

Crawley Borough Council

2024 Air Quality Annual Status Report

(ASR)

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

Date: June 2024

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Executive Summary: Air Quality in Our Area

As part of the Local Air Quality Management process (LAQM) required by the Environment Act 1995, the Council carries out an annual review and assessment of air quality in the borough to identify local air quality hot spots and pollution sources.

This report provides the results of air quality monitoring undertaken in 2023 across Crawley and is prepared in accordance with the guidance issue by the Department for Environment, Food and Rural Affairs (Defra).

Air Quality in Crawley

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year¹.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution².

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO ₂)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO ₂)	Sulphur dioxide (SO ₂) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.

¹ UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

<p>Particulate Matter (PM₁₀ and PM_{2.5})</p>	<p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>
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Air Quality in Crawley is mainly good, with the exception of a small number of locations alongside busy roads where an air quality management area ([AQMA](#)) has been declared. The Council is working with its partners to tackle pollution and target measures to improve air quality in these areas. These action plan measures are summarised in Table 2.2 of the report.

Road traffic is the main source of (nitrogen dioxide) pollution in Crawley, and our network of monitoring sites measures concentrations along busy roads as well as at background locations and areas of specific interest (such as residential locations close to the airport), to give a broad picture of pollution levels across the borough.

The measured results for NO₂ are set out in tables A.4 and B.1 of this report and show that national air quality objectives were met at all of Crawley’s monitoring sites in 2023. There were no exceedances of the annual mean or hourly air quality objective for nitrogen dioxide in 2023 and NO₂ concentrations remained below pre-COVID levels for a further year.

The long-term (5yr) trend shows a downward slope in annual mean NO₂ concentrations at all sites across the monitoring network for background and roadside sites as well as within the AQMA and at residential locations within 1000m of the airport. The trend reflects the pattern seen regionally and nationally as policy controls and cleaner engine technology help drive a reduction in emissions.

There were no exceedances of the annual mean and 24-hour objectives for PM₁₀ in 2023 and annual mean PM_{2.5} was well below the target value of 20ug/m³. The long-term (5 yr) trend for both PM₁₀ and PM_{2.5} shows a downward slope.

There are indications that traffic levels are gradually rising. Figures released by the Department for Transport (DfT) showed that traffic levels in England were higher in 2023 than 2022 but remain below pre-pandemic 2019 levels. Despite traffic continuing to rise in Crawley and across the region, the measured pollution levels in the borough improved in 2023 compared to 2022.

Although the trend is encouraging, it is unlikely that this year's very low measured NO₂ concentrations are due solely to lower traffic volumes. A combination of year-on-year variation together with cleaner engine technologies and targeted local measures to encourage modal shift are also likely to have contributed to bringing about the improvements.

It is important to understand traffic growth patterns in our area because the primary source of pollution in Crawley is from vehicle emissions, and having a clear picture of traffic trends, fleet mix and which vehicles are most polluting will help the Council target air quality improvement measures more effectively. This is particularly important within the AQMA where NO₂ levels are still relatively high.

Many of the solutions for tackling transport related air quality fall outside the powers of the council to implement. The council therefore works closely with its Highways Authority at West Sussex County Council (WSSCC) on many of its action plan measures, such as those in the Crawley Growth Programme and Local Cycling and Walking Infrastructure Plan (LCWIP) which are aimed at encouraging active travel and improving air quality. The Council also works with its partners in neighbouring districts, the Sussex-air partnership, Environment Agency and other departments within the council including Planning, Economic Development and the Sustainability Team, who are involved in developing many of the action plan measures.

Although levels of pollution in the AQMA are reducing and there are no exceedances in this current year, the council is not considering revoking the AQMA until a sustained trend of reduced NO₂ concentrations is recorded in future years.

The continuing improvement in air quality in our area is a welcome indication that national policy and local action are bringing about measurable change. However, given the scale of development coming forward over the next 10-15 years if the Gatwick expansion project is approved, and residential and commercial development continues to increase, the need for local air quality management review an assessment will continue.

Actions to Improve Air Quality

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

The Environmental Improvement Plan³ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Crawley Borough Council works collaboratively with other departments in the council and with our partners across the County to improve air quality and health. Through the local planning process there is ongoing implementation of the Sussex Air Quality and Emissions Mitigation Guidance to secure air quality mitigation from developers based on the damage costs from additional traffic emissions associated with new development. The council also works closely with WSCC Highways to improve active travel options and sustainable infrastructure projects within the borough.

The Council has also taken forward a number of specific measures to target sources of pollution within the borough over the past reporting year. Further details are provided in Table 2.2.

³ Defra. Environmental Improvement Plan 2023, January 2023

⁴ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁵ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Some of the key measures include:

Crawley Growth Programme:

Through the CGP the Council has enhanced pedestrian, cycle and bus infrastructure, to improve connectivity around the town and help promote active and sustainable travel which benefits health and wellbeing, as well as air quality.



Air Quality Awareness Raising and Community Engagement: Air quality promotion via the council’s [website](#) and social media pages, including [airAlert](#), and [Taxi EV engagement study](#)

Sussex airAlert Service: As a member of the Sussex Air Quality Partnership (Sussex-air), we contribute data from the council’s air quality monitoring network into the wider Sussex network which supports the [Sussex Air Alert service](#). This service is free to the public, providing air pollution information to people with respiratory and heart conditions who may be adversely affected by poor air quality.



School Travel plans: Crawley has appointed a school's active transport project officer to raise awareness and promote behavioural change and modal shift within its schools.

Defra funded AQ Schools project:

The Schools project is a Defra funded educational initiative set up by the Sussex-air group using Sustrans to deliver the programme to schools across the Sussex area. Sustrans works with schools in, or near AQMAs to raise awareness about air quality and ways to reduce air pollution through active travel. The project focused on NO₂ and PM air pollution.

55,000 school children across Sussex have been educated through the project. The project was extended into local communities for 2023/24 due to its success in schools. Unfortunately, Defra funding was not awarded for this project in the 2024 round of grant funding. The Sussex-air group is trying to raise funds to continue this valuable work in schools.



A child's poster, encouraging families to travel actively school on the School Street trial day at The Mill

The Air Quality team working with Sustrans colleagues and partners at Crawley Borough Council and The Mill School.



West Sussex Electric Vehicle Strategy - EV Charge Point Project: ongoing programme



to deliver electric vehicle charging network across the borough to encourage transition to EV vehicles and reduce vehicle emissions.

Programme of LEV Replacement to Council's Fleet:

There is ongoing prioritisation of EV and low emission vehicles through the Council's vehicle replacement programme. In 2024 the Council replaced existing diesel



waste trucks with 15 new [waste and recycling fleet](#) with engines that can burn hydrotreated vegetable oil (HVO), which typically produces 90% lower carbon emissions. The council expects to fuel the fleet with HVO later this year as part of its commitment to reducing air pollution and reaching net zero carbon emissions.

Hydrogen Fuel Cell Buses - The council worked with a commercial industrial gas company to approve the site for a liquid hydrogen refuelling station on Manor Royal Business District in Crawley. The station will serve a fleet of 54 buses and will be one of the biggest [hydrogen bus](#) fleets in the UK. The hydrogen fuel cell buses carry passengers on Fastway routes 10 and 20 operating between Gatwick Airport, Manor



Royal and Crawley. The zero emission buses are able to cover long ranges and carry heavy loads, making them ideal for local Fastway routes around Gatwick and Crawley that are intensively used and operating 24 hours a day, 365 days a year.



Electric Vehicle Car Club: EV car club based at new Town Hall to encourage modal shift and reduce vehicle emissions.



Net Zero Collective Group – Joint working research project between Crawley Homes (council owned social housing) and Southampton University to find most cost-effective retrofit of energy saving/carbon reduction measures in council owned homes to achieve pas2035.



Full Decarbonisation Retrofit Programme to 59 Crawley Homes W1: Successful bid for £690K of funding from SHDF (Social housing de-carbonisation fund) Wave 1.

Cavity Wall Insulation Crawley

Homes: Successful bid for £4m of funding from Crawley Towns Fund to provide installation of cavity wall insulation to Pas 2035 standards for 248 blocks of flats (1511 homes) over 4 years.



Full Decarbonisation Retrofit Programme to 408 Crawley

Homes: Successful bid for £6.8m of funding from SHDF (Social housing de-carbonisation fund) Wave 2

Conclusions and Priorities

Key findings and conclusions from this year's Annual Status Report:

- There were no exceedances of the 40µg/m³ annual mean and hourly air quality objective for nitrogen dioxide in 2023 and NO₂ concentrations remained below pre-COVID levels for a further year.
- There were no exceedances of the 40µg/m³ annual mean and 24-hour objectives for PM₁₀ in 2023 and annual mean PM_{2.5} was well below the target value of 20ug/m³.
- Currently Crawley Borough Council only monitors for particulate matter (PM) at one site at Gatwick airport. A new AURN site is being installed at a background site in Crawley and we hope to be able to report on the monitoring results for this site in 2024.
- The long-term trends for nitrogen dioxide and particulate pollution in Crawley continue to be downwards in line with a similar pattern seen regionally and nationally. It is likely that a combination of year-on-year variation together with national policy controls, cleaner engine technologies, lower traffic volumes and targeted local measures to encourage mode shift have all contributed to bring about the improvements.
- Although still below pre-pandemic 2019 levels, traffic volumes have been gradually rising year on year since easing of travel restrictions in 2020. DfT data shows traffic levels in England were 2.3% lower in 2023 than 2019. For West Sussex the statistics show traffic 4.8% lower in 2023 compared to 2019.
- Given the primary source of pollution in Crawley is from vehicle emissions, understanding future traffic trends in our area is important. The Council will be undertaking a staff travel survey in 2024 to understand how changes in hybrid work patterns may shape our own workplace travel plans.
- There are still many uncertainties which may affect air quality management in future years, including traffic, future development and, in light of the clear scientific and medical evidence of the human health effects of air pollutants, possible changes to national air quality standards (following the WHO and Europe's tightening of standards).
- Whilst remaining cautiously optimistic, pollution levels are still relatively high in the AQMA and the Council will therefore continue to implement air quality improvement measures through its AQAP, targeting the AQMA and across the borough.

Crawley Borough Council's priorities for the coming year are:

- **Air Quality Action Plan:** complete updated AQAP whilst continuing to deliver measures to improve air quality already identified (see Table 2.2).
- **Gatwick Northern Runway DCO:** prepare responses to the planning consultation for the Gatwick Northern Runway DCO application targeting air quality mitigation measures to offset environmental impacts.
- **Development related emissions:** ongoing work with Development Control to identify damage costs and mitigation for air quality impacts from new development in accordance with national planning policy and Sussex Emissions and Mitigation Guidance
- **Review and update the monitoring network:** to respond to local developments and identify pollution hotspots across the borough.
- **Awareness raising campaign for health impacts and controls of Smoke emissions:** we will develop an awareness campaign to improve public awareness of the links between domestic solid fuel burning, particulate emission and health. This will be an annual campaign taking place in the late autumn to highlight the respiratory impacts and act as a reminder that civil penalties for smoke emissions within Crawley's Smoke Control Areas are now in place.

The principal challenges and barriers to implementation that the council anticipates facing are:

- Increasing developmental pressure impacting action plan measures
- Securing resources and/or funding streams to implement air quality measures.
- Identifying schemes that can generate a measurable improvement in air quality and which are feasible, deliverable and funded.
- Funding options to continue school's project.

Local Engagement and How to get Involved.

Crawley is one of the smallest districts in Sussex covering an area of 45 km² but attracts some of the highest levels of incoming commuter traffic. As well as commuter traffic, many local car journeys are less than 2km, and about 58% of all car trips are under 5km. High volumes of traffic on our local roads contribute to congestion and poor air quality. However, since many journeys are short, there is opportunity to improve local air quality by switching

to sustainable and active transport options such as walking, cycling, public transport or car sharing. Many of our action plan measures include schemes that are aimed at infrastructure improvements to reduce congestion, improve sustainable transport and encourage modal shift.

In addition to the Council's initiatives to tackle air quality, there are many ways to get involved and take action on a personal level to improve air quality in Crawley:

Walk or cycle: Replacing car journeys by walking or cycling to reduce congestion and emissions. These activities also have proven physical and mental health benefits.

Public transport or car-share: consider car share or public transport.

Ultra-Low Emission Vehicle (ULEV): The sale of new petrol and diesel cars is due to end in the UK by 2035, consider EV or hybrid vehicle when next replacing your car.

Driving Style: There are ways to drive which help reduce emissions and can save money on fuel and wear and tear:

- Drive smoothly and try not to accelerate or brake hard.
- Regular maintenance and engine service will help reduce emissions.
- Correct tyre pressure reduces friction/drag and minimises fuel use and emissions.
- Limit use of the air conditioning to reduce fuel consumption and emissions.
- Turn off engine when car stationary to release less exhaust emissions.

Go for local produce: long distance transport creates more air pollution.

Local authority engagement with decision makers and the public: Local engagement helps the council to understand the needs of the community, provide information and raise awareness to support behavioural change.

The council hosts an annual Junior Citizen event for all Crawley's primary school yr-6 pupils. This event has been used to raise awareness through interactive games on air quality issues and we are also continuing our Defra funded air quality Schools Project.

Public awareness campaigns such as Clean-Air Day and Breath Easy Week are promoted via West Sussex and Crawley Borough's websites and social media pages and on digital advertising boards throughout Manor Royal business district. The Sussex-air website also provides detailed information to the public on local air quality, news updates, educational resources, and links to other services such as [airAlert](#)

In developing our air quality action plan measures, the council will be consulting with the public and working closely with interested parties such as elected members, transport planners and development control and policy planners.

More information on local air quality in Crawley can be found on its website (www.crawley.gov.uk) and local magazine:

[*Air Quality Monitoring in Crawley*](#)

[*Sustainable Transport in Crawley*](#)

[*The Crawley Growth Programme*](#)

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Crawley Borough Council with the support and agreement of the following officers and departments:

Environmental Health - Community Services

Economic Regeneration Manager - Planning and Economic Development

Planning Policy Manager - Planning and Economic Development

Sustainability Manager - Planning and Economic Development

Fleet manager – Amenity Services

Decarbonisation Manager -- Crawley Homes

Sussex-air Quality partnership

West Sussex County Council's (WSCC) Highways, Transport and Planning

This ASR will be approved by Cllr Noyce (Portfolio holder for Environment and Sustainability) and signed off by the Dan Carberry (Public Protection and Enforcement Manager) and the Director for West Sussex Public Health.

If you have any comments on this ASR please send them, Environmental Services at:

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1 Local Air Quality Management

This report provides an overview of air quality in Crawley during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan ([AQAP](#)) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

A summary of AQMAs declared by Crawley Borough Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Crawley. [Appendix D: Map\(s\) of Monitoring Locations and AQMAs](#) provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are for NO₂ annual mean.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Crawley AQMA	09.07.2015 (Amended 11.03.21)	NO ₂ Annual Mean	Land and residential properties as described in Schedule 2 to the Order.	NO	41µg/m ³	35µg/m ³	2 years (post Covid) borderline (39µg/m ³)	Crawley Air Quality Action Plan	AQAP

- Crawley Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date.
- Crawley Borough Council confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and Impact of Measures to address Air Quality in Crawley

Defra's appraisal of last year's ASR concluded:

The report is well structured, detailed and provides the information specified in the Guidance.

1. The council have clearly stated their intentions to publish a new AQAP by the end of 2023. This is encouraged and comments on the progress of this will be expected in next years ASR.

Response: *An extension for the submission of the new AQAP was agreed with Defra as a result of exceptional circumstances. The updated AQAP is due to be submitted July 2024.*

2. The Council have set out ways to engage the public providing them with measures and alternatives to help contribute to good air quality. This is a good source of information.
3. The list of AQAP measures the council have provided are detailed and provide clear indication of the progress that has been made against them. Such detail is commended and the resultant decrease in pollutant concentrations shows that the measures have been effective.
4. The trends presented are informative and provide clear detail of pollutant concentration levels, in comparison to pollutant objectives, within hotspot areas in the borough.
5. It is encouraging to see that the council have laid out a list of future developments to highlight potential new air pollution sources. This provides clear evidence of the council's dedication to the improvement of air quality within the borough. CBC should continue to report on potential new sources in the Borough Council and provide an update on whether there will be changes to the monitoring network as a result.

Response: *In response to residents' concerns that traffic levels/pollution may increase as a result of major infrastructure works/highways alterations at Three Bridges station, additional sites have been added to residential streets around the*

station to measure NO₂ levels prior to works commencing. This monitoring will continue during the construction and operational phase of this project to assess the impact.

6. CBC have included the Public Health Outcomes Framework D01 indicator within their report, as well as a comparison to England and other urban cities within the South-East Region. This is an example of good practice and helps provide context for measures that tackle PM_{2.5} which the council have laid out in good detail. However, Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process.

Response: *The 2023 ASR was submitted to the Director of Public Health for approval. The Council will ensure that the 2024 ASR is also submitted for approval and sign off by the West Sussex Director of Public Health.*

7. The AQMA amendment date in the Defra Portal does not match the report, the Defra portal quotes the amendment taking place in 2022 whereas the report states the amendment was in 2021. Table 2.1 of the report should also include date of declaration on top of the date of most recent amendment.

Response: *Noted and amendments made.*

8. Table 2.2 of the report has been provided as a separate PDF but not included within the excel template. The detail within this PDF should also be included in the excel template for future reports.

Response: *There were difficulties with uploading Table 2.2 to the submission portal in 2023. This was reported to the laqm helpdesk. It is anticipated that this will be successfully uploaded for 2024.*

Progress Summary of Measures to Improve Air Quality in Crawley

Crawley Borough Council has taken forward a number of direct measures during the current reporting year of 2023-24 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

There are 40 measures in Table 2.2, which presents the type of measures implemented and the progress the Council has made during the reporting year (2023 -24). Where there

have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in Crawley Borough Council's [air quality](#) pages of the Council's website.

Key completed measures are:

Crawley Growth Programme

- Manor Royal Highway Improvement Scheme: Phase 2 works completed Nov 2023 - public realm improvements from Manor Royal to Gatwick Road roundabout, construction of a new bus/cycle lane along Manor Royal and improved crossings at County Oak Way & Metcalf Way

Key outcomes from measure: Encourage modal shift and reduce vehicle emissions.

Climate Emergency Action Plan

- Council Climate Action Scorecard: independent evaluation of the council's Climate Emergency Action Plan completed 2023 and results issued (score 25% improvement from original unscored evaluation)

Key outcomes from measure: Determine effectiveness of the Councils CEAP based on criteria such as governance, funding, community engagement, target setting, commitment.

Defra Funded AQ Taxi Project

- Taxi and PHV (private hire vehicle) survey completed July 2023 (managed by Energy Saving Trust). Final reports published October 2023 and results published on Sussex-air Web page: [Taxi project page](#)

Key outcomes from measure: Engagement with Taxi trade to facilitate transition to EV vehicles and work towards decarbonising transport and cleaner air.

Crawley New Local Plan and Crawley LCWIP

- Examination and modifications completed March 2024 – Local plan due to be adopted by full council August/Sept 2024. Requirements in New LP for developers to mitigate development impacts thorough emissions mitigation S.106/CIL contributions to LCWIP targets/ projects.

Key outcomes from measure: Encourage modal shift and reduce vehicle emissions-

West Sussex Electric Vehicle Strategy - EV Charge Point Project

- Phase 2 feasibility study completed and 6 out of potential 11 sites have started works to install public accessible charge points.

Key outcomes from measure: encourage transition to EV and reduce vehicle emissions.

The Strategy sets a target for 70% of new cars in the County to be electric by 2030.

School Travel plans

- CBC funding half a full-time post for a school's active transport project officer from Sustrans working with schools in Crawley to engage staff, pupils and parents on active travel. Funding for 2024/25 has been identified.

Key outcomes from measure: Awareness raising, behavioural change, modal shift and reduce vehicle emissions.

Council Programme of Vehicle Replacement to LEVs Fleet

Vehicle purchase completed on:

- Sept 2023 Electric van (V2096) to replace existing diesel van in Facilities.
- Oct 2023 Electric van (V2097) delivered for Crawley Homes.
- Dec 2023 Euro 6 Diesel ride on mower delivered for Neighbourhood Services
- Jan 2024 15 new waste trucks with engines that can burn hydrotreated vegetable oil (HVO)

Key outcomes from measure: Modal shift to LEVs and reduce vehicle emissions.

CBC/Net Zero Collective /Southampton Uni Retrofit Pilot and Research Project

- 2022-24 completed further pilot on 11 Crawley Homes properties to assess the most efficient method for the retrofit and monitor the level of energy savings/carbon reduction.

Key outcomes from measure: Reduce emissions and carbon reduction.

Floor insulation in Crawley Homes with suspended timber floors

- Q-Bot installed floor insulation completed in 4 homes as a pilot to understand if CBC has properties suitable for this type of floor insulation.

Key outcomes from measure: Increased energy efficiency, reduced carbon/emissions

Crawley Borough Council expects the following measures to be completed over the course of the next reporting year:

Crawley Growth Programme

- Town Centre Cycling & Walking Scheme: Western Boulevard scheme to connect Eastern Gateway to Station Gateway with cycle route along the High Street, improved bus routes and walking & cycling infrastructure. Construction started 2023 and Phase 1 nearing completion Q4 2024.

Expected impact of measure: Encourage modal shift and reduce vehicle emissions.

Climate Emergency Action Plan

- Work is in progress to develop an updated action plan expected to be completed Q4 2024 and go to cabinet for approval in December 2024.

Expected impact of measure: Encourage commitments to sustainability, carbon reduction reduced emissions, and improved air quality.

Local Plan

- Draft local plan examination/modifications completed. Adoption expected Q4 2024.

Expected impact of measure: Provide detailed environmental policy and guidance to help improve air quality through the development control process.

Air Quality Action Plan

- Completion of the updated Air Quality Action Plan expected Q3 2024.

Expected impact of measure: Identification and implementation of measures to reduce pollutant emissions and improve air quality within the AQMA.

CBC Staff Travel Survey

- New staff travel survey to be completed in 2024 to understand new travel habits around hybrid working.

Expected impact of measure: Understand staff travel to identify measures that can encourage transition modal shift/ sustainable travel and reduce vehicle emissions.

EV Charge-Point Network for Crawley

- Phase 2 to install electric vehicle charging points at 11 CBC owned Car parks in progress and expected to be completed 2024/25.

Expected impact of measure: Encourage transition to EV vehicles and reduce vehicle emissions.

Crawley Homes Programme of Energy Saving and Carbon Reduction Measures

- SHDF Wave 1 - full decarbonisation retrofit of 59 Crawley homes in Broadfield.

Expected impact of measure: Reduce emissions, carbon reduction and improve air quality.

Gatwick Northern Runway Development Consent Order (DCO)

- Gatwick Northern Runway Infrastructure Project - Application for DCO submitted Aug 2023. Examination and decision process expected to be completed Aug 2024.

Expected impact of measure: Emissions mitigation

Crawley Borough Council's priorities for the coming year are:

- Completing the update of Crawley's Air Quality Action Plan
- Seek further grants/funding streams to support air quality action plan measures.
- Continue work through the Planning development control system to secure air quality mitigation from new development.
- Preparing responses to the Gatwick DCO examination, statements of common ground and proposals for mitigation measures to offset the air quality impacts of the proposals.
- Continue community engagement through events to raise awareness of air quality issues, including Clean Air Day, Breath Easy and Junior Citizen as well as Defra funded schools and taxi community engagement projects.
- Review and update the monitoring network to respond to local developments and identify pollution hotspots across the borough.

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

- CBC Planning
- CBC Sustainability Officers
- CBC Housing and Amenity Service
- Sussex-air Partnership
- Neighbouring Local Authorities
- WSCC Highways Authority
- Environment Agency

The principal challenges and barriers to implementation that the council anticipates facing are:

- Identifying schemes that can generate measurable improvement in air quality and which are feasible, deliverable and funded.
- Increasing developmental pressure offsetting improvements in emissions. The cumulative impact of developments may extend the time taken to meet compliance with AQ objectives.
- Many of the solutions for tackling transport related air quality fall outside the powers of the council. Work with stakeholders and decision-making bodies outside of the council is therefore important to help to deliver action plan measures.

