2016 Air Quality Annual Status Report (ASR):

Reigate and Banstead Borough Council

November 2016

Experts in air quality management & assessment

Document Control

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Executive Summary: Air Quality in Our Area

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents.

This document is Reigate and Banstead Council's Annual Status Report (ASR). Results from air quality monitoring undertaken by the Council are presented and sources of air pollution are identified. The ASR determines those changes since the last assessment, which could lead to the risk of an air quality objective being exceeded.

This Annual Status Report confirms that air quality within Reigate and Banstead continues to exceed the relevant air quality objectives at some locations within declared Air Quality Management Areas (AQMAs) and remains below the objectives elsewhere.

The Annual Status Report has not identified any significant changes in emission sources within the borough. There have been no new relevant transport, industrial or fugitive / uncontrolled sources of emissions. There are no other new sources of emissions which are considered to be relevant in terms of exceedences of the air quality objectives.

Air Quality in Reigate and Banstead

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

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 Epson 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).

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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). Action Plans are currently available for two of these AQMAs and are considered in this report. A revised action plan for road traffic across the borough is in development. Reigate and Banstead Borough Council is actively working to improve air quality in its area through implementation of these Action Plans, as well as implementation of their Local Transport Plan and in partnership with Planning and Public Health colleagues.

This report confirms that there appear to be no strong trends in air quality within Reigate and Banstead over the past six years. Nitrogen dioxide concentrations continue to be above the annual mean and 1-hour mean objectives at some sites within declared AQMAs, and below (i.e. meet all) all relevant objectives outside AQMAs. Measured concentrations of PM_{10} and benzene continue to be below the relevant air quality objectives at all locations.

Actions to Improve Air Quality

Reigate and Banstead Borough Council has taken forward a number of measures during the current reporting year of 2015 in pursuit of improving local air quality. Since the last Progress Report (2011) a number of actions have been completed, including a variety of measures to improve the borough's air quality through improved traffic management and promotion of lower emissions transport, promotion of lower emission energy plant, incorporation of a Sustainable Energy Policy into the Local Development Framework Document and on-going air quality monitoring.

Reigate and Banstead Council intend to implement further measures to improve air quality within the borough in the future. These include measures that aim to improve the borough's future air quality through traffic management, promotion of lower emission transport, promotion of lower emission and renewable energy plant, provision of an air pollution warning service for vulnerable groups, borough-wide mapping health impact assessment of pollutants and on-going air quality monitoring. Many of the planned measures are already underway and making progress towards completion.

Local Priorities and Challenges

Reigate and Banstead Borough Council's priorities for the coming year are to continue with the work on the measures outlined in the Action Plans.

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 (https://surrey.liftshare.com/), and, if members

of the public are considering buying a car, consider a petrol, hybrid or electric vehicle instead of diesel.

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1 Local Air Quality Management

This report provides an overview of air quality in Reigate and Banstead during 2015 and the proceeding years since the last Review and Assessment Report was issued. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) (HMSO, 1995) and the relevant Policy and Technical Guidance documents.

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

The statutory air quality objectives applicable to LAQM in England can be found in Table A5.1 in Appendix A5.

2 Actions to Improve Air Quality

2.1. Air Quality Management Areas

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

The AQMAs declared by Reigate and Banstead Council are shown in Figure 2.1 to Figure 2.7 and described in Table 2.1.

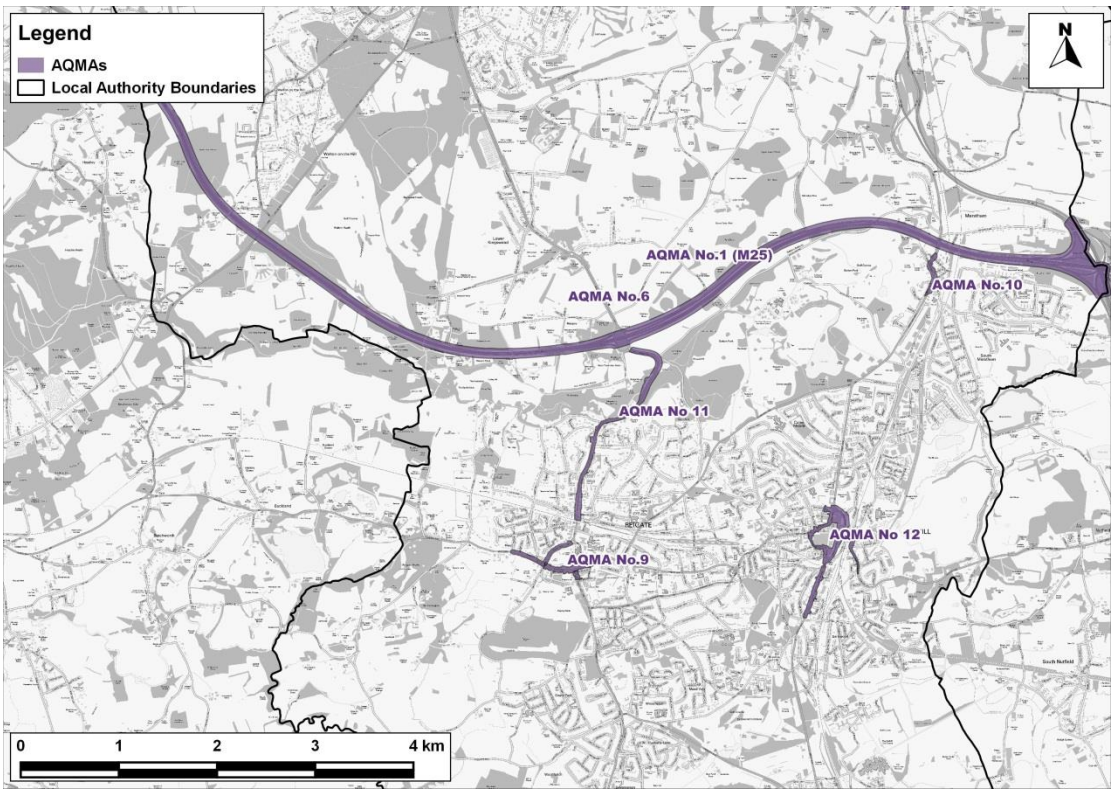

Figure 2.1: AQMAs No. 1 (M25), No. 6 (Blackhorse Lane), No. 9 (Reigate High St / West St / Bell St), No. 10 (Merstham), No. 11 (Reigate Hill) and No. 12 (Redhill) and Local Authority Boundaries

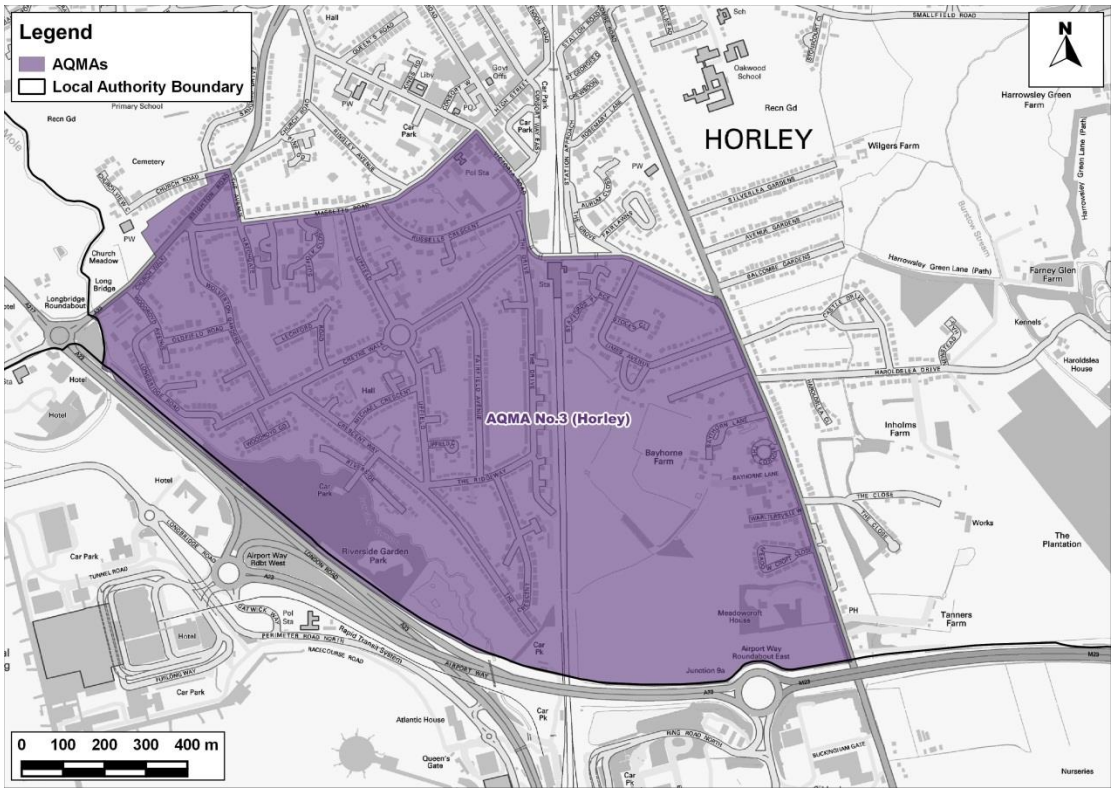

Figure 2.2: AQMA No. 3 (Horley) and Local Authority Boundaries

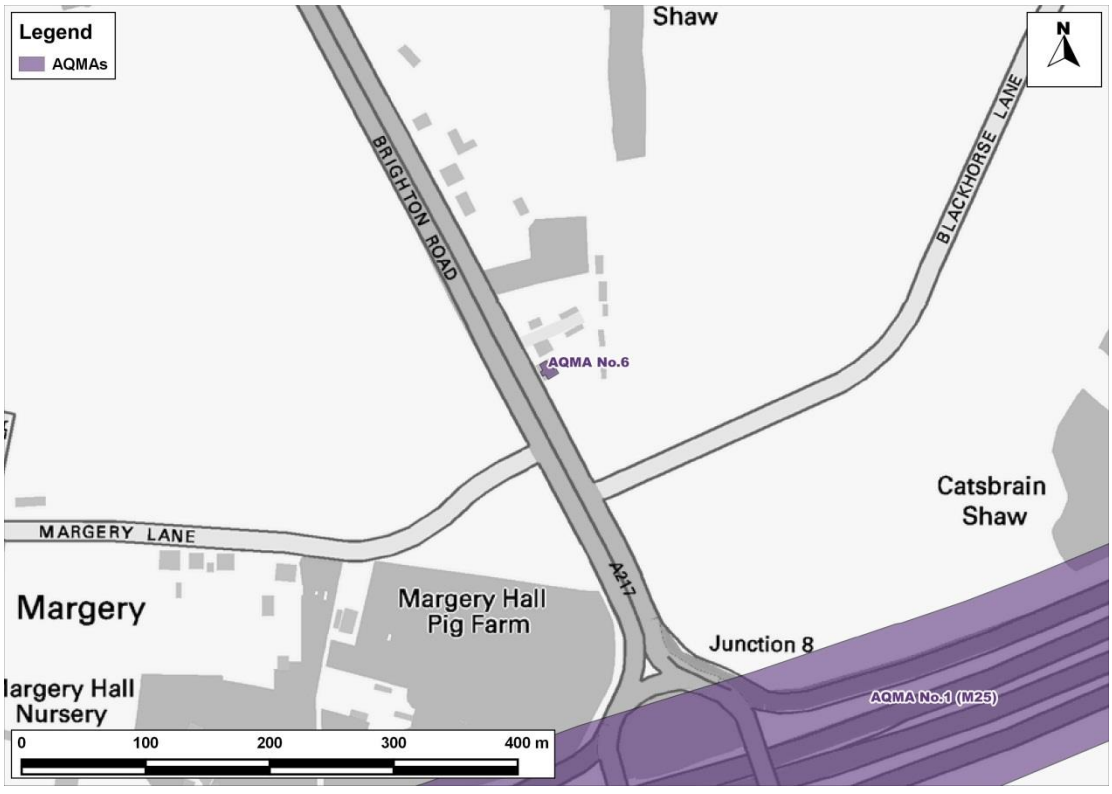

Figure 2.3: AQMAs No. 6 (A217 / Blackhorse Lane) and No. 1 (M25)

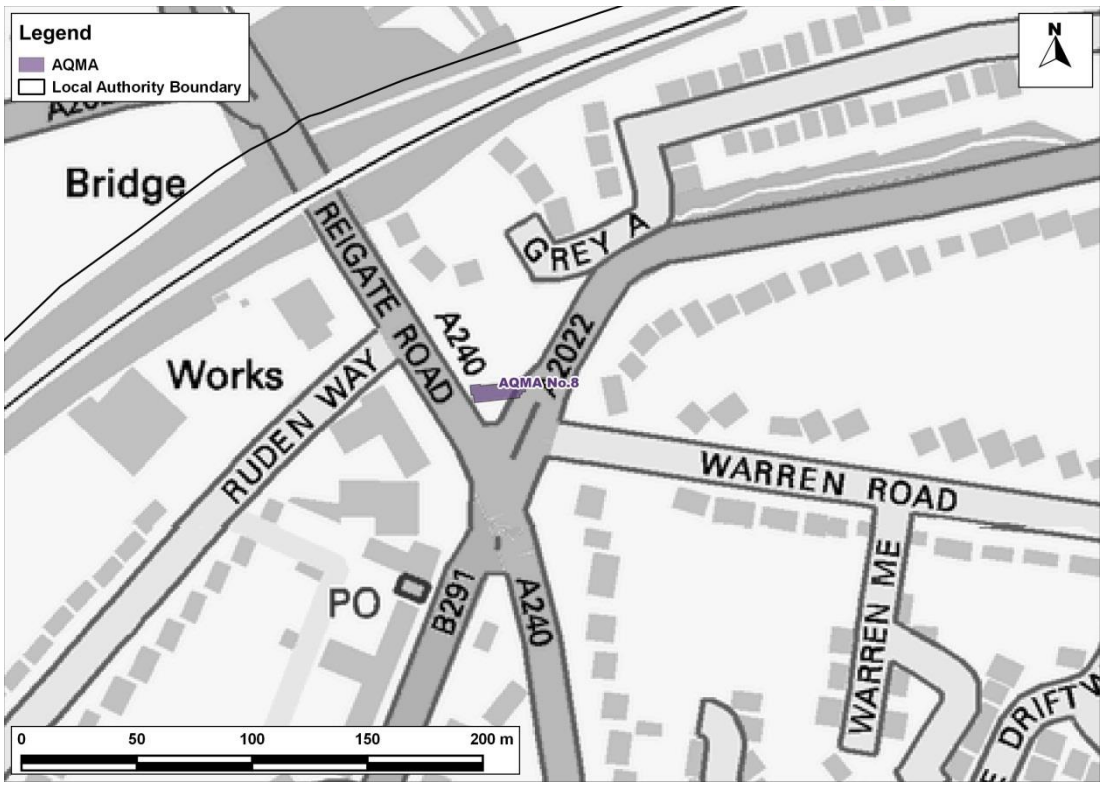

Figure 2.4: AQMA No. 8 (Drift Bridge) and Local Authority Boundaries

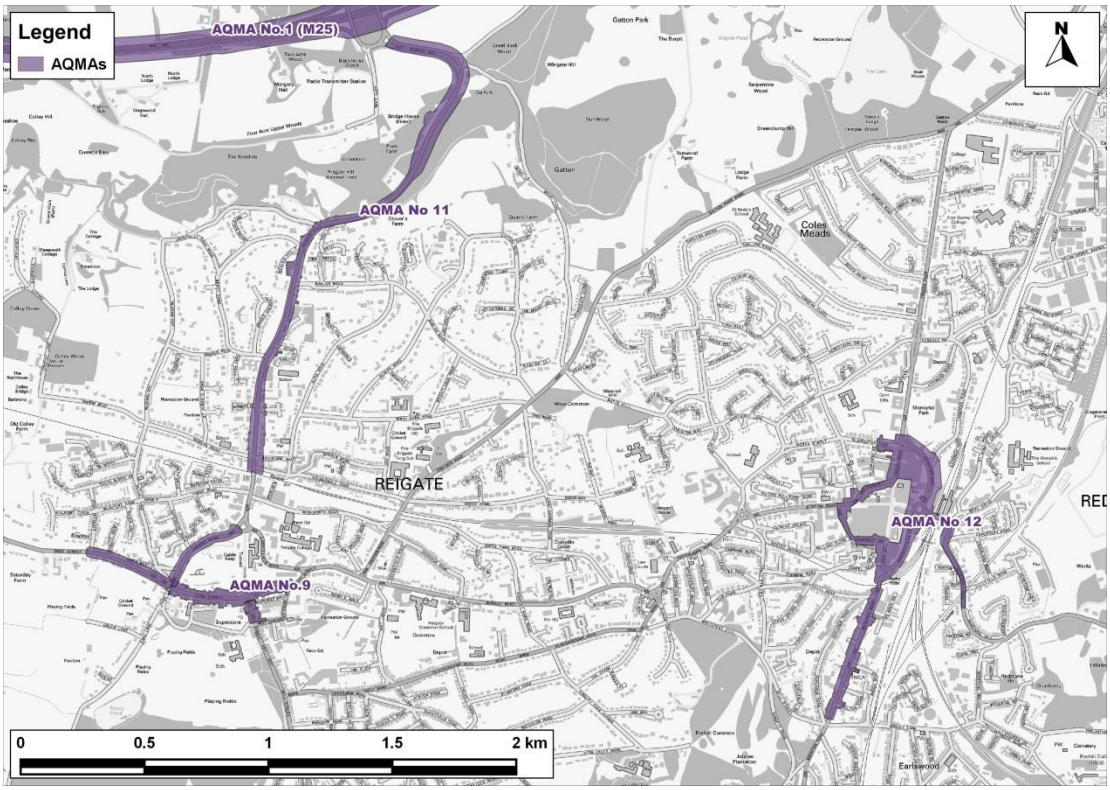

Figure 2.5: AQMAs No. 1 (M25), No. 9 (Reigate High St / West St / Bell St), No. 11 (Reigate Hill) and No. 12 (Redhill)

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

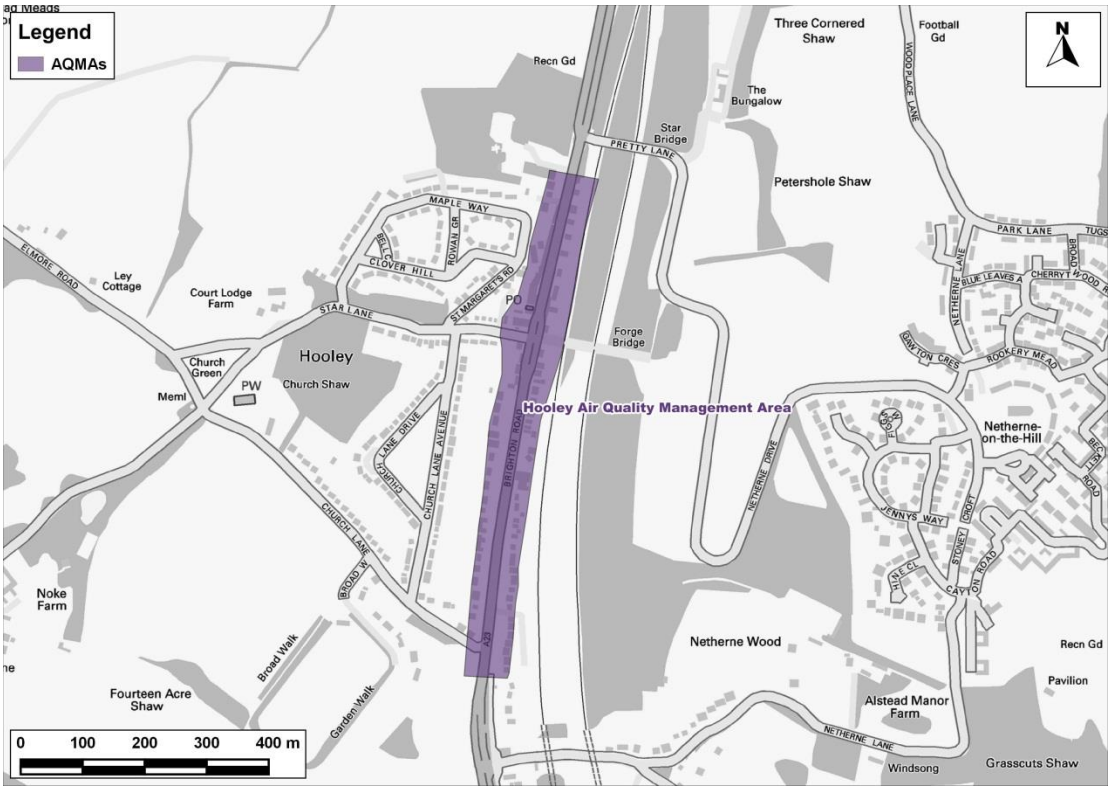

Figure 2.7: AQMA No. 13 (Hooley)

Table 2.1: Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town / Village	One Line Description	Action Plan
No. 1: M25	Nitrogen dioxide – annual mean	Merstham, South Merstham, Margery, Mogador, Walton on the Hill	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.	Air Quality Action Plan for the M25, 2004 (Reigate and Banstead Borough Council, 2004) Available at: http://www.reigate-banstead.gov.uk/downloads/file/1587/action_plan_for_the_m25_air_quality_management_area
No. 3: Horley	Nitrogen dioxide – annual mean	Horley	An area of the south-west quadrant of Horley near to Gatwick airport.	Air Quality Action Plan for the Non Airport sources of Nitrogen Dioxide within the Horley Air Quality Management Area, 2007 (Reigate and Banstead Borough Council, 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	Nitrogen dioxide – annual mean	Margery	An area encompassing the house "Highlands" near the junction of the A217 Brighton Road with Margery Lane and Blackhorse Lane	In development
No. 8: Drift Bridge	Nitrogen dioxide – annual mean	Banstead	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).	In development

AQMA Name	Pollutants and Air Quality Objectives	City / Town / Village	One Line Description	Action Plan
No. 9: Reigate High St / West St / Bell St	Nitrogen dioxide – annual mean	Reigate	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).	In development
No. 10: Merstham	Nitrogen dioxide – annual mean	Merstham	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 Hill) and extends north along Merstham High Street and then just to the north of the junction with Station Road North.	In development
No. 11: Reigate Hill	Nitrogen dioxide – annual mean	Reigate	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.	In development
No. 12: Redhill	Nitrogen dioxide – annual mean	Redhill	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.	In development

AQMA Name	Pollutants and Air Quality Objectives	City / Town / Village	One Line Description	Action Plan
No. 13: Hooley	Nitrogen dioxide – annual mean	Hooley	Properties within the Hooley area covering either partially or entirely properties of the following roads, A23 Brighton Road, Star Lane and Church Lane	In development

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

Reigate and Banstead Council has taken forward a number of measures during the current reporting year of 2015 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. More detail on these measures can be found in the respective Action Plans: Air Quality Action Plan for the M25 within the Borough of Reigate and Banstead (Reigate and Banstead Borough Council, 2004) and Air Quality Action Plan for the Non Airport sources of Nitrogen Dioxide within the Horley Air Quality Management Area (Reigate and Banstead Borough Council, 2007)].

