



# 2020 Air Quality Annual Status Report (ASR)

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

July 2020

## Guildford Borough Council

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## **Executive Summary: Air Quality in Our Area**

### **Overview of Air Quality in Guildford Borough**

This is a summary of the state of air quality in the Guildford Borough Council (GBC) area, it reports on the progress that the local authority and partners are taking to improve air quality. Predominantly, the report covers air quality monitoring and actions in 2019. The timing of the report dictates that there are updates regarding actions during 2020 and references where appropriate to the dynamic situation relating to the Covid-19 pandemic.

### **Air Quality in Guildford Borough**

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<sup>1,2</sup>.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion<sup>3</sup>.

### **History and Background**

The Borough of Guildford, centred on the town of Guildford, has a population of around 148,000, approximately half of which live within the urban area. The main source of emissions in Guildford Borough is from motor vehicles. Four major roads pass through the Borough. The M25 enters the Borough briefly at Junction 10 (Wisley), which links to the A3 London to Portsmouth trunk road. The A3 runs from north to south through the Borough, linking with the A31, which joins the A331 Blackwater Valley Road. Whilst the land use is predominantly residential, there are several light industrial sites; the authority has 33 permitted process under Environmental Protection Act 1990, to date there is no record of any significant air quality impact from these locations.

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<sup>1</sup> Environmental equity, air quality, socioeconomic status and respiratory health, 2010

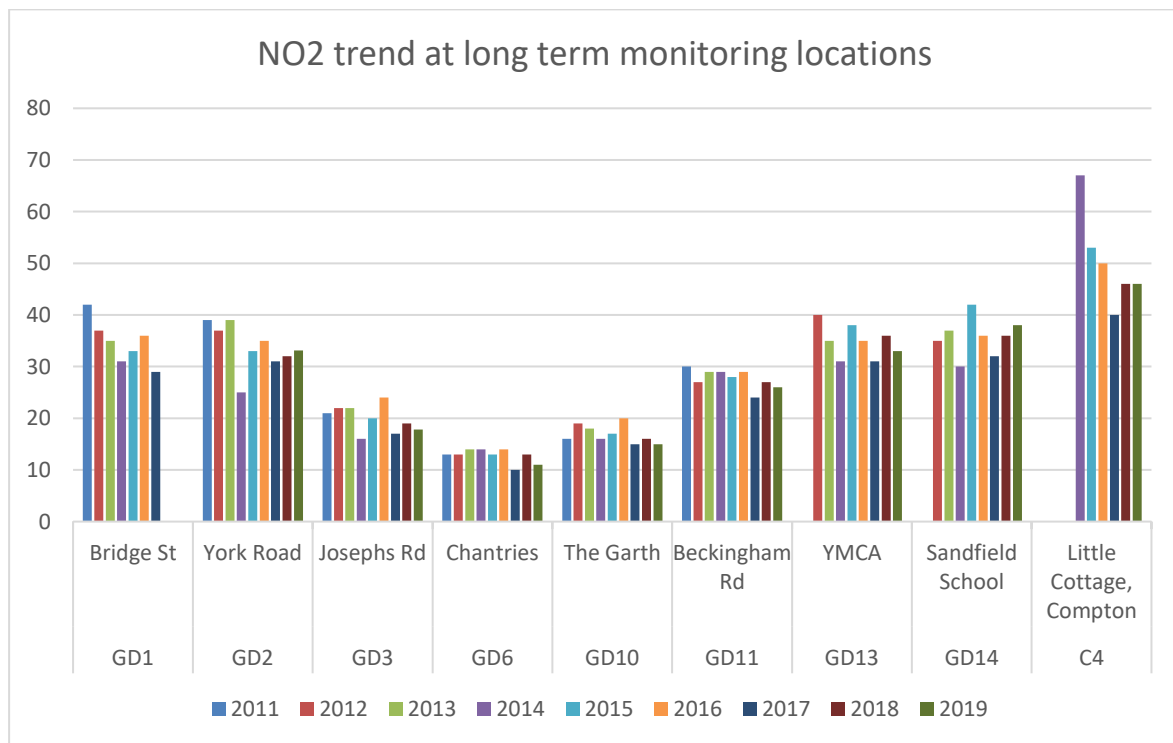
<sup>2</sup> Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Guildford Borough established Smoke Control Areas in the 1960's covering approximately 12 square kilometres of the urban area. These areas are still operational and subject to statutory control.

Nitrogen dioxide (NO<sub>2</sub>) is the main pollutant of concern in Guildford Borough and is routinely monitored under the local air quality monitoring regime. Since 2015, the diffusion tube monitoring sites are actively reviewed and except for a few longstanding roadside and background monitoring locations, monitoring locations are added or removed based on evidence from previous year's monitoring. The focus is primarily on the locations where relevant receptors (e.g. residential façade) are very close to a busy road, as previous monitoring in the Borough has indicated that these areas are likely to exceed the air quality objectives for annual average NO<sub>2</sub> levels.

A comparison of long term air quality monitoring data at our longstanding monitoring locations (see figure 1 below) do not show any clear downward trend. However, the results for last three monitoring years at our urban background (Josephs Road and Garth) and rural background (Chantryes) are low when compared with monitoring data since 2011.



**Figure 1 NO2 trend**

In November 2017, Guildford Borough Council Executive approved the Air Quality Strategy 2017-2022. The document sets out the Council's approach and priorities on air quality, plus several actions associated with statutory regimes and initiatives to bring about improvements. The Overview and Scrutiny Committee receive an annual report on progress with the implementation of the action plan.

An Air Quality Management Area (AQMA 1371) was formally declared on the 1 February 2018 covering the area at the northern end of The Street, B3000 (see Appendix D, figure 2), in the village of Compton where the three properties are in close proximity to the road. The Council consulted on an Air Quality Action Plan (AQAP) which Guildford Joint Committee approved on 3 July 2019, it was approved by Defra on the 1 August 2019. The approved action plan was right turn ban to Down Lane from B3000; as this will improve traffic flow in the AQMA section of The Street. The action was fully implemented in March 2020. The Council will continue to monitor and review the air quality within the AQMA.

The same committee also approved a second AQMA (AQMA 3358), this was declared on the 5 July 2019 on The Street, A281(Appendix D, figure 01), in the village of Shalford where seven properties are in close proximity to the road. The appropriate AQAP was submitted to Defra in December 2019. A response to the AQAP appraisal has been submitted to DEFRA with the intention of supplying a revised document in July 2020. All the relevant reports are available on this web page: <https://www.guildford.gov.uk/article/19807/Air-quality-monitoring>.

No new major point source of emission has been introduced in the Borough. In December 2019 the cremators at Guildford Crematorium were renewed to an up to date facility with mercury and NO<sub>2</sub> abatement. The process is permitted under Environmental Permitting Regulations 2016.

Surrey County Council is the highways authority for Guildford. Through government grants, SCC has installed three on-street electric vehicle charging points in Guildford. SCC also adopted an Electric Vehicle Strategy in November 2019, following the Government's Road to Zero roadmap towards delivering zero emissions transport across the UK. As part of the EV strategy implementation, an EV pilot scheme is currently being trialled across four boroughs in Surrey including Guildford. This pilot

scheme will introduce 20 on-street charging sites in each borough with a maximum of four charging points at each charging site.<sup>4</sup>

Guildford also continues to be part of Surrey Air Alliance Group, which consists of the eleven borough and district councils and SCC officers representing; public health, transport planning and highways. Whilst having no statutory status it has evolved into a partnership to enable air quality to be considered across the county and facilitate joint working where appropriate. In 2019, the Surrey Air Alliance completed a Surrey wide air quality modelling and source apportionment study which has helped us identify potential hotspots and prioritise air quality work in these areas.

The Guildford Local Plan was adopted in April 2019. The Air Quality Review, part of the Local Plan evidence base, assessed the impact of proposed growth on air quality. This advises further detailed modelling in certain areas, but concludes that air quality issues are not incompatible with the growth proposed in the Local Plan.

Finally, a number of transport related actions, which are aimed at tackling air quality issues from the Guildford Borough Transport Strategy, December 2017 have been implemented and are included in table 2.2.

## **Actions to Improve Air Quality**

In 2019, the key actions that have progressed are:

### **Compton AQMA**

- Adoption of an Air Quality Action Plan for Compton AQMA in 2019. The Compton AQMA was declared in February 2018. A draft AQAP that was produced in November 2017 was consulted upon in April 2018. Following that consultation, the action plan was revised and adopted by the Guildford Joint Committee in July 2019.
- Implementation of Compton AQAP. The right turn ban to Down Lane was identified as potential measure to improve traffic flow and mitigation of NO<sub>2</sub> levels in the Compton AQMA. This measure was implemented in March 2020. However, we are unlikely to know the full impact on air quality in the 2020

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<sup>4</sup> <https://www.surreycc.gov.uk/roads-and-transport/sustainable-travel/electric-vehicles/electric-vehicle-charging-point-pilot-scheme>

monitoring year due to unprecedented reduction in road traffic amidst COVID outbreak.

### **Shalford AQMA**

- The declaration of an Air Quality Management Area (AQMA) in July 2019 on the Street (A281) Shalford.
- In November 2019, a draft Shalford Air Quality Action Plan was produced following a full public consultation. This was adopted by the Guildford Joint Committee in December 2019. We are currently working on the actions identified in the DEFRA's AQAP appraisal report.

### **Air quality strategy**

- The Guildford Borough Council Air Quality Strategy 2017-2022 was approved by the Council in November 2017. The strategy is subject to an annual review, full details of the actions classified as short, medium and long term are set out Section 2.1 of the main report. The next update on the implementation of the action plan and update on emerging air quality action is due to be submitted to the Overview and Scrutiny Committee in September 2020.
- The Council recognises that the most significant source of air pollution in the borough is from road traffic and conducted a further annual review of monitoring of Nitrogen Dioxide (NO<sub>2</sub>) using passive diffusion tubes at the end of 2019 and the monitoring locations have been altered. The new sites have been introduced to continue concentrate monitoring near roads feeding the Guildford Gyratory and the A3 and considered the locations modelled to exceed the NO<sub>2</sub> annual mean in the Surrey wide modelling report.

### **Monitoring and further modelling**

- Further investigation near to residences using diffusion tubes on two A roads (A3100 and A31) has highlighted potential exceedances of the annual objective levels for NO<sub>2</sub>. As both areas are within the same urban area, a joint detailed investigation of all the feeder roads into Guildford town centre was considered to be the best approach. The Council is currently in the procurement stage for conducting a detailed air quality assessment as the monitoring results of nitrogen dioxide have shown that the annual air quality objective is at risk of

being exceeded at a number of sensitive locations, including those listed above, on a number of main roads leading into the Guildford town centre gyratory system.

### **Other initiatives**

- The Council have been awarded a grant of £30,000 by Highways England to assist with the development of measures to improve air quality in specified locations along the A3 as it passes through Guildford. The project will consider options to improve air quality around the A3 as it passes through Guildford that can be delivered by March 2021. The initial work will be high level options analysis to understand what could be delivered by 2021/22.
- EasitGUILDFORD, launched in March 2019, gives businesses and organisations across Guildford the opportunity to secure travel discounts for their staff. Working with the easitNETWORK, offers discounts on train and bus travel, as well as reductions on other initiatives. The aim is to make public transport, walking, car sharing and cycling realistic alternatives for commuters and the discounts can be used for leisure as well as work trips, making the offers even more attractive. Businesses across the borough are invited to sign up, so as many people as possible can benefit by getting cars off the road and reducing air pollution.

As Guildford Borough Council is a member of easitGUILDFORD, all Council Officers have access to the discounts available which has been promoted by Human Resources and Communications.

## **Conclusions and Priorities**

The 2019 monitoring has shown continued exceedance of annual average objective level of NO<sub>2</sub> in Shalford and Compton AQMA and the two AQMAs continue to remain the council's air quality priorities. The monitoring has also highlighted potential roadside exceedance on main roads within the Guildford gyratory system. The annual average air quality objective for NO<sub>2</sub> is likely to exceed where relevant receptors are in proximity to the road particularly in Farnham Road and Portsmouth Road. Local priorities should concentrate on the air quality action plans, Guildford Air



Quality Strategy and air quality reviews following the modelling exercise carried out by CERC on behalf of Surrey local authorities.

**1. Enhance our approach to air quality**

- a. Implement the Guildford Borough Council Air Quality Strategy 2017-2022. This document has several short, medium and long-term actions which are linked to future actions and initiatives in Table 2.2.
- b. Implement the relevant actions from the National Clean Air Strategy 2019.
- c. Implement public awareness and educational opportunities.

**2. Monitoring and reporting of air pollution levels**

- a. The NO<sub>2</sub> diffusion tube monitoring in Shalford was expanded to understand the NO<sub>2</sub> in areas neighbouring the AQMA.
- b. Continue monitoring in Compton AQMA to review the effectiveness of the implemented action plan.
- c. Maintain and where necessary expand the nitrogen dioxide passive diffusion tube network, in response to observations on trends in recorded levels and areas of local concern. The diffusion tube sites are reviewed at the end of every monitoring year. Sites are added/removed based on evidence gathered through monitoring/dispersion modelling studies.
- d. Focus on the NO<sub>2</sub> hotspots identified in the modelling exercise by CERC by carrying out detailed monitoring under LAQM. The hotspots have been identified in Ripley, Send, Farnham Road and other feeder roads leading to Guildford town centre.
- e. The locations in the town centre and road gyratory system; of particular interest are the six main roads that lead into the system; A281(Horsham Road), A31 (Farnham Road), A320 (Woking Road), A331 (Portsmouth Road) and A322 (Woodbridge Road). The detailed modelling of these roads is due to commence in 2020.

**3. Reducing vehicle emissions**

- a. Reduce emissions in the GBC transport fleet and associated officer car use by increasing the percentage of low emission vehicles.
- b. Continue reviewing the progress on AQAPs for Compton and Shalford AQMAs.
- c. In conjunction with SCC provide facilities to ensure the efficient electric charging of vehicles is available to a wider part of the community and business.
- d. Apply for government funding to facilitate improvements where appropriate.
- e. Facilitating remote working and working practices that can minimise car use.
- f. Explore future options within the taxi licensing regime.
- g. Use of planning regime to encourage adoption of good design principles in new developments; for example, electric vehicles charging facilities.

**4. Working with other agencies**

- a. The decision-making process for Air Quality in the Borough of Guildford has been transferred to the Guildford Joint Committee, made up of both Borough and County Councillors. This is a positive step for improving air quality in Guildford Borough as it means both organisations work in partnership to address air quality issues. There are also opportunities to build on the relationships with colleagues in Highways, Transport Planning, School Travel Planning, Road Safety and Transport Strategy.
- b. Reinforce public health work by continuing to work through the Surrey Air Alliance with SCC Public Health and other Surrey authorities to ensure that the profile of air quality improvements is elevated.
- c. Work with the two respective authorities; Highways England and SCC through the Guildford Transport Strategy.
- d. Work with SCC on local improvements as required in the ensuring that there is an effective AQAP in the AQMA in Compton and Shalford.

- e. Work with the University of Surrey on the Iescape Project.
- f. Engage in educational opportunities via Surrey School projects.
- g. Work with Highways England on the A3 (Guildford section) study.

## **5. Planning Framework**

- a. The Council is currently consulting on the Local Plan: Development Management Policies. Policy P11 addresses the issues and preferred options on air quality and AQMAs.<sup>5</sup>
- b. In conjunction with SCC and other Surrey authorities; provide guidance for developers to ensure that air quality is uniformly addressed at the pre application phase.
- c. Facilitate infrastructure improvements including; new railway stations and relief schemes for areas of localised congestion, for example a road bridge to replace a level crossing in Ash (a planning application registered in June 2020) and the possible new railway station at Park Barn, Guildford.
- d. Work with Planning Policy Team at GBC on the requirements to carry out roadside air quality monitoring with reference to the Special Protection Areas (SPA) within the Borough.

## **Challenges**

The following challenges to achieving priorities have been identified:

- a. Provision of an effective process to link air quality with health outcomes in a reportable manner.
- b. Sufficient budget and resource allocation to achieve the priorities and strategy targets.
- c. Influencing behavioural change in the population of the Borough.
- d. Engagement with other organisations and commitment of their resource (human and financial) on actions.

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<sup>5</sup> <https://guildford.inconsult.uk/consult.ti/LPDMIO/consultationHome>

- e. Nature of the road network in the Borough.
- f. Cost of infrastructure improvements and the provision of funding.
- g. Responding to the challenges of the Covid-19 pandemic.

## **Local Engagement and How to get Involved**

### **Local Engagement**

The Council have engaged with the public as follows:

1. Participating in joint initiatives with University of Surrey Global Centre for Clean Air Research, Iscape project<sup>6</sup>.
2. Professor Kumar; from University of Surrey Global Centre for Clean Air Research, has given presentations on engagement and education projects on air quality to the GBC Overview and Scrutiny Committee and Surrey Air Alliance. We have supported field work by assisting with identifying appropriate locations and on a number of occasions Council land has been used. The Council has also supported and promoted community engagement events led by the University.
3. Public consultation comprising of walk-in sessions was carried out on Shalford AQAP in 2019.
4. Dealing with local requests for nitrogen dioxide monitoring and displaying up to date monitoring data on the Council's website.
5. Overview and Scrutiny Committee receives reports on progress and developments associated with air quality.
6. Recommendations in line with guidance issued by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) that air quality should be assessed on planning applications in close proximity to AQMA's and/or areas

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<sup>6</sup> <https://www.surrey.ac.uk/global-centre-clean-air-research>

subject to Ministerial Direction, where there are over 10 dwellings and commercial developments<sup>7</sup>.