Progress on the following measures has been slower than expected due to:

- Progress to update the AQAP has been slowed by the impact of the Gatwick Northern Runway DCO, which has continued to divert staff resources away from LAQM work and is ongoing until the end of Q3 2024. Work on the action plan was further delayed due to staff sickness.
- Progress on Crawley's draft Local Plan 2024-2040 has been delayed due to issues with water neutrality. The examination was also delayed due to scheduling overlaps with the Gatwick NRP DCO for both the Council and PINS. The final adoption of the Plan has been further delayed due to both local election (May 2024) and national elections (July 2024) interrupting the democratic process. The Plan is expected to go to full Council in the autumn when it is hoped it will be adopted.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Crawley Borough Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of Crawley AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Crawley Growth Programme Station Gateway - public realm/highway improvement scheme including car free residential/commercial development	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2019 Design/ Approval Stage	Phased delivery programme for scheme extended to 2026. Construction commencing date tbc.	CBC/ WSCC/ Metrobus / Private Developer (Arora Group)	LEP/ Towns Fund (DLUHC) WSCC/ CBC/ Arora Group	No	Fully funded (Public /Private funded scheme)	£7.4m (Previous estimate £5.4m)	Planning Approval (reserved matters) April 2021	Reduced vehicle and housing energy emissions Medium/ High	Low Emission/car free housing Modal Shift/ Improved traffic flow/emissions	Planning permission April 2021. Current intention to proceed with public realm and highways improvements ahead of the private developer (residential led) scheme. Public consultation undertaken February 2024 for Phase 1, public realm, highways improvement and bus station improvements. CBC leading design development underway ahead of a planning application submission in 2024/25.	Progress on residential development slowed in 2020/21 (Covid). Currently progress delayed due to water neutrality.
2	Crawley Growth Programme Western Boulevard (Formerly Town Centre Walking & Cycling Scheme) Connecting Eastern Gateway to the High Street and delivering improved bus routes, walking & cycling infrastructure, and public realm	Transport Planning and Infrastructure	Strategic highway improvements, Re-prioritising Road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2020 Design Stage	Planning permission approved 2022. Construction expected 2024, Completion anticipated 2024/25	WSCC/ CBC UK Government Bus Service Improvement Plan (BSIP)	BSIP/LEP/ WSCC/ CBC	No	Fully Funded	£1.95m (following scheme cost review to account for inflation uplift. Previous estimated £1.1m)	Public consultation completed 2021. Planning application granted 2022. Contractors on site Q1 2024	Reduced vehicle emissions Medium	Modal Shift	Planning permission granted. Construction of a single, safe, and connected cycle/walking route that runs around the town center commenced March 2024. Phase 1 nearing completion	Scheme comprises: Improve bus facilities north of the town center by widening junction between The Boulevard and The Broadway. Additional dedicated bus lane for right turn from The Boulevard. 2 new segregated cycle lanes linking existing cycle lanes at eastern end of The Boulevard to High Street. Upgraded pedestrian footways
3	Crawley Growth Programme Three Bridges railway station Interchange improvement schemes	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2019 Design Stage	Delivery programme for scheme extended to 2027/8. Anticipate construction commencing 2025/26 (Extended from 24/25)	WSCC/ CBC / Network Rail / GTR	LEP/ WSCC/ CBC	No	Fully funded	Estimated £5.2m Full scheme cost review currently being undertaken. (Previous estimate £2.94m)	Planning permission granted March 2023.	Reduced vehicle emissions Medium/ High	Modal Shift/ Improved traffic flow (Improved cycle/ pedestrian route connections + train station interchanges)	Following extension of AQMA into Three Bridges, AQ assessment undertaken - which showed AQ impacts of scheme within AQMA negligible /not significant. Planning permission granted March 2023	Scheme comprises new station forecourt, relocated bus shelters, improved cycle and pedestrian routes, new taxi rank, car waiting/ drop off area, highway junction traffic light upgrades, new 'eastern' access to the station with vehicle drop off

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														Detailed design development is ongoing aligned to progressing Network Rail's Station Change Management Procedure	point/ pedestrian access to platforms
4	Crawley Growth Programme Three Bridges Stations EV Parking/ charging points	Promoting Low Emission Transport	Priority parking for LEV's Procuring alternative Refuelling infrastructure to promote EV recharging	2020 Design Stage	Delivery of scheme extended to 2027 Anticipate construction commencing 2024/26. (Extended from late 2024/25)	LEP/ WSCC/ CBC	LEP/WSCC/ CBC	No	Fully funded	> £1m	Planning permission granted March 2023.	Reduced vehicle emissions Medium	Modal Shift	Planning permission granted March 2023. Full scheme review completed.	Increase supply electric vehicle points/ parking bays at the station (20 in total) identified in response to increase demand.
5	Crawley Growth Programme Manor Royal - highway improvement scheme	Transport Planning and Infrastructure	Other (see comments section)	2020 Design Stage	Construction of Phase 1 works commenced January 2022 and completed August 2022. Phase 2 works commenced August 2022 and were completed November 2023	WSCC	LEP/ WSCC/ CBC	No	Fully Funded	Revised £3.98m (Previous estimate £3.31m) Phased delivery – Phase one £1.18m. Phase 2 incorporating the bus extension project £2.8m	Phase 1 completed August 2022. Phase completed November 2023	Reduced vehicle emissions. Medium/ High	Modal Shift/ Improved traffic flow	Phase 1 works complete August 2022 delivered junction improvements at County Oak/London Road, upgraded crossing units, signal heads, lane markings and a new bus stop. Phase 2 works completed November 2023 include public realm improvements from Manor Royal to Gatwick Road roundabout, construction of a new bus/cycle lane along Manor Royal and improved crossings at County Oak Way & Metcalf Way	Manor Royal highways improvement scheme to deliver better connectivity and enhanced pedestrian and cycle access across the Business district.
6	Crawley's Declaration of Climate Emergency	Policy Guidance and Development Control	Other policy	Declared 2019	Climate Emergency Action Plan approved and published Nov 2021 This will be followed by ongoing implementation.	CBC	CBC	No	Fully Funded	Individual measures funded on project-by-project basis	Action Plan published Nov 2021	Target to reduce emissions by 50%, (previous target 45%) and as close to net zero as possible by 2030. To reach net zero by 2040 (previous target 2050)	Emissions balance sheet will assess: Phase out investment in technologies with carbon legacy. Reduced energy demand. Transition to low/ zero carbon heating & cooling: Phase 1 of the town centre district heat network is expected to save 103 tco2e per year.	2020 OSC recommendation for carbon reduction targets Climate Emergency Advisory Group set up to implement OCS recommendations. 2021 Climate Emergency Action Plan Published CEAP March 2023 – CEAP independent evaluation - Climate Action Scorecard: CBC was given a score of 25% in 2023.	

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													Decarbonisation programme for Crawley Homes (CBC's Social Housing): Funding for 408 homes starting in 2023 will save 648 tonnes of carbon per year.	Work is in progress to develop an updated action plan expected to go to cabinet for approval in December 2024. Detailed plan now in place to improve energy efficiency and reduce gas consumption of Council owned buildings, with focus on those with highest energy consumption (especially K2 leisure centre) and the least efficient (some community centres with poor insulation)	
7	Defra funded AQ project: Taxi Project	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging.	2021	2023	CBC/ SussexAir/ WSCC	Defra Grant Funded	Yes	Fully Funded Defra funding	Proportion of the £376k funding for the Monitoring and Community Engagement Project	Planning//Project development	Reduced vehicle emissions by facilitating the uptake of more EV vehicles in taxi fleet	Increase % of EV/ ULEV's by Taxis and private hire vehicles	Defra AQ grant funded contract awarded to Energy Saving Trust. Taxi engagement campaign set up to facilitate a transition to EV vehicles by taxi drivers. Taxi and Private hire survey launched April 2023 –results expected Aug/Sept 2023 Taxi project page launched May 2023 to provide advice and information on how the council is working towards decarbonising transport and cleaner air.	Response rate low in Crawley – Taxi trade difficult to engage
8	Defra funded AQ Schools project:	Public Information	Other (community Engagement – Schools)	2018	Project extended to 2024	SussexAir/ CBC/ Sustrans	Defra Grant Funded until Q2 2024. Defra Grant Funding for 2024/25 not awarded - Sussex authorities trying to raise funds to continue schools project	No (no funding awarded this year)	Previously fully funded Defra funding	£10-£50K	Sustrans working with Sussex Air to deliver the programme to schools across the Sussex area	Indirect impact - aiming for reduced emissions through behavioural change / Modal shift	Awareness raising/ Modal shift/ reduction in vehicle emission. Sussex Air project targets are all output based. Sustrans also records behaviour change and knowledge surveys to measure impact of workshops on knowledge /	From 2018 until 2024, Sustrans has delivered a school's air quality project for Sussex Air, funded by DEFRA. No funding awarded for this year 2024/25 Sustrans worked with schools across Sussex in/ near AQMAs to raise awareness about air quality and ways to reduce air pollution	No Defra grant funding awarded for this year 2024/25. The Sussex Authorities are trying to find alternative funding streams to continue the schools air quality project work until the next Defra grant application where it is hoped this work can be continued.

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													understanding of air quality. 48% increase in Knowledge was recorded. Overall targets were exceeded.	through active travel. The project focussed on PM/NO ₂ air pollution. 55,000 school children across Sussex educated through the project. The project extended into communities for 2023/24 due to its success in schools. Community groups across Sussex have the opportunity to have Sustrans at their event explaining health impacts of poor air quality and what can how to mitigate. In addition, social media and newsletters used to communicate key information/ statistics/ links to video resources and raise awareness of air quality in Sussex.	
9	Air Quality and Emissions Mitigation Guidance for Sussex	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Revised Guidance April 2021 (Original Guidance 2013)	ongoing	CBC with Sussex-air (SAQP)	SAQP/ CBC	NO	Fully funded	N/A covered by SAQP annual subscription	Implemented (ongoing updates)	Reduction in emissions from transport associated with new development through mitigation. Individual scheme emissions calculations undertaken.	Conditions on planning applications to require: Assessment of emissions from the development, Damage cost calculation and where appropriate. Scheme of mitigation for emissions mitigation	Air Quality and Mitigation Guidance incorporated in Crawley Local Plan referenced to developers in local list. Ongoing review and update for 2024/25	Development of the Guidance as Supplementary Planning Document (SPD) being considered – dependent on review of application across Sussex authorities
10	Crawley Local Cycling and Walking Infrastructure Plan (LCWIP)	Transport Planning and Infrastructure	Cycle Network	Published March 2021	Ongoing implementation (see comments)	CBC /WSCC	Various Towns Fund/ CGP/Active Travel fund/ S106/CIL	No	Not known. Individual measures funded on project-by-project basis	Not known. Costs on project-by-project basis	Published.	Reduced vehicle emissions No Target set	Modal shift	2020 LCWIP Published 2021 WSCC reviewing LCWIP routes. 2022 Consultants appointed. 2023, Transport study. 2023/24 LCWIP in new Local Plan 2024-2040 (to be adopted 2024). Requirements in New LP for developers to	CBC LCWIP plan for network of 16 high quality, safe, cycling /walking routes through the borough. Funding sources sought to implement plan including contributions to LCWIP targets/ projects from planning S.106/ CIL.

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														mitigate development impacts through S.106/CIL contributions to LCWIP targets/projects. 2024 Working with WSCC to develop detailed plans for walking and cycling projects in order to access Active Travel England funding. Also working with Active Travel Crawley community group to make sure their voice is heard in planning process.	
11	New Directions for Crawley (Transport and Access Strategy)	Policy Guidance and Development Control	Other policy (see comments section)	2020 for Strategy	Transport and Access Strategy 2023	CBC/WSCC	WSCC/ CBC/ private/ public/ funding sources	No	Not known. Individual measures funded on project-by-project basis	Not known. Costs on project-by-project basis	Transport Study (stage 1) completed 2023 – measures included in new Local Plan 2024-2040	Reduced vehicle emissions No Target set	Modal shift / reduced traffic emissions	2020 Strategy adopted. 2022 Transport study completed 2023. Measures from Stage 1 transport study fed into new Local Plan. Local plan includes policies on active and sustainable travel which will influence design of new developments. 2024 Stage 2 transport study to look at walking/ cycling/ street access – awaiting funding.	The strategy document addresses issues and options for shifting from car to people-centred approach, mobility and access. 10-year action plan to be developed from New Directions strategy together with LCWIP - to inform emerging Local Plan to guide design and access of new development.
12	Draft local Plan 2024-2040 To provide detailed environmental policy and guidance through the development control process.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Draft 2019	Adoption expected 2024 (see comments section)	CBC	CBC	No	Fully Funded	Not Known	Draft Local Plan 2024-2040 awaiting inspectors' Final Report, following which the Council expects the Local Plan will be taken to Full Council in July 2024 for decision on adoption of the Plan with any modifications which may have been recommended. The council's adopted Local Plan (December 2015 - 2030) remains up to date following its 5-year Review by Full Council in December 2020	Reduced air quality impact through development control conditions for air quality and emission mitigation	Emissions reductions/ mitigation – including improvements to public/active transport infrastructure, EV charging, energy efficient housing.	Draft Local Plan submitted to Planning Inspectorate July 2023, with Examination in Public taking place Nov 2023 - Jan 2024. Consultation on Main Modifications undertaken Feb 2024 - Mar 2024. Post Main Modifications clarifications requested by PINS.	Significant delay 2021 due to issue of water neutrality to be addressed through Local Plan to ensure compliance with Habitat Regs. If Inspectors' Final Report not received within timescale for July 2024 Full Council, an updated timetable and review of Local Development Scheme to be undertaken as necessary.

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															Subject to receiving the Inspectors' Final Report, the Council expects the Local Plan will be taken to Full Council for adoption with any modifications which may have been recommended July 2024.	
13	WSCC Parking Standards Guidance	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Priority parking for LEV's	Approved 2019	ongoing	WSCC	WSCC	No	Fully Funded	Not known	Implemented	Reduced vehicle emissions Parking EV parking standards Targets set in the guidance	Increased EV's infrastructure and active transport	The Guidance sets out parking standards, including targets for cycle storage and EV charging/ parking set by WSCC Parking Standards Guidance. CBC Parking Standards annex to the proposed draft local plan - will become policy once the plan has been adopted. Expected adoption of Local Plan July 2024 (see above)	Delayed due to hold ups with Local Plan (see above)	
14	Electric Vehicle Strategy for West Sussex 2019-2030 (EV Charge Point Project)	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging	Approved 2019	Ongoing	WSCC/ CBC	On-Street Residential Charging Grant, and Workplace Charging Grant – to cover 75% and 50% of installation costs. Ongoing management costs funded via concession contract to appointed contractor. No capital funding requirement for the local authority	No	Fully Funded	Not known	EV infrastructure provider Connected-Kerb commissioned to deliver a district-wide electric vehicle charging point network. Sites identified across Crawley at WSCC and CBC owned on-street locations. 2022/23 consultation to identify residential on-street locations. 2023/24 implementation	Reduce vehicle emission. No emissions target set in Strategy. (Baseline: Transport contributes > 30% carbon emission across Crawley = 250 ktCO2 pA) Ensure a renewable energy source for all charging points.	Increase on-street EV charge points. Increase % EVs in Crawley to incentivise switch to EVs and reduce carbon/AQ emissions. WSCC EV Strategy target for 70% of new cars in County to be EV by 2030. To achieve this need 3,305 publicly accessible charging points by 2025, and 7,346 by 2030.	2021/2022 Contract awarded (Connected Kerb) for installation of public EV charge points across borough over next decade. Phase 1 (2022/23) Public EV charge points connected at CBC owned publicly accessible locations (neighbourhood parades/ carparks): Gratton's Drive Pavilion, Dobbins Place, Ifield Parade. WSCC on -street locations: Nightingale Cl, Parham Rd, Dalton Cl, Ifield Dr, Shaws Rd. Phase 2 (2023/24) CBC owned Car parks: 11 car park sites identified, 6 of which are in progress but not yet up and running, leases yet to be agreed for the remaining 5 sites. WSCC on-street locations: 3 on	30% of CBC households have no access to off-road parking, causing barrier to switch. Strategy aims to address barriers by providing accessible EV charging infrastructure to encourage switch. Challenge has arisen due to competition for parking spaces. Communities not happy for on-street locations to be exclusively for EV charging - so they are not currently restricted. This in turn means availability for EV drivers is limited.	

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														streets Crawley sites awaiting completion. Phase 3 (2024/25) WSCC on-street: public consultation ends 21 June 2024 for 9 Crawley sites.	
15	School Travel plans	Promoting Travel Alternatives	School Travel Plans	2017	Ongoing	Crawley Borough Council and West Sussex County Council (WSCC)	CBC and WSCC	No	Fully Funded	Not Known	ongoing	Reduced vehicle emissions. No Target set Medium/ low	% increase in modal shift % children travelling to school by sustainable means	2022 and ongoing: CBC funding half a full-time post for a Schools Active Transport Project Officer from Sustrans working with schools in Crawley to engage with school staff, pupils and parents on active travel. June 2023 Application made to WSCC by CBC for 18 month Experimental "School Streets" TRO (Traffic Regulation Order) at Ifield Mill School. 2024 WSCC have adopted the School Streets TRO for Ifield school and will be progressing this. New funding agreement for Sustrans in place until July 2025 to support active travel and air quality awareness in schools. The mill school now included in WSCC school street programme.	Helps reduce emissions/exposure to emissions during school run and morning/ afternoon rush hour
16	Crawley Borough Council Staff Travel Survey	Promoting Travel Alternatives	Workplace Travel Planning	2020	Dec 2020	CBC	CBC	No	Fully Funded	Not Known	Survey completed Dec 2020 Draft Travel policy 2021	No target set Reduced vehicle emissions.	Modal shift/ staff travelling by sustainable means	2020 Staff Travel Survey completed. 2021 Staff travel policy. Council's staff travel survey to inform Staff Travel Plan for new Town Hall (Planning condition – see below) and development of travel policy measures for emerging Climate Emergency Action Plan. Big reduction in staff commute due	

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															to hybrid working. New staff travel survey to be completed in 2024 to understand new travel habits.	
17	CBC Staff Travel Plans	Promoting Travel Alternatives	Workplace Travel Planning	2019	Estimated 2025 (revised from 2023) Ongoing implementation	CBC	CBC	No	Fully Funded	Not Known	Not yet Implemented.	No Target set Reduced vehicle emissions. Medium/ low	Increase % staff travelling by sustainable means	2019 Draft Travel plan 2020 Staff Travel Survey to shape final plan. 2021 Staff Travel Plan submitted through the planning application for new Town Hall and conditioned in the planning consent (2022). 2024 - new staff travel survey to be undertaken (to reflect hybrid work patterns) the outcome will inform revised staff travel plan.		
18	easit Green Travel Network – easit discount (15%) staff rail/ 48% bus commuting available to Crawley staff/ businesses	Promoting Travel Alternatives	Promote use of rail and bus	2018	Ongoing	easit/CBC	easit/CBC or member company	No	Partial Funding	£2500 per year for membership	ongoing	Reduced vehicle emissions No Target set Medium/ low	Increase % staff travelling by sustainable means	2023/24 Membership of Easit renewed to encourage use of public transport and car sharing.	Council originally involved in funding the setting up of the scheme.	
19	Crawley car club scheme with private sector partner	Promoting Travel Alternatives	Personalised Travel Planning	2019	Contract awarded 2021	CBC/ Private sector partner	Private sector partner/ S.106 contribution	No	Fully Funded	s.106 monies £20k Private sector contribution N/K	Contract awarded Co-Wheels	No Target set Reduced vehicle emissions. Medium/ low	Reduction in private vehicle ownership	2021 Contract awarded to Co-Wheels to supply and run EV car /car club at new Town Center residential development (Geraint Thomas House). Car-Club started 2022. 2025/26 EV Car-club planned for Station Gateway infrastructure project (CGP). Highly accessible location for rail/bus stations and town centre facilities. Available for public use as well as residents.	Station Gateway EV Car-Club delayed due to Planning issues (water neutrality) for the residential development	
20	Living Streets campaign	Promoting Travel Alternatives	Promotion of Walking	ongoing	Ongoing	WSCC Wellbeing/ Living Streets/ CBC	WSCC/ CBC	No	Fully Funded	Not Known	Implemented (annually)	No Target set Reduced vehicle emissions.	Modal shift	Annual campaign event with information, events, and activities to promote walking.	Targeted at council staff and local businesses	

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21	Residential and Business Travel plans	Promoting Travel Alternatives	Residential/ Business travel plans	ongoing	Ongoing	CBC	CBC	No	Fully Funded	Not Known	Implemented (Individual developers/ businesses)	No Target set. Reduced vehicle emissions	Increase uptake of sustainable transport modes	Developments of certain size required to implement Travel Plan	Travel Plans implemented on an individual basis through Planning (Development Control process)
22	CBC Staff car loan - Council Vehicle procurement requires vehicle emissions limit eligibility for loan	Promoting Low Emissions Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles.	2000	Ongoing	CBC	CBC	No	Fully Funded	Not Known	Implemented /ongoing. (Individual applications)	Reduced vehicle emissions CO2 level of < 150 g/kg.	Minimum CO2 level of < 150 g/kg.	11 new-staff car loan applications 2023/2024	
23	CBC Staff Bicycle Loan Scheme	Promoting Low Emissions Transport	Prioritising uptake of low emission vehicles	2015	ongoing	CBC	CBC	No	Fully Funded	Not Known	Implemented /ongoing. (Individual applications)	No Target set (low)	Modal shift from private vehicle to bicycle	1 new loan awarded 2023/24	CBC staff loan to buy Bike
24	CBC Staff Bike to Work Scheme	Promoting Low Emissions Transport	Prioritising uptake of low emission vehicles	2015	ongoing	CBC/Cycles scheme	Cycles scheme	No	Fully Funded	Not Known	Implemented /ongoing. (Individual applications)	low	Modal shift from private vehicle to bicycle	6 new applicants 2022/23	Bike Hire Scheme CBC/Partnership with "Cycle scheme" which allows employees to purchase bike through other shop outlets
25	Council Vehicle Fleet LEVs Fleet replacement prioritising uptake of EV/low emission vehicles	Promoting Low Emissions Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	ongoing	ongoing	CBC	CBC	No	Fully Funded (Capital replacement budget)	Not Know	Funding identified/ tender awarded.	Reduced vehicle emissions	Council vehicle Fleet improvement shift to LEV/ Zero emissions	Procurement for 2023/24: Sept 2023 Electric van (V2096) delivered to replace existing diesel van with Facilities. All Facilities LGV vans are now electric. Oct 2023 Electric van (V2097) delivered for Crawley Homes. Dec 2023 New Euro 6 Diesel ride on mower delivered for Neighbourhood Services Jan 2024 replaced existing diesel waste trucks with 15 new trucks with engines that can burn hydrotreated vegetable oil (HVO) - which produces 90% lower carbon emissions. The council expects to fuel the fleet with HVO from Q4 2024 (There was no grid capacity on the industrial estate to	

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														support an electric refuse truck option). Procurement for 2024/25: 1 New Euro 6 Diesel ride on mower delivered for Neighbourhood Services (replacing Euro 5) 1 New Euro 6 Diesel HGV Road Sweeper for Neighbourhood Services (replacing Euro 5) 2 New Euro 6 Diesel Groundsman Pick up vehicles (replacing Euro 5)	
26	Junior Citizen Annual Event on citizenship safety, sustainability and environmental issues, including air quality	Public Information Promoting Travel Alternatives	Other (Interactive games and Awareness raising)	1990	Ongoing	CBC	CBC	No	Fully Funded	£8k	Annual September event	No Target set	Education/ Awareness / Modal Shift	Annually approximately 1200 KS2 (Year 6) pupils per year attend the event which has been running for over 30 years. Educational programme "Air quality in our local area" delivered through eco-action games and small discussion groups.	Annual September event (resumed 2022 after being postponed in 2020 and 2021 due to covid)
27	Emission Standards for Licensed Taxis	Promoting Low Emissions Transport	Taxi emission incentives	2020	Due to be adopted 2021/22 and implemented from 2022/23 Delayed (see Comments)	CBC	LEV capital replacement funded by individual licensed taxi operators' (or alternative funding sources where available eg grants)	No	Not Funded by CBC. Privately funded or partially grant funded	Not Known (Renewal purchase costs on individual basis)	2020 Policy update not formally adopted due to Covid impact on taxi trade. Report to go to Licensing committee Q4 2024 to introduce tighter emissions standards (delayed from 2023 - see comments section)	Target for Zero emissions by 2030	Original 2020 indicators: All new taxis zero emission capable (ZEC) from Q2 2022 Existing taxis retrofitted to Euro 6 Q4 2022. Diesel phased out 2027. Following post Covid new policy requires all new taxis Euro 6 from 2022. New tighter standards proposed from 2024/25	Policy review report to include more robust emissions strategy (engine size, emissions and vehicle age) was due to go to Licensing Committee Q4 2023 but was delayed (see comments) -now aiming for no later than Q4 2024. Geographical vicinity of Crawley to M25 ULEZ border may positively impact transitional speed of Crawley's Taxis and private hire vehicles (PHVs) fleet to cleaner vehicles for compliance in London's ULEZ. Taxi fleet mix	Introduction of tougher emission controls on Taxi trade seen as a financial burden on post-Covid taxi trade resulting in delayed progress. Priority matters arising in 2023 Q4 and pre-election periods impacting democratic processes, further delayed progress. Report now due to be heard by committee by Q4 2024