Key completed measures are:

- Safety and lane discipline review of J7 M25;
- Improved signing / road markings on the anticlockwise approach to J7 M25;
- Undertaken controlled motorway action based on the outcome or relevant reports / studies;
- Make central Government aware of the disproportionate emissions from articulated vehicles (on-going);
- Fastway Interchange at Horley Station;
- Extension of Fastway to Redhill;
- Public Service agreement to reduce congestion on the A217 and A23 (Horley Road);
- Implementation of Council Travel Plan;
- Incorporation of Sustainable Energy Policy into Local Development Framework Document;
- Inclusion of 'Home Zone' policy in Horley Design Guide;
- Development of new section 106 agreement and sustainable development strategy;
- Maintaining current taxi licensing regime;
- Continued promotion of Surrey Car Share; and
- On-going air quality monitoring.

Reigate and Banstead's priorities for the coming year are to continue with the measures to address air quality within the borough that are currently underway (see Table 2.2 for further details).

Table 2.2: Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
Air Quality Action Plan for the M25									
1	Safety and lane discipline review of J7 M25	Traffic Management	Other	HA [a]	End 2003	N/A	Information received Quarter 2 2005. Complete	April 2004	Conclusion of review is that existing signage and road markings can be improved, with new signage J8 to 7 proposed along with new road markings.
2	Improve signing / road markings on anticlockwise approach to J7 M25	Traffic Management	Other	HA	April 2004	N/A	Completed Quarter 3 2006.	April 2005 (subject to confirm-ation)	Signs and markings installed. Scheme primarily aimed at improving road safety. Air quality benefits considered minor (if any) but this was all HA were proposing. 'Ramp Metering' was installed in 2010 at J8 (anticlockwise). Aim is / was to improve traffic flow. Air quality benefits (if present) for RB39 monitoring site.
3	Continue with diffusion tube survey	N/A	N/A	RBBC [b] (Pollution Team)	June 2002	N/A	Diffusion tube study continuing, extended to 2020	Dec 2010 (minimum)	Results to date in this report. Many A-roads show limited / no improvement in nitrogen dioxide concentrations. Thus limited improvement on M25 is not unique to motorway.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
4	On-going review of the Sheffield study into reduced speed limits on motorways and the practical impact on air quality.	Traffic Management	Reduction of speed limits / 20 mph zones	RBBC (Pollution Team)	2003	N/A	Undertaken action (controlled motorway) based on other reports / studies, completed 2014.	Feb 2005	Discussions with Sheffield's air quality team in Quarter 1 2007 (Daly. M, Air Quality Section, Sheffield City Council, 2007) indicated they were unaware of the HA study. By September 2010 had yet to see a report or commentary on the study. However, a DfT report on the impact of controlled motorways indicates that on the M25 speed restrictions do lead to an improvement in air quality (DfT, 2004). Studies elsewhere (e.g. Rotterdam (AQM, 2007)) indicate that a fixed speed limit of 50 mph does give a significant reduction in NO_x in practice. Controlled motorway was proposed (2010) for J7 to J10 of the M25, and work on this is now complete (2014). Purpose is to increase road capacity (hard shoulder running) / improve traffic flow. Possible air quality improvements from improved flow, though potential to be offset by increase in traffic. For details see (Highways Agency, 2011).

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
5	Make central Government aware of the disproportionate emissions from articulated vehicles.	Policy Guidance and Development Control	Other policy	RBBC / HA	2003	N/A	Letter sent to DfT 17/03/2004. Response received 08/04/2004 No further action taken on this to date.	On-going	Response from DfT stated that it was unlikely that there would be any new measures to address heavy goods vehicle (HGV) emissions before 2011. Only way to achieve a significant reduction in NO_x / nitrogen dioxide on this section of the motorway, and on UK and EU roads in general. Also one of the most cost effective overall as tackles the problem at source. Recent work by TfL (TfL, 2015) suggests that Euro VI is a significant improvement over Euro V at urban speeds for HGVs in the real world. However at motorway speeds suggest limited if any improvement on Euro V by Euro VI, albeit based on limited data set.
Air Quality Action Plan for the Non-Airport Sources of Nitrogen Dioxide within the Horley Air Quality Management Area									
1	Limit road transport growth to 5.5% by 2011 from 2004/5 levels (Annex 9 LTP2 [c])	Traffic Management	UTC, congestion management, traffic reduction	SCC [d] (via LTP6)	April 2006	See Appendix A6 for current traffic flows as measured on roads in the area	Original completion: April 2011 Now on-going	Original: April 2011 Revised: On-going as monitoring measure	Target met given growth to end of 2008, and recession. Note without recession projections suggest target would still have been met. No current target on traffic growth in new Local Transport Plan (Surrey County Council, 2016). However growth (at most) on roads monitored is up by only 2.7% (2015) on 2004 levels, and on A23 is down 3.7% on 2004 levels. Cost [e]: High Air Quality Improvement: c. 0.1 $\mu g/m^{-3}$ at RB59 [f]

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
2	Fastway Route (Horley to Crawley via Gatwick)	Traffic Management	UTC, congestion management, traffic reduction	SCC / RBBC / HTC [g] / BAAG [h]	Jan 2006	Reduction in peak hour traffic	Initial phase of the works is complete and the project is on track. Fastway 20 running in NE sector.	April 2011 (Phase 1) April 2020 (Final NW sector)	On-going. Final stage of the route will be completed once construction of new housing (NW sector) is complete in 2020. Cost [e]: High Air Quality Improvement: <0.1 µg/m^{-3}
3	Fastway Interchange at Horley Station	Traffic Management	UTC, congestion management, traffic reduction	SCC / RBBC (contact: Emily Mottram, Policy & Regeneration)	April 2006	Project completion	Completed September 2008	April 2011	Interchange complete. Impact on air quality of this individual project is negligible. However this is one part of a wider project that should help minimise any growth in nitrogen dioxide concentrations from the new housing developments in Horley. Cost [e]: High Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
4	Bus Priority Lanes on A23 (p105 5.43 in LTP2)	Traffic Management	Strategic highway improvement, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	SCC / RBBC (contact: Peter Boarder, Policy & Regeneration)	April 2015	Project completion	On-going, initial works underway	April 2018	Funding secured for scheme centred on greater Redhill area reaching as far as Salfords, including improved foot and cycle path provision. LTP2 now superseded, this is a variation on the original scheme. Minimal benefits to air quality within Horley AQMA, but potential benefit for the current breach on A23 on the edge of the AQMA. Cost [e]: Medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
5	Extension of Fastway to Redhill and Reigate (LTP2 aspiration)	Traffic Management	UTC, congestion management, traffic reduction	SCC / RBBC (contact: Peter Boarder, Policy & Regeneration)	Not known	Project completion	Extension to Redhill completed in 2008 Extension to Reigate dropped.	April 2015 (if implemented)	Route extended to Redhill only. Extension of route to Reigate was still under construction (2011), but subsequently dropped. Work now focussed primarily on cycling improvements (2016). Cost [e]: High Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
6	Maintain current taxi licensing regime	Promoting Low Emission Transport	Taxi Licensing conditions	RBBC Licensing	On-going	Taxi standards maintained	On-going	On-going	Current scheme means that entire taxi fleet is replaced every nine years. Minimal impact on Horley AQMA. However, important in wider air quality context as fleet has grown 2.5 X since 2005 from c. 500 to c. 1329 (2016). Cost [e]: Low Air Quality Improvement: <0.1 µg/m^{-3} at RB 59

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
7	Public service agreement to reduce congestion on the A217 and A23 (Horley Road)	Traffic Management	UTC, congestion management, traffic reduction	SCC / RBBC (contact: Linden Mendels)	March 2005	5% reduction in average vehicle delay by March 2008	March 2008	March 2008	The 5% reduction target was met, but due to traffic signal changes alone, and not signal changes and greater car sharing combined as originally intended. Project had no bearing on Horley AQMA. Intention was to note reasons for success / failure of the project, and bear these in mind – if appropriate – for future references if congestion becomes a problem within the Horley AQMA. The results suggest that there is still scope for improvements in traffic flows based on the timings of traffic signals. Cost [f]: Low Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
8	Travel Plans (Work). (LPT / STP indicator TP2)	Promoting Travel Alternatives	Workplace Travel Planning	RBBC / Local employers (contact: Lynne Howard)	On-going	Four to five plans to be completed per annum	On-going	On-going	Most major employers in Horley had a Travel Plan in place, so impact on Horley AQMA itself was limited. Horley NW sector housing development have completed Travel Plan for the development (2016), money for the actions in the plan will be phased over the next 10 years. Cost [e]: Low - medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
9	Travel Plans (Schools) (LTP / STP indicator TP1)	Promoting Travel Alternatives	School Travel Plans	SCC (contact: Lynne Howard, Rebecca Harrison)	On-going	All Horley schools have, and have implemented, a travel plan	On-going, currently on target	Dec 2020	Impact from the scheme on concentrations within Horley AQMA is very limited. Travel Plan produced for new primary school in Horley (Trinity Oaks) – currently being implemented (June 2016). All schools with Travel Plans due to submit monitoring reports by year end. Cost [e]: Low - medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
10	Continued promotion of Surrey Car Share	Alternatives to Private Vehicle Use	Car and lift sharing schemes	SCC (contact: Marc Woodall)	On-going	Steady growth in number of participants (1300 users at start of 2006)	On-going. Currently (2016) 4282 active members, compared to 3500 in 2011	On-going	Measurable improvements in air quality unlikely in the short term, minimal if any impact on air quality within Horley AQMA, but possible wider air quality benefits. Current trial of electric vehicles as part of the car share scheme in Guilford (2016). Cost [e]: Low (to RBBC) Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
11	Implementation of Council Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	RBBC (contact: Raymond Dill, Policy & Regeneration)	Jan 2006	Implementation of the plan	Complete (Quarter 3, 2009)	End 2008	Workplace parking charges introduced for all Pool cars, plus other incentives to use public transport or cycle. Implementation allows council to encourage other employers to implement their own plans, with possible benefits for Horley, especially with airport travel plan. Cost [e]: Low - Medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
12	Incorporation of Sustainable Energy Policy into Local Development Framework document	Policy Guidance and Development Control	Other policy	RBBC (contact: Raymond Dill, Policy & Regeneration)	Current	Incorporation of policy	Complete	January 2007	Document now included. Benefit to Horley AQMA marginal in the short term. However, may help to reduce growth in background nitrogen dioxide concentrations from new developments in the area, which would be of benefit. Cost [e]: Low to RBBC, possibly Medium – High to developers Air Quality Improvement: Variable depending on the scheme
13	Horley Design Guide: Low NO_x boilers	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	RBBC (contact: Leon Hibbs)	June 2005	Measure adopted by developers	Initial stage completed January 2007 1st phase of NW sector underway (2015)	January 2007 (1st phase) January 2025 (final phase)	Measure is now in the design guide. Aim is to minimise growth in background pollution, but will not minimise existing pollution. Cost [e]: Low Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
14	Horley Design Guide: Minimum of 10% of energy from renewable sources	Promoting Low Emission Plant	Other policy	RBBC (contact: Raymond Dill, Policy & Regeneration)	On-going	Scheme up and running	Initial stage complete January 2007	January 2007 for local development frame-work policy	Measure now in the design guidance. Measure adopted by developers (2010 / 11). Aim is to use a mix of solar heating and air source heat pumps so no risk of NO_x 'hot spots'. Cost [e]: Medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59, but potential increase for local 'hot spots' depending of source

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
15	Horley Design Guide: Home Zone	Traffic Management	Other	RBBC Planning	On-going	New developments completed as Home Zones	January 2007	January 2007	Policy in design guidance. Impact on air quality potentially low. However, may encourage walking over short distances and avoid car use. Cost [e]: Medium Air Quality Improvement: <0.1 µg/m^{-3} at RB 59
16	Monitoring	N/A	N/A	RBBC (contact: Leon Hibbs)	On-going	Data capture >90%	On-going	On-going	Data capture consistently in excess of 90% (with the exception on PM_{10} at RG1 in 2015) at all automatic monitoring sites. New equipment purchased and installed in 2015. Sites are important for examining trends in measured pollutant concentrations, compliance monitoring and also model validation. Significant reduction in nitrogen dioxide seen across Horley AQMA (2005 to 2015). Current breaches limited to A23 on the edge of the AQMA. Cost [e]: Low – Medium depending on timescale Air Quality Improvement: N/A

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
17	Local Forums / Policy: Air Quality Working Group with BAAG (now GAL [j])	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance Other	RBBC (Pollution Team)	On-going	No specific measures, but will include Gatwick Air Quality Plan implementation, on-going predictive modelling work	Meetings are on-going. Revised baseline inventory and model being discussed (2016)	On-going. Progress on the airport's action plan is subject to quarterly monitoring – all measures are currently on track (April 2016), bar emissions mapping.	Cost [e]: Low to RBBC Air Quality Improvement: 1 µg/m^{-3} at RB 59
18	Local Forums / Policy: New section 106 agreement and sustainable development strategy	Policy Guidance and Development Control	Other	RBBC Planning and Environ. Health Others: GAJA [j], GOG [k], GATCOM [l]	On-going	Agreement and implementation of new agreement and strategy	Completed December 2008	Mid 2007	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. Cost [e]: Low to RBBC Air Quality Improvement: 1 µg/m^{-3} at RB 59
19	National / EU measures: Tighter vehicle emissions standards	Policy Guidance and Development Control	Low Emissions Strategy	UK Government via the EU	-	Higher standards in place	-	Euro 6 real world emissions significant improvement on Euro 5	Direct nitrogen dioxide emissions are unlikely to be a problem within the Horley AQMA, given the distance from the road network. However, current breach on A23 heavily dependent on emissions improvement. Cost [e]: Low to RBBC, but very high (3+) to industry Air Quality Improvement: Up to 1 µg/m^{-3} at RB 59

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
20	National / EU measures: Tighter aircraft engine emissions standards	Policy Guidance and Development Control	Low Emissions Strategy	UK Government via the EU	-	Higher standards in place	-	Discussed informally with DfT representative on 16/10/07, especially the need initially for better and publically available data on APU [m] emissions	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 very limited work in this area (April 2016). However, APU running times at Gatwick have been reduced significantly since 2010. Cost [e]: Low to RBBC, but very high (3+) to industry Air Quality Improvement: Aim is to reduce the rate of growth of aircraft emissions

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
Road Traffic Measures									
1	Trial of Rapid Charging Point (50 kWh) for electric vehicles	Promoting Low Emissions Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	RBBC (Env. Health)	Oct 2015	Steady growth in the number of chargers and kWh of electricity supplied	On-going Equipment installed and running. Data collection in progress.	October 2018	Trial project to look at: 1. Demand for rapid electric vehicle charging in the borough, and how this changes with time 2. To understand the practicalities and costs of running such equipment Ultimate aim is to see if one or more rapid chargers are needed in the borough. Cost [e]: Low to Medium Air Quality Improvement: Variable depending on uptake of electric vehicles
2	Trial of destination charging of electric vehicles using fast (7 kWh) chargers	Promoting Low Emissions Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	RBBC (Env. Health)	2017 (subject to funding)	Installation of charge points. Steady growth in number of charges and kWh of electricity supplied.	On-going. Project scoping work underway (June 2016)	End 2021	Complementary project to the rapid charging project, to look at demand and usage pattern of destination chargers and gain practical experience of running such equipment including costs, with a view to growing the network across the borough depending on the findings. Looking to install four chargers in this first instance. Cost [e]: Low Air Quality Improvement: Variable depending on uptake of electric vehicles

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
3	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	Other	RBBC (Env. Health) / SCC (contact: Tim Brown)	Jan 2017	i) Data collection ii) Data analysis to determine if workable option iii) Scheme implementation	On-going. Data collection phase complete (June 2016). Work on track for data analysis.	January 2019	Trial project centred on Reigate High Street now complete. Data analysis due to start shortly but possible that no workable option exists. Cost [e]: Low Air Quality Improvement: Up to 1 µg/m^{-3}, and potentially higher
4	Changes in Physical Road Layouts to improve air quality (Hooley)	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	RBBC (Env. Health) / HA	Jan 2018 (subject to funding and availability of suitable emissions data set)	i) Micro-simulation scoping study ii) Implementation of scheme (if appropriate)	On-going. Funding sources being sought	January 2020	Work is to focus on the A23 Hooley AQMA. Aim of the micro-simulation 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. Cost [e]: Low - Medium Air Quality Improvement: Up to 1 µg/m^{-3}, and potentially higher

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
5	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	RBBC (Env. Health / Planning Policy)	April 2013	Road layout changes and building development complete	On-going. On track – changes in road layout complete. Delays in some redevelopment (liquid & envy site) but still on track in terms of overall progress	Final phase 2020	Aim of work is to ensure that residential housing built as part of the 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. Cost [e]: High Air Quality Improvement: Up to 1 $\mu g/m^{-3}$, and potentially higher
6	'High Quality Bus Corridors' (bus priority routes) within borough	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	SCC (contact: Alison Houghton) / RBBC (contact: Peter Boarder, Planning Policy)	April 2015	Completion of Redhill to Salfords route	On-going On track. Funding secured and initial works underway	April 2018	Initial work focussed on greater Redhill area. New sites introduced as funding becomes available, but to include: - A217 north of M25 (Sutton / Epsom) - A23 Merstham / Hooley (Croydon) - A25 Reigate / Redhill (Dorking / Oxted) Cost [e]: Medium - High Air Quality Improvement: Variable depending on scheme, and busses operating along that route

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
7	Maintain current taxi licensing regieme	Promoting Low Emission Transport	Taxi Licensing conditions	RBBC Licensing	On-going	Taxi standards maintained	On-going	On-going	Current scheme means that entire taxi fleet is replaced every nine years, with majority replaced within seven years. Important in wider air quality context as fleet has grown 2,5 x since 2005, from c. 500 to c. 1329 (2016) Cost [e]: Low Air Quality Improvement: < 0.1 µg/m^{-3}
8	Continued Promotion of Surrey Car Share	Alternatives to Private Vehicle Use	Car and lift sharing schemes	SCC (contact: Marc Woodall)	On-going	Steady growth in number of participants (1300 users at start of 2006)	On-going Currently (2016) 4282 active members compared to 3500 (2011)	On-going	Measurable improvement in air quality unlikely in the short medium term unless significant increase in users Cost [e]: Low (to RBBC) Air Quality Improvement: < 0.1 µg/m^{-3}
9	Promotion of cycling within schools	Promoting Travel Alternatives	Promotion of cycling	Sustrans SE, (Lalage Chatfield) / RBBC (Health & Wellbeing)	Sept 2015	Continuation of existing promotional work and training	On-going. Back to school cycle challenge Sept 2015	April 2020 (subject to funding will be 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. Cost [e]: Low (to RBBC) Air Quality Improvement: < 0.1 µg/m^{-3}
10	Promotion of low NO_x boilers, ground and air source heat pumps.	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	RBBC (contact: Leon Hibbs)	On-going since June 2005	Measure adopted by developers	On-going	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. Cost [e]: Low Air Quality Improvement: 0.1 - 1 µg/m^{-3}

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
11	Discourage use of biomass / wood burning stoves	Promoting Low Emission Plant	Other policy	RBBC (contact: Leon Hibbs)	On-going	No specific measure – impact conveyed via talks, planning and calls regarding smoke control areas	On-going	On-going	Use of biomass in a commercial setting considered on merits i.e. setting / nearby receptors Cost [e]: Low Air Quality Improvement: < 0.1 µg/m^{-3} at borough level
12	Air Pollution Warning Service for vulnerable groups	Public Information	Other	RBBC (Env. Health)	Oct 2013	Steady growth in number of participants (up to a total of 1000 users)	On-going Currently 708 active users (April 2016)	October 2018 – though looking at continuing subject to funding	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. Cost [e]: Low Air Quality Improvement: < 0.1 µg/m^{-3}
13	Production of borough wide mapping on $PM_{2.5}$ and nitrogen dioxide, including health impact assessment	Policy Guidance and Development Control	Other	RBBC (Env. Health)	April 2017	Production of map and health calculations	On-going Funding agreed	April 2018	Mapping is used as a policy tool to quantify changes in the health impact of pollution on residents with time, and inform county health funding priorities. Cost [e]: Low Air Quality Improvement: N/A

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Start Date	Performance Indicator	Progress to Date	Estimated Completion Date	Outcome / Comments
14	Monitoring	N/A	N/A	RBBC (contact: Leon Hibbs)	On-going	Data capture >90%	On-going	On-going	Data capture consistently in excess of 90% (with the exception on PM_{10} at RG1 in 2015) at all automatic monitoring sites. New equipment purchased and installed in 2015. Sites are important for examining trends in measures pollutant concentrations, compliance monitoring and also model validation. Cost [e]: Low – Medium depending on timescale Air Quality Improvement: N/A

[a] HA = Highways Agency.

[b] RBBC = Reigate and Banstead Borough Council.

[c] LTP = Local Transport Plan

[d] SCC = Surrey County Council.

[e] Costs: Low = £<100K, Medium = £100K - £1 million, High = £1 million - £10 million

[f] As used mid line forecast in original TEMPRO model equivalent to a 10% increase in traffic 2005 – 2010.

[g] HTC = Horley Town Council

[h] BAAG = British Airports Authority – Gatwick

[i] GAL – Gatwick Airport Limited

[j] GAJA = Gatwick Airport Joint Local Authorities

[k] GOG = Gatwick Officers Group

[l] GATCOM = Gatwick Consultative Committee

[m] APU = Auxiliary Power Units

2.3. $PM_{2.5}$: Local Authority Approach to Reducing Emissions and Concentrations

As detailed in Policy Guidance LAQM.PG16 Chapter 7 (Defra, 2016a), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5 µm 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.

In order to focus $PM_{2.5}$ actions, Reigate and Banstead Council is working on producing a borough-wide map of $PM_{2.5}$, to be completed by April 2018. This mapping includes a health impact assessment and is intended to be used as a policy tool to quantify changes in the health impact of $PM_{2.5}$ on residents with time, and to inform health funding priorities. There are current policy areas which will be assisting in reducing $PM_{2.5}$ including the Local Transport Plan, planning policy and the Air Quality Action Plans.

Contained within the Local Transport Plan and Action Plans are a variety of measures aimed at managing emissions from road traffic, particularly along the M25 and within the Horley AQMA. Measures intended to tackle road traffic pollutant emissions (including $PM_{2.5}$ emissions) include a variety of traffic management actions (intended to reduce speeds and congestion, improve traffic flow, limit road transport growth etc.) and the promotion of low emission travel alternatives (e.g. cycling, walking, electric vehicles) and lift sharing. See Table 2.2 for further information.

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

3.1. Summary of Monitoring Undertaken

3.1.1. Automatic Monitoring Sites

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

Reigate and Banstead Council undertook automatic (continuous) monitoring at three sites during 2015, two in Reigate and Banstead and one in the borough of Crawley. Table A1.1 in Appendix A1 shows the details of the 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 sites RG2 (Horley) and RG3 (between Crawley and Gatwick Airport), which are not AURN sites but which are operated to AURN standards, are available at https://www.londonair.org.uk/london/asp/data-download.asp.

Maps showing the location of the monitoring sites are provided in Appendix A4. Further details on how the monitors are calibrated and how the data have been adjusted are included in Appendix A2.

3.1.2. Non-Automatic Monitoring Sites

Reigate and Banstead undertook non-automatic (passive) monitoring of NO_2 at 103 sites during 2015. Table A1.2 in Appendix A1 shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix A4. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix A2.

3.2. Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias. Further details on adjustments are provided in Appendix A2.

3.2.1. Nitrogen Dioxide (NO_2)

Table A1.3 in Appendix A1 compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40 µg/m^3.

Table A1.4 in Appendix A1 compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200 µg/m^3, not to be exceeded more than 18 times per year.

