of funding to date (Apr 2023) remains an issue, plus unwillingness of HE / National Highways to consider a microsimulation approach.

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11	'High Quality Bus Corridors' (Bus priority routes) within borough.	Transport Planning and Infrastructure	Bus route improvements	April 2015	April 2018 – revised delivery date 2025	SCC / RBBC – Planning Policy (Peter Boarder, SCC Alison Houghton / David Ligertwood)	SCC	No	Partially funded	£> 10 million	Planning (Para 3.1.1 appendix A Surrey Enhanced partnership plan for buses August 2022).	Variable but up to 1 µg m^{-3}, depending on scheme, and buses operating on that route.	Completion of Redhill to Salfords route	Work focused on Redhill area now complete. Planning underway (2023) for Redhill to Horley.	New sites will be introduced as funding becomes available and include: - A217 north of M25 (Sutton / Epsom) - A23 Merstham / Hooley (Croydon) - A25 Reigate / Redhill (Dorking / Oxted). To date (2022) no new funding has been secured for these projects. A review of the Reigate / Redhill bus priority strategy has been commissioned was due April 2021, but had not been delivered July 2021. However Surrey Enhanced partnership plan for buses was produced in August 2022 and details the following: Junction improvements, bus lanes, intelligent bus priority at traffic signals, bus friendly traffic management for the following sites: A23 from Gatwick, Horley, Redhill, Merstham; A217 Gatwick, Horley, Reigate; Services: Fastway 20, 100, 315, 400, 420, 422, 424, 430, 435, 460
12	Upgrade of bus fleet to Euro VI or zero emission vehicles.	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	August 2022	April 2026 (provisional)	SCC / Metrobus	SCC / Private	No	Partially funded	£> 10 million	Planning	Variable but up to 1 µg m^{-3}, depending on scheme, and buses operating on that route.	% of vehicles that are Euro VI or zero emission	Still in planning stage as proposed Aug 2022.	Surrey Enhanced partnership plan for buses published August 2022. Statements on p9 for higher specification buses. Current (as of Oct 2021) fleet: Zero Emission: 16 (2.3% of fleet) Euro VI: 349 (49.4% of fleet)
13	Introduction of Hydrogen Fuel Cell busses on Fastway 20 route.	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	April 2018	April 2020 revised to late 2023.	Metrobus	GAL / Metrobus	No	Funded	£> 10 million	Implemented	<0.1 µg m^{-3} at borough level. But potentially 0.1 to 1 µg m^{-3} at RB149.	Introduction of retrofitted buses.	Company supplying fuel cells went into administration but now back. Thus project delayed from April 2020 to April 2022 and subsequently April 2023 .	Once complete 50 % of all bus movements past the RB149 site in the Horley AQMA will be via a hydrogen fuel cell bus. Project is a demonstrator for Metrobus - if operational savings as forecast remaining high frequency bus service past RB149 is likely to also be converted to H_2 fuel cell. Buses were due for delivery June 2022 but initial buses for trial delivered April 2023. Subject to trials - operational from Q3 2023.
14	Electrification of the council's vehicle fleet.	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	April 2018	Late 2028 – but will be a staged approach.	RBBC – Fleet Anthony Hathaway / RBBC - Env Health Leon Hibbs	RBBC	No	Funded	£> 10 million	Implemented	<0.1 µg m^{-3} at borough level.	Change in fleet from Diesel / Petrol to Electric	In Progress. Pool cars replaced Oct 2019. On site charging installed Sept 2020. Car sized Van fleet replaced Mar 2021. First of larger van fleet replaced Q3 2022.	Fleets does around 450,000 miles annually - all on local road network. Depot charging infrastructure phase I Sept 20. Initial phase of van fleet due to be replaced 2020/21. Larger vans/ specialist fleet from 2022. Initial bin lorry trials 2022 and looking to repeat in 2023. Heavy EV charging infrastructure design 2023/4 (provisional) revised from 2022, but initial work has started. Project for AQ and CO_2 savings.
15	Maintain current taxi licensing regime.	Promoting Low Emission Transport	Taxi Licensing conditions	April 2015	On going	RBBC Licensing.	RBBC	No	Funded	<£10K	Implemented	<0.1 µg m^{-3}	Taxi standards maintained	On going	Current scheme means that entire taxi fleet is replaced every 9 years, with majority replaced within 7 years. Important in wider AQ context as fleet has grown two fold since 2005 from c.500 to 928 (Apr. 2023).

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16	Encourage EV uptake via taxi licensing regime.	Promoting Low Emission Transport	Taxi emission incentives	April 2019	On going	RBBC Licensing.	RBBC	No	Funded	<£10K	Implemented	<0.1 µg m^{-3} at borough level.	No. of pure EVs in the taxi fleet.	First phase of the work complete June 2020. Event with Energy Saving trust to run though EV Taxi ownership and test drives 7th Oct 2021. Two pure EV hackney plates issued to date.	First phase of the work complete with agreement for 5 dedicated pure electric taxi licences. Aim is to get EVs into the local fleet so drivers can assess the practical benefits and issues with EV taxi ownership and share with other drivers. Initial work with energy saving in Oct 21 saw 30 drivers take part, with a further 12 test driving vehicles. EST said that was very good turnout for this type of event. At April 2023 two of the hackney drivers has taken up the pure EV plate offer. At present main barriers to entry are price and vehicles suitable for cab work.
17	EV Taxi trial project.	Promoting Low Emission Transport	Taxi emission incentives	April 2023	April 2024 – revised to Dec 2024.	SAA / SCC / RBBC for local aspect	DEFRA	Yes	Funded	£10 to £50K	Planning	<0.1 µg m^{-3} at borough level	No. of vehicles taken up by drivers	Funding in place (July 21), however following project delays SCC withdrew project funding (May 2023) – revisions to project being made.	Final form of the project will essentially enable taxi drivers to lease an EV for private hire or Hackney carriage work at a discounted rate. Seven boroughs in Surrey (including RBBC) involved. Project intended to help the 'early adopter' drivers so that they are able to feedback to other drivers the good and bad aspects of EV taxi ownership.
18	Continued Promotion of Surrey Car Share / Lift Share.	Alternatives to private vehicle use	Car Clubs	Apr 2015	On going	SCC –contact Heidi Auld.	SCC	No	Funded	<£10K	Implemented	<0.1 µg m^{-3}	Steady Growth in number of participants. (1300 users at start of 2006).	On going. Currently 3207 (2023) active members. 4809 (2020) 4979 (2017) 3500 (2011)	Measurable improvements in air quality unlikely in the short medium term unless significant increase in users. Surrey scaled back promotion after closure of travelSMART (June 2017), thus possible explanation for limited growth to 2020. Unable to obtain data for 2021 and 22, but as of June 2023 3207 – so significant fall in last three years, and back to levels in 2011.
19	Promotion of cycling within schools.	Promoting Travel Alternatives	Promotion of cycling	Sept 2015	Subject to funding will be on going.	Sustrans SE - Stuart .	RBBC / SCC	No	Partially funded	£10 to £50K	Implemented	<0.1 µg m^{-3}	Continuation of existing promotional work and training.	On going.	Existing programme is well established. Main need is to keep programme running as new children start and others leave. Promotional work also done on cycling under the R&Be active scheme. 31 schools involved in the program in 2019 with between 2 and 6 days per school per term. No work in 2020 due to COVID which has continued in 2021. Work resumed in 2022 but no figure available at the time of this report.
20	Promotion of low NOx boilers, ground and air source heat pumps.	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources / replacement of combustion sources.	On going since April 2015, and originally June 2005	On going.	RBBC Leon Hibbs	RBBC	No	Funded	<£10K	Implemented	<0.1 µg m^{-3} at borough level but potentially upto 1 µgm^{-3} locally.	Measure adopted by developers.	On going.	Aim is to minimise growth in background pollution / reduce if possible. Increasingly seeing equipment specified in commercial sector, less so in small scale residential developments. June 2023 beginning to see commercial offices moving away from combustion based plant. Kimberly Clark redevelopment in Reigate only using heat pumps for the entire building, with heating / cooling based on mains electricity and PV panels.

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21	Discourage use of biomass / wood burning stoves.	Promoting Low Emission Plant	Other	April 2020	On going.	RBBC Leon Hibbs	RBBC	No	Funded	<£10K	Implemented	<0.1 µg m^{-3} at borough level.	No specific measure – impact conveyed via talks, planning, and calls regarding smoke control areas.	On going. Number of conversations with local residents on wood burning in general and also residents who have a wood burning stove.	Use of biomass in a commercial setting considered on merits i.e. setting / nearby receptors. Surrey Air Alliance undertook a promotional campaign as part of clean air day in Oct 2020 on this topic. Surrey air alliance made a DEFRA bid in 2022 on public information campaign, but unsuccessful.
22	Continue to Work with Surrey Air Alliance (SAA) on Surrey wide Projects.	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality.	April 2015	On going.	RBBC Leon Hibbs	Districts and Boroughs in Surrey	No	Funded (staff time)	-	Implemented	Variable depending on project.	Projects in progress	On going.	Successful application under the DEFRA AQ grant programme 2020/21 for £256K for EV taxi project, which will be implemented from mid 2024 (delayed from mid 2022). Surrey air alliance made a DEFRA bid in 2022 on public information campaign on domestic wood burning, but unsuccessful. Also working with the Surrey Heartlands Children and Young People's Asthma Team in 2022/23 on their project to develop an Asthma care bundle (see air pollution warning measure below).
23	Air Pollution Warning Service for vulnerable groups.	Public Information	Via other mechanisms	April 2015 started Oct 2013	Oct 2023 – though looking at continuing subject to funding.	RBBC – Env. Health	RBBC and other boroughs in the service.	No	Funded	<£10K	Implemented	-	Steady Growth in number of participants (up to a total of 1000 users).	On going. Currently 1030 active users (April 2023) 1020 users (Apr'22) 1010 users (Apr'21) 978 users (April '20) 809 users (April '17)	Service for pollutants either compliant with LAQM standards (PM_{10}) or outside the regime (O_3), but which reach levels capable of having an acute health impact. Founding East Surrey boroughs joined by Woking and Spelthorne in April 2015, and Runnymede in Dec 2019. Q4 2022 presentation to Surrey Heartlands Children and Young People's Asthma Team and their project to develop an Asthma care bundle, on air alert and how it works. Plans to include air alert in the care bundle.
24	Production of borough wide mapping of $PM_{2.5}$ and NO_2 including health impact assessment.	Policy Guidance and Development Control	Other	April 2017	April 2018	RBBC – Env. Health	RBBC and other Surrey Boroughs.	No	Funded	£10 to £50K	Implemented	N/A	Production of map and health calculations	Complete. Final draft Nov 2019. Published April 2020.	Mapping is to be used as a policy tool to quantify changes in health impact of pollution on residents with time, and inform county health funding priorities. Also used to inform action planning, if appropriate, at a local level. Also used in 2022 to create prioritised schools list for Surrey Heartlands Children and Young People's Asthma Team, for their roll out of the asthma care bundle for schools. Modelling and mapping work will be refreshed in 2025 looking at 2024.
25	Monitoring.	Other / Public information	Other	On going	On going	RBBC Leon Hibbs	RBBC / GAL	No	Funded to 2024	£50K to £100K	Implemented	N/A	Data capture > 90 %.	On going. Data capture consistently in excess of 90 %.	Sites are important for examining trends in measured pollutant concentrations, compliance monitoring, and also model validation. Ultrafine particulate monitoring campaign from June 2018 to Sept 2019 indicates significant impact from aviation on residents' exposure to ultrafine particles. Replacement station for RG1 installed May 2022 - completed Sept 22 - and includes FIDAS monitor for $PM_{2.5}$ monitoring, and designed to accommodate ultrafine particle monitoring equipment.

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26	Ultrafine Particle monitoring within the vicinity of Gatwick Airport.	Other	Other	April 2021	Equipment would be installed within 12 months of funding.	RBBC Leon Hibbs	?	No	Unfunded	£100K to £500K	Planning	N/A	Equipment installed and then data capture > 90 %.	Have approached DfT, DEFRA, and Gatwick for funding (Aug 2019). But all have been unable to fund the work, even for a specified period. Discussions held in Dec 2022 with number of potential funders in the AQ community. All felt project was worthwhile but unable to suggest funding source as council not an academic body. PhD student began some initial sample runs in Q4 2022, but these are two week sample runs rather than a continuous measurement program.	Recent work (report in 2020 ASR) indicates residential exposure to ultrafine particles in the vicinity of Gatwick is significantly higher than that seen in a comparable residential setting. When winds are off airport concentrations are higher than those seen 1m from the roadside in central London despite the residential monitor being over 600 m from the airport. As discussed in 2022 ASR residential exposure to hourly levels classed as 'High' by WHO are double that seen roadside in Central London. Aim is to install equipment to monitor this emerging pollutant to characterise residential exposure (number and size distribution) and examine long term trends in exposure.
Summary of Actions to date for the Non Airport Sources of Pollution within the Horley AQMA.															
27	Limit Road Transport Growth to 5.5 % by 2011 from 2004/5 levels. (Annex 9 LTP2).	Policy Guidance and development control	Other policy	Original: April 2006 Revised: On going as monitoring measure	Original April 2011 Now on going, though LTP4 sees shift to reducing volumes of traffic by 2030	SCC (via LTP4)	SCC	No	Funded	£ >10 million	Planning	From 2 µg/m^3 at RB59 to 10 µg/m^3 at RB149. But variable, depending on uptake of electric / hydrogen vehicles as well as policy success in limiting / reducing private car use.	For current traffic flows see note 'a' at end of table. Given disconnect between traffic flows and pollution with EVs secondary metric is non airport road traffic NOx concentration at RB59 and RB149. 2015: RB59: 4.2 µg/m^3 RB149: 26 µg/m^3 *Figures from 2015 retrospective inventory and Modelling by Gatwick / ARUP.*	Original target was met, Projections on current flows are difficult to make due to covid impact but for changes to 2019 see comments.	LTP 4 plan sees shift from traffic growth to traffic reduction by 2030. Plan introduced in 2022/23. Traffic growth on roads monitored varies from -1.8 % A23 (2005-19), +8.6% M23 (2006 to 18), to +18% A217 (2004 to 19), although on the A217 2004 to 18 the increase was 6.4 %. Figures for 2020 - 22 only reflect COVID and initial recovery and not long term trends.
28	Travel Plans (Schools)	Promoting Travel Alternatives	School travel plans	Original April 2005. And on going from April 2015.	On going.	SCC (via LTP4)	SCC	No	Funded	£10K to £50K	Implemented	<0.1 µg m^{-3} at RB59	All Horley schools have, and have implemented, a travel plan.	On going. Concern at number of schools that appear not to have a current plan. Only one out of 11 does (2022), compared to 3 in 2021 and 6 in 2020.	Note impact from scheme on concentrations within AQMA is very limited, but has wider benefits for area especially in vicinity of schools.
29	Horley Design Guide: - Low NO_x boilers.	Policy Guidance and Development Control	Other policy	Original June 2005 and on going	Jan 2007 (1st phase) Jan 2025 (Final)	RBBC – Env Health / Planning policy	RBBC	No	Funded	£<10K	Implemented	<0.1 µg m^{-3} at RB59. However aim is to reduce growth in emissions.	Measure adopted by developers	Measure is now in the design guide, and adopted by developers.	Aim is to minimise growth in background, but will not reduce existing pollution.

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30	- Minimum of 10 % of energy from renewable sources.	Policy Guidance and Development Control	Other policy	Original June 2005 and on going	Jan 2007 for local development framework policy	RBBC - Planning Policy	RBBC	No	Funded	£<10K	Implemented	<0.1 µg m^{-3} at RB59, but potential increase for local 'hot spots' depending on source. Again aim is to reduce growth in emissions from new development.	Scheme up and running.	Measure is now in the design guide, and adopted by developers.	Measure adopted by developers (2010/11). Aim is to use a mix of solar heating and air source heat pumps, so no risk of NOx 'hot spots'. Build out to date (2023) indicates solar water heating / solar electricity has and is going in. Main development that relates to still due for completion in 2025. Away from Horley beginning to see commercial builds relying solely on electrical heating via heat pumps and also installing solar PV.
31	Monitoring	Other / Public information	Other	On going.	On going.	RBBC - Env. Health	RBBC / GAL	No	Funded to 2024	£50K to £100K	Implemented	N/A	Data capture > 90 %.	On going. Data capture consistently in excess of 90 %. Replacement station installed in 2022.	Sites are important for examining trends in measured pollutant concentrations, compliance monitoring, and also model validation. Significant reduction in NO_2 seen across Horley AQMA (2005 to 2019) driven by non airport sources, which masks an underlying upward trend from airport sources 2012 – 2016, when can only be seen using real time monitoring. Current breaches limited to A23 on edge of AQMA (2019) but as might be expected significant falls in 2022 with levels typically 30 % lower than 2019 where aviation is a significant contribution. Replacement station for RG1 installed May 2022 - completed Sept 22 - and includes FIDAS monitor for $PM_{2.5}$ monitoring, and designed to accommodate ultrafine particle monitoring equipment.
32	Local Forums / Policy: - AQ Working Group with GAL.	Policy Guidance and Development Control.	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality.	April 2005 and on going.	On going.	RBBC - Env. Health GAL Crawley - Env. Health	RBBC / GAL / Crawley BC	No	Funded	£<10K	Implemented	1 µg m^{-3} at RB59 – depending on schemes.	No specific measure, but will include Gatwick AQ plan implemented, on going predictive modelling work.	On going. Work in 2022 focus on commissioning retrospective model and inventory for 2019 to check where reductions are occurring in practice.	AQ work on use of the emergency runway / DCO process resumed in Sept 2021 and continued in 2022. With extra runway 381,000 movements by 2032 compared to 284,987 in 2019. (c.33 % increase). Progress on the airport's action plan is subject to quarterly monitoring - all measures of note are currently on track (April 2023). However monitoring suggests airport NO_2 contribution is back to where it was 15 years ago (2019), and up considerably on 2012.
33	Local Forums / Policy: - New section 106 agreement and sustainable development strategy.	Policy Guidance and Development Control.	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality.	April 2005 and on going.	On going – current agreement ends 2024.	RBBC GAL Crawley BC WSCC	RBBC / GAL / Crawley BC WSCC	No	Funded to 2024	£50K to £100K for AQ component.	Implemented	1 µg m^{-3} at RB59 – depending on schemes.	Agreement and Implementation of new agreement and strategy.	New agreement signed in 2022.	Only if the measures in the agreement are completed, and the outcome of any studies in the agreement acted upon, will any improvement in air quality occur. Have seen improvements in AQ over past 10 years, but none due to airport itself by 2016. There were improvements to 2019 that bring the airport contribution back to levels seen 15 years ago.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	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
34	National / EU measures: - Tighter vehicle emissions standards	Policy Guidance and Development Control.	Other	April 2005 and on going.	On going to 2025 if new combustion vehicles passed out by 2030.	RBBC – Env. Health.	N/A	No	Funded at LA level.	£<10K to LA	Implemented	1% reduction in emissions translates to approx. 0.1 µg m^{-3} at RB59 – (2015 modelling).	On going improvements in roadside NOx concentrations away from the airport.	Main improvement post 2016 when real world emissions began to match on test measurements. Euro 6 real world emissions significant improvement on Euro 5.	Current breach (RB149) on A23 (2019) heavily dependent on emissions improvement, but are seeing improvements in practice (to 2019). During 2020 NO_2 levels fell by c.28 % due to COVID. Levels in general have risen since 2020 but remain (2022) 23% below levels seen in 2019.
35	National / EU measures: - Tighter aircraft engine emissions standards.	Policy Guidance and Development Control.	Other	April 2005 and on going.	On going.	RBBC – Env. Health. Plus GAL.	N/A	No	Funded at LA level.	£<10K to LA	Implemented	Aim is to reduce the rate of growth of aircraft emissions.	Higher standards in place and ideally an overall reduction in aircraft ground emissions. 2005: 644 tonnes (aircraft ground and APU)	2010: 471 tonnes 2015:520 tonnes Originally discussed informally with DfT representative in 2007 especially the need initially for better and publicly available data on APU emissions. This has continued over the years most recently with GAL and their AQ consultants working on the DCO (2022).	APU emissions are also a source of concern, and the lack of manufacturers' data on emissions makes assessing the scale of the impact difficult. Thus in the first instance emissions testing of APUs needs to be introduced. Still limited work in this area that is in public domain (April 2022). However APU running times at Gatwick have reduced significantly since 2010. Current DCO work (to date) indicates that out to 2038 the only growing source of NOx emissions are aircraft / APUs, all other sources show declines despite significant planned growth at the airport.

Notes:

RB59 is the worst case receptor within the Horley Air Quality Management Area (AQMA).
GAL: Gatwick Airport Limited. RBBC: Reigate and Banstead Borough Council. SCC: Surrey County Council. GAJA: Gatwick Airport Joint Local Authorities. GATCOM: Gatwick Consultative Committee. GOG: Gatwick Officers Group. WSCC: West Sussex County Council.
[a] The current traffic flows as measured on roads in the area are as follows:

	Site ID	AADT 2004	AM weekday peak flow 2004	PM Weekday peak flow 2004
A217 (Mill Lane / Nursery Lane)	A0217 (04063A)	18,061	2036 (8 to 9am)	1703 (17 to 18:00)
A23 (just before Massetts Rd / Woodroyd Av.)	A0023 (04082C)	29,392	2217 (8 to 9am)	2493 (17 to 18:00)
M23 Gatwick Spur* 6009 & 6010 (TRADS 2 Ref)		65,964	1702 (9 to 10am) to M23	2691 (18 to 19:00)
	(529427, 141683) and 529498, 141694)	(2% HGV)	3172 (9 to 10am) to Gatwick	1665 (14 to 15:00)

*Note these are the revised figures (2008) for 2004.
Sites 6009 and 6010 were subsequently closed at the end of 2008. Two new counters were installed mid 2006.
In 2006 (the first year for which data is available) the figures for this site were:

	5980/1 east bound alt ref 4/30015253 (529950, 141730)	32,851	1746 (9 to 10am) to M23	2480 (18 to 19:00)
	5981/1 west bound	31,553	2917 (9 to 10am) to Gatwick	1509 (13 to 14:00)

alt ref 4/30015254
(530240, 141693)
2022 Figures:

A217 (Mill Lane / Nursery Lane)	A0217 (04063A)	No data	(2019 figure 21,446 which was up 18 % on 2004. Note 2018 up 6.4 % on 2004). Note 2023 initial values suggest traffic back to 2019 levels.
A23 (just before Massetts Rd / Woodroyd Av.)	A0023 (04082C)	No data	Loop damage 2018 and 2019, no data 2020 and 2022.

2017: 30,270. Equivalent DfT site 78232 shows 1.8 % traffic fall 2005 to 2019).

M23 Gatwick Spur (2022 Data)	6009 & 6010 (TRADS 2 Ref)	Site closed end 2008

5980/1 alt ref 4/30015253 and 5981/1 west bound alt 4/30015254 closed post road works in 2021.

from 2022 M23/3435M	27,451 (4.4% HGV)	Peak hour traffic data no longer available following website redesign
	East bound	(down 16.4% on '06)Traffic to 2018 up 8.4 % on 2006
	From 2022 M23/3435L	27,023 (5.3% HGV) Peak hour traffic data no longer available following website redesign west bound (down 14.4% on '06)

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), 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.

The Council began monitoring $PM_{2.5}$ in September 2022 using a FIDAS instrument for the purposes of compliance monitoring and to examine long term background trends in this pollutant. Data management is via the Environmental Research Group (ERG) at Imperial College, with QA/QC of the instrument by the National Physical Laboratory (NPL). The mean $PM_{2.5}$ concentration for the 3 months that the equipment was in operation in 2022 was 9.8 µg/m^3.

While the Council did not monitor $PM_{2.5}$ directly using an approved measurement technique before 2022, long term monitoring of PM_{10} concentrations suggests that levels have been falling over a number of years and while $PM_{2.5}$ levels may not correlate precisely with PM_{10} concentrations there is no reason to suspect that residents' exposure to $PM_{2.5}$ over the past 10 years has not reduced.

The Council's borough wide modelling work examining residents' exposure to $PM_{2.5}$ (and other pollutants) was reported on in the 2020 ASR. This work clearly showed that unlike with nitrogen dioxide road traffic is responsible for a relatively small component of residents' exposure to $PM_{2.5}$ – up to 14 % but typically under 10 %, and that in the traffic derived fraction the bulk of the exposure is from a combination of brake, tyre and road wear rather than exhaust emissions.

While the focus of the Council's current work in relation to air quality is around vehicle electrification given the significant benefits in NOx reduction, the removal of combustion derived particulates, and the potential reduction in brake wear via regenerative braking, the Council is mindful of the potential increase in emissions from increased tyre and road wear given at present on average electric vehicles are heavier than the petrol / diesel equivalent.

The Council undertook borough wide modelling of $PM_{2.5}$ concentrations (Figure 2.3.1 shows the 2017 base year) including source apportionment at selected sites (Table 2.3) as part of a county wide modelling exercise led by Reigate and Banstead Borough Council, in conjunction with Elmbridge and Spelthorne Borough Councils.

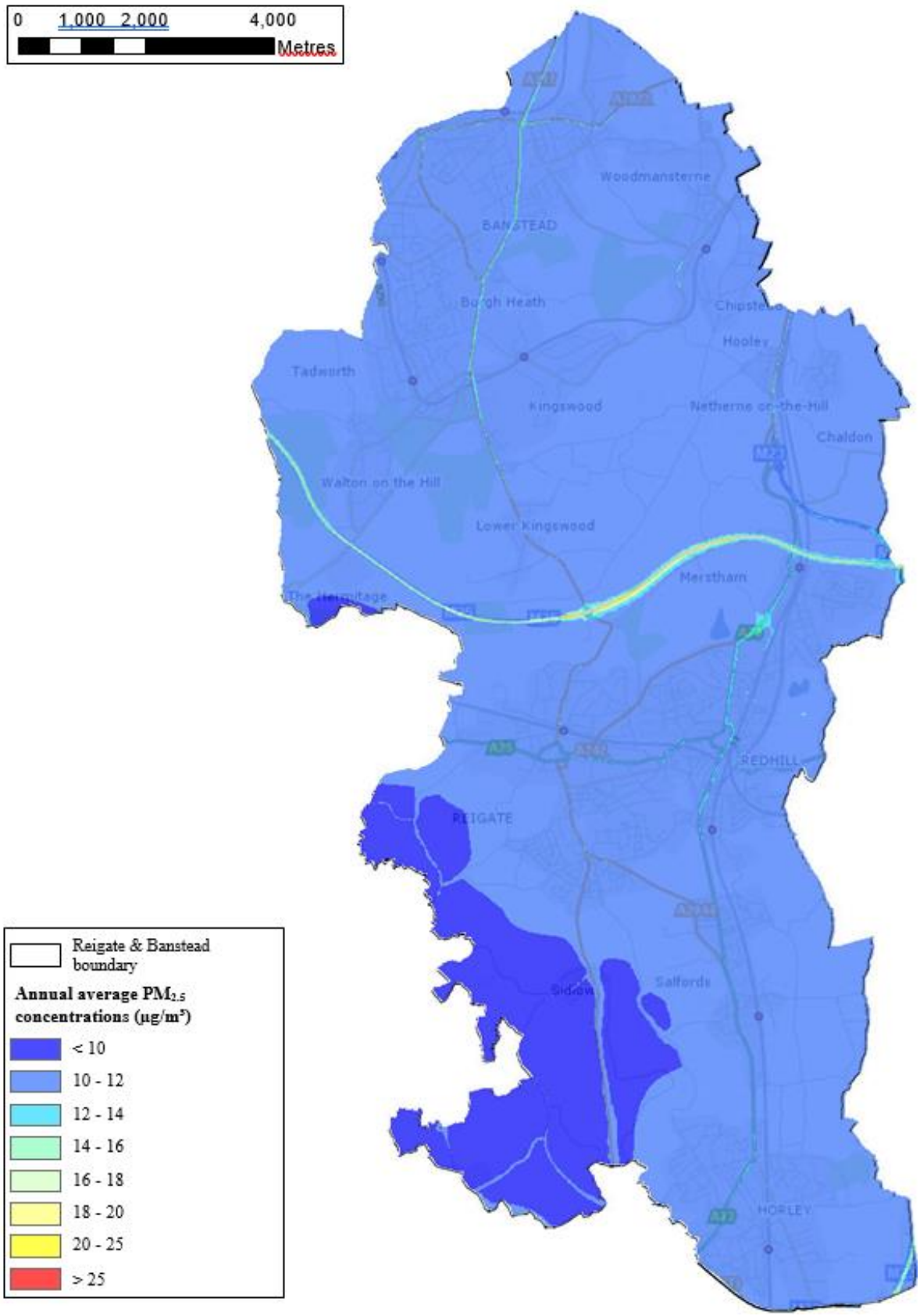

Figure 2.3.1: Annual Average $PM_{2.5}$ Concentrations in Reigate and Banstead in 2017 µg/m^3

Table 2.3 – Summary of $PM_{2.5}$ concentration source apportionment in Reigate and Banstead ($\mu g/m^3$).

