



2019 Air Quality Annual Status Report (ASR)

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

August 2019

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 2018, the timing of the report dictates that there are updates regarding actions during 2019.

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^{1,2}.

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

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 a number of light industrial sites; the authority has 32 permitted process under

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

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

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

Environmental Protection Act 1990, to date there is no record of any significant air quality impact from these locations.

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.

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 a number of 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 the area at the northern end of The Street, B3000 (see Appendix D, Map 15), in the village of Compton where the three properties are in close proximity to the road. The Council have consulted on an Air Quality Action Plan which Guildford Joint Committee approved on 3 July 2019, it was submitted to Defra on the 4 July 2019.

The same committee also approved a second AQMA, this was declared on the 5 July 2019 on The Street, A281(Appendix D, Map 17), in the village of Shalford where seven properties are in close proximity to the road. Details are displayed on the relevant web page: <https://www.guildford.gov.uk/article/19807/Air-quality-monitoring>.

We recognise that in order to deal with air quality, the co-operation of Surrey County Council (SCC), Highways Agency (HA) and the Environment Agency is vital. The Surrey Air Alliance Group, which consists of the eleven borough and district councils and SCC, whilst having no statutory status has evolved into a partnership to enable air quality to be considered across the county and facilitate joint working where appropriate. One of the main targets in 2017 was to map levels of PM_{2.5} throughout the county of Surrey, investigate hotspots and quantify the links with health indicators. This work commenced in April 2018 and the results will be reported in the ASR 2020.

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 can be found in the revised Guildford Borough Transport Strategy produced in December 2017.

Actions to Improve Air Quality

The principal issues, findings and conclusions of the Annual Status Report are:

- The detailed investigation of a specific area of the B3000 road in the village of Compton concluded with the declaration of an Air Quality Management Area (AQMA) in February 2018. A draft Air Quality Action Plan was produced in November 2017 and consulted on in April 2018. Following that consultation a revised action plan was produced and adopted by the Guildford Joint Committee in July 2019.
- The declaration of an Air Quality Management Area (AQMA) in July 2019 on the Street (A281) Shalford.
- GBC recognises the need to co-ordinate work with partners and the public in order to improve air quality. 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.
- GBC recognises that the significant source of air pollution in the borough is from road traffic. GBC conducted a further annual review of monitoring of Nitrogen Dioxide (NO₂) using passive diffusion tubes at the end of 2018 and the monitoring locations have been altered in accordance with Defra feedback provided in September 2017. The new sites are predominantly on the A road approaches within 0.5 miles of Guildford town centre, suburban areas on the A roads and on the surrounds to the potential AQMA in Shalford.
- 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 NO₂. As both areas are within the same urban area, it is intended to conduct a joint detailed investigation as both roads feed into Guildford town centre.

- Surrey County Council (SCC) and the Highways Agency (HA) are the highway authorities; GBC has its own Guildford Borough Transport Strategy 2017, which includes a section on air quality.
- GBC have worked with SCC on installing further rapid charge facilities in Guildford town centre and SCC have drafted an Electric Vehicle Charging Strategy, the consultation closed in 26th August 2018.

Conclusions and Priorities

Local priorities

1. Enhance our approach to air quality

- a. Implement the Guildford Borough Council Air Quality Strategy 2017-2022. This document has a number of short, medium and long-term actions which are linked to future actions and initiatives in Table 2.1.
- b. Implement the relevant actions from the National Clean Air Strategy 2019.

2. Monitoring and reporting of air pollution levels

- a. Enhance the monitoring of nitrogen dioxide levels following the declaration of an AQMA on the A281, Shalford.
- b. 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.
- c. Explore the link between PM_{2.5}, NO₂ and public health by carrying out a modelling exercise across Surrey. Identified hotspots will be considered for further investigation.
- d. The group of locations around the town centre and road gyratory system are of particular interest. 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).

3. Reducing vehicle emissions

- a. Reduce emissions in the GBC transport fleet by increasing the percentage of low emission vehicles.
- b. Produce and implement the final Air Quality Action Plan for the AQMA in Compton.
- 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. Produce a Draft Air Quality Action Plan for the AQMA in Shalford.
- 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. In September 2018, decision making for Air Quality in the Borough of Guildford was 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 have to 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.
- e. Work with the University of Surrey on the Iscape Project.
- f. Engage in educational opportunities as appropriate.

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 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 and the possible new railway station at Park Barn, Guildford.

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.
- e. Nature of the road network in the Borough.
- f. Cost of infrastructure improvements and the provision of funding.

Local Engagement

GBC have engaged with the public as follows:

1. Participating in joint initiatives with University of Surrey Global Centre for Clean Air Research, Iscape project. <https://www.surrey.ac.uk/global-centre-clean-air-research>
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. Consulted on the Draft Air Quality Action Plan for the AQMA in the Street in Compton.
4. Consulted on implementation of an AQMA in the Street (A281), Shalford.
5. Dealing with local requests for nitrogen dioxide monitoring and displaying up to date monitoring data on the Council's website.
6. Overview and Scrutiny Committee receives reports on progress and developments associated with air quality.
7. 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 subject to Ministerial Direction, where there are over 10 dwellings and commercial developments.
<http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

Local Engagement and How to get Involved

GBC 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

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1 Local Air Quality Management

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

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

A summary of AQMAs declared by Guildford Borough Council can be found in Table 2.1. Further information related to declared AQMAs, including a map of the AQMA boundaries are available online at <https://www.guildford.gov.uk/article/19807/Air-quality-monitoring>. Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMAs, which provides a map of the air quality monitoring locations in relation to the AQMA.

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.

A public consultation on the draft Air Quality Action Plan (AQAP) was conducted and closed in April 2018. Following the first consultation, the details of the action plan were discussed with highway officers from Surrey County Council. Further modelling work on queuing and traffic flows in the area was carried out in order to produce a revised AQAP based on potential improvements to the highway.

The Council consulted on a revised AQAP which Guildford Joint Committee approved on 3 July 2019, it was submitted to Defra on the 4 July 2019.

AQMA 2 The Street Shalford

Following nitrogen dioxide diffusion tube data collected during 2017 indicating likely exceedances of the annual mean, GBC carried out a detailed assessment of an area of the A281 in Shalford. The assessment which included a revised traffic count in

September 2018, was to determine whether there is sufficient evidence to declare a new AQMA in the area around SH1 and SH2 (see monitoring section).

The decision to declare a new AQMA 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

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

Table 2.1 – Declared Air Quality Management Areas

<https://www.guildford.gov.uk/article/21335/Guildford-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 ³	46	µg/m ³	Guildford Borough Council Air Quality Action Plan - Compton Village	05-July-19	https://www.guildford.gov.uk/article/21335/Guildford-air-quality-management-areas
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 ³	50	µg/m ³	in progress		N/A

CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE

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

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

Defra's appraisal of last year's ASR has not been received, however following on from the 2017 comments the actions are concluded that the Council should:

Number	Comment from Defra September 2017	Action
1	Submit the Detailed Assessment for the Street in Compton	The AQMA was approved by Guildford Borough Council Executive in November 2017 and officially declared on 1 February 2018.
2	Ensure that the distance correction is applied to all results where required and this must be placed in the relevant column in Table B.1	All distance corrections are included in Table B.1
Update 4	Consider a strategy of monitoring relevant exposure on all of the major "A" roads as they enter Guildford town centre 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;	New monitoring points were installed on: A31 Farnham Road, Guildford A281 Horsham Road, Shalford A3100 Portsmouth Road, Guildford A25 Dorking Road, Abinger A322, Woodbridge Road, Guildford A246, York Road, Guildford

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6	To report the findings of the county wide modelling in the ASR 2018	This action did not commence until April 2018 but is due to be completed during 2019.
7	Show how the Council is working collaboratively with all local key stakeholders	GBC has engaged with SCC Public Health and Highway, University of Surrey and bus companies.
8	Pursue the wide range of measures detailed in the ASR to improve air quality across the local authority	See update in table 2.2