Exceedences of the nitrogen dioxide annual mean objective were measured at seven diffusion tube monitoring sites. Exceedences >60 µg/m^3 were measured at one site (RB148) which indicates that an exceedence of the 1-hour mean objective at this site is likely. No exceedences of the annual mean or the 1-hour mean objectives were measured by the automatic monitoring stations.

Four of the sites measuring exceedences of the objective were within the Hooley AQMA, at roadside locations adjacent to the A23 Brighton Road. All exceedences were within currently declared AQMAs. One exceedence was measured in southwest Horley, by a roadside diffusion tube adjacent to an A-road (Brighton Road). One exceedence was measured in west Reigate, by a roadside diffusion located approximately 35 m from a crossroads between three A-roads (West Street, London Road and High Street) and a minor road (Park Lane). One exceedence was measured in Margery, by a roadside diffusion tube located approximately 12 m from an A-road (Brighton Road).

No exceedences occurred at sites located outside of the declared AQMAs. As such, no further AQMAs or extensions to the existing AQMAs are recommended as being necessary as a result of measured nitrogen dioxide concentrations.

Measured annual mean nitrogen dioxide concentrations at all three automatic monitoring sites show a slight trend of reducing annual mean concentrations over the period of their operation (see Figure 3.1 below). The number of hours of measured nitrogen dioxide concentrations >200 µg m^{-3} has consistently been zero at all three automatic monitoring sites over the period of their operation (see Table A1.4).

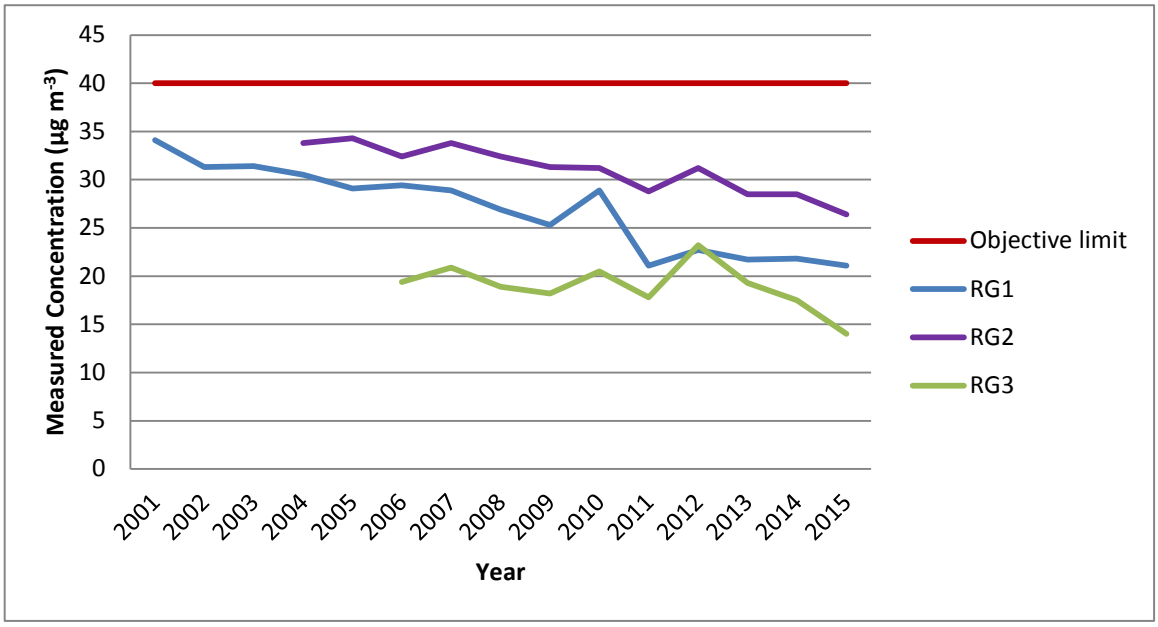

Figure 3.1: Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Sites, compared to the Annual Mean Nitrogen Dioxide Objective

3.2.2. Particulate Matter (PM_{10})

Table A1.5 in Appendix A1 compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40 µg/m^3.

Table A1.6 in Appendix A1 compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the air quality objective of 50 µg/m^3, not to be exceeded more than 35 times per year.

These figures demonstrate that there were no measured exceedences of the annual mean or 24-hour mean PM_{10} objectives at any of the local monitoring sites.

No exceedences occurred at sites located outside the declared AQMAs. As such no AQMAs are recommended as being necessary as a result of measured PM_{10} concentrations.

There are no strong trends in measured PM_{10} concentrations from 2006 – 2015. A weak overall trend of reducing numbers of days of measured PM_{10} concentrations >50 µg m^{-3} at RG1 may be identified from 2006 – 2015 (see Figure 3.3 below).

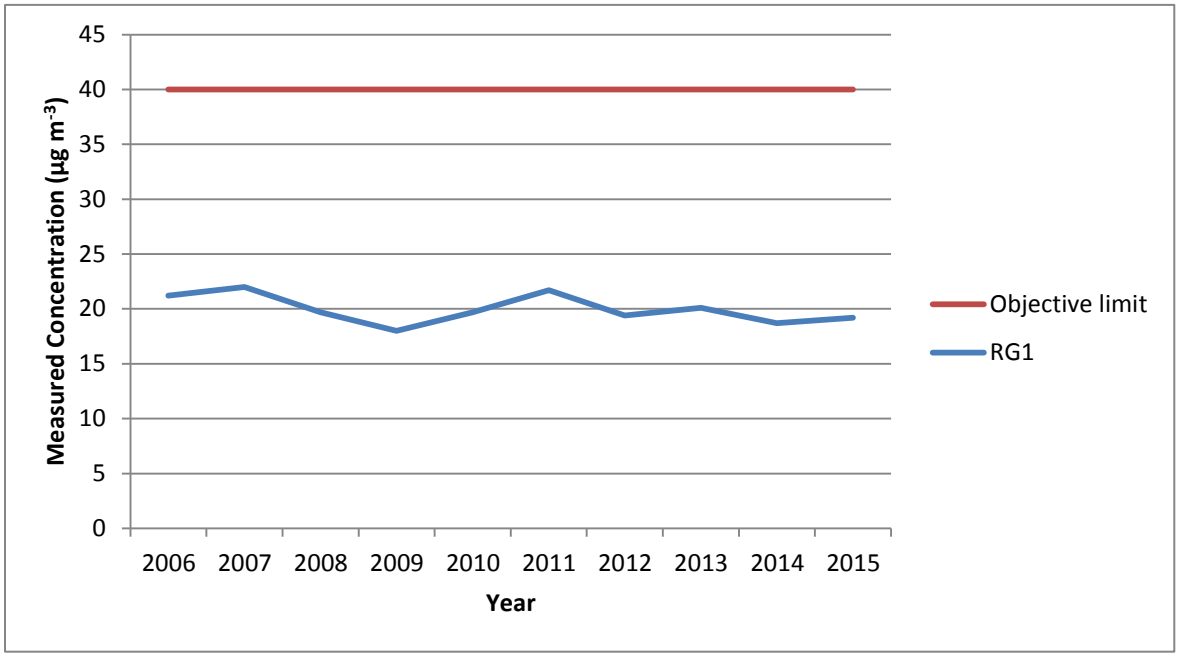

Figure 3.2: Trends in Annual Mean PM_{10} (VCM [a]) Concentrations measured at Automatic Monitoring Sites, compared to the Annual Mean PM_{10} Objective

[a] Data have been adjusted using the Volatile Correction Model (www.volatile-correction-model.info).

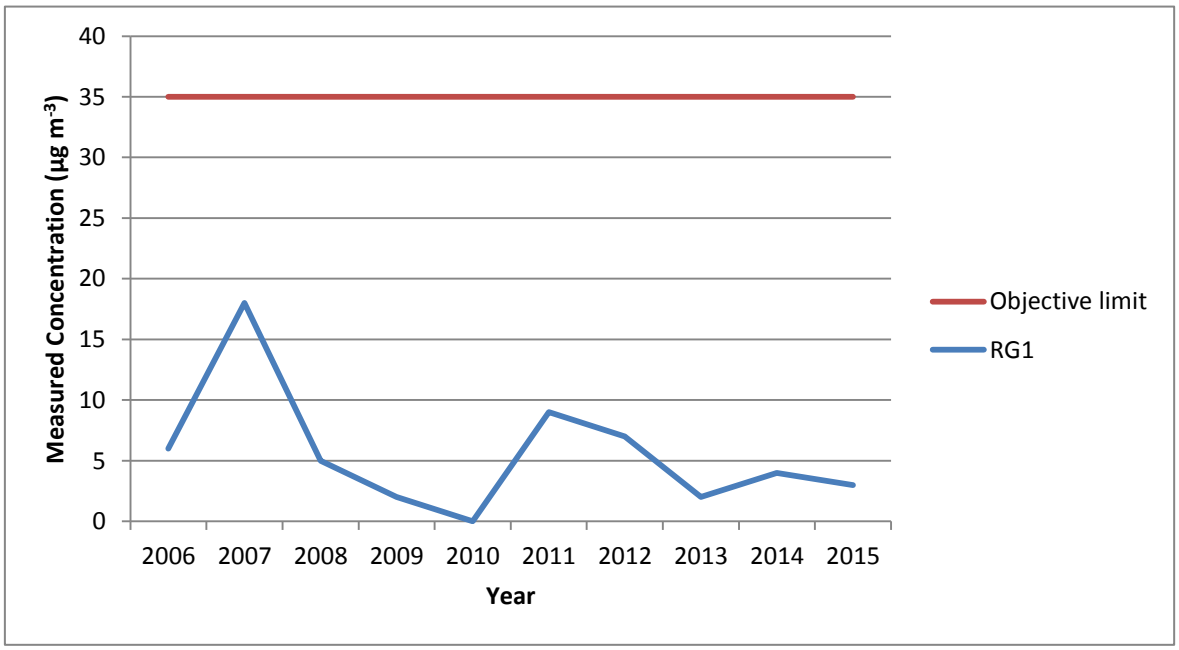

Figure 3.3: Trends in Number of Days PM_{10} (VCM [a]) Concentrations >50 µg m^{-3} measured at Automatic Monitoring Site RG1, compared to the 24-hour Mean PM_{10} Objective

[a] Data have been adjusted using the Volatile Correction Model (www.volatile-correction-model.info).

3.2.3. Benzene

Table A1.7 in Appendix A1 compares the ratified and adjusted monitored benzene annual mean concentrations for the past six years with the annual mean air quality objective of 5 µg/m^3.

The measured concentrations are consistently below the objective at all sites from 2010 – 2015. As such no further AQMAs are recommended as being necessary as a result of measured benzene concentrations.

There are no clear trends in measured benzene concentrations from 2010 – 2015.

3.3. Discussion of pollutant monitoring data and traffic data in relation to currently declared AQMAs

3.3.1. 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 the borough boundary.

There are two nitrogen dioxide diffusion tube monitoring sites located within the M25 AQMA, and nine nitrogen dioxide diffusion tube monitoring sites located close (i.e. within 50 m) to the AQMA. Measured pollutant concentrations at all monitoring sites were below the relevant air quality objectives in 2015.

3.3.2. AQMA No. 3: Horley

Horley AQMA covers an area of the southwest quadrant of Horley near to Gatwick Airport. The following monitoring sites are located within the AQMA:

- 40 diffusion tubes which monitor nitrogen dioxide concentrations;
- One diffusion tube which monitor benzene concentrations;
- One automatic monitoring station (RG1) which monitors nitrogen dioxide and PM_{10} concentrations; and
- One automatic monitoring station (RG2) 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 of the AQMA, measured exceedences of the nitrogen dioxide annual mean objective in its two years of monitoring (2014 – 2015). As there are only 2 years of data, it is not possible to comment on trends in concentrations at this location.

Measured pollutant concentrations at all of the other monitoring sites were below the relevant air quality objectives in 2015.

Figure 3.4 below shows traffic flows along the A23 in Horley. The data suggests a slight trend of increasing annual mean daily traffic flows from 2012 to 2015. Average speed is relatively consistent across each year.

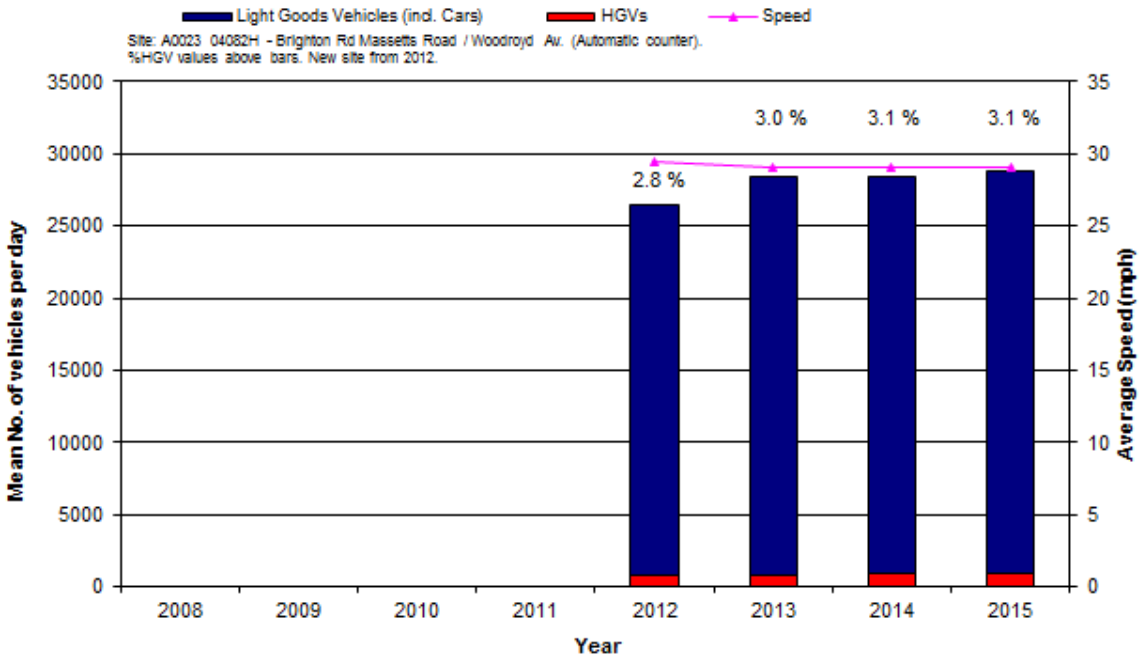

Figure 3.4: A23, Horley, Annual Mean Daily Traffic Flows, 2012 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.3. 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 located within the AQMA and one located approximately 14 m to the north of the AQMA. Measured concentrations at one of the monitoring sites (RB49) exceeded the annual mean nitrogen dioxide objective from 2010 – 2015, and indicated the likely possibility of exceedences of the 1-hour mean nitrogen dioxide objective in 2010 and 2012 as concentrations above 60 $\mu g/m^{-3}$ were measured. No clear trend in measured concentrations is apparent at RB49 from 2010 - 2015. Measured concentrations at the other monitoring sites were below the relevant air quality objective in 2015.

Figure 3.5 below shows traffic flows along the A27, near to Blackhorse Lane, in close proximity to Blackhorse Lane AQMA. The data suggests a gradual overall decrease in annual mean daily

traffic flows over the period monitored. Measurements of average speed in 2011 and 2012 suggest that speeds are relatively constant.

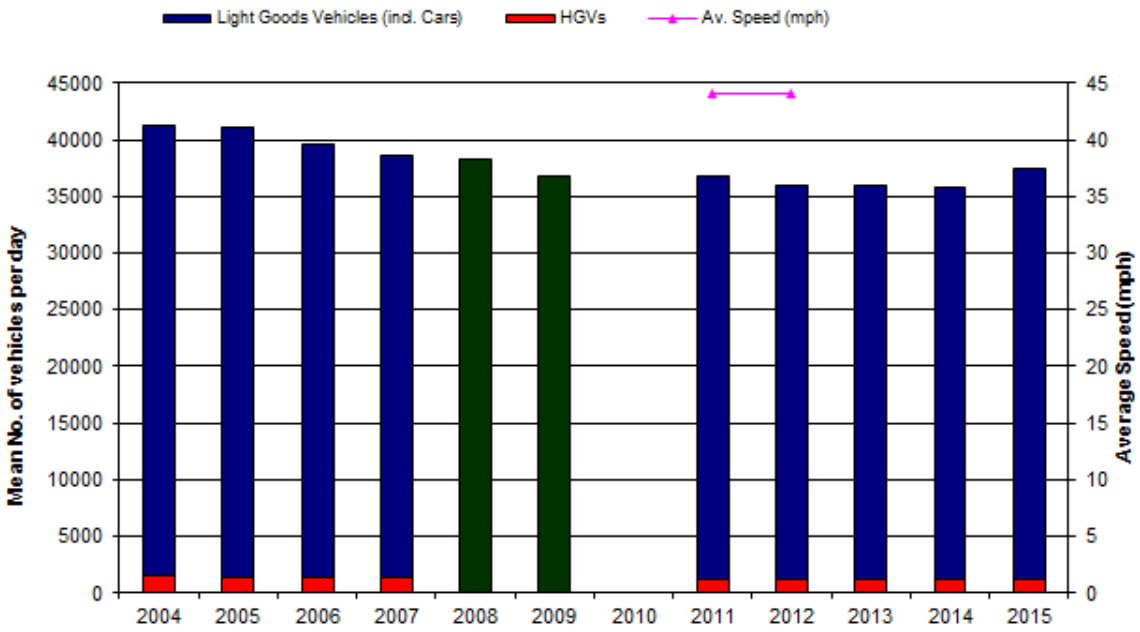

Figure 3.5: A217 (Near to Blackhorse Lane) Annual Mean Daily Traffic Flows, 2004 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.4. AMQA 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 three locations near to the AQMA. Concentrations at all of the monitoring sites were below the air quality objective in 2015.

Figure 3.6 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. 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 flow is relatively stable.

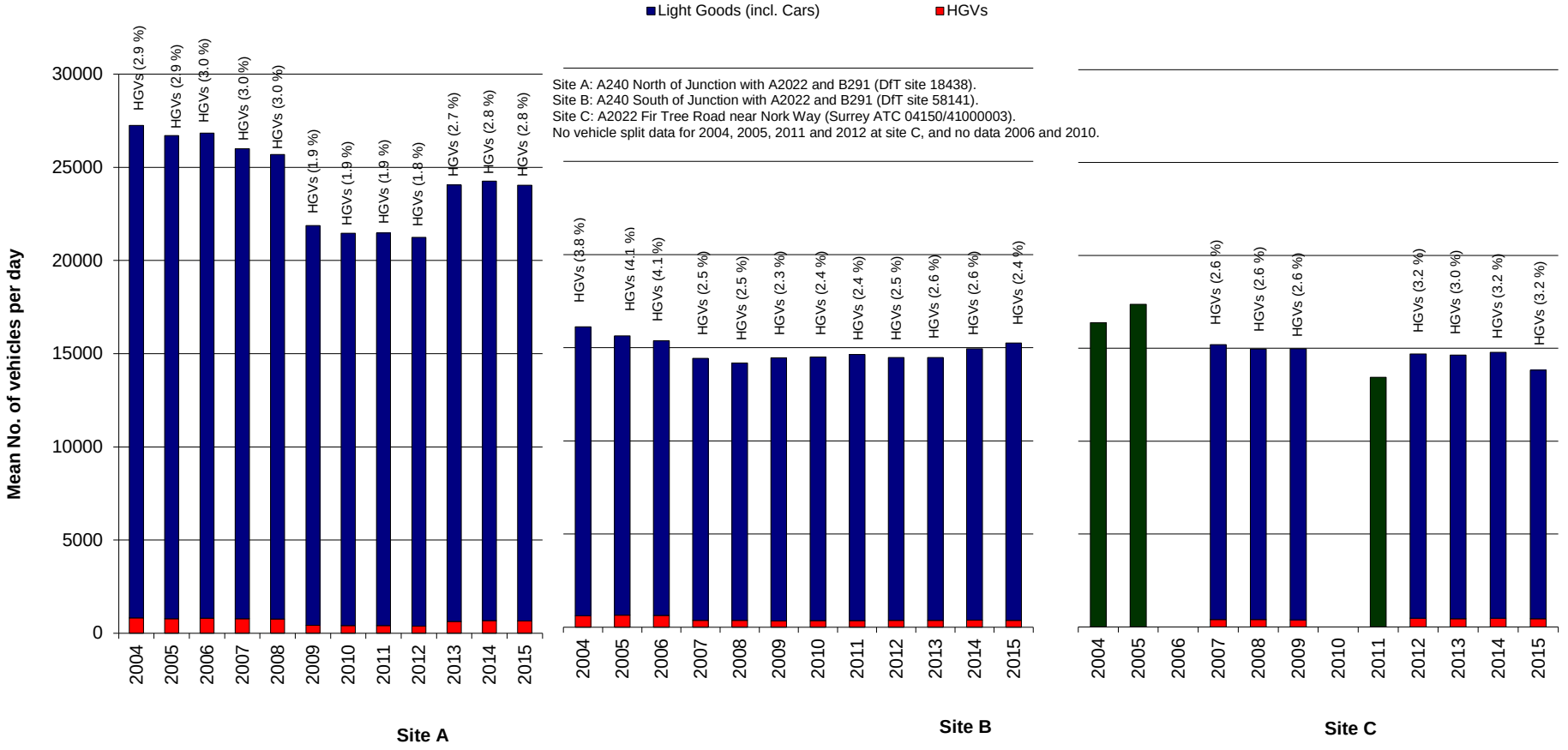

Figure 3.6: Drift Bridge, Banstead (Sites A, B and C) Annual Mean Daily Traffic Flows, 2004 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.5. AQMA No. 9: Reigate High St / West St / Bell St

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 diffusion tube monitoring takes place at 20 locations within the AQMA, and at one location just beyond its boundary. Benzene diffusion tube monitoring takes place at one location within the AQMA (note: the AQMA was declared for exceedences of the annual mean nitrogen dioxide objective). Measured concentrations of nitrogen dioxide at one monitoring site (RB117) exceed the annual mean objective in each year from 2010 to 2015. There is no obvious trend in measured concentrations at RB117 during this time period. Measured concentrations of nitrogen dioxide and benzene at all of the other monitoring sites were below the relevant air quality objectives in 2015.

Figure 3.7 below shows traffic flows along Reigate High Street. The data suggests a weak trend of reducing annual mean daily traffic flows from 2004 to 2015.