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														being monitored to assess if rate of replacement/ LEV mix is improving.	
28	airAlert Pollution Warning Service for people with asthma, COPD, or cardio problems.	Public Information	Via other mechanisms SMS/ Mobile phone App/ Email	2006	ongoing	Sussex Air Quality Partnership (Sussex-air)	Sussex Air Quality Partnership (Sussex-air)	No	Fully funded	£4.2k	implemented	Health based service. No Target set but raises awareness of health impacts of pollution to help manage chronic health conditions and drive behavioural change.	Subscriber numbers: Subscription numbers to the alert service	App, text, or email sent to warn of high pollution and advise action to manage health and drive behavioural change. Over 800 registered subscribers. No direct emissions reductions but health benefits from direct application of monitoring data and raises awareness of air quality.	
29	Anti-idling Campaign	Traffic Management	Anti-idling enforcement	Original signage 2003 Additional signage 2019	planned for 2020/21	SAQP/WSCC/CBC	SAQP funded by Sussex-air Defra funded anti idling around schools (2019)	yes	Fully funded	Exact cost not known (proportion of £25k for anti-idling campaign)	Completed	Localised improvement in vehicle emission. No Target set.	Campaign to raise awareness of health impacts of vehicle. Localised vehicle emissions reduction from driver behavioural change	Installation of additional anti-idling signs by WSCC for Crawley's level crossing sites completed 2020. Schools campaign proposed for 2024/25	
30	Events: Clean Air Day You're your Lungs Week Car free Day Cycle to Work Day	Public Information	Other – see comments	Ongoing	Annual events - ongoing	CBC/ WSCC/ Sussex-air	CBC/ WSCC/ Sussex-air	No	Fully Funded	Not Known	Implemented (annually)	No Target set. Reduction in emissions from behavioural change And mode shift	Public Engagement. Pledges for behavioral change. Modal shift. Take-up of initiatives. Website hits. Increase subscribers for air-Alert	Joint working with WSCC/ Sussex-air/ Public Health/ CBC (environmental Health and Sustainability Teams) to support campaigns and promotion of air-Alert through social media posts on: Clean Air Day 20 June 2024, Love Your Lungs Week 21 to 27 June 2024 Cycle to Work Day 01 August 2024 Car free day 22 Sept 2024 Love Your Lungs Week 2024 - Awareness Days Events Calendar 2024	Public Health Information/ Awareness Campaigns promoting sustainable modes of travel to staff and public: Public awareness campaign through editorials and advertisements in WSCC Connections and social media posts.
31	LED lighting installation Programme	Promoting Low Emission Plant	Shift to installations using low emission fuels	2012	Ongoing LED Replacement scheme when lights fail replaced with LED	CBC	CBC	No	Fully funded	Costed on a project-by-project basis	ongoing	LED replacement providing 40% reduction weekly wattage (> 50k watts)	45% Reduction in CO2 Emissions by 2030 100% Reduction in CO2	Ongoing programme of LED lighting installation in communal areas of residential blocks, sheltered accommodation	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
													Emissions by 2050	and other Crawley residential and community own property.	
32	Net Zero Retrofit Project for Crawley Council Homes (Crawley Homes) for Energy Saving and Carbon Reduction Measures	Promoting Low Emission Plant	Other - installations of wall/floor/roof insulation and low emission heating to reduce emissions	2020	Estimated completion 2024	CBC /Net Zero Collective Group/ University of Southampton	CBC/ LEP funding for green retrofitting.	No	Fully Funded (see comments)	Estimate £15-20K per property.	Pilot project collaboration between CBC, Net Zero Collective Group and University of Southampton to monitor and assess different housing types in Crawley Homes for energy saving and carbon reduction measures and energy efficiency. Aim to find most cost-effective methodology for retrofit across mixed portfolio of CBC homes to pas2035 standards. https://netzerocollective.co.uk Pilot completed but retrofit programme to continue	Reduction in Emissions Aiming for net zero	Lower energy bills and reduced carbon footprint - measured by EPC rating before and after retrofit. Toolkit developed by Southampton Uni to calculate EPC (future industry standard) for decarbonisation / energy efficiency. Research to find most efficient / effective method of decarbonising UK homes to maximise social value of investment.	2021/22 - pilot completed (10 properties) on 10 pilot Results: energy savings of >30% achieved. 2022-24 completed further 11 for further 11 properties: Insulation (cavity wall Insulation (external wall) Insulation (timber framed) Top-up loft insulation Air source heat pumps Solar with batteRemoval of gas supply CBC contractors for Crawley Homes (Mears and Waites) are now Pas 2035 accredited and responsible for surveying coordinating and installing retrofit to Pas 2035 standard from March 2023. Going forward social housing de-carbonisation funding to be used to continue retrofit programme. CBC's aiming for new housing development to passive house standard (Pas 2035) to avoid retrofit and achieve Net Zero	Applying for LEP funding through Town Investment plan and working with Crawley College new STEM Centre to provide specialist training in advanced technologies and green retrofit.
33	Energy Efficiency Retrofit Project in Crawley Homes (SHDF Wave 1)	Promoting Low Emission Plant	Other - installations of wall/floor/roof insulation and low emission heating to reduce emissions	2022	2023/24	CBC	SHDF (Social housing de-carbonisation fund) Wave 1	No	Fully Funded SHDF W1 £690k	£690k Costed on a project-by-project basis.	Full decarbonisation retrofit programme of works to Pas 2035 standard following on from pilot study (above). Works to include upgrades to insulation and low emission heating to 59 Crawley homes in Broadfield district of Crawley.	Reduction in Emissions Aiming for net zero	De-carbonisation Higher energy efficiency, reduced emissions, and lower energy bills	2023 Work started on installation programme: Cavity wall Insulation, External wall Insulation (timber framed properties) Top-up loft insulation Air source heat pumps Solar PV with battery. Removal of gas supply	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														Completion expected Q3 2024	
34	Energy Efficiency Retrofit Project in Crawley Homes (SHDF Wave 2)	Promoting Low Emission Plant	Other - installations of wall/floor/roof insulation and low emission heating to reduce emissions	2023	2025	CBC	SHDF (Social housing de-carbonisation fund) Wave 2	No	Fully Funded SHDF W2 £6.8m	£6.8m Costed on a project-by-project basis	Full decarbonisation retrofit programme of works to Pas 2035 standard following on from pilot study (above). Works to include upgrades to insulation and low emission heating to 408 Crawley homes	Reduction in Emissions Aiming for net zero	De-carbonisation Higher energy efficiency, reduced emissions, and lower energy bills	Work commenced 2023 on installation of: Cavity wall Insulation, external wall Insulation (timber framed properties), top-up loft insulation, air source heat pumps, solar PV with battery, removal of gas supply. 40 houses (out of 408) completed 2023/24	
35	Crawley Homes Cavity Wall Insulation project in Crawley Homes (Towns Fund)	Promoting Low Emission Plant	Other - installations of wall insulation to reduce emissions	2023	4-year project 2023-2026	CBC	Towns Fund £4m	No	Fully Funded	£4m Costed on a project-by-project basis.	2022 Successful bid £4m funding from Crawley Towns Fund for cavity wall insulation to 248 apartment blocks (1500 flats) over 4 years.	Reduction in Emissions by 2030	Higher energy efficiency, reduced emissions, and lower energy bills	2022 survey. 2023 installation started 2023/4 on track to complete 1000 installations/properties.	
36	Solar PV Installation in Crawley Homes	Promoting Low Emission Plant	Other - installations of wall/floor/roof insulation and low emission heating to reduce emissions	2021	ongoing	CBC/WSCC	CBC/WSCC	No	Fully Funded	Costed on a project-by-project basis	Solar PV programme implemented and ongoing.	Reduction in Emissions by 2030	Higher energy efficiency, reduced emissions, and lower energy bills	Ongoing installation programme. Some communal blocks already supplied with Solar PV have battery storage others awaiting battery installation to improve energy efficiency.	
37	Thermal Insulation U-Value Improvement Programme in Crawley Homes	Promoting Low Emission Plant	Other - installations of wall insulation to reduce emissions	2022	Annual Planned Maintenance	CBC	CBC	No	Fully Funded	Costed on a project-by-project basis	Annual planned maintenance to improve U-Value in Crawley homes through a programme of upgrades to: Windows and doors Roof /loft Insulation Floor insulation (suspended timber floors)	Reduction in Emissions by 2030	Higher energy efficiency, reduced emissions, and lower energy bills	Works started 2023: Upgraded U-Value Windows and doors - 200 homes per annum Upgraded U-Value roof /loft Insulation 350 homes per annum 2024 167 homes identified for Upgraded U-Value Windows and doors and 233 homes upgraded u-values roof/loft.	Thermal Insulation U-Value Improvement Programme in Crawley Homes
38	Boiler Efficiency Improvement Programme in Crawley Homes	Promoting Low Emission Plant	Other - installations of wall insulation to reduce emissions	2022	2025	CBC	CBC	No	Fully Funded	Costed on a project-by-project basis	Annual planned maintenance programme for boiler replacement. Aiming to phase out gas on existing properties by 2025	95% increase in efficiency Reduction in NOx Emissions	Reduction in NOx emissions, improved efficiency and lower energy bills	Annual planned maintenance programme (costed on a project-by-project basis) to phase out gas on existing properties by 2025.	
39	Q-Bot installed floor insulation in Crawley Homes with	Promoting Low Emission Plant	Other - installations of floor insulation to reduce emissions	2023	Pilot – if successful consider for ongoing maintenance	CBC	CBC (potential ECO4 funding)	No	Funded	Costed on a project-by-project basis	Implemented (Pilot)	15% energy loss through timber floor improved 60%	Higher energy efficiency, reduced heat loss, and lower energy bills	2023/24 Q-Bot insulation installed into 4 homes. Pilot to understand if CBC has	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	suspended timber floors						being investigated)							properties suitable for this type of floor insulation. if successful consider for ongoing maintenance. 2024/25 - seeking funding through ECO4	
40	Environmental Permitting of Industrial Sources of Pollutants including Particulates	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	Regulations introduced in 1990s	ongoing	CBC	CBC	NO	Funded through subsistence fees		Implemented and ongoing	Reduction in pollution from industrial sources including particulates and VOCs	Compliance with Permit Conditions	Ongoing inspection and regulation of industrial processes in Crawley	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy⁶, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}). There is clear evidence that PM_{2.5} (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Those most at risk from air pollution are the young and elderly and those with predisposed medical conditions, which may be exacerbated by elevated levels of air pollution.

PHE have produced a [Public Health Outcomes Framework](#) (PHOF) which identifies an indicator for the fraction of mortality attributable to particulate air pollution in each authority in the UK. Using this framework, it is possible to compare the values for Crawley to regional and national values, as well as other nearby authorities in Sussex.

In Crawley, the latest (2022) estimated fraction of mortality attributable to long-term exposure to particulate pollution was 5.2% (this is the value using a new method which has adjusted up the values across the whole of the UK.).

These indicators are calculated for all local authorities in England, and Crawley's level (5.2) places it in a similar position to other urban centres in the region such as Reigate (5.8), Brighton (4.5) and Worthing (4.7), but below the higher mortality values attributable to PM in major cities such as London (7.1) and the national average in England of 5.8.

The mortality indicator for particulate pollution in Crawley has improved from the previous year (5.4%). This improvement was reflected across the region in Sussex and the Southeast and is likely to be due to natural year to year variation as well as increased regulatory measures and technology to control particulate pollution nationally and regionally.

The annual average target value for PM_{2.5} is 20µg/m³. The 2023 measured annual mean PM_{2.5} in Crawley was 7.5ug/m³. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 require that in England an annual average of 10 µg/m³ for PM_{2.5} is achieved by the end of 2040 and population exposure to PM_{2.5} is at least 35% less than

⁶ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

in 2018 (with interim targets for annual average of $12\mu\text{g}/\text{m}^3$ and at least 22% reduction, compared to 2018, by January 2028). Although there are no exceedances of $\text{PM}_{2.5}$ concentrations in Crawley, the council still has a duty to reduce emissions of and exposure to this pollutant.

The Council is working towards reducing $\text{PM}_{2.5}$ in our borough through measures aimed at reducing emissions from a range of sources in the area, including transport, industrial processes and domestic burning.

Crawley Borough Council is taking the following measures to address $\text{PM}_{2.5}$:

1. **Smoke Control Areas (SCAs) in Crawley:** Most of Crawley (except for Gatwick Airport and some more recent development areas in the borough) are designated as SCAs. The popularity of wood burners has increased in recent years, and this has subsequently resulted in a rise in complaints about smoke from domestic burning. In response the council, in partnership with other Sussex councils, launched a defra grant funded 'Clean Burn Sussex' campaign in 2020, aimed at raising awareness and encouraging the choice of cleaner fuels to reduce particulate emissions from domestic burning. Links to the [clean burn](#) smoke control and domestic burning guidance are available through the council's website.

Following amendments to smoke control regulations, the Council drafted a new enforcement protocol for civil penalties for smoke emissions within Smoke Control Areas (under the Clean Air Act 1993, as amended by the Environment Act 2021), and a policy to set the level of the charge (for financial penalties) was agreed in accordance with the Council's Constitution.

This year a press release to inform the public and retailers about the new legislation and civil penalties was issued to reinforce the change in regulatory approach. Two warning letters were issued, but no financial penalties resulted from either of these warning letters.

Further measures planned to help reduce the impact of $\text{PM}_{2.5}$ emissions in the borough, include proposals for an annual awareness campaign in the Autumn to remind the public and retailers about the health impacts of burning solid fuels, and the regulatory controls for emissions of smoke and sales of solid fuels in SCAs.

2. **Regulation of Industrial Processes:** Permits issued under the Environmental Permitting Regulations (England and Wales) 2016 (as amended) set out conditions for the direct control and regulation of certain industrial sources of $\text{PM}_{2.5}$ emissions. In Crawley these include mineral processes such as concrete batching, concrete

crushing, and road-stone coating, as well as combustion processes such as crematoria and biomass boilers (SWIP). (Measure 40 Table 2.2)

3. **Air Quality Action Plan:** Many of the action plan measures listed in Table 2.2 include infrastructure projects which support low emission travel alternatives (e.g., cycling, walking, electric vehicles, car sharing etc) and help facilitate modal change, which together work to reduce particulate emissions. (Measures 1,2,3,4,5 Table 2.2)
4. **Policy Measures:** Council procurement of low emission vehicles, and tightening the emissions standards for licensed taxis. (Measures 22, 7,14 Table 2.2)
5. **Local Plan Policy:** Implementation of the Sussex air quality and emissions mitigation guidance to reduce and/or mitigate emissions. (Measures 9, 12 Table 2.2)
6. **Local Transport Plan:** Traffic management measures to reduce congestion, improve traffic flow and reduce road traffic pollutant emissions, including PM_{2.5}. (Measures 10, 11 Table 2.2)
7. **Monitoring:** Direct monitoring of PM_{2.5} in Crawley has been available since 2020 when the TEOM particulate analyser at Crawley's Gatwick Airport monitoring station (CA2) was replaced with a FIDAS. In addition, a new AURN site is being installed at a background site in Crawley. The installation has been slower than expected due to site preparation delays but is expected to be completed 2024. It is anticipated that data on background levels of PM_{2.5} in Crawley will be available 2025.

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

This section sets out the monitoring undertaken within 2023 by Crawley Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Crawley Borough Council undertook automatic (continuous) monitoring at one site during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The [Sussex-air](#) page presents automatic monitoring results for Crawley Borough Council, with automatic monitoring results also available through the UK-Air website.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Crawley Borough Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 51 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

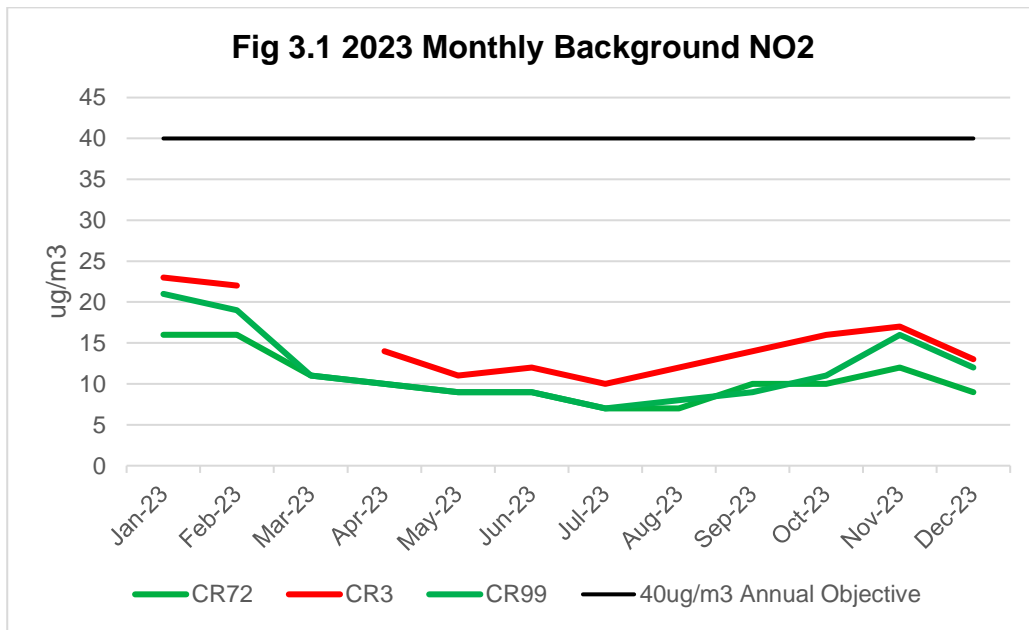
Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

The data in Table B.1 shows that air quality in Crawley is mainly good. There is no evidence that the hourly objective for NO₂ was being exceeded at any sites across Crawley in 2023 (indicator level annual means > 60µg/m³) and the annual mean objective of 40µg/m³ was achieved at most monitoring locations, with the exception of three sites next to busy roads (CR63, CR93 and CR101). All these sites were at roadside locations where the tube was not located at the point of the human receptor (façade of the house), and therefore it is not truly representative of residential exposure because pollution concentrations decrease with distance from the source. To account for this falling off in pollution concentration, an adjustment is made (Appendix C) to provide a more representative estimation of exposure. After applying this fall-off adjustment, there were no exceedances at the point of relevant public exposure at the sites.

2022 Background NO₂ in Crawley

There were no exceedances of the annual or hourly mean objectives for NO₂ at background sites in Crawley in 2023.

Fig 3.1 below shows the monthly concentrations of NO₂ at three long term background sites in Crawley for 2023.

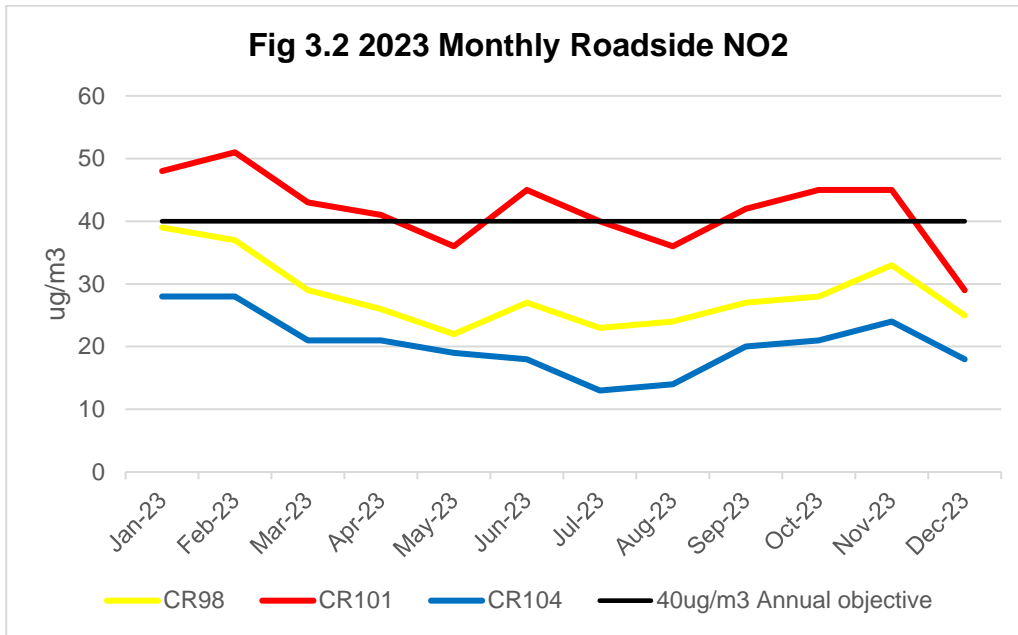


2023 Roadside NO₂ in Crawley

Some busy roadside sites record exceedances of the annual mean objective of 40µg/m³. In 2023 three sites (CR63, CR93 and CR101) exceeded the annual mean objective of 40µg/m³, but after fall off with distance adjustments there was no relevant public exposure (Appendix C Table C.4).

There were no indications (>60ug/m³ annual average NO₂) that the *hourly* mean objectives for NO₂ (200 µg/m³ > 18 times per year) had been exceeded at any of the roadside monitoring sites in Crawley in 2023.

Fig 3.2 shows the monthly concentrations of NO₂ at three long term roadside sites in Crawley during 2023



Long term (5 year) trends in NO₂ levels are considered in more detail in Appendix A, where NO₂ concentrations are discussed in relation to traffic flows in Crawley to look at the influence of post-Covid hybrid work patterns on travel and traffic levels and to what extent this may impact pollution levels.

2023 NO₂ in Crawley AQMA

There were no exceedances of the annual, or hourly mean objectives for NO₂ at sites with relevant exposure within the AQMA in 2023. This is the first year since declaration (2015) that no sites in the AQMA have exceeded the annual mean or been within 10% of the objective of 40ug/m³. This is encouraging news, and it is hoped that National Policy and local action has helped achieve these measurable improvements in air quality within the borough.

Fig 3.3 shows monthly concentrations of NO₂ in the Three Bridges area of Crawley’s AQMA during 2023.

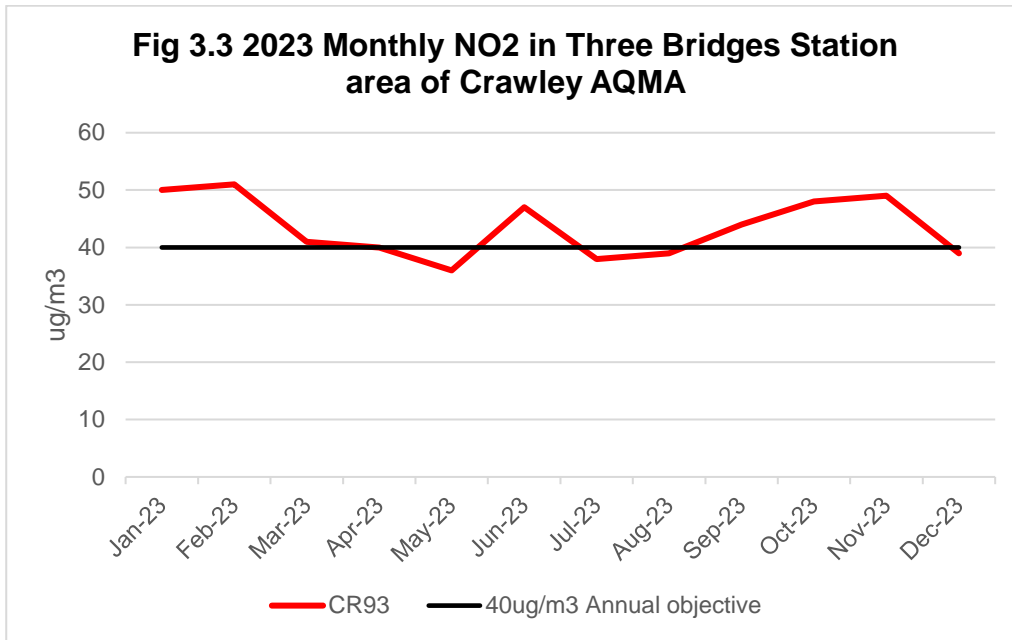
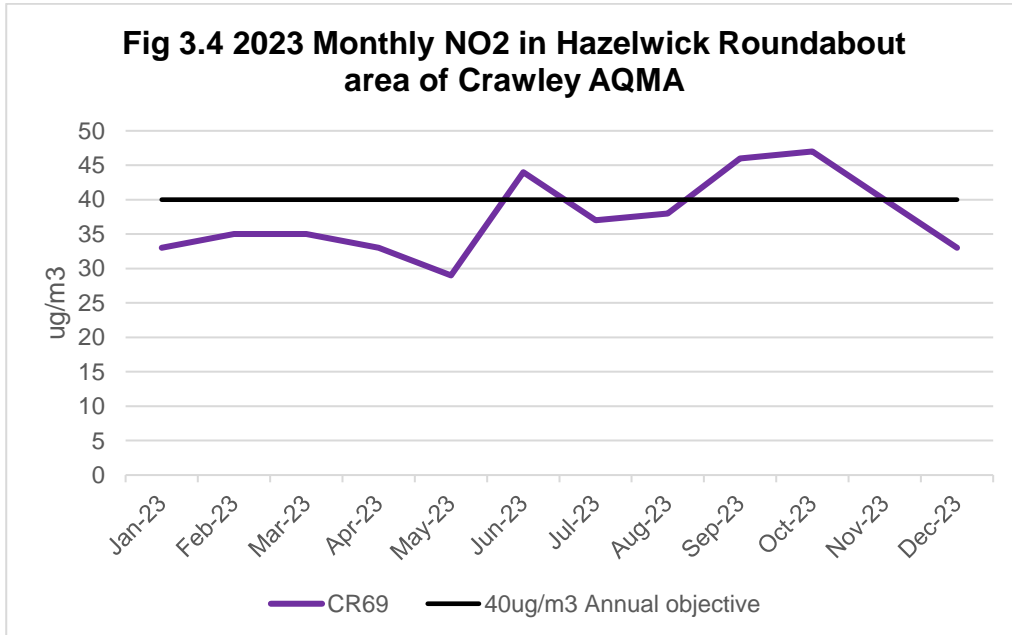


Fig 3.4 shows monthly concentrations of NO₂ in the Hazelwick Roundabout area of Crawley’s AQMA during 2023.

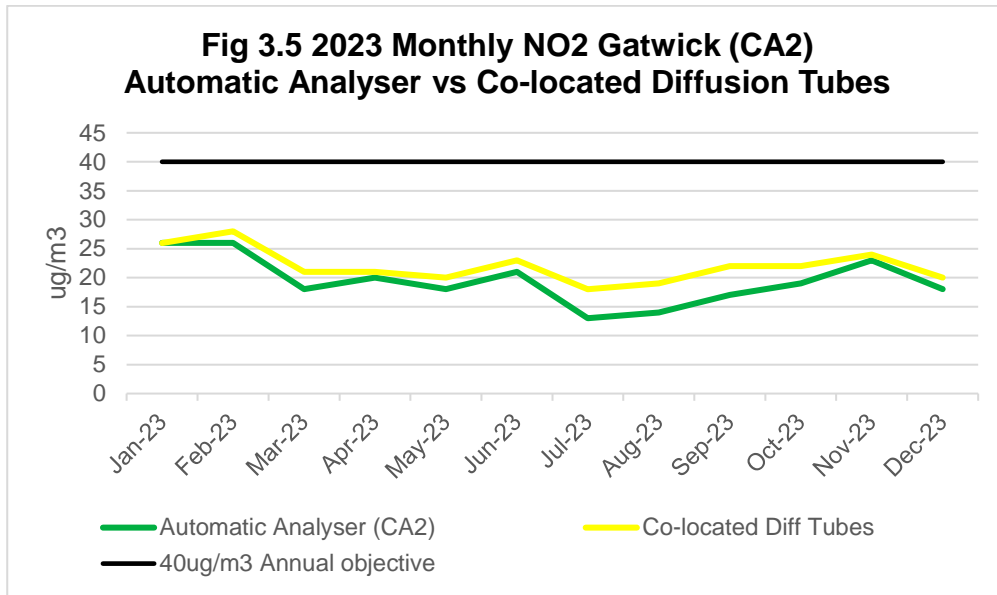


Although it is encouraging that levels of pollution in the AQMA are reducing and there are no exceedances, the council is not considering revoking the AQMA until a continuing trend of reduced NO₂ concentrations is maintained in future years.