PM2.5	Type of source apportionment												
	Source type				Road transport - exhaust by vehicle type						Road transport - non-exhaust		
Receptor	Road sources	Other sources	Background	Large industrial sources	Petrol Cars & Motorcycles	Diesel Cars	LGVs	Buses & Coaches	Rigid HGVs	Artic HGVs	PM2.5 Brake wear	PM2.5 Tyre wear	PM2.5 Road wear
RB009	0.3	1.9	8.8	<0.1	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.1	<0.1	<0.1
RB023	0.4	2.0	8.8	<0.1	<0.01	0.03	0.03	<0.01	<0.01	<0.01	<0.1	0.1	<0.1
RB034	1.0	1.0	8.8	<0.1	0.01	0.08	0.09	<0.01	0.02	0.03	0.3	0.3	0.2
RB039	1.9	1.4	8.8	<0.1	0.02	0.15	0.15	<0.01	0.03	0.05	0.5	0.6	0.4
RB050	1.2	1.1	8.8	<0.1	0.02	0.10	0.08	<0.01	0.02	0.01	0.3	0.4	0.2
RB059	0.4	1.9	8.8	<0.1	<0.01	0.03	0.03	<0.01	0.01	<0.01	<0.1	0.1	<0.1
RB102	0.7	1.1	8.8	<0.1	<0.01	0.07	0.06	<0.01	0.01	<0.01	0.2	0.2	0.1
RB104	0.9	1.6	8.8	<0.1	0.02	0.11	0.06	0.01	0.03	<0.01	0.2	0.3	0.2
RB106	1.2	1.9	8.8	<0.1	0.02	0.13	0.07	<0.01	0.02	<0.01	0.3	0.4	0.2
RB109	0.5	1.7	8.8	<0.1	<0.01	0.06	0.03	<0.01	0.01	<0.01	0.1	0.2	0.1
RB110	1.7	1.5	8.8	<0.1	0.03	0.17	0.11	0.02	0.03	0.02	0.4	0.5	0.3
RB116	1.2	1.6	8.8	<0.1	0.02	0.13	0.07	<0.01	0.03	<0.01	0.3	0.4	0.3
RB117	0.8	1.6	8.8	<0.1	0.01	0.09	0.05	<0.01	0.02	<0.01	0.2	0.3	0.2
RB120	0.9	1.9	8.8	<0.1	0.01	0.09	0.05	0.01	0.02	<0.01	0.2	0.3	0.2
RB124	1.2	1.6	8.8	<0.1	0.02	0.13	0.08	0.02	0.02	0.01	0.3	0.4	0.3
RB125	1.0	1.4	8.8	<0.1	0.02	0.10	0.07	<0.01	0.03	0.01	0.2	0.3	0.2
RB126	0.6	2.0	8.8	<0.1	<0.01	0.04	0.04	0.04	0.01	<0.01	0.1	0.2	0.1
RB136	1.9	1.3	8.8	<0.1	0.03	0.16	0.11	0.01	0.04	0.02	0.5	0.6	0.4
RB137	1.2	1.3	8.8	<0.1	0.02	0.10	0.07	<0.01	0.03	0.01	0.3	0.4	0.3
RB140	0.8	2.1	8.8	<0.1	0.01	0.09	0.05	0.02	0.02	<0.01	0.2	0.3	0.2
RB145	1.5	2.1	8.8	<0.1	0.03	0.15	0.08	0.02	0.03	<0.01	0.4	0.5	0.3
RB146	1.8	1.3	8.8	<0.1	0.03	0.15	0.10	0.01	0.04	0.02	0.5	0.6	0.4
RB147	0.4	1.3	8.8	<0.1	<0.01	0.03	0.03	<0.01	0.01	<0.01	<0.1	0.1	<0.1
RB148	0.8	1.7	8.8	<0.1	0.01	0.08	0.04	<0.01	0.01	<0.01	0.2	0.3	0.2
RB149	0.8	1.7	8.8	<0.1	0.01	0.08	0.04	<0.01	0.01	<0.01	0.2	0.3	0.2
RB150	0.7	1.6	8.8	<0.1	0.01	0.07	0.04	<0.01	0.02	<0.01	0.2	0.2	0.2
RB151	0.3	2.1	8.8	<0.1	<0.01	0.03	0.03	0.01	<0.01	<0.01	<0.1	0.1	<0.1

2.4 Ultrafine Particles in the Vicinity of Gatwick.

Globally airports have been identified as a significant source of ultrafine particles (UFP) pollution[12,13] i.e. particles that are under 0.1 µm in aerodynamic diameter, and that a large proportion of these particles are generated during take-off with the resulting 'spike' in ultrafine particles detected at least 600 m from the airport based on studies at Los Angeles Airport (LAX).

As research over the past 10 to 15 years has continually indicated that the finer combustion derived particle fractions, including particles under 0.1 µm in (aerodynamic) diameter, tend to have the biggest biological effects, and as an initial 'look / see' study by the Council in late 2011 indicated a significant source of ultrafine particles in the vicinity of Gatwick, the Council has since sought academic partners to look at ultrafine particle concentrations in the vicinity of Gatwick in greater detail.

Work with King's College, Imperial College, and Leicester University during 2018 and 2019 to better characterise the impact of UFP on local residents was reported in the 2020 ASR. However the key findings from this work were:

- when winds were off airport, residential exposure (350 m from A23 / 610 m from the airport) was far higher than that measured 1.5 m from the six lane road in central London, but the average exposure was lower than the roadside site,
- the average exposure at the RG1 site was around double the average exposure at the London background site,
- there was preliminary evidence that residents closer to the airport than the RG1 site e.g. RG6 site were exposed on average (not just when winds were off airport) to levels seen at Marylebone Road,
- the airport source factor contributed 17% to Particle Number Concentrations at both sites, and the concentrations were greatest when the respective sites were downwind of the runway; however, the main source of PNC was associated with traffic emissions

[12] Atmospheric Environment 45 (2011) pp.6526 – 6533.

[13] Atmospheric Environment 50 (2012) pp.328 – 337.

In 2021 the WHO released updated guidelines[14] in relation to ultrafine particles. While they have been unable to give a numerical standard, due in part to the lack of monitoring for researchers to use, they have defined what can be considered high and low values[15]:

- High concentrations - more than 10 000 particles/cm^3 (24-hour mean) or more than 20 000 particles/cm^3 (1-hour).
- Low concentrations - less than 1000 particles / cm^3 (24-hour mean).

Applying the above criteria to the 2018 and 2019 data gives the following results (Table 2.4):

	2018 Data	2019 Data
No. of days in period	84	205
No. of days with daily average over 10,000 counts / cm^3 (days HIGH)	46	73
% of days over 10,000 counts/cm^3	54.8%	35.6%
No. of days with minimum of 1 hour over 20,000 counts/cm^3	53	110
% of days with minimum of 1 hour over 20,000 counts/cm^3	63.1%	53.6%
No. of days over 10,000 counts/cm^3 or minimum 1 hr greater than 20,000 counts/cm^3	57	114
% of days over 10,000 counts/cm^3 or minimum 1 hr greater than 20,000 counts/cm^3	67.8%	55.6%
No. of days with daily average under 1,000 counts/cm^3 (days LOW)	0	0

Table 2.4 – RG1 Ultrafine Particle counts measured in 2018 and 2019 – comparison to WHO guidelines

While the data in Table 2.4 does not cover a full calendar year it does suggest that for around 50 % of the time concentrations in the vicinity of RG1 are classed as high, either on a daily or hourly basis by the WHO.

[14] WHO (2021) Global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. ISBN 978-92-4-003421-1.https://apps.who.int/iris/handle/10665/345329.

[15] It is important to note that these classifications are not related to public exposure, but are intended “to guide decisions on the priorities for UFP source control”. Areas where UFP concentrations are “low” are not affected by anthropogenic emissions.

If the data for the 2019 period is broken down by daily average wind direction (Table 2.) then it is clear that the high pollution days are occurring when winds are coming from the general direction of the airport, with the 21 days on westerly winds all occurring when winds are from the SW to WSW (effectively off airport).

Daily average Wind Direction	Days	No. Days with Daily Average over 10,000 particles/cm^3	No. Days with min. of 1 hour over 20,000 particles/cm^3
North	13	0	1
East	43	1	5
South (from the airport)	66	51	56
West	83	21	48

Table 2.5 – Distribution of High ultrafine particle concentrations at RG1 by Wind direction in 2019 data

To put the Horley figures into a wider context the RG1 site can be compared to both the London background site (Honor Oak) and the roadside site at Marylebone Road. As daily and hourly values are being examined the comparison is based only on days in 2019 when data from all three sites was available (Table 2.).

Site	Distance from Source	Data Capture (%)	Mean Particle Count (Particles / cm^3)	Days 'High' (daily mean)	No. of hours 'High' in period	No. Days with min. of 1 hour 'High'
London – Background (Honor Oak)	n/a	89	4,261	4	0	0
RG1 Horley	350 m A23 / 610 m Airport	89	8,846	29	216	46
London – Marylebone Road	1.5 m	89	9,686	39	111	36

Table 2.6 – Comparison of London Background and Roadside monitoring to Residential Monitoring in Horley using WHO guideline

Table 2. indicates that the number of "High" days at RG1 is substantially higher than the London background site, but lower than at the London kerbside site.

However it also shows that 'High' pollution at RG1 either as the total number of hours, or the number of days with a minimum of 1 hour of 'High' pollution, is higher than that seen at Marylebone Road.

Given the RG1 site is located in a residential estate around 350 m from the nearest main road, and a significant number of houses are closer to the source of ultrafine pollution than the RG1 site, it suggests that ultrafine particles in the vicinity of Gatwick are far higher than could be considered ideal.

To date no additional work has been undertaken in this area as the airport feels unable to fund a UFP monitoring program, despite this being in line with the recommendations of the Government's air quality expert group (AQEG)[16].

However, the Council is looking at other potential projects in this area with academic partners which will be reported on in due course.

2.5 Health Impact of Air Pollution in the Borough.

Historically the Council has focused much of its air quality work on local hot spots that have been declared AQMAs, although within the past five years the general approach has been to focus on measures that have air quality benefits across the borough e.g. electric vehicle charging infrastructure trials.

While it is important to focus on localised hot spots where a straightforward solution is possible e.g. realignment of a road in relation to houses so that in effect the houses are moved away from the road to meet the air quality standards, it is also important to realise that while the majority of the borough meets the relevant air quality standards there is still a health cost associated with the lower levels of pollution that exist across the borough.

As reported on in the 2020 ASR the most recent borough (and county) wide modelling[17] examined the current health costs of air pollution (nitrogen dioxide and PM) across the borough to inform future policy at the council around reducing residents exposure air pollution.

The work suggests that in 2017 air pollution across the borough had an economic cost of £37 to £45 million, with the number of life years lost in the region of 880 to 1060 years.

As the health impact is a function of both the pollution levels and the number of people affected, while the borough had the third highest average nitrogen dioxide exposure in Surrey and the 6th highest $PM_{2.5}$ exposure, as a consequence of its relatively large population compared to the other Surrey boroughs Reigate and Banstead suffers from the biggest health impact / cost in Surrey.

[16] AQEG Ultrafine Particles (UFP) in the UK. – July 2018. pp.11, and pp.94 Section 7.1 Paragraph 2.
[17] CERC 2018 Detailed air quality modelling and source apportionment for Surrey Local Authorities.

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

This section sets out the monitoring undertaken within 2022 by Reigate and Banstead Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Reigate and Banstead Borough Council undertook automatic (continuous) monitoring at four sites in 2022 (RG1, RG3, RG6 and RG7). RG7 started monitoring in August 2018. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

National monitoring results for the AURN site RG1 (Horley) are available at https://uk-air.defra.gov.uk/networks/network-info?view=aurn. National monitoring results for the AURN site RG1 (Horley), and the other three sites which are not AURN but are operated to AURN standards by ERG at Imperial College (i.e. RG3 (Poles Lane, between Crawley and Gatwick Airport) RG6 (Horley South East)) and RG7 (Hooley) are available at https://www.londonair.org.uk/london/asp/publicbulletin.asp?la_id=40 .

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

Reigate and Banstead Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 148 sites during 2022[18]. 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.5 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 in Table A.3 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 2022 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.

Error! Reference source not found. 4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with

[18] No data for diffusion tube RB122 in 2022 as road sign taken down while building work is ongoing. Site will be back in place on completion of works in 2023.

the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Automatic monitoring results indicate that for both the annual mean and 1-hour mean objectives there were no breaches at any of the monitoring locations in 2022.

There were no measured exceedances of the annual mean nitrogen dioxide objective at diffusion tube monitoring sites in 2022. RB148 was the only site over 36 µg/m^3, which required distance correcting and was well below the obejctive at a relevant location (27.3 µg/m^3). All relevant objectives were met within the Borough.

3.2.2 Particulate Matter (PM_{10})

Table A. in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

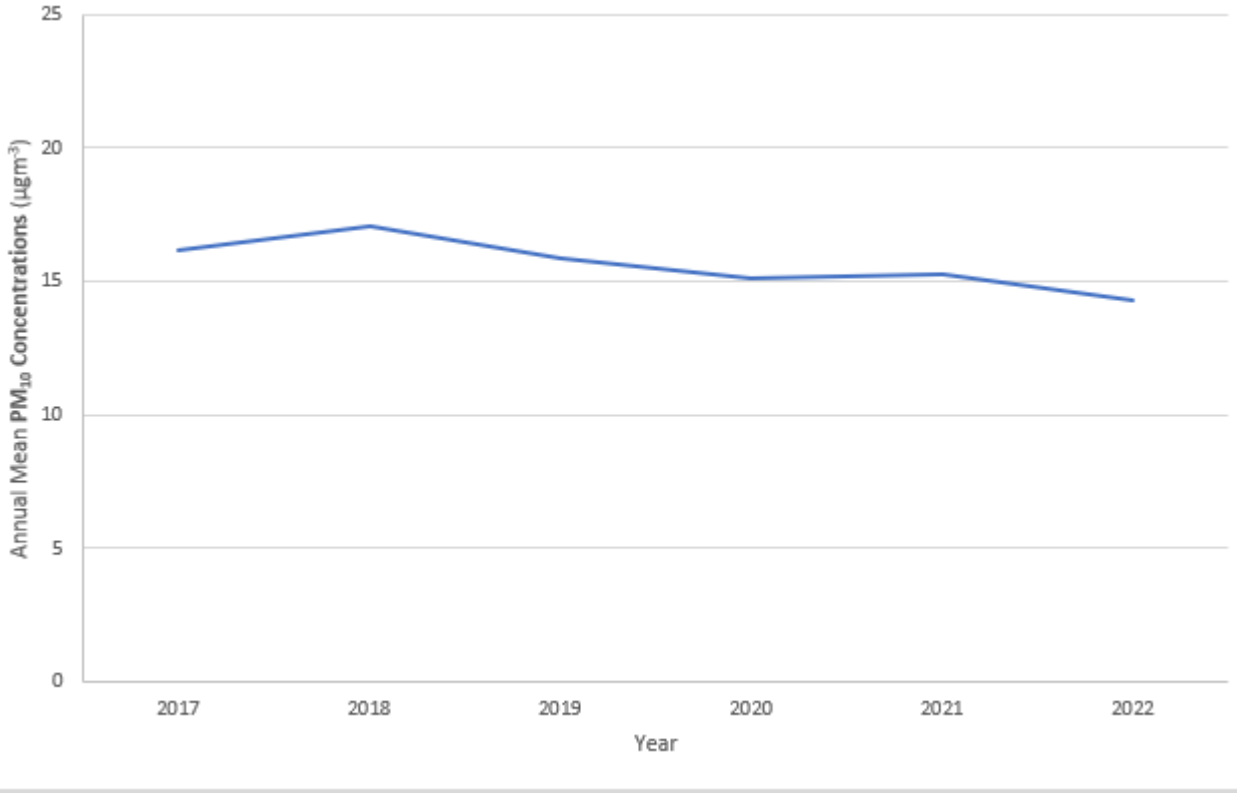

Table A. in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

There have been no exceedances of either PM_{10} objective in any of the years monitored.

3.2.3 Particulate Matter ($PM_{2.5}$)

A new replacement monitoring station was installed at the RG1 site in May 2022, which included a $PM_{2.5}$ analyser (Palas FIDAS). Data from this site will be reported in the 2024 ASR.

3.2.4 Sulphur Dioxide (SO_2)

No SO_2 monitoring was undertaken by Reigate and Banstead Borough Council in 2021.

3.2.5 Benzene

Table A.8 in Appendix A compares the ratified monitored benzene annual mean concentrations for the past five years with the annual mean air quality objective of 5µg/m^3. Measured concentrations are consistently below the objective at all sites from 2017 – 2022.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
RG1	RG1 – Michael Crescent, Horley	Suburban	528208	142337	NO_2, PM_{10}	Y (AQMA No. 3)	Chemiluminescence, TEOM	0.0	19.1	3.5
RG3 [2]	RG3 - Poles Lane Pumping Station, Crawley	Rural	526421	139639	NO_2, ozone (not reported in this report)	N	Chemiluminescence	>50.0	12.6	2.0
RG6	RG6 – 106 The Crescent, Horley	Suburban	528592	141831	NO_2	Y (AQMA No. 3)	Chemiluminescence	0.0	0.7	1.5
RG7	RG7 Hooley Real time Site Garages 55-57 Brighton Road Hooley	Roadside	528804	156435	NO2	Y (AQMA no. 13)	Chemiluminescence	1.7	2.0	1.5

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. Note the nearest ‘road’ at RG1 and 6 are residential housing estate roads carrying no more than 500 vehicles a day. RG3 is down a dead end country lane with no more than 100 vehicles a day. All three sites RG1, 3, and 6 designed to look at airport emissions.

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)
RB1	Boots, 34 – 36 High Street, Reigate, RH2 9AT	Roadside	525246	150252	NO2	Y (AQMA No.9)	0.0	5.1	N	3.1
RB3	Nr Ambulance Station, The Horseshoe, Banstead	Urban background	524944	159630	NO2	N	24.4	0.7	N	3.0
RB8	Rear of Boots, Reigate	Urban background	525246	150286	NO2	N	0.0	39.2	N	3.7
RB9	Back of 63, St Mary's Road, Reigate	Urban background	525750	149677	NO2	N	0.0	24.9	N	2.5
RB11	Outside 38, Riverside, Horley	Suburban	528104	142226	NO2	Y (AQMA No. 3)	0.0	1.4	N	3.0
RB12	Horley Police Station, Massetts Road, Horley	Roadside	528424	142934	NO2	Y (AQMA No. 3)	5.5	0.4	N	2.9

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)
RB13	Public Car Park, off Massetts Road, Horley	Other	528362	142983	NO2	N	0.0	30.0	N	2.9
RB17	11, Sylvan Way, Redhill	Urban background	528511	149715	NO2	N	4.5	1.7	N	2.9
RB18	60, Brook Road, Merstham	Urban background	529263	153156	NO2	N	6.3	1.3	N	3.0
RB19	Village Hall, Station Road, Merstham	Suburban	529067	153375	NO2	N	9.0	0.7	N	2.9
RB20	Corner of London Road, Merstham	Roadside	529026	153420	NO2	Y (AQMA No. 10)	20.2 (Nearest relevant exposure is on opposite side of the road) (Difference between the distance of the site to the kerb and the receptor to the kerb is 2.9 m)	2.6	N	2.9

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)
RB21	Opposite Drift Bridge Hotel, Reigate Road, Banstead	Roadside	523198	160095	NO2	N	13.7	1.7	N	2.9
RB22	Opposite 2 Grey Alders, Banstead	Suburban	523260	160111	NO2	N	13.2 (Nearest relevant exposure is on opposite side of the road) (Difference between the distance of the site to the kerb and the receptor to the kerb is 5.0 m)	1.1	N	2.9
RB23	Outside Warren Mead School, Roundwood Way, Banstead	Urban background	523612	159906	NO2	N	9.5	2.3	N	2.7

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)
RB24	Horley Air Monitoring Station	Background	528208	142337	NO2	Y (AQMA No. 3)	0.0	19.1	Y	3.5
RB25	Horley Air Monitoring Station	Background	528208	142337	NO2	Y (AQMA No. 3)	0.0	19.1	Y	3.5
RB26	Horley Air Monitoring Station	Background	528208	142337	NO2	Y (AQMA No. 3)	0.0	19.1	Y	3.5
RB27	White Lodge, Sturts Lane, WHO	Roadside (Near M25)	521873	153896	NO2	Y (AQMA No. 1)	0.0	5.6	N	3.0
RB29	April Cottage, Sturts Lane, WHO	Roadside (Near M25)	521921	153937	NO2	N	0.0	11.7	N	3.0
RB30	Linden Lea, Chequers Lane, WHO	Roadside (Near M25)	522112	153728	NO2	Y (AQMA No. 1)	0.0	18.9 (27.5 m from the M25)	N	3.0
RB31	Margery Hall, Reigate Hill	Roadside (Near M25)	525506	152366	NO2	N	0.0	19.5	N	3.0

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)
RB33	Rose Cottage, Margery Grove, KT20 7EZ	Roadside (Near M25)	524081	152580	NO2	N	0.0	0.0	N	3.0
RB34	Stagholt, Merrywood Grove	Roadside (Near M25)	524177	152393	NO2	N	0.0	45.6	N	3.0
RB36	Old Church House, Gatton Bottom	Roadside (Near M25)	528887	153760	NO2	N	0.0	74.8 (Distance from the M25, closest road is a very minor access road)	N	3.0
RB37	14 Ashcombe Road, Merstham	Roadside (Near M25)	529217	153605	NO2	N	0.0	12.0	N	3.0
RB39	17 Ashcombe Road, Merstham	Roadside (Near M25)	529205	153572	NO2	N	0.0	10.9 (32.3 m from the M25)	N	3.0
RB40	Dilkusha, Shepherds Hill	Roadside (Near M25)	529252	154291	NO2	N	0.0	15.0	N	3.0

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)
RB43	Glade House, Quality Street, Merstham	Roadside (Near M25)	528797	153612	NO2	N	0.0	52.4	N	3.0
RB44	Outside Gunshop, 45 Church St, Reigate	Roadside	525532	150316	NO2	Y (AQMA No. 9)	0.0	14.6	N	3.0
RB45	Outside Anglian Windows Church Street, Reigate	Roadside	525431	150270	NO2	Y (AQMA No. 9)	2.4	0.1	N	3.0
RB46	Outside Gerrards Menswear, 5 High Street, Reigate	Roadside	525346	150241	NO2	Y (AQMA No. 9)	2.1	0.4	N	3.0
RB47	Outside Nationwide, 78 High Street, Reigate	Roadside	525114	150276	NO2	Y (AQMA No. 9)	2.0	0.5	N	3.0
RB49	Highlands, Brighton Road	Roadside (Near A217)	525705	152947	NO2	Y (AQMA No. 6)	6.1	2.0	N	3.0

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)
RB50	Yew Cottage, Brighton Road	Roadside (Near A217)	525700	152964	NO2	N	0.0	24.0	N	3.0
RB51	Outside 17 Wolverton Gardens, Horley	Suburban	527873	142606	NO2	Y (AQMA No. 3)	0.0	15.1	N	3.5
RB52	Outside 20 Wolverton Gardens, Horley	Suburban	527892	142463	NO2	Y (AQMA No. 3)	0.0	13.7	N	3.5
RB53	Outside 66 / 68 Cheyne Walk, Horley	Suburban	528030	142373	NO2	Y (AQMA No. 3)	0.0	4.3	N	3.5
RB54	Outside 7 / 9 Crescent Way, Horley	Suburban	528112	142321	NO2	Y (AQMA No. 3)	0.0	4.2	N	3.5
RB55	Outside 40a Crescent Way, Horley	Suburban	528254	142196	NO2	Y (AQMA No. 3)	0.0	1.1	N	3.5
RB56	Outside 8 / 10 The Crescent, Horley	Suburban	528386	142080	NO2	Y (AQMA No. 3)	0.0	2.6	N	3.5

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RB57	Outside 29 / 31 The Crescent, Horley	Suburban	528499	141953	NO2	Y (AQMA No. 3)	0.0	2.6	N	3.5
RB58	Outside 39 / 41 The Crescent, Horley	Suburban	528538	141897	NO2	Y (AQMA No. 3)	0.0	2.6	N	3.5
RB59	Outside 92 / 94 The Crescent, Horley	Suburban	528602	141789	NO2	Y (AQMA No. 3)	0.0	2.2	N	3.5
RB60	Outside 120 / 122 The Crescent, Horley	Suburban	528607	141910	NO2	Y (AQMA No. 3)	0.0	2.8	N	3.5
RB61	Outside 79 / 81 The Crescent, Horley	Suburban	528578	142006	NO2	Y (AQMA No. 3)	0.0	1.0	N	3.5
RB64	Outside 16 / 22 The Drive, Horley	Suburban	528608	142432	NO2	Y (AQMA No. 3)	0.0	1.6	N	3.5
RB65	Outside 4 / 6 The Drive, Horley	Suburban	528581	142635	NO2	Y (AQMA No. 3)	0.0	16.8	N	3.5

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RB66	Outside 3a / 3b Fairfield Avenue, Horley	Suburban	528499	142512	NO2	Y (AQMA No. 3)	0.0	18.5	N	3.5
RB68	Outside 57 Fairfield Avenue, Horley	Suburban	528505	142246	NO2	Y (AQMA No. 3)	0.0	18.5	N	3.5
RB69	Outside 61 Upfield, Horley	Suburban	528335	142224	NO2	Y (AQMA No. 3)	0.0	14.0	N	3.5
RB70	Outside 58 / 60 Upfield, Horley	Suburban	528360	142384	NO2	Y (AQMA No. 3)	0.0	17.8	N	3.5
RB72	Outside 25 / 27 Upfield, Horley	Suburban	528220	142583	NO2	Y (AQMA No. 3)	0.0	19.2	N	3.5
RB73	Outside 9 / 11 Upfield, Horley	Suburban	528172	142679	NO2	Y (AQMA No. 3)	0.0	17.8	N	3.5
RB74	On Green, 30a / 30b Meadowcroft Close, Horley	Suburban	529149	141953	NO2	Y (AQMA No. 3)	0.0	15.1	N	3.5

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RB75	On Roundabout, The Coronet, Horley	Suburban	529203	142192	NO2	Y (AQMA No. 3)	0.0	12.4	N	3.5
RB76	33 Limes Avenue, Horley	Suburban	528958	142468	NO2	Y (AQMA No. 3)	0.0	20.7	N	3.5
RB77	Layby at Entrance to Staffords Place, Horley	Suburban	528789	142570	NO2	Y (AQMA No. 3)	0.0	13.0	N	3.5
RB78	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO2	Y (AQMA No. 3)	0.0	2.7	Y	3.5
RB79	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO2	Y (AQMA No. 3)	0.0	2.7	Y	3.5
RB80	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO2	Y (AQMA No. 3)	0.0	2.7	Y	3.5

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RB81	Outside Flying Scud Public House, Brighton Road, Redhill	Roadside (A23 AQMA)	527594	149236	NO2	N	0.0	5.5	N	3.5
RB82	Outside 1 Deans Lane, Hooley	Suburban (A23 AQMA)	528770	155797	NO2	N	0.0	18.3	N	3.5
RB95	Flat 1, Tasboro House, Rushworth Road	Roadside	525382	150639	NO2	N	0.0	5.9	N	2.0
RB98	16 / 17 Woodroyd Gardens	Suburban	527931	142231	NO2	Y (AQMA No. 3)	0.0	1.0	N	2.0
RB99 [2]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO2	N	0.0	12.4	Y	2.0
RB100 [2]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO2	N	0.0	12.4	Y	2.0
RB101 [2]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO2	N	0.0	12.4	Y	2.0

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RB102 [2]	In Field near Bridleway, Hathersham Farm, Horley	Rural / Other	530936	144278	NO2	N	>50.0	19.1	N	2.0
RB104	ASK, High Street, Reigate	Roadside	525204	150254	NO2	Y (AQMA No. 9)	0.0	4.9	N	2.0
RB105	Finishing Touch, High Street, Reigate	Roadside	525203	150239	NO2	Y (AQMA No. 9)	0.0	2.8	N	2.0
RB106	Outside Crossways, Fir Tree Road, Banstead	Roadside	523250	160056	NO2	Y (AQMA No. 8)	5.0	2.1	N	2.0
RB107	Sussex Blinds, 29 Church Street	Roadside	525467	150292	NO2	Y (AQMA No. 9)	0.6	2.3	N	2.0
RB109	Male Territory, 27a Bell Street, Reigate	Roadside	525387	150178	NO2	Y (AQMA No. 9)	0.0	3.6	N	2.0
RB110	204 London Road North opposite RB20	Roadside	529016	153439	NO2	Y (AQMA No. 10)	0.0	4.3	N	2.0