## **How to get involved**

Guildford Borough Council has a number of ways that the public can get involved in air quality issues (relevant web links) including:

1. Reporting bonfires or air pollution incidents to our Customer Service Centre, to enable investigation under the Environmental Protection Act 1990 or other related legislation. <http://www.guildford.gov.uk/bonfires>
2. Use cleaner (ultra-low emission) vehicles. Advice is available from The Office for Low Emission Vehicles  
<https://www.gov.uk/government/organisations/office-for-low-emission-vehicles>
3. Reduce vehicle use, by participation in sustainable transport options; public transport, park and ride, walking, cycling, car clubs and car sharing.  
<http://www.guildford.gov.uk/carclubs>; <https://www.surreycc.gov.uk/roads-and-transport/buses-and-trains/guildford-park-and-ride>
4. Ensure compliance with Smoke Control Orders, by only using authorised appliances and fuel. <http://www.guildford.gov.uk/article/1734/Smoke-control-area>
5. Participate in the activities of Guildford Environmental Forum.  
<http://www.gefweb.org.uk/index.html>
6. Comment on the potential impact of proposed developments in the Borough via the planning process.  
<http://www.guildford.gov.uk/commentonaplanningapplication>
7. Potential and existing green travellers can join the easitGuildford the green travel network [www.easit.org.uk/network/easitGUILDFORD-23](http://www.easit.org.uk/network/easitGUILDFORD-23)
8. Participate in initiatives raised by local concerns including the Global Centre for Air Quality Research at the University of Surrey.  
<https://www.surrey.ac.uk/global-centre-clean-air-research>

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<sup>7</sup> <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

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## **1 Local Air Quality Management**

This report provides an overview of air quality in Guildford Borough Council during 2019. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether the air quality objectives are likely to be achieved. Where an exceedance is considered likely, the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Guildford Borough 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 E.1 in Appendix E.



## **2 Actions to Improve Air Quality**

### **2.1 Air Quality Management Areas**

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

Table 2.1 – Declared Air Quality Management Areas. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at [https://uk-air.defra.gov.uk/aqma/local-authorities?la\\_id=115](https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=115). Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMAs.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Guildford Borough Council AQMA Order (No. 1) 2018	01-Feb-18	NO2 Annual Mean	Compton	Section of B3000 to its northern end, encompassing 3 residential properties	No	43.8	µg/m <sup>3</sup>	46	µg/m <sup>3</sup>	Guildford Borough Council Air Quality Action Plan - Compton Village	July 2019	<a href="https://www.guilford.gov.uk/article/21335/Guildford-air-quality-management-areas">https://www.guilford.gov.uk/article/21335/Guildford-air-quality-management-areas</a>
Guildford Borough Council AQMA Order (No. 2) 2019	05-Jul-19	NO2 Annual Mean	Shalford	Section of A281, The Street, Shalford	No	50	µg/m <sup>3</sup>		µg/m <sup>3</sup>	Guildford Borough Council Shalford Air Quality Action Plan	Submitted 11-Dec-19- Under review	<a href="https://www.guilford.gov.uk/media/30621/Shalford-Draft-Air-Quality-Consultation/pdf/Draft_Air_Quality_Report_for_consultation_-_19.9.2019.pdf?m=637044877947270000">https://www.guilford.gov.uk/media/30621/Shalford-Draft-Air-Quality-Consultation/pdf/Draft_Air_Quality_Report_for_consultation_-_19.9.2019.pdf?m=637044877947270000</a>

Guildford Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date

**AQMA 1 (1371) The Street Compton**

An Air Quality Management Area (AQMA 1371) was formally declared on the 1 February 2018, the area at the northern end of The Street, B3000, in the village of Compton where the three properties are in close proximity to the road.

The Council consulted on a revised AQAP in April 2019. The AQAP was adopted by the Guildford Joint Committee on 3 July 2019 and was submitted to Defra for appraisal.

The Compton AQAP identified banning of right hand turn to Down Lane as potential mitigation option likely to reduce queuing /congestion and improve traffic flow. This option came out as a result of public consultation to the the previous draft Air Quality Action Plan, traffic survey and dispersion modelling of right hand turn ban scenario. The full report is available on our website<sup>8</sup>.

The right turn ban was fully implemented in March 2020. The monitoring at the existing locations will continue to assess the impact of right turn ban.



<sup>8</sup> <https://www.guildford.gov.uk/article/21335/Guildford-air-quality-management-areas>

**AQMA 2 (3358) The Street Shalford**

Guildford Borough Council air quality monitoring between January and September 2018 indicated that the annual national air quality objective for nitrogen dioxide may be exceeded along the A281 in Shalford. A detailed assessment of air quality within Shalford determined that there are a small number of residential properties at which levels of nitrogen dioxide exceed the air quality standard.

This led to the determination of a section of A281, The Street, Shalford as AQMA (see Appendix D, Figure 01 for the location map).

The main source of emissions is road traffic, which is exacerbated by the canyon nature of the road (i.e. properties close to the carriageway resulting in reduced dispersion at the building facades).

The decision to declare a new AQMA (3358) in The Street, A281, Shalford, Guildford, Surrey area was made by the Guildford Joint Committee on 3 July 2019, the formal declaration order was lodged with Defra on the 5 July 2019.

A draft AQAP was produced as part of Council's statutory duties under the LAQM framework and public consultation on the draft AQAP was conducted from 19 September to 18 October 2019 using multiple channels. We engaged with the consultees listed below plus other interested parties.

1. 9 residential properties within the AQMA and adjoining area
2. Surrey County Council Highways
3. Ward Councillors and Surrey County Councillor
4. Shalford Parish Council
5. Waverley Borough Council
6. Guildford Borough Council – Economic Development, Planning Policy, Major Projects, Parks and Leisure Service
7. Highways England
8. Public Health, Surrey County Council
9. Local businesses

Letters were sent to residents within AQMA boundary and adjoining properties and emails were sent to all other consultees listed. Guildford Borough Council also

published details of the consultation on its website. Two walk-in sessions were held in Shalford between 10am to 1pm on 27 September 2019 and 6pm to 9pm on 3 October 2019 to give consultees the opportunity to talk to officers about the proposals. In total there were 11 consultation responses received.

The steering group met to discuss the consultation responses and agree the measures to be included in the AQAP.

The revised AQAP was adopted by the Guildford Joint Committee on 11 December 2019 and included the measures in the table below, to be delivered between 2020-2025. In early 2020 Defra asked for some amendments to the plan that are currently being addressed by GBC and will be resubmitted in July 2020.

**In subsequent ASRs GBC will be reporting on the progress of both action plans.**

Shalford Air Quality Action Measures

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Run a school intervention programme in Shalford	Promoting Travel Alternatives	School Travel Plans	Surrey County Council to lead on this measure	2019	2020	Not yet set	No perceptible difference in concentrations	Not yet implemented	Unknown at present	Shalford Pre-school and infant school is a small school of approx. 90 pupils. Unlikely to have a large impact, but useful for increasing awareness of air quality and may encourage modal shift. Very positive feedback in consultation. Shalford and Tillingbourne schools will be invited to participate in the current school air quality project being run in partnership with Surrey CC.
2	easitGuildford Green Travel Network	Promoting Travel Alternatives	Workplace Travel Planning	GBC	Already being implemented	2018-Dependent on funding	Number of businesses/ participants	Not quantifiable	10 businesses in Guildford already signed up representing over 12,000 employees	Unknown	Work to increase the number of businesses involved. The intention is for the network to become self-funding. Cranleigh Freight Services and other local businesses will be contacted as well as encouraging Shalford residents to get their employers to sign up.

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Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
3	Increasing Electric Vehicles in the Fleet locally	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Surrey County Council	6/2019	Unknown at present	Not yet set	Not quantifiable	Not yet implemented	Unknown at present	Undertaken through Surrey Electric Vehicle Strategy (November 2018). Currently being updated. Timescales for implementation too early. Guildford chosen for pilot project with delivery of a share of 60-80 EV charge points. The project is subject to LEP funding which has not been obtained. Could target Shalford school or local businesses for EV charging point.
4	Consider Air Quality at pre-application and application stages of planning process	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Environmental Health, GBC	Already being implemented	Ongoing	Numbers of applications with conditions relating to air quality	Not quantifiable	Some large scale applications have had conditions applied (e.g. those in Waverley)	Ongoing	Ensure robust air quality assessments and allow for effective use of planning conditions
5	Joint working with Waverley Borough Council, particularly on large developments like Dunsford	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Environmental Health, GBC	Already being implemented	Ongoing	n/a	Not quantifiable	See above. Joint working with Waverley BC on this AQAP and other air quality and planning issues	Ongoing	The majority of large scale housing and mixed use developments in Waverley already have conditions to ensure that Electric Vehicle infrastructure is included in the development. Examples include Dunsfold Park, Knowle Lane, Cranleigh, Cranleigh Nurseries, Alford Road



## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
6	Bid for low emission bus scheme (Defra grant) or Clean Bus Technology Fund to increase number of low and ultra-low emission buses in Guildford	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	Environmental Health, GBC and Surrey County Council	2017	2017-2020	Number of buses replaced or retrofitted	Unlikely to be large reduction in concentrations because buses not a large proportion of emissions	Successful bid for ultra-low emission buses in Guildford. Further review of grants available	2022	This work needs to be done in conjunction with Surrey County Council who has a close working relationship with the bus operators. This measure alone will not achieve compliance in the Shalford AQMA, but will have wider air quality benefits in combination with measures to encourage modal shift. GBC can encourage bus companies to bid for government grants, but there are barriers such as 'state aid' which prevent further involvement.
7	Right hand ban onto East Shalford Lane	Traffic Management	Strategic Highway Improvement	Surrey County Council	2019	Unknown as yet	n/a	Unknown	Not yet implemented	Unknown at present	This has already been explored. A turning count survey has been undertaken and this appears not to be a large issue. There are potentially other issues such as potentially increasing congestion at Pilgrims Way and difficulties accessing properties on East Shalford lane and the cul-de-sac section of Tilehouse Road.

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
8	Lobbying to increase train service from Shalford	Alternatives to private vehicle use	Rail based Park and Ride	GBC and Surrey County Council	n/a	2020	n/a	Unlikely to reduce concentrations other than in the long term (if train service improved)	None	Unknown	Liaise with rail companies and ensure that this is on the agenda of any relevant groups such as the North Down Link Consortium
9	Lobbying to increase frequency of buses to Guildford	Alternatives to private vehicle use	Other	Guildford Borough Council	n/a	2020	n/a	Unlikely to be large reductions in concentrations as not a large proportion of emissions	None	Unknown	Following consultation, respondents wanted to see increased frequency of buses to Guildford.
10	Improve the off road cycle path in the vicinity of Dagley Lane	Promoting Travel Alternatives	Promotion of Cycling	Guildford Borough Council	2019/2020	2020	n/a	Not quantifiable	None	Unknown at this stage	Currently no funding to improve the off-road cycle path between Shalford and Guildford, but this will be explored as part of this AQAP
11	Lobbying for Bus and train discounts for residents	Alternatives to private vehicle use	Other	Guildford Borough Council	2019/2020	2020	n/a	Not quantifiable	None	Unknown at this stage	This was suggested as an option by consultees. Securing lower fares may incentivise users of buses and trains.

For reference, a map of Guildford Borough Council's monitoring locations and AQMAs are available in Appendix D.

## 2.2 Progress and Impact of Measures to address Air Quality in Guildford Borough Council

Defra's appraisal of last year's ASR concluded that the council should:

No.	Comment from Defra December 2019	Actions
1	Include the monitoring locations in the AQMA Map	The AQMA map now have monitoring locations.
2	Typo noted within the x-y reference for monitoring site SH1	This has been amended
3	All monitoring locations are presented within the 5-year NO <sub>2</sub> annual mean concentration table and the accompanying trend chart, with separate trend charts per AQMA.	All monitoring locations are presented within the 5-year NO <sub>2</sub> annual mean concentration table and the accompanying trend chart. There are separate trend charts per AQMA
4	Distance correction should only be completed at monitoring sites that have an annual mean NO <sub>2</sub> concentration greater than 36µg/m <sup>3</sup> and the relevant exposure is within 20m of the monitoring location.	Only the sites meeting the criteria of annual mean NO <sub>2</sub> concentration greater than 36µg/m <sup>3</sup> and the relevant exposure within 20m of the monitoring location have been distance corrected.
5	Results of the anticipated county wide study should be detailed within the 2020 ASR and reviewed in line with the proposed update to the AQAP, which is due to include measures relating to the designation of AQMA 2.	The results are discussed in this ASR.

Guildford Borough Council has taken forward several direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Key completed measures are:

**1. Surrey wide air dispersion modelling for NO<sub>2</sub> and Particulate Matters PM<sub>2.5</sub> and PM<sub>10</sub>.**

This report was delivered in November 2019. The results of individual pollutants are discussed in Section 2.3. Report is available on the GBC air quality website under **Air quality study** <https://www.guildford.gov.uk/article/19807/Air-quality-monitoring>

The dispersion modelling data helped us identify relevant receptor locations (residential façade) where NO<sub>2</sub> annual average was modelled to exceed the air quality objective. Following further review of all these locations and through application of local knowledge of environmental/physical settings, 12 new locations were added to the diffusion tube monitoring network for 2020.

**2. Implementation of Compton AQAP:**

Officers encountered several challenges during the implementation. However, this was fully implemented in March 2020. The details are included in section 2.1 Air Quality Management Areas

**3. Surrey County School tours:**

A total of seven districts and boroughs committed to support the scheme with £7k of funding by each local authority - Spelthorne, Waverley, Guildford, Mole Valley, Surrey Heath, Woking and Runnymede. The programme for the 2020 encompasses Theatre in Education performance, air quality monitoring workshops and anti-idling event schools.

Six schools in Guildford Borough benefitted from a bespoke interactive theatre production with the aim to impart air quality awareness to the school children and how behavioural changes and alternative means to travel can have a positive impact on the air quality. Following are some of the images from the show.



The other school programs such as air quality monitoring workshop and anti-idling events were due to be delivered, but currently on hold due to Covid-19 restrictions.

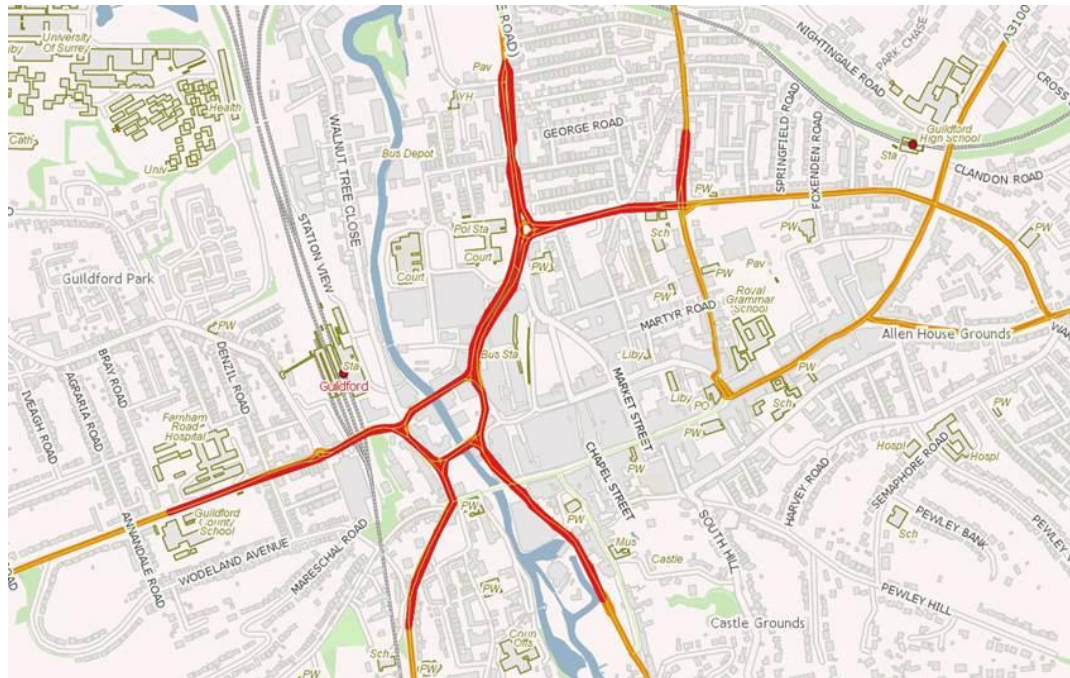
#### **4. Detailed air quality study in the town centre and road gyratory system**

There are six main roads that lead into the system; A281(Horsham Road), A31 (Farnham Road), A320 (Woking Road), A331 (Portsmouth Road) and A322 (Woodbridge Road).

In 2019, we enhanced our monitoring network in all of these main roads leading to the town centre gyratory system.

Following the initial evidence of potential air quality exceedances through diffusion tubes monitoring (please refer to the 2019 monitoring data in Appendix A, table A.2) and discussion in section 3.2.1), we have drafted specification for the procurement

of a detailed air quality assessment of NO<sub>2</sub> in Guildford town centre and approach roads. The figure 2 below represents the study area identified for this purpose. The procurement exercise has been released for bidding at the time of this report submission, with an anticipated reward of contract in August 2020.



**Figure 2 Town centre study area for detailed air quality assessment and dispersion modelling**

## **5. Partnership working**

During 2018 and into 2019 the Council and our partner authorities have taken a number of steps to try to reduce vehicle emissions and traffic congestion by linking car use with the promotion of public and alternative means of transport. This remains central to reducing pollution from vehicle exhaust emissions in Guildford. Park and Ride schemes, car share schemes, car clubs, green scheme for parking electric vehicles<sup>9</sup>, bus lanes, cycling and walking strategies and integrated transport plans, all form part of the overall approach.