Guildford Borough Council has taken forward a number of 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 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Short term 2017-19											
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	Planning Services and Environmental Health	2017	2018	Number of developments where air quality has been assessed and actioned	Encourages EV charging in all new developments above 10 dwelling threshold	Service Level Agreement between Planning Development and Environmental Health from March 2017 with quarterly monitoring meetings.	ongoing	Developers need to be made aware
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	Environmental Health and Planning Services and	Ongoing	2019	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.	2019	The modelling carried out by the Surrey Air Alliance has information that can be used by the Local Plan teams.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
3	Green scheme parking fees for electric vehicles in GBC car parks	Traffic Management	Emission based parking or permit charges	Parking Services	2016	2018/19	Evidence of greater take up from car parking records.	Number of ELVs	Owners of electric vehicles can apply for a parking permit to obtain reduced fees.	ongoing	Additional charging points to be installed in GBC car parks. https://www.guildford.gov.uk/carparks
4	Parking App to direct users to closest and cheapest spaces	Traffic Management	Other	Parking Services	2016	2018	Use of App	Not measurable	App is available to download and aims to reduce congestion and queuing	ongoing	https://www.guildford.gov.uk/parkingapp
5	Education in communities to change behaviours	Promoting Travel Alternatives	Promotion of cycling, Promotion of walking, Workplace Travel Planning	Community Development and Environmental Health	Ongoing	2018	Feedback as part of the project	Not measurable	Project Aspire initiatives to reduce dependency on cars and educational programmes in schools	ongoing	Participation of the residents.
6	Electric buses for all Park and Ride sites	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Surrey County Council, Guildford Borough Council and Stagecoachbus company	2018	2019		Usage	Electric buses were introduced in January 2019 at all four Park and Ride sites in Guildford www.electrive.com/2019/06/27/uk-e-buses-for-stagecoach-powered-by-tesla-powerpacks/	Completed 2019	Fully implemented on all Park and Ride routes

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
7	Easit campaign	Promoting Travel Alternatives	Workplace Travel Planning		2018	2018-2020	Take up by businesses and organisations	Take up	www.easit.org.uk/network/easitGUILDFORD-23	Ongoing	Additional companies have joined during 2019
8	Schools initiative	Promoting Travel Alternatives	School Travel Plans	Surrey County Council and Guildford Borough Council	2019-20	2019-20	Involvement of local schools in areas near to AQMAs	Not measurable	Pledge has been made to SCC by GBC to fund this work.	April-June 2020	To date at least four other local authorities with Surrey are intending to participate
9	Bringing services to the communities to reduce car journeys	Promoting Travel Alternatives	Other	Community Development and Community services	Ongoing	2018		Not measurable	Project Aspire encouraging partners to increase use of local facilities within communities to reduce journeys	ongoing	
10	GBC Air Quality Strategy	Policy Guidance and Development Control	Other policy	Environmental Health	2017	Strategy adopted by Executive November 2017	Within current resources	Strategy produced in consultation with all Council Services and relevant partners	2017	2022	Implementation of action plan is monitored by Overview and Scrutiny Committee
11	Declaration of Air Quality Management Area in Compton	Traffic Management	Other – defined in action plan	Environmental Health	2017	AQMA and Action Plan approved at Executive November 2017	Compliance with Action Plan		AQMA declared February 2018 and consultation on revised Action Plan carried out in April/May 2019.	December 2019	Action Plan implementation approved by Guildford Joint Committee submitted to Defra July 2019.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
12	Facilitate and promote home, mobile, remote and flexible working within the Council	Promoting Travel Alternatives	Encourage / Facilitate home-working	HR & IT	2018	Adopt and implement 'Home, Mobile, Remote and Flexible Working Policy' Reduction in mileage claims, increase public transport	Number of hours recorded working from home.	Can be calculated by using the mileage saved and car type.	Policy adopted to promote and facilitate: - home working - flexible working times - compressed hours to reduce days in the office - utilisation building facilities for mobile working - Virtual meetings	2019/20	ICT provision of laptops within Regulatory Services pilot project to facilitate flexible working method completed July 2019.
13	Promote alternative travel to work at the Council	Promoting Travel Alternatives	Workplace Travel Planning	HR & Facilities management	2018	Adopt and implement a 'Staff Travel Plan'	Take up by staff	Reduction in car use to be monitored and emissions can be matched with type and usage.	Initial discussions with services and providers commenced.	2019/20	Promote alternative transport to work : - car sharing - Bike to work scheme - Provision of facilities to support cyclists, runner, walkers - promote and incentivise park and ride scheme - Incentivise non car use
14	Car clubs in Guildford Town Centre	Alternatives to private vehicle use	Car Clubs	SCC/ GBC; funding from Department for Transport	2016	2016	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 Co-ordinating programmes to develop	All Surrey Local Authorities	2017	Model delivered by August 2019	Completion of model and	None modelling exercise to show hot spots	In May 2017, all Surrey Local Authorities agreed to procure Surrey wide modelling study.	November 2019	Results of model will give identify potential hotspots for PM2.5, PM10 and will allow further local investigation and action.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
			Area wide Strategies to reduce emissions and improve air quality								
16	Participate in the University of Surrey ISCAPE project..	Public Information	Via other mechanisms	Environmental Health	2017	2018 Initial scoping meeting with University	Aims to raise citizen awareness about air quality and the impact	Note take up of project by residents.	Exercise has commenced and groups engaged. https://www.iscapeproject.eu/	2020	Next steps developing the interactive displays and participating in the public engagement activities and events.
17	Smoke Control Order Compliance	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	GBC	Originally implemented in the 1970s	2018	Compliance with Statute	Not likely to significantly change as areas are generally compliant	Guildford has smoke control areas setup in the 1960's; Increase awareness and obligations for residents www.guildford.gov.uk/article/18350/Smoke-control-area	2019	A webpage dedicated to Smoke Control Area (SMA); with interactive map to search properties within the SMA www.guildford.gov.uk/article/18350/Smoke-control-area
18	Anti vehicle idling, for example at level crossings, taxi ranks, the station, bus stops and outside schools.	Traffic Management	Other	GBC and SCC	2018	2019-20	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. Planning application due to be submitted 2019	2020	Noted that anti idling at schools has been brought up. Use of air quality monitors at schools has been considered.
19	Declaration and implementation of Air Quality Management Area	Traffic Management	UTC, Congestion management, traffic reduction	GBC/ SCC	2017-2018	2018/19	To not exceed the annual objective level for nitrogen dioxide	Reduction in nitrogen dioxide exposure at receptors.	A281,Shalford was subject to a detailed investigation. After consultation in April/ May 2019 order was approved by Guildford Joint Committee.	2019	AQAP is being prepared for approval in 2019. Consultation with local residents, parish councils and neighbouring authorities.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
20	Guildford Crematorium new cremators	Environmental Permits	Measures to reduce pollution through IPPC permits going beyond BAT	GBC	2018	2019		Reduction in nitrogen dioxide exposure at receptors.	Change from temporary cremator to fully compliant plant with mercury and nitrogen dioxide abatement New permit and variation issued in July 2019	2019	New installation due to open in November
21	Guildford Town Centre Transport Package improvements for buses and active modes	Transport Planning and Infrastructure	Bus route improvements	SCC	2015	2016	Restrain or reduce traffic	Less congestion to reduce pollutants at receptors.	Implementation phases are staggered; current bus targeted schemes are the A25/A320 Stoke crossroads improvement including bus priority	2018-19	No updates
Medium and Long Term (2020-25)											
22	Service delivery review to reduce public journeys to Council properties where appropriate	Promoting Travel Alternatives	Personalised travel planning	GBC	2019	Policy adopted and implemented	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 a different way to deliver the service e.g. online booking, officers travelling to venue.
23	Adopt GBC Policy lease car and fleet vehicles procurement	Promoting Low Emission Transport and	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	GBC	2018	GBC adopt Policy on procuring lease case and fleet vehicles	Council's record of vehicle use	Less pollutants from low emission vehicles.	Two electric pool cars (Nissan Leaf) have been purchased and charging points are due to be installed at GBC Millmead offices.	2020	Policy to include: - Review of lease car scheme to require reduced emissions/ electric vehicles -Review essential car user scheme -criteria