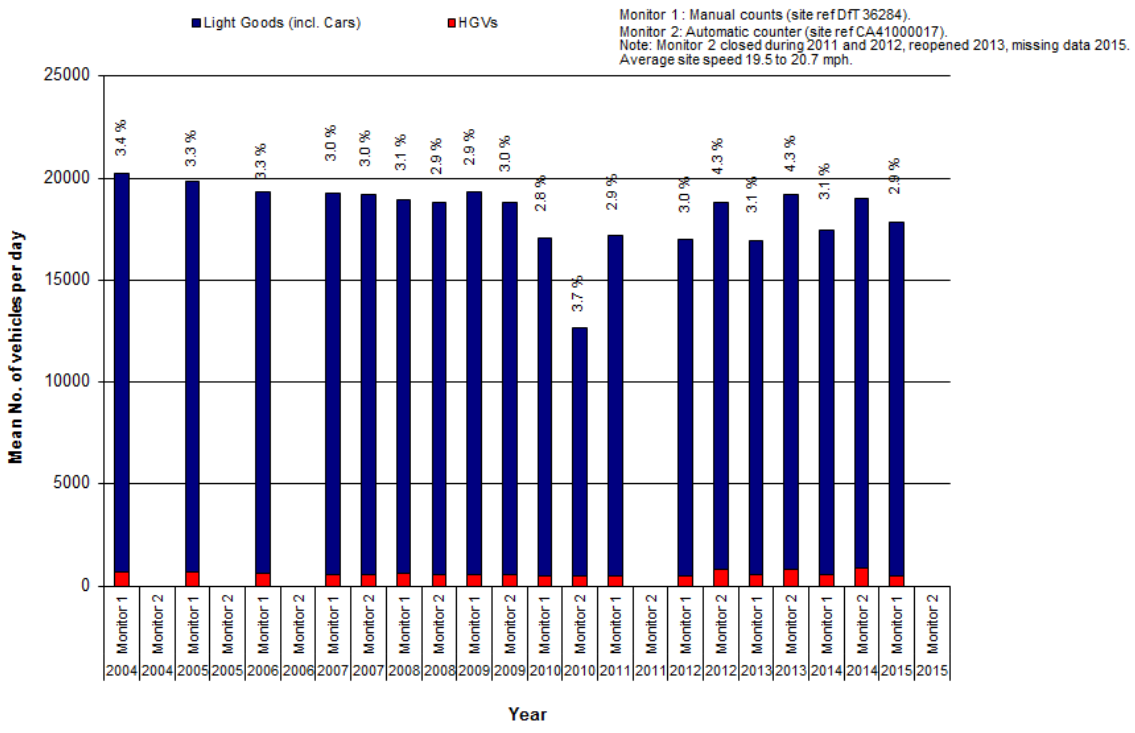

Figure 3.7: Reigate High Street Annual Mean Daily Traffic Flows, 2004 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.6. 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, and at one site just outside of the AQMA. Benzene monitoring takes place at one diffusion tube site located within the AQMA (note: the AQMA was declared for exceedences of the annual mean nitrogen dioxide objective). Measured concentrations of all pollutants at all locations were below the relevant air quality objectives in 2015.

Figure 3.8 below shows traffic flows along the A23 as it passes through Merstham. No clear trends in either annual mean daily traffic flow or average speed are suggested by the data between 2004 and 2015.

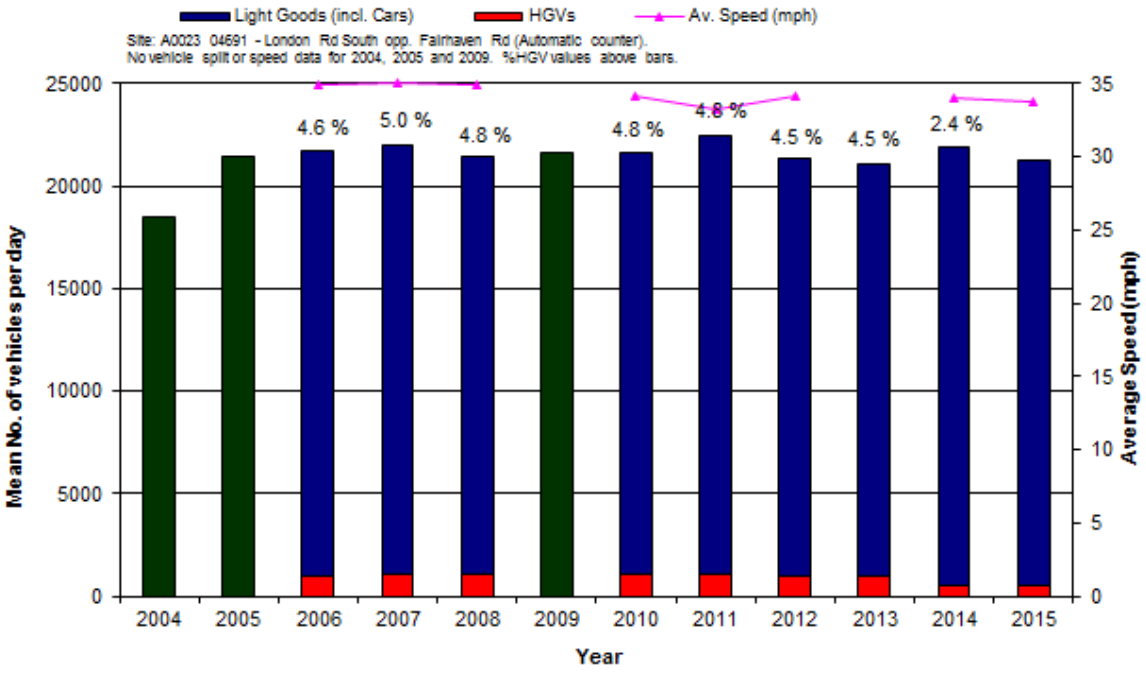

Figure 3.8: A23, Merstham, Annual Mean Daily Traffic Flows, 2004 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.7. 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. Concentrations at each of these monitoring sites were below the relevant air quality objectives in 2015.

Figure 3.9 below shows traffic flows along the A217, north of Raglan Road. There is no clear trend in annual mean daily traffic flows or traffic speeds between 2008 and 2015.

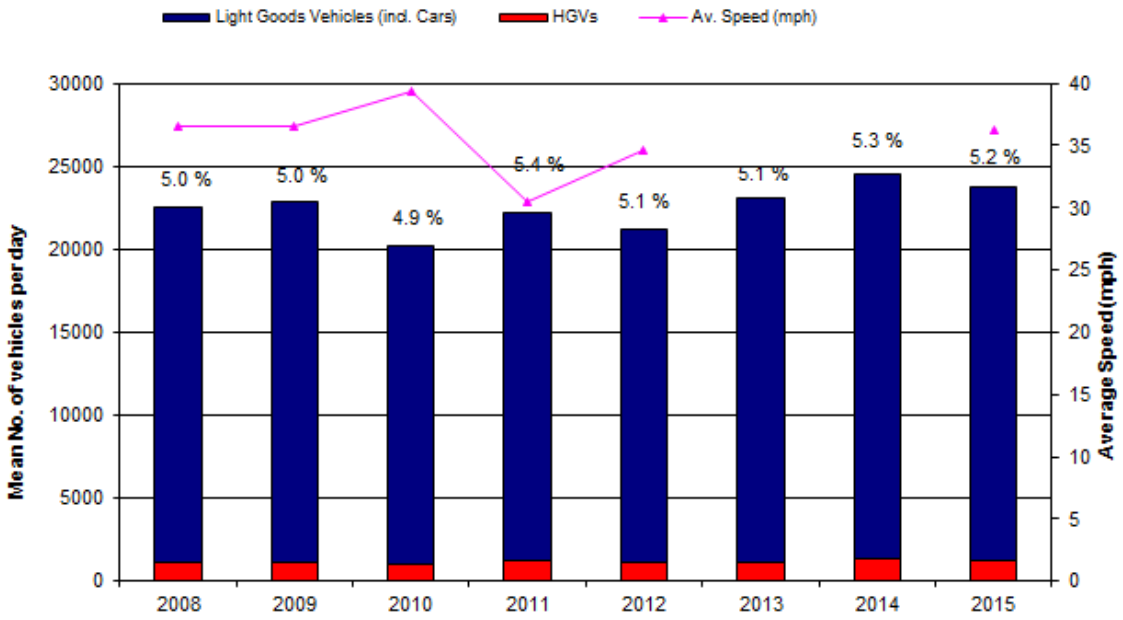

Figure 3.9: A217 Reigate Hill (North of Raglan Road) Annual Mean Daily Traffic Flows, 2008 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.8. 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 was below the relevant air quality objective in 2015.

Figure 3.10 below shows traffic flows along the A23, south of Redhill. Data suggests that there are no clear trends in annual mean daily traffic from 2006 to 2015, and that average speed has remained relatively stable between 2006 and 2012.

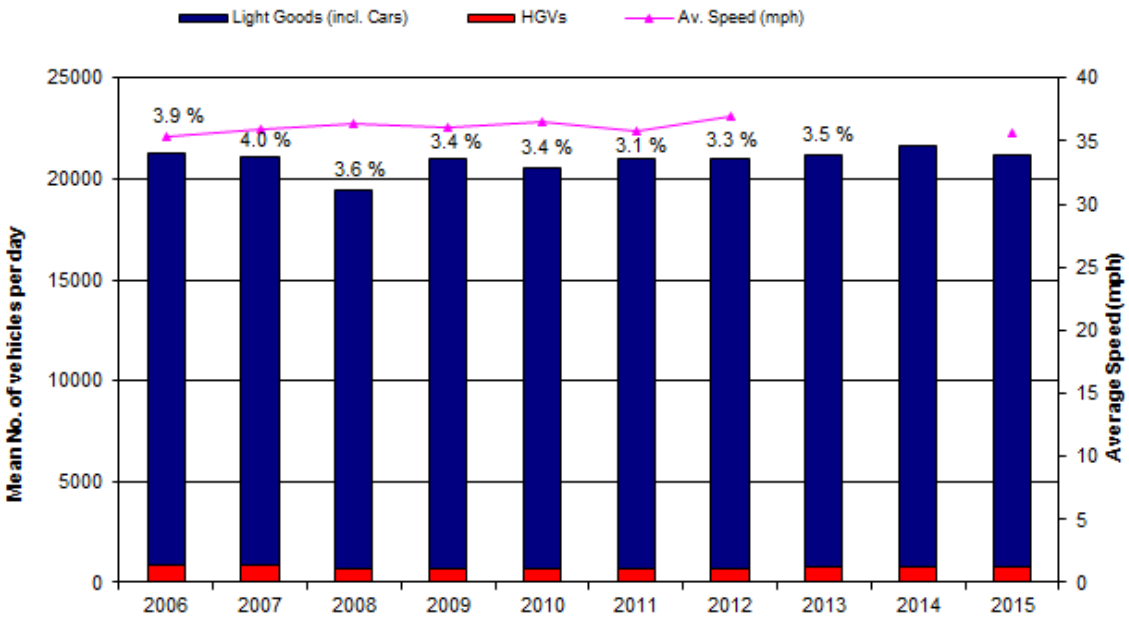

Figure 3.10: A23 (South of Redhill) Annual Mean Daily Traffic Flows, 2006 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

3.3.9. 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 and Church Lane. Nitrogen dioxide monitoring takes place at four diffusion tube sites located within the AQMA and one diffusion tube site located outside of the AQMA.

Measured concentrations at all four roadside diffusion tube sites within the Hooley AQMA exceeded the annual mean nitrogen dioxide objective in 2015. Exceedences were also measured at RB136 from 2010 to 2014, at RB137 from 2010 to 2013, at RB146 from 2012 to 2014 and at RB148 from 2012 to 2014. Concentrations of >60 µg/m^{-3} were measured at RB136 (in 2010, 2012 and 2014), RB137 (in 2010 and 2012) and RB148 (from 2012 to 2015), indicating likely exceedences of the 1-hour mean nitrogen dioxide objective. The monitoring data does not suggest any clear trend from 2010 to 2015 at sites RB136, RB137 and RB146. Measured concentrations at site RB148 suggest a possible trend of decreasing concentrations between 2012 and 2015. Measured concentrations at the diffusion tube located outside of the AQMA were below the relevant air quality objective in 2015.

Figure 3.11 below shows traffic flows along the A23, in Hooley. These data suggests very slightly increasing annual mean daily traffic flows from 2004 to 2008, following which there is a significant

decrease in 2009. Between 2009 and 2015 flows are relatively stable, although there does appear to be slight trend of increasing vehicle numbers over this period.

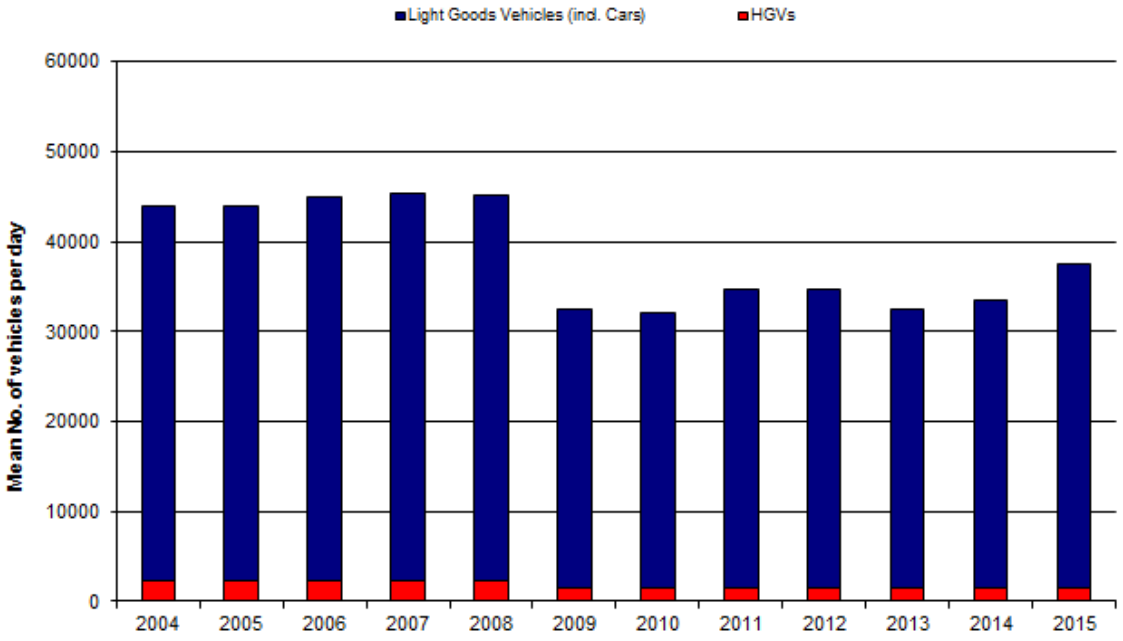

Figure 3.11: A23 (Hooley) Annual Mean Daily Traffic Flows, 2004 – 2015 [a]

[a] Graph provided by Reigate and Banstead Council

Appendices

A1 Appendix A: Monitoring Results

Table A1.1: Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA	Monitoring Technique	Relevant Exposure (m)?	Distance to kerb of nearest road (m)	Inlet Height (m)
RG1	RG1 – Michael Crescent, Horley	Suburban	528208	142337	NO_2, PM_{10}	Y	Chemiluminescence, TEOM	Y	19	3.5
RG2	RG2 – 74 The Crescent, Horley	Suburban	528553	141857	NO_2	Y	Chemiluminescence	Y	3	1.5
RG3 [a]	Poles Lane Pumping Station, Crawley	Rural	526421	139639	NO_2, ozone (not reported in this report)	N	Chemiluminescence	Y	11	2.0

[a] This automatic monitoring site is located outside Reigate and Banstead Borough, but is operated by Reigate and Banstead Council.

Table A1.2: Details of Non-Automatic Monitoring Sites

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
RB1	Boots, 34 – 36 High Street, Reigate, RH2 9AT	Roadside	525246	150252	NO_2	Y	Y	5.1	N	3.1
RB1	Boots, 34 – 36 High Street, Reigate, RH2 9AT	Roadside	525246	150252	Benzene	Y	Y	5.1	N	3.1
RB3	Nr Ambulance Station, The	Urban background	524944	159630	NO_2	N	N	n/a	N	3.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Horseshoe, Banstead									
RB8	Rear of Boots, Reigate	Urban background	525246	150286	NO_2	N	Y	39.5	N	3.7
RB9	Back of 62, St Mary's Road, Reigate	Urban background	525750	149677	NO_2	N	Y	n/a	N	2.5
RB11	Outside 38, Riverside, Horley	Suburban	525750	149677	NO_2	Y	Y	n/a	N	3.0
RB11	Outside 38, Riverside, Horley	Suburban	528104	142226	Benzene	Y	Y	n/a	N	3.0
RB12	Horley Police Station, Massetts Road, Horley	Roadside	528424	142934	NO_2	Y	N	0.4	N	2.9
RB13	Public Car Park, off Massetts Road, Horley	Other	528362	142983	NO_2	N	Y	53.7	N	2.9
RB17	11, Sylvan Way, Redhill	Urban background	528511	149715	NO_2	N	N	n/a	N	2.9
RB18	60, Brook Road, Merstham	Urban background	529263	153156	NO_2	N	N	n/a	N	3.0
RB19	Village Hall, Station Road, Merstham	Suburban	529067	153375	NO_2	N	N	62.1	N	2.9
RB20	Corner of London Road, Merstham	Roadside	529026	153420	NO_2	Y	N	2.8	N	2.9
RB20	Corner of	Roadside	529026	153420	Benzene	Y	N	2.8	N	2.9

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	London Road, Merstham									
RB21	Opposite Drift Bridge Hotel, Reigate Road, Banstead	Roadside	523198	160095	NO_2	N	N	1.8	N	2.9
RB22	Opposite 2 Grey Alders, Banstead	Suburban	523260	160111	NO_2	N	N	21.8	N	2.9
RB23	Outside Warren Mead School, Roundabout Way, Banstead	Urban background	523612	159906	NO_2	N	N	n/a	N	2.7
RB24	Horley Air Monitoring Station	Background	528208	142337	NO_2	Y	Y	n/a	Y	3.5
RB25	Horley Air Monitoring Station	Background	528208	142337	NO_2	Y	Y	n/a	Y	3.5
RB26	Horley Air Monitoring Station	Background	528208	142337	NO_2	Y	Y	n/a	Y	3.5
RB27	White Lodge, Sturts Lane, WHO	Roadside (Near M25)	521873	153896	NO_2	Y	Y	18.1	N	3.0
RB28	Badgers Cottage, Sturts Lane, WHO	Roadside (Near M25)	521913	153940	NO_2	N	Y	76.5	N	3.0
RB29 [b]	April Cottage, Sturts Lane, WHO	Roadside (Near M25)	521921	153937	NO_2	N	Y	80.1	N	3.0
RB30	Linden Lea,	Roadside	522112	153728	NO_2	Y	Y	31.1	N	3.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Chequers Lane, WHO	(Near M25)								
RB31	Margery Hall, Reigate Hill	Roadside (Near M25)	525506	152366	NO_2	N	Y	138.3	N	3.0
RB33	Rose Cottage, Margery Grove, KT20 7EZ	Roadside (Near M25)	524081	152580	NO_2	N	Y	58.6	N	3.0
RB34	Stagholt, Merrywood Grove	Roadside (Near M25)	524177	152393	NO_2	N	Y	64.5	N	3.0
RB36	Old Church House, Gatton Bottom	Roadside (Near M25)	528887	153760	NO_2	N	Y	76.1	N	3.0
RB37	14 Ashcombe Road, Merstham	Roadside (Near M25)	529217	153605	NO_2	N	Y	68.3	N	3.0
RB38 [b]	16 Ashcombe Road, Merstham	Roadside (Near M25)	529208	153584	NO_2	N	Y	46.2	N	3.0
RB39	17 Ashcombe Road, Merstham	Roadside (Near M25)	529205	153572	NO_2	N	Y	34.8	N	3.0
RB40	Dilkusha, Shepherds Hill	Roadside (Near M25)	529252	154291	NO_2	N	Y	26.3	N	3.0
RB41 [b]	Upalond, Shepherds Hill	Roadside (Near M25)	529293	154281	NO_2	N	Y	44.1	N	3.0
RB42 [b]	Outside Rhydlanfair, Shephers Hill, Merstham	Roadside	529234	154317	NO_2	N	N	29.2	N	3.0
RB43	Glade House, Quality Street, Merstham	Roadside (Near M25)	528797	153612	NO_2	N	Y	50.8	N	3.0
RB44	Outside	Roadside	525532	150316	NO_2	Y	Y	14.6	N	3.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Gunshop. 45 Church St, Reigate									
RB45	Outside 14 -18 Church Street, Reigate	Roadside	525431	150270	NO_2	Y	N	0.0	N	3.0
RB46	Outside Gerrards Menswear, 5 High Street, Reigate	Roadside	525346	150241	NO_2	Y	N	0.0	N	3.0
RB47	Outside Nationwide, 78 High Street, Reigate	Roadside	525114	150276	NO_2	Y	Y	8.2	N	3.0
RB49	Highlands, Brighton Road	Roadside (Near A217)	525705	152947	NO_2	Y	Y	11.2	N	3.0
RB50	Yew Cottage, Brighton Road	Roadside (Near A217)	525705	152967	NO_2	N	Y	19.1	N	3.0
RB51	Outside 17 Wolverton Gardens, Horley	Suburban	527873	142606	NO_2	Y	Y	15.2	N	3.5
RB52	Outside 20 Wolverton Gardens, Horley	Suburban	527892	142463	NO_2	Y	Y	14.2	N	3.5
RB53	Outside 66 / 68 Cheyne Walk, Horley	Suburban	528030	142373	NO_2	Y	N	4.9	N	3.5
RB54	Outside 7 / 9 Crescent Way, Horley	Suburban	528112	142321	NO_2	Y	N	7.2	N	3.5
RB55	Outside 40a	Suburban	528254	142196	NO_2	Y	N	1.4	N	3.5

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Crescent Way, Horley									
RB56	Outside 8 / 10 The Crescent, Horley	Suburban	528386	142080	NO_2	Y	N	2.7	N	3.5
RB57	Outside 29 / 31 The Crescent, Horley	Suburban	528499	141953	NO_2	Y	N	2.8	N	3.5
RB58	Outside 39 / 41 The Crescent, Horley	Suburban	528538	141897	NO_2	Y	N	2.6	N	3.5
RB59	Outside 92 / 94 The Crescent, Horley	Suburban	528602	141789	NO_2	Y	N	42.6	N	3.5
RB60	Outside 120 / 122 The Crescent, Horley	Suburban	528607	141910	NO_2	Y	N	2.8	N	3.5
RB61	Outside 79 / 81 The Crescent, Horley	Suburban	528578	142006	NO_2	Y	N	1.0	N	3.5
RB64	Outside 16 / 22 The Drive, Horley	Suburban	528608	142432	NO_2	Y	Y	18.3	N	3.5
RB65	Outside 4 / 6 The Drive, Horley	Suburban	528581	142635	NO_2	Y	Y	17.1	N	3.5
RB66	Outside 3a / 3b Fairfield Avenue, Horley	Suburban	528499	142512	NO_2	Y	Y	18.4	N	3.5
RB67 [b]	Outside 30 / 32 Fairfield	Suburban	528462	142366	NO_2	Y	Y	16.4	N	3.5

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Avenue, Horley									
RB68	Outside 57 Fairfield Avenue, Horley	Suburban	528505	142246	NO_2	Y	Y	18.7	N	3.5
RB69	Outside 61 Upfield, Horley	Suburban	528335	142224	NO_2	Y	Y	14.3	N	3.5
RB70	Outside 58 / 60 Upfield, Horley	Suburban	528360	142384	NO_2	Y	Y	17.8	N	3.5
RB72	Outside 25 / 27 Upfield, Horley	Suburban	528220	142583	NO_2	Y	Y	20.5	N	3.5
RB73	Outside 9 / 11 Upfield, Horley	Suburban	528172	142679	NO_2	Y	Y	18.6	N	3.5
RB74	On Green, 30a / 30b Meadowcroft Close, Horley	Suburban	529149	141953	NO_2	Y	N	146.1	N	3.5
RB75	On Roundabout, The Coronet, Horley	Suburban	529203	142192	NO_2	Y	Y	20.8	N	3.5
RB76	33 Limes Avenue, Horley	Suburban	528958	142468	NO_2	Y	Y	144.1	N	3.5
RB77	Layby at Entrance to Staffords Place, Horley	Suburban	528789	142570	NO_2	Y	Y	12.4	N	3.5
RB78	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO_2	Y	N	2.6	Y	3.5
RB79	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO_2	Y	N	2.6	Y	3.5