2023 NO₂ Gatwick Airport

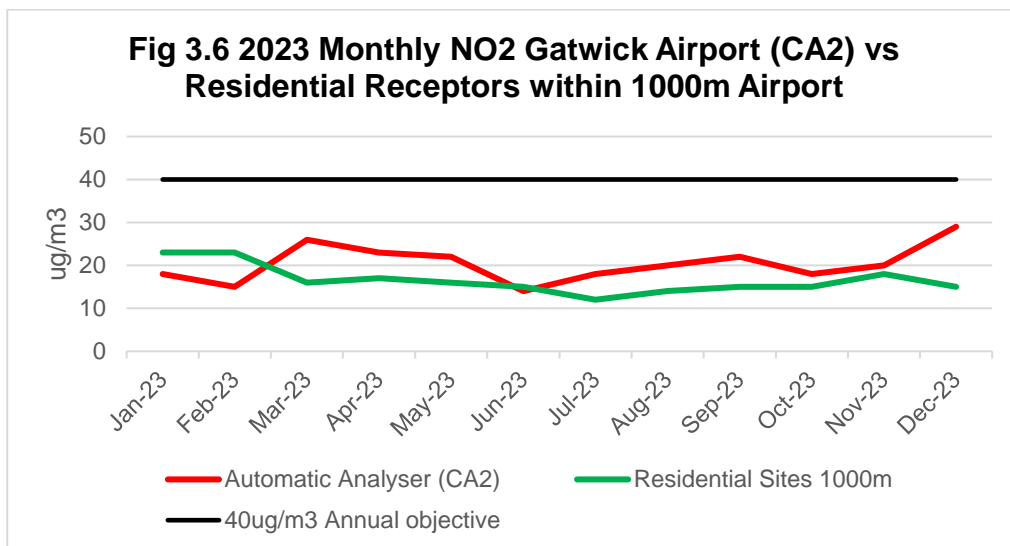
There were no exceedances of the annual or hourly mean objectives for NO₂ at the Gatwick East monitoring site (CA2) in 2023 or at any residential receptor sites close to the airport.

Fig 3.5 indicates that the co-located diffusion tube data at the CA2 site shows good correlation with the continuous data. The results show a similar monthly pattern and annual means (18.6µg/m³ and 19.4 µg/m³).



Determining relevant exposure at residential properties within 1000m of the airport is one of the assessment criteria required for authorities with a major airport in their authority.

Fig 3.6 presents the 2023 monitoring data for residential properties within 1000m of Gatwick. The data shows there were no exceedances of the objectives in 2023 and levels follow the similar monthly pattern as the airport data.



3.2.2 Particulate Matter (PM₁₀)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 40µg/m³.

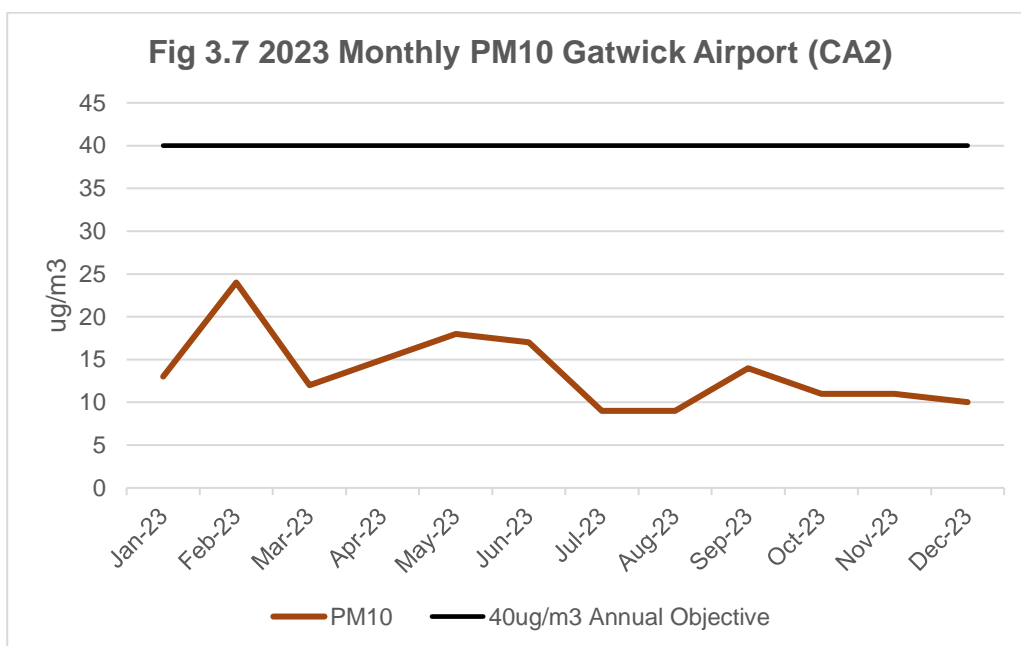
Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

A particulate monitor has been permanently located at Crawley’s automatic monitoring station (CA2) on the eastern boundary of Gatwick airport for 20 years. A new particulate monitor (FIDAS) which measures both PM₁₀ and PM_{2.5} was installed at the beginning of March 2020 to replace the old TEOM monitor.

The FIDAS has been certified in the UK for use without the need for correction to the PM₁₀ data. The 2023 PM₁₀ monitoring results (Appendix A) show compliance with both the annual and 24-hour mean objectives.

The annual mean PM₁₀ concentration recorded in 2023 was 14ug/m³. This is the same as the previous year’s (2022) concentration and continues, for a second year running, to be below the annual mean 15µg/m³ guideline level recommended by the [World Health Organisation](#).

Fig 3.7 shows monthly concentrations of PM₁₀ at Crawley’s continuous monitoring station at Gatwick (CA2) during 2023.



3.2.3 Particulate Matter (PM_{2.5})

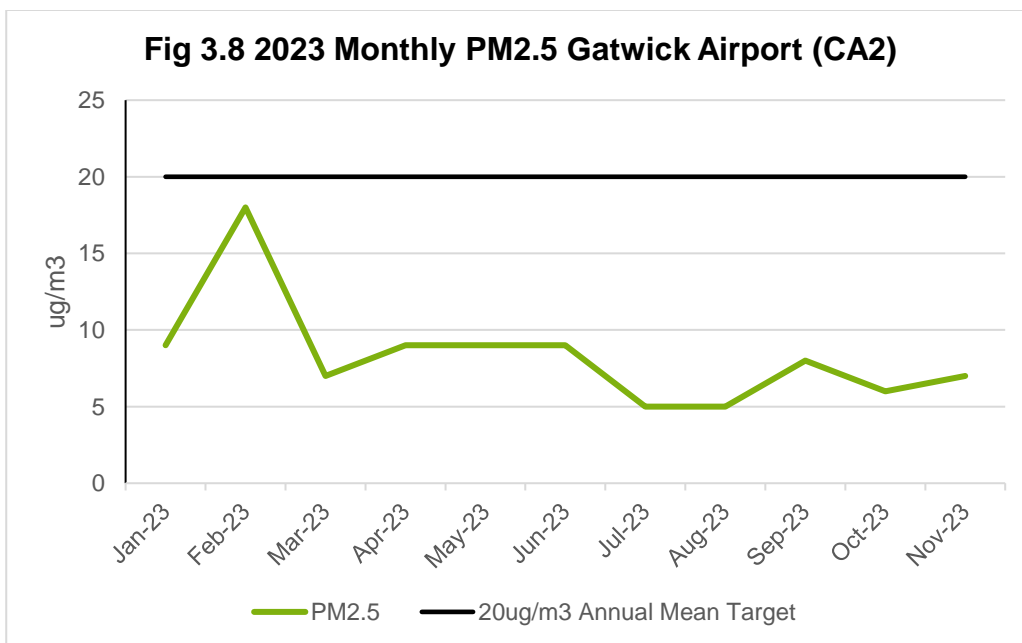
Table A.8 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past five years.

Since the installation of the new particulate monitor in 2020 the council has been able to carry out real-time monitoring for PM_{2.5}. Before 2020, annual mean PM_{2.5} was estimated from the TEOM PM₁₀ measurements (CA2) using a local ratio of PM_{2.5} to PM₁₀, following the method described in Box 7.7 of Technical Guidance TG (16).

Although the FIDAS has been certified in the UK for use without the need for correction for PM₁₀ measurements, precautionary advice given in 7.174 of LAQM.TG (22) requires PM_{2.5} data to be corrected for slope by dividing by 1.06 (Appendix C). This correction has therefore been applied to PM_{2.5} raw data and reported in Appendix A (Table A.8)

The measured annual average PM_{2.5} in 2023 was 8.0 ug/m³. The corrected value for PM_{2.5} is 7.5ug/m³, this value is well below the annual mean target value of 20µg/m³ and also meets the 2040 PM_{2.5} target of 10ug/m³. However, the results remain above the WHO-recommended annual mean guideline value of 5µg/m³.

Fig 3.8 shows monthly concentrations of PM_{2.5} at Crawley’s continuous monitoring station at Gatwick (CA2) during 2023.



Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
CA2	Gatwick East	Other/Industrial	529417	141496	NO ₂ PM ₁₀ PM _{2.5}	NO	Chemiluminescent/ FIDAS	63m	7m	1.8

Notes:

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

(2) N/A if not applicable

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CR1	High Street	Roadside	526799	136785	NO ₂	N	15.8m	1.75m	N	2.0
CR3	Birch Lea	Urban background	528438	138392	NO ₂	N	6.85m	0.5m	N	2.0
CR4	Headley Close	Urban background	529864	138204	NO ₂	N	14.8m	0.5m	N	2.0
CR48	Lynhurst Cottage	Urban background	527110	139530	NO ₂	N	0m	21m	N	1.5
CR49	Charlwood Nursery	Urban background	526320	139860	NO ₂	N	0m	36m	N	1.5
CR50	Rowley Cottage	Urban background	527810	139929	NO ₂	N	0m	75m	N	1.5
CR51	Balcombe Road	Urban background	529490	141460	NO ₂	N	0m	21m	N	1.5
CR52	Gatwick East, (Tri-location)	Other/ Industrial (AQD2008)	529417	141496	NO ₂	N	63m	7m	Y	1.5
CR53	Gatwick East, (Tri-location)	Other/ Industrial (AQD2008)	529417	141496	NO ₂	N	63m	7m	Y	1.5
CR54	Gatwick East, (Tri-location)	Other/ Industrial (AQD2008)	529417	141496	NO ₂	N	63m	7m	Y	1.5
CR 55	Tinsley Close Fence (11)	Roadside	528446,	138085	NO ₂	Y	1.13m	5.7m	N	2.0
CR 60	Peglar Way	Roadside	526759	136948	NO ₂	N	6.5m	2.31m	N	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CR62	Tinsley Close (10)	Urban background	528438	138088	NO ₂	Y	0m	13.6m	N	2.0
CR63	Woodfield Lodge (Roundabout)	Roadside	528153	137912	NO ₂	Y	30m	7.4m	N	2.0
CR64	Woodfield Lodge (Northgate Ave)	Roadside	528150	137825	NO ₂	Y	4.57m	1.5m	N	2.0
CR66	Brighton Rd (Rail crossing)	Roadside	526743	136346	NO ₂	N	0.5m	1.2m	N	2.0
CR69	Tinsley Close Facade(11)	Urban background	528443	138082	NO ₂	Y	0m	9.3m	N	2.0
CR72	Burlands	Urban background	525534	138472	NO ₂	N	6.75m	1.3m	N	2.0
CR74	Tinsley Green Radford Road	Roadside	528978	139599	NO ₂	N	31.5m	1.8m	N	1.5
CR75	Steers Lane	Roadside	529335	139589	NO ₂	N	18.6m	2m	N	2.0
CR76	Hazelwick Court	roadside	528292	137810	NO ₂	Y	10.3m	1.3m	N	2.0
CR77	Hazelwick Ave (Bays)	Roadside	528362	137812	NO ₂	Y	6.34m	2.3m	N	2.0
CR78	Ferndown	Urban background	530037	138553	NO ₂	N	0m	40m	N	2.0
CR79	St Hildas Close	Urban background	529312	138534	NO ₂	N	0m	12m	N	2.0
CR80	Saxon Road	Urban background	530424	136521	NO ₂	N	0m	8.7m	N	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CR81	Bolton Road	Urban background	529047	134474	NO ₂	N	0m	12.8m	N	2.0
CR85	Tinsley Lane Flats	Urban background	528295	138009	NO ₂	Y	32m	9.4m	N	2.0
CR86	Crown Buildings The Boulevard	Roadside	526878	136821	NO ₂	N	13.8m	0.5m	N	2.0
CR87	Broadway bus shelter	Roadside	526908	136754	NO ₂	N	3.5m	0.5m	N	2.0
CR88	Filbert Crescent	Urban background	525489	136573	NO ₂	N	0m	5.4m	N	2.0
CR89	Dalewood Garden	Urban background	527715	137893	NO ₂	y	0m	13.8m	N	2.0
CR91	Ocean Hse, Hazelwick Ave	Roadside	528681	137177	NO ₂	Y	4.7m	0.5m	N	2.0
CR93	St Marys Drive	Roadside	528895	137115	NO ₂	Y	1.5m	1.8m	N	2.0
CR94	Station Hill	Roadside	528841	137069	NO ₂	Y	5.45m	3.45	N	2.0
CR95	Daniels Hse, Worth Park Ave	Roadside	528882	137086	NO ₂	Y	5.44m	2.2m	N	2.50
CR96	Pound Hill Junior School	Roadside	529125	137196	NO ₂	N	35m	3.58m	N	2.0
CR97	Daisy Chain Nursery Haslett Ave East	Roadside	528603	136950	NO ₂	Y	3.52m	1.1m	N	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CR98	Gatwick School Gatwick Road	Roadside	528515	139275	NO ₂	N	12.6m	2.13m	N	2.0
CR 99	Furnace Farm Road	Urban background	528410	135628	NO ₂	N	12.1m	1.5m	N	2.0
CR100	Horsham Road Level Crossing	Roadside	526326	136487	NO ₂	N	2.08m	1.46m	N	2.0
CR101	Horsham Road A2220	Roadside	525679	135556	NO ₂	N	8.91m	1.13m	N	2.0
CR102	Pease Pottage Hill A23	Roadside	526449	134139	NO ₂	N	5.10m	4.45m	N	2.0
CR103	171 St Marys Drive	Urban background	528848	137802	NO ₂	N	0m	12.6m	N	1.5
CR104	Southgate Ave	Urban background	527333	135 846	NO ₂	N	0m	4.7m	N	1.5
CR105	102 London Road	Roadside	526940	137831	NO ₂	N	10.1m	2.7m	N	2.0
CR106	147 London Road	Roadside	527000	138357	NO ₂	N	5.94m	3.91m	N	2.0
CR107	Rusper Road	Urban background	524806	136822	NO ₂	N	0m	10.5	N	1.5
CR 110	Station car park	Roadside	526928	136356	NO ₂	N	8m	3.6m	N	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CR 111	Taj Car park	Roadside	526804	136375	NO ₂	N	0m	2.4 m	N	1.5
CR112	Manor Lodge	Roadside	527206	142325	NO ₂	N	0m	5m	N	1.5
CR113	Haworth Road	Roadside	528928	136266	NO ₂	N	0m	5m	N	1.5

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CA2	529417	141496	Other/ Industrial	95	95	25	17	18	21	19
LGW3*			Other/ Industrial	98	98	29	17	18	22	20
RG3**			Rural	99	99	15	10	10	12	11

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

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

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CR1	526799	136785	Roadside	100.0	100.0	35	26	28	27.8	22
CR3	528438	138392	Urban background	90.4	90.4	21	16	17	16.9	13
CR4	529864	138204	Urban background	84.6	84.6	23	18	18	17.0	13
CR48	527110	139530	Urban background	82.7	82.7	25	19	19	19.1	15
CR49	526320	139860	Urban background	100.0	100.0	17	10	12	13.9	12
CR50	527810	139929	Urban background	100.0	100.0	21	17	18	17.4	14
CR51	529490	141460	Urban background	100.0	100.0	22	16	15	17.1	16
CR52	529417	141496	Other/Industrial	100.0	100.0	26	18	18	20.8	19
CR53	529417	141496	Other/Industrial	100.0	100.0	25	18	18	20	19
CR54	529417	141496	Other/Industrial	100.0	100.0	25	18	18	21	19
CR55	528446,	138085	Roadside	82.7	82.7	42	36	35	37	30
CR60	526759	136948	Roadside	100.0	100.0	32	25	26	27	20
CR62	528438	138088	Urban background	100.0	100.0	40	34	34	36	29
CR63	528153	137912	Roadside	100.0	100.0	49	42	42	45	35
CR64	528150	137825	Roadside	100.0	100.0	38	30	31	31	26

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CR66	526743	136346	Roadside	100.0	100.0	30	27	26	26	22
CR69	528443	138082	Urban background	100.0	100.0	44	36	36	37	32
CR72	525534	138472	Urban background	100.0	100.0	13	11	11	12	9
CR74	528978	139599	Roadside	100.0	100.0	33	25	26	25	21
CR75	529335	139589	Roadside	100.0	100.0	23	17	19	20	14
CR76	528292	137810	Roadside	100.0	100.0	35	28	31	29	24
CR77	528362	137812	Roadside	100.0	100.0	35	28	31	31	25
CR78	530037	138553	Urban background	100.0	100.0	22	17	19	19	14
CR79	529312	138534	Urban background	100.0	100.0	25	20	21	21	17
CR80	530424	136521	Urban background	100.0	100.0	27	20	22	22	18
CR81	529047	134474	Urban background	100.0	100.0	22	16	17	17	13
CR85	528295	138009	Urban background	100.0	100.0	30	31	28	30	24
CR86	526878	136821	Roadside	100.0	100.0	27	24	21	22	19
CR87	526908	136754	Roadside	92.3	92.3	39	29	31	31	26
CR88	525489	136573	Urban background	100.0	100.0	25	21	22	22	18
CR89	527715	137893	Urban background	100.0	100.0	22	17	19	18	14
CR91	528681	137177	Roadside	100.0	100.0	32	28	30	29	24

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CR93	528895	137115	Roadside	100.0	100.0	53	39	42	42	37
CR94	528841	137069	Roadside	100.0	100.0	27	18	25	25	20
CR95	528882	137086	Roadside	100.0	100.0	32	24	26	26	20
CR96	529125	137196	Roadside	100.0	100.0	27	22	21.7	21	19
CR97	528603	136950	Roadside	90.4	90.4	37	28	29	36	29
CR98	528515	139275	Roadside	100.0	100.0	34	27	29	29	24
CR 99	528410	135628	Urban background	100.0	100.0	15	13	14	13	10
CR 100	526326	136487	Roadside	100.0	100.0	27	23	26	26	20
CR 101	525679	135556	Roadside	100.0	100.0	50	44	41	42	35
CR 102	526449	134139	Roadside	92.3	92.3	34	26	29	28	23
CR103	528848	137802	Urban background	100.0	100.0	21	13	17	15	12
CR104	527333	135846	Urban background	100.0	100.0	27	19	23	21	17
CR105	526940	137831	Roadside	100.0	100.0	44	36	36	38	32
CR106	527000	138357	Roadside	100.0	100.0	46	33	37	37	30
CR107	524806	136822	Urban background	100.0	100.0		14	16	15	12
CR 110	526928	136356	Roadside	90.4	90.4		17	19	19	14

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CR 111	526804	136375	Roadside	100.0	100.0		22	23	23	18
CR112	527206	142325	Roadside	100.0	100.0				18	15
CR113	528928	136266	Roadside	100.0	75.0					13

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

Diffusion tube data has been bias adjusted

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

Notes:

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

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations

Fig A.2 presents the 5-year trend in NO₂ annual mean concentrations for three long-term background sites (CR3, CR72 and CR99) in Crawley from 2019 to 2023.

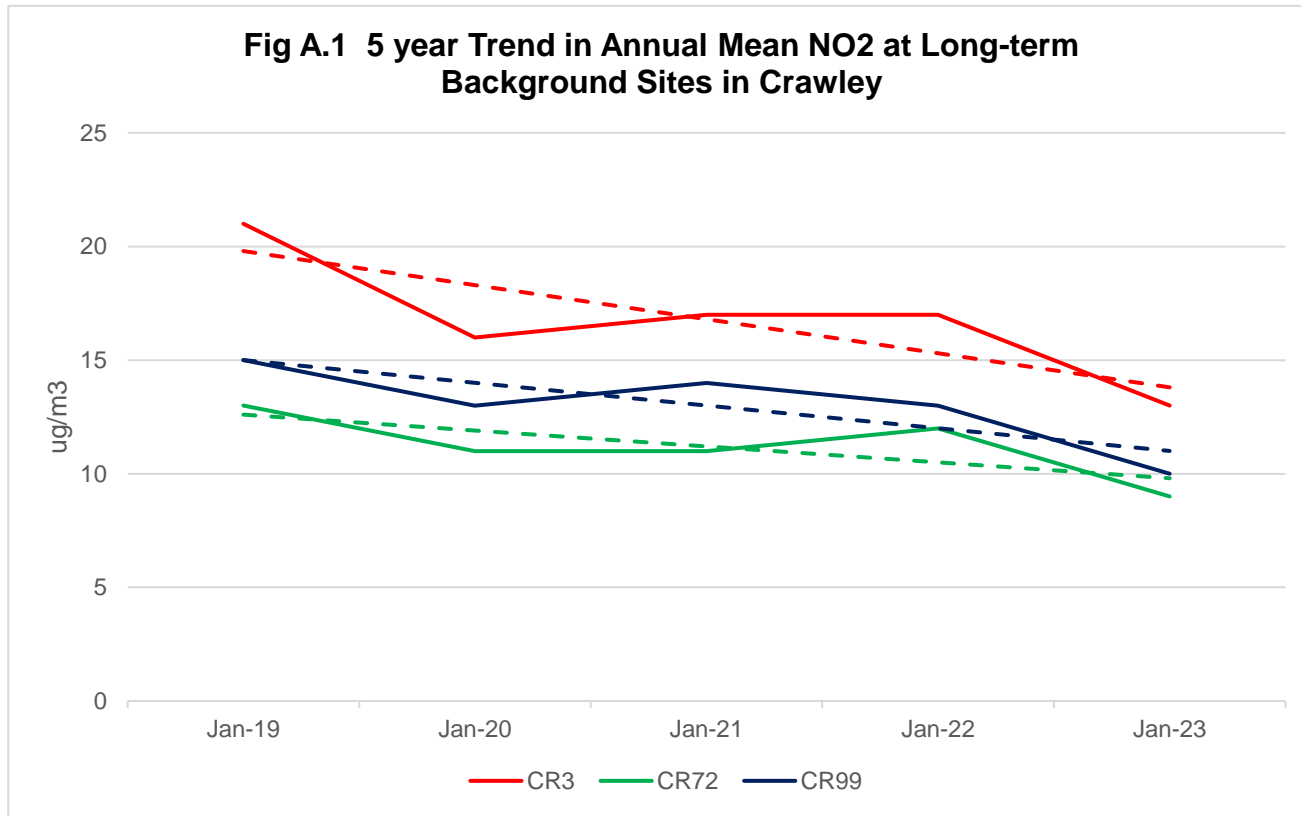


Fig A.2 presents NO₂ annual mean concentrations for long-term background sites in Crawley (CR3, CR72 and CR99) between 2019 to 2023. There are no exceedances of the 40 ug/m³ annual mean objective in 2023 and there is a general trend of reduction shown across all sites.