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RB111	Knotts Pine, 1 West Street, Reigate	Roadside	525031	150291	NO2	Y (AQMA No. 9)	0.0	4.3	N	2.0
RB113	Opposite Newbury Road	Roadside	524795	150404	NO2	Y (AQMA No. 9)	0.0	2.1	N	2.0
RB114	Outside 87, West Street, Reigate	Roadside	524368	150477	NO2	N	5.9	1.7	N	2.0
RB115	Outside 36, West Street, Reigate	Roadside	524751	150428	NO2	Y (AQMA No. 9)	0.0	0.6	N	2.0
RB116	Outside 12, West Street, Reigate	Roadside	525022	150317	NO2	Y (AQMA No. 9)	0.0	2.3	N	2.0
RB117	Crossway House, 8 London Road, Reigate	Roadside	525076	150327	NO2	Y (AQMA No. 9)	0.0	2.9	N	2.0
RB118	8 Burlington Place, Reigate	Roadside	525151	150467	NO2	Y (AQMA No. 9)	0.0	14.2	N	2.0

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RB120	Outside 21 Redstone Hill, Redhill	Roadside	528196	150421	NO2	Y (AQMA No. 12)	9.7	2.2	N	2.0
RB121	Opposite Ladbrook Grove, Redhill	Kerbside	528092	150786	NO2	Y (AQMA No. 12)	N/A	1.5	N	2.0
RB122	Roundabout sign 5158 near carpark, Marketfield Way, Redhill	Roadside	528013	150475	NO2	N (AQMA No. 12)	>50	2.9	N	2.0
RB123	Outside Age Concern Cromwell Road, Redhill	Kerbside	527838	150474	NO2	N (AQMA No. 12)	0.9	0.5	N	2.0
RB124	Outside 22 High Street, Merstham	Roadside	529013	153285	NO2	Y (AQMA No. 10)	1.3	1.8	N	2.0
RB125	Opposite Reigate Hill Close, Reigate Hill	Roadside	525589	151655	NO2	N (AQMA No. 11)	4.7	2.7	N	2.0
RB136	Outside 45 Brighton Road, Hooley	Roadside	528810	156474	NO2	Y (AQMA No. 13)	4.9	1.0	N	2.0

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RB137	Opposite 23 Brighton Road, Hooley	Roadside	528831	156648	NO2	Y (AQMA No. 13)	21.3 (Nearest relevant exposure is on opposite side of the road, relevant exposure is closer to the kerb than the monitoring site) (Difference between the distance of the site to the kerb and the receptor to the kerb is 0.4 m)	6.0	N	2.0
RB140	Flat 2, 45 Ladbrook Grove, Redhill	Roadside	528122	150799	NO2	Y (AQMA No. 12)	0.2	7.2	N	2.0

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RB141	Near roundabout outside 105 Station Road, Redhill	Roadside	527373	150596	NO2	N	1.9	2.7	N	2.0
RB145	Outside Brewers, 33 Brighton Road, Redhill	Kerbside	527852	150158	NO2	Y (AQMA No. 12)	3.3	2.2	N	2.0
RB146	Opposite ESSO Garage, Brighton Road, Hooley	Kerbside	528759	156277	NO2	Y (AQMA No. 13)	21.0	3.2	N	2.0
RB147	Halfway down footpath by the side of 92 / 92b Brighton Road, Hooley	Background	528732	156407	NO2	N	26.3 (Relevant exposure is closer to the kerb than the monitoring site)	51.0	N	2.0
RB148	17 Star Cottages, Brighton Road, Hooley	Kerbside	528855	156674	NO2	Y (AQMA No. 13)	5.5	1.0	N	2.5

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RB149	6 Brighton Road, Horley	Roadside	527737	142710	NO2	Y (AQMA No. 3)	4.0	2.8	N	2.5
RB150	8 Elvington Lodge, Reigate Hill	Roadside	525397	150867	NO2	Y (AQMA No. 11)	13.3	3.4	N	2.0
RB151	Between 83 and 85 Victoria Road, Horley	Roadside	528502	142952	NO2	Y (AQMA No. 3)	0.0	1.8	N	2.5
RB152	A23 south of New Battlebridge Lane	Roadside	528599	152439	NO2	N	27.6 (Nearest relevant exposure is on opposite side of the road) (Difference between the distance of the site to the kerb and the receptor to the kerb is 7.8 m)	1.6	N	2.5

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RB153	1 Horley Road junction with Three Arch Road	Roadside	527837	148046	NO2	N	6.7	2.9	N	2.5
RB167	Queensway, Redhill	Roadside	527830	150643	NO2	Y (AQMA No. 12)	0.0	3.1	N	3.0
RB174	Opposite 37 Brighton Road, Horley	Roadside	527852	142841	NO2	Y (AQMA No. 3)	2.3	3.0	N	2.0
RB175	23 Brighton Road, Horley	Roadside	527955	142999	NO2	N	12.1	2.8	N	2.5
RB176	15 Brighton Road, Horley	Roadside	527765	142777	NO2	Y (AQMA No. 3)	0.0	10.2	N	2.0
RB177	11 Brighton Road, Horley	Roadside	527754	142762	NO2	Y (AQMA No. 3)	0.0	8.6	N	2.0

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RB178	RG6 co-location, 110 The Crescent, Horley	Suburban	528592	141831	NO2	Y (AQMA No. 3)	0.0	0.5 (from V quiet road, measuring emissions from Gatwick)	Y	1.5
RB179	RG6 co-location, 110 The Crescent, Horley	Suburban	528592	141831	NO2	Y (AQMA No. 3)	0.0	0.5 (from V quiet road, measuring emissions from Gatwick)	Y	1.5
RB180	RG6 co-location, 110 The Crescent, Horley	Suburban	528592	141831	NO2	Y (AQMA No. 3)	0.0	0.5 (from V quiet road, measuring emissions from Gatwick)	Y	1.5
RB181	Outside 10D Brighton Road Hooley	Roadside	528852	156724	NO2	Y (AQMA No. 13)	15	2.3	N	2.3
RB182	10D Brighton Road Hooley	Roadside	528835	156728	NO2	Y (AQMA No. 13)	0	18.7	N	2

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RB183	58B Brighton Road Hooley	Roadside	528813	156580	NO2	Y (AQMA No. 13)	0	7.8	N	2.4
RB184	Lattice Wood Hooley News 66 Brighton Road Hooley	Roadside	528807	156555	NO2	Y (AQMA No. 13)	0	7.2	N	2.4
RB186	adjacent to 72Brighton Road	Roadside	528790	156500	NO2	Y (AQMA No. 13)	In line with building facade to A23 i.e. 10.3 m. To star Lane tube to kerb 2m, tube to house 3.4m (house 5.4m from kerb)	10.3	N	2.3
RB187	74 Brighton Road Hooley	Roadside	528789	156488	NO2	Y (AQMA No. 13)	0	10.2	N	1.7

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RB188	76 Brighton Road Hooley	Roadside	528792	156478	NO2	Y (AQMA No. 13)	0	5.1	N	1.6
RB189	78 Brighton Road Hooley	Roadside	528789	156465	NO2	Y (AQMA No. 13)	0	5.6	N	1.8
RB190	80B Brighton Road Hooley	Roadside	528788	156460	NO2	Y (AQMA No. 13)	0	5.7	N	1.9
RB191	82 Brighton Road Hooley	Roadside	528785	156448	NO2	Y (AQMA No. 13)	0	6.2	N	2
RB192	84 Brighton Road Hooley	Roadside	528784	156442	NO2	Y (AQMA No. 13)	0	6.2	N	1.9

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RB193	86 Brighton Road Hooley	Roadside	528782	156430	NO2	Y (AQMA No. 13)	0	6.1	N	2
RB194	Outside 96 Brighton Road	Kerbside	528779	156381	NO2	Y (AQMA No. 13)	25	1	N	2.5
RB195	Outside flats 102 Brighton Road	Kerbside	528772	156349	NO2	Y (AQMA No. 13)	17	Note 0.6 m to kerb but once layby included (2.8m) total 3.4m to road edge	N	2.3
RB196	TopMarks Tyres 75 Brighton Road Hooley	Roadside	528797	156331	NO2	Y (AQMA No. 13)	0	16.8	N	2
RB197	Drain pipe 67 Brighton Road Hooley	Roadside	528795	156373	NO2	Y (AQMA No. 13)	0	6.5	N	1.9

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)
RB198	65 Brighton Road Hooley	Roadside	528796	156379	NO2	Y (AQMA No. 13)	0	6.3	N	2
RB199	63A Brighton Road Hooley	Roadside	528800	156390	NO2	Y (AQMA No. 13)	0	8.1	N	2
RB200	Outside 59 Brighton Road	Roadside	528799	156409	NO2	Y (AQMA No. 13)	4.4	3.6	N	2.6
RB201	Flat 1, 55 Brighton Road Hooley	Roadside	528804	156414	NO2	Y (AQMA No. 13)	0	7.1	N	1.9
RB202	53 Brighton Road Hooley	Roadside	528808	156444	NO2	Y (AQMA No. 13)	0	4.9	N	1.9

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)
RB203	51 Brighton Road Hooley	Roadside	528809	156454	NO2	Y (AQMA No. 13)	0	4.4	N	2.1
RB204	49 Brighton Road Hooley	Roadside	528810	156457	NO2	Y (AQMA No. 13)	0	4.5	N	1.8
RB205	47 Brighton Road Hooley	Roadside	528812	156466	NO2	Y (AQMA No. 13)	0	4	N	1.9
RB206	45 Brighton Road Hooley	Roadside	528816	156477	NO2	Y (AQMA No. 13)	0	5.9	N	1.9
RB207	43 Brighton Road Hooley	Roadside	528818	156486	NO2	Y (AQMA No. 13)	0	6.1	N	1.9

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)
RB208	outside 41 Brighton Road	Roadside	528825	156526	NO2	Y (AQMA No. 13)	2.9	1.1	N	2.7
RB209	39 Brighton Road Hooley	Roadside	528833	156547	NO2	Y (AQMA No. 13)	0	7.7	N	1.9
RB210	37 Brighton Road Hooley	Roadside	528833	156555	NO2	Y (AQMA No. 13)	0	6.7	N	1.8
RB211	33 Brighton Road Hooley	Roadside	528839	156577	NO2	Y (AQMA No. 13)	0	7.3	N	1.7
RB212	29 Brighton Road Hooley	Roadside	528840	156582	NO2	Y (AQMA No. 13)	0	7.5	N	1.9

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)
RB213	27 Brighton Road Hooley	Roadside	528845	156604	NO2	Y (AQMA No. 13)	0	7.5	N	1.9
RB214	25 Brighton Road Hooley	Roadside	528848	156617	NO2	Y (AQMA No. 13)	0	7.3	N	2
RB215	21 Brighton Road Hooley	Roadside	528853	156646	NO2	Y (AQMA No. 13)	0	6.5	N	2
RB216	15 Brighton Road Hooley	Roadside	528862	156690	NO2	Y (AQMA No. 13)	0	5.1	N	1.9
RB217	Flat 2, 9-11 Brighton Road Hooley	Roadside	528866	156712	NO2	Y (AQMA No. 13)	0	3.4	N	1.9

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)
RB218	7 Brighton Road Hooley	Kerbside	528869	156737	NO2	Y (AQMA No. 13)	4	0.5	N	2
RB219	5 Brighton Road Hooley	Roadside	528877	156744	NO2	Y (AQMA No. 13)	0	7.2	N	1.8
RB223	RG7 Hooley Real time Site Garages 55-57 Brighton Road Hooley	Roadside	528804	156435	NO2		1.7	2	Y	1.5
RB224	RG7 Hooley Real time Site Garages 55-57 Brighton Road Hooley	Roadside	528804	156435	NO2		1.7	2	Y	1.5

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)
RB225	RG7 Hooley Real time Site Garages 55-57 Brighton Road Hooley	Roadside	528804	156435	NO2		1.7	2	Y	1.5
Benzene										
RB1	Boots, 34 – 36 High Street, Reigate, RH2 9AT	Roadside	525246	150252	Benzene	Y (AQMA No. 9)	0.0	5.1	N	3.1
RB11	Outside 38, Riverside, Horley	Suburban	528104	142226	Benzene	Y (AQMA No. 3)	0.0	1.4	N	3.0

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)
RB20	Corner of London Road, Merstham	Roadside	529026	153420	Benzene	Y (AQMA No. 10)	20.2 (Nearest relevant exposure is on opposite side of the road) (Difference between the distance of the site to the kerb and the receptor to the kerb is 2.9 m)	2.6	N	2.9

Notes:

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

[2] This diffusion tube monitoring site is located outside Reigate and Banstead Borough, but is operated by Reigate and Banstead Council

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RG1	528208	142337	Suburban	92.4	92.4	18.8	19.1	13.1	15.4	16.8
RG3	526421	139639	Rural	96.0	96.0	15.5	15.1	9.7	9.7	11.7
RG6	528592	141831	Suburban	98.0	98.0	24.9	24.2	14.6	13.8	17.2
RG7	528804	156436	Roadside	98.6	98.6	**47.4**	**45.0**	37.6	**41.0**	34.6

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Reported concentrations are those at the location of the monitoring site (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**.

All means have been "annualised" as per LAQM.TG22 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%).

Table A.4 – 1-Hour Mean NO_2 Monitoring Results: Automatic Monitoring

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
						2018	2019	2020	2021	2022
RG1	528208	142337	Suburban	92.4	92.4	0	0	0	0	0
RG3	526421	139639	Rural	96.0	96.0	0	0	0	0	0
RG6	528592	141831	Suburban	98.0	98.0	0	0	0	0	0
RG7	528804	156436	Roadside	98.6	98.6	(128)	(139)	0	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 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 NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB1	525246	150252	Roadside	Diffusion tube	100	100	30.6	29.5	21.5	21.4	22.7
RB3	524944	159630	Urban background	Diffusion tube	91.7	91.7	17.5	16.1	11.7	13.6	14.7
RB8	525246	150286	Urban Background	Diffusion tube	100	100	19.0	17.2	11.5	12.4	15.3
RB9	525750	149677	Urban background	Diffusion tube	100	100	16.4	16.2	12.2	12.4	12.9
RB11	528104	142226	Suburban	Diffusion tube	100	100	23.9	21.3	14.6	15.0	18.2
RB12	528424	142934	Roadside	Diffusion tube	100	100	25.3	25.8	20.7	19.7	20.2
RB13	528362	142983	Other	Diffusion tube	75	75	23.1	19.8	13.3	14.6	17.6
RB17	528511	149715	Urban background	Diffusion tube	100	100	16.3	16.0	12.3	12.6	15.7
RB18	529263	153156	Urban background	Diffusion tube	100	100	21.9	20.8	15.3	16.3	20.2
RB19	529067	153375	Suburban	Diffusion tube	100	100	23.1	21.6	16.3	17.5	19.3
RB20	529026	153420	Roadside	Diffusion tube	100	100	30.3	29.4	21.1	23.1	24.4
RB21	523198	160095	Roadside	Diffusion tube	100	100	32.4	31.5	22.3	24.7	24.4
RB22	523260	160111	Suburban	Diffusion tube	100	100	19.7	18.7	13.7	14.1	14.9
RB23	523612	159906	Urban background	Diffusion tube	100	100	16.2	15.0	11.9	12.4	14.4
RB24	528208	142337	Background	Diffusion tube	100	100	19.8	21.8	14.2	13.7	16

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB25	528208	142337	Background	Diffusion tube	100	100	21.6	21.2	13.4	14.0	16.5
RB26	528208	142337	Background	Diffusion tube	91.7	91.7	21.6	21.7	15.0	13.8	16.1
RB27	521873	153896	Roadside (near M25)	Diffusion tube	100	100	24.7	21.0	16.3	16.6	17.0
RB29	521921	153937	Roadside (near M25)	Diffusion tube	100	100	21.5	20.5	14.3	14.6	17.4
RB30	522112	153728	Roadside (near M25)	Diffusion tube	100	100	22.0	21.0	14.6	15.0	15.7
RB31	525506	152366	Roadside (near M25)	Diffusion tube	100	100	16.3	13.8	9.8	11.9	13.2
RB33	524081	152580	Roadside (near M25)	Diffusion tube	91.7	91.7	20.3	18.9	13.1	13.3	14.1
RB34	524177	152393	Roadside (near M25)	Diffusion tube	100	100	26.4	22.3	15.3	17.9	17.4
RB36	528887	153760	Roadside (near M25)	Diffusion tube	91.7	91.7	23.8	20.2	14.4	15.0	17.6
RB37	529217	153605	Roadside (near M25)	Diffusion tube	100	100	22.0	21.0	16.0	16.7	17.8
RB39	529205	153572	Roadside (Near M25)	Diffusion tube	100	100	22.1	20.4	16.8	15.8	17.3
RB40	529252	154291	Roadside (near M25)	Diffusion tube	100	100	19.0	19.1	13.2	14.3	15.9
RB43	528797	153612	Roadside (near M25)	Diffusion tube	100	100	23.8	22.2	14.9	18.3	18.3
RB44	525532	150316	Roadside	Diffusion tube	100	100	28.5	27.7	21.0	22.2	21.4
RB45	525431	150270	Roadside	Diffusion tube	83.3	83.3	29.2	29.4	19.6	20.5	22.6
RB46	525346	150241	Roadside	Diffusion tube	100	100	31.0	33.2	22.0	25.0	25.8

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB47	525114	150276	Roadside	Diffusion tube	100	100	34.8	32.8	24.3	27.2	26.3
RB49	525705	152947	Roadside (near A217)	Diffusion tube	100	100	39.2	36.1	24.6	26.5	27.7
RB50	525700	152964	Roadside (near A217)	Diffusion tube	100	100	24.7	26.2	18.2	-	21.8
RB51	527873	142606	Suburban	Diffusion tube	91.7	91.7	20.8	20.7	13.1	15.1	18.2
RB52	527892	142463	Suburban	Diffusion tube	100	100	25.0	24.6	16.1	16.4	19.2
RB53	528030	142373	Suburban	Diffusion tube	100	100	24.4	25.6	16.3	16.5	18.3
RB54	528112	142321	Suburban	Diffusion tube	100	100	24.5	22.9	15.0	16.0	17.4
RB55	528254	142196	Suburban	Diffusion tube	100	100	24.8	23.6	16.0	16.0	20.2
RB56	528386	142080	Suburban	Diffusion tube	91.7	91.7	22.2	24.7	14.6	15.0	19.1
RB57	528499	141953	Suburban	Diffusion tube	100	100	24.2	24.6	15.2	14.5	18.7
RB58	528538	141897	Suburban	Diffusion tube	100	100	24.7	25.9	15.6	15.8	20.4
RB59	528602	141789	Suburban	Diffusion tube	91.7	91.7	26.5	26.0	15.3	15.1	18.3
RB60	528607	141910	Suburban	Diffusion tube	100	100	24.9	26.1	15.0	14.4	19.8
RB61	528578	142006	Suburban	Diffusion tube	100	100	21.3	23.1	15.6	13.8	19.5
RB64	528608	142432	Suburban	Diffusion tube	91.7	91.7	21.6	23.1	15.0	15.5	17.1
RB65	528581	142635	Suburban	Diffusion tube	91.7	91.7	22.8	23.1	16.4	17.5	18.8

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB66	528499	142512	Suburban	Diffusion tube	100	100	22.5	21.6	14.4	15.3	18.1
RB68	528505	142246	Suburban	Diffusion tube	91.7	91.7	21.7	24.0	14.8	14.6	18.6
RB69	528335	142224	Suburban	Diffusion tube	91.7	91.7	24.7	25.2	16.2	16.0	18.7
RB70	528360	142384	Suburban	Diffusion tube	91.7	91.7	23.3	23.7	14.2	15.4	17.2
RB72	528220	142583	Suburban	Diffusion tube	91.7	91.7	25.1	23.6	15.7	15.3	22.8
RB73	528172	142679	Suburban	Diffusion tube	100	100	22.0	21.5	15.4	15.3	17.4
RB74	529149	141953	Suburban	Diffusion tube	100	100	22.3	21.2	14.3	13.3	16.5
RB75	529203	142192	Suburban	Diffusion tube	100	100	21.9	22.3	14.5	14.2	16.9
RB76	528958	142468	Suburban	Diffusion tube	100	100	19.6	19.9	13.4	12.9	16.3
RB77	528789	142570	Suburban	Diffusion tube	100	100	19.8	19.7	13.7	13.4	16.1
RB78	528553	141857	Suburban	Diffusion tube	100	100	25.5	25.0	15.9	14.9	19.9
RB81	527594	149236	Roadside (A23 AQMA)	Diffusion tube	100	100	2.3	2.2	24.0	24.0	23.0
RB82	528770	155797	Suburban (A23 AQMA)	Diffusion tube	100	100	2.2	2.0	22.4	21.9	20.4
RB95	525382	150639	Roadside	Diffusion Tube	75	75	25.1	22.0	14.4	16.9	17.9
RB98	527931	142231	Suburban	Diffusion Tube	100	100	24.7	24.2	15.9	17.1	18.8

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB99	526421	139639	Rural / Other	Diffusion tube	100	100	15.0	13.8	9.3	10.0	14.2
RB100	526421	139639	Rural / Other	Diffusion tube	100	100	15.8	13.8	9.0	10.6	12.9
RB101	526421	139639	Rural / Other	Diffusion tube	100	100	15.3	14.9	9.2	10.1	13
RB102	530936	144278	Rural / Other	Diffusion tube	91.7	91.7	23.4	19.3	13.6	15.9	17.4
RB104	525204	150254	Roadside	Diffusion tube	100	100	34.0	33.9	24.5	26.9	24.2
RB105	525203	150239	Roadside	Diffusion tube	100	100	35.0	37.5	28.5	26.6	24.7
RB106	523250	160056	Roadside	Diffusion tube	100	100	27.7	28.6	20.5	23.0	22.5
RB107	525467	150292	Roadside	Diffusion tube	100	100	27.0	25.0	18.5	20.8	22.1
RB109	525387	150178	Roadside	Diffusion tube	100	100	30.3	29.8	20.1	22.2	21.5
RB110	529016	153439	Roadside	Diffusion tube	100	100	27.1	24.7	17.5	19.6	22.1
RB111	525031	150291	Roadside	Diffusion tube	100	100	27.1	27.2	23.1	23.0	24.1
RB113	524795	150404	Roadside	Diffusion tube	100	100	24.9	23.0	16.6	18.8	17.0
RB114	524368	150477	Roadside	Diffusion tube	91.7	91.7	23.5	21.8	17.8	16.8	17.2
RB115	524751	150428	Roadside	Diffusion tube	100	100	26.3	27.7	20.1	22.7	21.6
RB116	525022	150317	Roadside	Diffusion tube	100	100	29.6	30.7	21.2	23.0	23.8
RB117	525076	150327	Roadside	Diffusion tube	91.7	91.7	36.3	35.8	29.5	28.5	31.4

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB118	525151	150467	Roadside	Diffusion tube	100	100	32.8	32.1	25.7	27.3	28.6
RB120	528196	150421	Roadside	Diffusion tube	100	100	31.5	27.4	21.1	24.3	25.4
RB121	528092	150786	Kerbside	Diffusion tube	83.3	83.3	**41.1**	39.9	29.1	29.3	33.2
RB122	528013	150475	Roadside	Diffusion tube	0	0	30.6	30.7	23.3	-	-
RB123	527838	150474	Kerbside	Diffusion tube	100	100	33.5	33.6	23.6	33.4	23
RB124	529013	153285	Roadside	Diffusion tube	91.7	91.7	31.7	31.5	24.6	26.1	25.7
RB125	525589	151655	Roadside	Diffusion tube	75	75	31.8	33.5	24.8	24.2	24.1
RB136	528810	156474	Roadside	Diffusion tube	100	100	**45.9**	39.5	34.3	36.0	33.2
RB137	528831	156648	Roadside	Diffusion tube	100	100	**43.2**	35.2	28.5	28.4	28.6
RB140	528122	150799	Roadside	Diffusion tube	100	100	22.6	24.3	17.4	17.9	21.6
RB141	527373	150596	Roadside	Diffusion tube	100	100	22.9	21.8	15.6	17.8	21.1
RB145	527852	150158	Kerbside	Diffusion tube	100	100	30.9	31.7	24.5	25.3	24.9
RB146	528759	156277	Kerbside	Diffusion tube	100	100	**40.4**	35.8	23.5	28.8	28.4
RB147	528732	156407	Background	Diffusion tube	100	100	17.0	13.8	10.9	12.5	15.1
RB148	528855	156674	Kerbside	Diffusion tube	100	100	**59.5**	**54.2**	**43.0**	**42.5**	36.3
RB149	525698	152940	Roadside	Diffusion tube	91.7	91.7	**43.4**	**43.5**	30.9	33.0	32.5

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB150	525397	150867	Roadside	Diffusion tube	100	100	33.1	35.3	27.3	27.3	24.8
RB151	528502	142952	Roadside	Diffusion tube	91.7	91.7	29.4	33.5	22.7	26.3	25.0
RB152	528599	152439	Roadside	Diffusion tube	100	100	32.4	32.4	24.3	23.8	24.9
RB153	527837	148046	Roadside	Diffusion tube	100	100	25.9	25.4	19.9	20.8	22.8
RB167	527830	150643	Roadside	Diffusion tube	100	100	24.7	24.3	17.9	20.7	20.9
RB174	527852	142841	Roadside	Diffusion tube	91.7	91.7	30.3	29.1	19.1	21.4	23.2
RB175	527955	142999	Roadside	Diffusion tube	100	100	27.5	29.8	22.2	22.5	21.1
RB176	527765	142777	Roadside	Diffusion tube	100	100	25.5	25.4	17.3	19.3	20.2
RB177	527754	142762	Roadside	Diffusion tube	100	100	23.8	25.1	16.6	18.4	19.8
RB178	528592	141831	Suburban	Diffusion tube	100	100	23.0	24.0	13.6	13.7	16.5
RB179	528592	141831	Suburban	Diffusion tube	100	100	23.4	23.2	13.4	13.8	16.9
RB180	528592	141831	Suburban	Diffusion tube	100	100	23.4	23.1	13.8	14.0	17.1
RB181	528852	156724	Roadside	Diffusion tube	100	100	**47.0**	**46.5**	39.0	35.9	32.6
RB182	528835	156728	Roadside	Diffusion tube	100	100	30.3	24.0	19.6	20.3	19.6
RB183	528813	156580	Roadside	Diffusion tube	100	100	36.4	37.0	28.5	29.1	28.4
RB184	528807	156555	Roadside	Diffusion tube	100	100	34.8	33.7	24.8	25.8	24.6

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB186	528790	156500	Roadside	Diffusion tube	100	100	30.8	31.3	24.3	25.6	24.1
RB187	528789	156488	Roadside	Diffusion tube	100	100	27.0	27.0	20.1	21.6	19.4
RB188	528792	156478	Roadside	Diffusion tube	100	100	32.2	29.0	22.1	23.2	22.4
RB189	528789	156465	Roadside	Diffusion tube	100	100	31.4	30.0	21.0	22.7	21.4
RB190	528788	156460	Roadside	Diffusion tube	100	100	30.7	29.1	21.3	22.2	21.2
RB191	528785	156448	Roadside	Diffusion tube	100	100	26.5	27.3	20.3	21.6	21.8
RB192	528784	156442	Roadside	Diffusion tube	100	100	28.5	27.1	19.4	21.2	20.4
RB193	528782	156430	Roadside	Diffusion tube	100	100	24.6	24.2	17.7	19.9	19
RB194	528779	156381	Kerbside	Diffusion tube	100	100	32.5	30.7	22.0	25.5	23.5
RB195	528772	156349	Kerbside	Diffusion tube	100	100	37.0	34.2	24.7	27.5	26
RB196	528797	156331	Roadside	Diffusion tube	100	100	26.8	25.2	19.2	20.5	19.1
RB197	528795	156373	Roadside	Diffusion tube	100	100	36.2	32.9	25.1	26.9	22.8
RB198	528796	156379	Roadside	Diffusion tube	91.7	91.7	38.2	38.8	26.6	29.9	27.1
RB199	528800	156390	Roadside	Diffusion tube	91.7	91.7	34.1	31.8	23.9	25.3	22.5
RB200	528799	156409	Roadside	Diffusion tube	100	100	**42.1**	39.4	31.4	30.4	29.3
RB201	528804	156414	Roadside	Diffusion tube	100	100	34.2	34.0	25.2	26.5	23.9

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB202	528808	156444	Roadside	Diffusion tube	100	100	37.7	37.7	29.6	32.2	28.8
RB203	528809	156454	Roadside	Diffusion tube	100	100	36.9	39.2	30.3	30.5	27.9
RB204	528810	156457	Roadside	Diffusion tube	100	100	36.8	39.3	30.4	29.6	27.3
RB205	528812	156466	Roadside	Diffusion tube	100	100	**44.0**	**42.2**	32.7	32.7	32.8
RB206	528816	156477	Roadside	Diffusion tube	100	100	34.5	33.1	26.6	30.5	23.8
RB207	528818	156486	Roadside	Diffusion tube	100	100	35.2	37.3	26.1	26.9	26.5
RB208	528825	156526	Roadside	Diffusion tube	100	100	**53.0**	**50.3**	36.0	34.9	32.8
RB209	528833	156547	Roadside	Diffusion tube	100	100	27.8	27.8	21.4	22.3	19.2
RB210	528833	156555	Roadside	Diffusion tube	91.7	91.7	39.3	36.3	28.5	28.2	28.2
RB211	528839	156577	Roadside	Diffusion tube	100	100	36.6	37.0	29.5	30.6	28.6
RB212	528840	156582	Roadside	Diffusion tube	100	100	39.3	**40.6**	30.1	29.9	27.6
RB213	528845	156604	Roadside	Diffusion tube	91.7	91.7	36.5	37.9	28.0	27.3	29
RB214	528848	156617	Roadside	Diffusion tube	100	100	33.1	33.5	22.4	25.2	22.7
RB215	528853	156646	Roadside	Diffusion tube	100	100	29.0	27.6	22.6	22.3	23.2
RB216	528862	156690	Roadside	Diffusion tube	100	100	42.5	39.3	39.9	35.4	30.3
RB217	528866	156712	Roadside	Diffusion tube	100	100	43.2	**45.2**	33.8	35.5	30.2

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RB218	528869	156737	Kerbside	Diffusion tube	100	100	42.6	**40.7**	33.3	33.3	27.5
RB219	528877	156744	Roadside	Diffusion tube	100	100	39.2	**40.6**	33.8	30.3	26.3
RB223	528804	156435	Roadside	Diffusion tube	100	100		**42.3**	32.9	33.1	30.4
RB224	528804	156435	Roadside	Diffusion tube	100	100		36.5	32.5	35.4	31.1
RB225	528804	156435	Roadside	Diffusion tube	100	100		38.7	32.3	34.3	30.7

☒

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22 (not required).