Guildford Borough Council has taken actions to reduce vehicle emissions within existing duties and responsibilities:

- Emissions are a prominent factor in procurement of the Council's vehicle fleet.
- Guildford Borough Council encourage internal lease car users to consider low emission vehicles by highlighting the tax benefits and setting a limit on the carbon dioxide (CO<sub>2</sub>) emissions.
- Guildford town centre car clubs have expanded and utilise more vehicles that are electric.
- The Council carried out a scoping exercise; with the intention to provide additional charging points in town centre public car parks during 2019.
- Use of the two electric pool cars by staff has increased. The installation of rapid charging point was completed in 2019 with 4 dedicated bays for electric vehicles.

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<sup>9</sup> <http://www.guildford.gov.uk/carparks>



- Where practicable, procurement of ultra-low emission fleet vehicles is encouraged. Progress has been covered in table 2.2.
- In 2019, GBC staff were migrated in phases to work on laptops to enable remote and mobile working. This was fully implemented and operational before the Covid lockdown. This has enabled staff to work from home, however, current remote working pattern may change with reduced number of staff returning to work. Therefore, accurate environmental benefits cannot be reported under current circumstances.



## Local priorities for 2020

Guildford Borough Council's priorities for the coming year are in line with those set out in 2018 and 2019, GBC has set out the following priorities:

### Local priorities

#### 1. Enhance our approach to air quality

- a. Implement the Guildford Borough Council Air Quality Strategy 2017-2022. This document has several short, medium and long-term actions which are linked to future actions and initiatives in Table 2.2.

#### 2. Monitoring and reporting of air pollution level

- a. Continue monitoring, reporting and reviewing of our monitoring network
- b. Adoption and implementation of Shalford AQAP
- c. Produce detailed air quality assessment of the town centre and road gyratory system

#### 3. Reducing vehicle emissions

- a. Reduce emissions in the GBC transport fleet by increasing the percentage of low emission vehicles.
- c. In conjunction with Surrey County Council provide facilities to ensure the efficient electric charging of vehicles is available to a wider part of the community and business.
- e. Apply for government funding to facilitate improvements where appropriate.
- f. Explore future options within the taxi licensing regime.

**4. Working with other agencies**

- a) **Participate with Highways England in options analysis study of measures to improve air quality on A3:** GBC is working with Highways England in the development and implementation of air quality improvement measures in specified location along the A3 as it passes through Guildford. Where the A3 passes through Guildford there is a higher level of congestion due to the merging of strategic and local traffic.

This project will consider options to improve air quality can be delivered by March 2021. These options are primarily focussed on enabling access to sustainable means of transport to those living, working and visiting Guildford and making them more attractive than traditional car use. By making these local improvements the flow of traffic through the junctions with the A3 through Guildford should improve and further reduce nitrogen dioxide emissions.

**5. Planning Framework**

- a. Ensure that the Local Plan process takes account of any relevant findings within air quality investigations or modelling.
- b. In conjunction with Surrey County Council and other Surrey authorities; provide guidance for developers to ensure that air quality is uniformly addressed at the pre application phase.
- c. Facilitate infrastructure improvements including; new railway stations and relief schemes for areas of localised congestion, for example a road bridge to replace a level crossing in Ash and the possible new railway station at Park Barn, Guildford.
- d. Work with Planning Policy Team at GBC on the requirements to carry out roadside air quality monitoring with reference to the Special Protection Areas (SPA) within the Borough.

- e. Work with the Planning Policy Team at GBC on Local Plan: Development Management Policies. Policy P11 which addresses the issues and preferred options on air quality and AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

**BARRIER : PLEASE NOTE THAT AT THE TIME OF COMPILING THIS REPORT COVID 19 MEASURES ARE IN PLACE.**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Air quality is a consideration at pre- application and application stage to allow effective use of planning conditions.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	Planning Services and Environmental Health	Guildford Borough Council	Number of developments where air quality has been assessed and actioned	Encourages EV charging in all new developments above 10 dwelling threshold	<ul style="list-style-type: none"> <li>- Service Level Agreement between Planning Development and Environmental Health with quarterly monitoring meetings.</li> <li>- In areas where air quality is a concern Regulatory Services recommend an air quality assessment as a pre-application condition and across the borough electric charging points in developments of 10 or more properties</li> </ul>	Ongoing	Developers are made aware of the Institute of Air Quality Management Guidance <a href="https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf">https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf</a>

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									- Air quality is also part of Planning Policy measures.		
2	Work with other authorities, land managers, and highway authorities to develop a framework to monitor forecast improvements in roadside air quality around the Thames Basin Heaths Special Protection Area to confirm that forecast improvements are being delivered and, if required, to identify and deliver supplementary measures.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	Environmental Health and Planning Services and	Guildford Borough Council	Establishment of a framework for monitoring forecast improvements in roadside air quality	Not measurable	The GBC Local Plan was adopted in April 2019. It was concluded that the Plan would not impact on the SPA.	Modelling completed December 2019.  September 2020 agree plan for roadside monitoring beside SPAs	The modelling carried out by the Surrey Air Alliance has information that can be used by the Local Plan teams. This will be introduced during the summer of 2020
3	Green scheme parking fees for electric vehicles in GBC car parks	Traffic Management	Emission based parking or permit charges	2018 /19	Parking Services	Guildford Borough Council	Evidence of greater take up from car	Number of ELVs	Owners of electric vehicles can apply for a parking permit for free to obtain reduced fees.	Completed	More information is available on our website: <a href="https://www.guildford.gov.uk/carparks">https://www.guildford.gov.uk/carparks</a>

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
							parking records.		There are 6 operational charging points in Guildford car parks		
4	Parking App to direct users to closest and cheapest spaces	Traffic Management	Other	2018	Parking Services	Guildford Borough Council	Use of App	Not measurable	App is available to download and aims to reduce congestion and queuing	Completed	<a href="https://www.guildford.gov.uk/parkingapp">https://www.guildford.gov.uk/parkingapp</a>
5	Education in communities to change behaviours	Promoting Travel Alternatives	Promotion of cycling, Promotion of walking, Workplace Travel Planning	2018	Community Development and Environmental Health	Guildford Borough Council and SCC	Feedback as part of the project	Not measurable	<ul style="list-style-type: none"> <li>- Project Aspire initiatives to reduce dependency on cars</li> <li>- Promotion of Surrey County Council Schools air quality projects</li> </ul>	Schools programme commenced in early 2020, on hold due to the Covid-19 pandemic.  Ongoing	Participation of the residents; behaviour change as a result of awareness programmes.
6	Electric buses for all Park and Ride sites	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2019	Surrey County Council, Guildford Borough Council and Stagecoach bus company	SCC		Usage	Electric buses were introduced in January 2019 at all four Park and Ride sites in Guildford <a href="http://www.electrive.com/2019/06/27/uk-e-buses-for-stagecoach-powered-by-tesla-powerpacks/">www.electrive.com/2019/06/27/uk-e-buses-for-stagecoach-powered-by-tesla-powerpacks/</a>	Completed 2019. Report on the effectiveness to be compiled by October 2020	Fully implemented on all Park and Ride routes.

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
7	Easit campaign	Promoting Travel Alternatives	Workplace Travel Planning	2018	Guildford Borough council, Easit Guildford	Guildford Borough Council	Take up by businesses and organisations		<a href="http://www.easit.org.uk/network/easitGUILDFORD-23">www.easit.org.uk/network/easitGUILDFORD-23</a>	ongoing	Covid impact to be considered.
8	Schools initiative	Promoting Travel Alternatives	School Travel Plans	2019-20	Guildford Borough Council, Surrey County Council	Guildford Borough Council	Involvement of local schools in areas near to AQMAs	Not measurable	Programme has been partly implemented to 6 schools in Guildford	Potentially 2021; All the school programs would have been implemented in 2020. However, had to be postponed under current unprecedented circumstances.	Covid impact has delayed the project
9	Bringing services to the communities to reduce car journeys	Promoting Travel Alternatives	Other	2018	Community Development and Community services	Guildford Borough Council		Not measurable	Project Aspire encouraging partners to increase use of local facilities within communities to reduce journeys	Ongoing	Covid impact has delayed the project
10	GBC Air Quality Strategy	Policy Guidance and Development Control	Other policy	2017-2018	Environmental Health	Guildford Borough Council			A number of the measures outlined in this table are covered. Review taken to Overview and Scrutiny late 2020.	Ongoing	The strategy was adopted in November 2017; Implementation of action plan is monitored by Overview and Scrutiny Committee

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
11	Declaration of Air Quality Management Area in Compton	Traffic Management	Other – defined in action plan	2017	Environmental Health	Guildford Borough Council	Compliance with Action Plan		The revised AQAP was adopted in 2019; the action plan, which is the right turn ban to Down Lane was implemented in March 2020	completed March 2020	Continued air quality monitoring to assess effectiveness of the implemented measure in terms of compliance with objective levels.
12	Facilitate and promote home, mobile, remote and flexible working within the Council	Promoting Travel Alternatives	Encourage / Facilitate home-working	2018	ICT and HR, Guildford Borough Council	Guildford Borough Council	cumulative journeys to work avoided (in miles)	Can be calculated by using the mileage saved and car type. (Can we get this data about car types and miles travelled by employees)	Fully implemented, ICT support all staff to work remotely •ICT refresh programme with over £1 million financial investment	The Covid-19 change in working patterns post 23 March 2020.	Data on journeys saved to work, meetings etc will be important indicators; however will change post Covid -19
13	Promote alternative travel to work at the Council	Promoting Travel Alternatives	Workplace Travel Planning	2018	HR	Guildford Borough Council	Take up by staff	Reduction in car use to be monitored and emissions can be matched with type and usage.	Alternative transport to work promoted: bike to work scheme (salary sacrifice scheme to buy bike) and provision of lockers, changing and shower facilities to support cyclists, runner, walkers. •Currently exploring the opportunity to roll out a council wide	In progress ; The Covid 19 measures are in place, so assessment not realistic	Individual circumstances will affect take up of the scheme



**Guildford Borough Council**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									initiative plus include local businesses.		
14	Car clubs in Guildford Town Centre	Alternatives to private vehicle use	Car Clubs	2016	SCC/GBC	Department for Transport	Restrain or reduce traffic	Mileage can be obtained and benefits calculated.	GBC/SCC and Enterprise Car Club scheme, There are 10 car clubs in Guildford Town Centre; all either low/ultra-low emission	ongoing	Need to promote further use throughout the Borough.
15	Air quality modelling of Surrey for PM10, PM2.5, NO2	Policy Guidance and Development Control	Regional Groups Coordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2017	All Surrey Local Authorities; The detailed modelling was undertaken by Cambridge Environmental Research Consultants	All Surrey Local Authorities	Delivery of detailed air quality modelling report	none	The modelled results indicated few hotspots for NO <sub>2</sub> near relevant receptors; Further monitoring near these hotspots using diffusion tubes has already begun for monitoring year 2020.	Model delivered in November 2019	
16	Participate in the University of Surrey iSCAPE project..	Public Information	Via other mechanisms	2018	University of Surrey; Guildford	University of Surrey; Guildford	Aims to raise citizen awareness		- Behaviour Study completed in partnership with	Completed	More information on the project <a href="https://www.iscapeproject.eu/">https://www.iscapeproject.eu/</a>

**Guildford Borough Council**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
					Borough Council	Guildford Borough Council assisted with research projects e.g. site locations for testing new technologies	Assess about air quality and the impact		<ul style="list-style-type: none"> <li>the University of Surrey.</li> <li>Study likely to be reviewed to improve and repeat in the future</li> </ul>		
17	Smoke Control Order Compliance	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	2018	Environmental Health	Guildford Borough Council	Compliance with the Statute	Not likely to significantly change as areas are generally compliant	<p>Guildford has smoke control areas setup in the 1960's; Increase awareness and obligations for residents</p> <p><a href="http://www.guildford.gov.uk/article/18350/Smoke-control-area">www.guildford.gov.uk/article/18350/Smoke-control-area</a></p>	Completed however ongoing as any noncompliance needs to be reported for investigation by Regulatory Services	A webpage dedicated to Smoke Control Area (SMA); with interactive map to search properties within the SMA <a href="http://www.guildford.gov.uk/article/18350/Smoke-control-area">www.guildford.gov.uk/article/18350/Smoke-control-area</a>
18	Anti vehicle idling, for example at level crossings, taxi ranks, the station, bus stops	Traffic Management	Other	2018	Guildford Borough Council; Surrey County Council		Implementation of signs or other measures.	Potentially less emissions on reducing idling	Level crossings in the) have been identified for a potential scheme. Feasibility study for a new road bridge at Ash Railway Station.	2020	Noted that anti idling at schools has been brought up. Use of air quality monitors at schools has been considered.

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Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
	and outside schools.								Planning application submitted June 2020		Await decision on the Ash Bridge proposal.
19	Declaration and implementation of Air Quality Management Area - Shalford	Traffic Management	UTC, Congestion management, traffic reduction	2017	Guildford Borough Council; Surrey County Council	Guildford Borough Council	To not exceed the annual objective level for nitrogen dioxide	continued monitoring to assess improvement in air quality following AQAP implementation	A281, Shalford AQMA was declared in July 2019; On 11 December 2019 the AQAP for Shalford was approved by Guildford Joint Committee.	Update on AQAP to be submitted to Defra July 2020	AQAP does not lend itself to engineering solutions, hence a number of measures are required.
20	Guildford Crematorium new cremators	Environmental Permits	Measures to reduce pollution through IPPC permits going beyond BAT	2018	Guildford Borough Council	Guildford Borough Council	Compliance monitoring report as required under the Environmental Permit	Reduction in nitrogen dioxide exposure at receptors.	Change from temporary cremator to fully compliant plant with mercury and nitrogen dioxide abatement December 2019 Original permit and variation issued in July 2019	2020	New permits and variations issued in March and June 2020.
21	Service delivery review to reduce public journeys to Council properties where appropriate	Promoting Travel Alternatives	Personalised travel planning	2019	Guildford Borough Council	Guildford Borough Council	Council's record of vehicle use	Less journeys will reduce emissions	There are examples of good practice around the Council but no consistency or formal policy	2020	Identify reasons for members of the public journeys to council offices and if the journey is necessary. Attending a meeting and consider

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Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
											a different way to deliver the service e.g. online booking, officers travelling to venue.
22	Adopt GBC Policy lease car and fleet vehicles procurement	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2018	Guildford Borough Council	Guildford Borough Council	Council's record of vehicle use	Less pollutants from low emission vehicles.	<p>There are 10 electric vehicles in the Council fleet, with another 10 electric Min Buses imminent</p> <p>Currently there are 12 charging points across Council sites with 10 more planned at Park Barn including 2 rapid charge points</p> <p>Revised lease car scheme to allow reduced emissions vehicles only. Scheme now limited to Electric, PHEV and Hybrid</p> <p>Fleet vehicles under 2000kg now electric by default</p>	2020	<p>Policy to include:</p> <ul style="list-style-type: none"> <li>- Review of lease car scheme to require reduced emissions/ electric vehicles</li> <li>- Review essential car user scheme - criteria for purchasing fleet vehicles</li> <li>- regular fleet replacement to ensure using lowest emission vehicles on the market.</li> </ul>
23	Review/Create GBC policy for travelling to meetings,	Promoting Travel Alternatives	Workplace Travel Planning	2019	Guildford Borough Council	Guildford Borough Council	Council's record of vehicle use	Less emissions from individual journeys.	The Covid-19 pandemic lead to an unprecedented change in habits.	2021	Travel Policy for training courses, seminars and meeting – to include increase e-learning, in house

**Guildford Borough Council**

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	seminars and training courses								Remote meetings have become the normal practice.		provision, use of public transport when travelling. Incentivise non-car use.
24	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy		Guildford Borough Council; Surrey County Council	Existing and future bids by SCC, Highways England	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4. Increased walking and cycling modal share	More sustainable transport	Progress with respect to Key Performance Indicators: - • Increased rail patronage: based on Annual entries and exits at rail stations in Guildford borough: 2014/15: 11,128,084 entries and exits: 2018/19: 10,845,312 entries and exits. • Census data used for indicators 2, 3 and 4 – next collected in 2021.  Progress with respect to delivering schemes providing capacity or quality improvements for rail, public transport and active modes, 2016/17-2019/20: -  Schemes completed/ operational: • Improvement of River Wey towpath around Parsonage Water	2035	

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Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									meadows (linking A25 to A320) • North Downs Line (Great Western Railway) service frequency and timetable improvements (scheme NR6) • Tunsgate public realm scheme • Electric bus fleet operating on the Guildford Park and Ride network – part of Guildford Quality Bus Corridors project, itself part of Unlocking Guildford Package • Majority of A25 cycle corridor scheme – part of Guildford Town Centre Transport Package • Sustainable Movement Corridor: West – phase 1 Pedestrian/ cycle route across Bannisters Field and phase 2a Pedestrian/ cycle route between Ashenden Road and Guildford		

**Guildford Borough Council**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									Park Road – part of Unlocking Guildford Package  Schemes under construction/ not yet operational: • Walnut Tree Close experimental one-way closure – part of Guildford Town Centre Transport Package		
25	Adopt GBC Electric Vehicle Charging Strategy	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	2019	Guildford Borough Council; Surrey County Council	Guildford Borough Council	increase in number and usage of electric charging points		Not formally commenced; Surrey County Council published their strategy in November 2018; GBCs Strategy to be in line with SCC's.	ongoing	A number of actions have already progressed and are covered in other measures of this table; however a formal EV strategy will assist in efficient outcome
26	To encourage existing employers to introduce travel plans.	Promoting Travel Alternatives	Workplace Travel Planning	2019	Guildford Borough Council	Guildford Borough Council	Number of companies who implement	Not measurable	Currently exploring the opportunity to roll out a council wide initiative plus include local businesses	ongoing	

Guildford Borough Council

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						and SCC	nt travel plans		In progress		
27	Electric charging points in public areas and residential streets	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	Guildford Borough Council; Surrey County Council	Guildford Borough Council; Surrey County Council			Feasibility study for the provision of additional charging points in the residential streets in Guildford Town Centre, 27 publicly accessible electric vehicle charging points in Borough.	2020	Suitable locations are required, types of charging points, demand, funding and maintenance, impact on electricity demand
28	Taxi and Private Hire Licensing Policy	Promoting Low Emission Transport	Taxi Licensing conditions	2022		Guildford Borough Council;	Low emission taxi fleet	increase in number of low emission vehicles	None; New initiative	2032	The Council's Taxi and Private Hire Licensing Policy is currently being reviewed and is due to be presented to Licensing Committee for Public Consultation in September 2020.