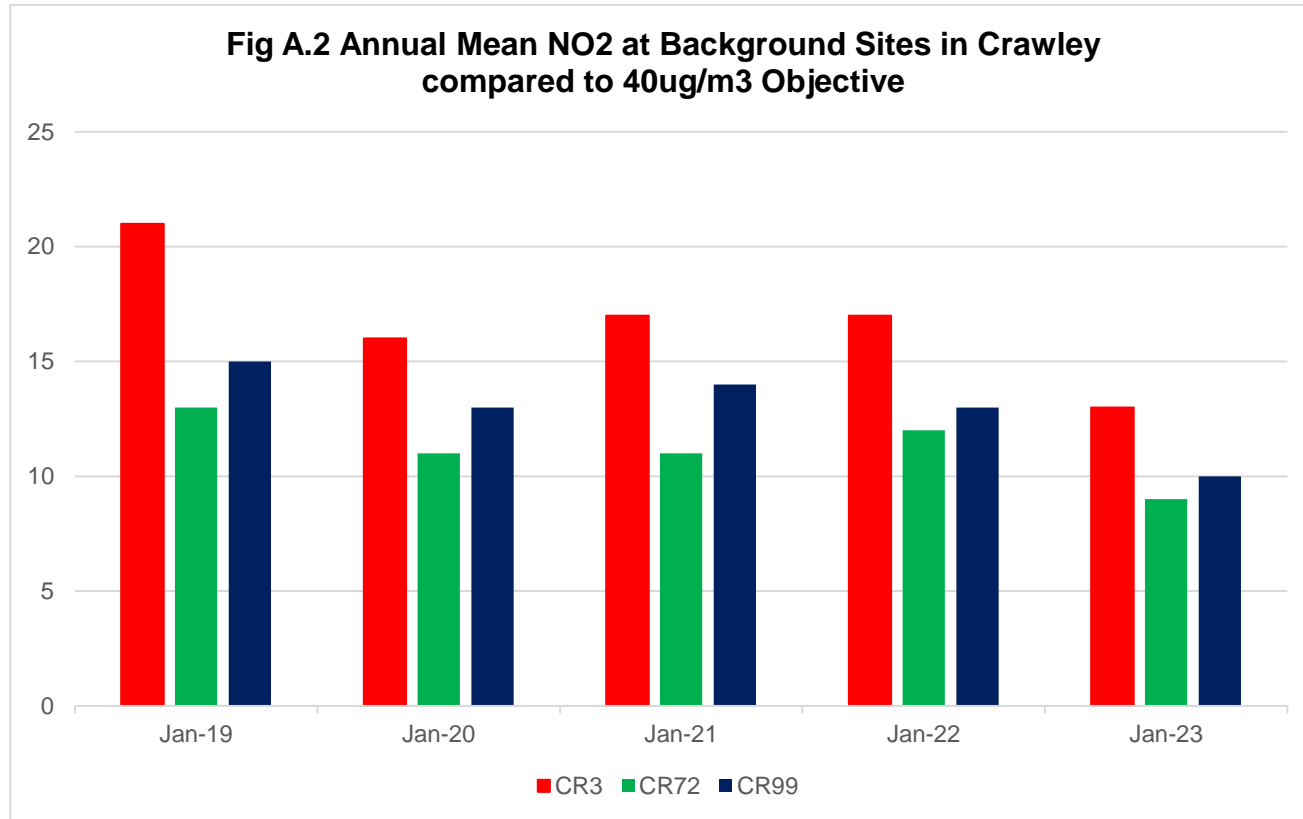
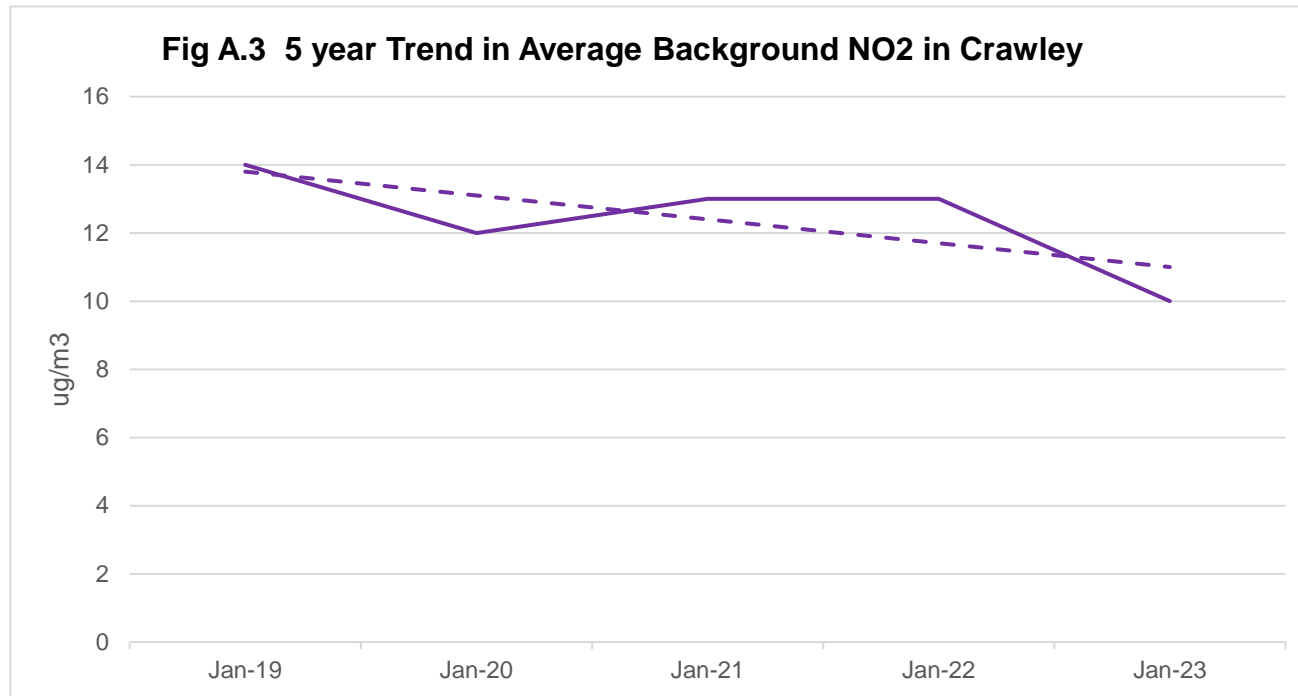


Figure A.3 presents the average 5-year trend for background NO₂ annual mean concentrations in Crawley from 2019 to 2023.



There were no exceedances of the annual mean objective at background sites in Crawley in 2023 and the long-term trend shows a reduction in NO₂. A similar downward in background emissions is seen regionally and nationally.

Prior to Covid, a flattening of the trend in background NO₂ was emerging. However, the low concentrations in 2020/21 due to Covid increased the downward slope, and measured background NO₂ concentrations at most background sites across Crawley have not returned to pre-Covid levels since 2020. It may still be too early to see if this downward trend is a result of generally lower background NO₂ brought about by a cleaner fleet mix and local measures to encourage sustainable transport, or if the gradual rise in traffic and other emission sources will flatten the curve. Trends will continue to be monitored and reviewed annually through the LAQM process to see how the impact of development and traffic volumes in the post-Covid period is affecting background NO₂ levels in Crawley.

Trends in Roadside NO₂ Concentrations

Figure A.4 presents the 5-year trend in NO₂ annual mean concentrations for three long-term roadside sites (CR98, CR101 and CR104) in Crawley from 2019 to 2023.

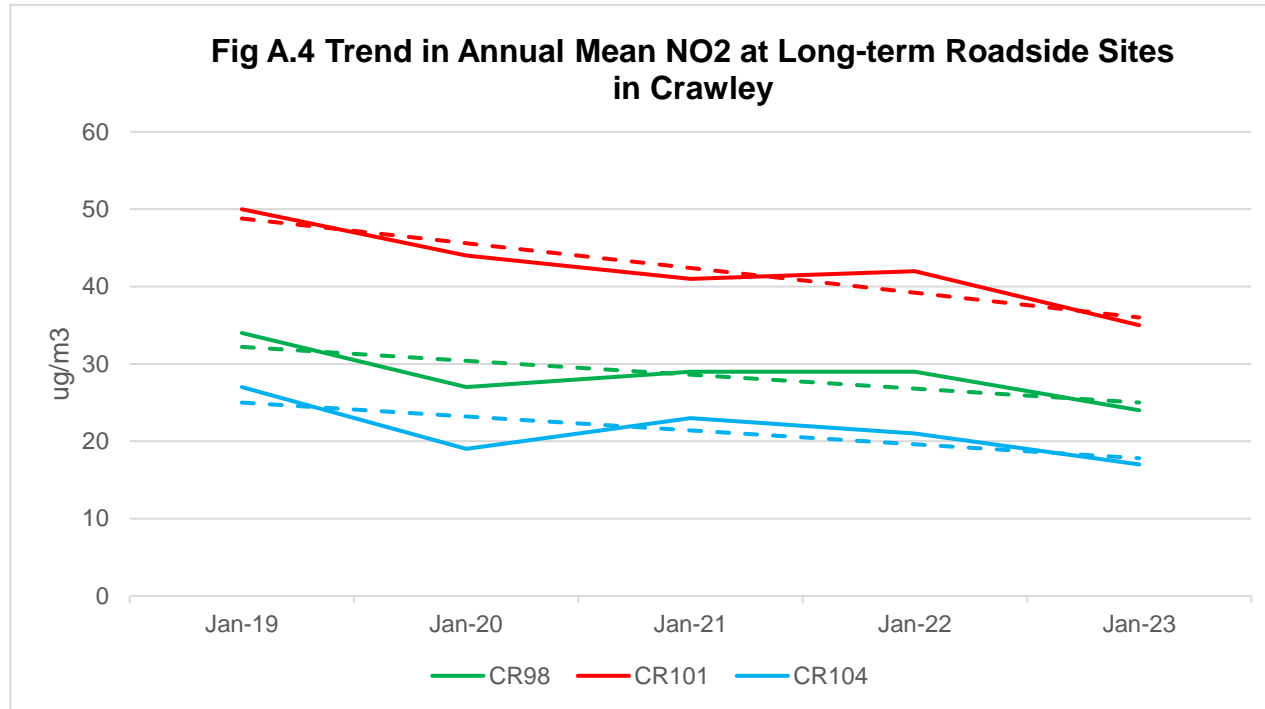
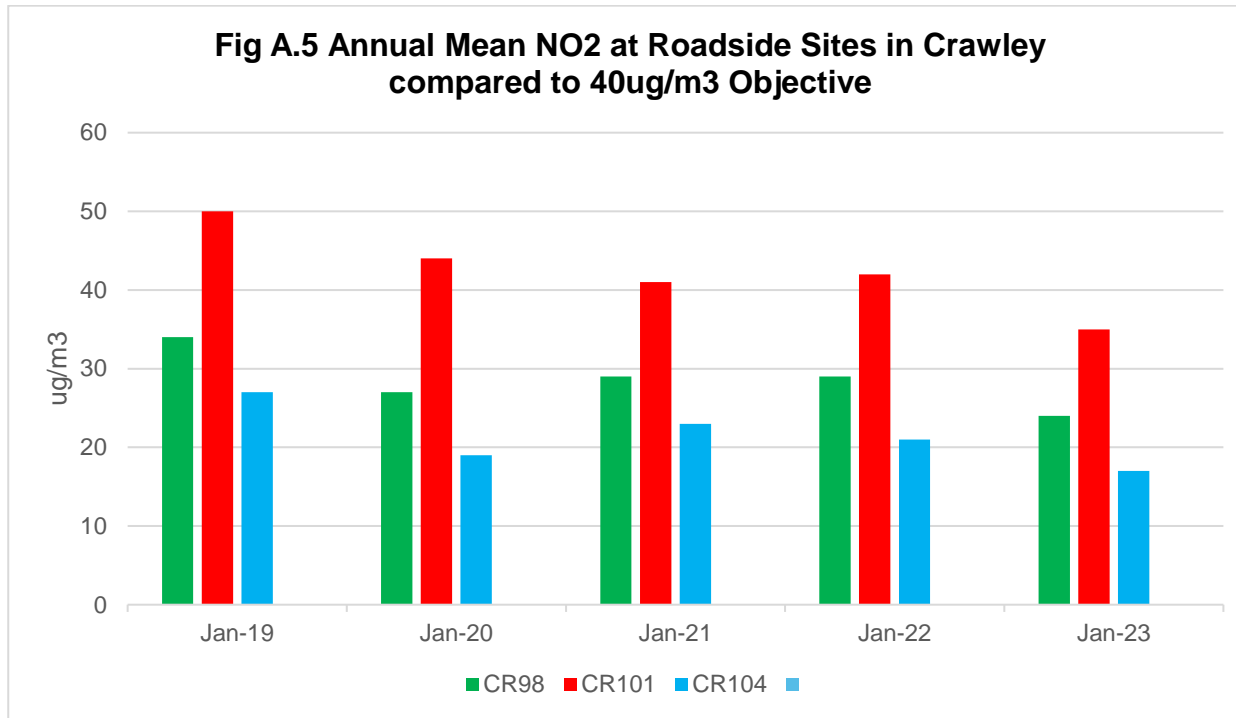


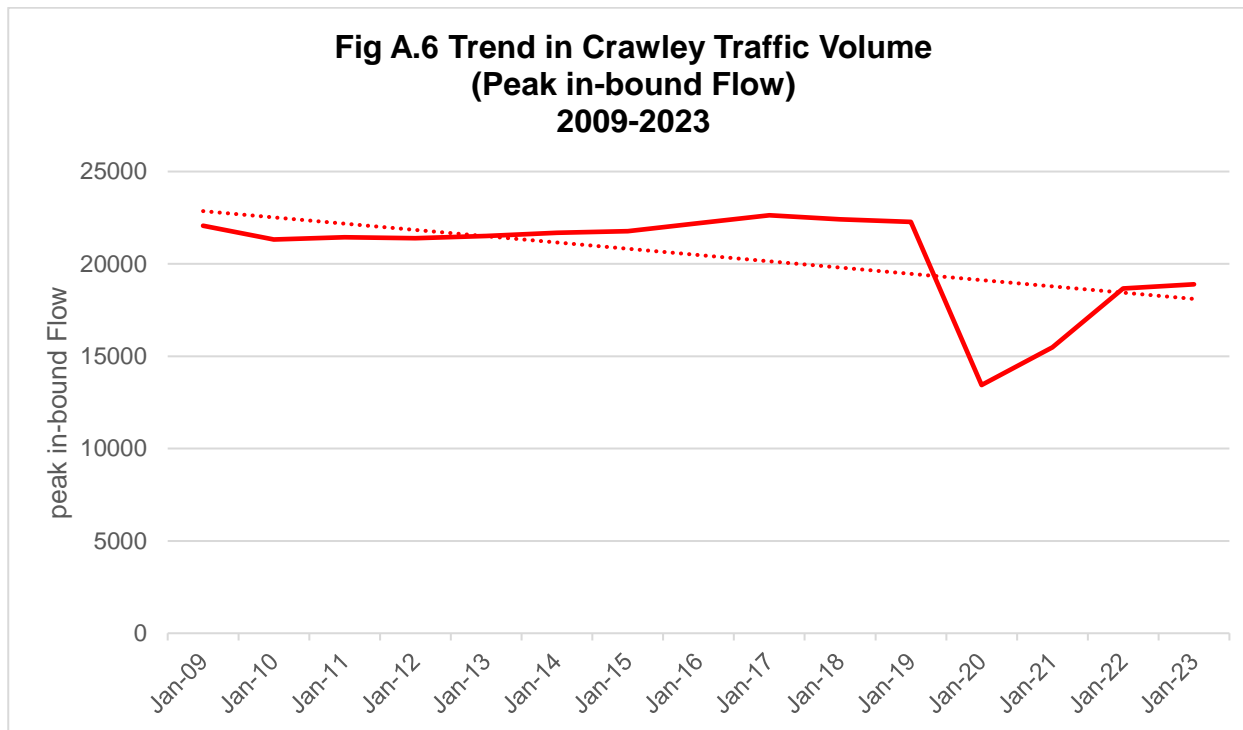
Fig A.5 presents NO₂ annual mean concentrations for long-term roadside sites in Crawley CR98, CR101 and CR104 between 2019 to 2023 compared to the 40 ug/m³ objective.



Exceedances of the annual mean NO₂ objective were recorded at three roadside sites in Crawley in 2023, however, after adjustment for fall off with distance, there was no relevant public exposure. The long-term (5 yr) trend shows a downward slope and reduction in NO₂ reflecting the regional and national long-term trend as policy controls and engine technology, as well as local measures help drive a reduction in emissions. Lower traffic volumes (compared to pre-Covid) are also likely to be contributing to the improvement in NO₂ measured at roadside locations.

Traffic data for Crawley presented in **Figs A.6** and **A.7** below, uses peak in-bound flow to give an indication of year-on-year trends. Although this data is not a direct measure of total traffic volume in Crawley, it is a useful representation of how post Covid traffic levels are recovering.

Fig A.6 shows that from 2009 until 2015 traffic flows were more or less stable with a slight upturn from 2015 - 2019, when traffic levels were rising during the 5-year period prior to Covid. The 5-year trend in roadside NO₂ levels over this same period (2015-2019) was also shown to mirror the upwards trend in traffic volume. Likewise following the unprecedented reduction in road traffic caused by travel restrictions in 2020 (and to a lesser extent 2021) NO₂ levels fell steeply at roadside sites.



The sharp drop measured during 2020 as a result of the travel restrictions imposed by the pandemic reduced traffic volumes by nearly 50%. Since then, there has been a year-on-year rise in traffic levels but road data from the DfT reports that overall traffic levels in Great Britain in 2023 remain below pre-pandemic 2019 levels, with traffic 2.3% lower in 2023 than 2019. For West Sussex the statistics show that traffic was 4.8% lower in 2023 compared to 2019.

Annual traffic by vehicle type in West Sussex

Traffic in Great Britain from 1993 to 2023 by vehicle type in vehicle miles (millions)

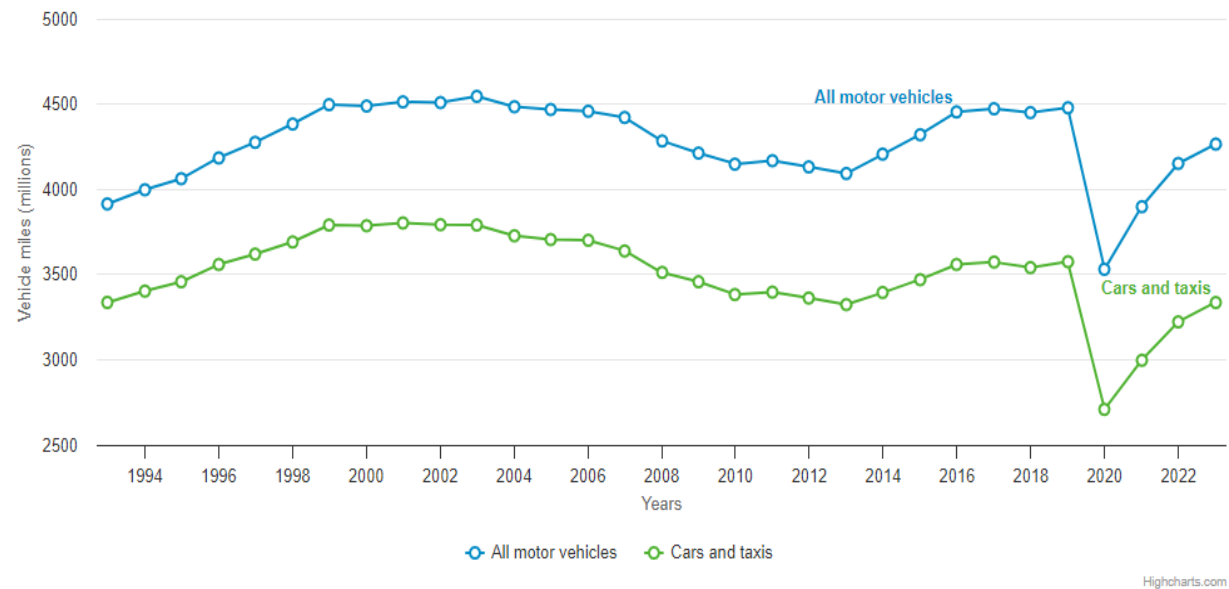
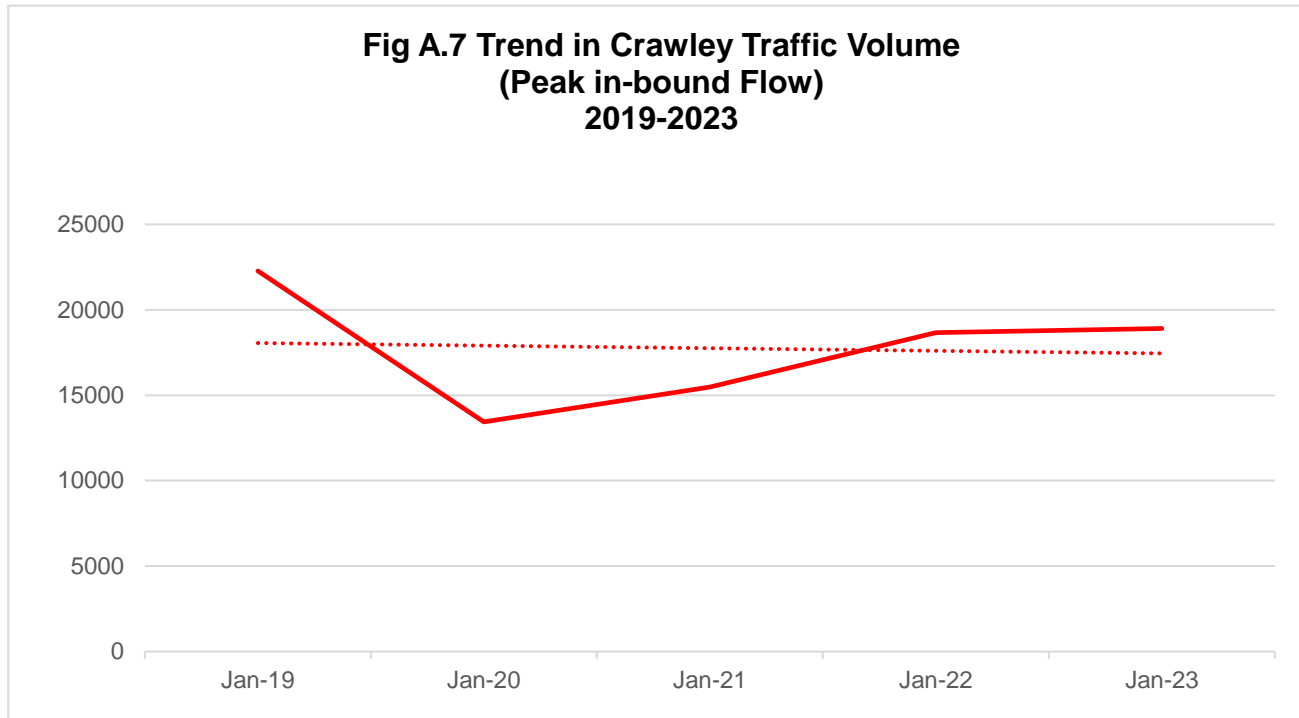


Fig A.7 shows that there has been a slight increase in traffic flows in Crawley from 2021 to 2023. Traffic levels in 2023 appear to be plateauing and are still below pre-Covid volumes.



A Reduction in NO₂ concentrations was seen at all roadside monitoring sites in 2023 compared to the previous year, and NO₂ concentrations at all roadside sites in Crawley recorded NO₂ concentrations lower than 2020 levels. Although traffic levels in 2023 are still slightly below pre-Covid levels, it is unlikely that this year’s very low measured NO₂ concentrations are due to lower traffic volumes alone. It is likely that a combination of year-on-year variation together with cleaner engine technologies and targeted local measures to encourage modal shift have all contributed to bring about the improvements. However, the trend is encouraging and will continue to be monitored and reviewed annually through the LAQM process.

Trends in AQMA NO₂ Concentrations

Fig A.8 presents the 5-year trend in NO₂ annual mean concentrations for two residential sites adjacent to the A2011 Crawley Avenue (CR69) and the A2220 close to Three Bridges Station (CR93) in the Crawley AQMA from 2019 to 2023.

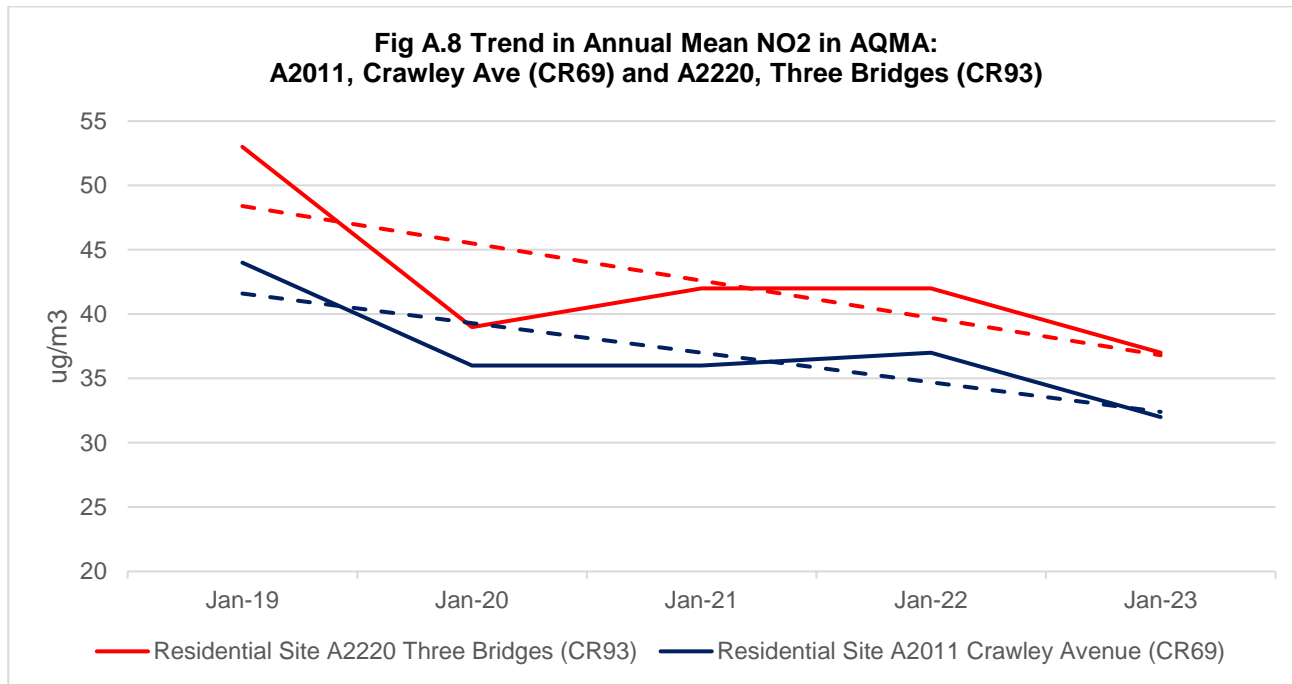
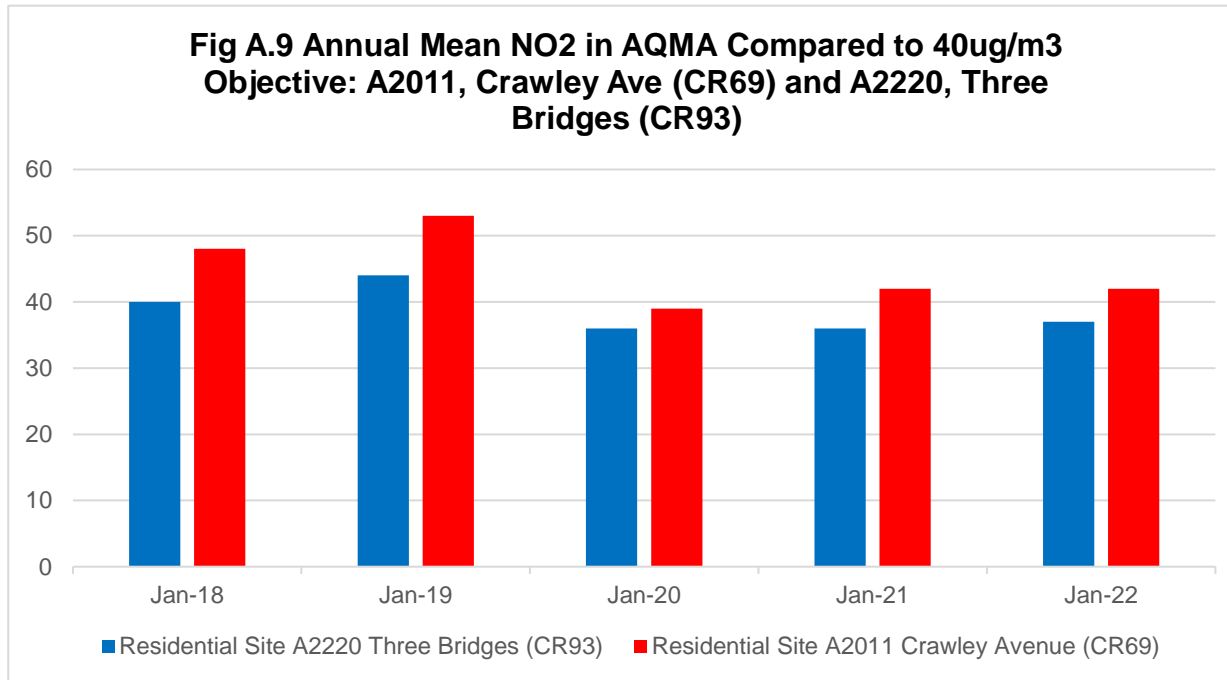


Fig A.9 presents NO₂ annual mean concentrations for Sites in AQMA (CR69 and CR93) between years 2019 to 2023 compared to the 40 ug/m³ objective.