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
RB80	Outside 74 The Crescent, Horley	Suburban	528553	141857	NO_2	Y	N	2.6	Y	3.5
RB81	Outside Flying Scud Public House, Brighton Road, Redhill	Roadside (A23 AQMA)	527594	149236	NO_2	N	Y	5.7	N	3.5
RB82	Outside 1 Deans Lane, Hooley	Suburban (A23 AQMA)	528770	155797	NO_2	Y	Y	31.2	N	3.5
RB94 [b]	Outside 1 Deans Lane, Hooley	Suburban (A23 AQMA)	528770	155797	NO_2	Y	Y	31.2	N	3.5
RB95	Flat 1, Tasboro House, Rushworth Road	Roadside	525382	150639	NO_2	Y	Y	5.9	N	2.0
RB98	16 / 17 Woodroyd Gardens	Suburban	527931	142231	NO_2	Y	N	n/a	N	2.0
RB99 [c]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO_2	N	Y	n/a	Y	2.0
RB100 [c]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO_2	N	Y	n/a	Y	2.0
RB101 [c]	Poles Lane Pumping Station, Cawley	Rural / Other	526421	139639	NO_2	N	Y	n/a	Y	2.0
RB102 [c]	In Field near Bridleway, Hathersham	Rural / Other	530937	144272	NO_2	N	N	42.1	N	2.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Farm, Horley									
RB104	ASK, High Street, Reigate	Roadside	525204	150254	NO_2	Y	Y	4.6	N	2.0
RB105	Finishing Touch, High Street, Reigate	Roadside	525203	150239	NO_2	Y	Y	2.8	N	2.0
RB106	Outside Crossways, Fir Tree Road, Banstead	Roadside	523250	160056	NO_2	Y	Y	2.2	N	2.0
RB107	Sussex Blinds, 29 Church Street	Roadside	525467	150292	NO_2	Y	N	2.4	N	2.0
RB109	Male Territory, 27a Bell Street, Reigate	Roadside	525387	150178	NO_2	Y	Y	3.6	N	2.0
RB110	204 London Road North opposite RB20	Roadside	525387	150178	NO_2	Y	Y	5.0	N	2.0
RB111	Knotts Pine, 1 West Street, Reigate	Roadside	525031	150291	NO_2	Y	Y	4.2	N	2.0
RB112 [b]	Priority Cottage, 21 West Street, Reigate	Roadside	524963	150333	NO_2	Y	Y	2.0	N	2.0
RB113	Opposite Newbury Road	Roadside	524795	150404	NO_2	Y	Y	2.4	N	2.0
RB114	Outside 87, West Street, Regate	Roadside	524368	150477	NO_2	N	N	1.5	N	2.0
RB115	Outside 36,	Roadside	524751	150428	NO_2	Y	Y	2.7	N	2.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	West Street, Reigate									
RB116	Outside 12, West Street, Reigate	Roadside	525022	150317	NO_2	Y	Y	0.6	N	2.0
RB117	Crossway House, 8 London Road, Reigate	Roadside	525076	150327	NO_2	Y	Y	3.2	N	2.0
RB118	8 Burlington Place, Reigate	Roadside	525151	150467	NO_2	Y	Y	14.2	N	2.0
RB120	Outside 21 Redstone Hill, Redhill	Roadside	528196	150421	NO_2	N	Y	2.7	N	2.0
RB121 [b]	Opposite Ladbrook Grove, Redhill	Kerbside	528092	150786	NO_2	N	N	2.1	N	2.0
RB122	Roundabout sign 5158 near carpark, Marketfield Way, Redhill	Roadside	528013	150475	NO_2	N	N	2.4	N	2.0
RB123	Outside Age Concern Cromwell Road, Redhill	Kerbside	528013	150475	NO_2	N	N	0.4	N	2.0
RB124	Outside 22 High Street, Merstham	Roadside	529013	153285	NO_2	Y	N	4.4	N	2.0
RB125	Opposite Reigate Hill Close, Reigate	Roadside	525589	151655	NO_2	N	N	2.5	N	2.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Hill									
RB126 [b]	Opposite Natwest Banstead High Street	Kerbside	525314	159671	NO_2	N	N	5.0	N	2.0
RB136	Outside 45 Brighton Road, Hooley	Roadside	528810	156474	NO_2	Y	N	1.8	N	2.0
RB137	Opposite 23 Brighton Road, Hooley	Roadside	528831	156648	NO_2	Y	N	1.8	N	2.0
RB138 [b]	Outside All Saints Church, High Street, Banstead	Roadside	525491	159729	NO_2	Y	N	3.7	N	2.0
RB139 [b]	173 High Street, Banstead	Kerbside	525772	159895	NO_2	Y	N	1.5	N	2.0
RB140	Flat 2, 45 Ladbrook Grove, Redhill	Roadside	528122	150799	NO_2	Y	N	14.0	N	2.0
RB141	Near roundabout outside 105 Station Road, Redhill	Roadside	527373	150596	NO_2	Y	N	3.1	N	2.0
RB142 [b]	Reigate High Street	Kerbside	525335	150251	NO_2	Y	Y	0.5	N	2.0
RB143 [b]	Reigate High Street	Kerbside	525335	150251	NO_2	Y	Y	0.5	N	2.0
RB144 [b]	Reigate High Street	Kerbside	525335	150251	NO_2	Y	Y	0.5	N	2.0

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
RB145	Outside Brewers, 33 Brighton Road, Redhill	Kerbside	527852	150158	NO_2	Y	N	2.0	N	2.0
RB146	Lamp post opposite ESSO Garage, Brighton Road, Hooley	Kerbside	528759	156277	NO_2	Y	N	3.2	N	2.0
RB147	Lamp post halfway down footpath by the side of 92 / 92b Brighton Road, Hooley	Background	528731	156407	NO_2	N	N	51.1	N	2.0
RB148	Outside 17 Star Cottages, Brighton Road, Hooley	Kerbside	528855	156674	NO_2	Y	N	2.1	N	2.5
RB149	Outside 6 Brighton Road, Horley	Roadside	527737	142710	NO_2	Y	N	1.0	N	2.5
RB150	In front of 8 Elvington Lodge, Reigate Hill	Roadside	525397	150867	NO_2	Y	N	3.4	N	2.0
RB151	Between 83 and 85 Victoria Road, Horley	Roadside	528502	142952	NO_2	Y	Y	1.8	N	2.5
RB152	A23 south of New Battlebridge	Roadside	528599	152439	NO_2	N	N	1.7	N	2.5

Site ID	Site Name / Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutant Monitored	In AQMA	Relevant Exposure (m)?	Distance to kerb of nearest road (m) [a]	Tube Collocated with a Continuous Analyser	Height (m)
	Lane									
RB153	Outside 1 Horley Road junction with Three Arch Road	Roadside	527837	148046	NO_2	N	N	2.9	N	2.5
RB167	Queensway, Redhill	Roadside	527830	150643	NO_2	Y	Y	3.1	N	3.0

[a] N/A if not applicable.

[b] Monitoring site discontinued by 2015

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

Table A1.3: Annual Mean NO2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (2015) (%) [a]	Valid Data Capture 2015 (%) [b]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [c]					
					2010	2011	2012	2013	2014	2015
RG1	Suburban	Automatic	98.6	98.6	28.9	21.1	22.7	21.7	21.8	21.1
RG2	Suburban	Automatic	98.7	98.7	31.2	28.8	31.2	28.5	28.5	26.4
RG3	Rural	Automatic	99.3	99.3	20.5	17.8	23.2	19.3	17.5	14.0
RB1	Roadside	Diffusion tube	100.0	100.0	**45.3**	33.6	**41.2**	37.5	33.3	30.6
RB3	Urban background	Diffusion tube	100.0	100.0	24.7	18.1	22.1	22.6	18.8	17.6
RB8	Intermediate	Diffusion tube	91.7	91.7	26.9	20.0	23.7	22.6	18.6	18.5
RB9	Urban background	Diffusion tube	100.0	100.0	24.2	17.4	22.2	19.0	18.0	14.8
RB11	Suburban	Diffusion tube	100.0	100.0	27.0	22.1	27.73	23.9	18.0	22.0
RB12	Roadside	Diffusion tube	100.0	100.0	32.6	26.3	32.2	29.4	24.0	23.2
RB13	Intermediate	Diffusion tube	100.0	100.0	28.3	21.2	27.6	25.2	21.2	20.0

RB17	Urban background	Diffusion tube	83.3	83.3	23.5	16.5	29.5	17.9	15.4	13.0
RB18	Urban background	Diffusion tube	100.0	100.0	30.8	25.1	31.5	28.4	23.0	22.3
RB19	Intermediate	Diffusion tube	100.0	100.0	29.4	23.4	27.1	27.1	23.4	21.8
RB20	Roadside	Diffusion tube	100.0	100.0	**45.2**	33.3	39.2	37.4	34.0	33.6
RB21	Roadside	Diffusion tube	100.0	100.0	**59.4**	38.6	**46.1**	**40.2**	39.1	35.6
RB22	Intermediate	Diffusion tube	100.0	100.0	24.7	19.8	25.6	23.6	19.2	18.9
RB23	Urban background	Diffusion tube	100.0	100.0	23.1	18.4	22.5	21.2	17.6	16.2
RB24	Background	Diffusion tube	91.7	91.7	24.9	21.0	25.8	22.6	27.7	21.9
RB25	Background	Diffusion tube	100.0	100.0	26.4	22.6	27.1	23.4	22.2	20.8
RB26	Background	Diffusion tube	100.0	100.0	27.6	23.6	27.1	23.8	22.7	20.3
RB27	Roadside (near M25)	Diffusion tube	100.0	100.0	35.3	28.7	34.2	29.5	28.4	27.1
RB28	Roadside (near M25)	Diffusion tube	100.0	100.0	33.2	27.1	32.2	25.5	24.0	24.2
RB29	Roadside (near M25)	Diffusion tube	n/a	n/a	31.2	26.0	-	-	-	-
RB30	Roadside (near M25)	Diffusion tube	100.0	100.0	31.1	24.2	29.5	25.0	24.1	22.7
RB31	Roadside (near M25)	Diffusion tube	100.0	100.0	26.5	18.3	20.7	21.1	18.0	17.2
RB33	Roadside (near M25)	Diffusion tube	100.0	100.0	27.0	23.4	28.1	22.1	22.7	21.4
RB34	Roadside (near M25)	Diffusion tube	91.7	91.7	27.5	18.4	23.3	25.2	26.4	25.6
RB36	Roadside (near M25)	Diffusion tube	100.0	100.0	28.1	22.7	28.3	23.0	24.9	22.5
RB37	Roadside (near M25)	Diffusion tube	100.0	100.0	31.9	18.9	27.3	26.3	26.7	25.4
RB38	Roadside (near M25)	Diffusion tube	n/a	n/a	31.2	26.4	30.6	24.8	22.7	-
RB39	Roadside	Diffusion tube	91.7	91.7	36.2	27.5	30.1	25.5	24.1	23.6

	(Near M25)									
RB40	Roadside (near M25)	Diffusion tube	100.0	100.0	27.2	19.6	25.3	24.0	21.2	19.8
RB41	Roadside (near M25)	Diffusion tube	n/a	n/a	24.9	18.5	-	-	-	-
RB42	Roadside	Diffusion tube	n/a	n/a	35.8	31.9	-	-	-	-
RB43	Roadside (near M25)	Diffusion tube	100.0	100.0	37.9	25.0	28.9	30.0	26.3	24.9
RB44	Roadside	Diffusion tube	100.0	100.0	**43.6**	37.1	38.7	31.9	31.8	27.9
RB45	Roadside	Diffusion tube	83.3	83.3	**42.4**	36.1	39.2	35.3	36.1	28.7
RB46	Roadside	Diffusion tube	100.0	100.0	**44.8**	39.7	**43.7**	37.9	38.5	36.1
RB47	Roadside	Diffusion tube	91.7	91.7	**56.8**	37.8	**48.4**	**40.6**	38.7	36.4
RB49	Roadside (near A217)	Diffusion tube	100.0	100.0	**64.4**	**49.2**	**60.5**	**47.3**	**48.8**	**42.8**
RB50	Roadside (near A217)	Diffusion tube	100.0	100.0	37.5	28.6	31.5	26.7	27.3	24.1
RB51	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	29.0	24.1	26.2	24.2	22.2	20.6
RB52	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	30.2	23.3	29.4	27.2	24.4	36.0
RB53	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	34.7	27.9	32.8	27.3	26.7	26.7
RB54	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	29.6	23.5	29.2	24.3	20.7	22.9
RB55	Roadside (Horley AQ)	Diffusion tube	83.3	83.3	31.5	25.2	29.3	26.9	26.5	23.6
RB56	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	30.7	27.2	29.2	25.3	24.9	22.0
RB57	Roadside (Horley QA)	Diffusion tube	100.0	100.0	29.8	25.3	32.7	27.7	24.8	23.4
RB58	Roadside (Horley AQ)	Diffusion tube	83.3	83.3	31.7	26.3	33.4	26.5	26.1	24.4
RB59	Airport (Horley AQ)	Diffusion tube	100.0	100.0	32.8	26.5	32.1	28.4	26.9	25.0

RB60	Roadside (Horley AQ)	Diffusion tube	100.0	100.0	32.4	27.4	32.0	27.8	25.9	26.4
RB61	Kerbside (Horley AQ)	Diffusion tube	91.7	91.7	26.7	25.5	28.9	25.2	22.7	21.3
RB64	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	30.2	23.4	29.0	26.3	22.8	22.8
RB65	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	32.4	25.9	29.9	27.3	24.1	24.3
RB66	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	29.0	23.1	26.5	24.3	23.0	20.8
RB67	Urban background (Horley AQ)	Diffusion tube	n/a	n/a	29.7	24.7	-	-	-	-
RB68	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	29.6	23.0	28.0	23.2	22.9	21.0
RB69	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	29.3	25.7	28.7	27.7	25.0	23.0
RB70	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	27.7	23.1	29.8	27.0	24.1	22.6
RB72	Urban background	Diffusion tube	91.7	91.7	28.6	21.1	25.8	24.2	24.7	22.4
RB73	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	28.7	21.5	25.9	25.7	24.1	20.8
RB74	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	28.5	22.9	25.3	23.9	22.5	20.6
RB75	Urban background	Diffusion tube	100.0	100.0	26.9	23.0	27.0	26.0	24.0	21.6

	(Horley AQ)									
RB76	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	25.3	19.7	23.5	21.6	20.5	19.6
RB77	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	26.6	20.3	26.8	24.1	20.6	19.2
RB78	Urban background (Horelay AQ)	Diffusion tube	100.0	100.0	31.9	29.5	31.9	24.6	27.8	26.1
RB79	Urban background (Horley AQ)	Diffusion tube	100.0	100.0	31.2	29.2	31.4	27.2	27.9	25.5
RB80	Urban background (Horelay AQ)	Diffusion tube	100.0	100.0	31.5	26.9	34.7	28.0	28.7	25.1
RB81	Roadside (A23 AQM)	Diffusion tube	100.0	100.0	38.7	30.6	38.1	34.8	30.8	27.5
RB82	Suburban (A23 AQMA)	Diffusion tube	100.0	100.0	**40.2**	32.1	38.0	33.2	34.8	35.0
RB94	Suburban (A23 AQMA)	Diffusion tube	n/a	n/a	38.9	33.2	-	-	-	-
RB99	Airport (Horley AQ)	Diffusion tube	100.0	100.0	23.2	16.7	19.1	17.8	15.9	13.8
RB100	Airport (Horley AQ)	Diffusion tube	100.0	100.0	21.9	17.3	18.7	19.0	16.2	13.4
RB101	Airport (Horley AQ)	Diffusion tube	100.0	100.0	22.4	16.2	19.7	18.6	17.1	13.5
RB102	M23 (South) AQMA	Diffusion tube	100.0	100.0	33.5	23.1	26.9	27.6	23.5	22.0
RB104	Roadside	Diffusion tube	100.0	100.0	**53.4**	38.8	**47.5**	**40.7**	37.0	34.9
RB105	Roadside	Diffusion tube	100.0	100.0	**51.6**	**44.9**	**52.2**	**42.5**	**42.0**	37.8
RB106	Roadside	Diffusion tube	100.0	100.0	**41.0**	34.5	**40.8**	36.5	31.2	32.4
RB107	Roadside	Diffusion tube	100.0	100.0	38.0	30.0	33.6	31.4	29.0	25.7

RB109	Roadside	Diffusion tube	91.7	91.7	**44.2**	32.2	38.8	35.1	33.7	28.6
RB110	Roadside	Diffusion tube	91.7	91.7	**42.3**	28.0	34.7	32.6	30.0	27.5
RB111	Roadside	Diffusion tube	91.7	91.7	**43.3**	34.1	38.5	36.4	34.8	30.3
RB112	Roadside	Diffusion tube	n/a	n/a	**40.7**	36.5	**42.0**	-	-	-
RB113	Roadside	Diffusion tube	91.7	91.7	37.5	27.9	32.7	31.9	29.8	26.7
RB114	Roadside	Diffusion tube	100.0	100.0	38.5	29.1	33.7	32.7	28.0	28.2
RB115	Roadside	Diffusion tube	91.7	91.7	**46.2**	34.5	**42.2**	34.4	31.7	26.9
RB116	Roadside	Diffusion tube	100.0	100.0	**48.8**	35.4	**42.2**	39.5	36.7	32.6
RB117	Roadside	Diffusion tube	100.0	100.0	**54.0**	**43.6**	**42.6**	**47.5**	**46.1**	**40.8**
RB118	Roadside	Diffusion tube	100.0	100.0	**43.1**	35.4	39.2	36.7	36.1	34.3
RB120	Roadside	Diffusion tube	100.0	100.0	**40.7**	33.7	39.4	34.8	34.2	31.6
RB121	Kerbside	Diffusion tube	n/a	n/a	**45.3**	37.1	**45.1**	35.2	31.5	-
RB122	Roadside	Diffusion tube	91.7	91.7	**44.7**	34.6	39.6	36.2	33.7	31.1
RB123	Kerbside	Diffusion tube	100.0	100.0	**47.7**	37.1	**41.3**	**41.6**	38.8	36.0
RB124	Roadside	Diffusion tube	100.0	100.0	**51.2**	**41.0**	**43.6**	**42.3**	**42.4**	36.3
RB125	Roadside	Diffusion tube	91.7	91.7	**42.9**	39.3	**45.5**	37.2	36.9	37.7
RB126	Kerbside	Diffusion tube	n/a	n/a	**41.2**	30.4	-	-	-	-
RB136	Roadside	Diffusion tube	100.0	100.0	**64.8**	**50.5**	**67.6**	**56.8**	**62.5**	**49.3**
RB137	Roadside	Diffusion tube	91.7	91.7	**63.1**	**50.0**	**60.3**	**54.5**	38.7	**44.5**
RB138	Roadside	Diffusion tube	n/a	n/a	30.7	24.0	-	-	-	-
RB139	Kerbside	Diffusion tube	n/a	n/a	37.1	27.6	-	-	-	-
RB140	Roadside	Diffusion tube	100.0	100.0	30.9	26.5	30.8	27.9	26.6	24.3
RB141	Roadside	Diffusion tube	100.0	100.0	35.1	25.3	32.2	29.8	24.4	23.6
RB142	Kerbside	Diffusion tube	n/a	n/a	63.9	45.4	58.1	-	-	-
RB143	Kerbside	Diffusion tube	n/a	n/a	60.8	48.8	56.5	-	-	-
RB144	Kerbside	Diffusion tube	n/a	n/a	60.3	46.0	49.3	-	-	-
RB145	Kerbside	Diffusion tube	100.0	100.0	**46.5**	35.0	38.5	36.0	33.2	30.4
RB146	Kerbside	Diffusion tube	100.0	100.0	-	-	**45.0**	**49.1**	**45.1**	**41.8**
RB147	Background	Diffusion tube	100.0	100.0	-	-	37.0	22.1	16.3	15.2
RB148	Kerbside	Diffusion tube	100.0	100.0	-	-	**77.0**	**72.1**	**72.2**	**64.8**
RB149	Roadside	Diffusion tube	91.7	91.7	-	-	-	-	**53.3**	**45.0**

RB150	Roadside	Diffusion tube	91.7	91.7	-	-	-	-	35.4	34.8
RB151	Roadside	Diffusion tube	91.7	91.7	-	-	-	-	34.3	31.2
RB152	Roadside	Diffusion tube	91.7	91.7	-	-	-	-	32.6	34.0
RB153	Roadside	Diffusion tube	100.0	100.0	-	-	-	-	33.6	29.5
RB167	Roadside	Diffusion tube	100.0	58.3 [d]	-	-	-	-	-	24.0

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

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

[a] Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] 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%).

[c] Means for diffusion tubes have been corrected for bias. Unless stated otherwise, all means have been annualised as per Technical Guidance LAQM.TG16 (Defra, 2016b) if valid data capture for the full calendar year is less than 75%.

[d] Diffusion tube monitoring site RB167 was deployed midway through 2015, and therefore only 7 months of data is available. The result has not been annualised.

Table A1.4: 1-Hour Mean NO2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (2015) (%) [a]	Valid Data Capture 2015 (%) [b]	NO_2 1-Hour Means > 200 μg/m^3 [c]					
					2010	2011	2012	2013	2014	2015
RG1	Suburban	Automatic	98.6	98.6	0	0	0	0	0 [c]	0
RG2	Suburban	Automatic	98.7	98.7	0	0 [c]	0 [c]	0	0	0
RG3	Rural	Automatic	99.3	99.3	0	0	0	0	0	0

Notes: Exceedences of the NO_2 1-hour mean objective (200 μg/m^3, not to be exceeded more than 18 times/year) are shown in **bold**.

[a] Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] 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%).

[c] Data capture is < 90 %. Therefore these values cannot be compared to the relevant air quality standard. Data shown is the minimum number of hours.

Table A1.5: Annual Mean PM10 (VCM a) Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (2015) (%) [b]	Valid Data Capture 2015 (%) [c]	PM_{10} Annual Mean Concentration ($\mu g/m^3$)					
				2010	2011	2012	2013	2014	2015
RG1	Suburban	80.2	80.2	19.7 [d]	21.7	19.4	20.1	18.7	19.2

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

[a] Data have been adjusted using the Volatile Correction Model (www.volatile-correction-model.info).

[b] Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[c] 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%).

[d] Data capture <75%. Therefore these values cannot be compared to the relevant air quality standard.

Table A1.6: 24-Hour Mean PM10 (VCM a) Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (2015) (%) [b]	Valid Data Capture 2015 (%) [c]	PM_{10} Annual Mean Concentration ($\mu g/m^3$)					
				2010	2011	2012	2013	2014	2015
RG1	Suburban	80.2	80.2	0 [d]	9	7	2	4	3 (28.9) [e]

Notes: Exceedences of the PM_{10} 24-hour mean objective (50 $\mu g/m^3$, not to be exceeded more than 35 times/year) are shown in **bold**.

[a] Data have been adjusted using the Volatile Correction Model (www.volatile-correction-model.info).

[b] Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[c] 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%).

[d] Data capture is < 90 %. Therefore these values cannot be compared to the relevant air quality standard. Data shown is the minimum number of days.

[e] The period of valid data is < 90 %, therefore the 90.4th percentile of 24-hour means is provided in brackets.