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
		Vehicle Fleet Efficiency							Four electric vehicles in fleet at Woking Road Depot EV charging point has been installed at the Woking Road Depot.		for purchasing fleet vehicles -regular fleet replacement to ensure using lowest emission vehicles on the market.
24	Review/Create GBC policy for travelling to meetings, seminars and training courses	Promoting Travel Alternatives	Workplace Travel Planning	GBC	2019	Revised policy implemented in 2019	Council's record of vehicle use	Less emissions from individual journeys.	2019 There are examples of good practice around the Council but no consistency or formal policy.	2020	Implement Travel Policy for training courses, seminars and meeting – to include increase e-learning, in house provision, use of public transport when travelling. Incentivise non-car use.
25	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy	GBC and SCC	Present – 2035+	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4. Increased walking and cycling modal share	Existing and future bids	More sustainable transport	Progress with respect to schemes: SRN8: A3 southbound off-slip lane widening to A320 Stoke Interchange improvement scheme –is currently being implemented.	2035	•SRN7: A3 northbound off-slip lane widening at University Interchange improvement scheme due in 2019/20
23	Adopt GBC Electric Vehicle Charging Strategy	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	GBC and SCC	2019	Assessment of infrastructure	Number and use of charging points	Electric charging points on Council property: -2 Woking Road Depot -2 car parks	SCC have consulted on an EV Charging Strategy that can be mirrored.	ongoing	Actions could include: -Increase in: GBC sites, GBC car parks, GBC assets, GBC major projects -require as part of the planning process Encourage businesses and residents to provide charging points

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
24	To encourage existing employers to introduce travel plans.	Promoting Travel Alternatives	Workplace Travel Planning	GBC	2019	Target for number of companies with travel plans	Number of new travel plans	None – new initiative	None	2020	There is an opportunity to consider site users, such as patients, customers, visitors.
25	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	GBC and SCC	2019	2017-2020	Reduce emissions at source	Less pollutants from low emission vehicles pollutants.	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
26	Taxi and Private Hire Licensing Policy	Promoting Low Emission Transport	Taxi Licensing conditions	GBC Licensing	2022	2023-2032	Low emission taxi fleet	Can be calculated from uptake	None – new initiative	2032	Scope change to taxi and private hire licensing policy to require taxi and private hire vehicles to be low emission/electric
27	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	GBC Parking Services	2020	2021	Uptake in reduced rate permits	Can be calculated from uptake	ongoing	2022	Opportunity to extend differential charging scheme to on-street residential parking.
28	To encourage freight and delivery companies to introduce travel plans	Freight and Delivery Management	Route Management Plans/ Strategic routing for HGVs/	GBC Environmental Health and SCC	2020	2021	Number of companies taking up scheme	Can be calculated from uptake	None – new initiative	2022	No update

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
29	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, Selective vehicle priority, bus priority, high vehicle occupancy lane	GBC Regulatory and SCC	2020	2020-2024	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.
30	Road Strategy schemes to tackle congestion on Strategic Road Network	Traffic Management	UTC, Congestion management, traffic reduction	GBC/ SCC	2016	Ongoing	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
31	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy	Planning and Regeneration	Present – 2035+	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4. Increased walking and cycling modal share	Existing and future bids	Not defined	Progress with respect to schemes: Delivered in 2016/17: • Improvement of River Wey towpath around Parsonage Watermeadows (linking A25 to A320)	2035	
32	New railway station at Park Barn, Guildford	Transport Planning and	Public transport improvements-	Major Projects GBC	2020-2025	Not known	Use of facility and road traffic reduction	Not defined	Not known	2025 plus	No detail

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
		Infrastructure	stations and services								

In the ASR 2018 we set out a number of priorities, an outline of the key areas progressed are set out below :

Key completed measures are:

Priority 1 – Clarify and enhance our approach to air quality

The most significant document has been the Guildford Borough Council Air Quality Strategy 2017-2022 this was approved by the Council in November 2017.

Priority 2 - Actions to improve air quality and monitor progress (See Table 2.1)

We have worked through the Surrey Health and Wellbeing Board, Guildford Health and Wellbeing Board to encourage individual and organisational awareness of the need improve air quality by changing to cleaner transport and reducing motor vehicle emissions.

We recognised the need to monitor the progress of actions, Table 2.1 provides details of the relevant actions.

Priority 3 - Monitoring and reporting of air pollution levels:

As described above after recommendations from Defra, GBC reviewed the monitoring of nitrogen dioxide (NO₂) using passive diffusion tubes and the network has been altered with a number of new monitoring locations in areas where road traffic may have an influence on sensitive receptors. This has been achieved with 7 new locations running for one year.

GBC has carried out further diffusion tube monitoring and commissioned modelling of nitrogen dioxide (NO₂) in the village of Compton.

The air quality page on the GBC website contains the most up to date results and reports and is now updated monthly.

All Surrey local authorities and SCC Public Health have jointly commissioned a countywide modelling of PM₁₀, PM_{2.5}, NO_x, NO₂ and health indicators. The results will help identify hotspots and determine future monitoring and/or action plans. This is due to complete in October 2019.

Priority 4 - Reducing vehicle emissions: (see Table 2.1)

During 2018 and into 2019 GBC 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, bus lanes, cycling and walking strategies and integrated transport plans, all form part of the overall approach.

GBC 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.
- GBC encourage internal lease car users to consider low emission vehicles by highlighting the tax benefits and setting a limit on the carbon dioxide (CO₂) emissions.
- Guildford town centre car clubs have expanded and utilise more vehicles that are electric.
- GBC have 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 the associated rapid charging points is planned for 2019.

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- Provision of more guidance on Smoke Control Orders, Travel Plans and other legislative requirements via the GBC website. This has not been progressed but has been included in future work plans for 2019/20.
- Where practicable, procurement of ultra-low emission fleet vehicles is encouraged. This has been partially progressed.
- In 2019 GBC will report on the environmental benefits accrued from reduced car journeys, as we continue to encourage home working by staff. This has partially progressed and is included in future work plans.

Priority 5 – Planning controls on development

The requirement for additional housing and associated infrastructure across GBC and the south east of England, represents significant challenge of maintaining and improving air quality. The Local Plan for Guildford Borough is a key document. The Air Quality Review of Guildford Local Plan was published in June 2017 and updated.

- The Guildford Borough Local Plan was adopted in April 2019.
- Planning applications - An air quality assessment is required where a proposed development over 10 residential units is proposed, in order to assess the suitability of the site and impact local air quality. This has been achieved.
- The Guildford Borough Transport Strategy 2017 has an indicative programme which includes measures set out as far as 2034, actions anticipated within the current year are:
 - Guildford Town Centre Transport Package -improvements for buses, cycleways and active modes have been planned

This is a long- term strategy and therefore progress cannot be reported on an annual basis.

Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in the;

- Guildford Borough Council, Air Quality Strategy 2017-2022 (adopted November 2017)
[https://www.guildford.gov.uk/newlocalplan/media/26585/Guildford-Borough-Council-Air-Quality-Strategy-2017-2022-GBC-November-2017/pdf/Guildford_Borough_Council_Air_Quality_Strategy_2017-2022_\(GBC_November_2017\).pdf](https://www.guildford.gov.uk/newlocalplan/media/26585/Guildford-Borough-Council-Air-Quality-Strategy-2017-2022-GBC-November-2017/pdf/Guildford_Borough_Council_Air_Quality_Strategy_2017-2022_(GBC_November_2017).pdf)
- Guildford Borough Transport Strategy 2017- Revised December 2017
www.guildford.gov.uk/newlocalplan/media/26649/Guildford-Borough-Transport-Strategy-2017-Guildford-Borough-Council-December-2017/pdf/GBC-LPSS-SD-038_Guildford_Borough_Transport
- 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
- Guildford Borough Cycling Plan 2015 <https://www.travelsmartsurrey.info/cycling/guildford-consult>
- GBC has a green scheme for car parking, which heavily discounts parking of electric vehicles.
<http://www.guildford.gov.uk/carparks>

Local priorities for 2019

Guildford Borough Council's priorities for the coming year are in line with those set out in 2018, 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 a number of 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 levels

- a. Enhance the monitoring of nitrogen dioxide levels following the declaration of an AQMA on the A281, Shalford to ensure a full understanding of air quality in this location.
- b. 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.
- c. Explore the link between PM_{2.5}, NO₂ and public health by carrying out a modelling exercise across Surrey. Identified hotspots will be considered for further investigation.
- d. The group of locations around the town centre and road gyratory system are of particular interest. 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).