**Guildford Borough Council**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
											<p>The Policy proposed a two-stage plan to introduce an emissions standard in the licensed vehicle fleet:</p> <p>Firstly, from 1st April 2021 all newly licensed vehicles, and all renewal applications from 1 January 2025, must meet or exceed Euro 6 emission standards (Euro 6 compliant being registered on or after 6 Feb 2014).</p> <p>From 1 January 2030 the Council will only licence hackney carriage and private hire vehicles (new and renewal) which are Ultra Low Emission Vehicles.</p> <p>Please note these are draft proposals and details and/or any implementation dates are subject to change by Licensing Committee/Full Council.</p>

## Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
29	Revise Green Scheme Parking to introduce differential charging according to emissions Extend policy to on-street parking permits	Traffic Management	Emission based parking or permit charges	2020	GBC Parking Services	Guildford Borough Council;	Uptake in reduced rate permits	Can be indirectly calculated from uptake	ongoing	2022	Opportunity to extend differential charging scheme to on-street residential parking.
30	To encourage freight and delivery companies to introduce travel plans	Freight and Delivery Management	Route Management Plans/ Strategic routing for HGVs/	2020	GBC Environmental Health and SCC	Guildford Borough Council; Surrey County Council	Number of companies taking up scheme	Can be calculated from uptake	None (new initiative)	2022	No updates
31	Research road configuration best practice to achieve improvements in air quality	Traffic Management	Strategic highway Improvement, Re-prioritising road space away from cars, inc Access management, Selectiv	2020	GBC Environmental Health and SCC		Restrain or reduce traffic	Less congestion to reduce emissions.	None (new initiative)	2024	Learn from best practice and up to date research when proposing new schemes.

Guildford Borough Council

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
			vehicle priority, bus priority, high vehicle occupancy lane								
32	Road Strategy schemes to tackle congestion on Strategic Road Network	Traffic Management	UTC, Congestion management, traffic reduction	2016	GBC and SCC		Restrain or reduce traffic	Not defined	Planning phase as part of the Guildford Borough Transport Strategy; includes a number of actions on the A3 junctions	2034	Long term objectives over the next 20 years
33	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy		Planning and Regeneration	existing and future bids	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4.	Not defined	Progress with respect to schemes:  Delivered in 2016/17: • Improvement of River Wey towpath around Parsonage Watermeadows (linking A25 to A320)	2035	

**Guildford Borough Council**

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
							Increase walking and cycling modal share				
34	New railway station at Park Barn, Guildford	Transport Planning and Infrastructure	Public transport improvements-stations and services	2020	Major Projects, Guildford Borough Council		Use of facility and road traffic reduction	Not defined	not known	2025+	no detail

## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

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

In 2018, GBC along with all Surrey Authorities, commissioned a countywide detailed air quality modelling and source apportionment study of NO<sub>2</sub> and Particulate Matters (PM<sub>10</sub> and PM<sub>2.5</sub>). The study was delivered in November 2019. The report is available to download from our website: [https://www.guildford.gov.uk/media/32331/Detailed-air-quality-report/pdf/FM1183\\_Surrey\\_CERC\\_Guildford\\_19Nov19.pdf?m=63729629912567000](https://www.guildford.gov.uk/media/32331/Detailed-air-quality-report/pdf/FM1183_Surrey_CERC_Guildford_19Nov19.pdf?m=63729629912567000). The dispersion modelling indicates that the concentrations of PM<sub>2.5</sub> are well below the air quality objectives. As expected, the larger concentrations are present near the major road network.

The average modelled concentration for Guildford is <10µg/m<sup>3</sup>. The highest concentration of 21-22 µg/m<sup>3</sup> has been modelled at the A3 /M25 junction point (see figure 3&4)

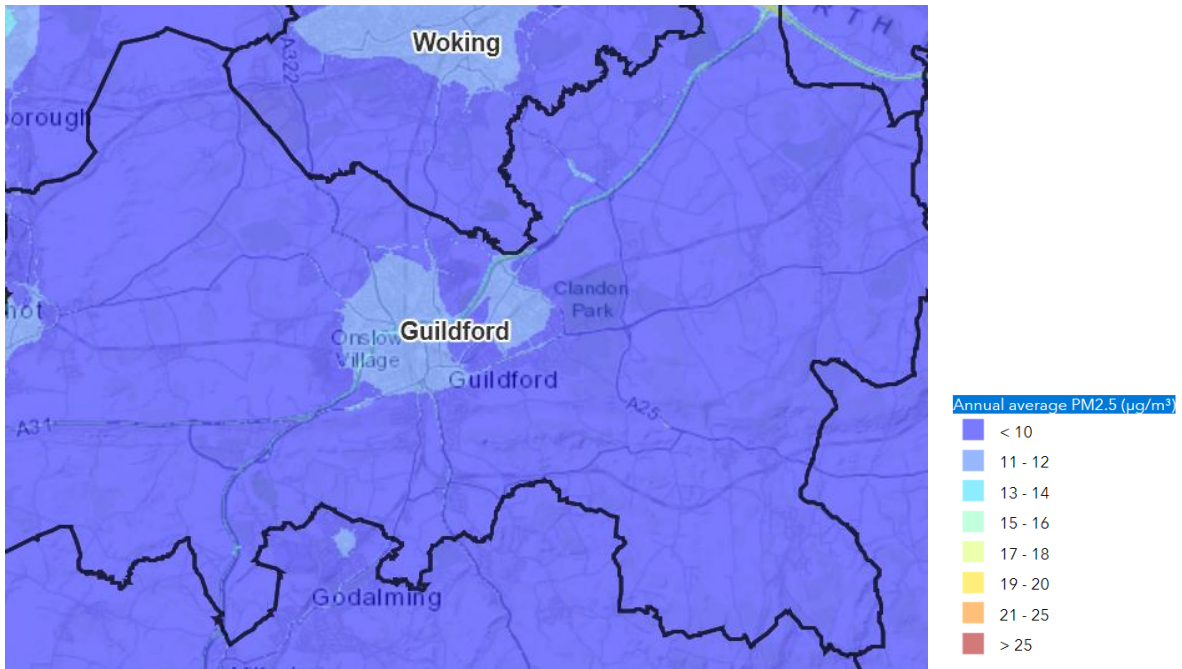


Figure 3 Annual average PM2.5 ( $\mu\text{g}/\text{m}^3$ )

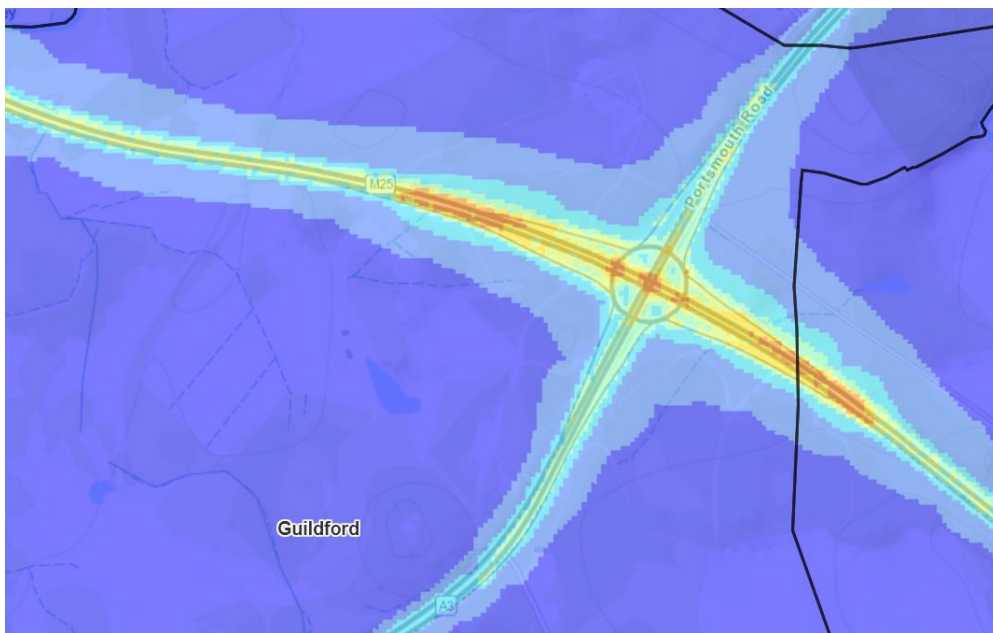
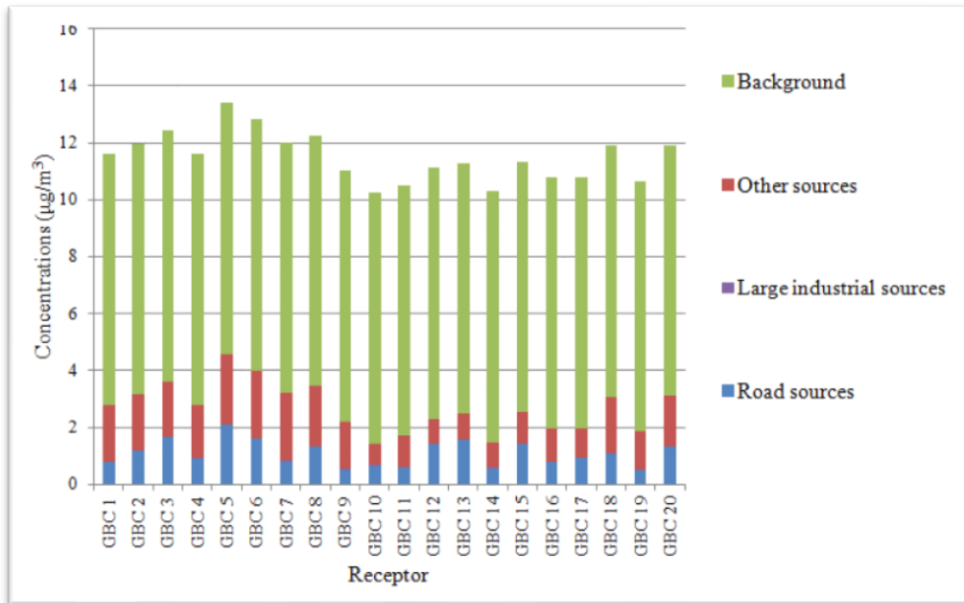


Figure 4 Annual average PM2.5 ( $\mu\text{g}/\text{m}^3$ ) - A3/M25 Junction

The source apportionment study at 20 different locations suggested that road sources comprise a very small proportion (approximately 8-15%) of the total emissions experienced in Guildford as is demonstrated in the chart below. A large

proportion is contributed from the background sources i.e. regional and other long distance sources on which local action planning is not likely to have any impact.



**Figure 5 PM<sub>2.5</sub> concentrations by major source group**

Local authorities are expected to work towards reducing emissions and concentrations of PM<sub>2.5</sub> in their local area as much as possible. Guildford Borough Council has identified the following measures to mitigate the levels of PM<sub>2.5</sub>:

**1 Smoke Control Areas- Clean Air Act 1993**

The Borough’s five Smoke Control Areas have been in operation for over 45 years, they are centred around the north west of the town of Guildford. Residents in those areas can obtain advice on the type of fuel and relevant appliances by following the link on our web page: [www.guildford.gov.uk/article/18350/Smoke-control-area](http://www.guildford.gov.uk/article/18350/Smoke-control-area)

The complaints are low in these areas, however, whenever received, they are investigated by the Regulatory Services – Pollution Control Team and actions are taken.

## **2. Planning Control**

All the large developments are required to produce a Construction Management Plan or an air quality assessment in line with the EPUK Planning Guidance<sup>10</sup>, which includes an assessment of dust generation due to construction activity and mitigation measures.

## **3. Environmental Protection Act 1990 and Clean Air Act:**

The Environmental Health Team routinely investigate bonfire complaints and where necessary, take formal actions by means of serving notices/taking prosecution actions. Advice on alternatives to burning of garden or other household waste is available on the Council's website<sup>11</sup>. Public information is also sent with letters on receipt of bonfire complaints.

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<sup>10</sup> <http://www.iagm.co.uk/text/guidance/air-quality-planning-guidance.pdf>; Land use Planning and Development Control: Planning for Air Quality, 2017; Environmental Protection UK and Institute of Air Quality Management.

<sup>11</sup> <https://www.guildford.gov.uk/bonfires>



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

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Non-Automatic Monitoring Sites

Guildford Borough Council undertook non- automatic (passive) monitoring of NO<sub>2</sub> at 33 sites during 2019. **Error! Reference source not found.** Appendix A shows the details of the sites.

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

### 3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias<sup>12</sup>, “annualisation” (where the data capture falls below 75%), and distance correction<sup>13</sup>. Further details on adjustments are provided in Appendix C.

#### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.2 in Appendix A compares the bias adjusted monitored NO<sub>2</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>. Note that the concentration data presented in Table A.2 represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

<sup>12</sup> <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

<sup>13</sup> Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)  
LAQM Annual Status Report 2020

For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

The 2019 monitoring locations have been divided into the following areas for further discussions of the monitoring results.

**1. Town centre locations and feeder road into the Guildford gyratory:**

- Portsmouth Road B3100 (PR1, PR2 and PR3)
- Farnham Road, A31 (FRH2, FRH3 and FRH 4)
- York Road and Stoke Road (GD2, GD16, TC1 and TC4)
- A281 Guildford (A281-1 and A281-2)
- Woodbridge Road (TC3)

The group of locations around the town centre and road gyratory system are of particular interest. There are four main roads that lead into the system; Near GD13, the YMCA with first floor residential accommodation is identified as potential site of public exposure with regard to long term objective value. GD13 is approximately 2.5m from the kerb and receptor approximately 6.0m and annual mean measured at this location is  $31\mu\text{g}/\text{m}^3$ . This location has never exceeded the annual mean objective value. However, it is located on busy Guildford gyratory and therefore is potentially an important location to study the trend in  $\text{NO}_2$  levels. The monitoring data since 2012 do not show any conclusive trend.

WTC1, TC2, PR1, FRH2 are all in town centre locations beside feeder roads. WTC1 and TC2 are on minor roads both are below  $30\mu\text{g}/\text{m}^3$  level, WTC1 will continue in 2019 as it is in an area due to have a traffic priority change. TC2 was discontinued and relocated to a busier part of the road.

PR1 and FRH2 both showed significant annual means near to the  $40\mu\text{g}/\text{m}^3$  objective level, additional monitoring points have been set up in both areas.

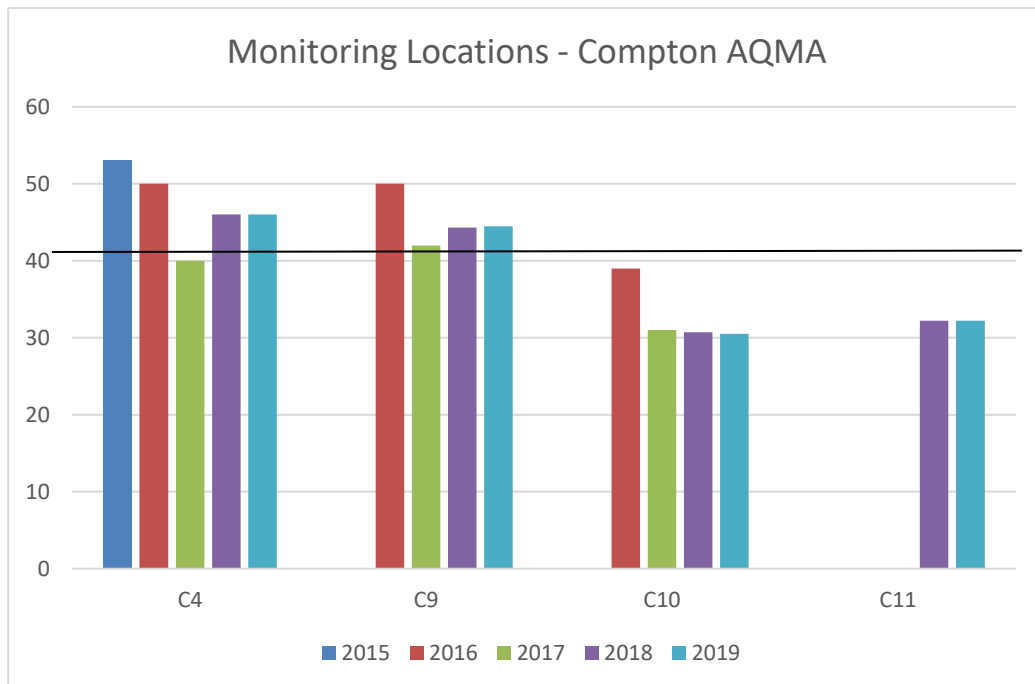
GD2 and GD16 are located at York Road/Stoke Road junction, they are 12 and 0 metres respectively to the nearest receptors. The NO<sub>2</sub> levels at both the locations remained below the air quality objectives, they are long term sites and in proximity to two schools, they will be continued.