Table A1.7: Annual Mean Benzene Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (2015) (%) [a]	Valid Data Capture 2015 (%) [b]	NO_2 Annual Mean Benzene Concentration ($\mu g/m^3$) [c]					
					2010	2011	2012	2013	2014	2015
RB1	Roadside	Diffusion tube	100.0	100.0	2.2	1.6	1.0	1.2	1.9	1.1
RB11	Suburban	Diffusion tube	91.7	91.7	1.7	1.4	1.0	1.0	1.9	1.0
RB20	Roadside	Diffusion tube	100.0	100.0	2.4	1.4	1.3	1.1	2.2	1.1

Notes: Exceedences of the benzene annual mean objective of 5 $\mu g/m^3$ are shown in **bold**.

[a] Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] 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%).

A2 Appendix B: Supporting Technical Information and Air Quality Monitoring Data QA/QC

Diffusion Tube Nitrogen Dioxide Bias Adjustment Factors

Reigate and Banstead Borough Council use diffusion tubes prepared and analysed by Lambeth Scientific Services (50% TEA in acetone). For 2015 the national bias-adjustment factor for Lambeth Scientific Services is 0.96 (National Diffusion Tube Bias Adjustment Factor Spreadsheet (06/16) (Local Air Quality Management Helpdesk , 2016)).

The local adjustment factor for nitrogen dioxide monitoring in Reigate and Banstead for 2015 is 0.93, based on orthogonal regression of the three sets of triplicate diffusion tubes co-located at automatic monitoring stations RG1, RG2 and RG3.

The local and national nitrogen dioxide bias adjustment factors for 2015 are very similar. As such, the local bias adjustment factor (0.93) has been used in order to be consistent with other air quality reports.

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).

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.

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.

QA/QC of Automatic Monitoring

The automatic monitors are calibrated automatically overnight and manually calibrated every 14 days. Data are ratified and verified by Kings ERG. QA/QC is carried out by NPL. The NO_X analyser at RG1 is also part of the Automatic Urban and Rural Network (AURN) and therefore has QA/QC associated with the AURN.

A3 Appendix C: New Pollution Sources and New Developments

New pollution sources

Changed and new sources of pollution have been investigated and any changes to existing sources, or new sources, are listed below.

Table A3.1: New Pollution Sources

Source Description	Screening Assessment Required?
Road source: Spur road across open farmland to new housing development (Horley NW sector)	No
Commercial source: CHP installation in Sainsbury's, Redhill	Yes, undertaken

New developments

Significant new developments within the borough include major redevelopment works in central Redhill (including a new Sainsbury's and a new Cinema complex, including cinema, restaurants, shops and residential apartments above). The new Sainsbury's and part of the new cinema complex are located partially within the Redhill AQMA (AQMA No. 12). All new developments are examined through the planning system and air quality assessments requested where relevant. These assessments investigate the impacts of any traffic generated by the development, the impacts of any energy plant emissions generated by the development and / or the impacts of existing and new sources of pollution on proposed residents, as necessary. Where necessary, mitigation is requested. Monitoring within and around the current AQMAs (including Redhill AQMA) should alert Reigate and Banstead Council to any situation where cumulatively, additional traffic and / or energy plant affects monitored concentrations. This will be reported annually through the LAQM process.

A4 Appendix D: Maps of Monitoring Locations

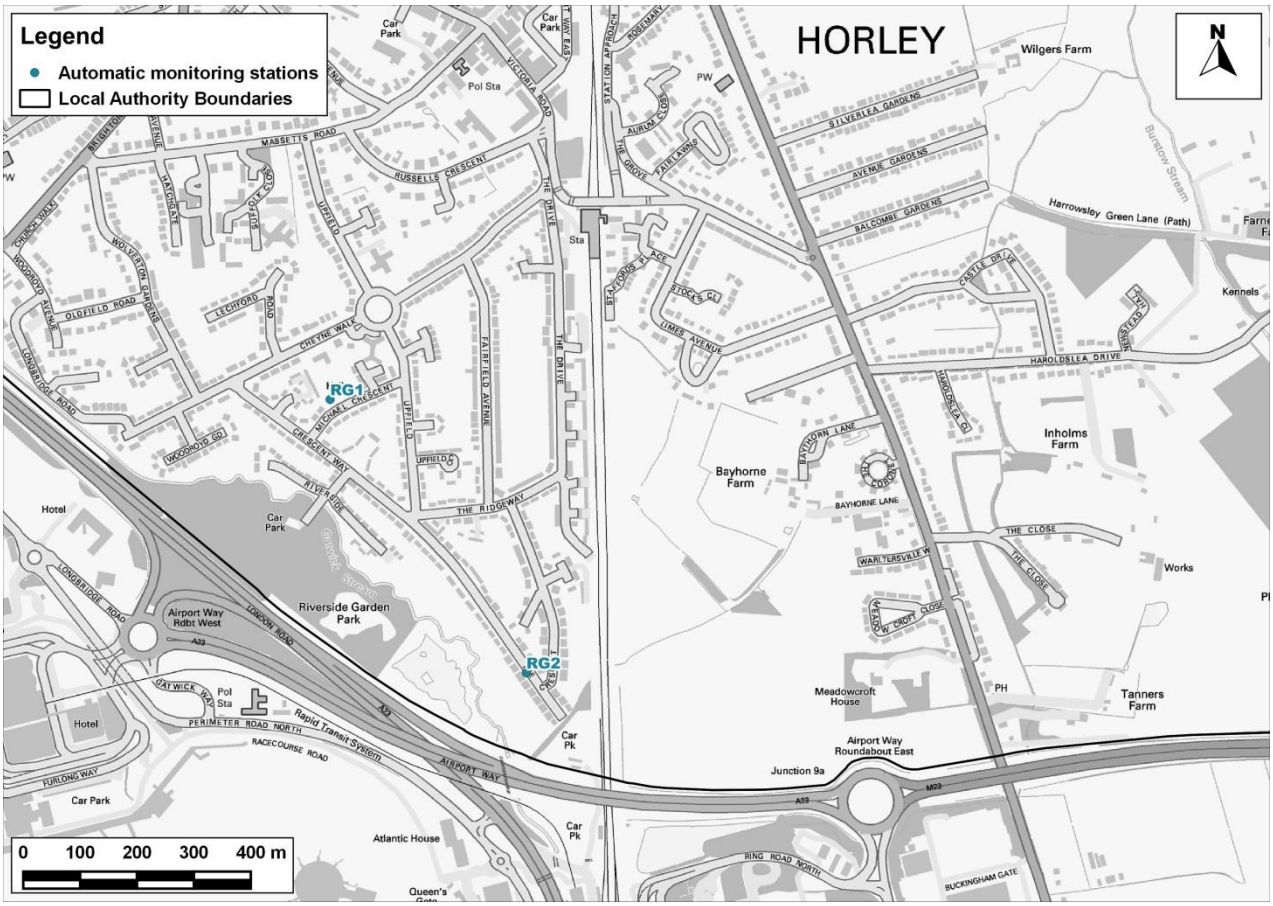

Figure A4.1: Automatic Monitoring Site Locations within Horley and Local Authority Boundaries

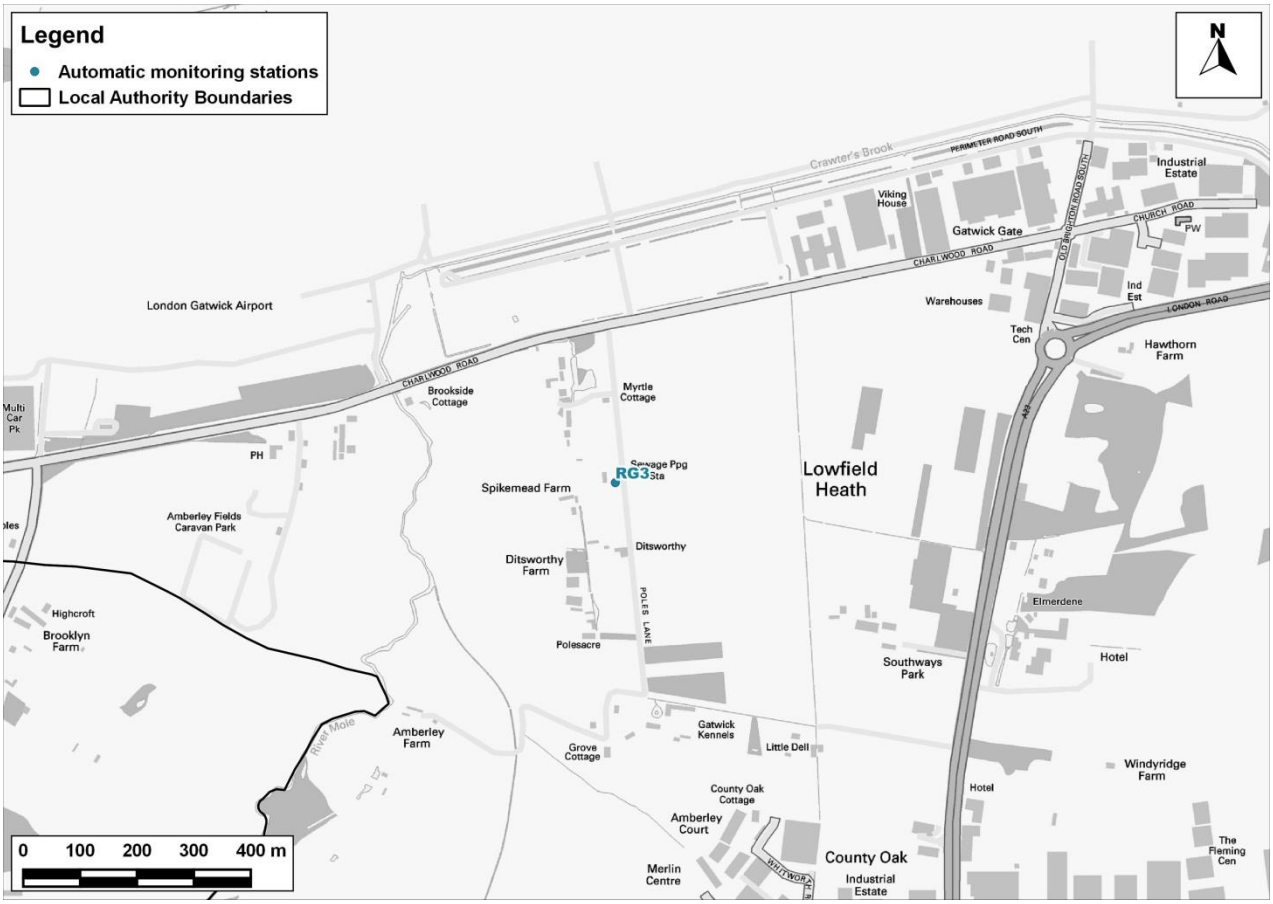

Figure A4.2: Automatic Monitoring Site Location within Crawley and Local Authority Boundaries

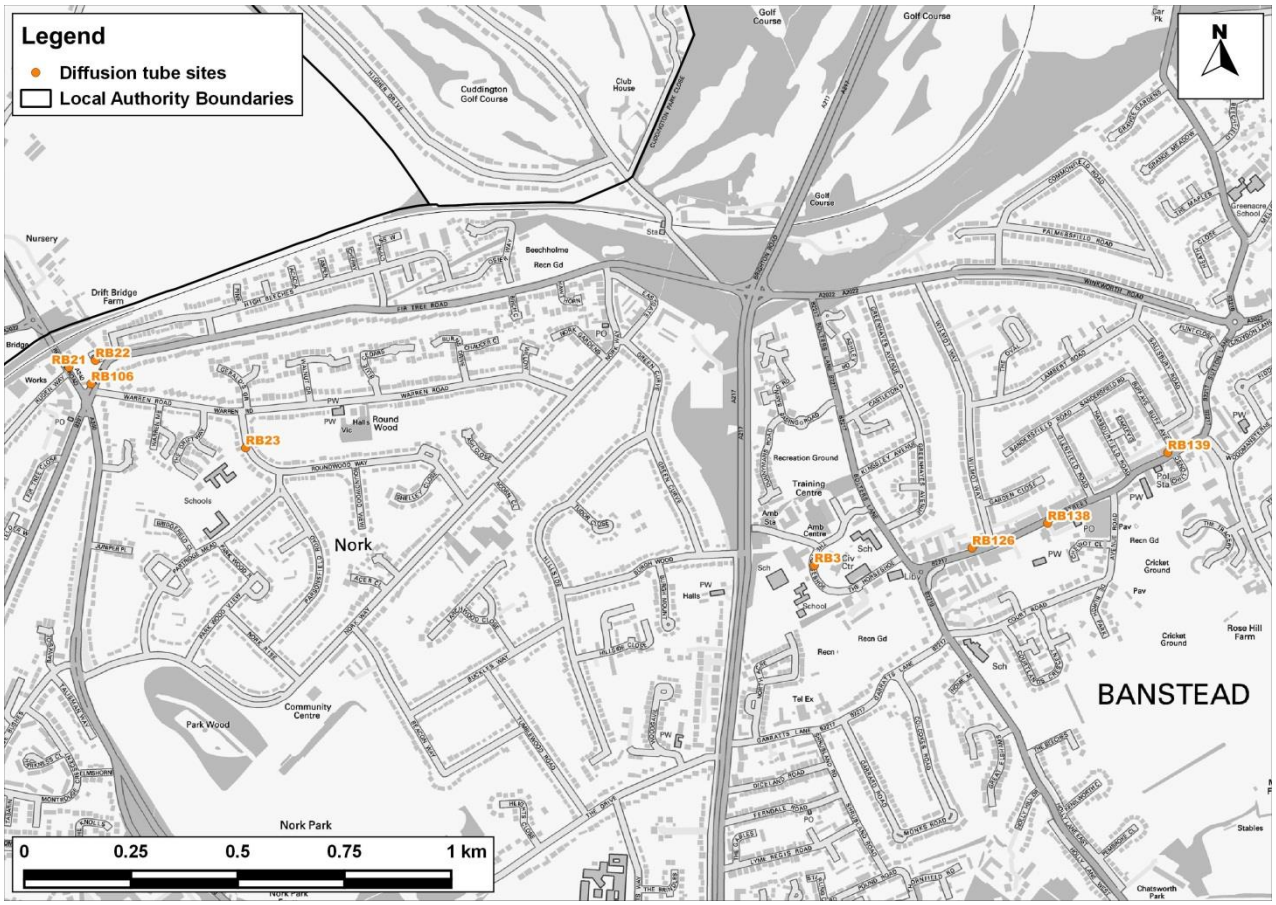

Figure A4.3: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Banstead) and Local Authority Boundaries

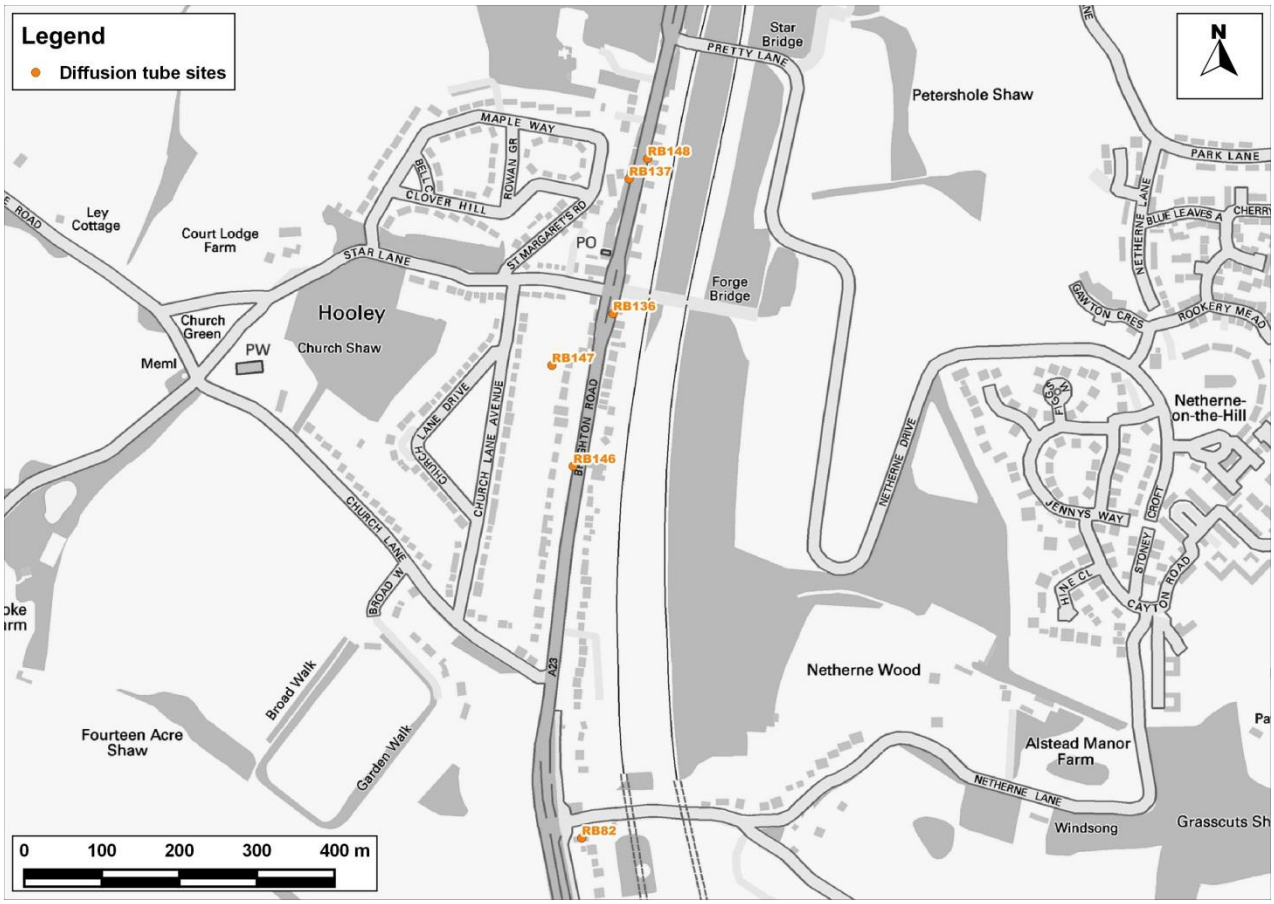

Figure A4.4: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Hooley)

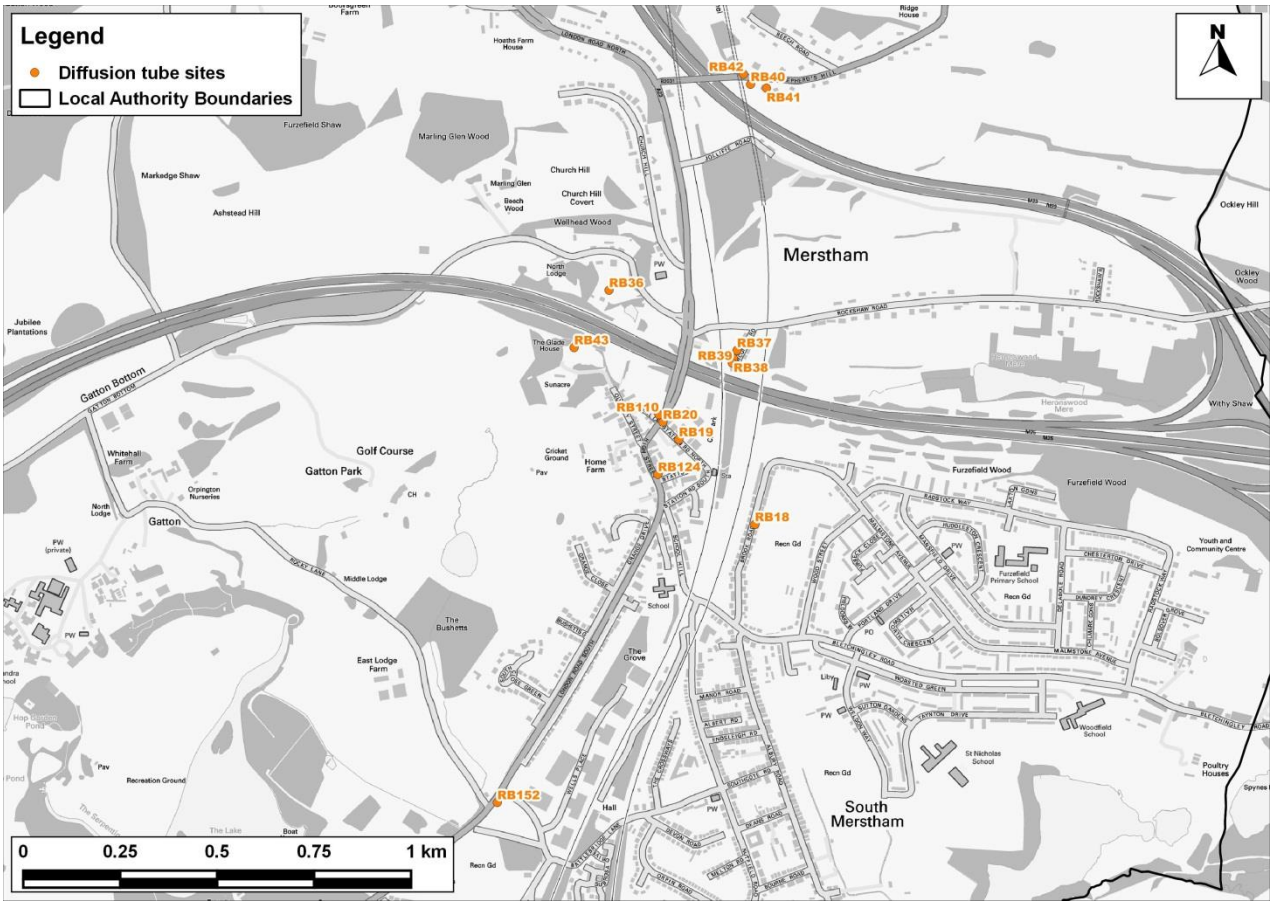

Figure A4.5: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Merstham) and Local Authority Boundaries