☒ **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.TG22 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%).

Trends in Traffic and Annual Mean NO2 Concentrations in AQMAs

AQMA No. 1: M25

The M25 AQMA consists of the length of the M25 to a distance of 30 m either side of the carriageway between Junction 7 and the point of the west of Junction 8 where the motorway meets with the borough boundary.

There are two nitrogen dioxide diffusion tube monitoring sites located within the M25 AQMA, and seven nitrogen dioxide diffusion tube monitoring sites located in close proximity (i.e. within 50 m) to the AQMA. Measured pollutant concentrations at all monitoring sites both within and up to 50 m distance from the AQMA have generally been decreasing since 2004 and were below the relevant air quality objectives in this reporting period (Figure A.1).

Figure A. 2 below shows traffic flows between Junction 7 and Junction 8, and between Junction 8 and Junction 9 of the M25 motorway within the M25 AQMA, from 2002 to 2022. The traffic volumes were relatively stable between 2002 and 2010 on both sections of the M25. On the Junction 7 – Junction 8 section, traffic volumes decreased between 2011 and 2014, then kept increasing sharply until 2017 and has been very slowly decreasing since. The Junction 8 – Junction 9 section has followed a similar trend albeit a year later than the neighbouring M25 section. Overall, traffic volumes between Junction 7 and Junction 8 have decreased since the early 2000s and increased between Junction 8 and Junction 9.

There was a sharp decrease in traffic volumes on the M25 in 2020 as a result of changing travel patterns due to the COVID-19 pandemic. Traffic flows subsequently increased in 2021 and 2022, but have remained below those in earlier years.

In view of the air quality objectives being met, the relatively low concentrations measured at relevant receptors for a number of years, and the long-term downward trend, the Council would ordinarily look to revoke the M25 AQMA. Plans to revoke the M25 AQMA are currently on hold pending the completion of work by Gatwick Airport to examine the impact of its planned expansion from 46.5 million passengers per annum (mppa) in 2019 to 72.3 mppa in 2032 (a 55 % increase in passenger traffic). The airport currently envisages road traffic associated with this growth mainly accessing the airport via the M25 / M23, although the county councils' (Surrey and West Sussex) traffic modellers currently have grave concerns around capacity constraints on this section of the road network.

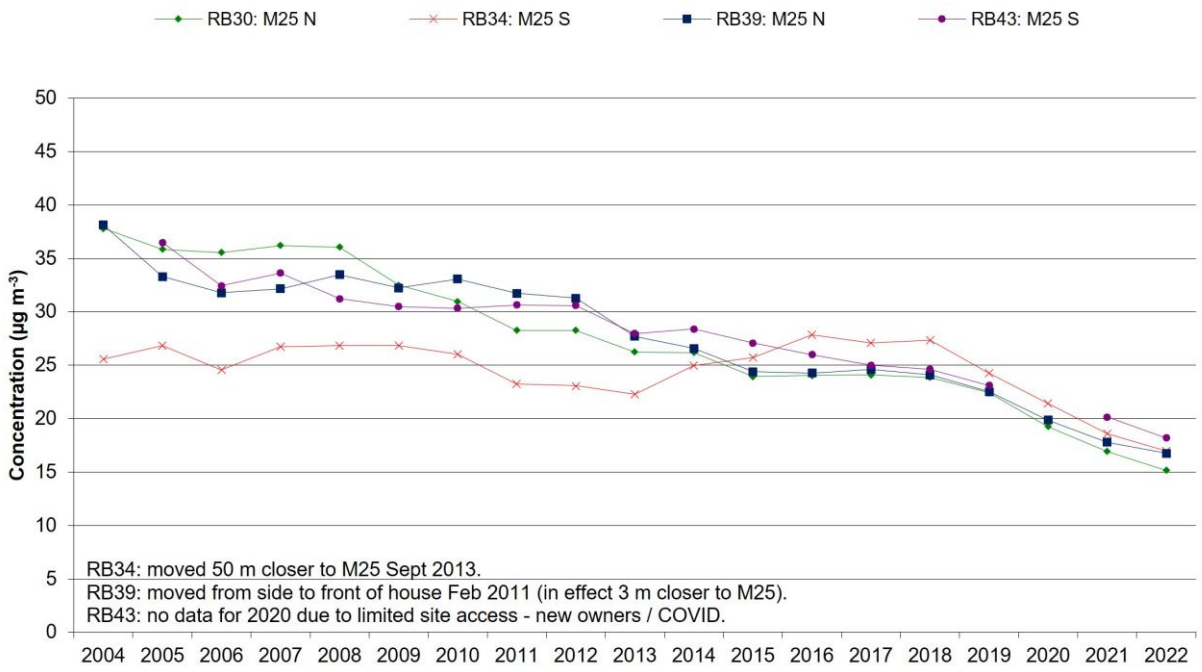


Figure A. 1: Three Year Rolling Mean Nitrogen Dioxide Concentrations - M25 AQMA.

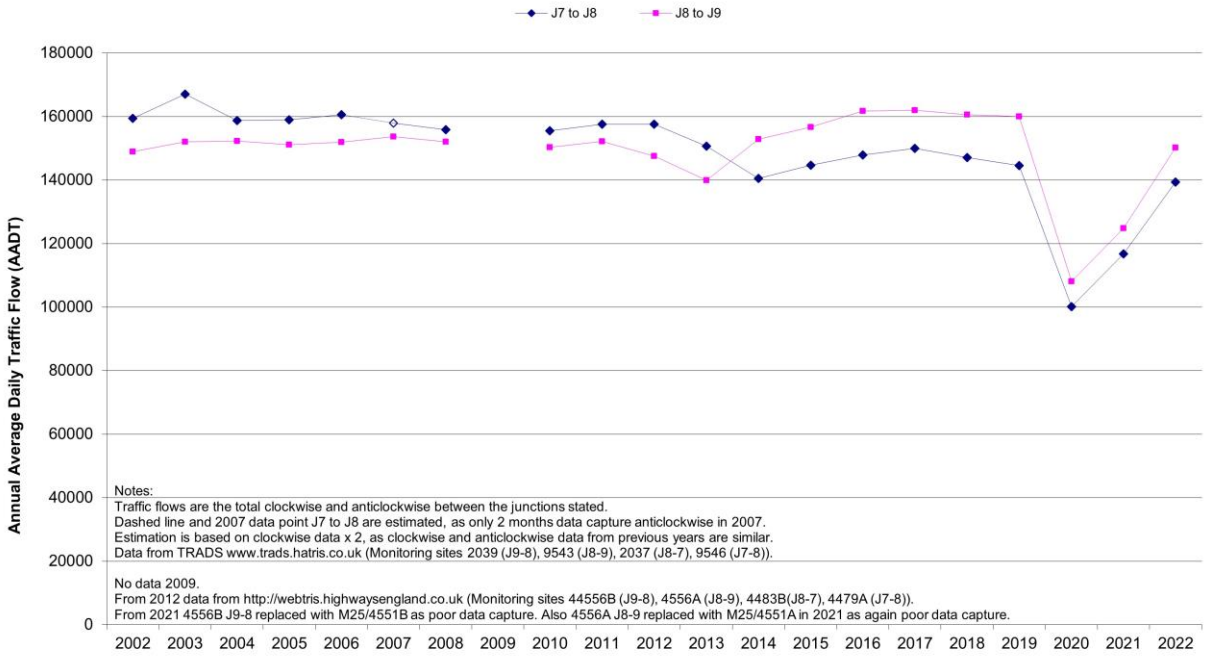


Figure A. 2: Annual Mean Daily Traffic Flow within the M25 AQMA.

AQMA No. 3: Horley

The Horley AQMA covers an area of the southwest quadrant of Horley near to Gatwick Airport.

The following monitoring sites are located within the AQMA:

- 37 diffusion tubes which monitor nitrogen dioxide concentrations;
- one diffusion tube which monitors benzene concentrations;
- one automatic monitoring site (RG1) which monitors nitrogen dioxide, PM_{10} and $PM_{2.5}$ (from sept 22) concentrations; and
- one automatic monitoring site (RG6) which monitors nitrogen dioxide concentrations.

Monitoring of nitrogen dioxide is also undertaken by the council at a further site (RG3), which is located to the southwest of Gatwick Airport in Crawley. One diffusion tube (RB149) located along Brighton Road, near to the boundary, but within the AQMA, measured exceedances of the nitrogen dioxide annual mean objective between 2017 and 2019, but when distance corrected fell below the objective in 2018. Site RB149 also measured exceedances from 2014 to 2015 (not distance corrected). There does, however appear to be a long-term downward trend at this location. Measured pollutant concentrations at all of the other monitoring sites were below the relevant air quality objectives in the reporting period (Figure A. 3). There were no measured exceedances in 2022.

While the overall trend in nitrogen dioxide concentrations is downwards in the vicinity of the airport, it is also possible to examine the trend in 'airport concentrations' using data selected based on wind direction. These 'airport concentrations' (Figure A. 4), which also include a road traffic component from the A23 Airport Way, have been calculated by subtracting pollutant concentrations measured upwind of the airport, from those on the other side when the winds are from the South West (i.e. RG2 / RG6 minus RG3). As can be seen from Figure A. 4, while the underlying trend in concentrations in Horley is down (Figure A. 3), there is a different pattern in these airport sources. While there has been a reduction in these airport sources since 2016, it is worth noting that this airport component is currently unchanged on 10 years ago. A sharp decrease was seen in 2020 and continued in 2021, as a result of changing travel behaviour (including a significant

decrease in number of flights), as a result of the COVID-19 pandemic, returning to a slight increase in 2022.

Figure A. 6 below shows traffic flows along the A23 in Horley. These data suggest a slight trend of increasing annual mean daily traffic flows from 2014 to 2019; with a sharp decrease in 2020 as a result of the COVID-19 pandemic changing travel behaviour. Flows increased in 2021 but remained below those in previous years. There are no data for traffic flows for 2022. Whereas previously discussed, nitrogen dioxide concentrations are generally decreasing.

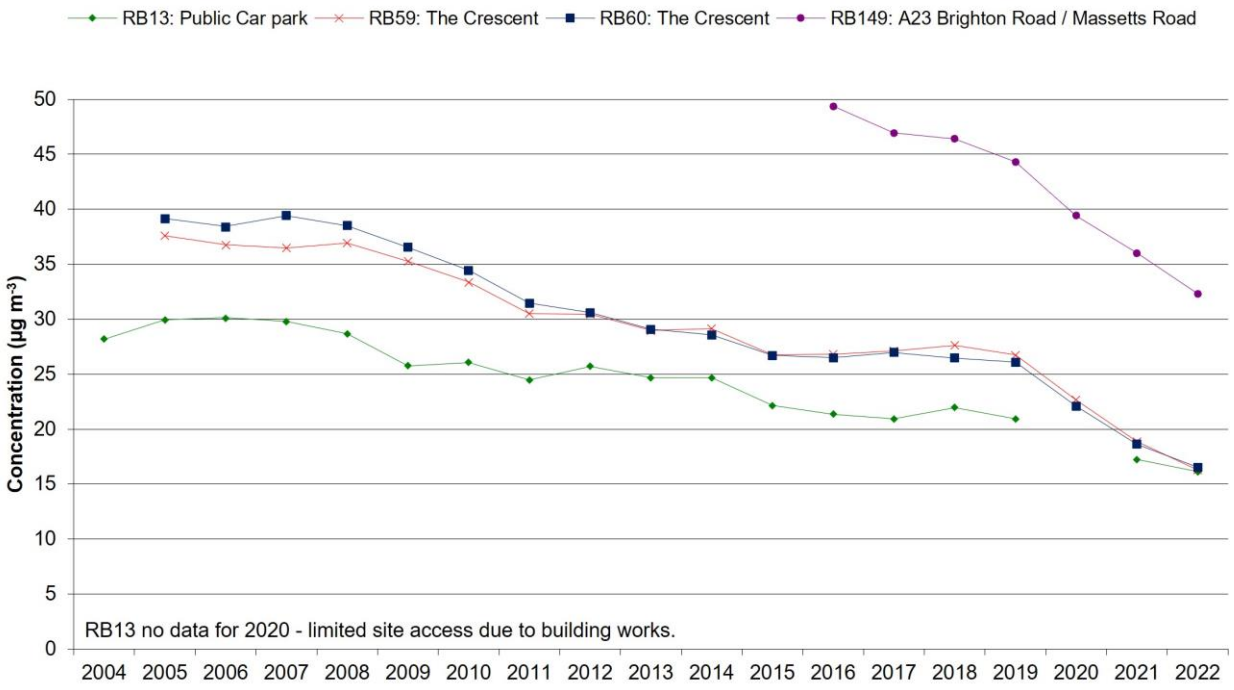


Figure A. 3: Three Year Rolling Mean Nitrogen Dioxide Concentrations- Horley AQMA

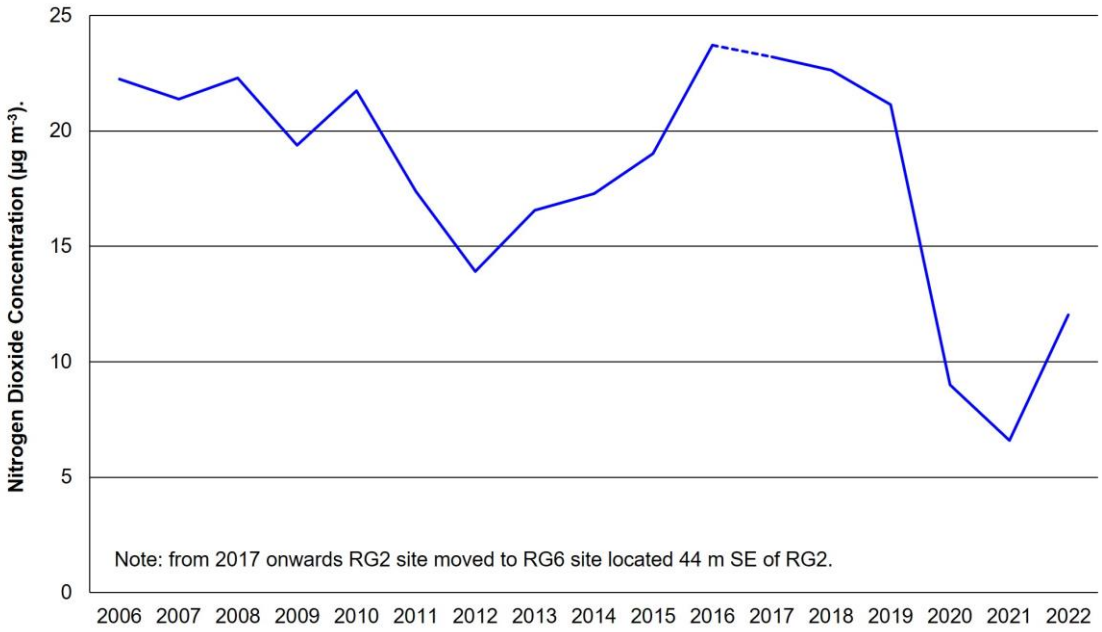


Figure A. 4: Trends in Airport Related Nitrogen Dioxide - RG2(6) minus RG3 when wind on 202 to 248 degrees - Mean of hourly values.

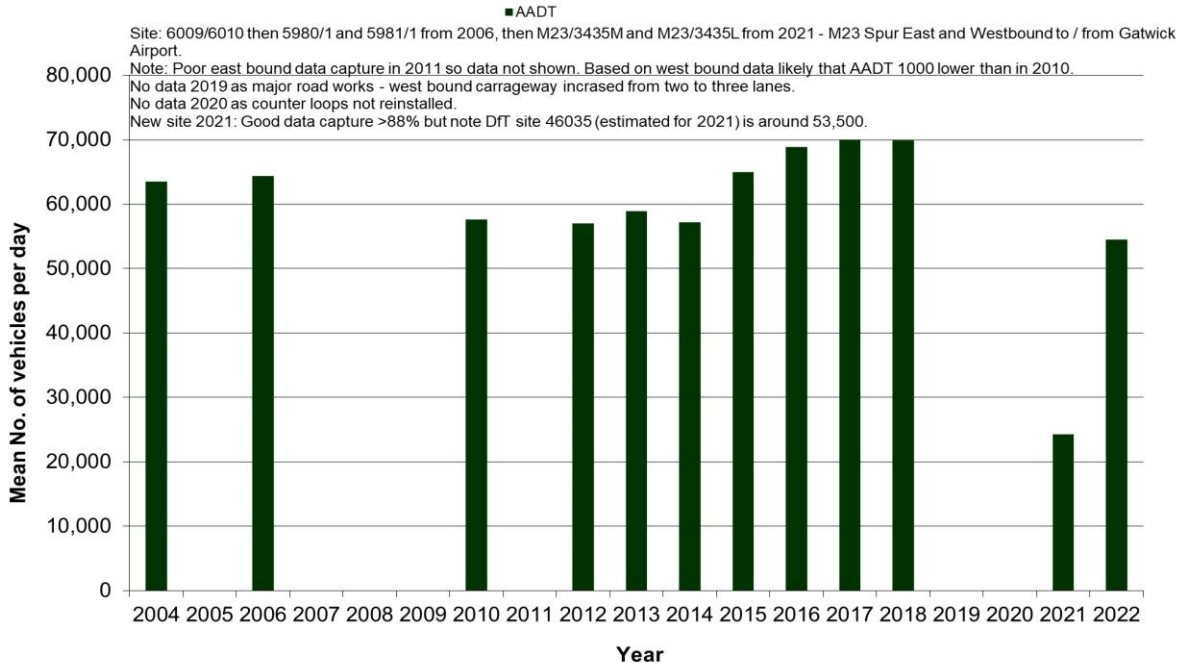


Figure A. 5: Annual Mean Daily Traffic Flows - M23 Gatwick Spur.

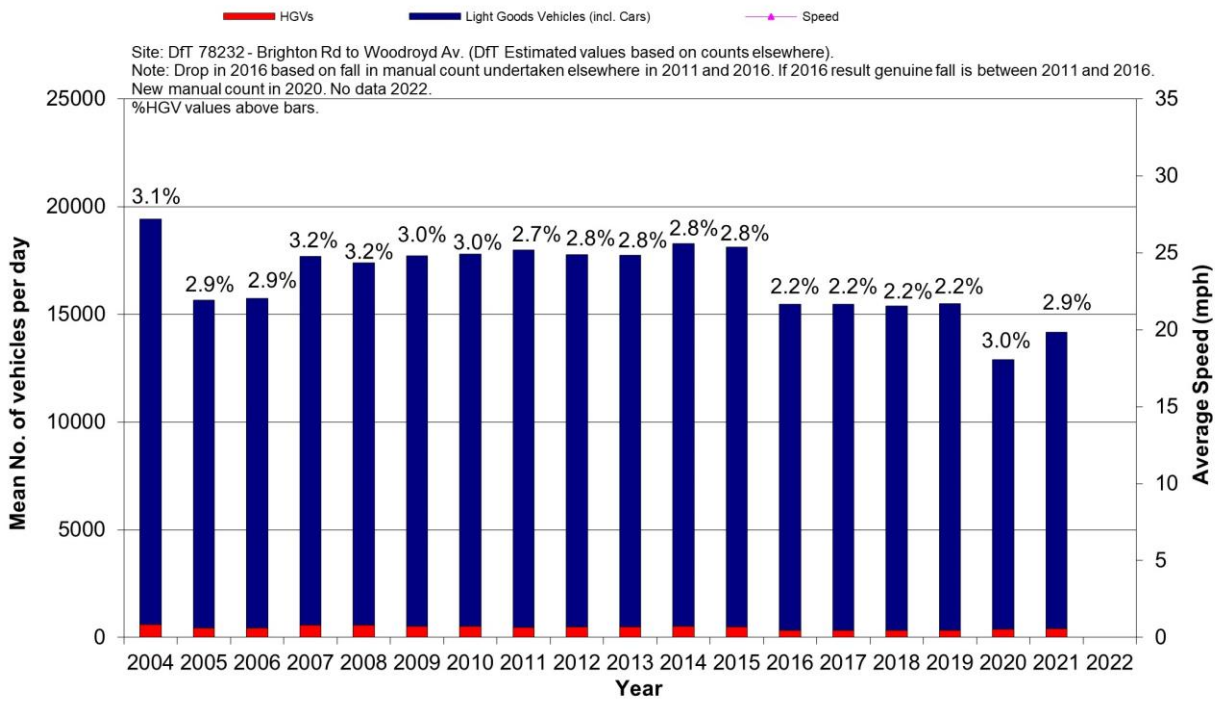


Figure A. 6: Annual Mean Daily Traffic Flows - A23 Horley.

AQMA No. 6: A217 / Blackhorse Lane

The A217 / Blackhorse Lane AQMA covers an area encompassing one property near the junction of the A217 Brighton Road with Margery Lane and Blackhorse Lane.

Nitrogen dioxide monitoring takes place at one diffusion tube monitoring site, located within the AQMA (RB49) and one site located aproximately 15 m to the north of the AQMA (RB50). Measured concentrations at one of the monitoring sites (RB49) exceeded the annual mean nitrogen dioxide objective from 2015 – 2017, before falling below the objective during 2018 and 2019; monitoring site RB50 did not breach the objective in any of the years presented. Both monitoring sites show a small decreasing trend in concentrations which has almost levelled off in the case of site RB50 in recent years (Figure A. 7**Error! Reference source not found.**). There were no measured exceedances in 2022. No data was collected from RB50 in 2021 due to the nearby refurbishment of a house. The tube is back in position for 2022.

Figure A. 8 below shows traffic flows along the A217, near to Blackhorse Lane, in close proximity to Blackhorse Lane AQMA. The data suggest a gradual overall decrease in annual mean daily traffic flows over the period monitored. As expected, there was a slight increase in traffic in 2021, due to removal of restrictions put in place during the COVID-19 pandemic. Traffic levels are still below pre-pandemic levels, with 2022 traffic levels very similar to 2021.

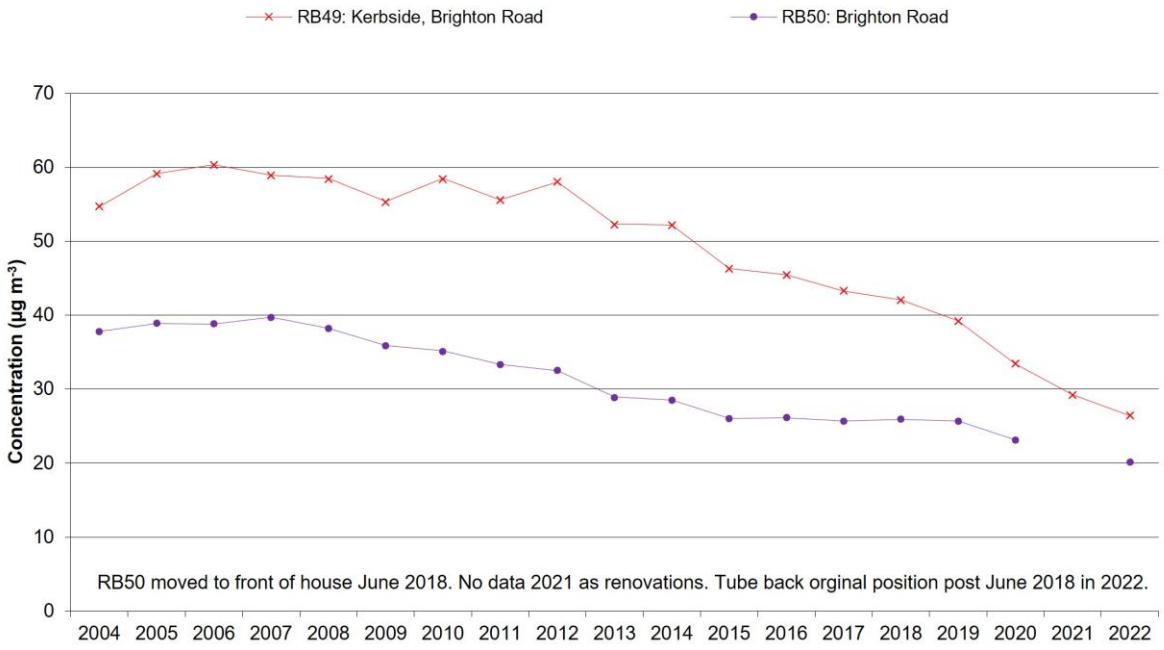


Figure A. 7: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Blackhorse Lane AQMA.

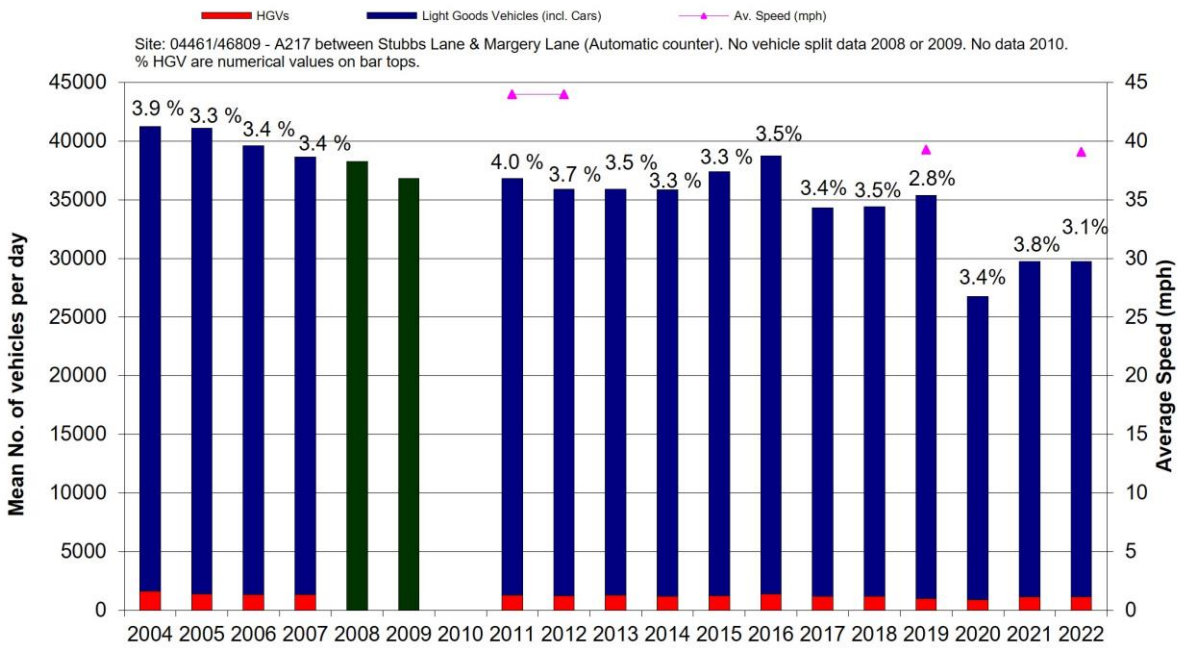


Figure A. 8: Annual Mean Daily Traffic Flows - A217 Blackhorse Lane.