All these locations are included in the towncentre study area for detailed air quality assessment (discussed in section 2.2) and is likely to be conducted in 2020.

**2. Compton Air Quality Management Area (C4, C9, C10 and C11) – See Appendix D, Figure 2 for location map**

The area centred around 3 cottages in the upper part of the Street, Compton was declared an AQMA in February 2018 due to the exceedance of annual average air quality objective for NO<sub>2</sub>.

The monitoring in Compton began in 2014 at various location along the stretch of road B3000. The only location which showed exceedance was C4, which is located on the façade of a residential property. Chart below shows monitoring trend since 2015. In 2016, other locations in Compton with no exceedances were discontinued and monitoring focussed near C4. C9 is located on the downpipe of a summer house, equidistant from the road as C4. Both C4 and C9 show comparable results and exceeded the annual air quality objective for NO<sub>2</sub>.



Monitoring locations C10 and C11 are located on the opposite side of the road and has never shown any exceedance thus shows the uniqueness of location C4 and C9 that is resulting in exceedance. The current AQMA boundary will remain the same as there is no evidence of air quality exceedance beyond these two points

**3. Shalford Air Quality Management Area (Map:Appendix D, Figure 1, monitoring locations SH1, SH2, SH3, SH4 and SH5)**

Following the observation that the kerbside location (SH1) continued to show consistently high readings, a second location was set up on the façade of a property (SH2), monitoring results show the exceedence of the annual mean objective level at relevant receptor was  $50\mu\text{g}/\text{m}^3$ . The authority also carried a detailed investigation in the area in and around the junction with East Shalford Lane, this resulted in the declaration of an AQMA in July 2019. Three additional monitoring locations were added in the beginning of year 2019. Of the five, SH2 is the only diffusion tube which is located at the relevant receptor location (downpipe of a residential property), the annual average  $\text{NO}_2$  at this

location in 2019 was  $50\mu\text{g}/\text{m}^3$ . The other locations which are exceeding the annual air quality objective of  $40\mu\text{g}/\text{m}^3$  for  $\text{NO}_2$  are SH2 and SH4. Both of these are located on the southbound side of the road. The exceedance is at the monitoring location and not exceeding after distance correction to the nearest receptor.

An Air Quality Action Plan was adopted on 11 December 2019 by the Guildford Joint Committee after full consultation with members of the public, statutory and non-statutory stakeholders. A number of measures and initiatives have been identified which are not focussed specifically in Shalford AQMA, but will provide an opportunity for air quality improvement in wider area through increasing air quality awareness, travel choices and choice of vehicle.

The full report and list of measures are available for download from our website. The action plan is currently being updated following receipt of appraisal from DEFRA.

#### **4. Near A3 Locations**

GD11, Beckingham Road is located at a residential façade in proximity to A3. This is a longstanding monitoring location where exceedance of air quality objective was never measured. In monitoring year 2020, the monitoring network in proximity to A3 has been expanded and we now have 7 diffusion tube locations in proximity to A3. The current monitoring location GD11 has now been discontinued. These new locations will be reported in 2021 ASR.

#### **5. Ripley**

The monitoring at RP4 was instated to monitor an alleged canyon effect on Newark Lane; monitoring has not indicated exceedance of national annual mean objective level. The site will be reviewed towards the end of year 2020 and will be discontinued, if do not show exceedance.

An additional location has been added on High Street, Ripley after the Surrey wide modelling identified potential hotspot at this location. These will be reported in 2021 ASR.

**6. London Road (LR2) A3100, Burpham (Map: Appendix D, figure 12)**

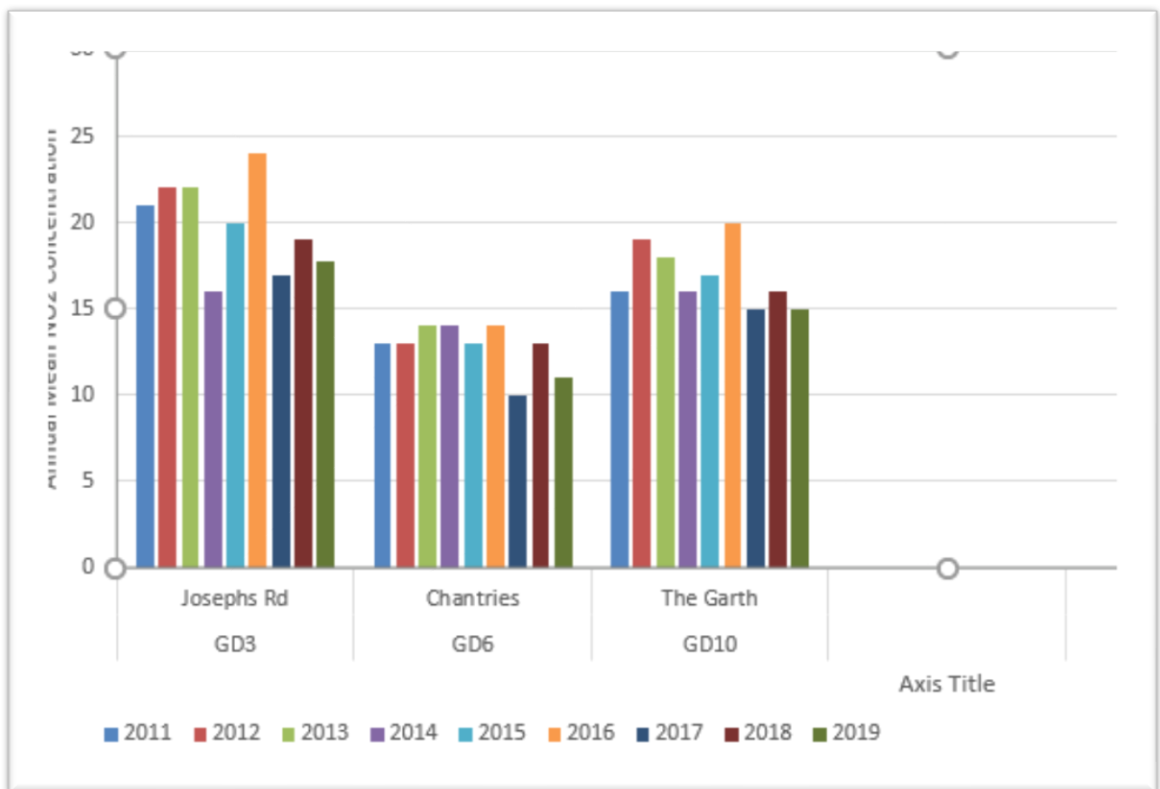
This location has been monitored for two consecutive years 2018 and 2019 and the annual mean NO<sub>2</sub> levels were 34µg/m<sup>3</sup> and 31.3 µg/m<sup>3</sup> respectively. This monitoring location has now been discontinued.

**7. Urban and Rural Background (Map: Appendix D, Figures 15, 16 and 17)**

GD6, The Chantries, is the rural background site. GD3 and GD10 are the urban background locations.

GD3 is the urban background location on the outskirts of Guildford town centre. GD10 is the urban background location in the west of the borough, located in a residential setting in Ash.

The yearly monitoring results for all the three sites are variable, however, longterm monitoring do not show a significant trend.



## Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
WTC1	Walnut Tree Close	Roadside	499204	149768	NO <sub>2</sub>	NO	1.26	1.9	NO	2.3
GD2	York Road	Roadside	499799	149934	NO <sub>2</sub>	NO	12	1.5	NO	2.6
GD3	Josephs Road	Urban Background	499659	150739	NO <sub>2</sub>	NO	0	14	NO	1.73
GD6	The Chantry	Rural	500385	148342	NO <sub>2</sub>	NO	0	120	NO	2
GD10	The Garth	Urban Background	488629	150032	NO <sub>2</sub>	NO	0	12	NO	2.15
GD11	Beckingham Road	Other	498133	150648	NO <sub>2</sub>	NO	0	8	NO	1.87
GD13	YMCA	Kerbside	499305	149512	NO <sub>2</sub>	NO	6	1	NO	2
GD16	Sandfields 2	Roadside	499761	149914	NO <sub>2</sub>	NO	0	2.5	NO	2.5
TC1	Stoke Road	Kerbside	499834	150113	NO <sub>2</sub>	NO	2	1	NO	2.37
TC3	Woodbridge Road	Near Road	499477	150348	NO <sub>2</sub>	NO	0	6.7	NO	2.44
TC4	Stoke Road (Stoke Mews)	Roadside	499822	150035	NO <sub>2</sub>	NO	3.3	1.7	NO	2.44
A281-1	A281 Nr Legion	Kerbside	499631	149263	NO <sub>2</sub>	NO		1	NO	2.46



**Guildford Borough Council**

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
A281-2	Opposite The Weyside, Guildford	Kerbside	499758	149017	NO <sub>2</sub>	NO	2.6	0.4	NO	2.33
C4	Little Cottage	Roadside	495437	147288	NO <sub>2</sub>	YES	0	1.5	NO	2.57
C9	Moors Cottage	Kerbside	495442	147270	NO <sub>2</sub>	YES	4	1	NO	2.45
C10	Opposite Little Cottage	Kerbside	495444	147292	NO <sub>2</sub>	YES	12	1	NO	2.17
C11	Handpost Cottage	Kerbside	495436	147325	NO <sub>2</sub>	YES	4.5	1	NO	2.14
SH1	Oppo Sea Horse Pub	Kerbside	5000046	147604	NO <sub>2</sub>	NO	4	1	NO	2.35
SH2	The Street, Shalford	Roadside	499978	147704	NO <sub>2</sub>	YES	0	2.2	NO	2.3
SH3	281, Nr Lemon Bridge Cottage	Kerbside	500003	147670	NO <sub>2</sub>	NO	2.32	1	NO	2.4
SH4	A281, Opposite Bahamia Court	Kerbside	500086	147521	NO <sub>2</sub>	NO	12	1	NO	2.4
SH5	A281, opposite 77, the Street	Kerbside	500093	147473	NO <sub>2</sub>	NO	9	1	NO	2.35
FRH2	38 Farnham Road	Roadside	499089	149423	NO <sub>2</sub>	NO	0	5	NO	1.96
FRH3	Dental Surgery, Farnham Road	Roadside	499102	149421	NO <sub>2</sub>	NO	0	6.1	NO	2.3
FRH4	Katherine Nursing Home, Farnham Road	Roadside	499056	149428	NO <sub>2</sub>	NO	0	4.6	NO	2.35
PR1	Wycliffe Buildings	Roadside	499317	149213	NO <sub>2</sub>	NO	0	1	NO	2.14

**Guildford Borough Council**

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
PR2	Portsmouth Road, Nr Sandy Lane	Kerbside	499270	148387	NO <sub>2</sub>	NO	2.6	1	NO	2.36
PR3	Oppo The Cannon	Roadside	499360	149326	NO <sub>2</sub>	NO	2.9	2.76	NO	2.57
LR2	London Road (Wroth Place)	Kerbside	501679	152169	NO <sub>2</sub>	NO	17	1	NO	2.27
PHR	Puttenham Heath Road	Kerbside	493442	147932	NO <sub>2</sub>	NO	17	1	NO	2.5
WP2	Worplesdon Road	Kerbside	498620	151028	NO <sub>2</sub>	NO	8	1	NO	2.6
ASH3	Nr Britten Close, Ash	Roadside	489893	150749	NO <sub>2</sub>	NO	16	4	NO	4
RP4	Newark Lane, Ripley	Kerbside	505150	156741	NO <sub>2</sub>	NO	0	0.5	NO	2.31

**Notes:**

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO<sub>2</sub> Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
WTC1	499204	149768	Roadside	Diffusion Tube	100	100	-			28.8	28.3
GD2	499799	149934	Roadside	Diffusion Tube	100	100	<b>33<sup>(3)</sup></b>	<b>35</b>	<b>31</b>	<b>32</b>	<b>33.1</b>
GD3	499659	150739	Urban Background	Diffusion Tube	100	100	<b>20<sup>(3)</sup></b>	<b>24</b>	<b>17</b>	<b>19</b>	<b>17.8</b>
GD6	500385	148342	Rural	Diffusion Tube	100	100	13	14	10	13	10.1
GD10	488629	150032	Urban Background	Diffusion Tube	100	100	17	20	15	16	15
GD11	498133	150648	Other	Diffusion Tube	100	100	28	29	24	27	26
GD13	499305	149512	Kerbside	Diffusion Tube	100	100	38	35	31	36	33
GD16	499761	149914	Roadside	Diffusion Tube	92	92	-			36.1	38.2
TC1	499834	150113	Kerbside	Diffusion Tube	100	100	-			35	32.6
TC3	499477	150348	Roadside	Diffusion Tube	100	100	-				30.5
TC4	499822	150035	Roadside	Diffusion Tube	100	100	-				31.8
C4	495437	147288	Roadside	Diffusion Tube	100	100	<b>53</b>	<b>50</b>	<b>40</b>	<b>46</b>	<b>46</b>
C9	495442	147270	Kerbside	Diffusion Tube	92	92	-	<b>50</b>	<b>42</b>	<b>44.3</b>	<b>44.5</b>
C10	495444	147292	Kerbside	Diffusion Tube	100	100	-	39	31	30.7	30.5
C11	495436	147325	Kerbside	Diffusion Tube	100	100				32.2	32.2

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
SH1	5000046	147604	Kerbside	Diffusion Tube	92	92		37	35	<b>43.8</b>	39.6
SH2	499978	147704	Roadside	Diffusion Tube	100	100				<b>50.1</b>	<b>50</b>
SH3	500003	147670	Kerbside	Diffusion Tube	100	100					31.6
SH4	500086	147521	Kerbside	Diffusion Tube	100	100					<b>41.4</b>
SH5	500093	147473	Kerbside	Diffusion Tube	100	100					36.6
A281-1	499631	149263	Kerbside	Diffusion Tube	92	92					<b>43.4</b>
A281-2	499758	149017	Kerbside	Diffusion Tube	92	92					<b>42.3</b>
RP4	505150	156741	Kerbside	Diffusion Tube	100	100				32.2	33.3
FRH2	499089	149423	Roadside	Diffusion Tube	100	100				38.4	36.8
FRH3	499102	149421	Roadside	Diffusion Tube	83	83					33.1
FRH4	499056	149428	Roadside	Diffusion Tube	100	100					26.5
PR1	499317	149213	Roadside	Diffusion Tube	100	100				<b>41.2</b>	36.1
PR2	499270	148387	Kerbside	Diffusion Tube	100	100					28.7
PR3	499360	149326	Roadside	Diffusion Tube	100	100					28.1
LR2	501679	152169	Kerbside	Diffusion Tube	100	100	-				31.3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
PHR	493442	147932	Kerbside	Diffusion Tube	100	100	-				25.1
WP2	498620	151028	Kerbside	Diffusion Tube	100	100	-				30
ASH3	489893	150749	Roadside	Diffusion Tube	100		-				24.4

- Diffusion tube data has been bias corrected (**confirm by selecting in box**)
- Annualisation has been conducted where data capture is <75% (**confirm by selecting in box**)
- Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance adjustment (**confirm by selecting in box**)

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

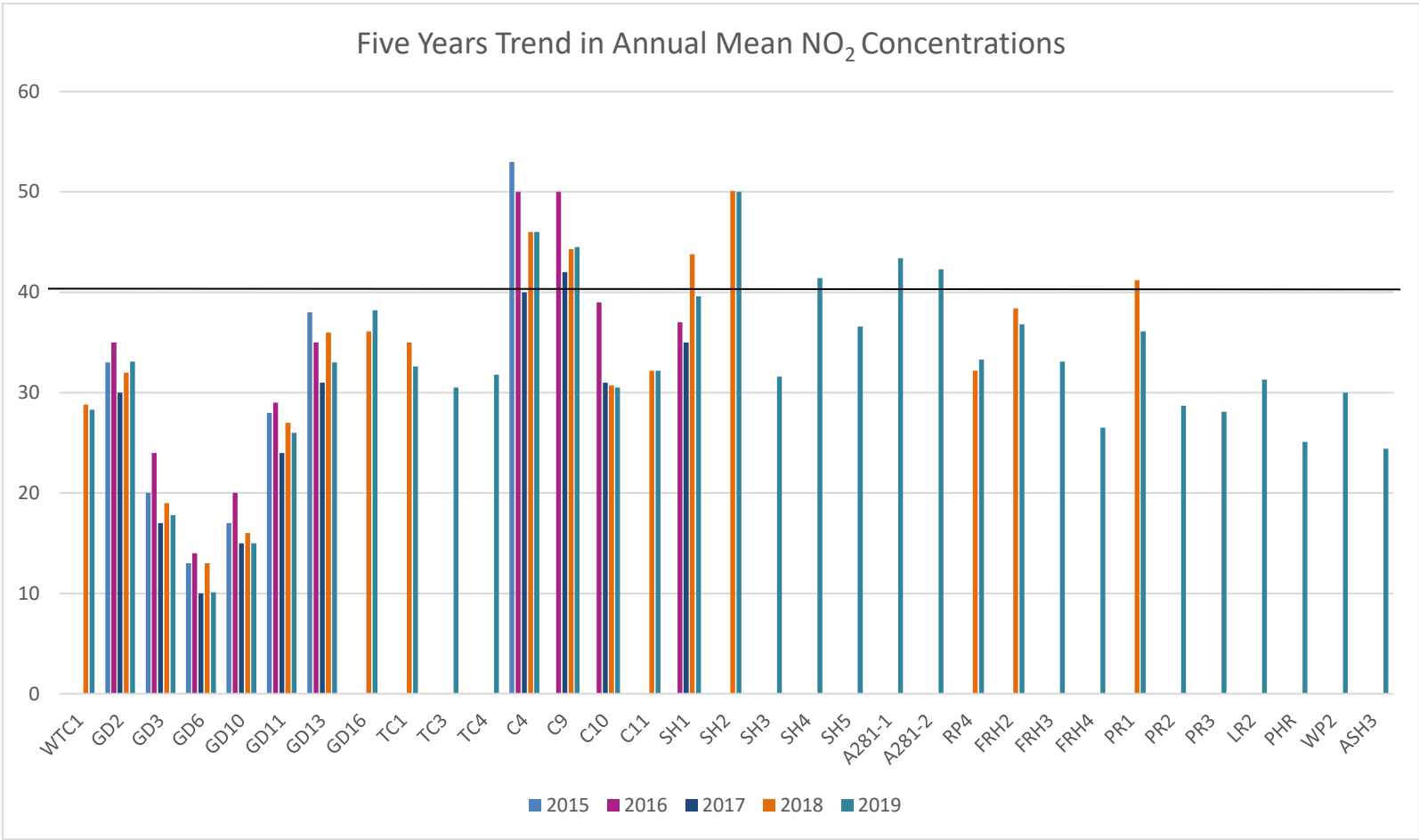
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