3. Reducing vehicle emissions

- a. Reduce emissions in the GBC transport fleet by increasing the percentage of low emission vehicles.
- b. Produce the final Air Quality Action Plan for the AQMA in Compton and implement the measure.
- 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. Produce and consult on a draft Air Quality Action Plan for the AQMA in Shalford.
- 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. 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.
- b. Work with the two respective authorities; Highways England and SCC through the Guildford Transport Strategy.
- c. Work with SCC on local improvements as required in the ensuring that there is an effective AQAP in the AQMA in Compton.
- d. Work with the University of Surrey on the Iscape Project.
- e. Engage in educational opportunities as appropriate.
- f. Launch easitGUILDFORD, green travel network to encourage alternative modes of transport for those working in the Borough.

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 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 and the possible new railway station at Park Barn, Guildford.

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.
- e. Nature of the road network in the Borough.
- f. Cost of infrastructure improvements and the provision of funding.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Short term 2017-19											
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	Planning Services and Environmental Health	2017	2018	Number of developments where air quality has been assessed and actioned	Encourages EV charging in all new developments above 10 dwelling threshold	Service Level Agreement between Planning Development and Environmental Health from March 2017 with quarterly monitoring meetings.	ongoing	Developers need to be made aware
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	Environmental Health and Planning Services and	Ongoing	2019	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.	2019	The modelling carried out by the Surrey Air Alliance has information that can be used by the Local Plan teams.
3	Green scheme parking fees for electric vehicles in GBC car parks	Traffic Management	Emission based parking or permit charges	Parking Services	2016	2018/19	Evidence of greater take up from car parking records.	Number of ELVs	Owners of electric vehicles can apply for a parking permit to obtain reduced fees.	ongoing	Additional charging points to be installed in GBC car parks. https://www.guildford.gov.uk/carparks

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
4	Parking App to direct users to closest and cheapest spaces	Traffic Management	Other	Parking Services	2016	2018	Use of App	Not measurable	App is available to download and aims to reduce congestion and queuing	ongoing	https://www.guildford.gov.uk/parkingapp
5	Education in communities to change behaviours	Promoting Travel Alternatives	Promotion of cycling, Promotion of walking, Workplace Travel Planning	Community Development and Environmental Health	Ongoing	2018	Feedback as part of the project	Not measurable	Project Aspire initiatives to reduce dependency on cars and educational programmes in schools	ongoing	Participation of the residents.
6	Electric buses for all Park and Ride sites	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Surrey County Council, Guildford Borough Council and Stagecoachbus company	2018	2019		Usage	Electric buses were introduced in January 2019 at all four Park and Ride sites in Guildford www.electrive.com/2019/06/27/uk-e-buses-for-stagecoach-powered-by-tesla-powerpacks/	Completed 2019	Fully implemented on all Park and Ride routes
7	Easit campaign	Promoting Travel Alternatives	Workplace Travel Planning		2018	2018-2020	Take up by businesses and organisations	Take up	www.easit.org.uk/network/easitGUILDFORD-23	Ongoing	Additional companies have joined during 2019

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
8	Schools initiative	Promoting Travel Alternatives	School Travel Plans	Surrey County Council and Guildford Borough Council	2019-20	2019-20	Involvement of local schools in areas near to AQMAs	Not measurable	Pledge has been made to SCC by GBC to fund this work.	April-June 2020	To date at least four other local authorities with Surrey are intending to participate
9	Bringing services to the communities to reduce car journeys	Promoting Travel Alternatives	Other	Community Development and Community services	Ongoing	2018		Not measurable	Project Aspire encouraging partners to increase use of local facilities within communities to reduce journeys	ongoing	
10	GBC Air Quality Strategy	Policy Guidance and Development Control	Other policy	Environmental Health	2017	Strategy adopted by Executive November 2017	Within current resources	Strategy produced in consultation with all Council Services and relevant partners	2017	2022	Implementation of action plan is monitored by Overview and Scrutiny Committee
11	Declaration of Air Quality Management Area in Compton	Traffic Management	Other – defined in action plan	Environmental Health	2017	AQMA and Action Plan approved at Executive November 2017	Compliance with Action Plan		AQMA declared February 2018 and consultation on revised Action Plan carried out in April/May 2019.	December 2019	Action Plan implementation approved by Guildford Joint Committee submitted to Defra July 2019.
12	Facilitate and promote home, mobile, remote and flexible working within the Council	Promoting Travel Alternatives	Encourage / Facilitate home-working	HR & IT	2018	Adopt and implement 'Home, Mobile, Remote and Flexible	Number of hours recorded working from home.	Can be calculated by using the mileage saved and car type.	Policy adopted to promote and facilitate: - home working - flexible working times	2019/20	ICT provision of laptops within Regulatory Services pilot project to facilitate flexible

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
						Working Policy' Reduction in mileage claims, increase public transport			- compressed hours to reduce days in the office - utilisation building facilities for mobile working - Virtual meetings		working method completed July 2019.
13	Promote alternative travel to work at the Council	Promoting Travel Alternatives	Workplace Travel Planning	HR & Facilities management	2018	Adopt and implement a 'Staff Travel Plan'	Take up by staff	Reduction in car use to be monitored and emissions can be matched with type and usage.	Initial discussions with services and providers commenced.	2019/20	Promote alternative transport to work : - car sharing - Bike to work scheme - Provision of facilities to support cyclists, runner, walkers - promote and incentivise park and ride scheme - Incentivise non car use
14	Car clubs in Guildford Town Centre	Alternatives to private vehicle use	Car Clubs	SCC/ GBC; funding from Department for Transport	2016	2016	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 Co-ordinating programmes to develop Area wide Strategies to reduce emissions and	All Surrey Local Authorities	2017	Model delivered by August 2019	Completion of model and	None modelling exercise to show hot spots	In May 2017, all Surrey Local Authorities agreed to procure Surrey wide modelling study.	November 2019	Results of model will give identify potential hotspots for PM2.5, PM10 and will allow further local investigation and action.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
			improve air quality								
16	Participate in the University of Surrey ISCAPE project..	Public Information	Via other mechanisms	Environmental Health	2017	2018 Initial scoping meeting with University	Aims to raise citizen awareness about air quality and the impact	Note take up of project by residents.	Exercise has commenced and groups engaged. https://www.iscapeproject.eu/	2020	Next steps developing the interactive displays and participating in the public engagement activities and events.
17	Smoke Control Order Compliance	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	GBC	Originally implemented in the 1970s	2018	Compliance with Statute	Not likely to significantly change as areas are generally compliant	Guildford has smoke control areas setup in the 1960's; Increase awareness and obligations for residents www.guildford.gov.uk/article/18350/Smoke-control-area	2019	A webpage dedicated to Smoke Control Area (SMA); with interactive map to search properties within the SMA www.guildford.gov.uk/article/18350/Smoke-control-area
18	Anti vehicle idling, for example at level crossings, taxi ranks, the station, bus stops and outside schools.	Traffic Management	Other	GBC and SCC	2018	2019-20	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. Planning application due to be submitted 2019	2020	Noted that anti idling at schools has been brought up. Use of air quality monitors at schools has been considered.
19	Declaration and implementation of Air Quality Management Area	Traffic Management	UTC, Congestion management, traffic reduction	GBC/ SCC	2017-2018	2018/19	To not exceed the annual objective level for nitrogen dioxide	Reduction in nitrogen dioxide exposure at receptors.	A281,Shalford was subject to a detailed investigation. After consultation in April/ May 2019 order was approved by Guildford Joint Committee.	2019	AQAP is being prepared for approval in 2019. Consultation with local residents, parish councils and neighbouring authorities.