AQMA No. 8: Drift Bridge

The Drift Bridge AQMA covers an area encompassing two residential properties immediately to the north of the junction of the A240 (Reigate Road) and A2022 (Fir Tree Road).

Nitrogen dioxide diffusion tube monitoring takes place at one diffusion tube adjacent to the southeast corner of the AQMA. There are further two diffusion tubes monitoring sites within 50 m of the AQMA and another one approximately 400 m to the east of the AQMA. Concentrations at all of the monitoring sites have been decreasing or at worst remained steady since 2012 and have been below the air quality objectives since 2015 (Figure A.9). There was a sharp decrease in concentrations in 2020, rebounding slightly in 2021, as a result of changing travel patterns due to the COVID-19 pandemic. Concentrations are still below pre-pandemic levels.

Figure A.10 below shows traffic flows at three sites near to the Drift Bridge AQMA. Two (Sites A and B) are located along the A240 and one (Site C) is located along the A2022. Data at Site A suggests a decrease in annual mean daily traffic flow from 2004 to 2012, followed by an increase in 2013 after which the flow stabilizes for four years before decreasing again in 2017-2018. Data available from Site B does not suggest a clear trend in annual mean daily traffic. Data at Site C suggests decreasing annual mean daily traffic flow between 2005 and 2011, after which the trend in flow is relatively stable. A sharp decrease is seen in 2020 as a result of changing travel behaviour as a result of the COVID-19 pandemic. Again, as expected, there was a slight increase in traffic in 2021 and further increase in 2022, due to removal of restrictions put in place during the COVID-19 pandemic. Traffic levels are still well below pre-pandemic levels.

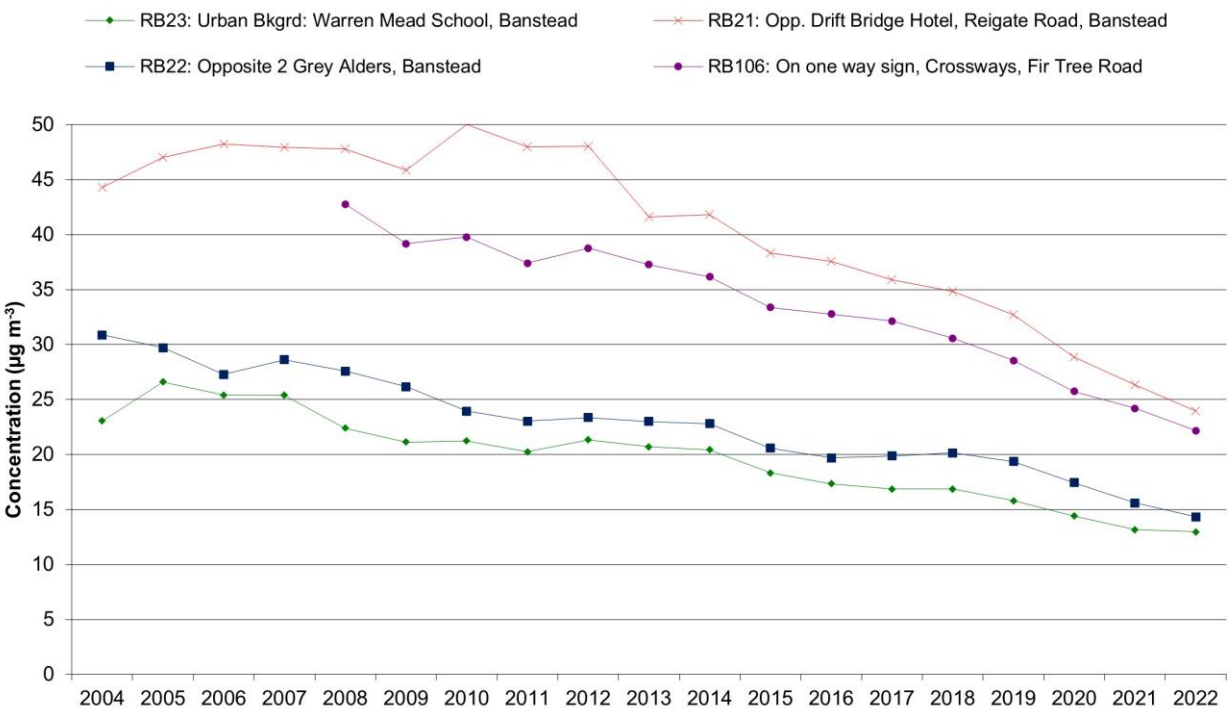


Figure A. 9: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Banstead Background Site and in the vicinity of the Drift Bridge AQMA.

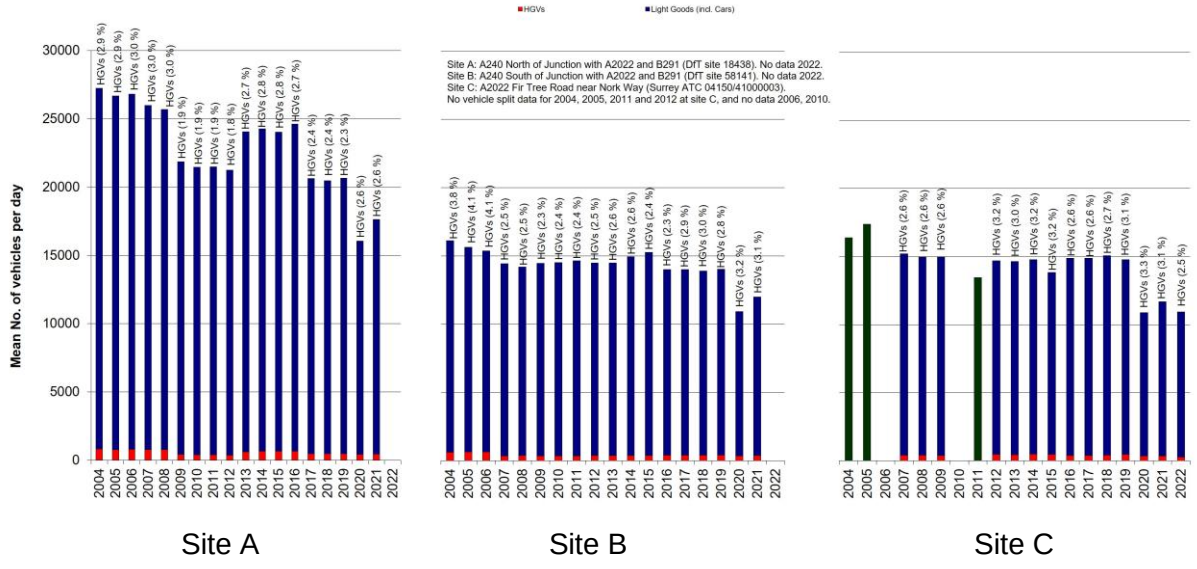


Figure A. 10: Annual Mean Daily Traffic Flows - Drift Bridge, Banstead.

AQMA No. 9: Reigate High Street/ West Street/ Bell Street

The Reigate High Street / West Street / Bell Street AQMA covers an area encompassing Reigate High Street, the section of Church Street between the High Street and Bancroft Road, properties with a frontage to Bell Street (between the High Street and the southern end of Bancroft Road) and land and properties within 15m of either side of West Street (between High St and Evesham Rd) and along London Road (between West St and Castlefield Rd).

Nitrogen dioxide monitoring is undertaken by 15 diffusion tube monitoring sites within the AQMA. Benzene diffusion tube monitoring takes place at one location within the AQMA (note: the AQMA was declared for exceedances of the annual mean nitrogen dioxide objective). Measured concentrations of nitrogen dioxide at all monitoring sites have been steadily decreasing from their peak in 2008 and were below the relevant air quality objectives in 2019 (Figure A. 11). There were also no measured exceedances in 2021 or 2022. Benzene concentrations were also well below the objectives.

Figure A. 12 below shows traffic flows along Reigate High Street. Monitor 1 suggests a weak trend of reducing annual mean daily traffic flows from 2004 to 2013, and a weak trend of increasing annual mean daily traffic flows from 2013 to 2016. From 2016 traffic flows decreased again to around 2012-2013 levels. No data are available for 2019. Monitor 2 suggests a weak trend of reducing annual mean daily traffic flows from 2004 to 2010 and subsequent increasing between 2010 and 2012. Between 2012 and 2018 the traffic flows changed only marginally year on year, however in 2019 the observed traffic flows were the highest since the monitoring begun. A sharp decrease is seen in 2020, which continued into 2021, as a result of changing travel behaviour as a result of the COVID-19 pandemic. Trafic data for 2022 are approaching 2019 levels.

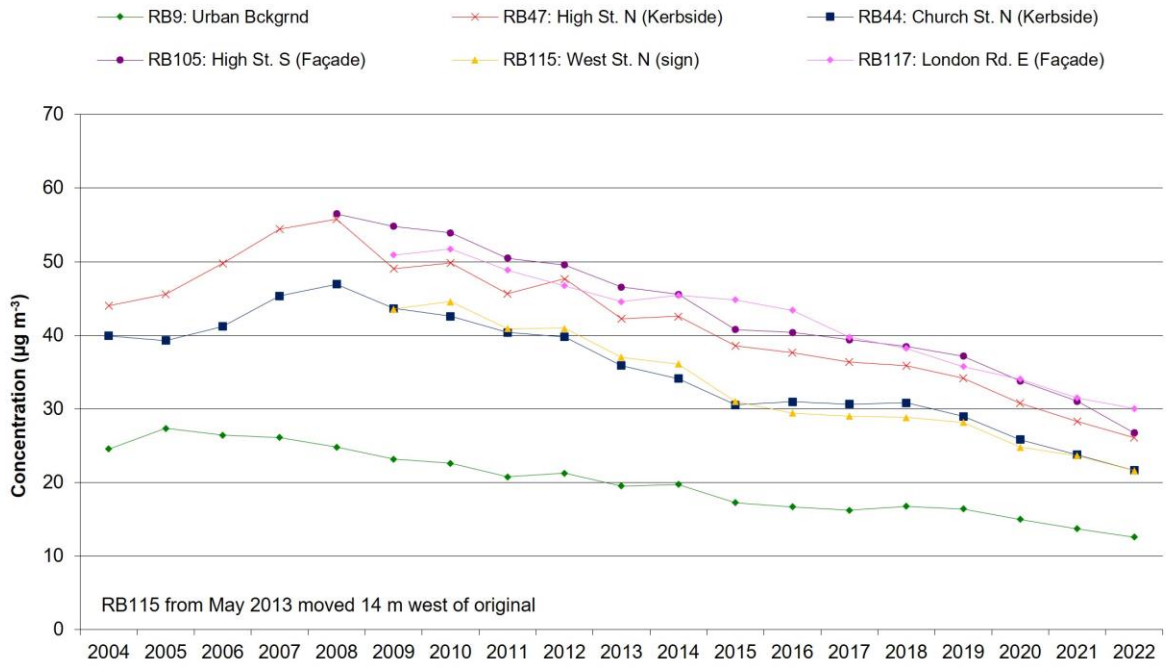


Figure A. 11: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Reigate High Street and West Street AQMA.

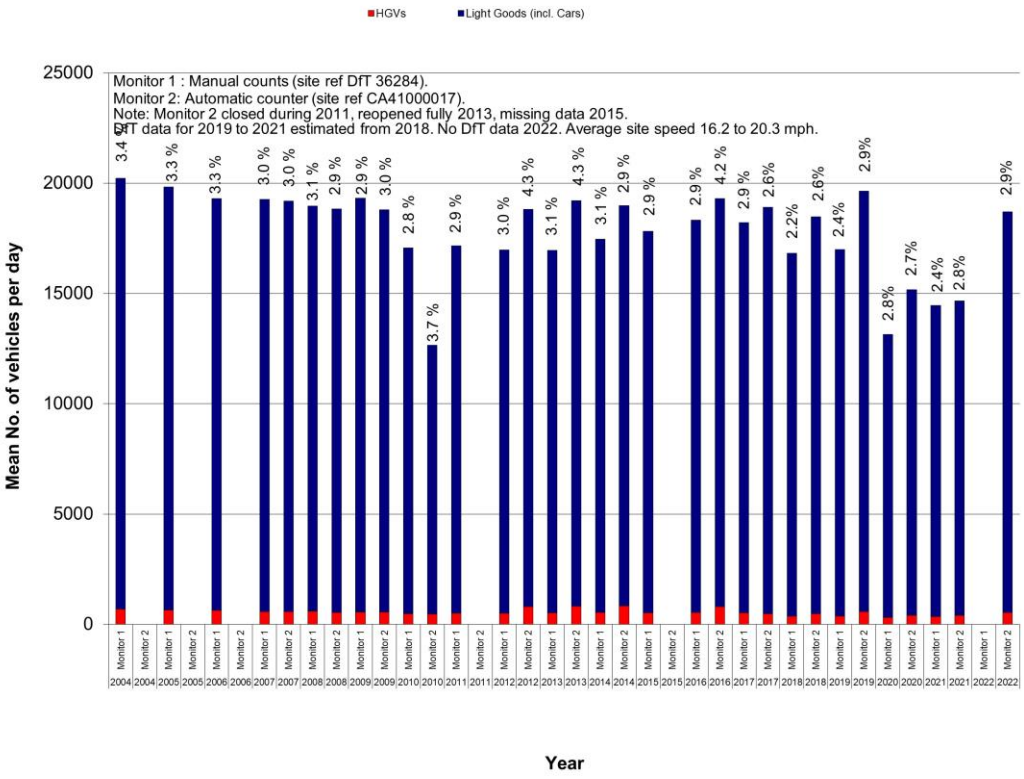


Figure A. 12: Annual Mean Daily Traffic Flows on Reigate High Street.

AQMA No. 10: Merstham

The Merstham AQMA covers an area encompassing all properties facing on to part of the A23 in Merstham. The AQMA runs from London Road South (south of the junction with School Hill) and extends north along Merstham High Street and then just to the north of the junction with Station Road North.

Nitrogen dioxide monitoring takes place at three diffusion tube sites located within the Merstham AQMA (RB20, 110 and 124), and at one further site just outside the AQMA. Benzene monitoring takes place at one diffusion tube site located within the AQMA (note: the AQMA was declared for exceedances of the annual mean nitrogen dioxide objective). Measured concentrations of all pollutants at all locations have been below the relevant air quality objectives since 2016 (Figure A. 13).

Figure A. 14 below shows traffic flows along the A23 as it passes through Merstham. The traffic flow was largely stable between 2005 and 2016 before a substantial drop in 2017. By 2019 the traffic flows increased to the previous levels, however, there is a weak decreasing trend in average traffic speed in recent years. A sharp decrease is seen in 2020 as a result of changing travel behaviour as a result of the COVID-19 pandemic, which is reflected in a decrease in concentrations in this year.

Traffic has rebounded in 2021 and 2022, with no increase in nitrogen dioxide concentrations witnessed.

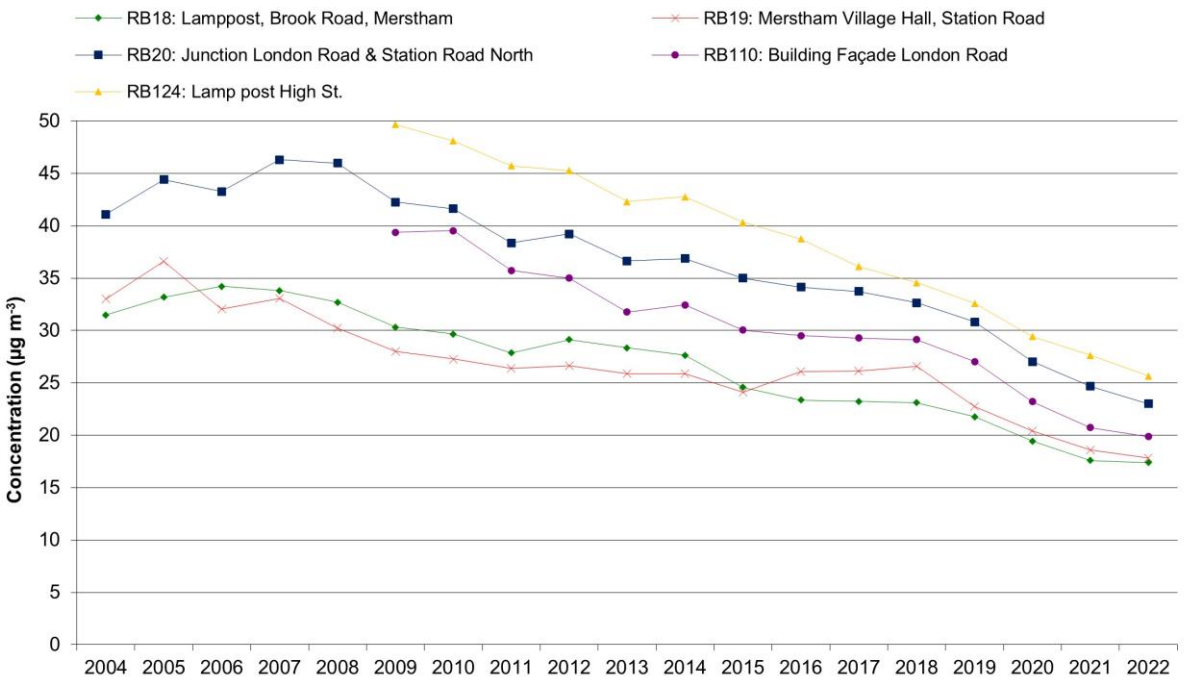


Figure A. 13: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Merstham AQMA.

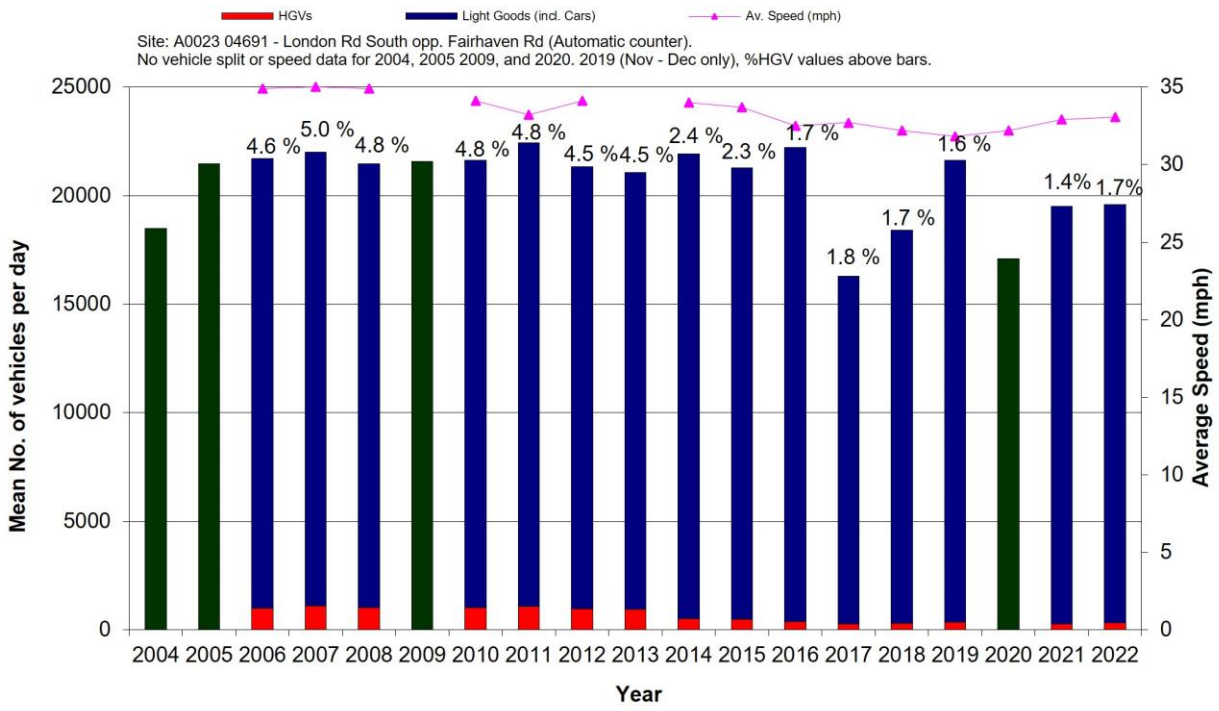


Figure A. 14: Annual Mean Daily Traffic Flows - A23 Merstham.

AQMA No. 11: Reigate Hill

The Reigate Hill AQMA includes properties within the area of Reigate Hill between the level crossing in Reigate Town and J8 of the M25.

Nitrogen dioxide diffusion tube monitoring takes place at two locations within the AQMA, and one location outside of the AQMA. Concentrations at each of these monitoring sites were below the relevant air quality objectives throughout the 2017-2022 period (Figure A.15**Error! Reference source not found.**).

Figure A. 15 shows the traffic flows along the A217 south of Ragland Road. The observed traffic flows in 2019 are the highest recorded to date, however due to large gaps in the data it is not possible to infer any trends in the recent years. A sharp decrease is seen in 2020 as a result of changing travel behaviour as a result of the COVID-19 pandemic, which is reflected in a decrease in concentrations in this year. Traffic data for 2021 and 2022 show increasing traffic in comparison with 2020, but not back to 2019 levels.

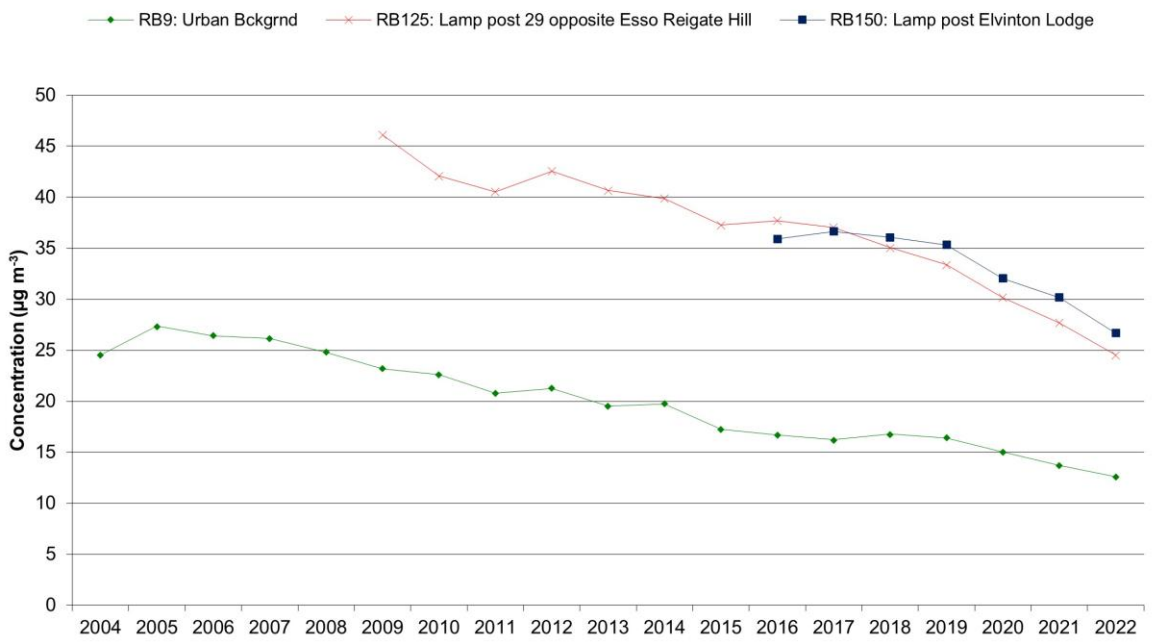


Figure A. 15: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Reigate Hill AQMA.

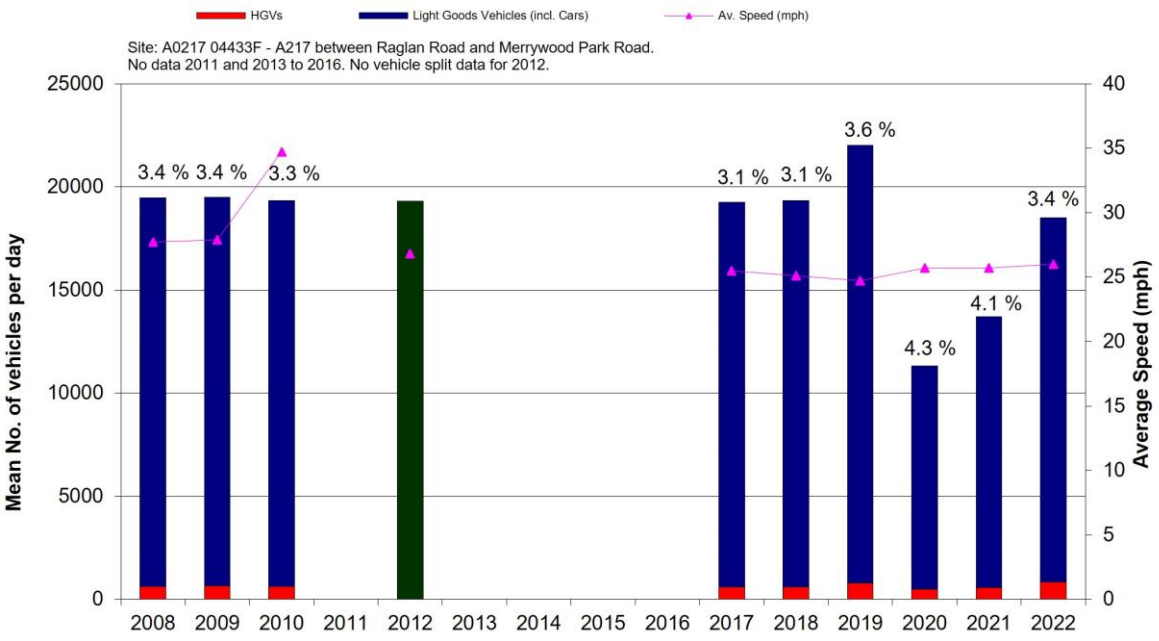


Figure A. 16: Annual Mean Daily Traffic Flows - A217 Reigate Hill - South of Raglan Road.

AQMA No. 12: Redhill

The Redhill AQMA covers properties within the Redhill area covering either partially or entirely Cromwell Road, Queensway, the A25 Redstone Hill between the junction with the A23 and the junction with Hillfield Road, the A23 between the junction of Hooley Lane and Mill St, and the A23 junction with Gloucester Road.

Nitrogen dioxide diffusion tube monitoring takes place at seven sites located within the Redhill AQMA. Measured concentrations at each of these monitoring sites, where there is relevant exposure, was below the relevant air quality objective in the 2017-2022 period (Figure A.17).

Figure A. 18 below shows traffic flows along the A23, south of Redhill. Data for 2018-2022 at this site are unavailable. Data from the previous year's suggest that both traffic flows and average speeds remained relatively stable between 2006 and 2017.

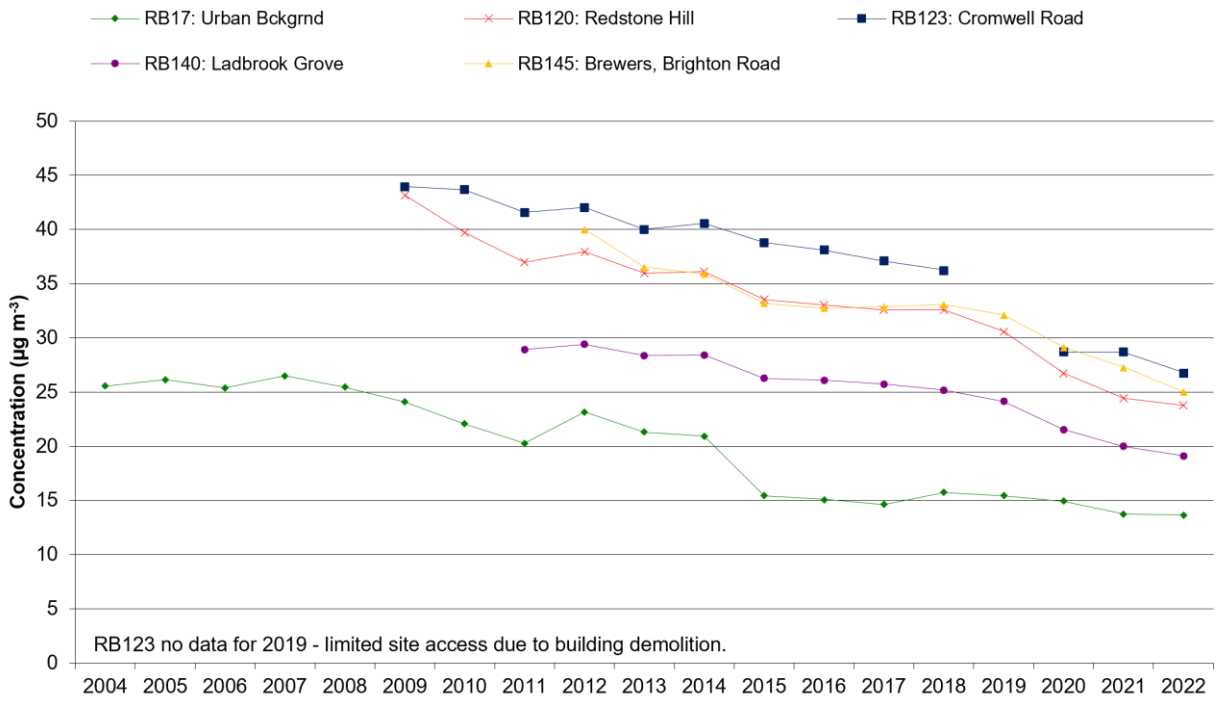


Figure A. 17: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Redhill AQMA.