The 5-year trend in NO₂ is downwards at both sites, and after adjustment for fall off with distance, there were no exceedances of the annual mean objective at any sites in the AQMA in 2023. However, levels in the AQMA continue to be relatively high, and given that the primary source of pollution in the AQMA is from vehicle emissions, the future trend in traffic volumes in the area will be fundamental to achieving (and understanding) continued improvement.

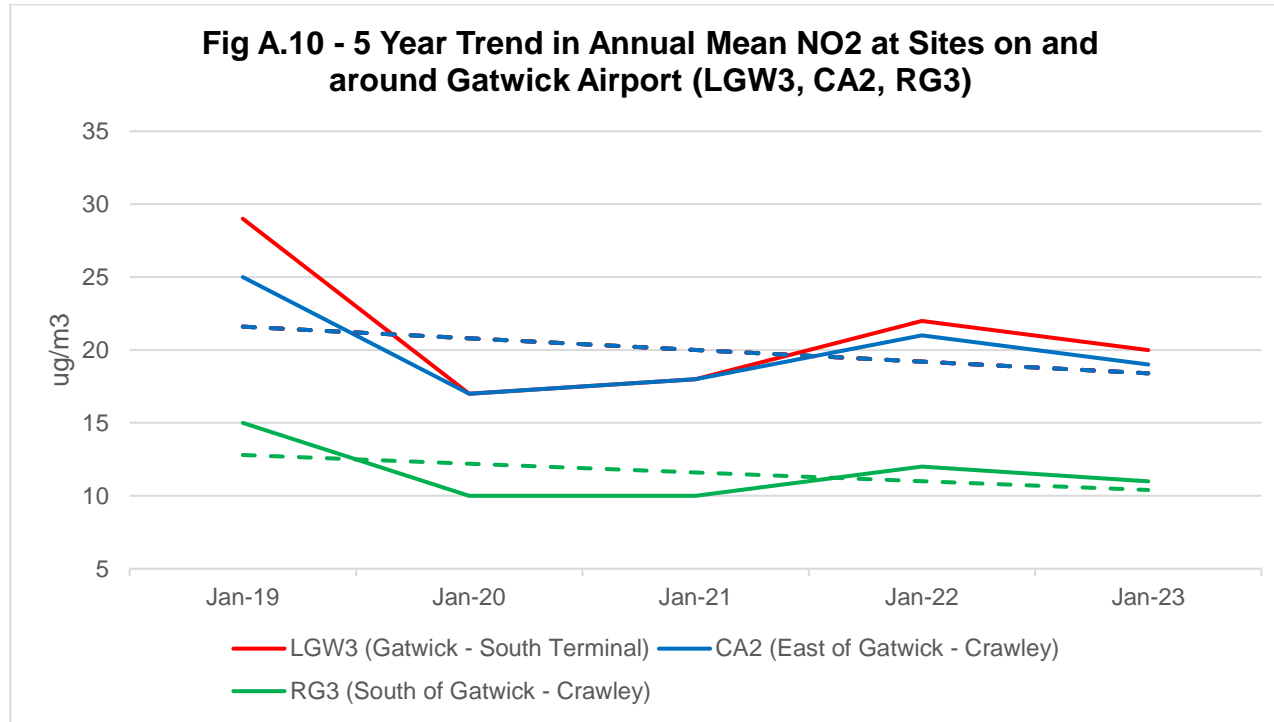
Site CR93 is close to Three Bridges Station (London to Brighton mainline) and is therefore directly influenced by commuter traffic and buses. The future of hybrid working is a key element in determining if traffic volumes through this route may increase or plateau at more or less current levels.

Site CR69 is close to Manor Royal Business District and adjacent to the east bound dual carriage way to J10 of the M23. This location is influenced by commuter traffic into Crawley, but also includes a high percentage of goods vehicles (LGV and HGV) accessing Manor Royal. With easy access to the M23/25 Manor Royal has seen an exceptional increase in distribution centre development in the last 4 years and source apportionment studies have identified that the dominant pollution source in this area is from LGVs. Action plan measures targeted at encouraging a shift to a low emission commercial vehicle fleet are therefore important in achieving continuing air quality improvements in this area.

Locations within the AQMA will continue to be monitored and reviewed annually through the LAQM process to assess trends. The Council is not considering revoking the AQMA until a continuing trend of reduced NO₂ concentrations is maintained in future years.

Trends in NO₂ Concentrations at Gatwick Airport and Residential Properties close to the Airport

Fig A.10 presents the 5-year trend in NO₂ annual mean concentrations from 2019 to 2023 for continuous automatic monitoring sites on and around Gatwick Airport. GAL's LGW3 site (located at the end of South Terminal runway) is compared with Crawley's CA2 site (located east of the runway on the airport boundary close to Balcombe Road residential properties) and RG3 (located southwest of the runway at Poles Lane in a rural area of Crawley).



A slight reduction in annual mean NO₂ was seen at all three sites in 2023, and the 5-year trend continues to be downwards. Monitoring sites RG3, LGW3 and CA2 are located on a transect across the airport from southwest to northeast following the prevailing wind direction (south-westerlies) in the area. Comparing the monitoring data from these three sites gives an indication of the level of emissions “picked up” from the airport from southwest (RG3) to northeast (CA2).

The sharp fall-off in airport concentrations in 2020 was a direct result of the almost total shut down of the aviation industry due to the Covid pandemic. This demonstrated the contribution on-airport emissions of NO₂ make to annual mean concentrations in the local area. NO₂ levels in 2023 are still about 25% lower than pre-covid (2019) levels. Gatwick Airport Ltd (GAL) expects passenger throughput to return to pre-covid levels by 2025.

In August 2023 GAL submitted an application to the Planning Inspectorate for an expansion of the airport to provide dual runway operations and increased capacity. The potential passenger throughput with development is predicted to be 74 million passengers per annum (mppa) by 2038, representing a 27mppa increase on today’s capacity and a 13mppa increase above the “without development” potential of the single runway airport. Trends will continue to be monitored and reviewed annually through the LAQM process.

Fig A.11 presents the 5-year trend in annual mean NO₂ concentrations at Gatwick (LGW3) compared with residential sites within 1000m of the airport from 2019 to 2023.

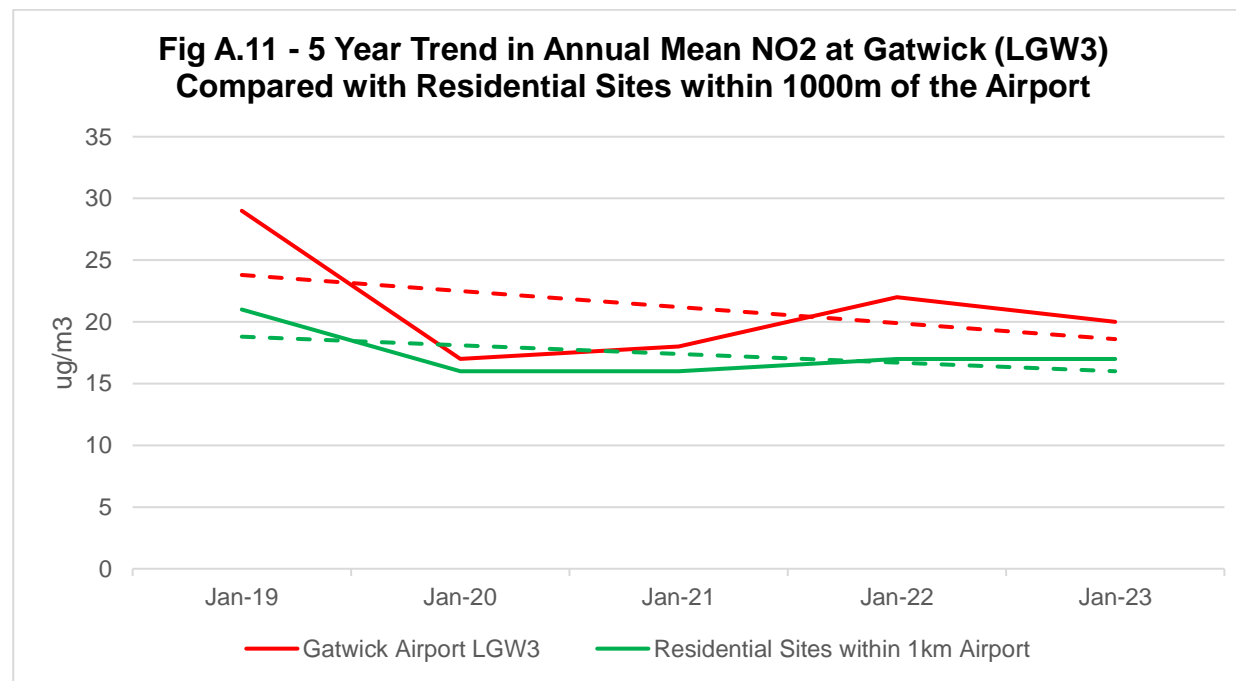
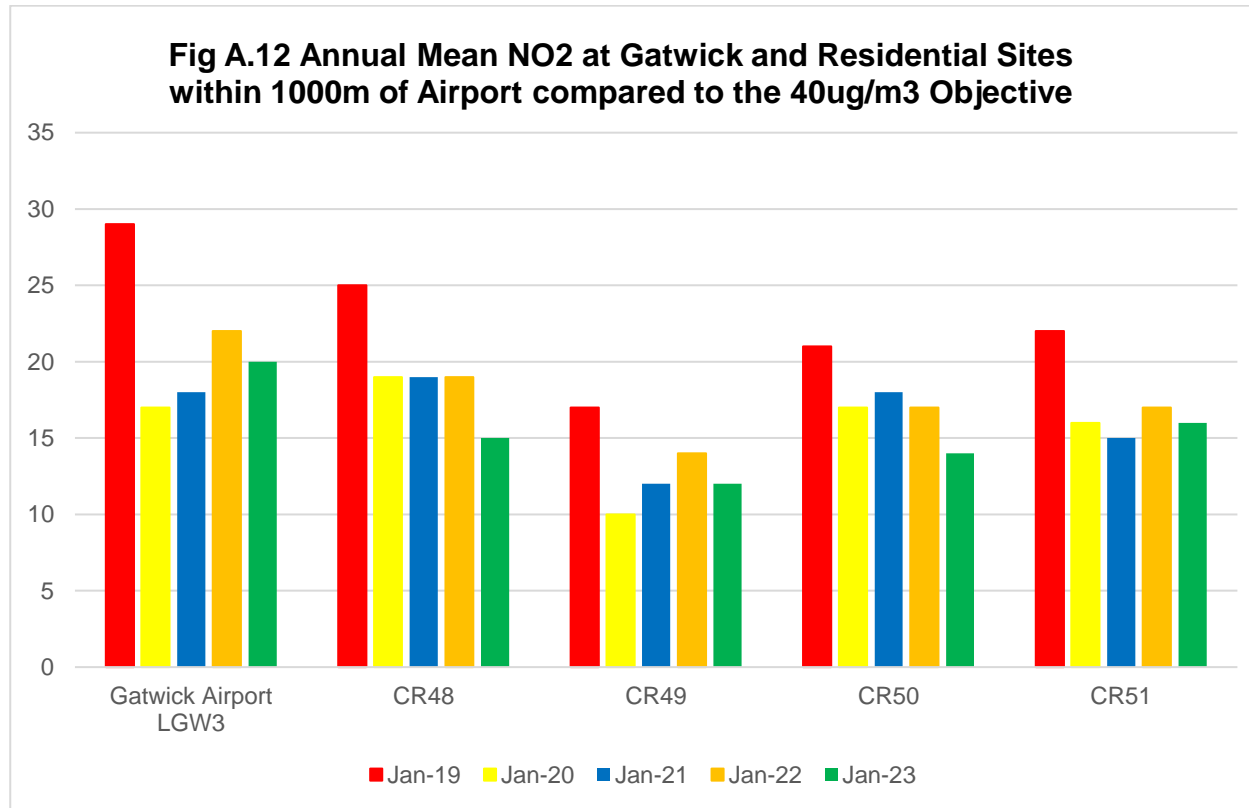


Fig A.12 presents NO₂ annual mean concentrations for Gatwick (LGW3) and residential sites within 1000m of the airport (CR48, CR49, CR50 and CR51) compared to the 40 ug/m³ objective from 2019 to 2023.



There were no exceedances of the annual mean objective for NO₂ in 2023 at Gatwick or any of the residential monitoring locations within 1000m of the airport. **Fig A.11** shows a long-term downward trend for both the airport and surrounding residential receptors close to the airport.

Both airport and residential NO₂ showed a steep decline in concentrations in 2020 as a result of Covid restrictions on road and air transport. 2020 levels of NO₂ fell more dramatically at the airport than elsewhere in the borough, with measured airport NO₂

concentrations almost at the same level as those of residential locations for the first time since monitoring began (>20yrs), demonstrating the contribution on-airport emissions of NO₂ make to annual mean concentrations in the local area. Despite the increased traffic and air transport activity seen over the last 2 years as the airport recovers from the pandemic, there was a slight improvement in NO₂ levels measured in 2023. This is likely to be due to a combination of year-on-year variation combined with cleaner engine technologies and targeted measures to encourage modal shift to more sustainable transport and active travel.

Gatwick Airport Ltd are predicting a return to pre-covid levels by 2025 and given the scale of development coming forward over the next 10/15 years if the Gatwick expansion project is approved, pollution trends in and around the airport will continue to be monitored and reviewed annually through the LAQM process.

Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CA2	529417	141496	Other/ Industrial	95	95	0	0	0	0	0
*LGW3			Other/ Industrial	98	98	0	0	0	0	0
**RG3			Rural	99	99	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

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

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

Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CA2	529417	141496	Other/ Industrial	99	99	21*	15**	18**	14**	14**
*LGW3			Other/Industrial	98	98	14	14	14	15	13

(* LGW3 site located on-airport South Terminal runway – owned/operated by GAL - data presented here for the purpose of comparison)

* TEOM monitor data

** FIDAS Monitor data

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

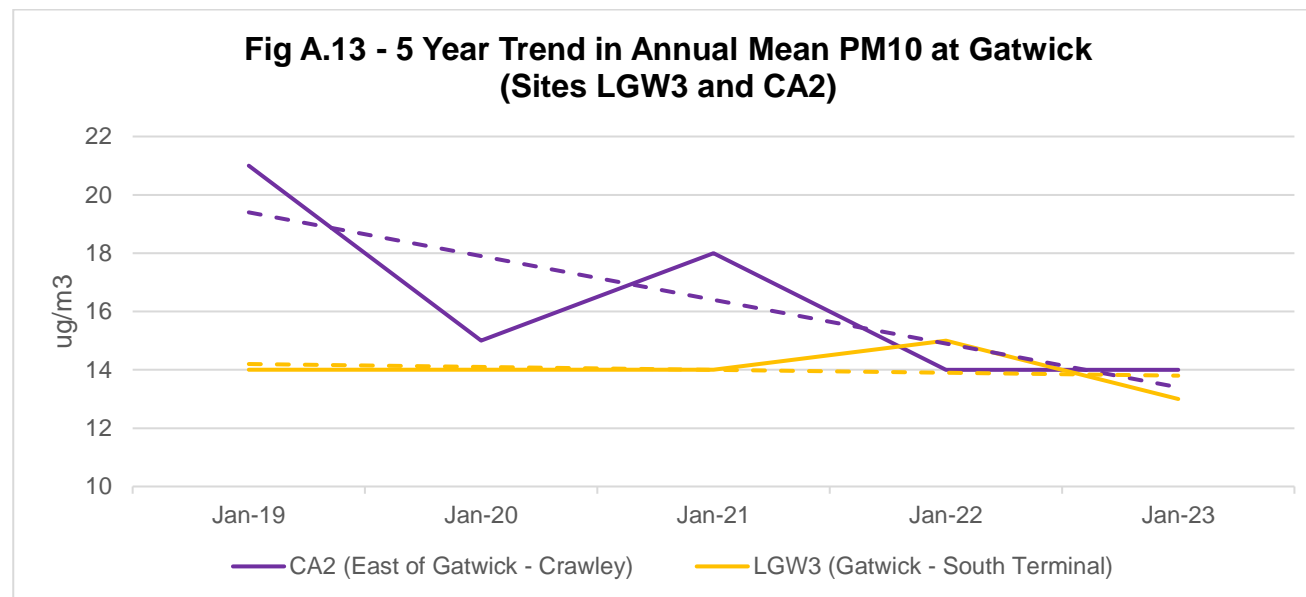
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

Trends in Annual Mean PM₁₀ Concentrations

Figure A.13 – Trends in Annual Mean PM₁₀ Concentrations

Fig A.13 presents the 5-year trend in annual mean PM₁₀ concentrations at Gatwick’s air quality monitoring site (LGW3) located at the South Terminal, compared to Crawley’s air quality monitoring site (CA2), located east of the runway on the airport boundary close to residential properties on Balcombe Road.



There were no exceedances of the annual mean PM₁₀ objective at either site in 2023. Both sites show a downward trend in measured concentrations of PM₁₀ over the last five years. A new FIDAS particulate analyser was installed at the CA2 site the beginning of March 2020 to replace the TEOM. For continuity all data is graphed, however, the measured data may not be directly comparable between the different instruments (TEOM and FIDAS). The PM₁₀ concentrations at Gatwick’s LGW3 site remained the same in 2023 as the previous year, and PM₁₀ concentrations at Crawley’s CA2 site recoded levels lower than those measured in 2020.

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CA2	529417	141496	Other/ Industrial	95	95	4*	4**	2**	1**	5**
*LGW3			Other/Industrial	99	99	4	0	2	1	4

* TEOM monitor data

** FIDAS Monitor data

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Table A.8 – Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CA2	529417	141496	Other/ Industrial	99	99	15*	8	8	8	8
*LGW3			Other/Industrial	99	99	9	8	9	9	8

* Data for 2019 is estimated values calculated from the TEOM PM₁₀ measurements (CA2) using ratio of PM_{2.5} to PM₁₀, as per the Technical Guidance LAQM.TG22

Notes:

The annual mean concentrations are presented as µg/m³.

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

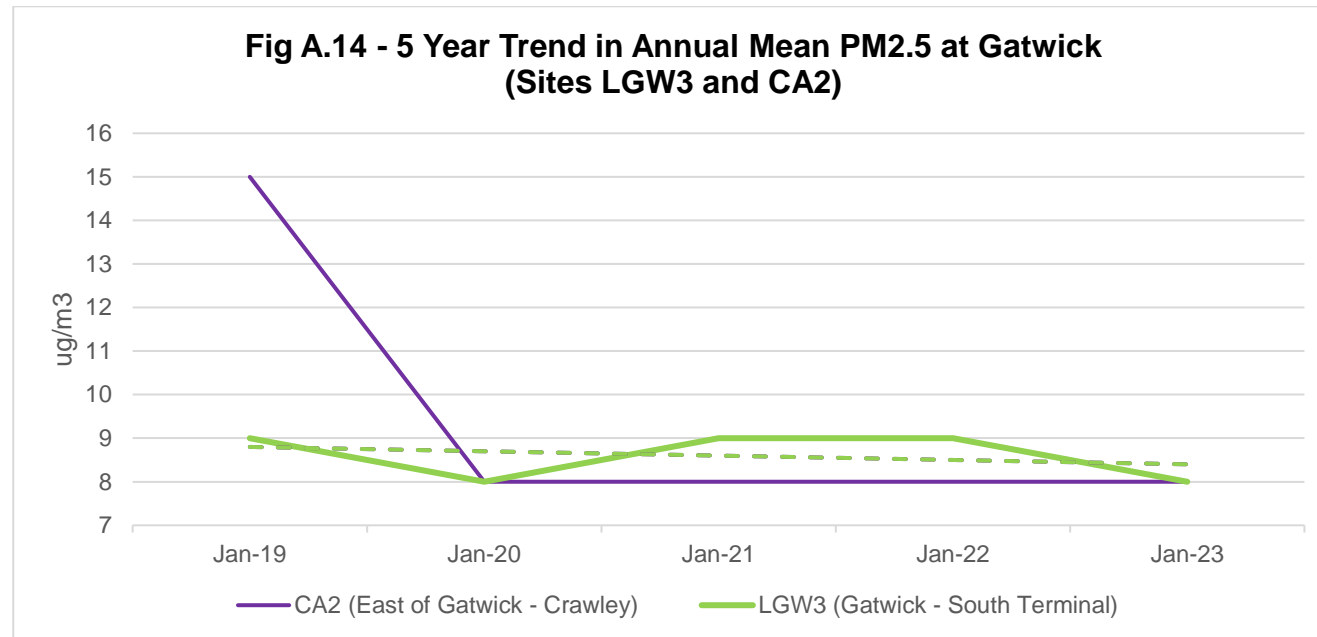
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

Trends in Annual Mean PM_{2.5} Concentrations

Figure A.14 – Trends in Annual Mean PM_{2.5} Concentrations

Fig A.14 presents the 5-year trend in annual mean PM_{2.5} concentrations at Gatwick (LGW3) at the South Terminal compared Crawley’s CA2 site, located east of the runway on the airport boundary close to residential properties on Balcombe Road.



The FIDAS monitor installed at the CA2 site has provided capability to measure real-time PM_{2.5} concentrations from 2020. Council with the replacing the TEOM which had been in place since 2006. The real-time data may not be directly comparable to PM_{2.5} concentrations reported prior to 2020 as these were based on estimated values from the CA2 TEOM measurements using local ratio of PM_{2.5} to PM₁₀ (Technical Guidance TG (16) methodology Box7.7), however, for continuity, all data is graphed.

There were no exceedances of the annual mean PM_{2.5} target value of 20ug/m³ at either site in 2023, and both sites shows a slight downward trend in annual mean PM_{2.5}. The measured PM_{2.5} concentrations at both sites have remained at about the same level of 8 or 9 ug/m³ since 2020. Although these values are well below the national target value of 20µg/m³ they remain above the WHO-recommended annual mean guideline value of 5µg/m³.