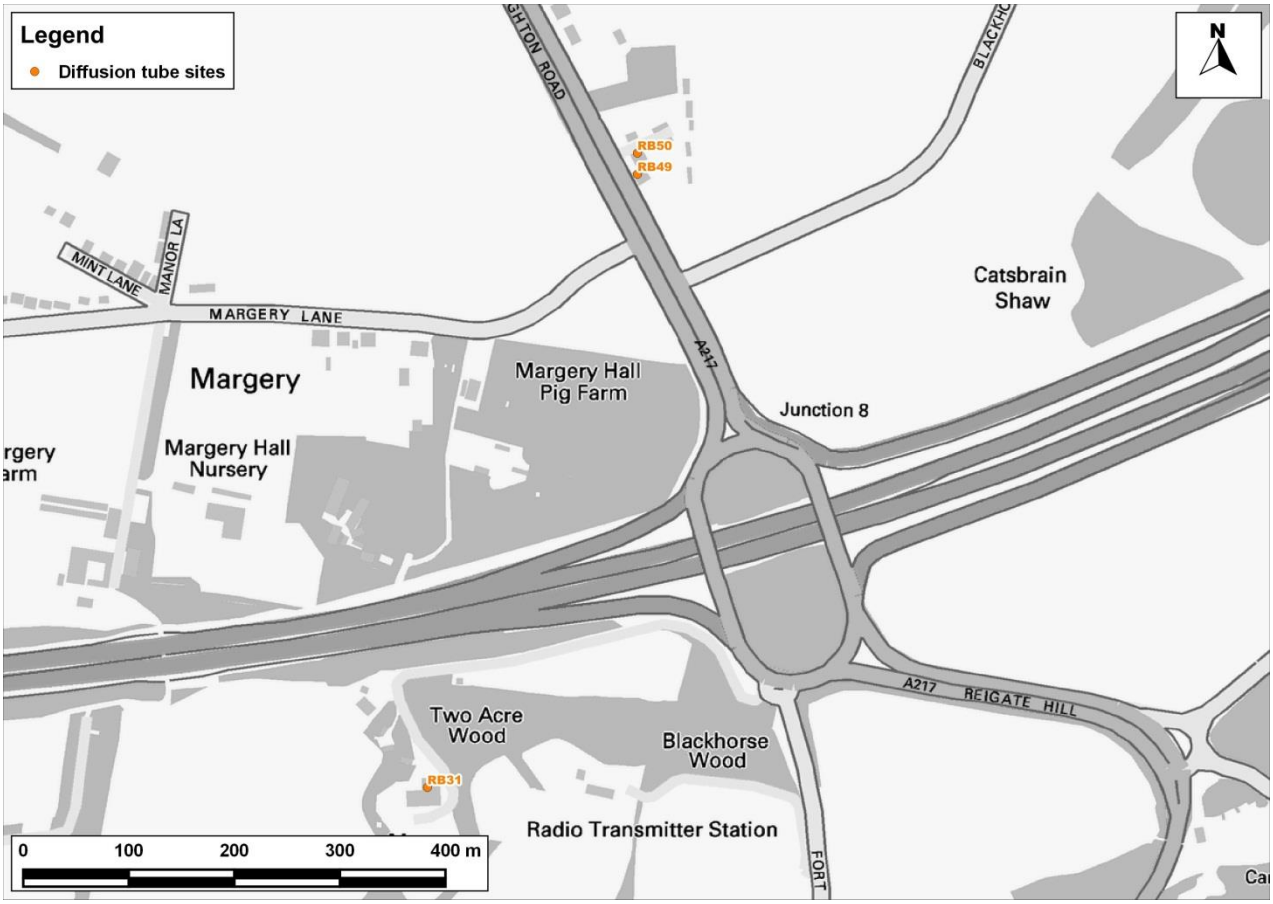

Figure A4.6: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Margery)

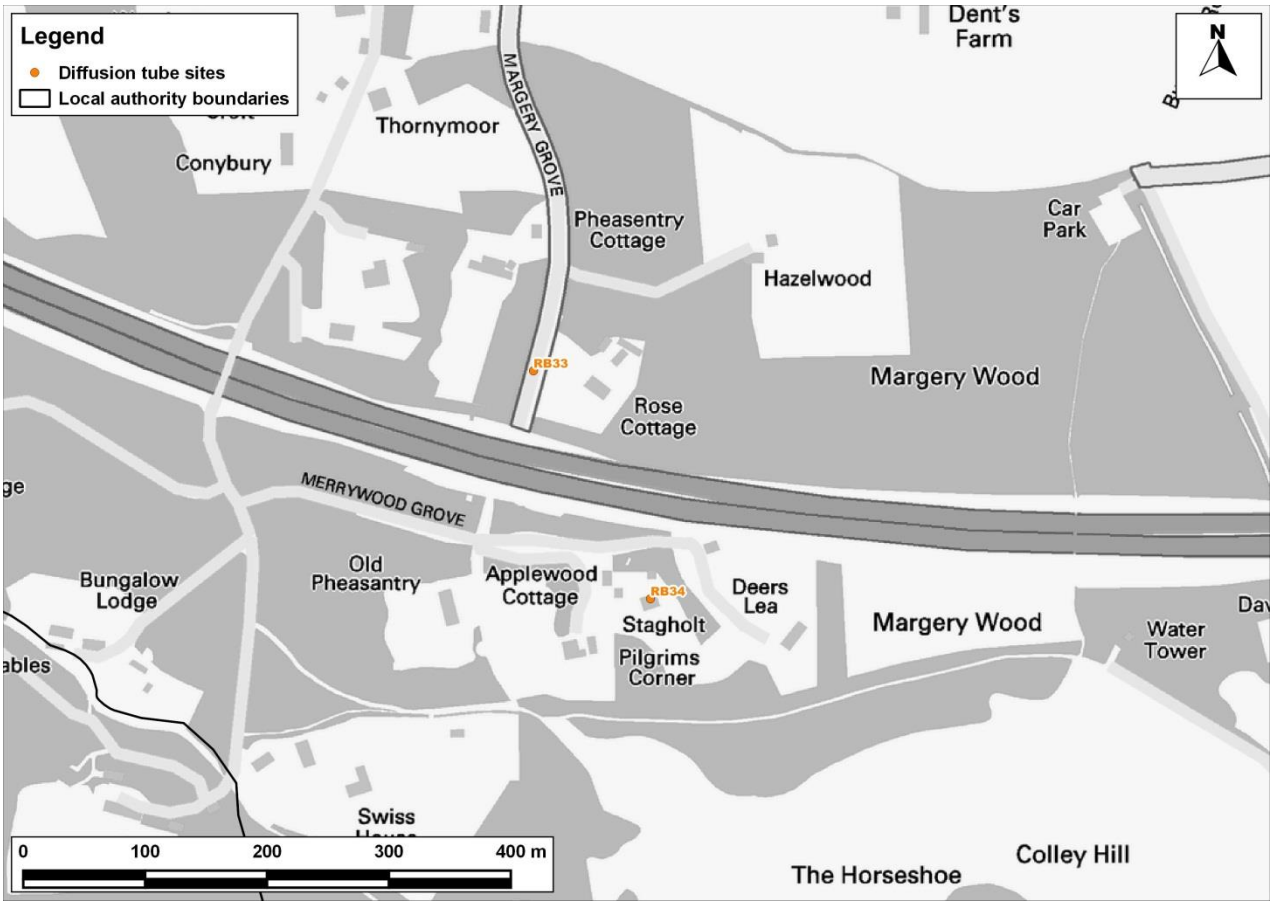

Figure A4.7: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Margery Wood) and Local Authority Boundary

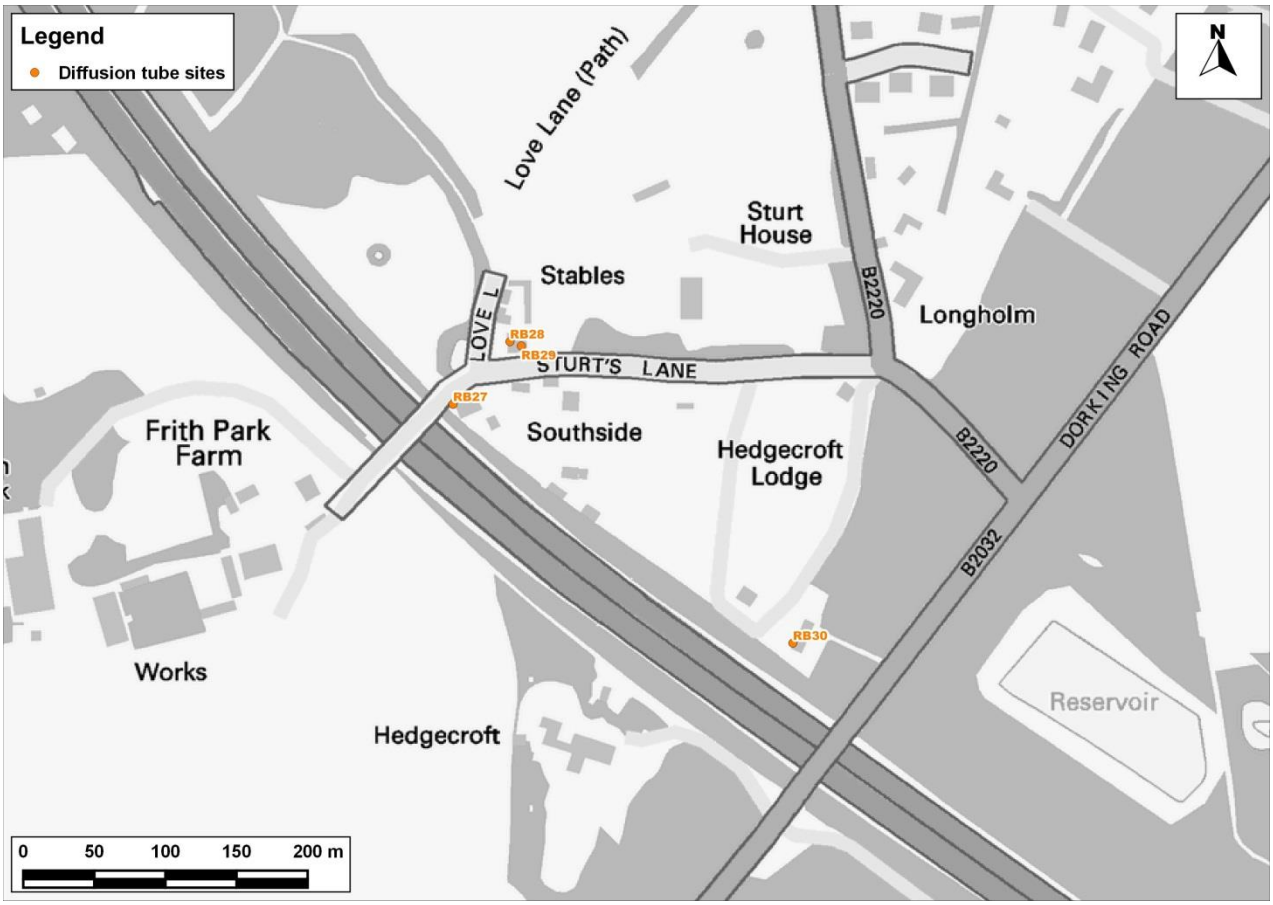

Figure A4.8: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Walton on the Hill)

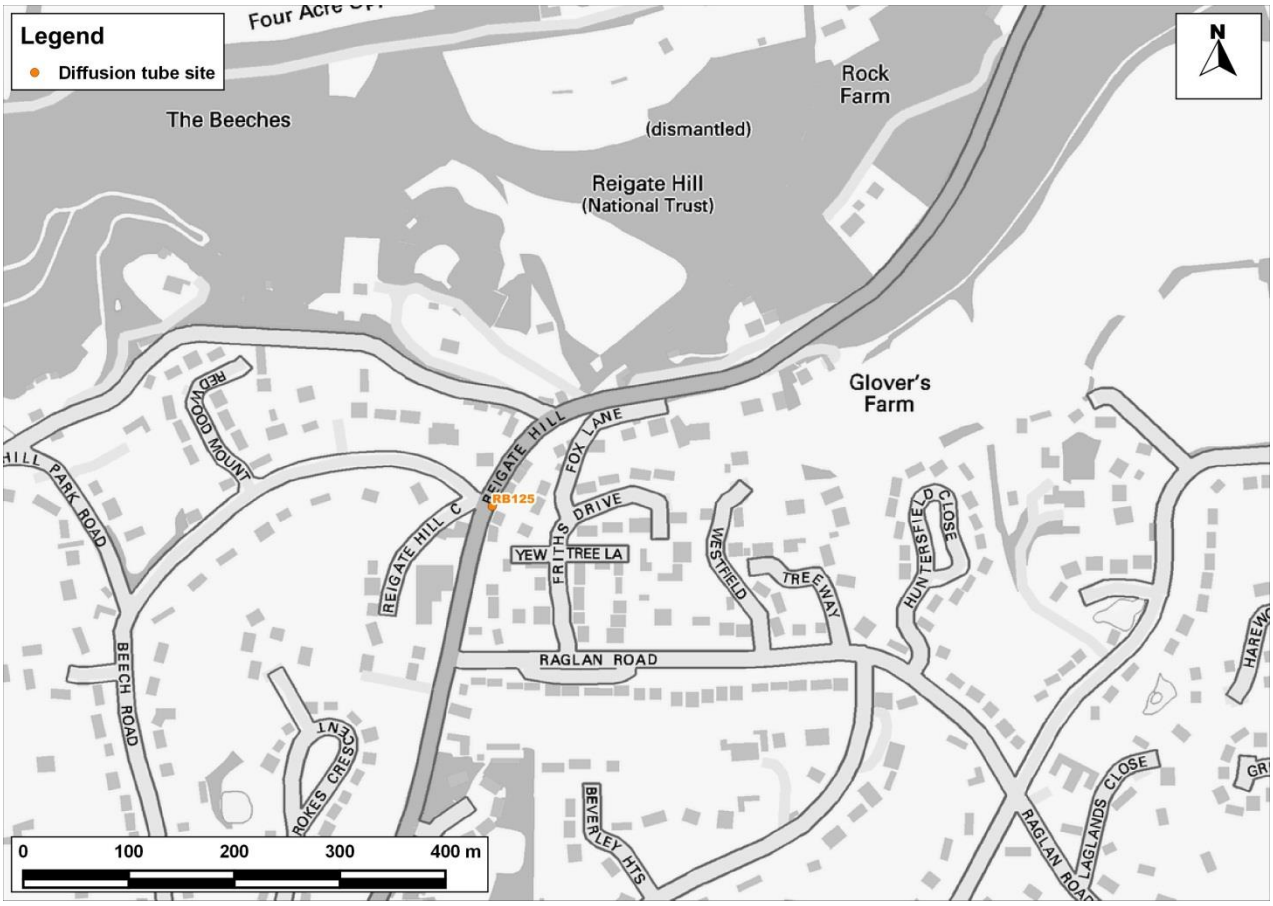

Figure A4.9: Nitrogen Dioxide Diffusion Tube Monitoring Site Location (Reigate Hill, Reigate)

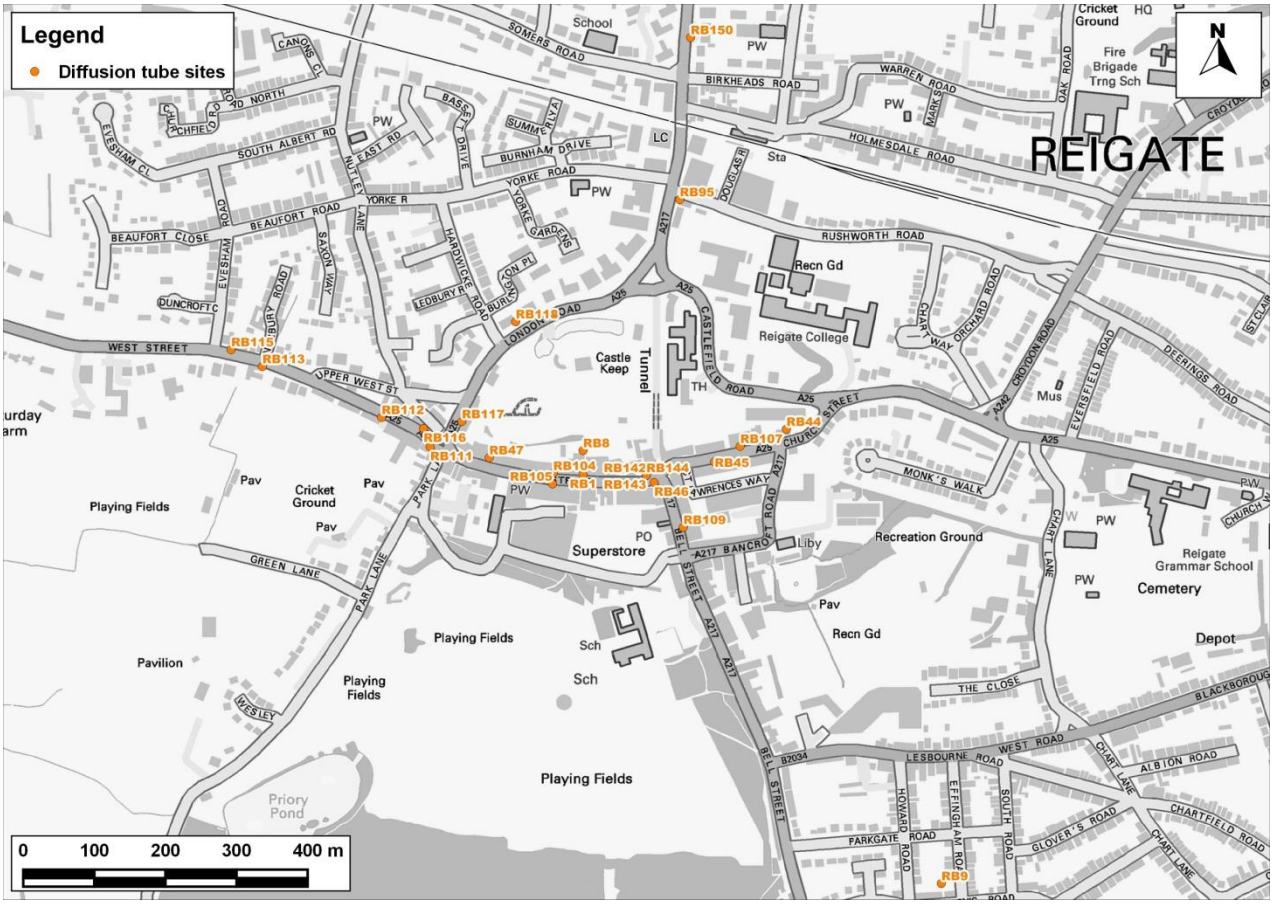

Figure A4.10: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Reigate Centre)

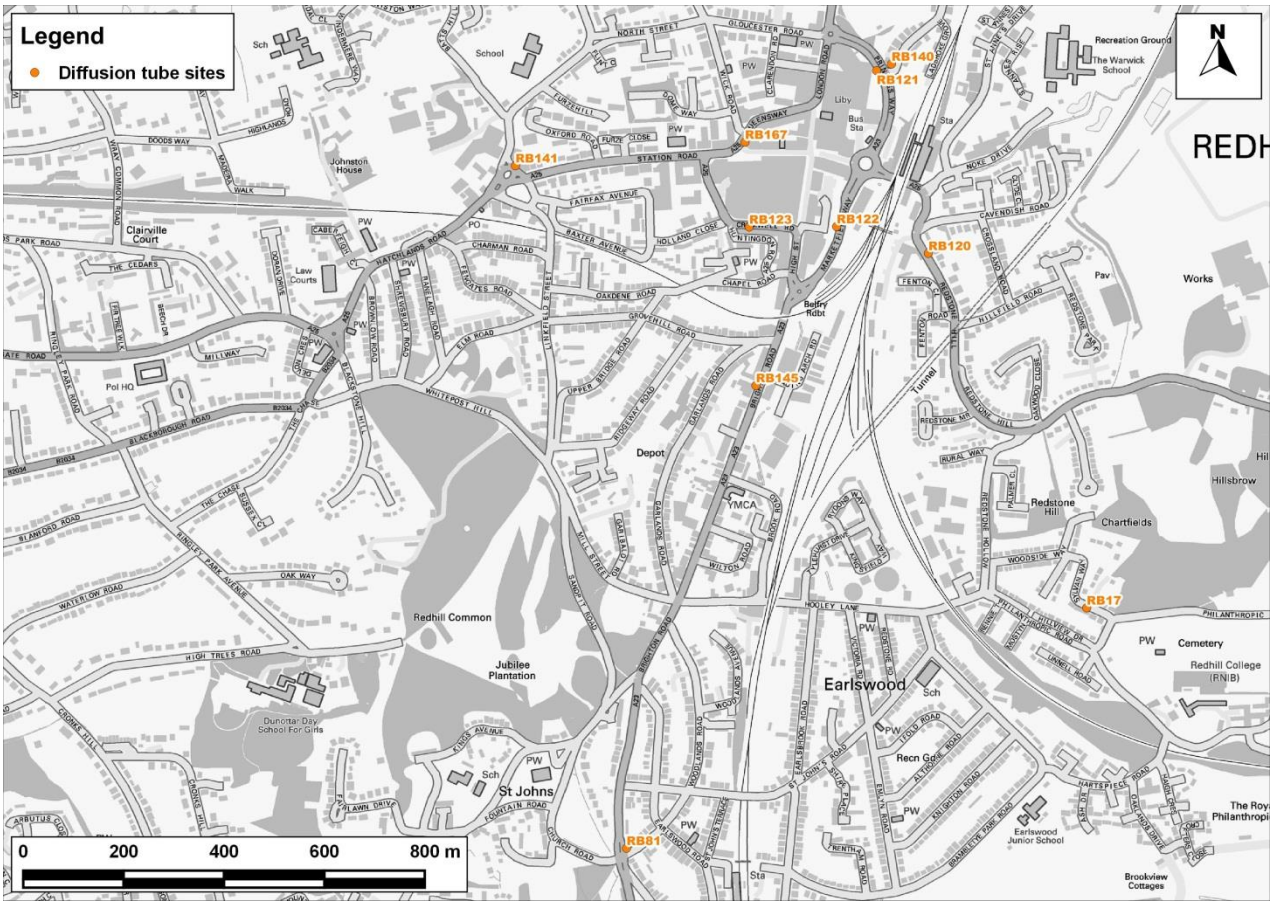

Figure A4.11: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations (Redhill)

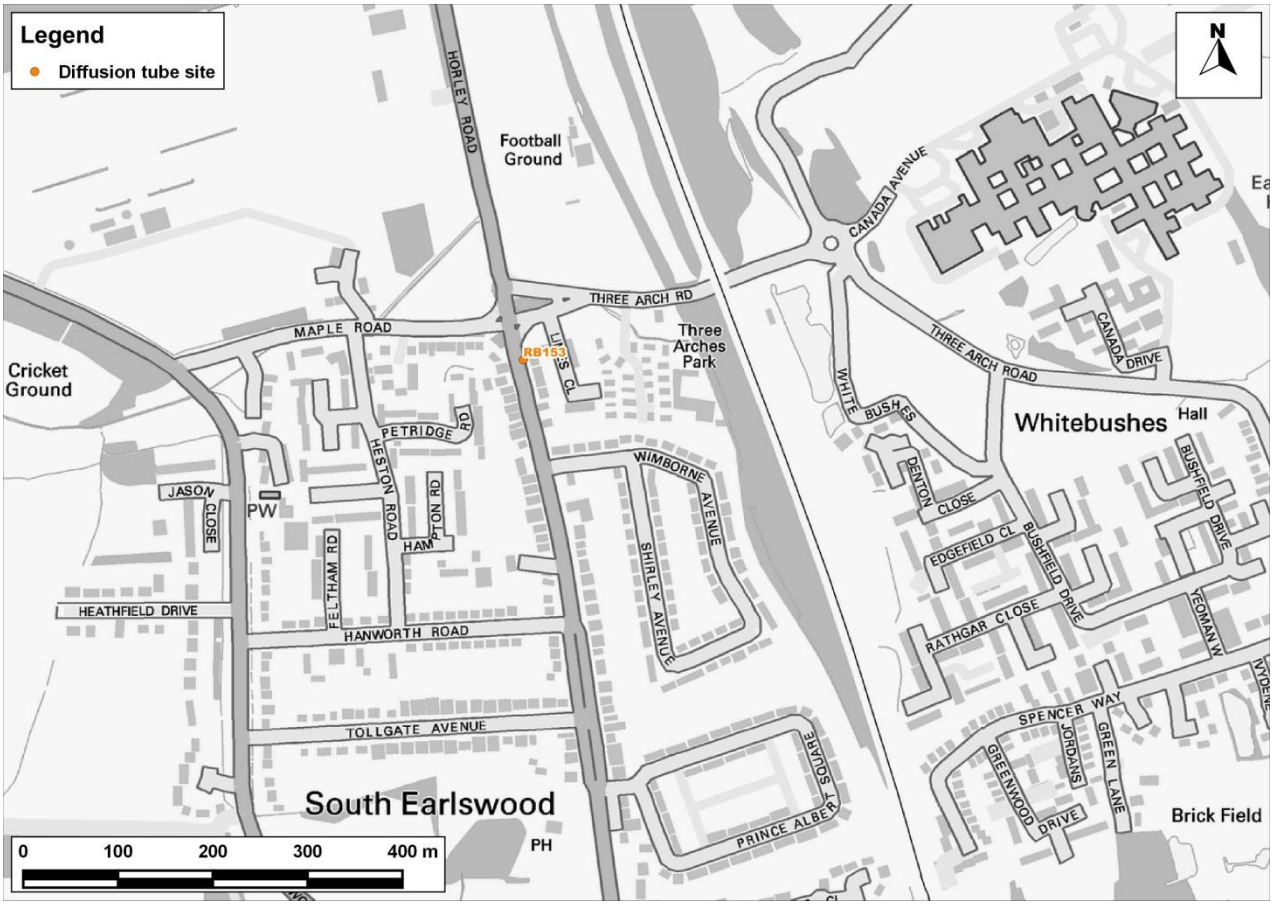

Figure A4.12: Nitrogen Dioxide Diffusion Tube Monitoring Site Location (South Earlswood)