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
20	Guildford Crematorium new cremators	Environmental Permits	Measures to reduce pollution through IPPC permits going beyond BAT	GBC	2018	2019		Reduction in nitrogen dioxide exposure at receptors.	Change from temporary cremator to fully compliant plant with mercury and nitrogen dioxide abatement New permit and variation issued in July 2019	2019	New installation due to open in November
21	Guildford Town Centre Transport Package improvements for buses and active modes	Transport Planning and Infrastructure	Bus route improvements	SCC	2015	2016	Restrain or reduce traffic	Less congestion to reduce pollutants at receptors.	Implementation phases are staggered; current bus targeted schemes are the A25/A320 Stoke crossroads improvement including bus priority	2018-19	No updates
Medium and Long Term (2020-25)											
22	Service delivery review to reduce public journeys to Council properties where appropriate	Promoting Travel Alternatives	Personalised travel planning	GBC	2019	Policy adopted and implemented	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 a different way to deliver the service e.g. online booking, officers travelling to venue.
23	Adopt GBC Policy lease car and fleet vehicles procurement	Promoting Low Emission Transport and	Company Vehicle Procurement -Prioritising uptake of low	GBC	2018	GBC adopt Policy on procuring lease case and fleet vehicles	Council's record of vehicle use	Less pollutants from low emission vehicles.	Two electric pool cars (Nissan Leaf) have been purchased and charging points are due to be installed at GBC Millmead offices.	2020	Policy to include: - Review of lease car scheme to require reduced emissions/ electric vehicles

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		Vehicle Fleet Efficiency	emission vehicles						Four electric vehicles in fleet at Woking Road Depot EV charging point has been installed at the Woking Road Depot.		-Review essential car user scheme -criteria for purchasing fleet vehicles -regular fleet replacement to ensure using lowest emission vehicles on the market.
24	Review/Create GBC policy for travelling to meetings, seminars and training courses	Promoting Travel Alternatives	Workplace Travel Planning	GBC	2019	Revised policy implemented in 2019	Council's record of vehicle use	Less emissions from individual journeys.	2019 There are examples of good practice around the Council but no consistency or formal policy.	2020	Implement Travel Policy for training courses, seminars and meeting – to include increase e-learning, in house provision, use of public transport when travelling. Incentivise non-car use.
25	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy	GBC and SCC	Present – 2035+	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4. Increased walking and cycling modal share	Existing and future bids	More sustainable transport	Progress with respect to schemes: SRN8: A3 southbound off-slip lane widening to A320 Stoke Interchange improvement scheme –is currently being implemented.	2035	•SRN7: A3 northbound off-slip lane widening at University Interchange improvement scheme due in 2019/20
23	Adopt GBC Electric Vehicle Charging Strategy	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	GBC and SCC	2019	Assessment of infrastructure	Number and use of charging points	Electric charging points on Council property: -2 Woking Road Depot -2 car parks	SCC have consulted on an EV Charging Strategy that can be mirrored.	ongoing	Actions could include: -Increase in: GBC sites, GBC car parks, GBC assets, GBC major projects -require as part of the planning process Encourage businesses and residents to provide charging points

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
24	To encourage existing employers to introduce travel plans.	Promoting Travel Alternatives	Workplace Travel Planning	GBC	2019	Target for number of companies with travel plans	Number of new travel plans	None – new initiative	None	2020	There is an opportunity to consider site users, such as patients, customers, visitors.
25	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	GBC and SCC	2019	2017-2020	Reduce emissions at source	Less pollutants from low emission vehicles pollutants.	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
26	Taxi and Private Hire Licensing Policy	Promoting Low Emission Transport	Taxi Licensing conditions	GBC Licensing	2022	2023-2032	Low emission taxi fleet	Can be calculated from uptake	None – new initiative	2032	Scope change to taxi and private hire licensing policy to require taxi and private hire vehicles to be low emission/electric
27	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	GBC Parking Services	2020	2021	Uptake in reduced rate permits	Can be calculated from uptake	ongoing	2022	Opportunity to extend differential charging scheme to on-street residential parking.
28	To encourage freight and delivery companies to introduce travel plans	Freight and Delivery Management	Route Management Plans/ Strategic	GBC Environmental Health	2020	2021	Number of companies taking up scheme	Can be calculated from uptake	None – new initiative	2022	No update

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
			routing for HGVs/	and SCC							
29	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, Selective vehicle priority, bus priority, high vehicle occupancy lane	GBC Regulatory and SCC	2020	2020-2024	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.
30	Road Strategy schemes to tackle congestion on Strategic Road Network	Traffic Management	UTC, Congestion management, traffic reduction	GBC/ SCC	2016	Ongoing	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
31	Improve sustainable transport opportunities in line with the Guildford Borough Transport Strategy	Policy Guidance and Development Control	Other policy	Planning and Regeneration	Present – 2035+	1. Increased rail patronage / 2. Increased rail modal share / 3. Increased bus modal share / 4. Increased walking and	Existing and future bids	Not defined	Progress with respect to schemes: Delivered in 2016/17: • Improvement of River Wey towpath around Parsonage Watermeadows (linking A25 to A320)	2035	

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

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

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

PM_{2.5}:

Guildford Borough Council is taking the following measures to address PM_{2.5}:

- a. GBC along with all Surrey authorities, commissioned a county wide air pollution dispersion modelling exercise of PM_{2.5}, PM₁₀, and NO₂ in April 2018. The modelling consists of detailed mapping of the County of Surrey, it also includes source apportionment in at least 20 specific hotspots per authority and health data. The project is nearing completion with each authority currently looking at the draft reports/datasets.
- b. The findings will be used to gain a clearer indication of where to target future monitoring and mitigation,
- c. Currently there are no plans to monitor PM_{2.5}.

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

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In the absence of any complaints about operations or practices in these areas, it is assumed that there is general compliance, therefore enforcement will be dealt with on an ad hoc case basis.

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

4.1 Summary of Monitoring Undertaken

4.1.1 Automatic Monitoring Sites

There was no automated (continuous) monitoring undertaken in 2018 monitoring year.

4.1.2 Non-Automatic Monitoring Sites

Guildford Borough Council undertook non- automatic (passive) monitoring of NO₂ at 29 sites during 2018. Table A.1 in Appendix A shows the details of the sites.

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

4.2 Individual Pollutants

Guildford Borough Council undertook non-automatic (passive) monitoring of NO₂ at 29 sites during 2018, all locations were in place for the full year.

Table A.1 in Appendix A shows the details of the sites. The individual locations are discussed in 3.2.1 and are linked to the maps showing the location of the monitoring sites set out 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.

Please note that any nitrogen dioxide diffusion tubes used as part of the Ministerial Direction on the A331 are reported separately to JAQU.

4.2.1 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Appendix B.

- Appendix A, table A.1 shows the details of the sites.
- Table A.2 compares the bias adjusted monitoring data for NO₂ mean concentrations for the past 5 years
- Figure A.1 in Appendix A shows the trend in NO₂ annual mean concentrations of longstanding monitoring sites between 2011-2018.
- Appendix B contains the full 2017 dataset of monthly mean values.
- Appendix C contains further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in.
- Appendix D contains the maps showing the location of the monitoring sites.

Details of monitoring sites with references to Maps 1 to 14 (Appendix D)

For all the following locations please refer to Table A1 in Appendix A for the site location and distance to relevant exposure.

Please refer to the DEFRA calculator for calculation of NO₂ levels near receptor which has been used for distance correction. The calculator is available at the following link: <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

1. Map 1 All diffusion tube locations

The first map shows the network of 29 locations in 2018, please note at two locations there are triplicate tubes at locations GD10 and GD13 taking the monthly total of tubes collected as 33. The triplicates monthly NO₂ data reported is the highest value of the three results.

2. Map 2 Guildford Rural Background- The Chantries (GD6)

GD6 is the rural background site located at the Chantries. The monitoring data from 2011 – 2018 is not showing any significant trend (Figure A.1, page 51).

3. Map 3 Urban Background Josephs Road (GD3) and Map 4 Urban Background The Garth, Ash

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 location GD10, was monitored using triplicate diffusion tubes from July 2017.

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

4. Map 5 Guildford Town Centre (GD13, TC2, WTC1,PR1 and FRH2)

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 accomodation 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 31µg/m³. 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 NO₂ 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 30µg/m³ 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 40µg/m³ objective level, additional monitoring points have been set up in both areas. Detailed assessments are very likely to be required.