The impact of Gatwick's Northern runway expansion plans may impact PM levels in future and trends will therefore continue to be monitored and reviewed annually through the LAQM process.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CR1	526799	136785	34.1	36.1	24.0	25.3	19.9	24.7	19.6	20.7	25.3	25.9	29.1	22.0	25.6	21.7	-	
CR3	528438	138392	23.1	22.1		14.1	11.1	12.4	9.9	11.9	14.2	16.4	16.6	13.4	15.0	12.8	-	
CR4	529864	138204	24.2	23.4	15.3	14.9	12.3	12.6	10.3	12.1			18.8	14.1	15.8	13.4	-	
CR48	527110	139530	26.2	25.2	17.6	16.7	14.9	16.1	13.2	15.6	16.7	16.7			17.9	15.2	-	
CR49	526320	139860	17.8	20.0	12.5	15.5	20.7	14.4	7.1	9.5	11.7	10.4	17.9	10.0	14.0	11.9	-	
CR50	527810	149929	22.3	25.5	17.6	19.3	15.3	12.9	9.0	12.4	13.8	14.7	13.8	14.0	15.9	13.5	-	
CR51	529490	141460	25.0	21.9	16.4	15.0	11.4	17.2	17.6	16.6	16.6	18.8	22.1	19.8	18.2	15.5	-	
CR52	529417	141496	27.1	27.5	19.8	20.4	19.8	23.8	18.2	18.6	21.8	22.3	23.6	19.3	21.9	18.6	-	
CR53	529417	141496	26.2	28.0	20.7	21.2	20.4	23.0	17.0	18.3	21.3	21.2	23.3	20.7	21.8	18.5	-	
CR54	529417	141496	25.5	27.7	21.0	21.2	19.6	23.5	17.9	19.0	21.8	22.7	25.0	20.5	22.1	18.8	-	
CR55	528446	138085	33.1	34.6	35.1	35.2	27.0			36.0	43.1	43.2	33.4	27.0	34.8	29.5	-	
CR60	526759	136948	32.1	32.5	22.6	19.8	19.3	20.4	17.4	18.7	25.2	25.8	26.3	19.2	23.3	19.8	-	
CR62	528438	138088	33.8	34.1	33.9	33.9	26.5	41.0	34.2	32.3	40.7	39.5	34.0	25.7	34.1	29.0	-	
CR63	528153	137912	50.4	53.9	40.7	42.9	38.9	44.4	23.3	36.0	43.9	41.1	41.1	34.8	41.0	34.8	-	
CR64	528150	137825	33.5	35.4	26.3	30.4	33.9	32.5	37.0	24.2	33.9	29.4	33.7	22.3	31.0	26.4	-	
CR66	526743	136346	33.1	33.8	26.5	23.9	19.4	25.0	21.5	20.6	25.1	28.4	30.7	23.0	25.9	22.0	-	
CR69	528443	138082	32.6	34.7	34.7	33.0	29.4	44.1	37.3	37.9	45.6	47.1	39.8	33.1	37.4	31.8	-	
CR72	525534	138472	16.4	15.7	10.9	9.6	8.9	8.5	6.6	7.0	10.0	10.2	12.2	8.9	10.4	8.8	-	
CR74	528978	139599	26.9	30.7	19.4	24.1	22.1	25.5	20.8	23.3	26.2	24.6	29.5	17.5	24.2	20.6	-	
CR75	529335	139589	24.4	23.3	13.2	16.2	13.5	14.6	10.7	14.0	16.6	15.1	20.7	13.3	16.3	13.9	-	
CR76	528292	137810	32.8	35.1	26.1	28.7	28.5	27.8	20.8	24.1	29.7	27.7	31.2	21.4	27.8	23.6	-	
CR77	528362	137812	36.8	37.0	29.4	27.8	26.0	29.0	24.4	24.8	30.1	30.8	34.4	23.6	29.5	25.1	-	
CR78	530037	138553	22.1	24.0	15.2	17.6	17.4	15.3	10.1	12.3	17.4	15.9	18.7	12.8	16.6	14.1	-	
CR79	529312	138534	27.2	28.3	16.9	22.1	22.5	20.8	11.4	13.8	20.5	17.1	22.3	15.4	19.9	16.9	-	
CR80	530424	136521	23.0	27.6	18.4	25.6	28.6	24.9	11.4	14.8	26.4	19.7	19.1	13.0	21.0	17.9	-	
CR81	529047	134474	20.2	20.9	15.3	15.6	12.2	15.9	12.3	13.7	17.0	16.2	17.8	12.7	15.8	13.4	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CR85	528295	138009	32.0	34.3	29.0	29.5	25.9	30.2	21.6	21.9	30.1	28.5	28.6	23.7	27.9	23.7	-	
CR86	526878	136821	28.6	26.2	20.1	17.7	13.7	17.1	16.1	16.4	21.0	22.9	46.9	19.2	22.2	18.8	-	
CR87	526908	136754	36.1	36.6	29.2	28.3	25.8	31.5	26.8	28.3	30.8		35.1	25.1	30.3	25.8	-	
CR88	525489	136573	22.8	30.5	19.5	26.6	30.5	24.5	9.7	13.0	24.7	18.1	18.3	14.0	21.0	17.9	-	
CR89	527715	137893	23.1	22.8	14.2	16.0	14.9	14.5	9.6	12.4	15.8	15.3	19.1	13.0	15.9	13.5	-	
CR91	528681	137177	35.5	37.4	25.8	26.0	23.4	25.9	23.3	23.9	26.6	29.4	35.1	23.2	28.0	23.8	-	
CR93	528895	137115	50.0	51.4	40.6	40.4	36.1	47.0	38.1	38.8	44.3	48.3	48.9	38.6	43.5	37.0	34.8	
CR94	528841	137069	32.1	31.3	21.8	25.2	21.9	23.5	15.0	17.2	27.0	21.5	27.4	18.1	23.5	20.0	-	
CR95	528882	137086	30.8	29.7	23.7	24.4	20.1	25.5	19.2	21.0	22.9	24.0	26.2	20.3	24.0	20.4	-	
CR96	529125	137196	30.8	30.0	20.8	19.1	15.4	19.7	18.7	20.0	19.4	21.3	27.5	20.6	21.9	18.7	-	
CR97	528603	136950	42.5	47.8	34.6	37.3	34.4	40.8	29.9		34.2	24.8	24.2	27.2	34.3	29.2	-	
CR98	528515	139275	38.7	37.2	28.7	25.8	21.8	26.8	23.1	23.6	27.0	27.5	32.9	25.3	28.2	24.0	-	
CR99	528410	135628	21.1	18.7	11.3	10.4	9.2	9.2	7.1	8.3	9.1	11.4	16.1	12.3	12.0	10.2	-	
CR 100	526326	136487	24.8	29.7	23.4	24.5	21.0	24.5	16.8	18.0	26.6	23.1	28.1	18.3	23.2	19.8	-	
CR 101	525679	135556	48.1	50.8	42.6	41.2	35.9	44.8	39.7	35.5	41.5	44.8	44.6	29.4	41.6	35.3	-	
CR 102	526449	134139	38.6	37.5	21.8	20.2	25.7	27.9	23.7	24.2	23.0		34.3	25.1	27.5	23.3	-	
CR 103	528848	137802	21.9	18.5	12.5	12.3	9.5	12.2	10.0	11.6	12.5	13.3	18.8	12.4	13.8	11.7	-	
CR 104	527333	135846	27.5	27.7	20.8	20.8	18.9	17.5	12.5	14.4	20.0	20.9	24.0	17.6	20.2	17.2	-	
CR 105	526940	137831	47.7	46.3	39.0	32.0	28.9	35.4	34.6	31.5	36.2	39.2	37.9	36.4	37.1	31.5	-	
CR 106	527000	138357	41.4	42.7	37.0	36.0	28.4	35.9	30.1	29.6	38.4	33.1	43.6	28.0	35.3	30.0	-	
CR 107	524806	136822	18.9	19.9	12.8	14.3	14.0	14.0	10.1	10.8	13.8	15.1	18.6	6.7	14.1	12.0	-	
CR 110	526928	136356	23.2	25.4	15.8	18.4	17.7	15.1	9.9	11.7	15.7	16.1		14.4	16.7	14.2	-	
CR 111	526804	136375	27.6	28.1	18.5	19.6	17.4	19.4	14.4	16.5	21.3	21.5	24.1	18.3	20.6	17.5	-	
CR 112	527206	142325	21.9	21.5	17.4	16.8	14.8	15.6	12.7	13.6	18.2	18.0	18.8	14.9	17.0	14.5	-	
CR 113	528928	136266				13.6	14.2	15.1	11.4	13.2	15.9	16.0	19.3	14.0	14.8	12.5	-	

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- Local bias adjustment factor used.
- National bias adjustment factor used.

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

Crawley Borough Council confirms that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

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**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Crawley During 2023-24

Major development sites can be a significant source of dust and vehicle pollution. All new development is examined through the planning system and where necessary air quality and emissions mitigation assessments are required in order to offset the impacts of new or changed sources of pollution on existing and future residents.

In addition, diffusion tube monitoring within the AQMA and surrounding areas can measure the effects of new developments and new pollution sources, allowing the council to identify pollution hotspots and assess long term trends. These results are reported annually through the LAQM process.

There are a number of significant new or ongoing developments within the borough which may cumulatively contribute to pollution sources in the area. These include:

Commercial/Industrial Development

Most industrial and commercial development occurs on Manor Royal Business District, which is located adjacent to Crawley's AQMA. The main route into and out of Manor Royal is via A23 Gatwick Road to the Hazelwick Roundabout, a busy junction within the AQMA with residential properties.

Commercial development currently under construction:

- Land at Jersey Farm, Manor Royal Business District: 1 Storage and Distribution Warehouse Units (Class B8) –construction started 2023 – still ongoing 2024
- Faraday Road: 1 Storage and Distribution Warehouse Units (Class B8) – demolition started.
- Crompton Way, Manor Royal Business District: 3 Storage and Distribution Warehouse Units (Class B8) –construction delayed due to changes awaiting decision – expected to start Q3 2024.

- Fleming Way, Manor Royal Business District: 2 Storage and Distribution Warehouse Units (Class B8) –construction delayed 2023 due to biodiversity issue – start expected Q3 2024

Commercial development coming forward 2024/25:

- Hydehurst Lane, Manor Royal Business District: 3 Storage and Distribution Warehouse Units (Class B8) –planning decision given Jan 2024 – construction not yet started.
- Linac House, Fleming Way, Manor Royal Business District: 3 Storage and Distribution Warehouse Units (Class B8) and Office (Class B2) Units– awaiting planning permission pending legal agreement.
- Tilgate Business Park, Brighton Road, - 2 Storage and Distribution Warehouse Units (B8) and Industrial Space(B2) – Planning decision delayed 2024 due to changes in regulations for development close to ancient woodland.
- Manor Royal District Heating Network: Two energy centres: one with ground source heat pump and one with low NOx gas boiler - feasibility study completed – no application or planning permission.
- Three Bridges Station Improvement Work; Highways Alterations; Provision of Pedestrian/Cycle Access – Planning permission given – works not yet started.
- Gatwick Road, Manor Royal: MacDonalDs Drive-Thru Restaurant and Starbucks Coffee Shop – Planning permission given Q4 2023, construction started Q2 2024.

Residential Development

Key Housing Sites identified in the Local Plan Map may generate increased emissions during construction and operation from dust and increased traffic.

Over the last three reporting years the issue of water neutrality has emerged as an problem for residential development in the borough that must be addressed through the planning process to ensure its compliance with the Habitat Regulations. This is currently delaying the progress of most major residential development in Crawley.

Residential development currently under construction:

- Steers Lane Phase 1 (185 dwellings) –construction ongoing – completion expected Q4 2024
- Station Way (Former Moka Club) – 150 dwellings – Demolition started – no further progress in 2024 due to potential change of developer.

Residential development coming forward 2024/25:

- Breezehurst Drive (85 dwellings) – Planning permission given but start delayed by water neutrality and legal agreement – no further progress 2024.
- Town Centre, The Boulevard: Phase 2 (182 dwellings) - planning permission given. Water neutrality which delayed start now resolved – construction started Q2 2024.
- Station Gateway (300 dwellings) including Overline House (85 dwellings) – Outline Planning Permission. Start delayed by water neutrality - no further progress 2024.
- Longley House (120 dwellings) – awaiting planning permission - delayed due to water neutrality issues. 2024 - further delays due to potential new developer.
- Ambulance Station site, Ifield Avenue (44 dwellings) - awaiting planning permission Issues of water neutrality which delayed start now resolved – awaiting planning permission 2024.
- Land East of Tinsley Lane (150 dwellings) – awaiting planning permission - delayed due to water neutrality issues – no further progress 2024
- Steers Lane Phase 2 (60 dwellings) – awaiting planning permission – 2024 issues of water neutrality which delayed start now resolved, Planning permission given and construction started 2024.
- Telford Place (Former Car Park) (300 dwellings) and 2 Commercial Units: awaiting planning permission - no further progress 2024.
- Goffs Park Road, Retirement/ Care Facility (116 dwellings): 2024 delayed by water neutrality and legal agreement.
- Land at Former County Court site, Exchange Road – mixed residential and commercial development. Feasibility study currently being undertaken 2024.
- County shopping Mall – being considered for potential 300 residential units above the mall – 2024 no application yet submitted.

Major Planned Development with EIAs

These schemes require more detailed assessment and conditions due to size and impact on the local area.

Gatwick Northern Runway Expansion DCO (Development Consent Order)

- The Gatwick Northern Runway Project proposes alterations to the existing northern runway to provide dual runway operations and increased capacity. The potential passenger throughput with development is predicted to be 74 million passengers per annum (mppa) by 2038. This represents a 13mppa increase above the “without development” potential of the single runway airport.

The proposals include construction works over a 15-year period, increased on-airport car parking for 18.5 k more vehicles and a 70% increase in surface access including passenger numbers, cargo freight and employment traffic.

Gatwick's air quality assessment predicts increased emissions but negligible impacts (based on current air quality standards) at all receptors for NO₂, PM₁₀ and PM_{2.5} in 2029 and 2032 and no significant air quality effects expected for 2029 and 2032 at human receptors. Gatwick's assessments are based (correctly) on current air quality standards, but the Council is mindful that these standards may change over the lifetime of the airport and is encouraging the airport to consider its mitigation proposals in light of potential future tightening of standards.

The council is currently involved in the DCO examination process looking at how the additional emissions created by the scheme will impact the local area and what mitigation measures may be secured to offset them.

Forgewood - New Residential Neighbourhood:

- Ongoing development of new neighbourhood, including 2000 new residential units, local shops, amenities, community centre, school and realignment of surrounding roads. The Forgewood development was agreed on appeal before the Hazelwick AQMA was declared. The development has been under construction since 2016 and is expected to be completed/ fully operational by 2026/27.

Construction Phase 1B (neighbourhood centre and residential) started in 2023 and is still ongoing to build neighbourhood shops/parade and residential units above shops. Phase 4B (450 residential units) awaiting planning permission.

Crawley Growth Programme – Infrastructure Project:

- £60m investment programme (public and private) to deliver infrastructure improvements and growth/regeneration to sites in the town centre and Manor Royal business district. The scheme will deliver: 1,000 new homes in Crawley town centre by 2030, new Crawley railway station and sustainable transport infrastructure (bus, cycle routes and pedestrian walkways) and office/industrial space. Phased development. Some schemes completed, others in development/design or awaiting planning permission.

West of Ifield Urban Development Project

- Homes England to redevelop 194 hectares of land west of Ifield within the administrative area of Horsham District Council (HDC) and Crawley Borough Council (CBC) for residential mixed-use neighbourhood. The scheme to include approximately 10-15,000 homes, community infrastructure, commercial units and the

creation of a new road including a bridge across the river Mole. The development will be delivered in Phases. Phase 1 is for approximately 3000 dwellings. The Scoping consultation was completed in 2023 but planning on hold for number of issues including water neutrality.

Additional Air Quality Works Undertaken by Crawley Borough Council During 2023-24

Additional air quality work carried out in 2023/24 includes:

The Gatwick Northern Runway Project (NRP) DCO – The application process for the Gatwick NRP started in 2019 with scoping report consultations and responses. Following the 2020 partial shutdown of the aviation industry due to Covid travel restrictions, the NRP pre-application process restarted in 2021 with engagement through Topic Working Groups and consultation responses to the Preliminary Environmental Information Report. The DCO is now in its 3rd year and has reached the examination stage of the process.

The Council have been fully engaged in the process to understand, and where necessary challenge, how the environmental impacts (including the additional air quality emissions) from the construction and operational phases of the scheme will impact the local area and what mitigation measures may need to be secured to offset them.

The DCO process has diverted limited staff resources away from their normal LAQM role and taken considerably more time than was expected due to a challenging engagement process. The complex nature of the submissions and the often limited information made available throughout the process has made the consultation more onerous and led to significant pressures on the day-to-day work of the Council's pollution team (Environmental Health). As a result, very little additional work has been possible on other air quality areas during 2023/24.

AQAP Update – Stage 1 of the baseline studies for the updated AQAP were completed 2023 and considered by the AQAP steering group. A short list of options was drafted and stage 2 of the studies, including a cost benefit assessment of preferred options was completed in Q2 2024. The draft AQAP is expected to be completed in July 2024.

Smoke Control Areas (SCAs) – A policy and procedure note for the enforcement and issuing of financial penalties for emissions of smoke in a SCA was agreed by Members. This will allow the Council to tackle pollution from solid fuel appliances not being operated in compliance with the regulations and will help reduce exposure to pollution levels which can directly impact human health.

QA/QC of Diffusion Tube Monitoring

Crawley Borough Council's NO₂ diffusion tube preparation and analysis is carried out by Gradko Environmental (part of Gradko International Ltd).

Gradko's laboratory is UKAS accredited to ISO:17025(2017) and follows the quality assurance/quality control procedures detailed in 'Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance for Laboratories and Users' (Issue 1a, Feb 2008 - AEA Energy and Environment).

The laboratory's performance has also been assessed as satisfactory in the centralised AIR NO₂ PT scheme for quality assurance and quality control.

Gradko Quality Assurance: The laboratory has a fully documented Quality Management System which has been assessed and accredited by UKAS (Accreditation No. 2187). A copy of the Quality Manual Contents Index is available on request.

Gradko Quality Control Procedures: Quality Control Procedures are supplemented by use of external proficiency schemes W.A.S.P administered by Health and Safety Laboratories at Buxton and the NETCEN U.K. NO₂ Field Inter-comparison project administered by National Physical Laboratories (NPL),

Tube Preparation: The council uses tubes prepared using 20% Triethanolamine / 80% De-ionised Water (20% TEA in water). Tube preparation follows procedures set out in the Defra 2008 Practical Guidance for Laboratories.

Tube Analysis: Analysis of the NO₂ diffusion tubes is carried out using colorimetric techniques in accordance with Gradko's UKAS accredited (ISO/IEC 17025) internal laboratory procedures. These procedures follow the Defra 2008 Practical Guidance for Laboratories.

The council generally follows the diffusion tube monitoring calendar provided by the LAQM Helpdesk for tube exposure period. This provides an exposure time of 4 or 5 weeks, with an allowed variation in exposure time of ± 2 days.

Tubes received from Gradko are stored in a fridge before they are exposed, and location sites and fixings follow the recommendations in LAQM.TG (22). Three tubes are co-located with the continuous analyser at the Gatwick East site (CA2).

Diffusion tube monitoring data is ratified following the methods described in LAQM.TG (22) to ensure reporting spreadsheet inputs are accurate and any suspect analysed data is

removed. An audit of the Council monitoring practices and procedures carried out by external auditors in 2022 found the council to have a sound system of governance, risk management and control in place.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Crawley’s monitoring network recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Crawley Borough Council has applied a local bias adjustment factor of 0.85 to the 2023 monitoring data. A summary of bias adjustment factors used by Crawley over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.85
2022	Local	-	0.99
2021	Local	-	0.96
2020	Local	-	0.98
2019	Local	-	1.02

The local bias adjustment factor was derived from the co-located diffusion tubes (prepared and analysed by Gradko) at the Gatwick East continuous analyser site (CA2). The monitoring data used in the co-location study is shown below and the calculation of the local bias adjustment factor is presented in Table C.3

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	12				
Bias Factor A	0.85 (0.78 - 0.92)				
Bias Factor B	18% (9% - 28%)				
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	21.9				
Mean CV (Precision)	2.7%				
Automatic Mean ($\mu\text{g}/\text{m}^3$)	18.5				
Data Capture	95%				
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	19 (17 – 20)				

Notes:

A single local bias adjustment factor has been used to bias adjust the 2023 diffusion tube results.

Choice of Factor for Bias Adjustment:

The locally derived bias adjustment figure of 0.85, indicates very good correlation in the tube data relative to the reference method (chemiluminescence analyser), over the data capture period.

The national bias adjustment value for 2023 was 0.81. This value was slightly lower than the locally derived factor, indicating the correlation wasn't as close, and that the diffusion tubes had a tendency to slightly over-estimate actual concentrations when compared to the reference method.

In deciding which bias adjustment value to use, the following factors were taken into account in accordance with the guidance in LAQM-TG22:

Box 7.13 advises that: *“If the co-location site is unusual in some way: for example, affected by specific large NOx sources other than road traffic, such as local industrial installations, this is a strong indication in favour of using a locally derived factor”*.

The co-location site is situated on the eastern boundary of the Gatwick Airport and therefore affected by NOx sources from the Airport. The site is 63m from the nearest residential property, and there are many other residential properties within 1000m of the airport. Determining relevant exposure within 1km of the airport boundary is one of the

assessment criteria required for authorities with a major airport within their boundary. This would therefore favour using the locally derived factor.

However, in paragraph 7.227 the guidance says that: *“care should be taken to avoid applying a bias adjustment factor derived from a local co-location study carried out for concentrations that are very different to those being measured in the wider survey”*.

Although the effect of the airport as an area source should be considered it may be less of an influence at roadside locations where traffic sources will be the major consideration. At these locations the nationally derived factor may be more relevant.

Consultation with the laqm helpdesk in previous years resulted in the decision to use the more conservative locally derived bias factor. The rationale for this decision was that it isn't appropriate to use two different bias factors within the report, but since both national and local factors were relatively close in value, and the precision and accuracy of the local co-location study was good, the use of the local factor would provide a more cautious approach. Consequently, all conclusions and recommendations made in this report were based on monitoring results adjusted with the 2023 local bias adjustment figure of 0.85.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

Fall-off-with-distance calculations were required for one diffusion tube site in 2023 (CR93). This is a site where the annual mean concentration was greater than 36µg/m³, and the monitoring site was not located at a point of relevant exposure. A summary of the output data for this site from the Diffusion Tube Data Processing Tool is presented in Table C.3.

Table C.3 – Non-Automatic NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
CR93	1.8	3.3	37	21.5	34.8	

QA/QC of Automatic Monitoring

Crawley's monitoring site (CA2), located on the eastern boundary of Gatwick Airport, has two automatic analysers: a nitrogen dioxides analyser (ML9841B) and a FIDAS 200 particulate monitor, which replaced the existing TEOM (Tapered Element Oscillating Microbalance) in March 2020.

Data collection for Crawley's monitoring station is undertaken by the Bureau Veritas through a contract with Sussex Air Partnership. The monitoring data from this site is available online at [sussex-air](#). Current and historic data is accessible to the public and commercial users by searching the sites on the interactive site locations map. The website also provides an API (application programming interface) for air quality data. This uses a copy of the live database, which validates the data and calculates information like air quality indexes and objectives. Live data can be viewed [here](#).

Bureau Veritas also carry out the verification and ratification of the data for the whole of the Sussex monitoring network which is reported on the [Sussex-air](#) website.

Site calibration checks are undertaken every 4 weeks by the Local Site Operator (LSO), Enviro-Technology services Ltd. The analysers are also maintained and serviced every 6 months under contract with Enviro- Technology services Ltd who provide the equipment support unit services (ESU).

PM₁₀ and PM_{2.5} Monitoring Adjustment

Crawley Borough Council's particulate monitor is a Palas FIDAS 200 which measures both PM₁₀ and PM_{2.5}.

7.174 of LAQM.TG (22) advises that the FIDAS PM₁₀ data can be used without the need for correction, however, the PM_{2.5} data should be corrected for slope by applying a factor of 1.06. The 2023 PM_{2.5} data (8.0ug/m³) has therefore been corrected by this factor to achieve equivalence to the reference method (7.5 ug/m³).