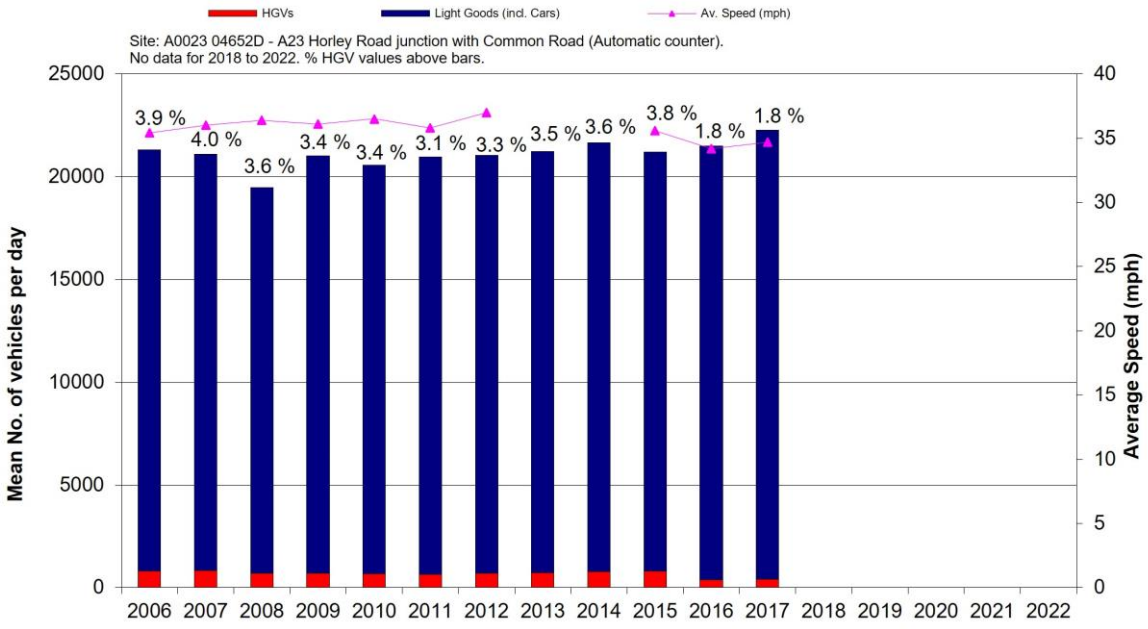


Figure A. 18: Annual Mean Daily Traffic Flows - A23 South of Redhill.

AQMA No. 13: Hooley

Hooley AQMA covers properties within the Hooley area covering either partially or entirely properties along the A23 Brighton Road, Star Lane, Forge Bridge Lane and Church Lane.

Nitrogen dioxide monitoring sites within the Hooley AQMA increased in 2018 with the addition of an extra 42 diffusion tubes and by an additional automatic site (RG7). The purpose of the additional monitoring is to provide a detailed data set for model validation and in response to the concerns of local residents regarding Highways England's plans for road expansion in the area. Measured concentrations at a number of the diffusion tube sites within the Hooley AQMA exceeded the annual mean nitrogen dioxide objective in all years reported. In 2019, numbers of tubes exceeding had reduced, but still included RB148, 181, 205, 208, 212, 217, 218 and 219. Of these, RB148, 181 and 208 and 218 were distance corrected. All of the sites which were distance corrected fell below the objective at sites of relevant exposure. There are, however, also sites at relevant locations (RB181, 205, 212, 217, 219) which were also exceeding the annual mean objective. Exceedances of the annual mean objective were also noted at RG7. There was one exceedance at site RB148 in 2021, which when distance corrected was well below the annual mean objective, with no exceedances at any other monitoring sites in this year.

The monitoring data show a downward trend from 2011 at all sites (see **Figure A. 19**). A sharp decrease in concentrations is seen at all sites as a result of changing travel behaviour due to the COVID-19 pandemic.

Figure A. 20 below shows traffic flows along the A23, in Hooley. These data suggest very slightly increasing annual mean daily traffic flows from 2004 to 2008, following which there is a significant decrease in 2009. Between 2009 and 2013 flows are relatively stable, increasing marginally to 2015 and staying relatively stable since then. Data for 2020 and 2021 are not available. 2022 data are similar to pre pandemic levels.

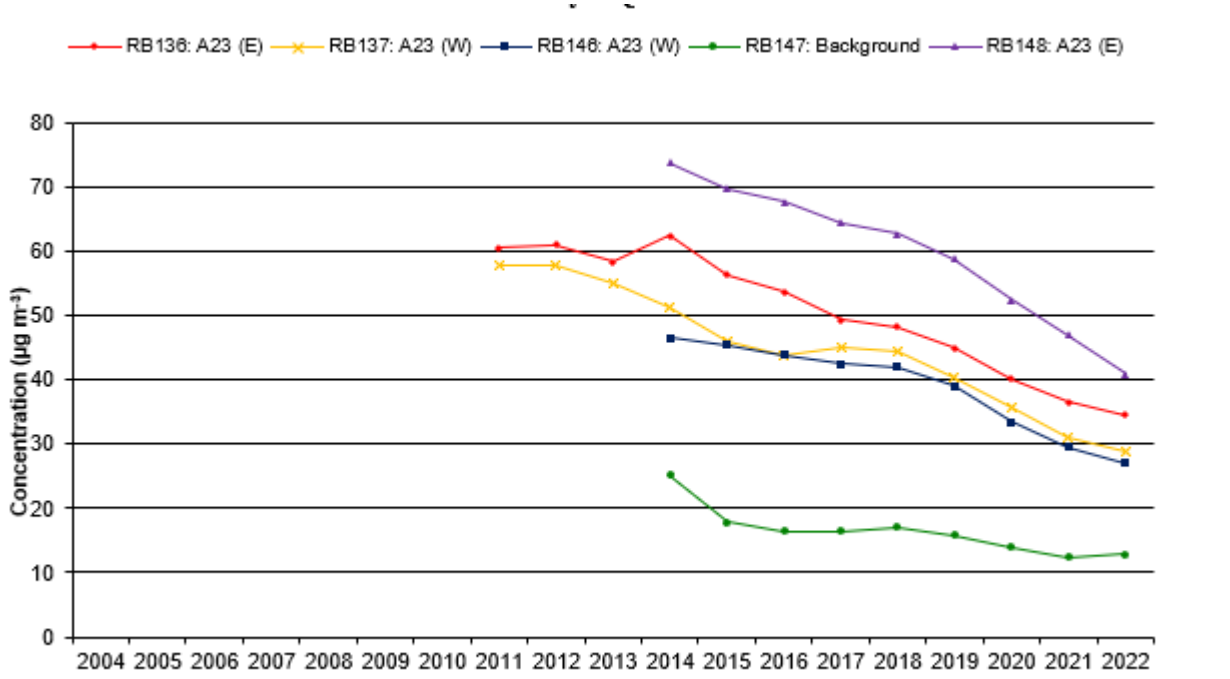


Figure A. 19: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Hooley AQMA.

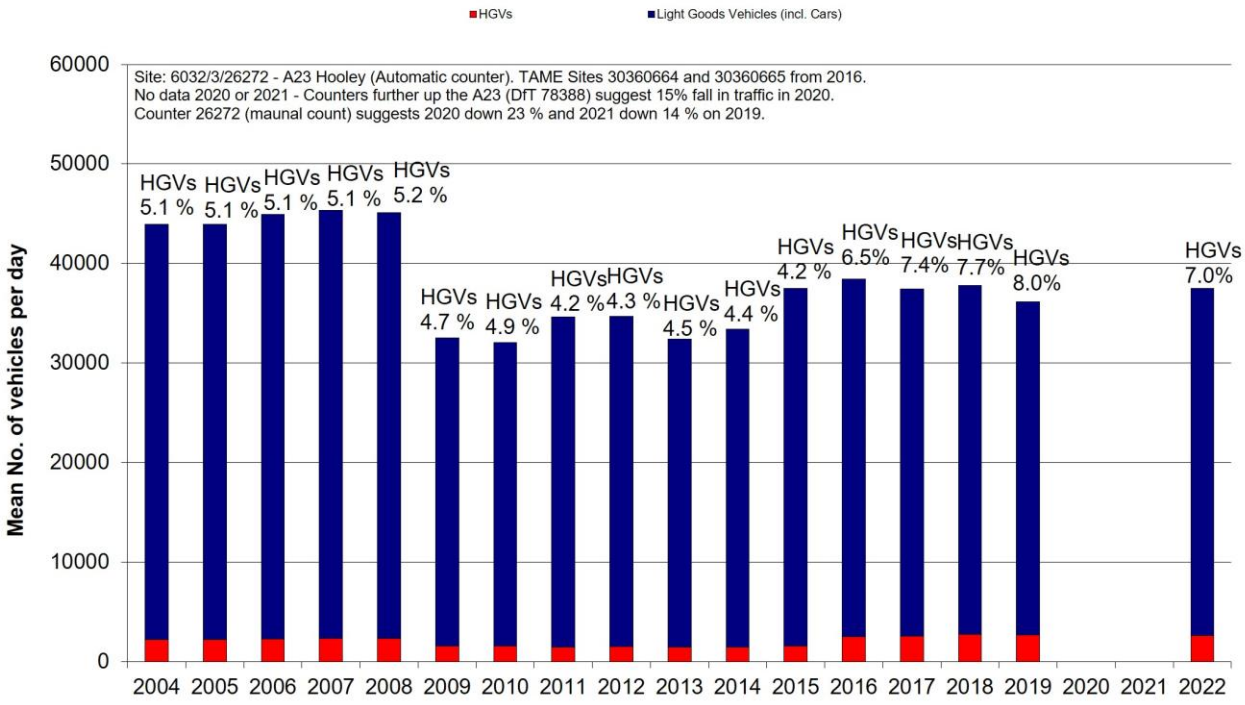


Figure A. 20: Annual Mean Daily Traffic Flows - A23 Hooley.

Background Concentrations

Figure A. 21 shows the concentrations at five background sites across the borough. There has been a slight downward trend in background concentrations across Reigate and Banstead since 2006.

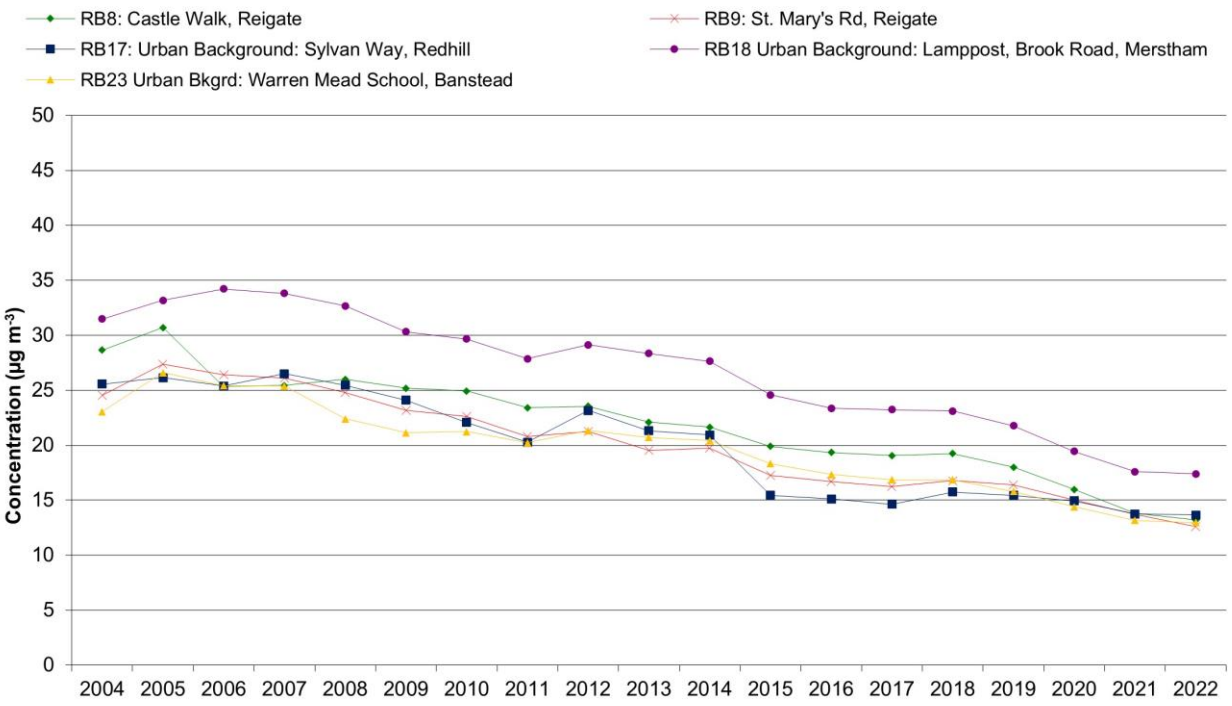


Figure A. 21: Three Year Rolling Mean Nitrogen Dioxide Concentrations - Borough Background Sites

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RG1	528208	142337	Suburban	92	92	17.1	15.9	15.1	15.2	14.3

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22 (not required).**

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the PM_{10} annual mean objective of 40$\mu g/m^3$ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(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. 22 – Trends in Annual Mean PM_{10} Concentrations (RG1)

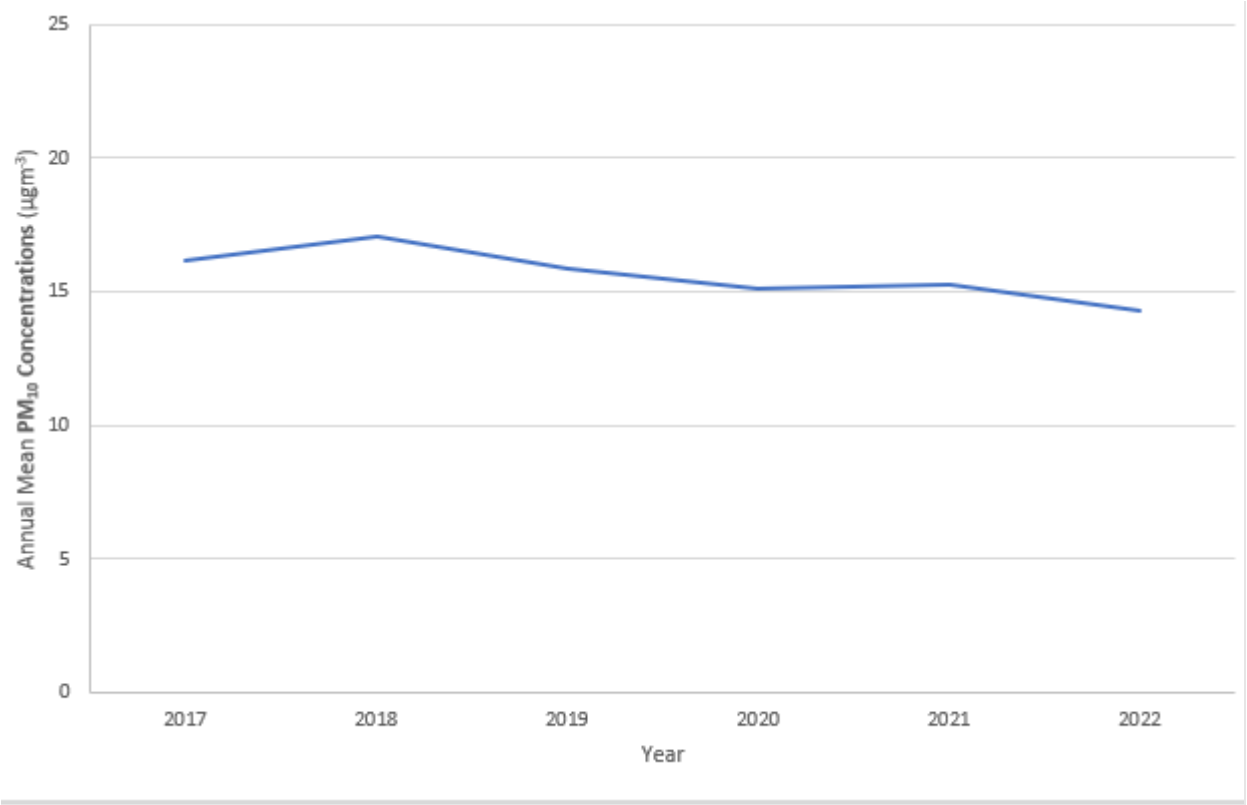


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RG1	528208	142337	Suburban	92	92	0	0	0	1	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

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

(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%).

Table A.8 – Annual Mean Benzene Monitoring Results

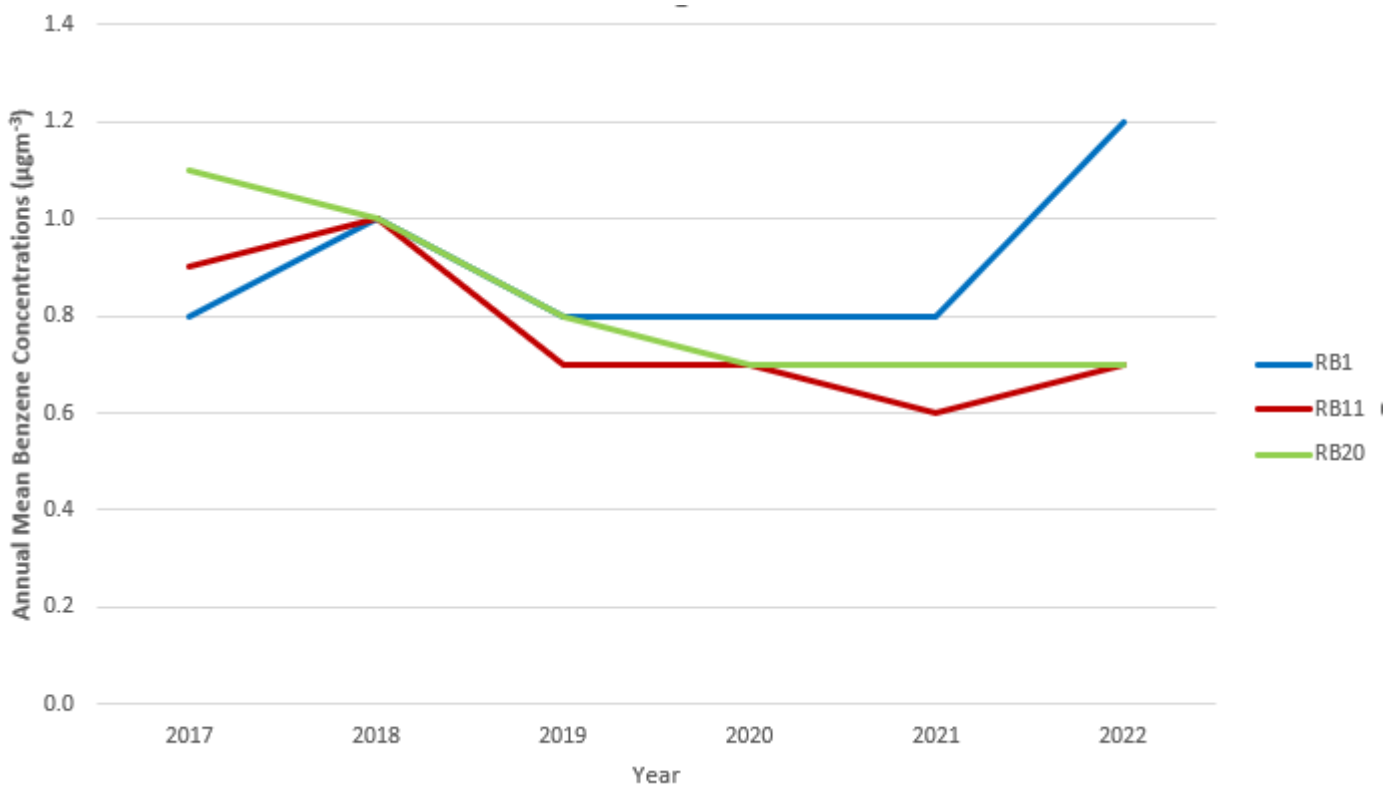
Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	Annual Mean Benzene Concentrations				
						2018	2019	2020	2021	2022
RB1	525246	150252	Roadside	100	100	1.0	0.8	0.8	0.8	1.2
RB11	528104	142226	Suburban	100	100	1.0	0.7	0.7	0.6	0.7
RB20	529026	153420	Roadside	92	92	1.0	0.8	0.7	0.7	0.7

Notes:

(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. 23 – Trends in Annual Mean Benzene Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Annualised and Bias Adjusted (0.84) (1)	Distance Corrected to Nearest Exposure (2)	Comment
RB1	525246	150252	31	30	30	22	22	26	27	24	31	24	25	32	27	22.7	-	
RB3	524944	159630	23		17	12	11	15	19	12	16	30	15	23	17.5	14.7	-	
RB8	525246	150286	19	18	19	13	14	16	14	16	17	36	15	22	18.3	15.4	-	
RB9	525750	149677	20	14	15	12	9	13	13	11	15	25	14	23	15.3	12.9	-	
RB11	528104	142226	22	19	19	15	17	18	19	30	18	30	25	28	21.7	18.2	-	
RB12	528424	142934	30	27	27	14	21	23	24	31	26	23	10	32	24	20.2	-	
RB13	528362	142983	26			14	15	18	17	24	20	25		30	21	17.6	-	
RB17	528511	149715	25	23	21	12	14	14	18	17	17	25	16	22	18.7	15.7	-	
RB18	529263	153156	28	26	28	14	15	19	19	22	19	48	22	28	24	20.2	-	
RB19	529067	153375	35	25	23	13	17	20	21	26	23	22	23	28	23	19.3	-	
RB20	529026	153420	37	26	20	15	25	28	33	34	30	34	32	34	29	24.4	-	
RB21	523198	160095	40	22	23	20	13	24	44	29	42	27	32	32	29	24.4	-	
RB22	523260	160111	24	31	34	14	8	13	16	17	15	3	17	21	17.8	15	-	
RB23	523612	159906	22	23	21	12	9	16	11	17	13	27	14	20	17.1	14.4	-	
RB24	528208	142337	21	25	18	15	13	16	17	14	17	23	22	28	19.1	16	-	
RB25	528208	142337	23	16	17	15	13	20	17	19	20	24	24	28	19.7	16.5	-	
RB26	528208	142337	23	15	16	15	13	22	19	19	19	27	23		19.2	16.1	-	
RB27	521873	153896	25	16	17	13	19	24	19	17	18	23	28	24	20.3	17.1	-	
RB29	521921	153937	24	27	22	12	15	16	19	22	17	23	31	21	20.8	17.5	-	
RB30	522112	153728	24	15	17	12	18	19	19	20	19	21	20	20	18.7	15.7	-	
RB31	525506	152366	16	18	19	15	9	12	12	20	16	20	14	17	15.7	13.2	-	
RB33	524081	152580	18	14	16	12	15	16	19	15	15	27	17		16.7	14	-	
RB34	524177	152393	24	16	15	21	15	21	22	33	31	27	15	8	20.7	17.4	-	
RB36	528887	153760	21	33	23		13	18	17	19	17	25	20	24	20.9	17.6	-	
RB37	529217	153605	26	19	19	14	14	20	19	22	22	28	22	29	21.2	17.8	-	
RB39	529205	153572	25	16	19	13	15	23	22	19	19	27	23	26	20.6	17.3	-	
RB40	529252	154291	23	18	17	10	13	15	16	12	18	30	33	22	18.9	15.9	-	
RB43	528797	153612	27	15	14	14	18	22	23	25	24	35	18	26	21.8	18.3	-	
RB44	525532	150316	34	20	19	16	23	29	28	24	28	28	25	32	25.5	21.4	-	
RB45	525431	150270	35	27	27	13	21	24	28	-	-	34	28	32	26.9	22.6	-	
RB46	525346	150241	33	32	26	25	21	35	31	32	30	37	35	31	30.7	25.8	-	
RB47	525114	150276	44	19	27	29	28	29	33	38	37	29	26	37	31.3	26.3	-	
RB49	525705	152947	42	34	36	18	27	34	32	33	35	36	35	33	32.9	27.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Annualised and Bias Adjusted (0.84) (1)	Distance Corrected to Nearest Exposure (2)	Comment
RB50	525700	152964	40	24	24	17	22	25	22	20	25	32	32	28	25.9	21.8	-	
RB51	527873	142606	24	26	27	12	14		18	16	21	30	22	28	21.6	18.1	-	
RB52	527892	142463	27	15	18	13	17	24	19	20	23	46	24	29	22.9	19.2	-	
RB53	528030	142373	26	21	22	13	15	27	19	17	19	25	26	31	21.8	18.3	-	
RB54	528112	142321	23	20	19	13	14	21	19	18	20	32	23	27	20.8	17.5	-	
RB55	528254	142196	26	23	19	12	18	36	20	18	20	37	27	32	24	20.2	-	
RB56	528386	142080	24		16	11	15	18	21	29	22	35	28	31	22.7	19.1	-	
RB57	528499	141953	24	14	17	14	15	21	21	22	23	37	27	32	22.3	18.7	-	
RB58	528538	141897	29	14	23	14	17	27	22	23	21	27	44	30	24.3	20.4	-	
RB59	528602	141789	23	22	19	13	17	25	22	-	17	25	29	28	21.8	18.3	-	
RB60	528607	141910	27	20	18	3	27	30	20	21	20	39	27	31	23.6	19.8	-	
RB61	528578	142006	27	12	17	13	14	21	21	37	21	39	24	33	23.3	19.6	-	
RB64	528608	142432	33		17	12	15	19	17	19	23	13	27	29	20.4	17.1	-	
RB65	528581	142635	29		17	12	19	20	20	21	20	35	25	28	22.4	18.8	-	
RB66	528499	142512	28	16	19	13	13	22	15	20	20	39	23	30	21.5	18.1	-	
RB68	528505	142246	22		16	14	14	20	19	19	23	38	25	33	22.1	18.6	-	
RB69	528335	142224	24		18	12	19	19	18	23	21	36	25	30	22.3	18.7	-	
RB70	528360	142384		16	15	13	17	20	16	16	21	36	26	29	20.5	17.2	-	
RB72	528220	142583	24	15	16	14		21	24	25	19	90	24	26	27.1	22.8	-	
RB73	528172	142679	27	15	18	15	13	18	16	21	26	27	23	29	20.7	17.4	-	
RB74	529149	141953	21	22	17	15	13	19	17	17	19	25	22	28	19.6	16.5	-	
RB75	529203	142192	22	16	18	15	16	19	20	19	18	25	25	29	20.2	17	-	
RB76	528958	142468	22	15	14	12	11	16	16	18	16	45	21	27	19.4	16.3	-	
RB77	528789	142570	24	18	16	12	12	17	15	18	15	35	21	27	19.2	16.1	-	
RB78	528553	141857	27	27	19	12	18	20	21	26	23	34	27	30	23.7	19.9	-	
RB81	527594	149236	39	18	25	16	24	23	26	29	28	31	33	36	27.3	22.9	-	
RB82	528770	155797	29	18	26	13	17	23	31	20	28	28	29	30	24.3	20.4	-	
RB95	525382	150639				20	15	21	18	24	22	26	21	25	21.3	17.9	-	
RB98	527931	142231	29	19	20	15	15	23	19	23	24	37	16	29	22.4	18.8	-	
RB99	526421	139639	16	14	15	11	8	18	13	19	16	26	26	21	16.9	14.2	-	
RB100	526421	139639	16	19	14	14	8	14	19	14	16	15	14	20	15.3	12.9	-	
RB101	526421	139639	16	16	15	12	4	15	13	23	16	22	14	20	15.5	13	-	
RB102	530936	144278	20	26	27	18	16	18	20	25	21		11	26	20.7	17.4	-	
RB104	525204	150254	40	23	28	17	31	18	36	38	34	20	31	29	28.8	24.2	-	
RB105	525203	150239	34	30	28	16	31	31	37	36	36	38	3	33	29.4	24.7	-	
RB106	523250	160056	29	26	27	16	21	26	27	25	30	36	29	30	26.8	22.5	-	
RB107	525467	150292	30	28	26	18	16	21	24	28	35	35	24	31	26.3	22.1	-	
RB109	525387	150178	32	14	19	22	21	25	30	31	21	36	27	29	25.6	21.5	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Annualised and Bias Adjusted (0.84) [1]	Distance Corrected to Nearest Exposure [2]	Comment
RB110	529016	153439	29	20	21	20	23	24	26	28	31	35	30	28	26.3	22.1	-	
RB111	525031	150291	33	25	28	17	24	27	32	40	32	25	29	32	28.7	24.1	-	
RB113	524795	150404	26	17	17	12	13	16	19	24	15	31	25	28	20.3	17.1	-	
RB114	524368	150477	24		22	14	14	19	18	22	23	26	18	25	20.5	17.2	-	
RB115	524751	150428	35	21	23	12	23	30	25	28	30	25	33	24	25.8	21.7	-	
RB116	525022	150317	35	31	29	16	21	28	32	32	31	23	27	35	28.3	23.8	-	
RB117	525076	150327	34	44	44	20		35	43	48	38	35	35	35	37.4	31.4	-	
RB118	525151	150467	25	36	36	22	28	39	41	36	35	47	32	31	34	28.6	-	
RB120	528196	150421	35	35	36	22	24	29	26	33	32	29	29	33	30.3	25.5	-	
RB121	528092	150786	42	35	29		39	45	47	42	44	24	48		39.5	33.2	-	
RB122	528013	150475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
RB123	527838	150474	38	32	32	22	23	22	20	17	31	24	36	32	27.4	23	-	
RB124	529013	153285	43	32	30	18	26	30	33	37	30	25		33	30.6	25.7	-	
RB125	525589	151655			23	19		30	33	36	26	28	30	33	28.7	24.1	-	
RB136	528810	156474	44	35	40	13	38	41	43	38	44	63	34	41	39.5	33.2	-	
RB137	528831	156648	40	26	42	17	31	38	34	35	32	49	33	32	34.1	28.6	-	
RB140	528122	150799	31	22	24	17	24	24	25	23	30	35	28	26	25.8	21.7	-	
RB141	527373	150596	34	27	25	21	18	20	22	27	22	29	27	29	25.1	21.1	-	
RB145	527852	150158	9	37	37	19	29	30	29	29	32	36	34	35	29.7	24.9	-	
RB146	528759	156277	38	39	37	11	29	34	38	39	31	39	35	36	33.8	28.4	-	
RB147	528732	156407	20	20	18	29	9	13	11	19	15	26	16	20	18	15.1	-	
RB148	528855	156674	25	49	48	24	49	50	53	57	38	32	45	49	43.3	36.4	27.3	
RB149	527737	142710	47		43	21	33	42	42	44	40	25	49	40	38.7	32.5	-	
RB150	525397	150867	38	22	23	21	29	32	28	32	35	23	36	35	29.5	24.8	-	
RB151	528502	142952	36	-	26	19	27	33	35	31	29	24	32	35	29.7	24.9	-	
RB152	528599	152439	40	30	31	18	28	25	27	33	35	29	30	30	29.7	24.9	-	
RB153	527837	148046	29	30	31	18	23	28	28	33	28	22	27	28	27.1	22.8	-	
RB167	527830	150643	29	31	31	21	20	24	23	23	22	15	29	31	24.9	20.9	-	
RB174	527852	142841	36	26	27		21	25	23	32	28	16	34	36	27.6	23.2	-	
RB175	527955	142999	37	25	24	16	22	26	24	24	26	10	32	36	25.2	21.2	-	
RB176	527765	142777	31	23	25	13	21	25	23	22	18	22	33	33	24.1	20.2	-	
RB177	527754	142762	31	23	23	13	21	23	18	23	19	28	30	31	23.6	19.8	-	
RB178	528592	141831	21	15	16	12	17	21	14	22	19	27	25	27	19.7	16.5	-	
RB179	528592	141831	22	14	16	15	16	21	26	26	21	14	22	28	20.1	16.9	-	
RB180	528592	141831	22	16	17	19	18	23	15	22	20	19	24	29	20.3	17.1	-	
RB181	528852	156724	42	48	49	18	38	37	42	43	34	20	51	44	38.8	32.6	-	
RB182	528835	156728	25	24	25	21	19	25	24	25	22	25	21	24	23.3	19.6	-	
RB183	528813	156580	39	36	36	21	29	37	38	36	39	27	33	34	33.8	28.4	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Annualised and Bias Adjusted (0.84) (1)	Distance Corrected to Nearest Exposure (2)	Comment
RB184	528807	156555	40	34	32	0	30	32	39	31	36	17	28	32	29.3	24.6	-	
RB186	528790	156500	32	29	29	21	26	32	24	34	31	24	31	31	28.7	24.1	-	
RB187	528789	156488	29	23	23	18	19	27	18	22	24	25	22	27	23.1	19.4	-	
RB188	528792	156478	34	31	30	18	26	27	18	38	23	21	24	30	26.7	22.4	-	
RB189	528789	156465	28	31	33	17	22	25	18	33	28	19	23	29	25.5	21.4	-	
RB190	528788	156460	33	31	30	17	24	27	18	26	26	18	23	30	25.3	21.3	-	
RB191	528785	156448	29	27	27	18	23	25	33	30	28	21	23	28	26	21.8	-	
RB192	528784	156442	27	28	27	15	22	27	28	30	30	10	22	26	24.3	20.4	-	
RB193	528782	156430	25	26	26	17	18	24	25	29	19	17	21	24	22.6	19	-	
RB194	528779	156381	30	35	36	17	21	28	24	37	27	20	29	32	28	23.5	-	
RB195	528772	156349	32	35	35	18	23	34	31	40	32	19	36	36	30.9	26	-	
RB196	528797	156331	29	22	24	15	19	24	18	22	25	24	24	27	22.8	19.2	-	
RB197	528795	156373	34	34	27	18	26	34	29	26	35	18	31	14	27.2	22.8	-	
RB198	528796	156379	37	36	36	19		37	30	42	36	17	37	28	32.3	27.1	-	
RB199	528800	156390	35		18	18	22	32	31	33	29	14	32	31	26.8	22.5	-	
RB200	528799	156409	42	37	37	15	34	38	40	41	39	24	39	32	34.8	29.2	-	
RB201	528804	156414	33	22	25	16	26	30	29	34	32	29	34	32	28.5	23.9	-	
RB202	528808	156444	38	35	36	19	33	37	42	36	37	33	37	28	34.3	28.8	-	
RB203	528809	156454	37	36	32	20	26	38	40	41	36	26	33	33	33.2	27.9	-	
RB204	528810	156457	37	30	30	17	23	37	31	44	36	33	37	35	32.5	27.3	-	
RB205	528812	156466	45	41	44	20	35	46	33	50	39	29	49	38	39.1	32.8	-	
RB206	528816	156477	33	30	31	16	20	31	25	41	29	20	37	27	28.3	23.8	-	
RB207	528818	156486	36	31	33	17	29	35	33	38	32	28	33	33	31.5	26.5	-	
RB208	528825	156526	47	39	41	20	27	45	44	51	35	26	49	45	39.1	32.8	-	
RB209	528833	156547	28	22	26	14	23	28	20	25	20	23	16	29	22.8	19.2	-	
RB210	528833	156555	41	37	37	17		36	33	38	36	27	36	31	33.5	28.1	-	
RB211	528839	156577	37	38	39	16	31	36	35	39	33	31	37	36	34	28.6	-	
RB212	528840	156582	37	40	42	16	26	41	23	37	30	29	41	32	32.8	27.6	-	
RB213	528845	156604	39		33	17	35	39	40	41	35	31	36	33	34.5	29	-	
RB214	528848	156617	32	26	29	17	21	27	22	30	31	27	29	33	27	22.7	-	
RB215	528853	156646	30	35	31	19	23	29	30	26	23	30	29	26	27.6	23.2	-	
RB216	528862	156690	40	37	37	21	31	40	48	42	40	26	43	28	36.1	30.3	-	
RB217	528866	156712	45	29	28	20	37	40	38	46	41	25	45	37	35.9	30.2	-	
RB218	528869	156737	41	28	27	17	23	36	44	41	38	23	40	34	32.7	27.5	-	
RB219	528877	156744	39	33	29	17	30	34	33	38	30	25	35	33	31.3	26.3	-	
RB223	528804	156435	44	28	26	23	43	42	40	45	41	27	37	38	36.2	30.4	-	
RB224	528804	156435	46	34	35	19	33	42	33	48	47	28	39	40	37	31.1	-	
RB225	528804	156435	41	37	41	23	25	39	36	49	43	25	42	38	36.6	30.7	-	

☒ **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.TG22 (none required)**

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

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

☒ **Reigate and Banstead Borough Council confirm that all 2022 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 Reigate and Banstead During 2022

Reigate and Banstead Borough has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by Reigate and Banstead During 2022

Reigate and Banstead has not completed any additional works within the reporting year of 2022. Work is ongoing in relation to the DCO Application at Gatwick Airport.

QA/QC of Diffusion Tube Monitoring

Reigate and Banstead Borough Council use nitrogen dioxide diffusion tubes prepared and analysed by Lambeth Scientific Services, using the 50% TEA in acetone method. Monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar. AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Executive (HSE). AIR NO2 PT forms an integral part of the UK NO2 Network's QA/QC, and is a useful tool in assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). Lambeth Scientific Services participate in the AIR-PT schemes and scored 50% in AR049 round (January to February 2022) and 75% in AR050 round (May to June 2022).

Reigate and Banstead Borough Council also use diffusion tubes prepared and analysed by Lambeth Scientific Services to monitor benzene. AIRBTX Analysis was undertaken using a passive sampling method.

Diffusion Tube Annualisation

Annualisation was not required at any diffusion tube sites.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 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.TG22 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.

Reigate and Banstead Borough Council use diffusion tubes prepared and analysed by Lambeth Scientific Services (50% TEA in acetone method). The local bias adjustment factors are presented in Table C.1. for 2018 to 2022, which are based on orthogonal regression of the three sets of triplicate diffusion tubes co-located at automatic monitoring sites RG1, RG3 and RG6. For comparison, the national bias-adjustment factor for Lambeth Scientific Services is included in the table below (National Diffusion Tube Bias Adjustment Factor Spreadsheet (06/23)).

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local Bias Adjustment Factor	National Bias Adjustment Factor
2022	0.84	0.86
2021	0.90	0.95
2020	0.91	0.96
2019	0.87	0.91
2018	0.97	1.04

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3
Periods used to calculate bias	10	9	7
Bias Factor A	0.87 (0.75 - 1.04)	0.85 (0.76 - 0.96)	0.81 (0.57 - 1.38)
Bias Factor B	15% (-4% - 34%)	18% (4% - 32%)	24% (-27% - 75%)
Diffusion Tube Mean (µg/m^3)	19.7	20.7	15.9
Mean CV (Precision)	5.5%	5.4%	6.8%
Automatic Mean (µg/m^3)	17.1	17.6	12.8

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3
Data Capture	96%	100%	97%
Adjusted Tube Mean (µg/m^3)	17 (15 - 20)	18 (16 - 20)	13 (9 - 22)

Notes:

A combined local bias adjustment factor of 0.84 has been used to bias adjust the 2022 diffusion tube results.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

Table C.3 – 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
RB148	1.0	6.5	36.3	12.4	27.3	-

QA/QC of Automatic Monitoring

The NOx analyser at RG1 is also part of the Automatic Urban and Rural Network (AURN); and has data verification and ratification undertaken by Bureau Veritas and bi-annual QA / QC undertaken by the National Physical Laboratory (NPL). All other data are ratified and verified by Imperial ERG to AURN standards. QA/QC is carried out by NPL. Data are available at https://www.londonair.org.uk/london/asp/publicbulletin.asp?la_id=40

PM_{10} Monitoring Adjustment

The RG1 automatic monitoring station PM_{10} data have been adjusted using the Volatile Correction Model (www.volatile-correction-model.info) for relevant TEOM data.

Automatic Monitoring Annualisation

No annualisation was required for automatic monitoring sites.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. No automatic NO_2 monitoring locations within Reigate and Banstead required distance correction during 2022.

Appendix D: Maps of Monitoring Locations and AQMAs

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

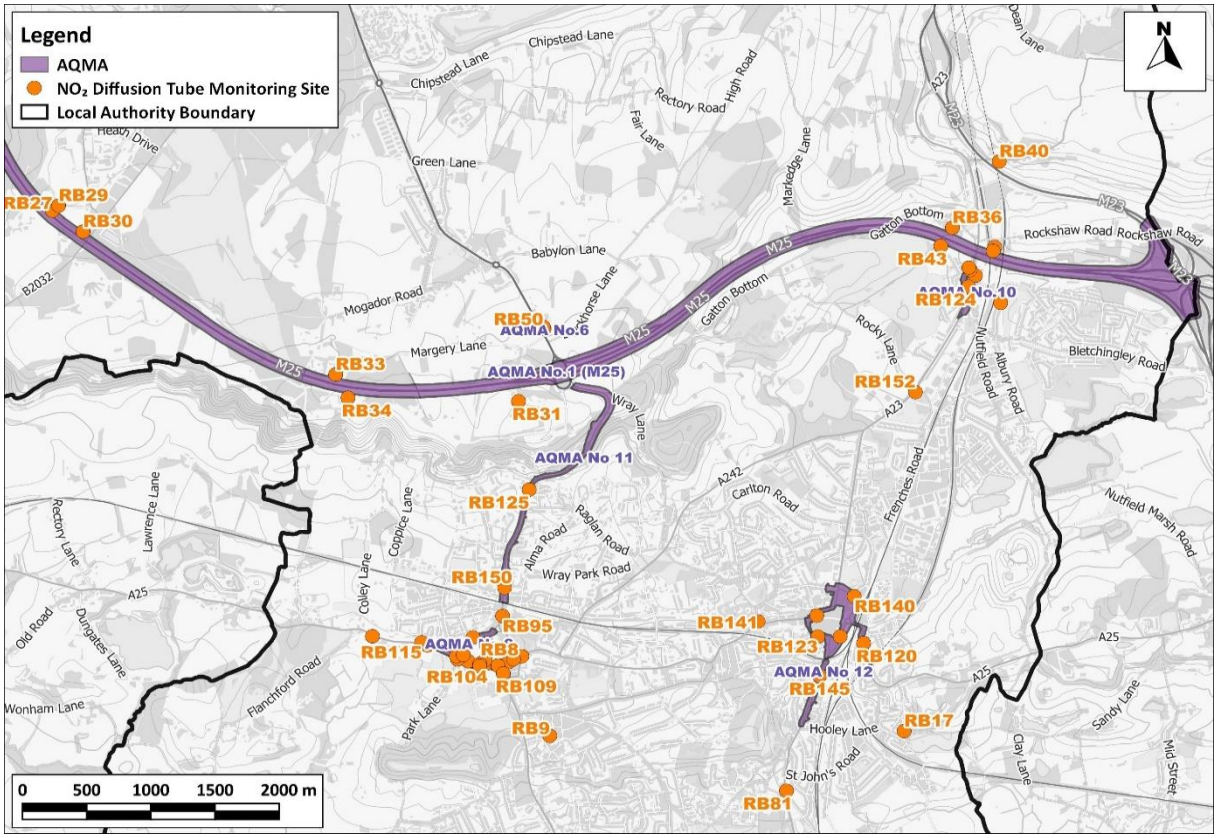


Figure D.0.1 AQMA No. 1 (M25), AQMA 6 (A217 / Blackhorse Lane), AQMA 10 (Merstham), AQMA No. 11 (Reigate Hill), AQMA No. 12 (Redhill), Nitrogen Dioxide Diffusion Tube Monitoring Site Locations Within and Close to AQMA No. 1 and the Local Authority Boundaries.

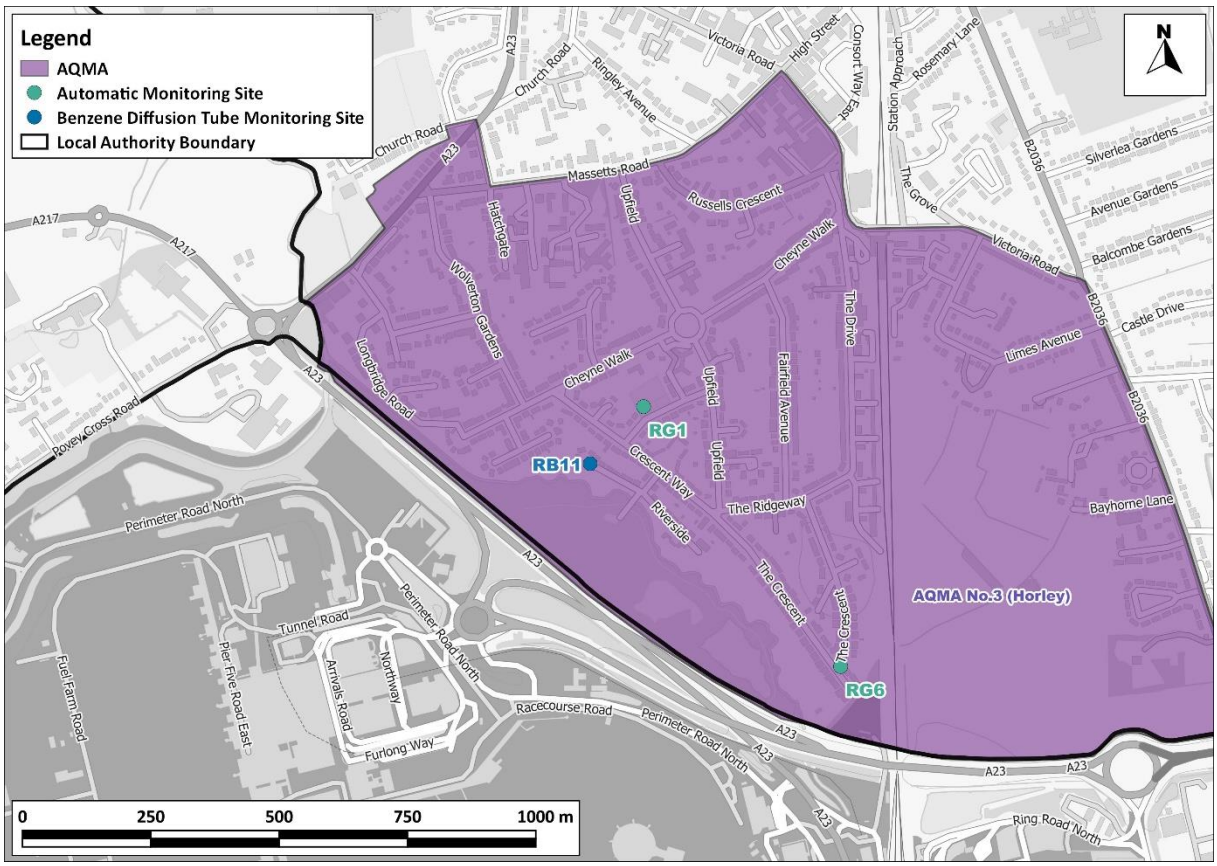


Figure D.0.2 AQMA No. 3 (Horley), Automatic Monitoring Sites and Benzene Diffusion Tube Monitoring Site Locations Within the AQMA and Local Authority Boundaries.

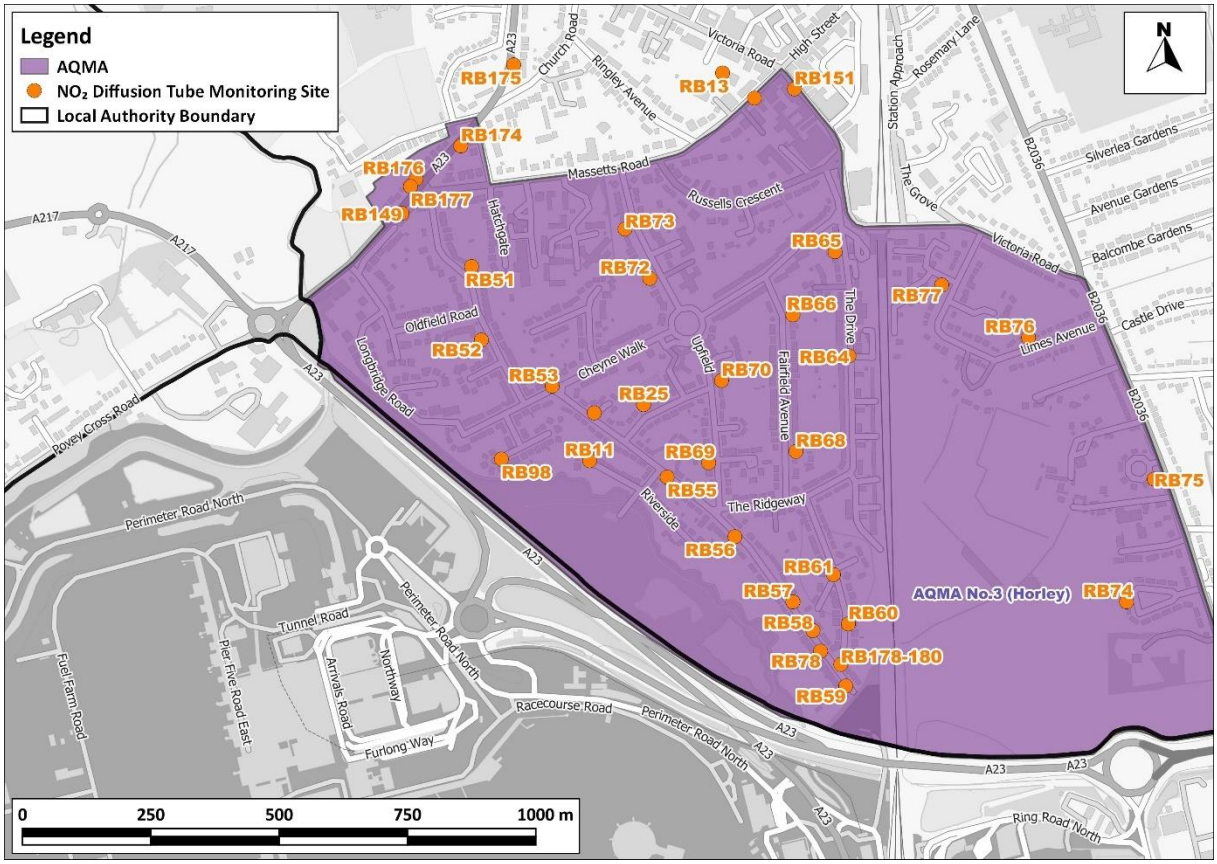


Figure D.0.3 AQMA No. 3 (Horley), Nitrogen Dioxide Diffusion Tube Monitoring Site Locations Within and Close to the AQMA and Local Authority Boundaries.

Figure D.0.4 AQMA No. 6 (A217 / Blackhorse Lane) and Nitrogen Dioxide Diffusion Tube Monitoring Site Locations Within and Close to the AQMA.

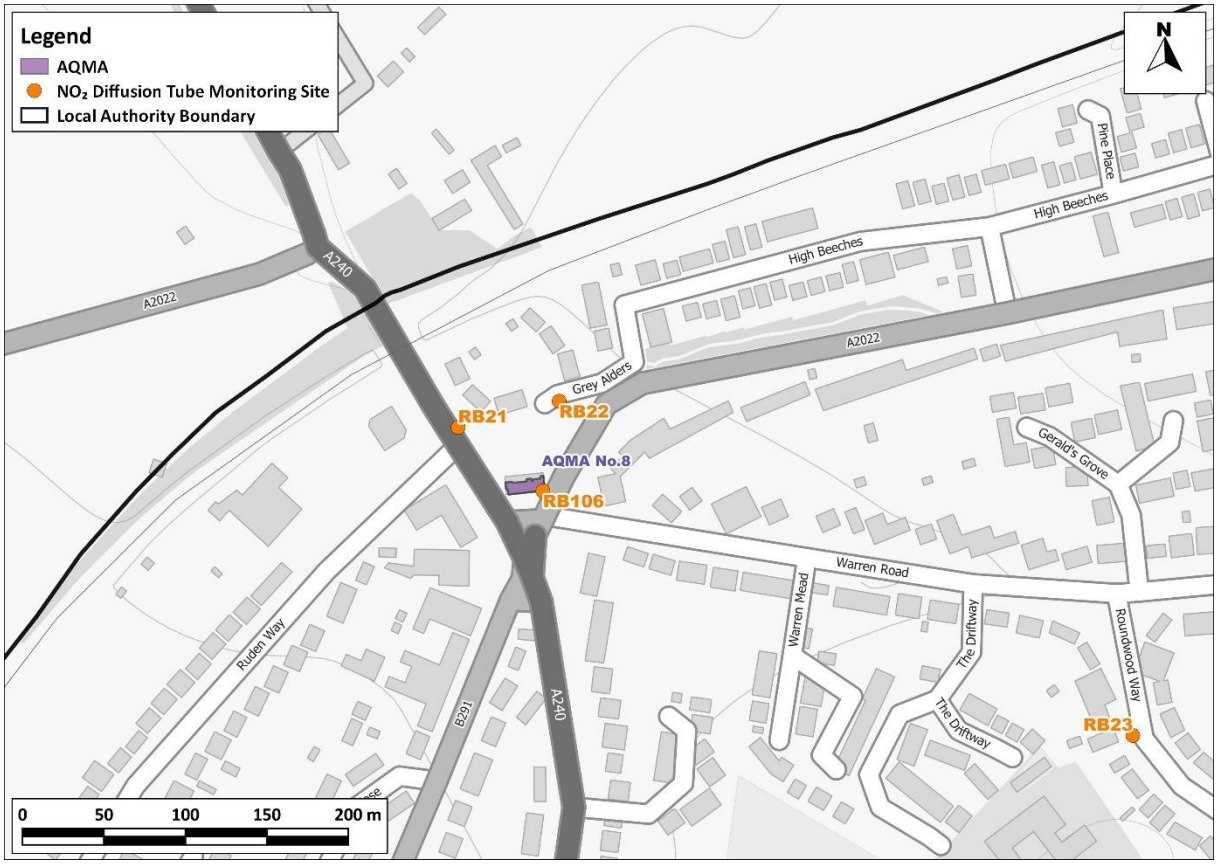


Figure D.0.5 AQMA No. 8 (Drift Bridge) and Nitrogen Dioxide Diffusion Tube Monitoring Site Locations Within and Close to the AQMA.

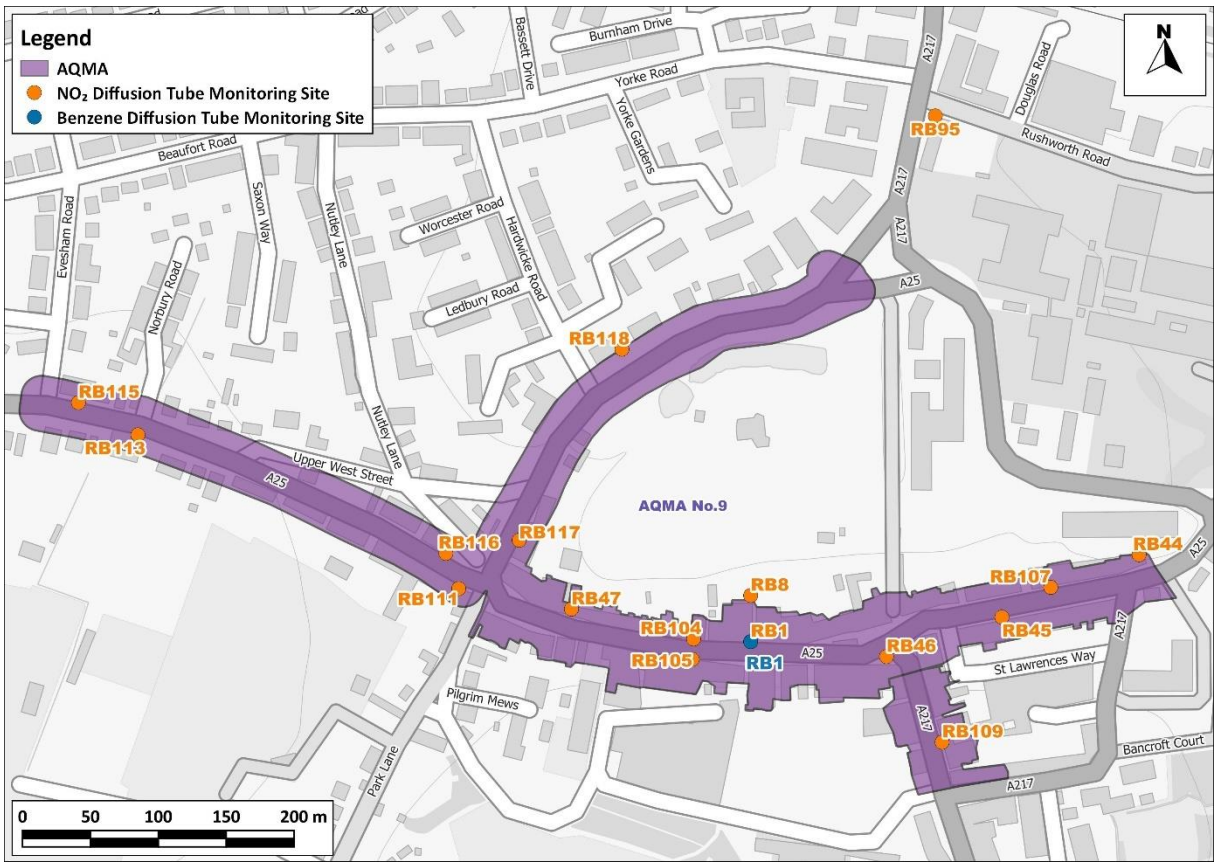


Figure D.0.6 AQMA No. 9 (Reigate High Street / West St / Bell St) and Nitrogen Dioxide or Benzene Diffusion Tube Monitoring Site Locations Within and Close to the AQMA.