5. Map 6 Beckingham Road (GD11) near to A3 trunk road

This is a longstanding monitoring location at a residential façade near major road, A3 and has never exceeded the annual mean objective level. It is used as a reference site and will continue to operate as such.

6. Map 7 Stoke Road and York Road, Guildford (GD2, GD16, GD 17, TC1)

GD2 and GD16 are located at York Road/Stoke Road junction, they are 12 and 0 metres respectively to the nearest receptors. The NO₂ 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.

GD 17, York Road and TC1, Stoke Road were introduced in 2018. GD 17 was in a residential area just south of GD2 where there is heavy rush hour traffic, levels were not significant and monitoring ceased in 2019. TC1 is beside housing on a main feeder road, levels were sufficient to consider an additional location in this area.

7. Map 8 Woking Road (WKR1), Worplesdon Road (STN2)

The locations were both in residential suburban areas on major routes leading to the town centre. They were discontinued in 2019 as neither exceeded 30 $\mu\text{g}/\text{m}^3$ level.

8. Map 9 Newark Lane, (RP3 and RP4) B367, Ripley Village

The locations RP3 and RP4 were instated in order to monitor an alleged canyon effect on Newark Lane ; None of these two locations exceeded the national annual mean objective level. RP3 has now been discontinued.

9. Map 10 London Road (LR1) A3100, Burpham

The $34\mu\text{g}/\text{m}^3$ level at this location requires further examination, a second location has been added nearer to the junction with the A3 trunk road.

10. Map 11 Ash A331 slips – Northbound (GD9) and Southbound (ASH2),

The locations near to the A331 were below the national objective level and a significant distance from receptors. Both the sites have now been discontinued as the NO_2 annual mean levels when corrected to the nearest residential receptor, drops down to below $30\mu\text{g}/\text{m}^3$.

11. Map 12 Compton Village B3000: (C4, 9 ,10 and 11) Map 15 AQMA The Street, Compton

The area centred around 3 cottages in the upper part of the Street, Compton was declared an AQMA in February 2018. As was outlined in 2017, annual objective levels were being exceeded at C4, which is located on the façade of a residential property. The monitored annual mean concentration at this location in 2018 was $46\mu\text{g}/\text{m}^3$.

C9 which is in close vicinity showed slightly higher annual levels $44\mu\text{g}/\text{m}^3$ than last year ($42\mu\text{g}/\text{m}^3$ annual mean in 2017). Both the locations continue to exceed the annual objective level. The AQMA declaration at this location is therefore justified. Monitoring beyond C4 and C9 has not shown any exceedances, therefore, the AQMA boundary is not likely to change.

It should be noted that during the period 25 May to 14 July 2018; the traffic using this part of the road was reduced as the road bridge at Peasmarsh was closed. Through traffic was diverted, however there was still a route to local areas. The diffusion tube monitoring at C4 for July is $28\mu\text{g}/\text{m}^3$, however the monitoring at C9 did not drop ($49\mu\text{g}/\text{m}^3$). There is no significant difference in the monitoring results for the month of May and June. The period of road closure was too short to give any conclusive indication of impacts on the local air quality.

Map 15 shows the outline of the AQMA.

12. Map 13 A281, Horsham Road, Shalford (SH1 and SH2) Map 16 AQMA, The Street (A281), Shalford

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. Two additional monitoring locations have been added for 2019 monitoring.

13. Map 14 The Street Tongham (T1)

The site was established at T1 in 2017, the concern was that the local traffic was affecting houses near to the road and there was a canyon situation. The location did not show significant levels in relation to the annual mean objective level.

Short term monitoring

From time to time residents express concern that they may have a localised problem due and following a review of the request we sometimes undertake a short term period of monitor to identify if the area is likely to exceed annual limit values. We did not undertake any additional monitoring in 2018, but have committed to monitor beside the University of Surrey units on Stoke Road, Guildford the nearest receptor is a children's play area.

4.2.1 Future Nitrogen Dioxide (NO₂) monitoring

New sites commenced in January 2019 and reasons why:

1. A320, Stoke Mews, Stoke Road, Guildford – main approach road to Guildford town centre
2. A322, Woodbridge Road, Guildford- main approach road to Guildford town centre
3. A281, The Street, Shalford- three additional sites in and around proposed AQMA
4. A31, Farnham Road, Guildford- two additional sites main approach road to Guildford town centre
5. A281, Guildford-two additional sites main approach road to Guildford town centre
6. A3100, Portsmouth Road, Guildford - two additional sites main approach road to Guildford town centre
7. A322, Worplesdon Road, Stoughton -busy suburban road
8. A323, Aldershot Road, Nerr Britdens Close, Ash- busy suburban road

Validation

Triplicate tubes were installed at GD13 and GD10 from the month of July 2017. Where triplicate results were available, the highest of the three values was used to calculate the annual average, these were kept as such throughout 2018 and is planned to continue in 2019.

In future years, if practical, we will locate a diffusion tube near to the continuous monitoring station operated to test correlation of the annual mean measurement with that from a continuous automatic monitoring device. This was not carried out in 2018.

Appendix A: Monitoring Results

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
WTC1	Walnut Tree Close	Roadside	499204	149768	NO2	NO	1.26	1.9	NO	2.3
GD2	York Road	Roadside	499799	149934	NO2	NO	12	1.5	NO	2.6
GD3	Josephs Road	Urban Background	499659	150739	NO2	NO	0	14	NO	1.73
GD6	The Chantry	Rural	500385	148342	NO2	NO	0	120	NO	2
GD9	A331 Slip	Kerbside	488275	149859	NO2	NO	NA	1	NO	2.1
GD10	The Garth	Urban Background	488629	150032	NO2	NO	0	12	NO	2.15
GD11	Beckingham Road	Other	498133	150648	NO2	NO	0	8	NO	1.87
GD13	YMCA	Kerbside	499305	149512	NO2	NO	6	1	NO	2
GD16	Sandfields 2	Roadside	499761	149914	NO2	NO	0	2.5	NO	2.5
GD17	York Road	Kerbside	500086	149950	NO2	NO	4.7	1	NO	2.3
TC1	Stoke Road	Kerbside	499834	150113	NO2	NO	2	1	NO	2.37
TC2	Woodbridge Chambers, Woodbridge Road	Kerbside	499563	149709	NO2	NO	1.2	1	NO	2.35

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C4	Little Cottage	Roadside	495437	147288	NO2	YES	0	1.5	NO	2.57
C9	Moors Cottage	Kerbside	495442	147270	NO2	YES	4	1	NO	2.45
C10	Opposite Little Cottage	Kerbside	495444	147292	NO2	YES	12	1	NO	2.17
C11	Handpost Cottage	Kerbside	495436	147325	NO2	YES	4.5	1	NO	2.14
SH1	Oppo Sea Horse Pub	Kerbside	5000046	147604	NO2	NO	4	1	NO	2.35
SH2	The Street, Shalford	Roadside	499978	147704	NO2	YES	0	2.2	NO	2.3
RP3	Newark Lane	Kerbside	505102	156759	NO2	NO	6	1	NO	2.3
RP4	Newark Lane	Kerbside	505150	156741	NO2	NO	0	0.5	NO	2.31
ASH2	Courier House	Kerbside	488350	150078	NO2	NO	NA	1	NO	3
T1	The Street, Tongham	Kerbside	488636	148845	NO2	NO	2	1	NO	2.14
STN2	Shepherds Hill/A322	Kerbside	498250	151545	NO2	NO	5.5	1	NO	2.12
FRH2	Farnham Rd	Roadside	499089	149423	NO2	NO	0	5	NO	1.96
WKR1	Woking Road	Roadside	499815	151223	NO2	NO	0	6.5	NO	2
PR1	Portsmouth Road	Roadside	499317	149213	NO2	NO	0	1	NO	2.14
A25	Gomshall	Kerbside	509328	147625	NO2	NO	12.5	1	NO	2.3