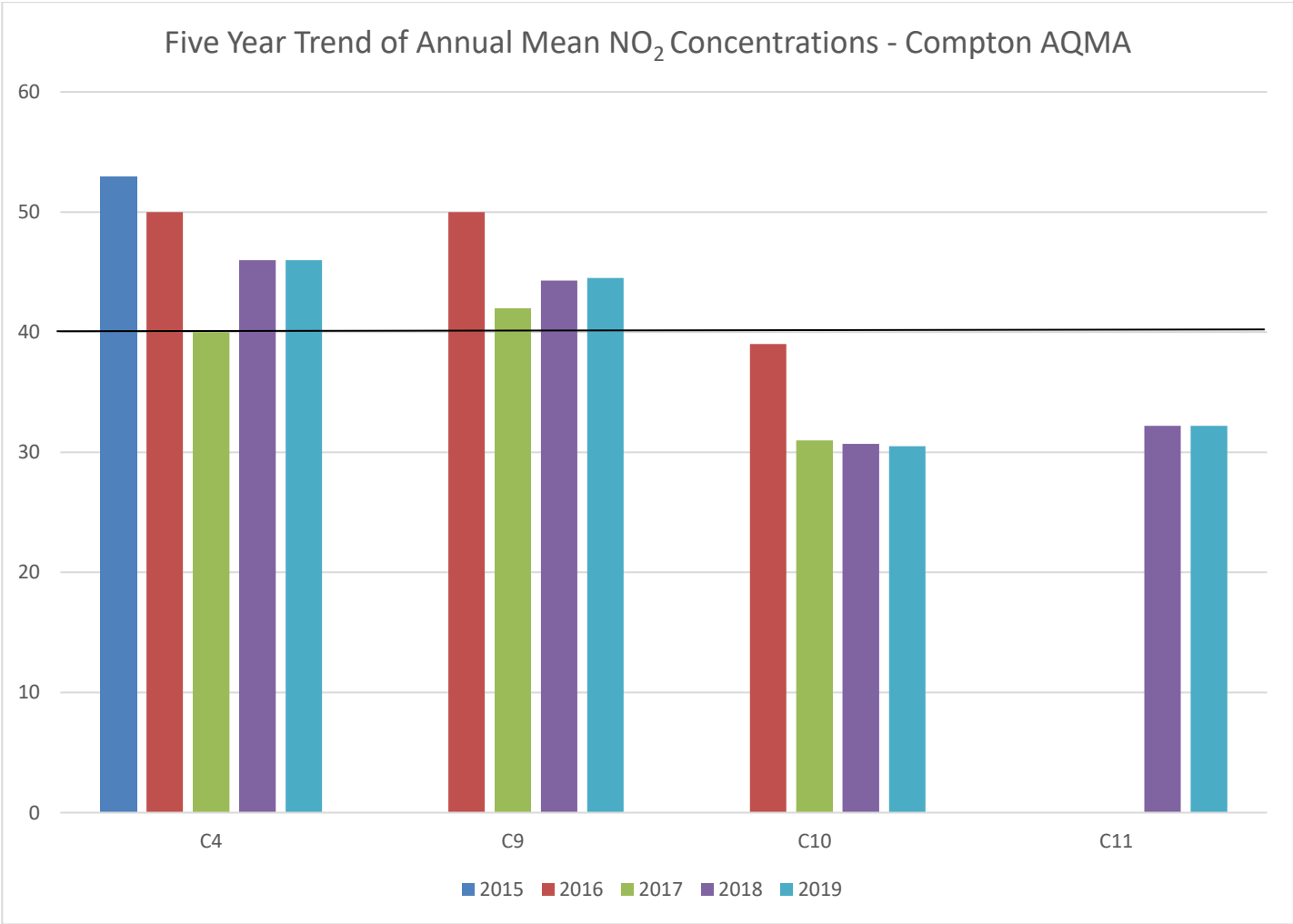
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

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

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

Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations





## Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO<sub>2</sub> Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> )														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.92) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
WTC1			37.0	41.0	33.0	31.0	28.0	27.0	24.0	23.0	27.0	36.0	35.0	28.0	30.8	28.3	-
GD2			46.0	46.0	36.0	36.0	30.0	33.0	32.0	32.0	29.0	37.0	44.0	32.0	36.0	33.1	-
GD3			20	22	20	25	17	25	12	11	17	23	23	16	19.3	17.8	-
GD6			17	11	10	14	10	11	8	9	10	10	13	9	11.0	10.1	-
GD10			24.5	20.3	15.5	17	13.7	14	11	13.3	13.3	19	22.3	13.7	16.3	15.0	-
GD11			28	40	26	29	24	25	21	26	26	33	31	28	28.1	25.9	-
GD13			43	37.7	36	39	36	31.6	31	24.5	34	43	45.5	36.5	36.2	33.3	-
GD16			39	50	42	37	42	-	41	44	39	49	42	31	41.5	38.2	-
TC1			32	37	34	38	34	33	32	29	32	45	47	32	35.4	32.6	-
TC3			39	33	30	38	38	35	28	26	31	40	33	27	33.2	30.5	-
TC4			40	45	33	28	28	25	31	40	36	42	39	28	34.6	31.8	-
C4			57	59	53	40	51	51	52	40	48	54	52	43	50.0	<b>46.0</b>	-
C9			57	55	50	40	51	46	51	40	-	57	47	38	48.4	<b>44.5</b>	-
C10			35	38	29	31	29	28	33	37	36	37	41	23	33.1	30.5	-
C11			35	43	33	33	31	26	35	38	38	44	37	27	35.0	32.2	-
SH1			53	51	50	38	40	34	37	-	38	47	42	43	43.0	39.6	36



Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> )														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.92) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
SH2			66	55	59	45	49	58	56	48	51	62	52	52	54.4	<b>50.0</b>	-
SH3			43	36	37	31	34	25	26	26	44	40	36	33	34.3	31.6	-
SH4			58	50	52	50	37	47	42	32	30	51	50	41	45.0	<b>41.4</b>	<b>31</b>
SH5			47	43	40	37	34	32	31	32	47	46	49	39	39.8	36.6	<b>30</b>
A281-1			61	-	36	42	52	46	45	42	50	52	57	36	47.2	<b>43.4</b>	<b>40</b>
A281-2			53	46	-	45	47	49	42	37	38	58	55	36	46.0	<b>42.3</b>	<b>36</b>
RP4			45	39	32	35	38	35	37	39	36	43	24	32	36.2	33.3	-
FRH2			43	44	40	41	37	36	38	35	34	51	41	39	40.0	36.8	-
FRH3			-	41	37	34	35	38	33	30	25	47	37	-	36.0	33.1	-
FRH4			32	30	31	30	32	29	22	23	25	33	35	23	28.8	26.5	-
PR1			39	48	40	32	39	38	39	39	36	36	44	39	39.2	36.1	-
PR2			39	35	29	25	24	24	22	23	31	48	51	23	31.2	28.7	-
PR3			38	24	34	32	30	22	24	23	34	34	39	32	30.5	28.1	-
LR2			35	41	34	32	35	30	31	32	30	42	39	27	34.0	31.3	-
PHR			27	35	23	34	27	28	24	26	26	35	22	21	27.3	25.1	-
WP2			41	45	30	34	31	25	23	31	21	41	36	33	32.6	30.0	-
ASH3			33	30	27	32	26	23	20	19	18	33	33	24	26.5	24.4	-

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

Local bias adjustment factor used (confirm by selecting in box)

- National bias adjustment factor used (confirm by selecting in box)
- Annualisation has been conducted where data capture is <75% (confirm by selecting in box)
- Where applicable, data has been distance corrected for relevant exposure in the final column (confirm by selecting in box)

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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

(2) Distance corrected to nearest relevant public exposure.

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

For bias correction of our diffusion tube raw data, we have used a surrey-wide locally derived bias adjustment factor of 0.92 instead of national factor 0.85. The workings are provided below which are in line with TG16 guidance.

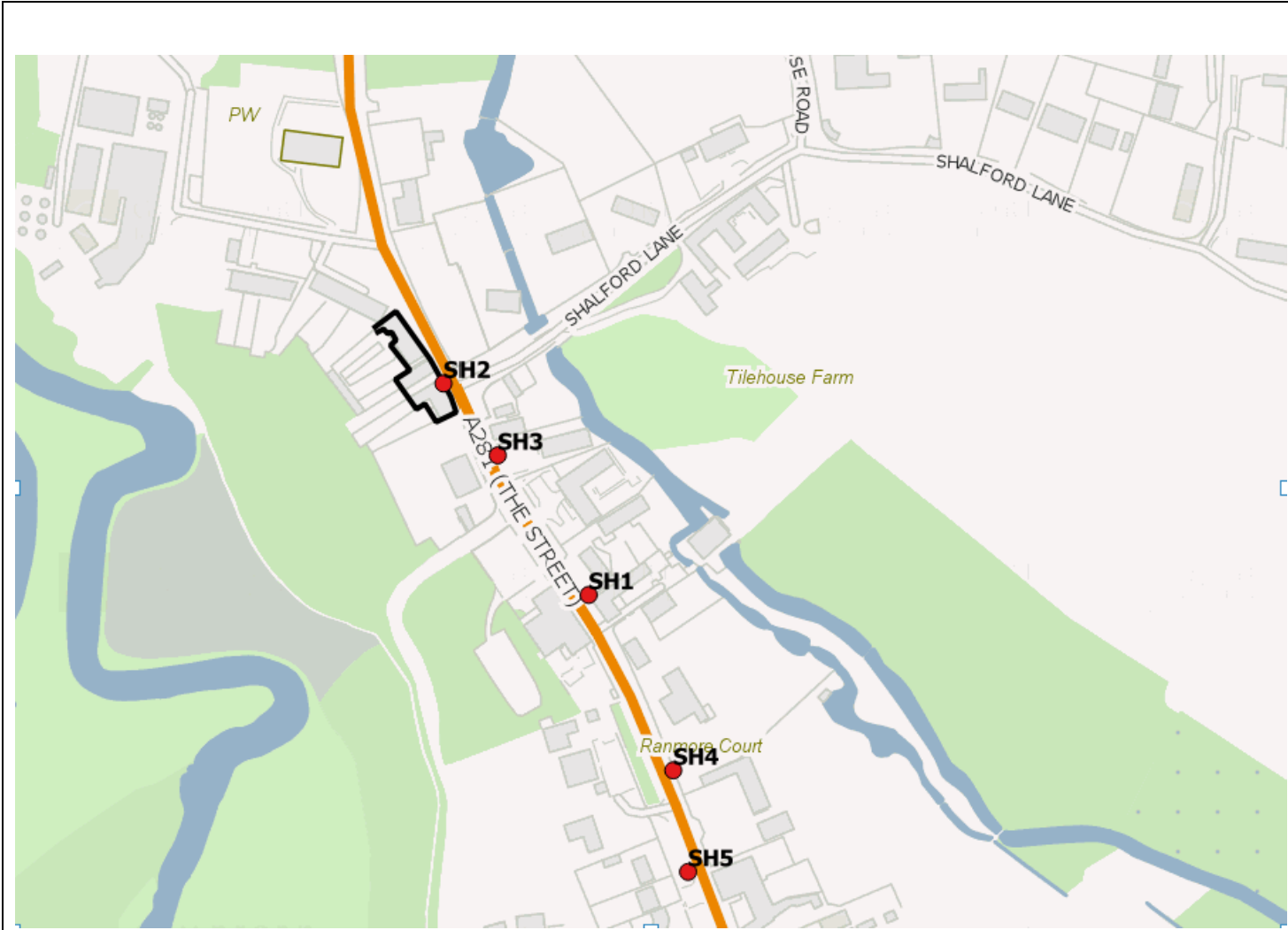
	Data Capture	Bias factor A	Bias B
Oaks Rd	83.8	0.92	9
Sunbury X	96.8	1.03	-3
RG1	>90	0.77	29
RG2	>90	0.92	9
RG3	>90	0.94	7
Hampton Ct	97	1.05	5
Weybridge	100	0.94	7
	Av Bias B		9
	Factor		0.09
	Add 1		1.09
	Inverse		0.917431
	Surrey-wide Factor = 0.92		

We consulted with LAQM helpdesk on this decision and they agreed that the surrey bias factor provides a more conservative result. Further, it is more comparable with the bias factors used in previous years.

Year	National bias adjustment factor, Lambeth (50% TEA in acetone)	Reigate-Banstead BC bias adjustment factor based on triplicate tubes at three real time sites
2015	1.07	

2016	0.94	1.02 (used for bias correction)
2017	0.90	
2018	1.03	
2019	0.85	0.92 (used for bias correction)

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



**Legend**

- Diffusion tube locations 2019
- Shalford AQMA

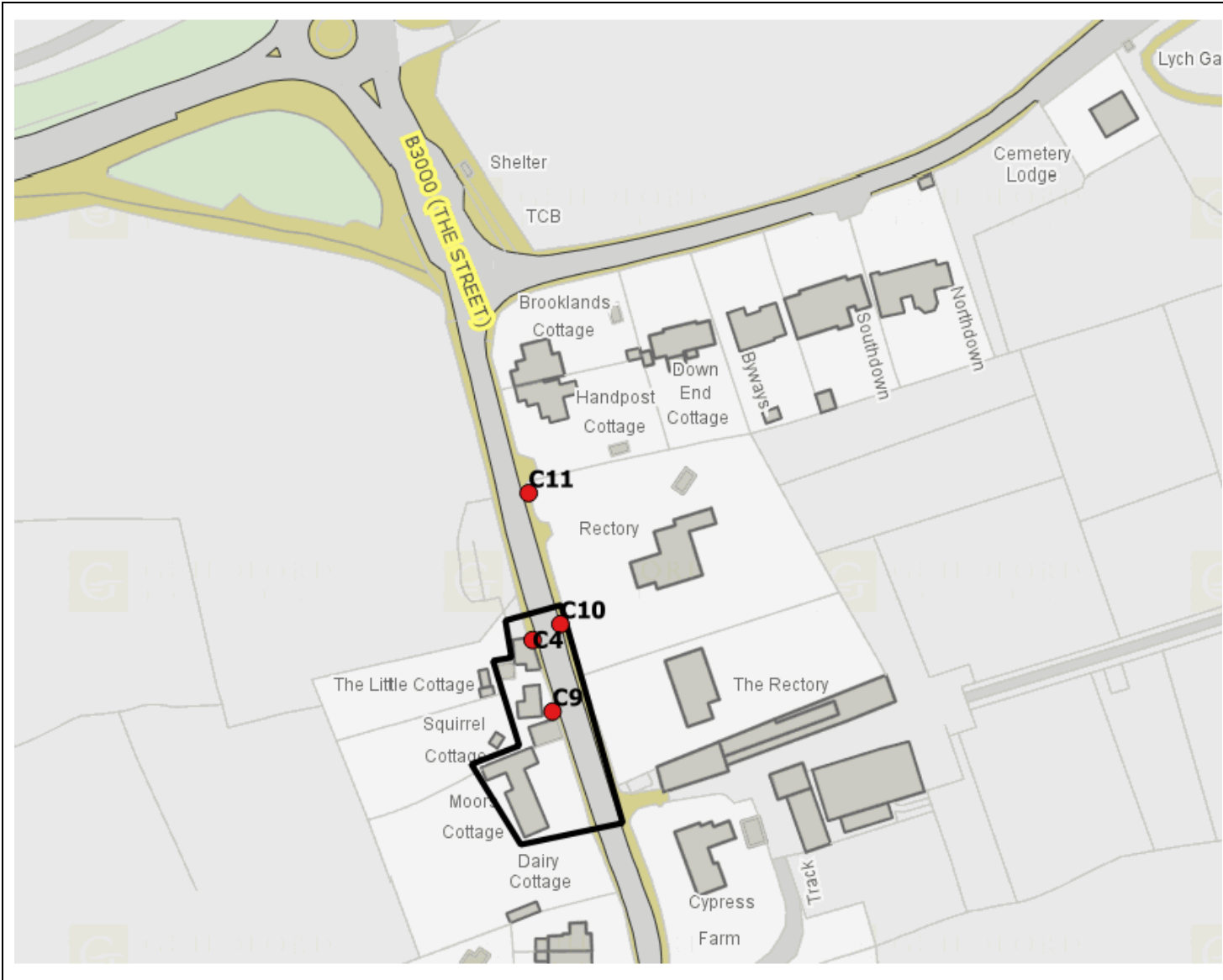
@Crown Copyright Licence No. 100019625.2016