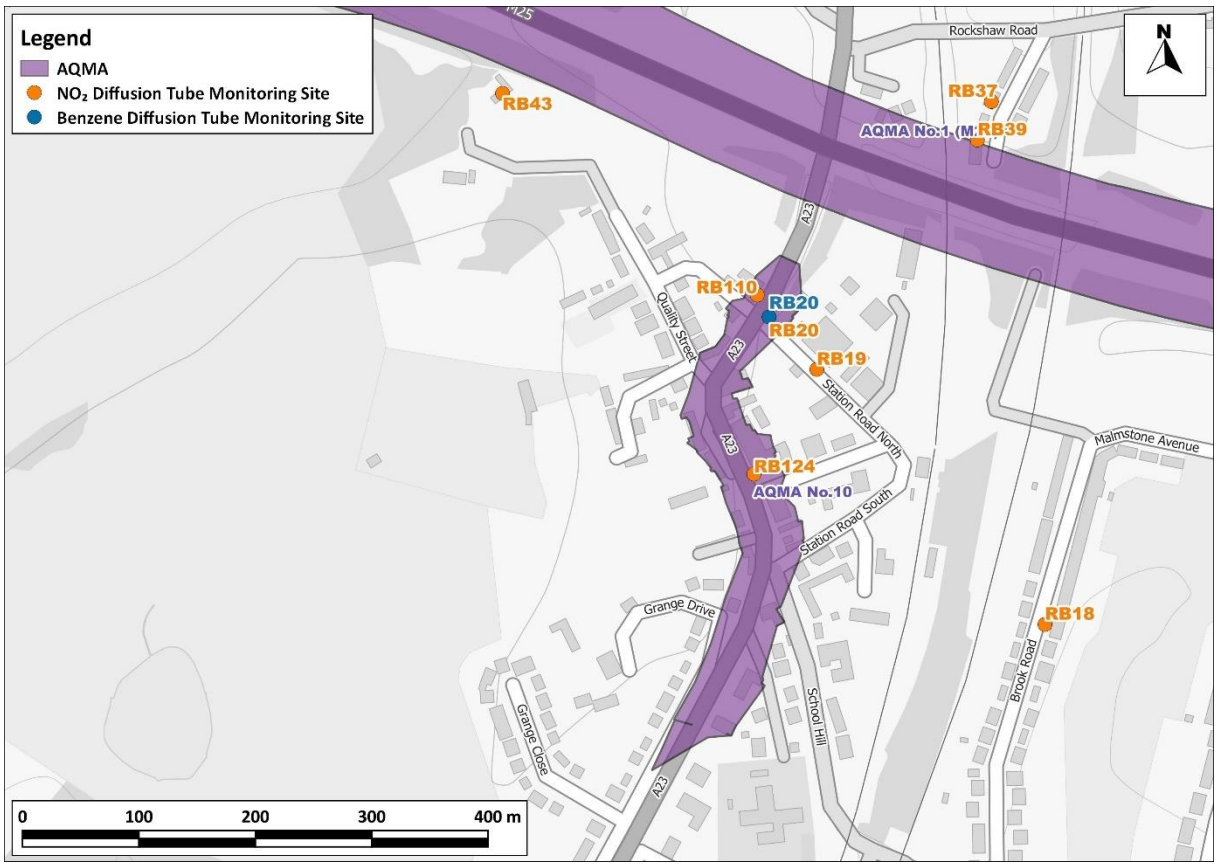


Figure D.0.7 AQMA No. 10 (Merstham) and Nitrogen Dioxide or Benzene Diffusion Tube Monitoring Site Locations Within and Close to the AQMA Benzene.

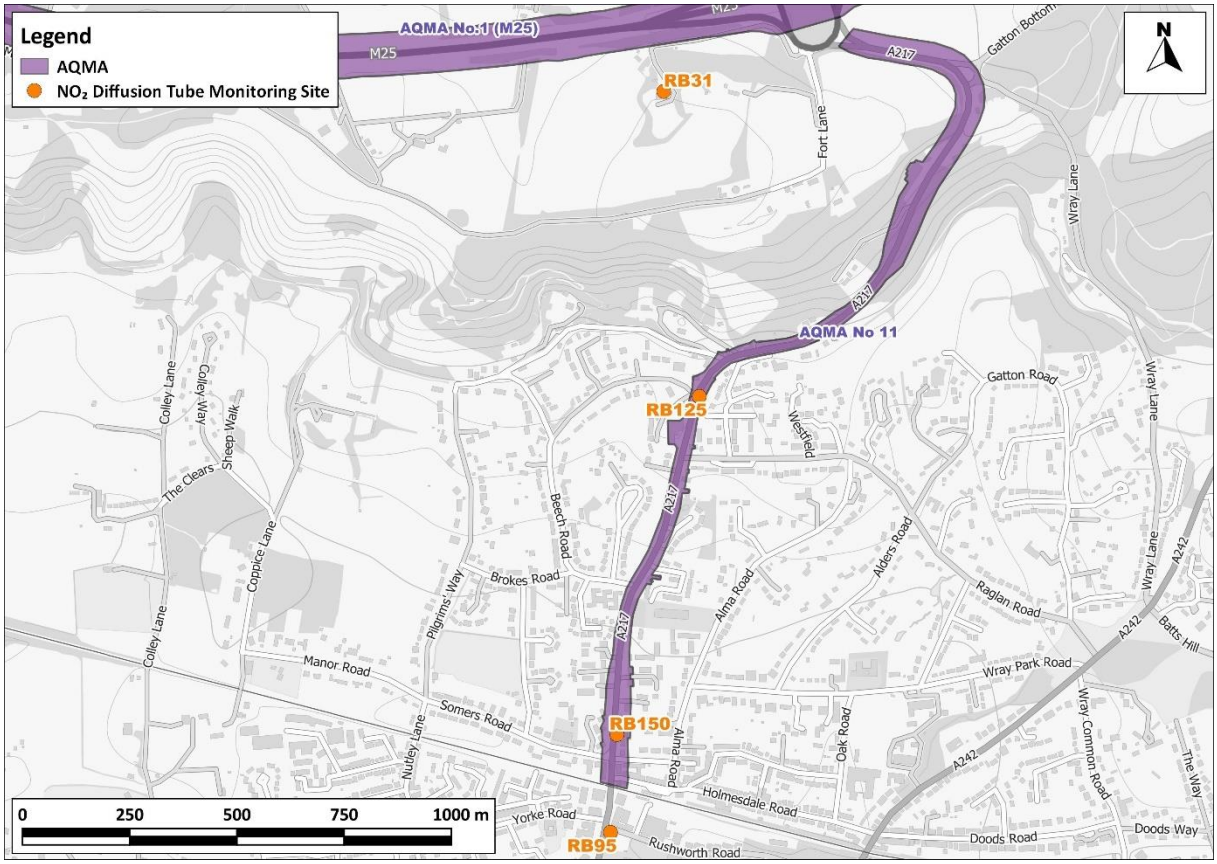


Figure D.0.8 AQMA No. 11 (Reigate Hill), AQMA No. 1(M25) and Diffusion Tube Monitoring Site Locations Within and Close to AQMA No. 11.

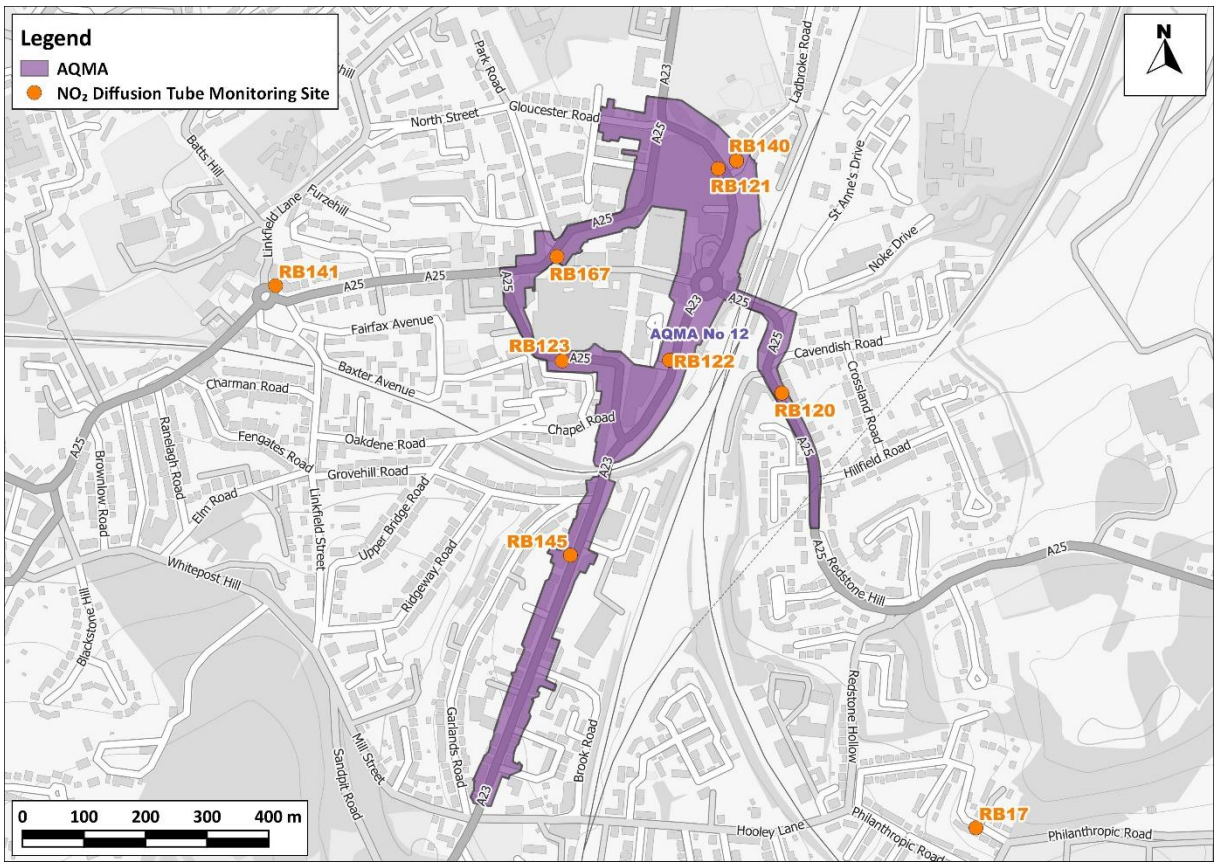


Figure D.0.9 AQMA No. 12 (Redhill) and Diffusion Tube Monitoring Site Locations Within and Close to the AQMA.

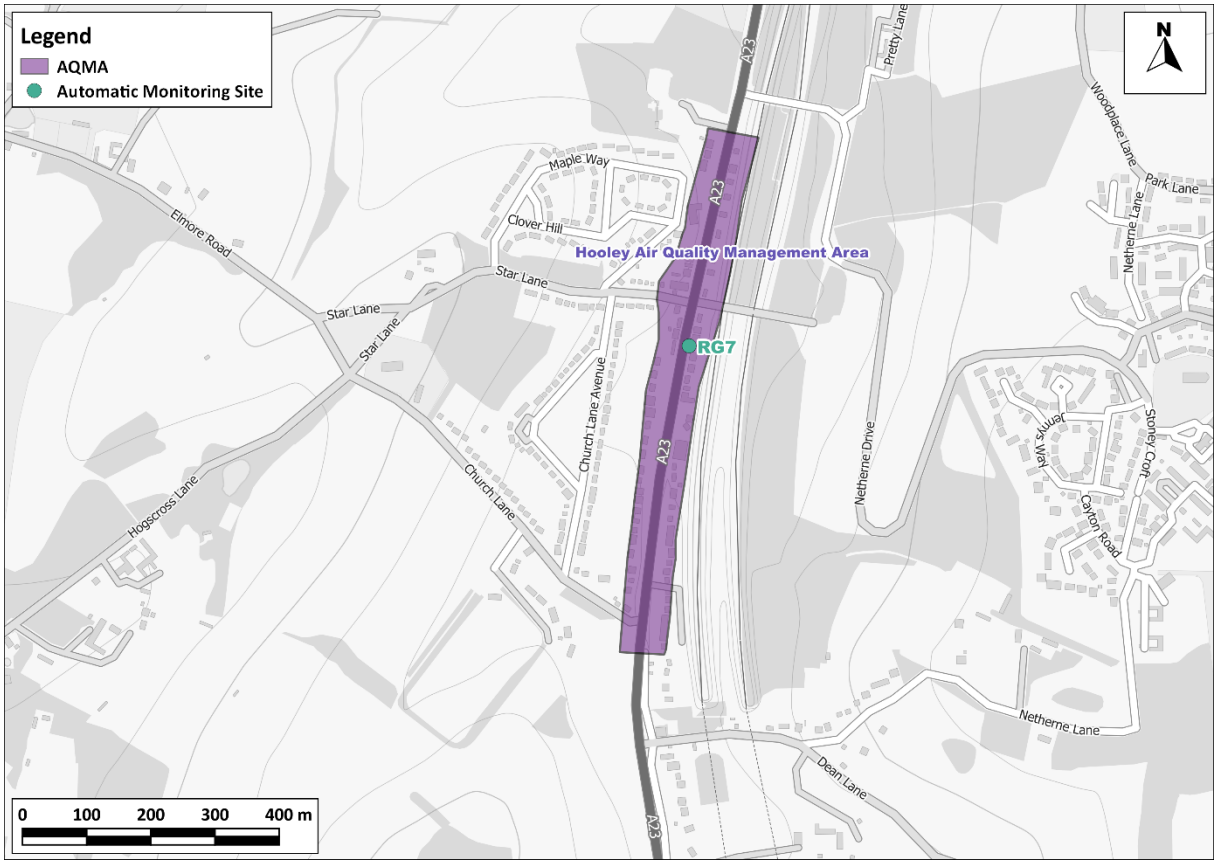


Figure D.0.10 AQMA No. 13 (Hooley) and Automatic Monitoring Site Location Within the AQMA.

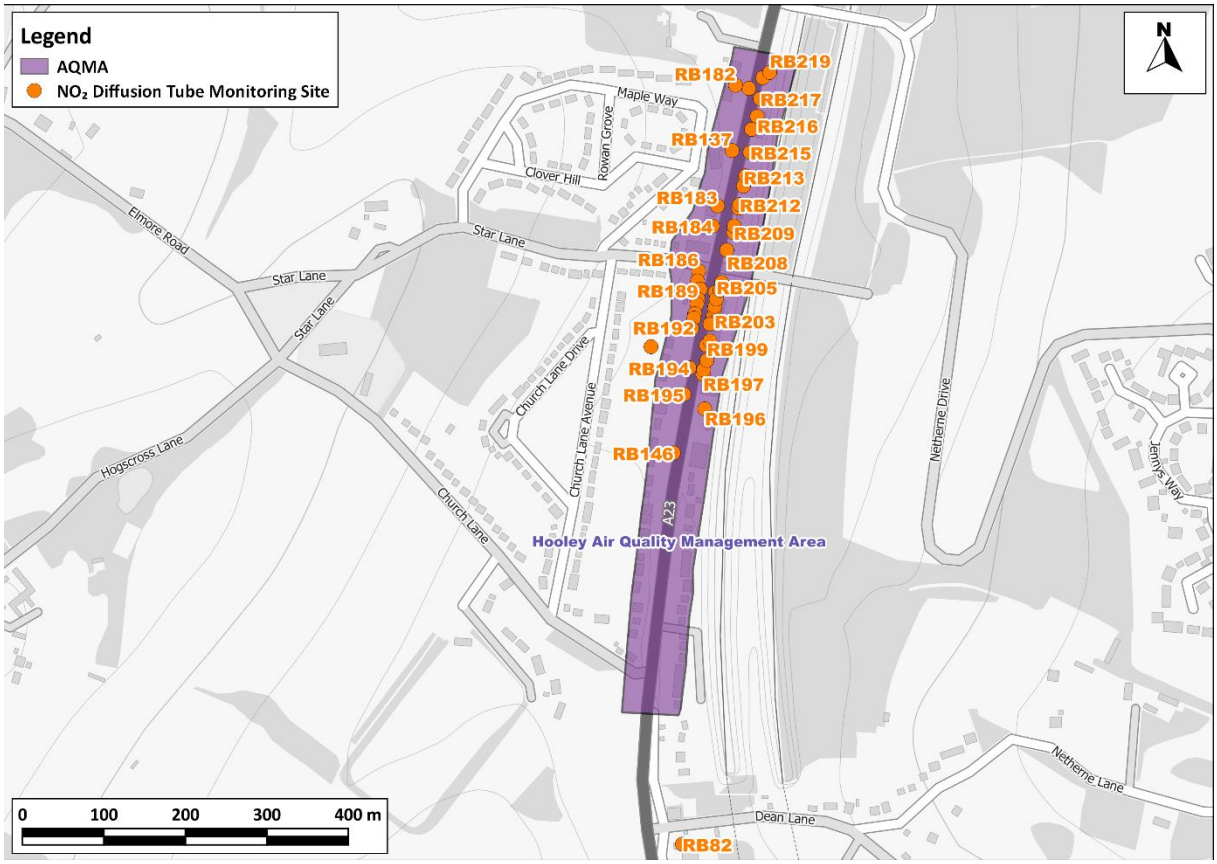


Figure D.0.11 AQMA No. 13 (Hooley) and Diffusion Tube Monitoring Site Locations Within and Close to the AQMA.

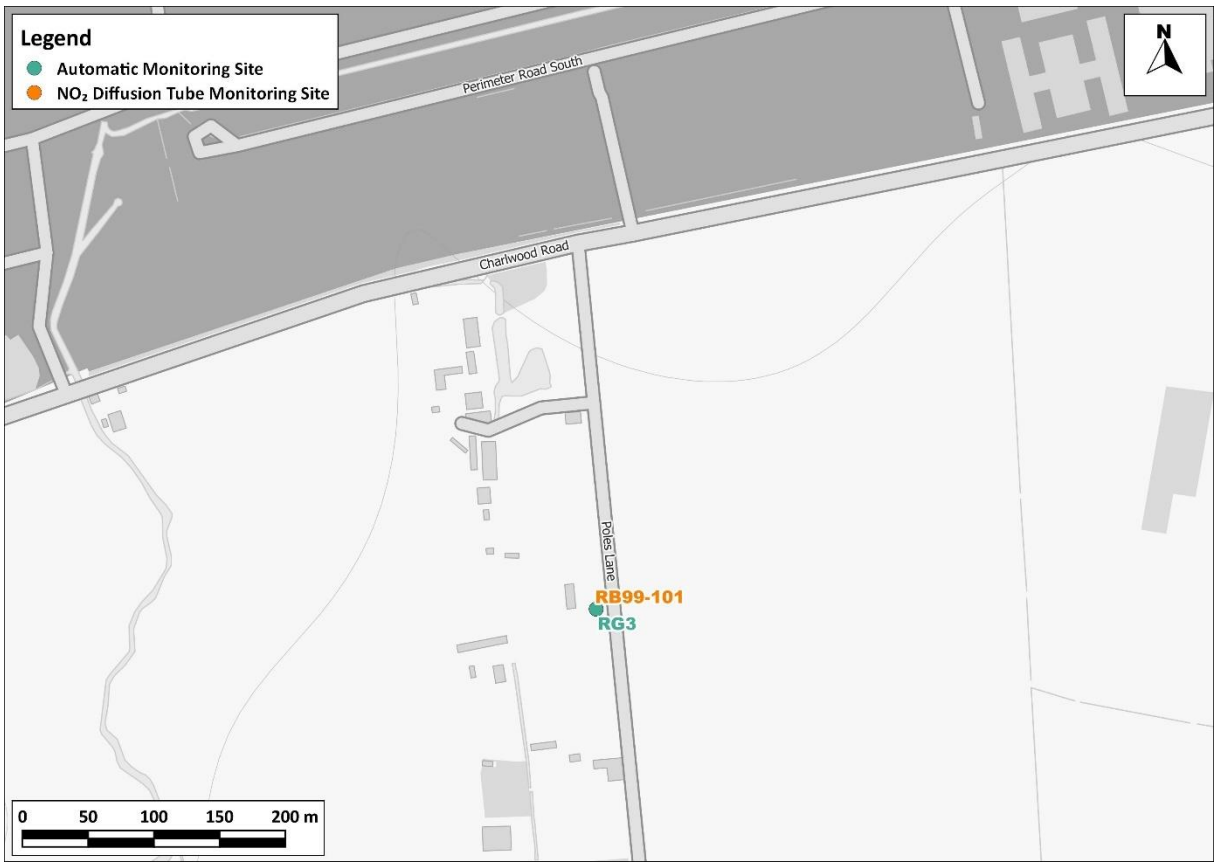


Figure D.0.12 Automatic Monitoring Site and Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (South of London Gatwick Airport, Crawley Borough).

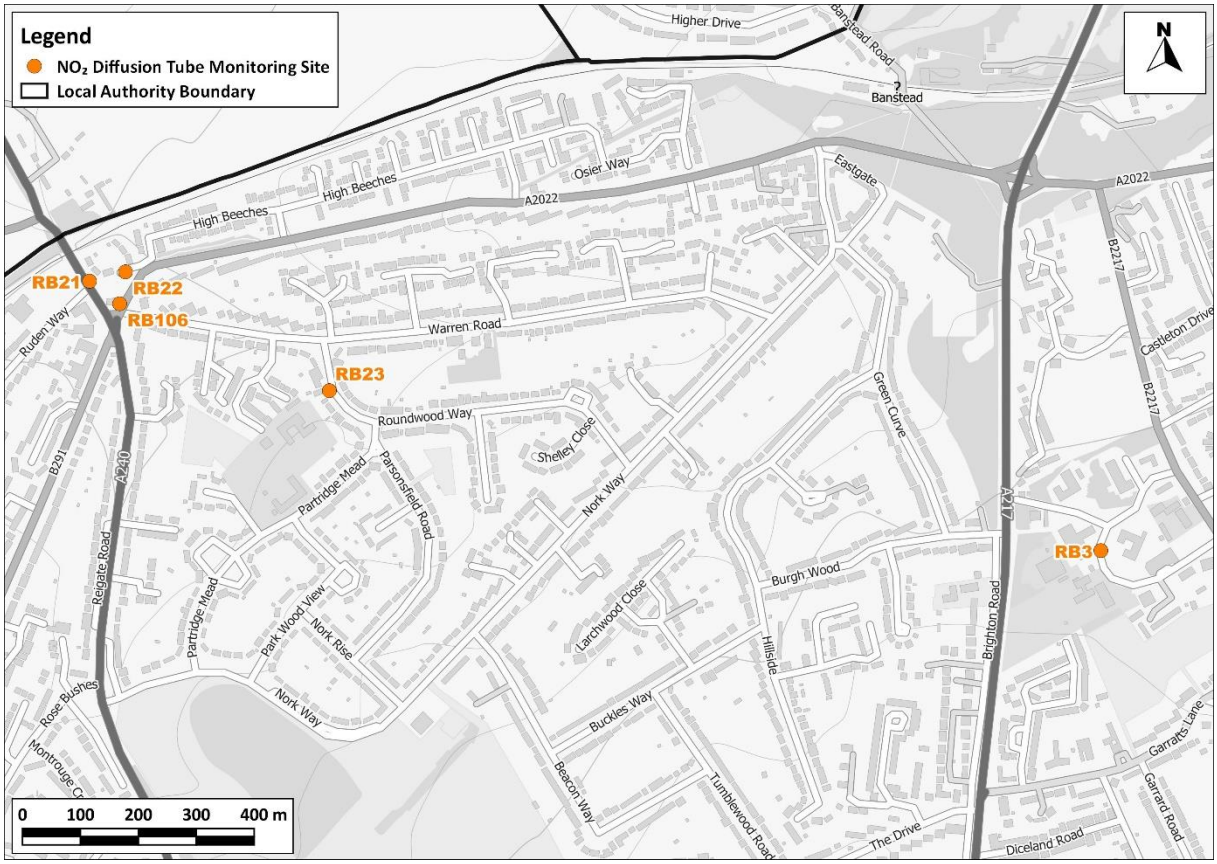


Figure D.0.13 Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Banstead) and Local Authority Boundaries.

Figure D.0.14 Nitrogen Dioxide Diffusion Tube Monitoring Site Location (M23, Tandridge District).

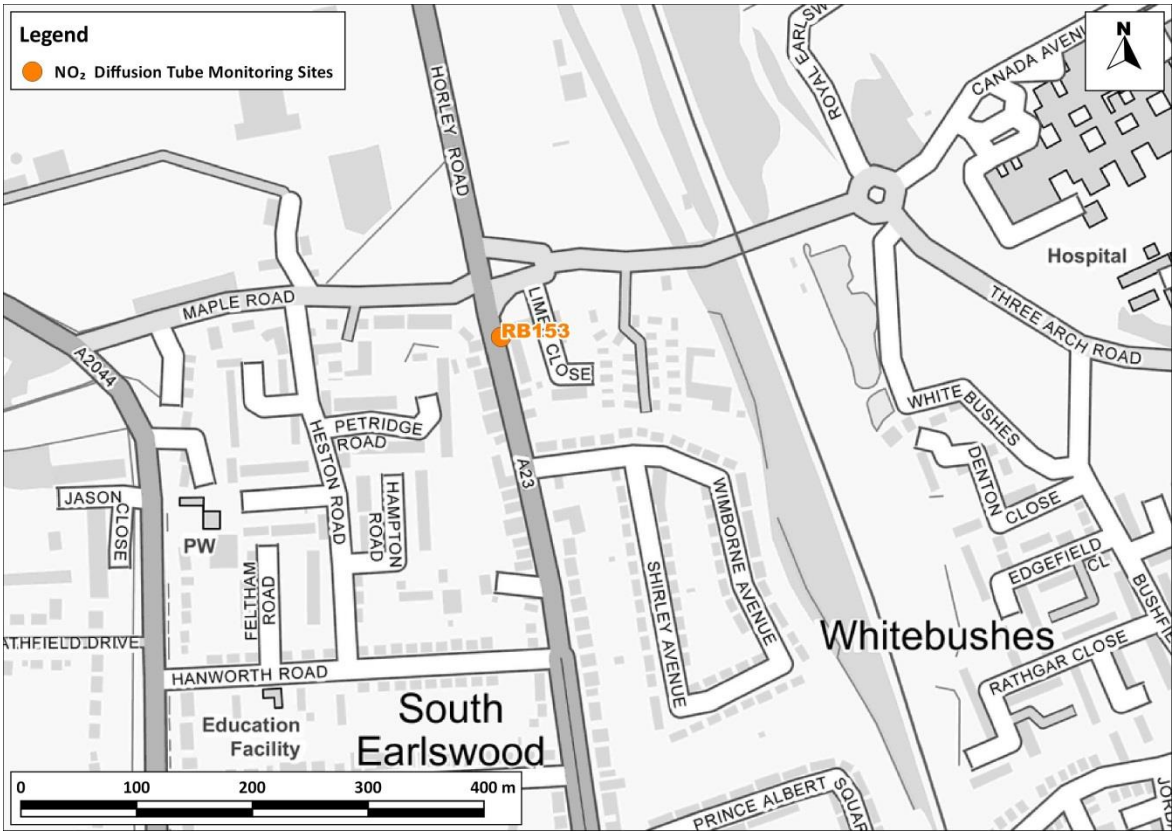


Figure D.0.15 Nitrogen Dioxide Diffusion Tube Monitoring Site Location (South Earlswood).

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[19]

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
Benzene	5µg/m^3	Annual mean

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

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
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EU	European Union
LAQM	Local Air Quality Management
NH	National Highways
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
RBBC	Reigate and Banstead Borough Council
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. 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.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.