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LR1	London Road, Burpham	Kerbside	501260	151533	NO2	NO	6.3	1	NO	2.31
LR2	Nr Wroth Place	Kerbside	501679	152169	NO2	NO	17	1	NO	2.27

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2014	2015	2016	2017	2018
GD2	Roadside	Diffusion Tube	92	92	25	33 ⁽³⁾	35	30	32
GD3	Urban Background	Diffusion Tube	100	100	16	20 ⁽³⁾	24	17	19
GD6	Rural	Diffusion Tube	100	100	14	13	14	10	13
GD9	Kerbside	Diffusion Tube	92	92	31	30	21 ⁽³⁾	17	24
GD10	Urban Background	Diffusion Tube	100	100	16	17	20	15	16
GD11	Other	Diffusion Tube	100	100	29	28	29	24	27
GD13	Kerbside	Diffusion Tube	100	100	31	38	35	31	36
C4	Roadside	Diffusion Tube	92	92	67 ⁽³⁾	53	50	40	46

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)

Notes:

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

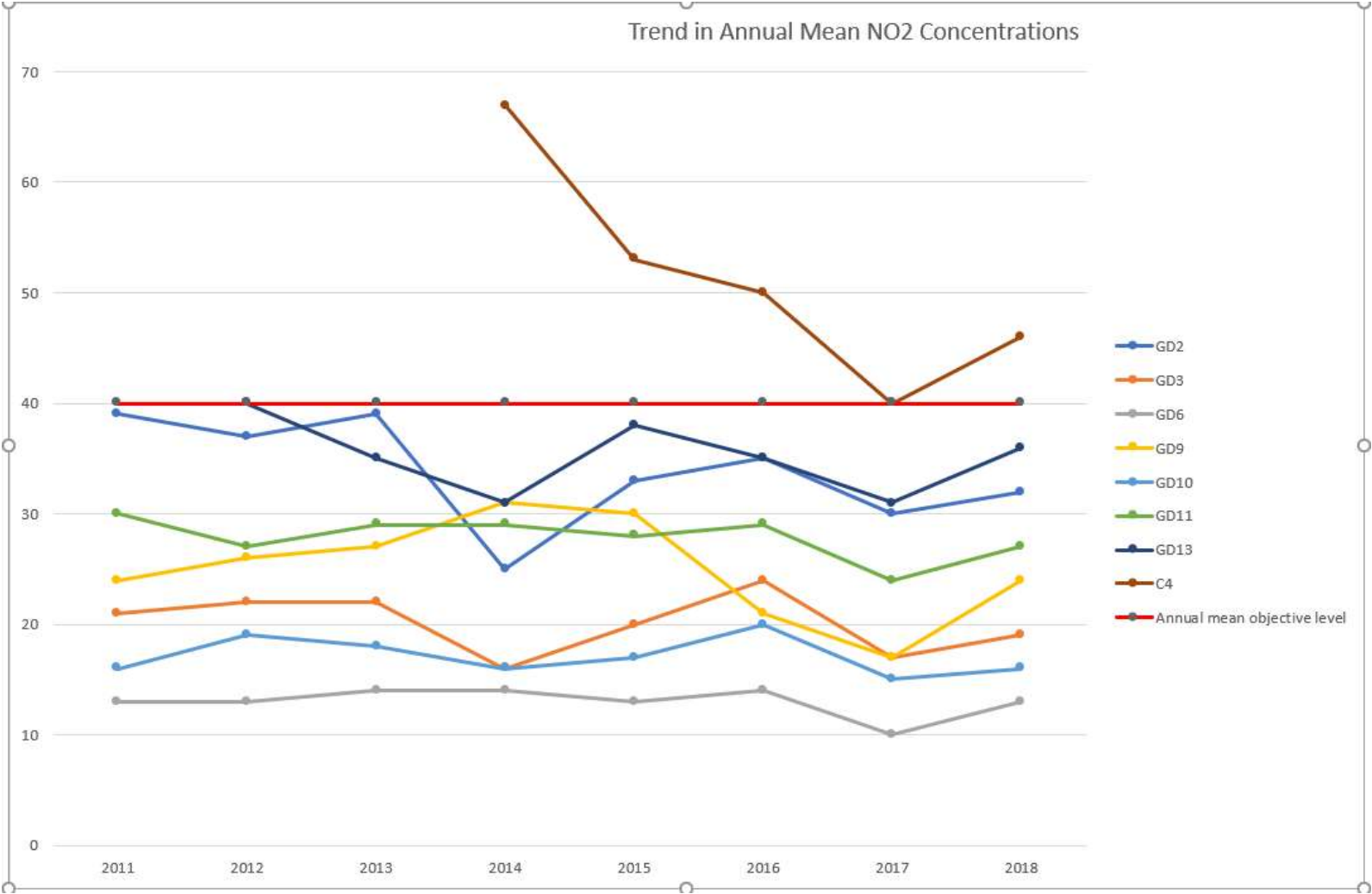
NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2018

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

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (1.03) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
WTC1	23.0	25.0	37.0	28.0	25.0	22.0	31.0	20.0	29.0	35.0	33.0	32.0	28	28.8	27.9
GD2	24.0	29.0	<u>no sample</u>	23.0	26.0	29.0	31.0	28.0	32.0	33.0	42.0	41.0	30.7	31.6	25.1
GD3	14.0	21.0	19.0	13.0	20.0	20.0	15.0	16.0	18.0	24.0	22.0	21.0	18.6	19.2	19.2
GD6	13.0	14.0	11.0	9.0	12.0	10.0	24.0	11.0	9.0	14.0	13.0	13.0	12.8	13.2	13.2
GD9	24.0	27.0	26.0	24.0	23.0	19.0	23.0	17.0	16.0	<u>no sample</u>	33.0	25.0	23.4	24.1	24.0
GD10	20.0	18.0	17.0	12.0	13.0	14.0	13.0	12.0	13.0	20.0	18.0	19.0	15.5	16.0	16.0
GD11	30.0	21.0	30.0	24.0	20.0	23.0	38.0	21.0	24.0	23.0	32.0	28.0	26.0	26.8	26.8
GD13	38.0	33.0	36.0	28.0	38.0	32.0	36.0	27.0	34.0	41.0	37.0	38.0	35.0	36.1	31.3
GD16	18.0	27.0	40.0	30.0	36.0	33.0	31.0	37.0	33.0	47.0	42.0	45.0	35.0	36.1	36.1
GD17	16.0	26.0	29.0	23.0	24.0	28.0	37.0	23.0	31.0	36.0	36.0	35.0	29.0	29.9	26.0
TC1	37.0	30.0	41.0	29.0	32.0	27.0	42.0	23.0	28.0	37.0	40.0	37.0	34.0	35.0	31.6

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Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (1.03) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
TC2	36.0	27.0	42.0	25.0	37.0	33.0	23.0	31.0	32.0	39.0	<u>no sample</u>	35.0	32.7	33.7	30.6
C4	33.0	42.0	51.0	38.0	41.0	45.0	28.0	46.0	51.0	52.0	44.0	49.0	44.7	46.0	46.0
C9	41.0	38.0	47.0	32.0	38.0	37.0	49.0	40.0	47.0	52.0	46.0	48.0	43.0	44.3	36.1
C10	28.0	23.0	24.0	27.0	33.0	27.0	40.0	31.0	31.0	42.0	21.0	31.0	29.8	30.7	24.7
C11	31.0	28.0	35.0	26.0	34.0	25.0	38.0	25.0	32.0	40.0	30.0	15.0	31.3	32.2	28.0
SH1	50.0	40.0	48.0	45.0	39.0	48.0	47.0	33.0	34.0	45.0	37.0	44.0	42.5	43.8	35.8
SH2	40.0	44.0	52.0	40.0	55.0	35.0	57.0	42.0	<u>61.0</u>	57.0	53.0	49.0	48.6	50.1	50.1
RP3	21.0	23.0	28.0	19.0	26.0	24.0	26.0	19.0	22.0	28.0	32.0	25.0	24.4	25.1	23.0
RP4	34.0	28.0	39.0	27.0	32.0	28.0	42.0	24.0	27.0	39.0	19.0	37.0	31.3	32.2	32.2
ASH2	28.0	24.0	33.0	24.0	22.0	21.0	29.0	23.0	27.0	35.0	32.0	33.0	27.6	28.4	28.4
T1	25.0	23.0	24.0	18.0	26.0	22.0	26.0	20.0	20.0	19.0	27.0	28.0	23.2	23.9	23.0
STN2		<u>no sample</u>	26.0	26.0	35.0	30.0	32.0	17.0	24.0	36.0	27.0	31.0	28.4	29.3	25.4
FRH2	46.0	35.0	43.0	27.0	42.0	28.0	43.0	36.0	36.0	36.0	37.0	38.0	37.3	38.4	38.4
WKR1	29.0	29.0	24.0	26.0	28.0	23.0	30.0	19.0	19.0	32.0	28.0	29.0	26.3	27.1	27.1
PR1	50.0	40.0	43.0	35.0	41.0	33.0	51.0	42.0	39.0	<u>no sample</u>	27.0	40.0	40.0	41.2	41.2
A25	20.0	12.0	16.0	14.0	19.0	19.0	14.0	10.0	12.0	16.0	38.0	20.0	16.0	16.5	16.5