Location: A281 Shalford  
**Grid Locations: X/Y**  
SH1: 500046/ 147604  
SH2: 499978/ 147704  
SH3: 500003/147670  
SH4: 500086/147521  
SH5: 500093/147473

**Title:**  
**Diffusion Tube Locations – Shalford**

**Date**  
08-06-2020

**Figure No.**  
01



**Legend**

- Diffusion tube locations 2019
- Compton AQMA

@Crown Copyright Licence No. 100019625.2016

Location: Compton  
**Grid Locations: X/Y**  
C4: 495437/147288  
C9: 495442/ 147270  
C10: 495444/ 147292  
C11: 495436/147325

**Title:**  
**Diffusion Tube Locations - Compton**

**Date**  
08-06-2020

**Figure No.**  
02



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Farnham Road, Guildford

**Grid Locations: X/Y**

FRH2: 499089/149423

FRH3: 499102/149421

FRH4: 499056/149428

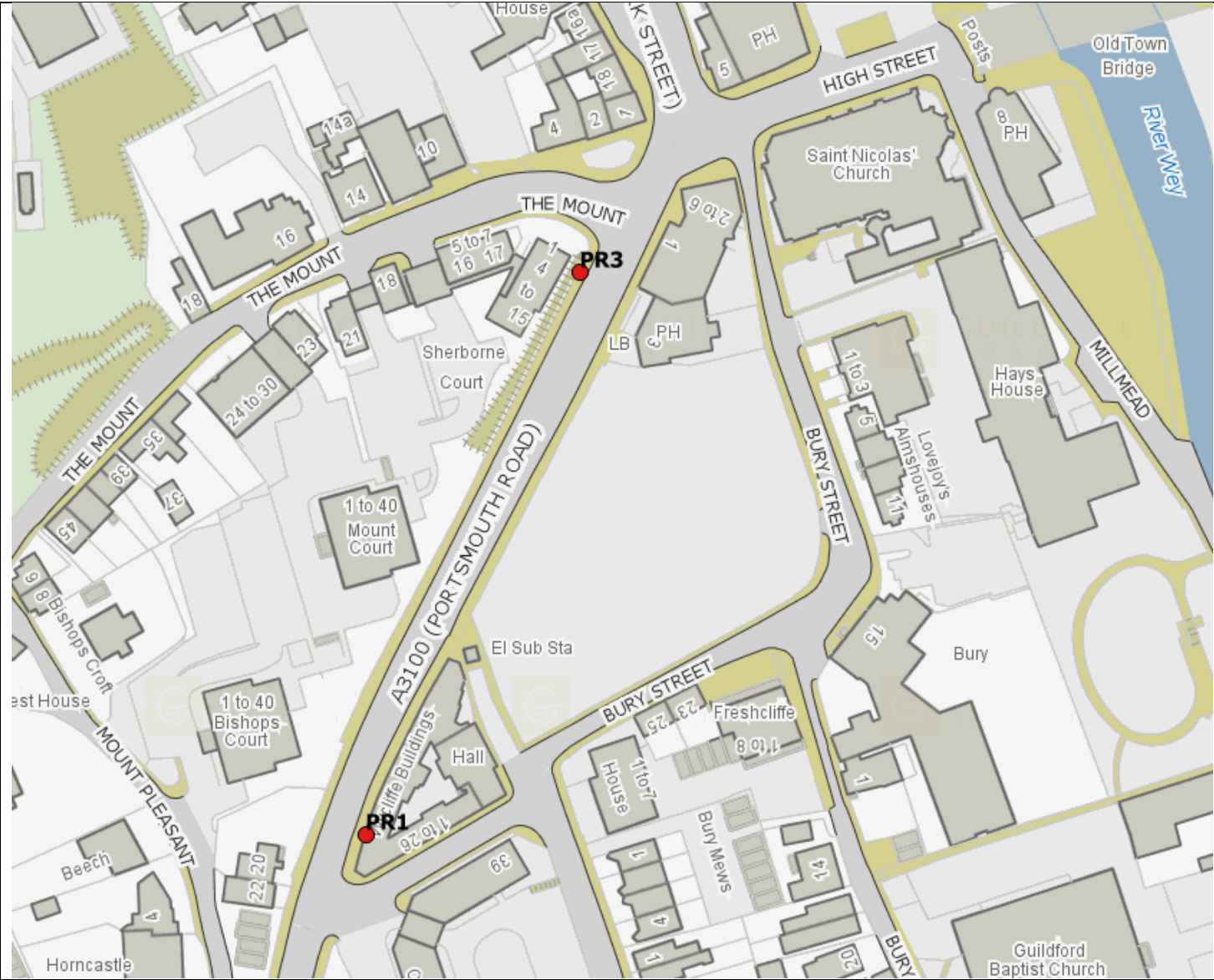
**Title:**

**Diffusion Tube Locations – Farnham Road**

**Date**  
08-06-2020

**Figure No.**  
03





**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Locations: Portsmouth Road, Guildford

PR1: 499317/149213  
 PR3: 499360/149326

**Title:**

**Diffusion Tube Locations –  
 Portsmouth Road**

**Date**  
 08-06-2020

**Figure No.**  
 04



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Locations: Portsmouth Road  
PR2: 499270/148387

**Title:**  
**Diffusion Tube Locations –  
Portsmouth Road, Guildford**

**Date**  
08-06-2020

**Figure No.**  
05



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Locations: A281 Guildford

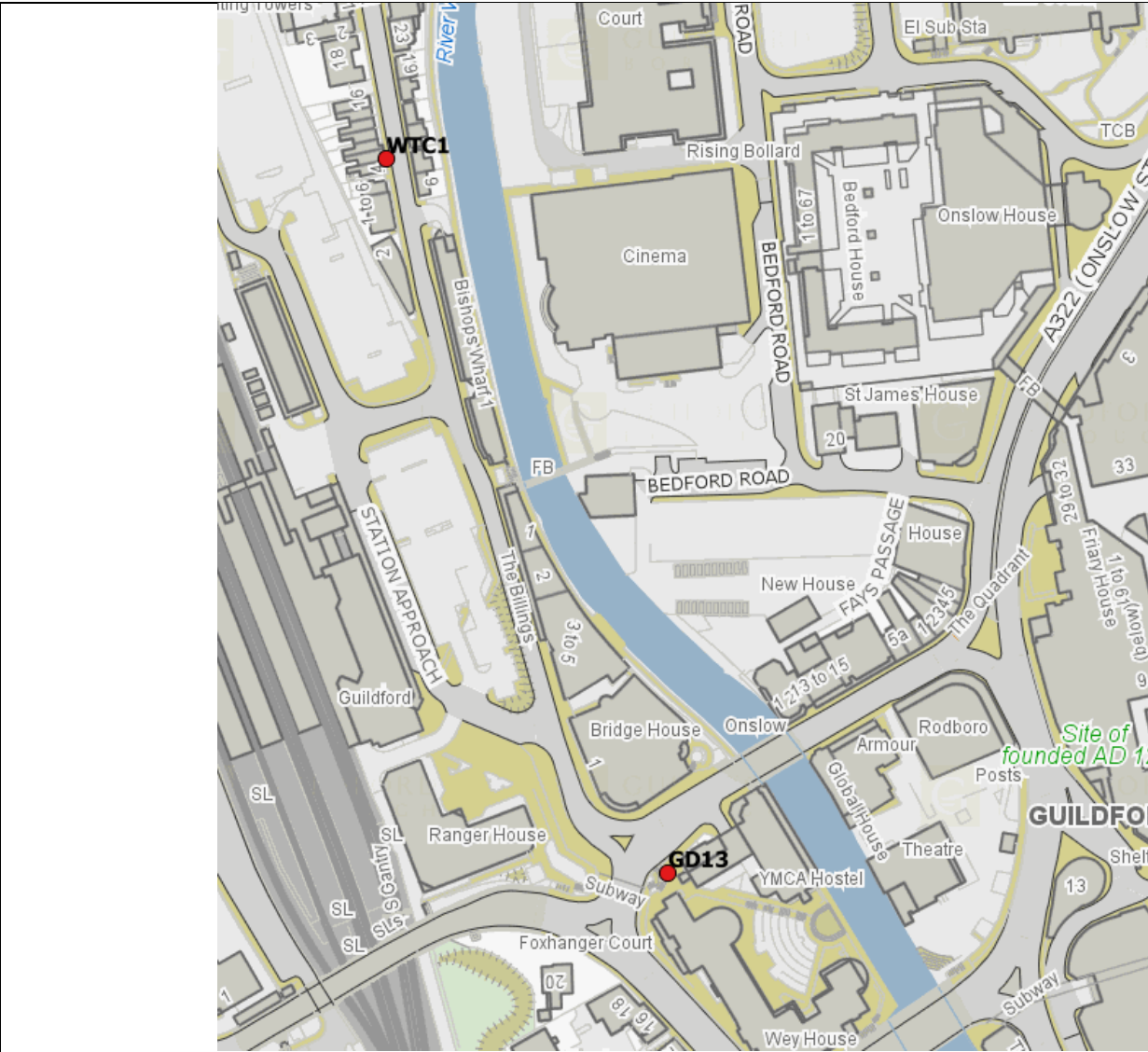
A281-1: 499631/149263  
A281-2: 499758/ 149017

**Title:**

**Diffusion Tube Locations – A281 Guildford**

**Date**  
08-06-2020

**Figure No.**  
06



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Locations: Guildford Towncentre

WTC1: 499204/ 149768  
GD13: 499305/ 149512

**Title:**

**Diffusion Tube Locations – Guildford Town Centre**

**Date**  
08-06-2020

**Figure No.**  
07



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Guildford Towncentre

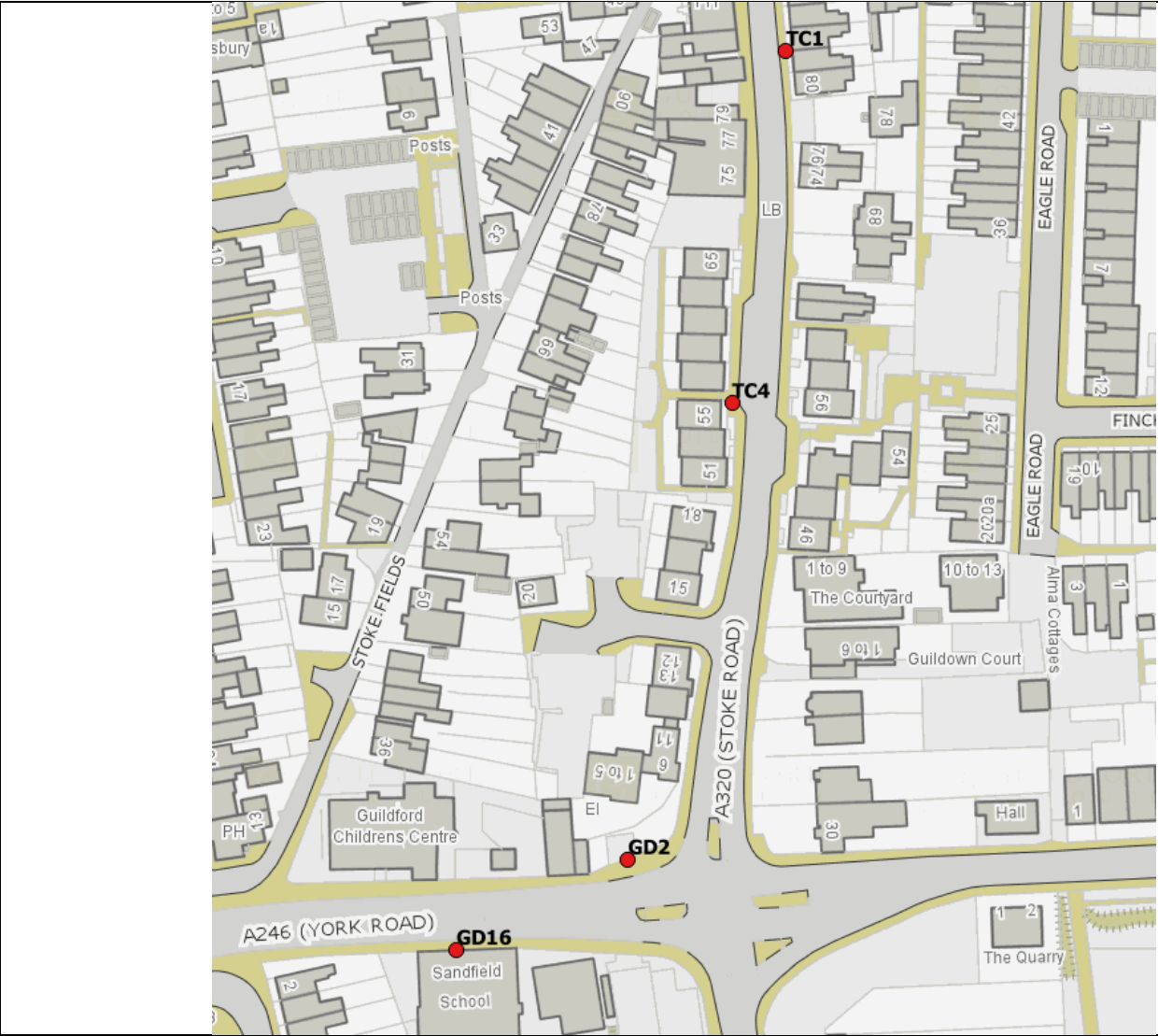
TC3: 499477/ 150348

**Title**

**Diffusion Tube Locations – Guildford Town Centre**

**Date**  
08-06-2020

**Figure No.**  
08



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Guildford Towncentre

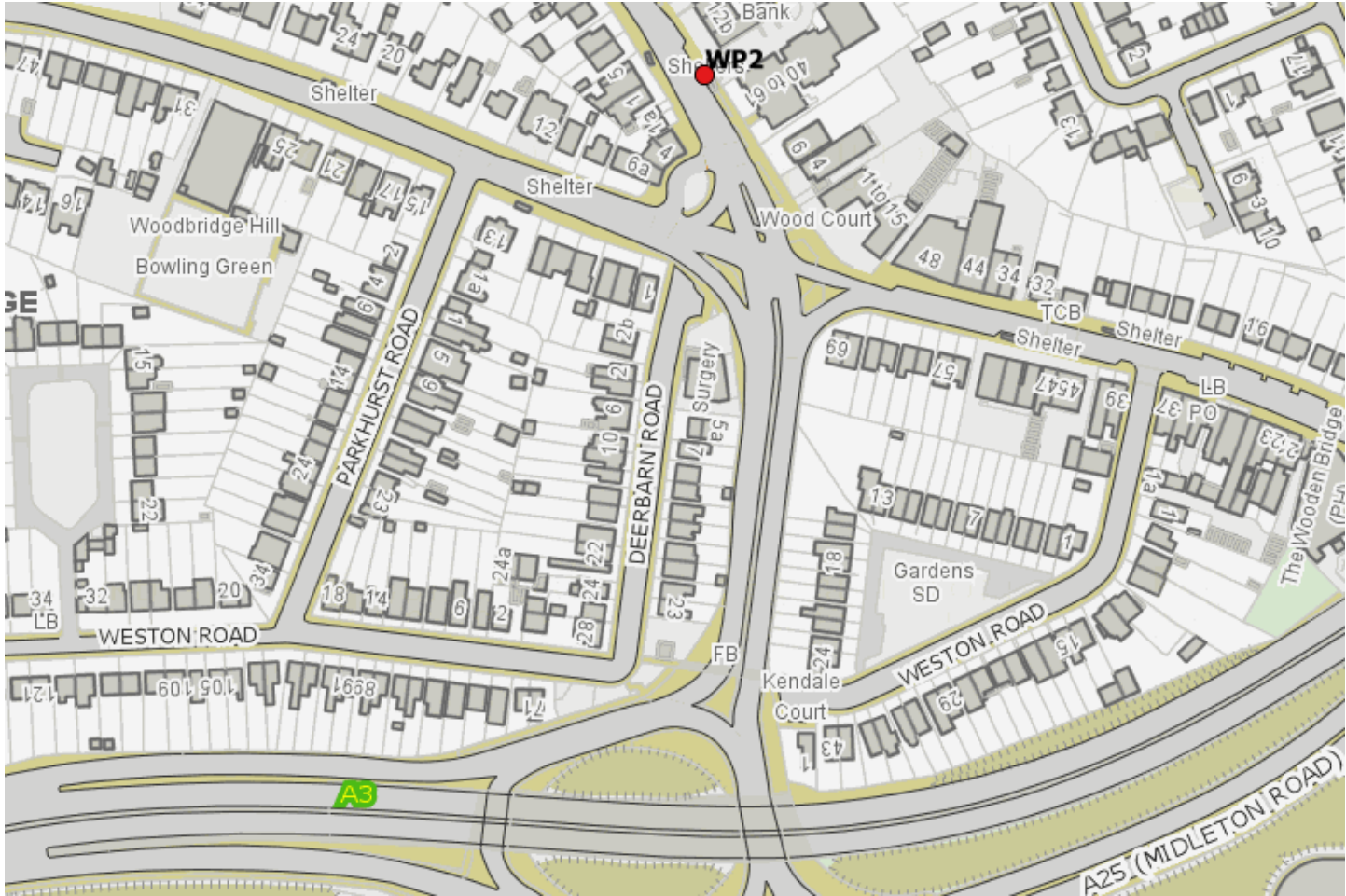
TC1: 499834/ 150113  
 TC4: 499822/ 150035