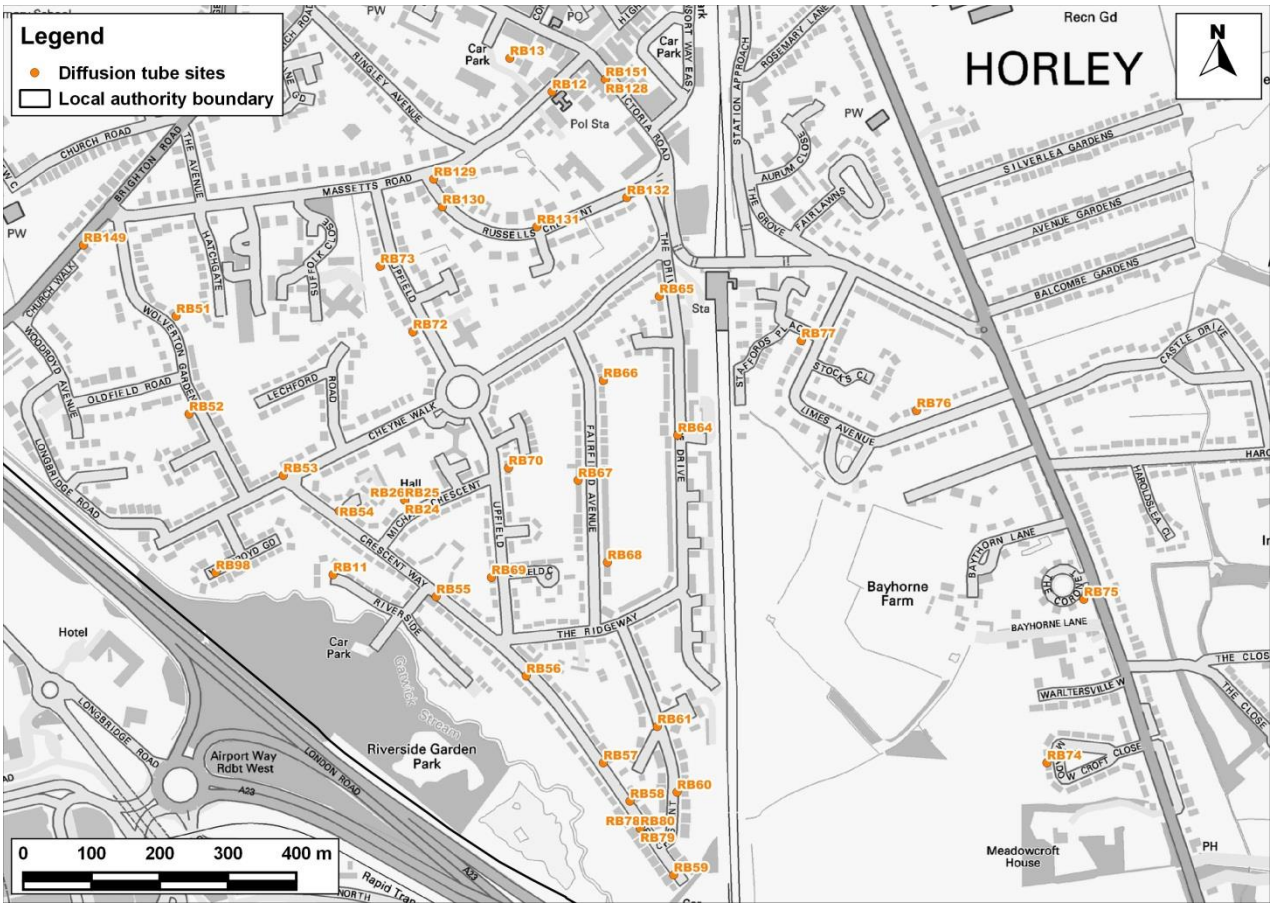

Figure A4.13: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations and Local Authority Boundaries (Horley)

Figure A4.14: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations and Local Authority Boundary (M23, Tandridge District)

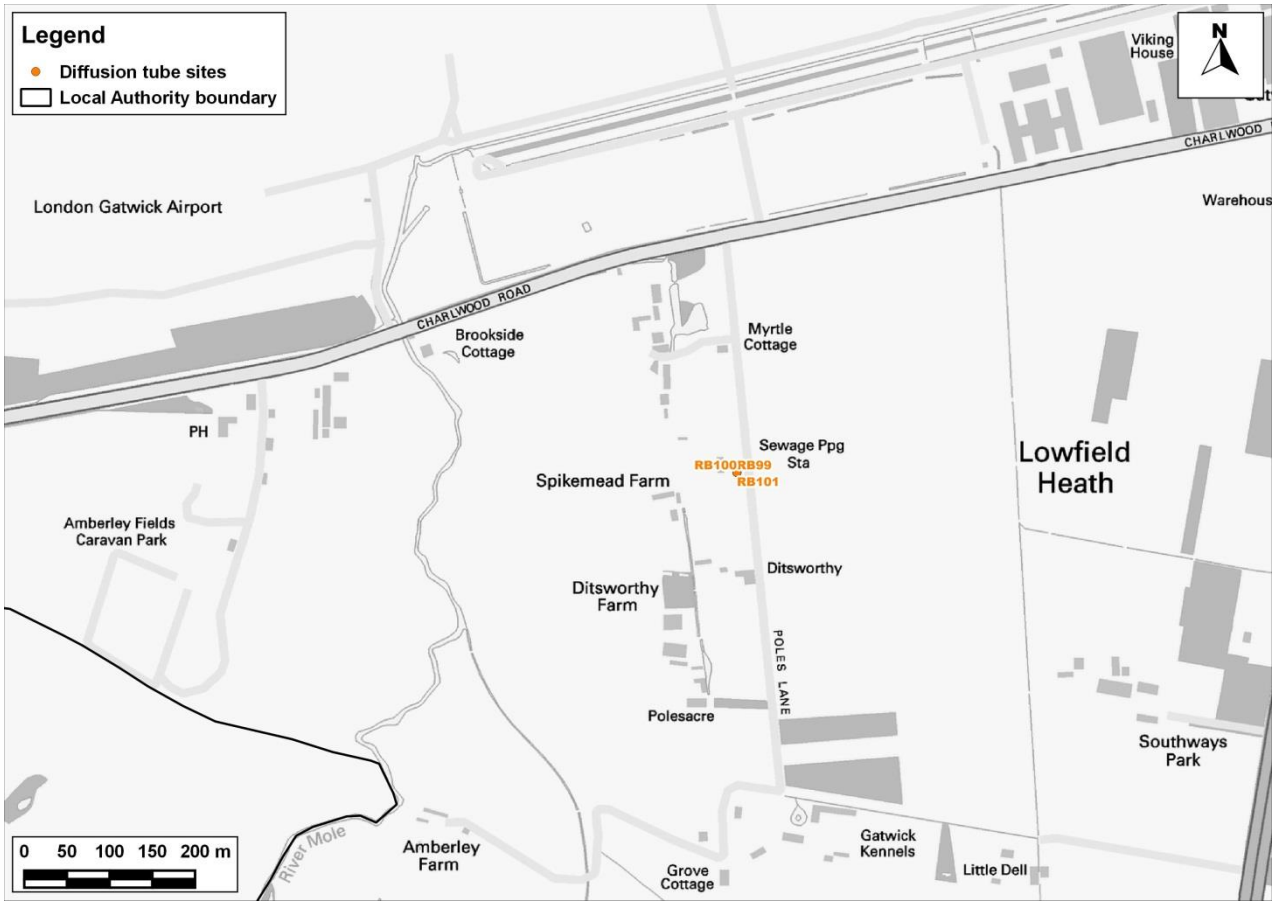

Figure A4.15: Nitrogen Dioxide Diffusion Tube Monitoring Site Locations and Local Authority Boundary (South of London Gatwick Airport, Crawley Borough)

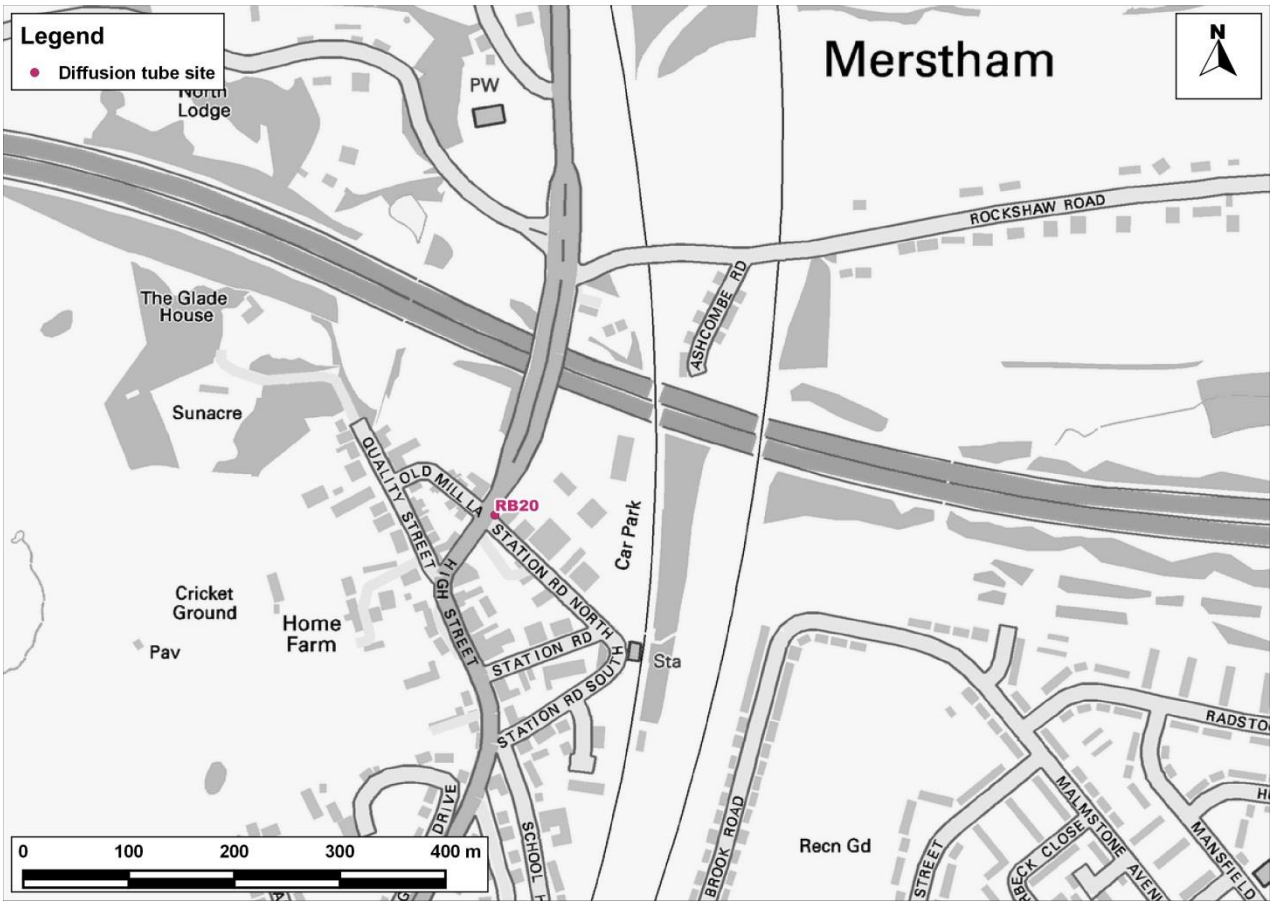

Figure A4.16: Benzene Diffusion Tube Monitoring Site Location (Merstham)

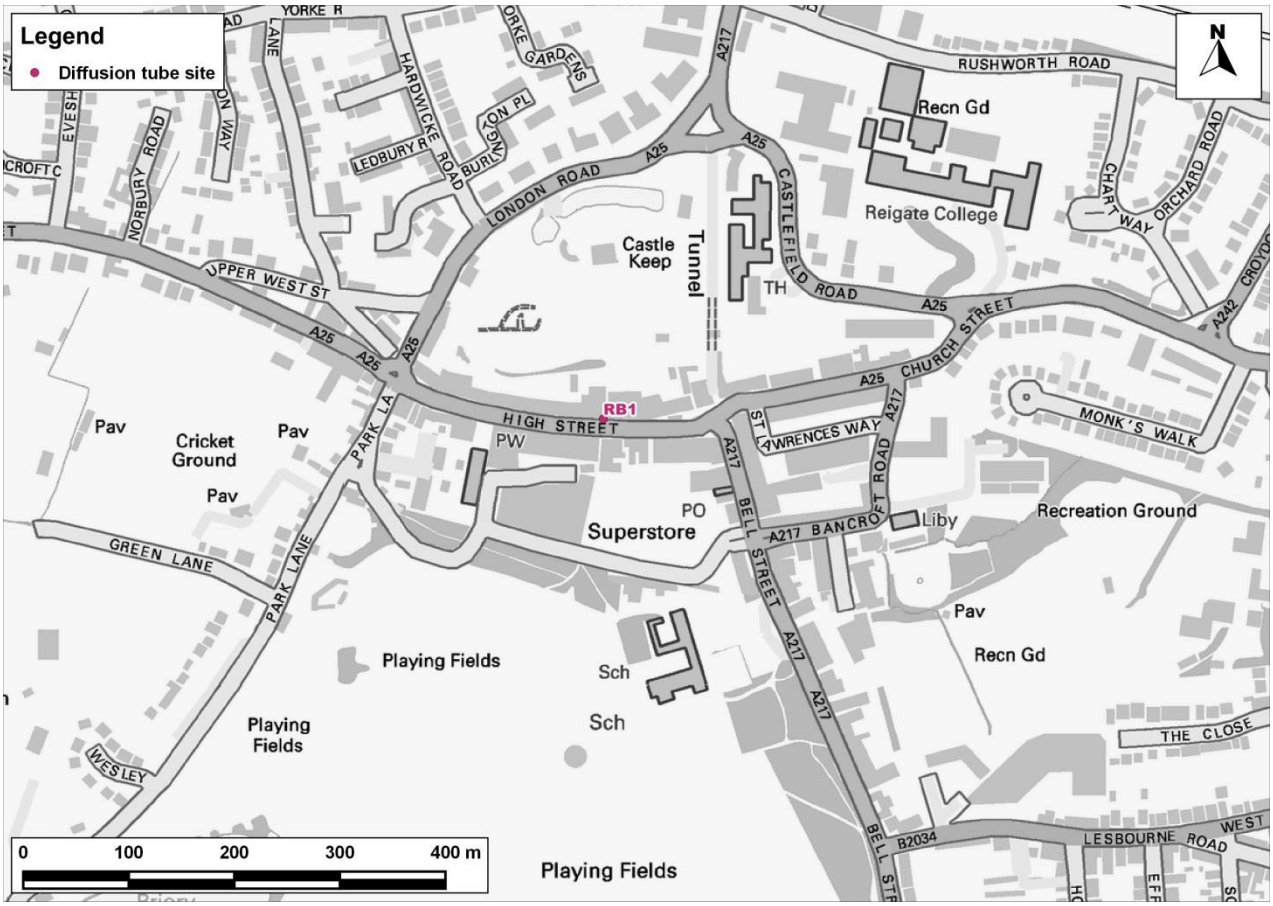

Figure A4.17: Benzene Diffusion Tube Monitoring Site Location (central Reigate)

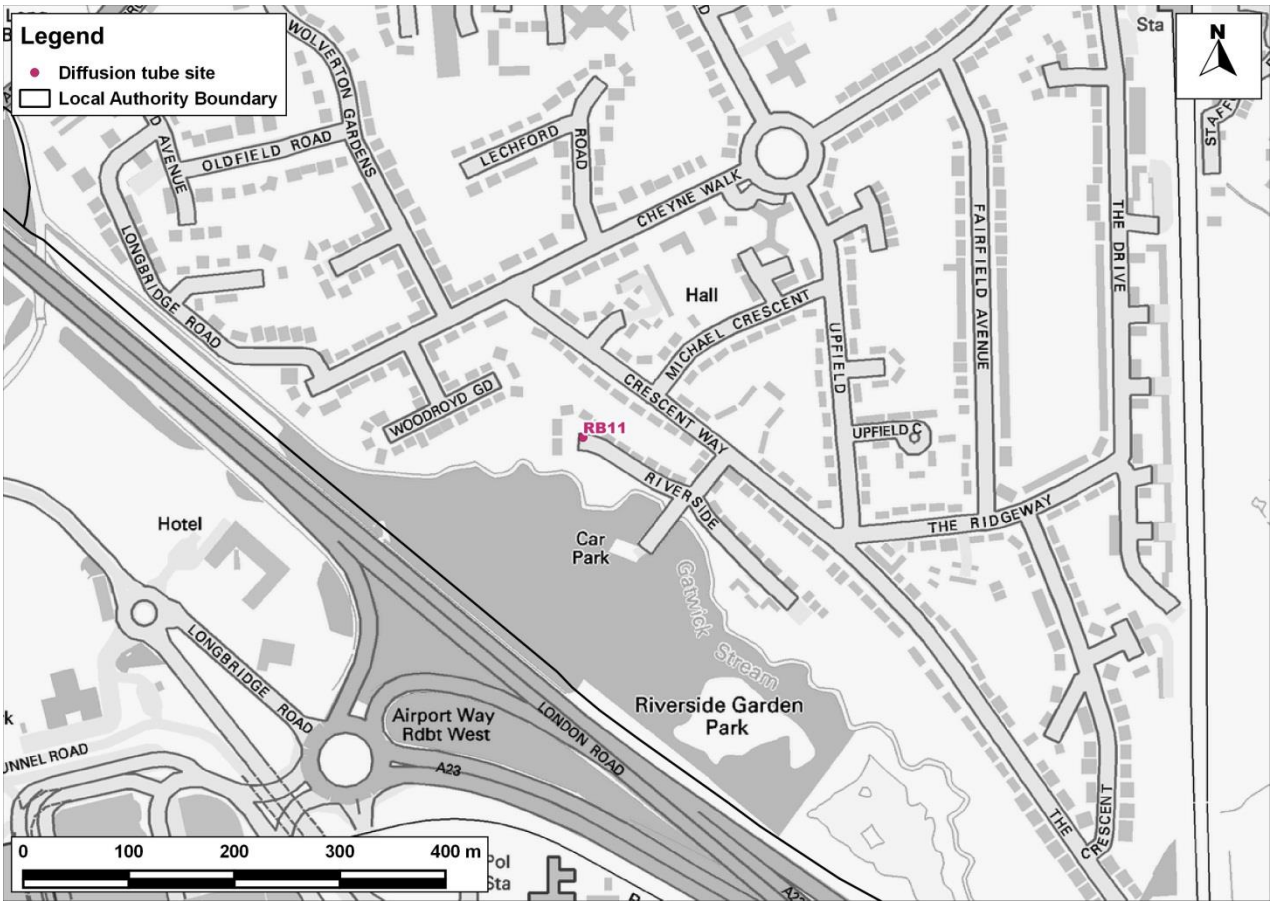

Figure A4.18: Benzene Diffusion Tube Monitoring Site Location and Local Authority Boundary (Southwest Horley)

A5 Appendix E: Summary of Air Quality Objectives in England

Table A5.1: Air Quality Objectives in England

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

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

A6 Appendix F: Traffic Flows – Horley AQMA

Table A6.1: Measured Traffic Flows

Site Name	Site ID	AADT	AM Weekday Peak Flow	PM Weekday Peak Flow
2004 figures				
A217 (Mill Lane / Nursery Lane)	A0217 (04063A)	18,061	2036 (8 – 9 am)	1703 (5 – 6 pm)
A23 (just before Massetts Rd / Woodroyd Av.)	A0023 (04082C)	29,392	2217 (8 – 9 am)	2493 (5 – 6 pm)
M23 Gatwick Spur* (contact Margaret King at: area4@interroutejv.co.uk)	6009 &6010 (TRADS 2 Ref) (529427, 141683) and (529498, 141694)	65,964 (2% HGV)	1702 (9 -10 am) to M23 3172 (9 – 10 am) to Gatwick	2691 (6 – 7 pm) 1665 (2 – 3 pm)
2015 figures				
A217 (Mill Lane / Nursery Lane)	A0217 (04063A)	18,563 (1.9% HGV) Up 2.4% on 2004	1532 (8 – 9 am) Down 24.8% on 2004	1546 (5 – 6 pm) Down 9.3% on 2004
A23 (just before Massetts Rd / Woodroyd Av.)	A0023 (04082C)	28,849 (3.1% HGV) Down 3.7% on 2004	1983 (8 – 9 am) Down 14.7% on 2004	2254 (5 – 6 pm) Down 9.6% on 2004

Site Name	Site ID	AADT	AM Weekday Peak Flow	PM Weekday Peak Flow
Gatwick Spur	6009 &6010 (TRADS 2 Ref)	Site closed end 2008	Site closed end 2008	Site closed end 2008
	5980 / 1 alt ref 4 / 30015253	32,667 (4.1% HGV) Unchanged on 2006	N/A (Peak hour traffic data no longer available following website redesign)	N/A (Peak hour traffic data no longer available following website redesign)
	5981 / 1 west bound 4 / 30015254	32,318 (3.9% HGV) Up 2% on 2006	N/A (Peak hour traffic data no longer available following website redesign)	N/A (Peak hour traffic data no longer available following website redesign)
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 at this site were:				
Gatwick Spur	*5980 / 1 east bound alt ref 4 / 30015253 (529950, 141730)*	*32,851*	*1746 (9 – 10 am) to M23*	*2480 (6 – 7 pm)*
	5981 / 1 west bound alt ref 4 / 30015254 (530240, 141693)	*31,553*	*2917 (9 – 10 am) to Gatwick*	*1509 (1 – 2 pm)*

Glossary of Terms

AQC	Air Quality Consultants
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
Exceedence	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
FDMS	Filter Dynamics Measurement System
HA	Highways Agency
HGV	Heavy Goods Vehicle
LAQM	Local Air Quality Management
µg/m^3	Microgrammes per cubic metre
NO	Nitric oxide
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides (taken to be NO_2 + NO)
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
$PM_{2.5}$	Small airborne particles less than 2.5 micrometres in aerodynamic diameter
RBBC	Reigate and Banstead Borough Council
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
TfL	Transport for London

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