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (1.03) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LR1	32.0	36.0	31.0	30.0	42.0	28.0	38.0	28.0	32.0	30.0	35.0	33.0	33.0	34.0	28.0

- Local bias adjustment factor used
- National bias adjustment factor used
- Annualisation has been conducted where data capture is <75%
- Where applicable, data has been distance corrected for relevant exposure

Notes:
 Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.
 NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.
 (1) See Appendix C for details on bias adjustment and annualisation.
 (2) Distance corrected to nearest relevant public exposure.

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

C.2 Diffusion Tubes

Lambeth Scientific Services supplied all the diffusion tubes for 2018 period, these were prepared using a 50% triethanolamine (TEA) method

C.2 Table of bias adjustment factors:

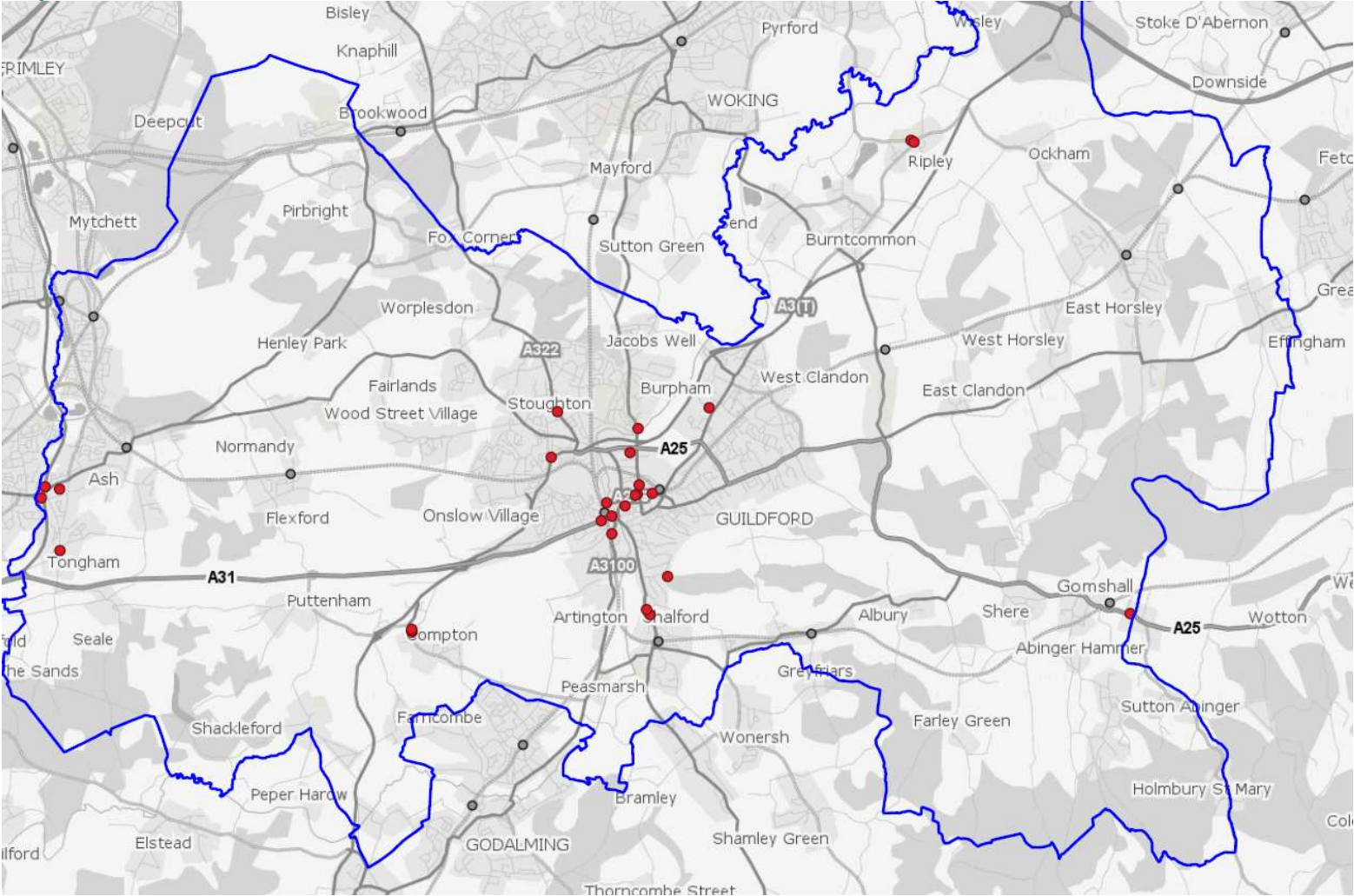
Year	National bias adjustment factor, Lambeth (50% TEA in acetone)	Reigate-Banstead BC bias adjustment factor based on triplicate tubes at three real time sites
2015	1.07	
2016	0.94	1.02 (used for bias correction)
2017	0.90	
2018	1.03	

C.3 Annualisation of data:

All the diffusion tube monitoring locations reported in ASR 2019 have data capture above 75%. Annualisation of annual mean was therefore not needed for any of the location that has been reported.

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

Map 1 All diffusion tube locations



Map 2 Guildford Rural - The Chantries



Map 3 Urban Background Location - Josephs Road



Map 4 Urban Background Location - The Garth



Map 5 Guildford Town Centre Gyratory Locations



Map 6 Near A3 - Beckingham Road



Map 7 Stoke Road and York Road



Map 8 Woking Road, Worplesdon Road



Map 9 Ripley



Map 10 London Road, Burpham Road



Map 11 Ash



Map 12 Compton



Map 13 Shalford



Map 14 Tongham



Map 15 Compton AQMA in respect to the diffusion tube location



Map 16 Guildford Borough Council AQMA No. 2, 2019 - The Street, Shalford



iShare printing
Scale at A4: 1:709
Printed on: 2/6/2019 at 1:14 AM



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

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

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

Glossary of Terms

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

References

- Guildford Borough Council Air Quality Strategy 2017-2022
- Air Quality Management Area The Street Compton
- Draft AQAP The Street Compton
- Local Air Quality Management (TG16) Defra April 2016
- Guildford Air Quality Reviews and Assessments 2006-2016
- LAQM Tools
- Guildford Transport Strategy 2017:
www.guildford.gov.uk/newlocalplan/media/26649/Guildford-Borough-Transport-Strategy-2017-Guildford-Borough-Council-December-2017/pdf/GBC-LPSS-SD-038_Guildford_Borough_Transport
- Surrey County Council (2011) Surrey Transport Plan: Air Quality Strategy
- Guildford Borough Cycling Plan: <https://www.travelsmartsurrey.info/cycling/guildford-consult>
- Nitrogen dioxide fall off with distance (Calculator to estimate annual average nitrogen dioxide at one distance from the road using measurements made at a different distance from the same road) <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>
- DEFRA's draft air quality action plan: https://consult.defra.gov.uk/airquality/air-quality-plan-for-tackling-nitrogen-dioxide/supporting_documents/Draft%20Revised%20AQ%20Plan.pdf