**Title**

**Diffusion Tube Locations –  
 Guildford Towncentre**

**Date**  
 08-06-2020

**Figure No.**  
 09



Legend

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Worplesdon Road, Guildford

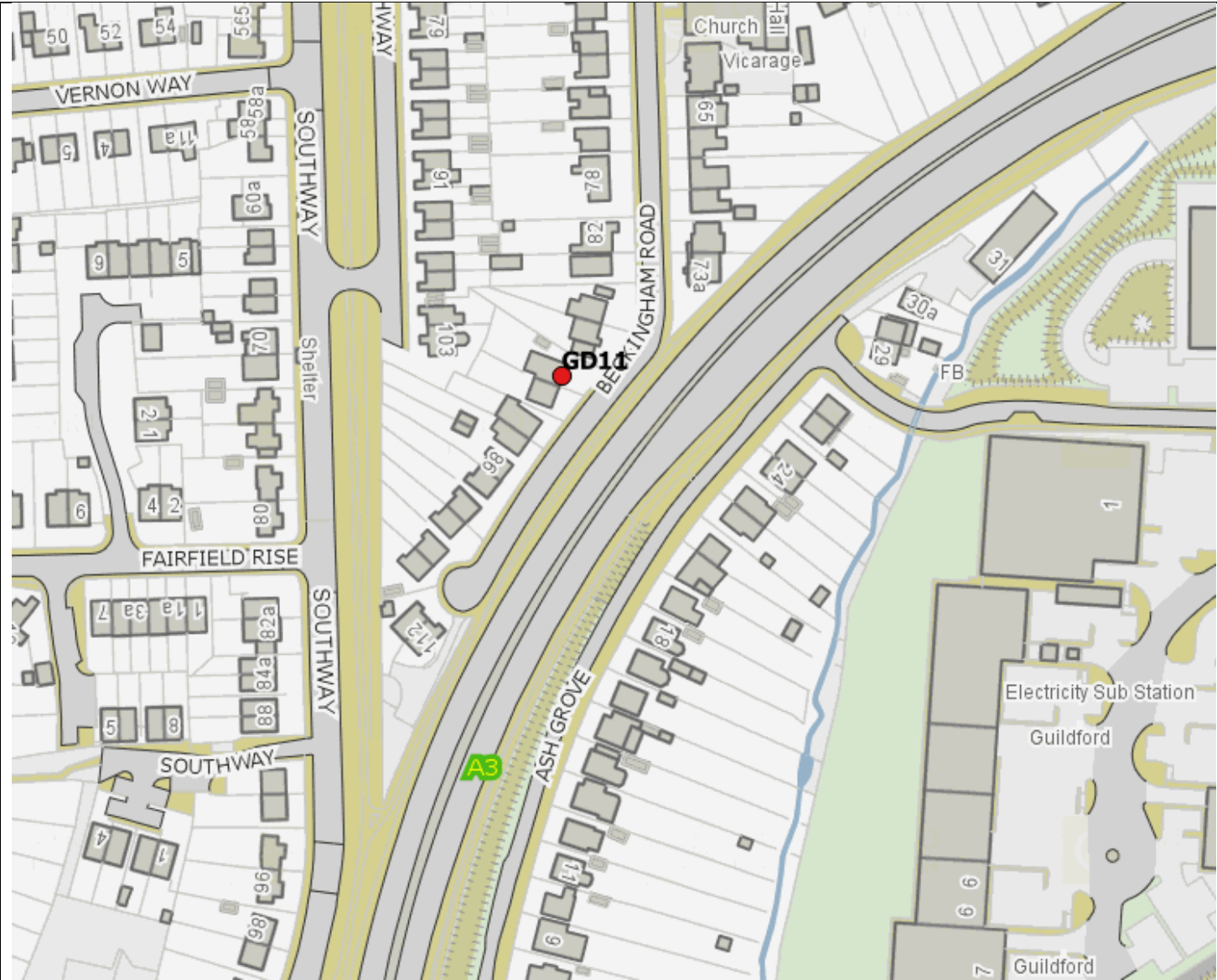
WP2: 498620/ 151028

Title

Diffusion Tube Locations – Worplesdon Road, Guildford

Date  
08-06-2020

Figure No.  
10



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

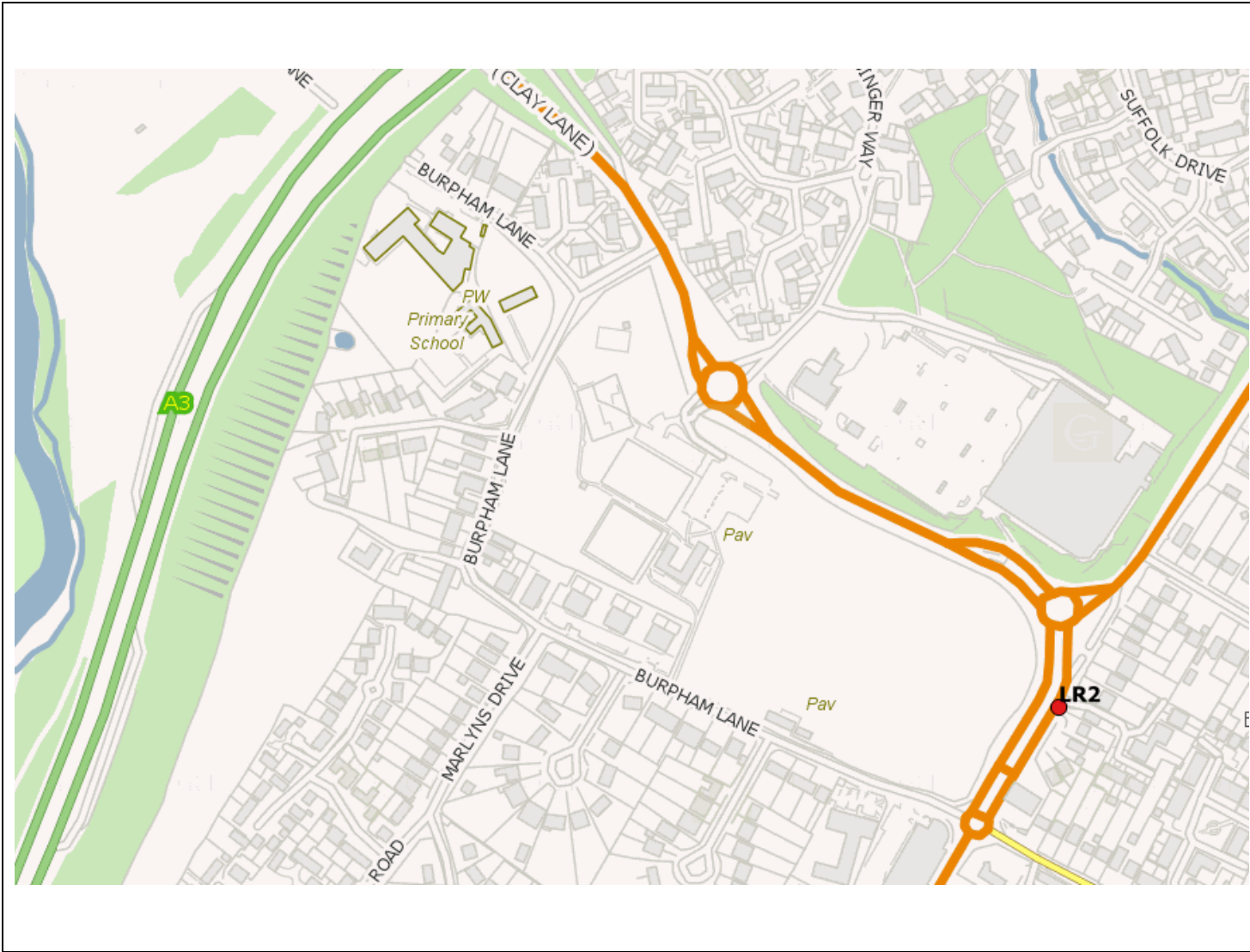
Location: Beckingham Road, Guildford  
GD11: 498133/150648

**Title**  
**Diffusion Tube Locations – Near A3**

**Date**  
08-06-2020

**Figure No.**  
11





**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: London Road, Burpham

LR2: 501679/ 152169

**Title**

**Diffusion Tube Locations –  
London Road, Burpham**

**Date**  
08-06-2020

**Figure No.**  
12



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Puttenham Heath Road  
PHR: 493442/ 147932

**Title**

**Diffusion Tube Locations –  
Puttenham Heath Road**

**Date**  
08-06-2020

**Figure No.**  
13



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Ash, Guildford

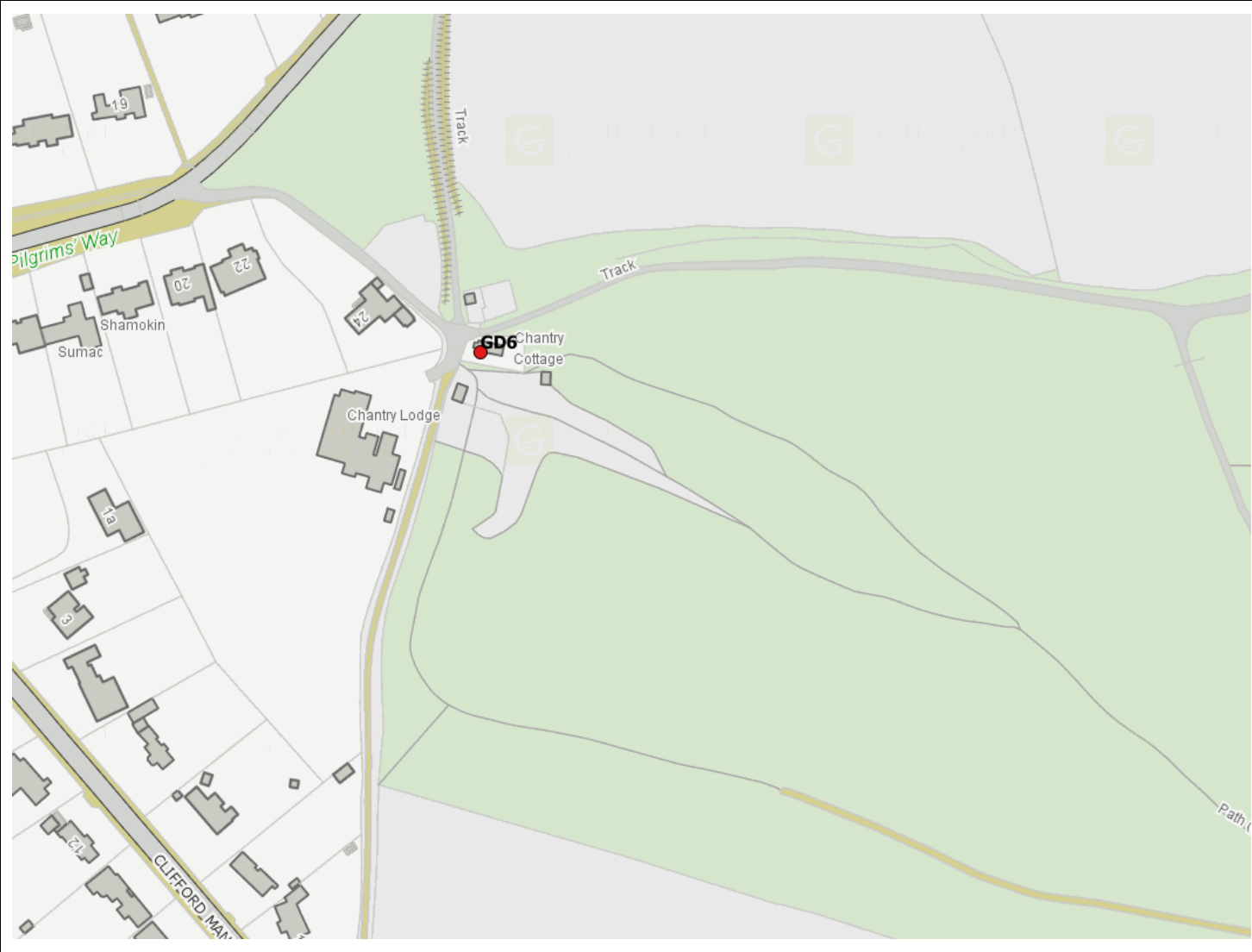
ASH3: 489893/ 150749

**Title**

**Diffusion Tube Locations – Ash, Guildford**

**Date**  
08-06-2020

**Figure No.**  
14



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: The Chantries, Guildford  
GD6: 500385/ 148342

**Title**

**Diffusion Tube Locations –  
Chantries**

**Rural Background**

**Date**  
08-06-2020

**Figure No.**  
15



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

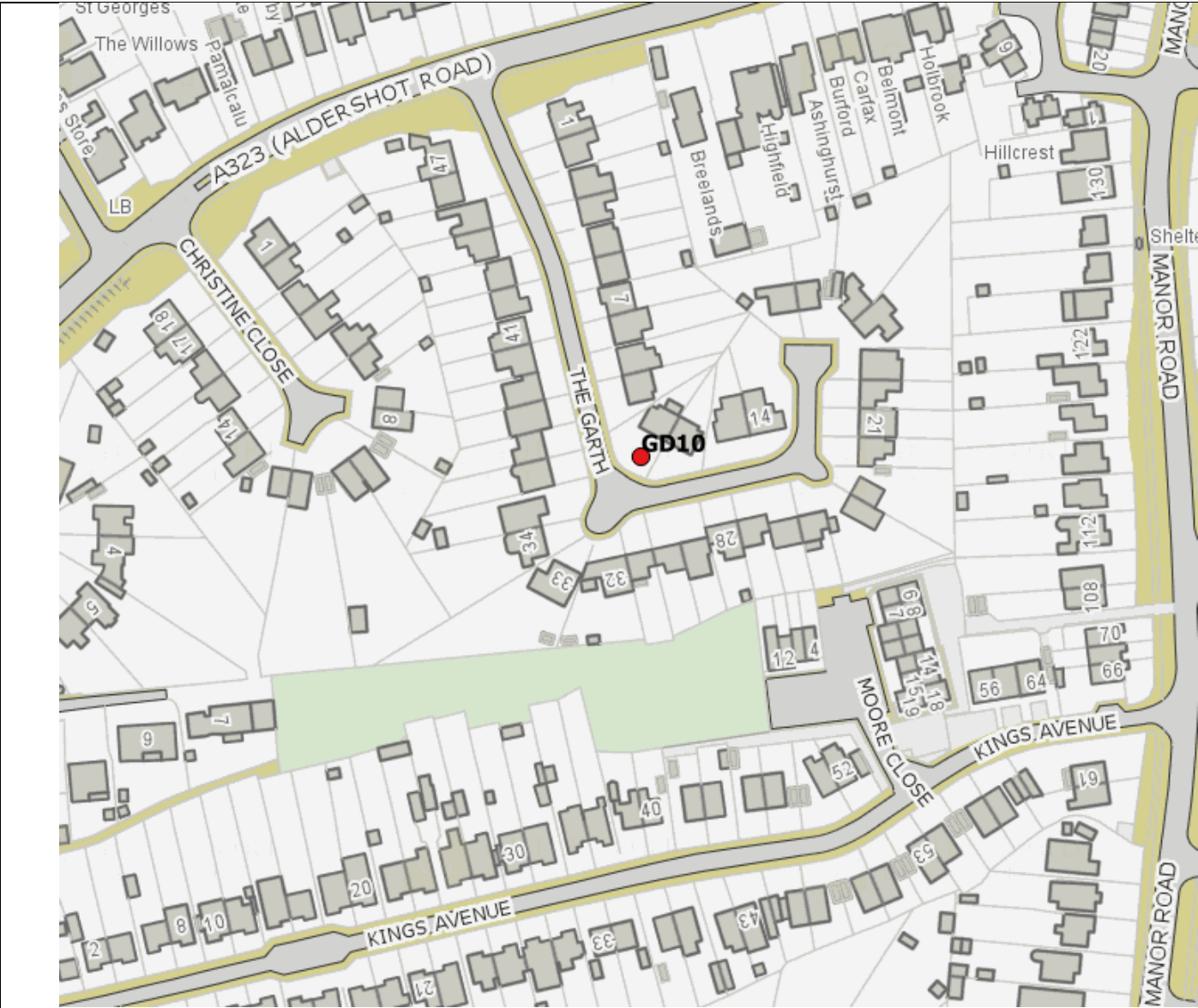
Location: Josephs Road, Guildford  
GD3: 499659/ 150739

**Title**

**Diffusion Tube Locations – Urban Background**

**Date**  
08-06-2020

**Figure No.**  
16



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: The Garth, Ash  
GD10: 488629/ 150032

**Title**

**Diffusion Tube Locations – Urban Background**

**Date**  
08-06-2020

**Figure No.**  
17



**Legend**

● Diffusion tube locations 2019

@Crown Copyright Licence No. 100019625.2016

Location: Ripley  
RP4: 505150/ 156741

**Title**  
**Diffusion Tube Locations – Ripley**

**Date**  
08-06-2020

**Figure No.**  
16

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>14</sup>	
	Concentration	Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>14</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).



## Glossary of Terms

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

## References

1. CERC report for Surrey and Guildford Borough
  2. Surrey Transport Plan: Air Quality Strategy (SCC 2016)  
[https://www.surreycc.gov.uk/\\_\\_data/assets/pdf\\_file/0020/90254/Air-Quality-Strat-15th-Update-rebranded.pdf](https://www.surreycc.gov.uk/__data/assets/pdf_file/0020/90254/Air-Quality-Strat-15th-Update-rebranded.pdf)
-