Automatic Monitoring Annualisation

All automatic monitoring locations within Crawley Borough Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

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

Figure D.1 – Map of Crawley AQMA Boundary

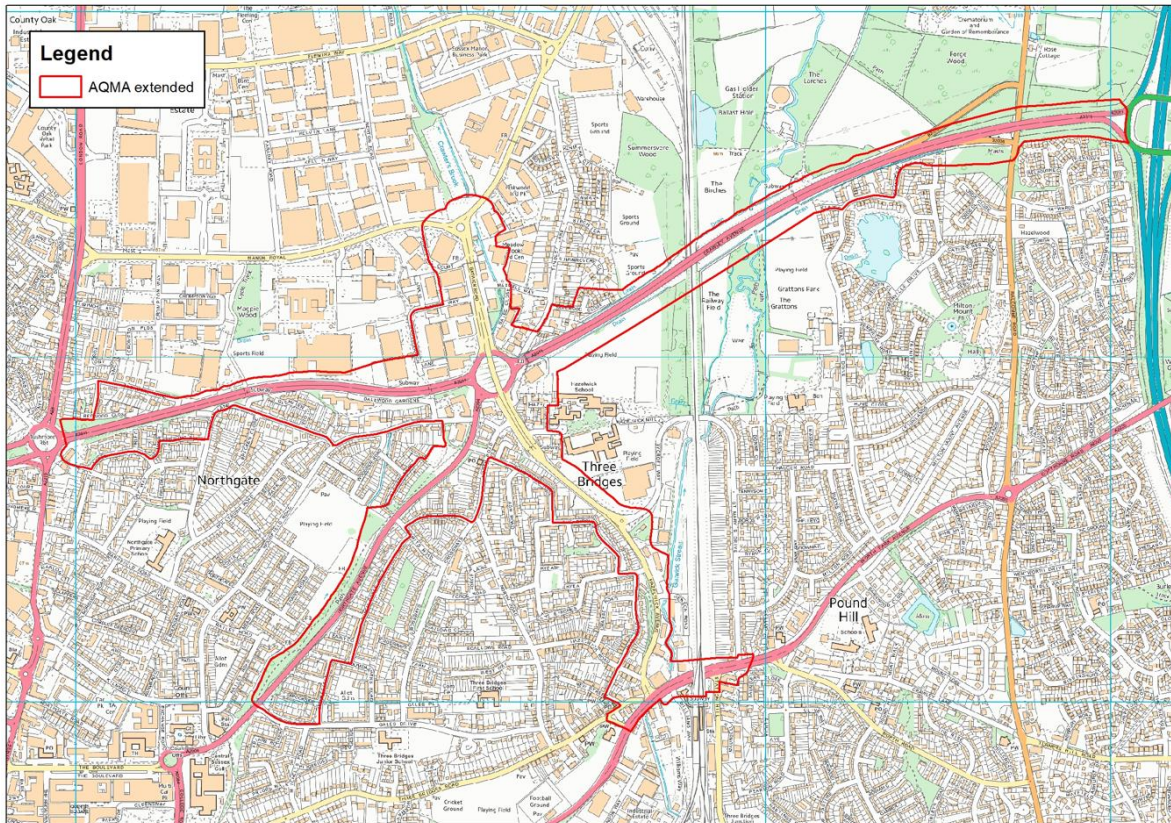


Figure D.3 Map of Diffusion Tube Sites: CR3, 55, 62, 63, 64, 69, 76, 77, 85, 89 and 103



Figure D.4 Map of Diffusion Tube Site: CR49



Figure D.5 Map of Diffusion Tube Sites: CR91, 93, 94, 95, 96 and 97

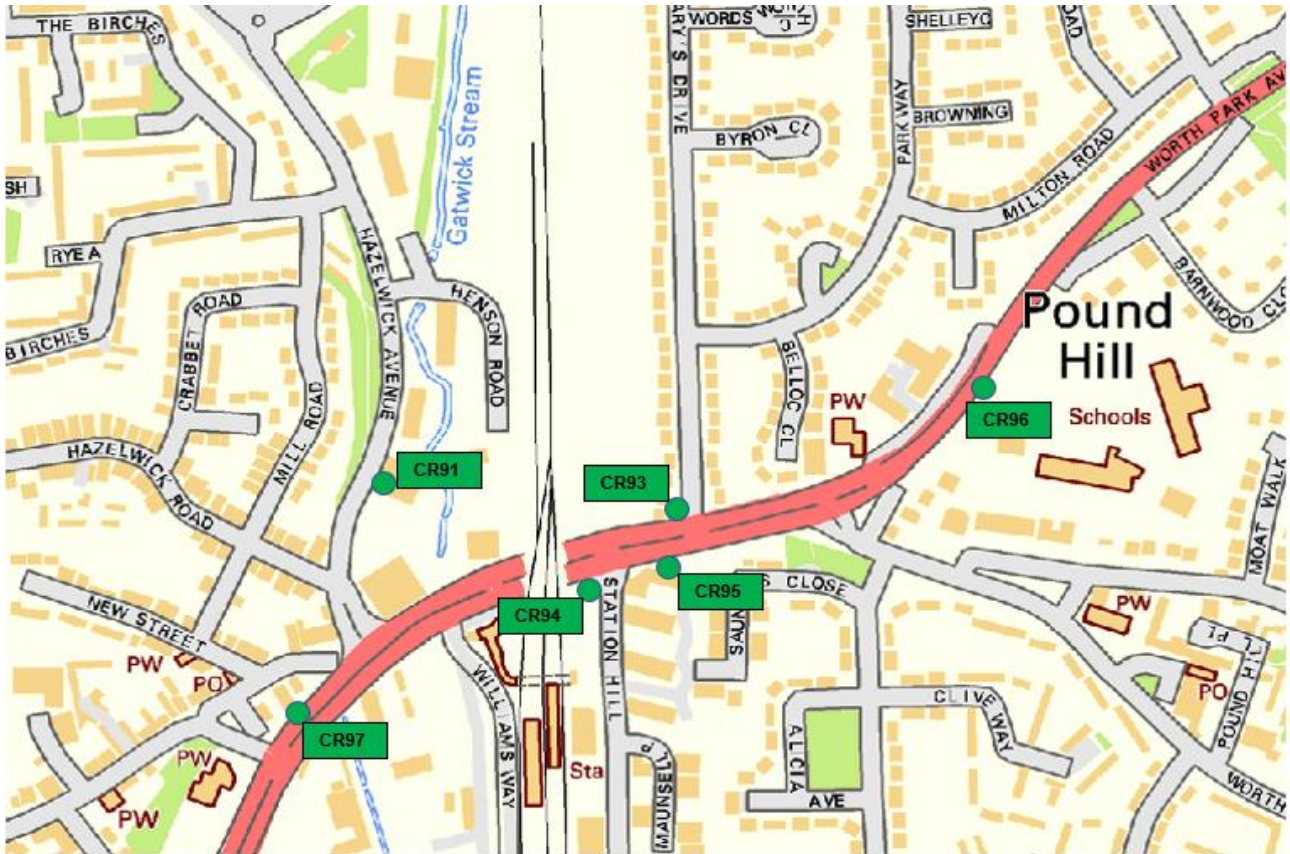


Figure D.6 Map of Diffusion Tube Sites: CR88 and CR107



Figure D.7 Map of Diffusion Tube Sites: CR1, 60, 66, 86, 87, 100, 108, 109, 110, 111

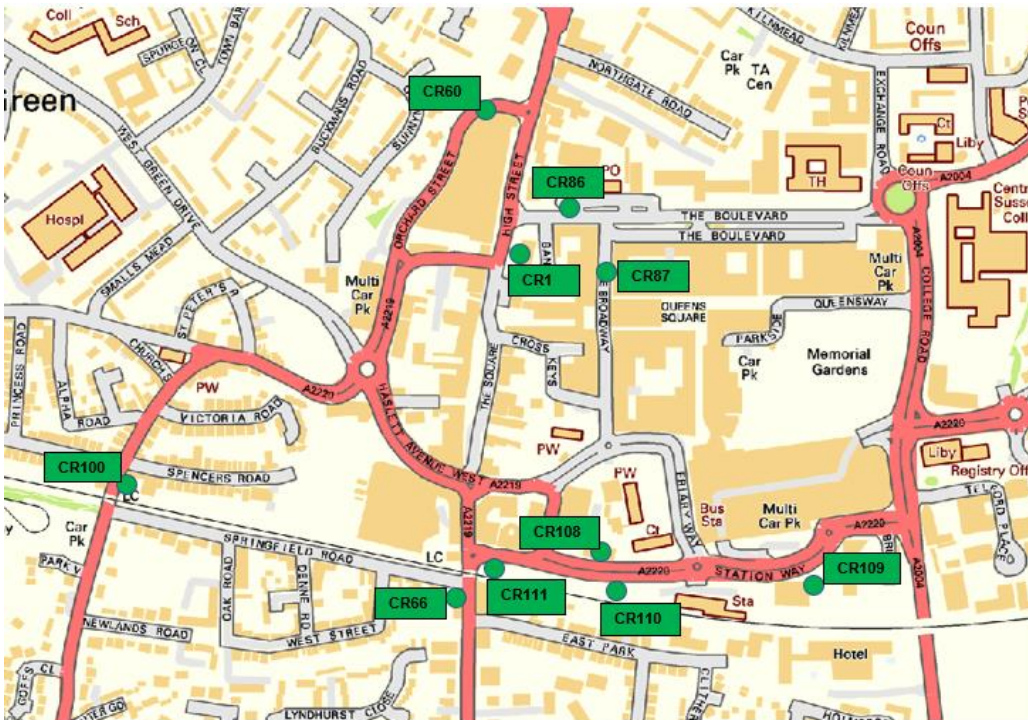


Figure D.8 Map of Diffusion Tube Site: CR104

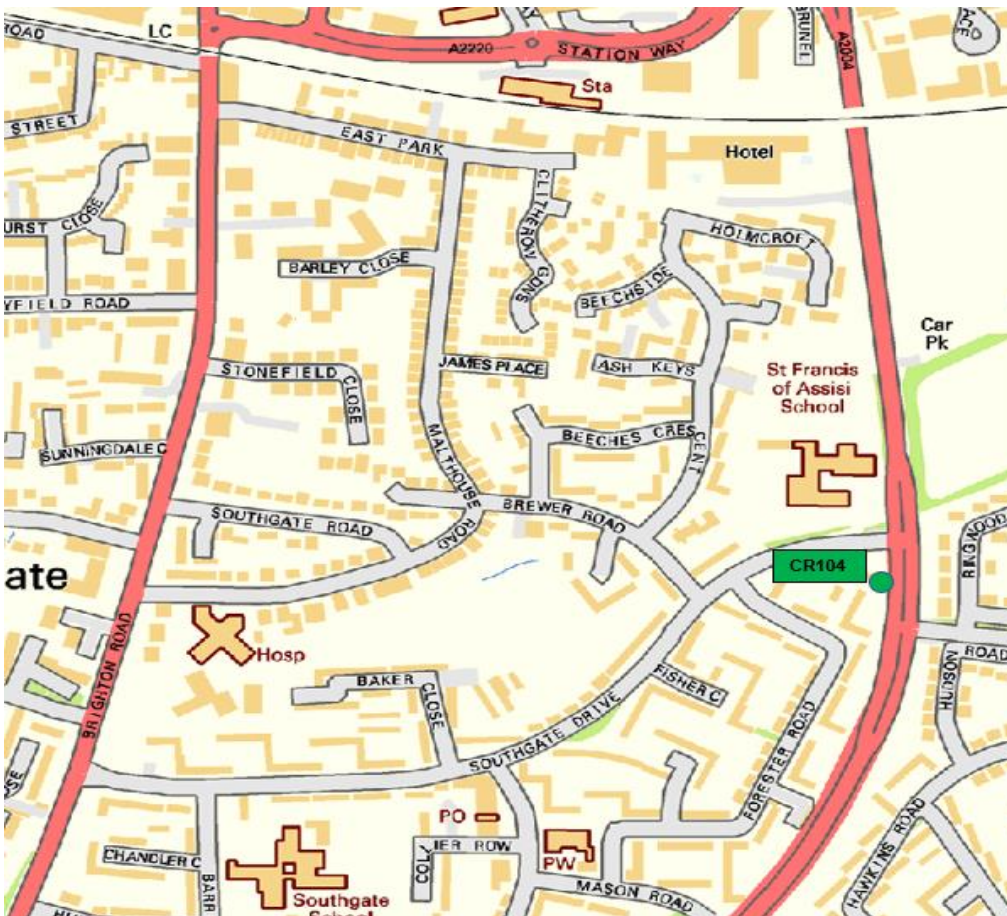


Figure D.9 Map of Diffusion Tube Sites: CR4, 78, 79



Figure D.10 Map of Diffusion Tube Sites: CR74 and CR75

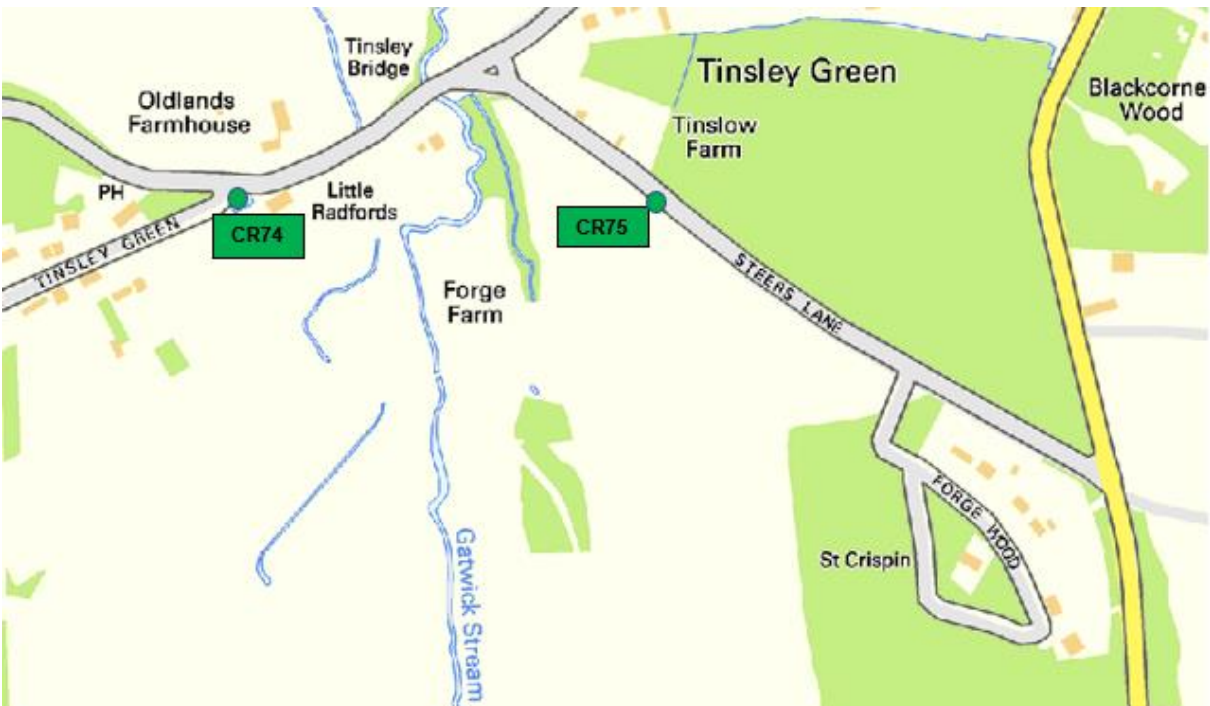


Figure D.11 Map of Diffusion Tube Sites: CR48, CR50 and CR98



Figure D.12 Map of Diffusion Tube Site: CR72

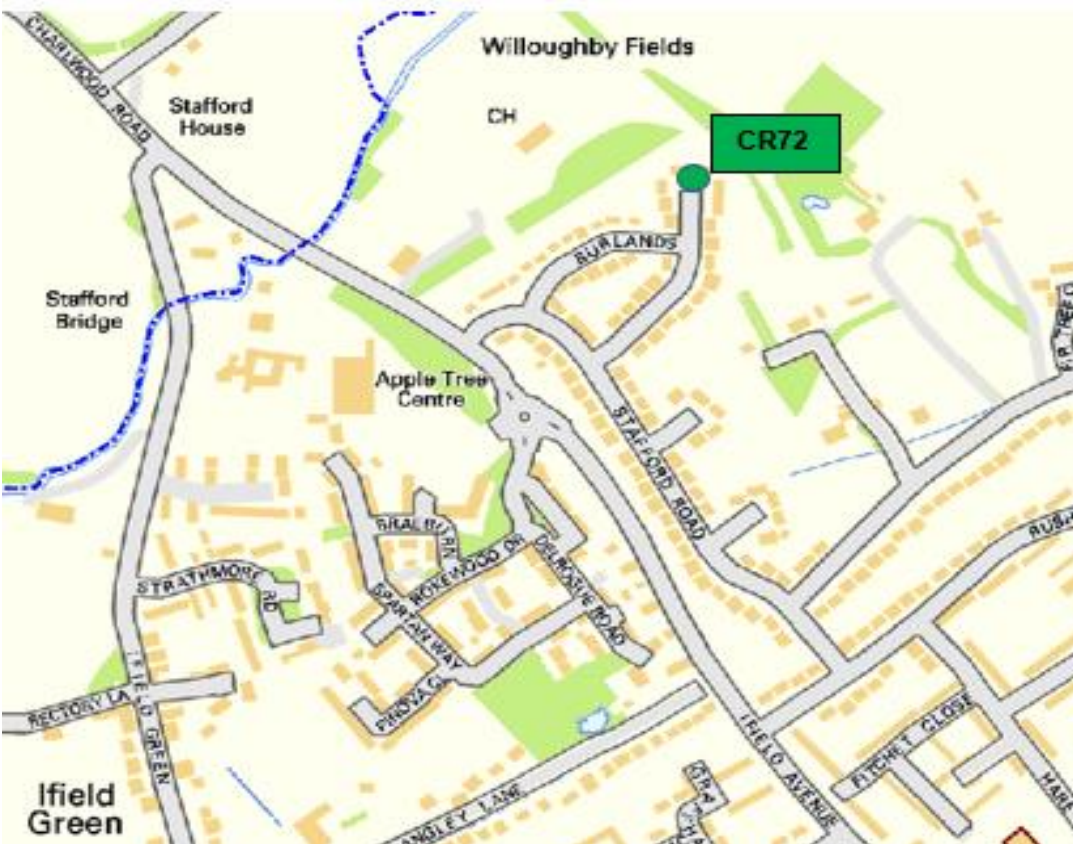


Figure D.13 Map of Diffusion Tube Sites: CR105 and CR106

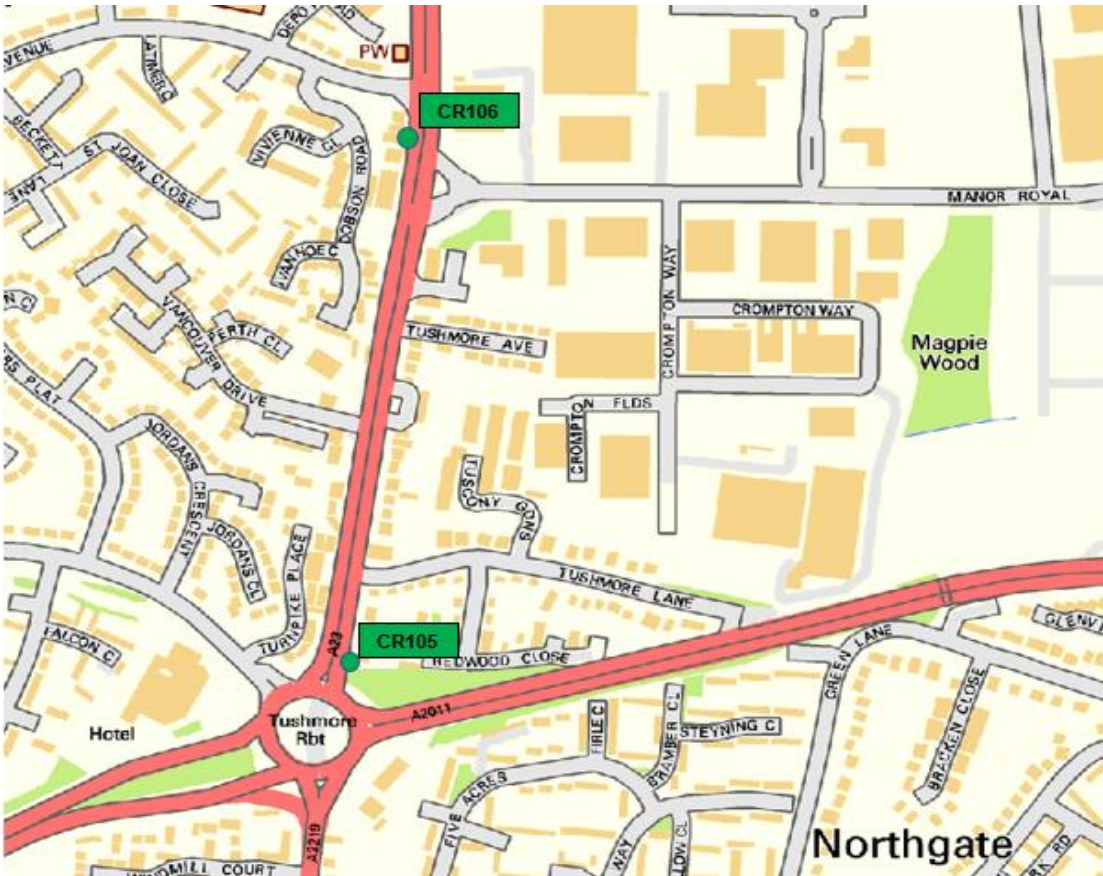


Figure D.14 Map of Diffusion Tube Site: CR99

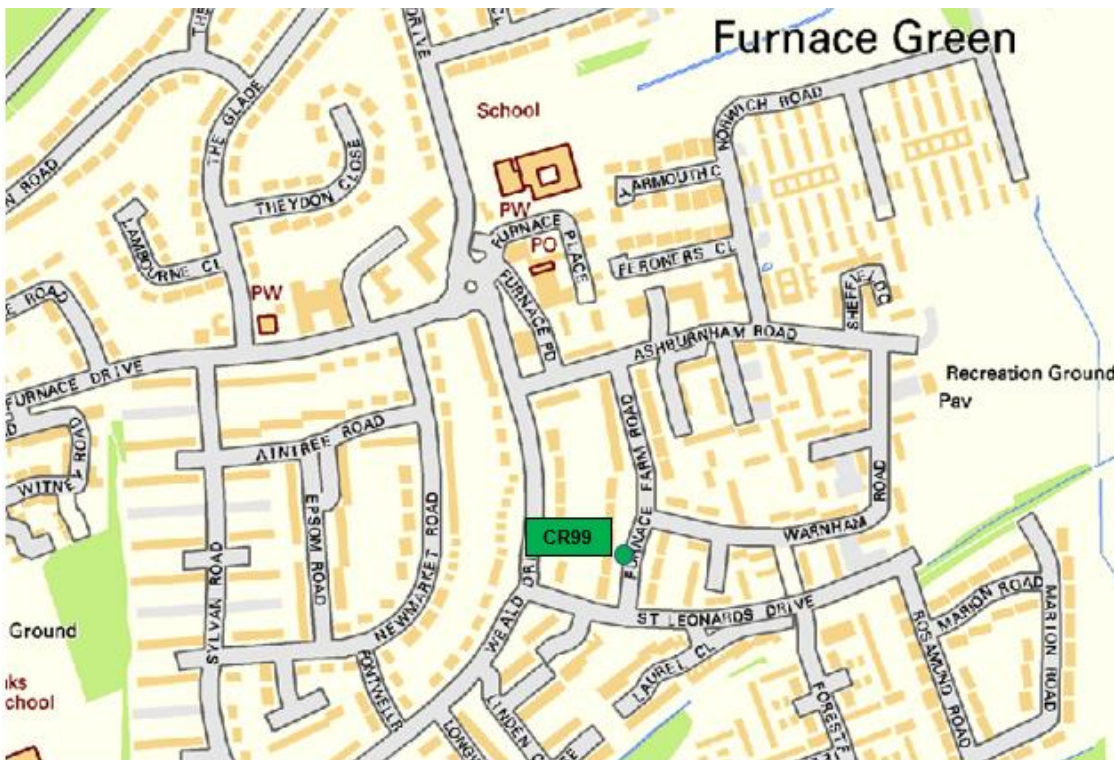


Figure D.15 Map of Diffusion Tube Site: CR101

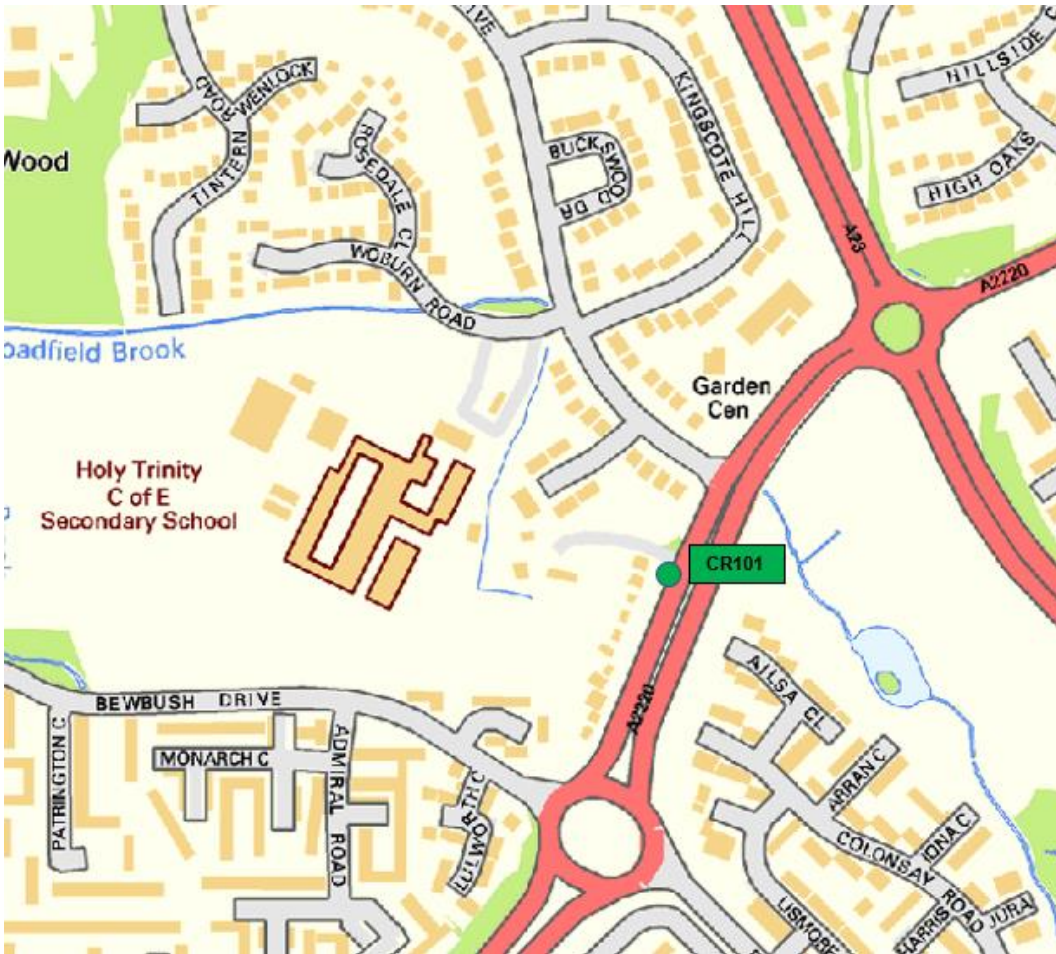


Figure D.16 Map of Diffusion Tube Site: CR102



Figure D.17 Map of Diffusion Tube Site: CR80



Figure D.18 Map of Diffusion Tube Site: CR81

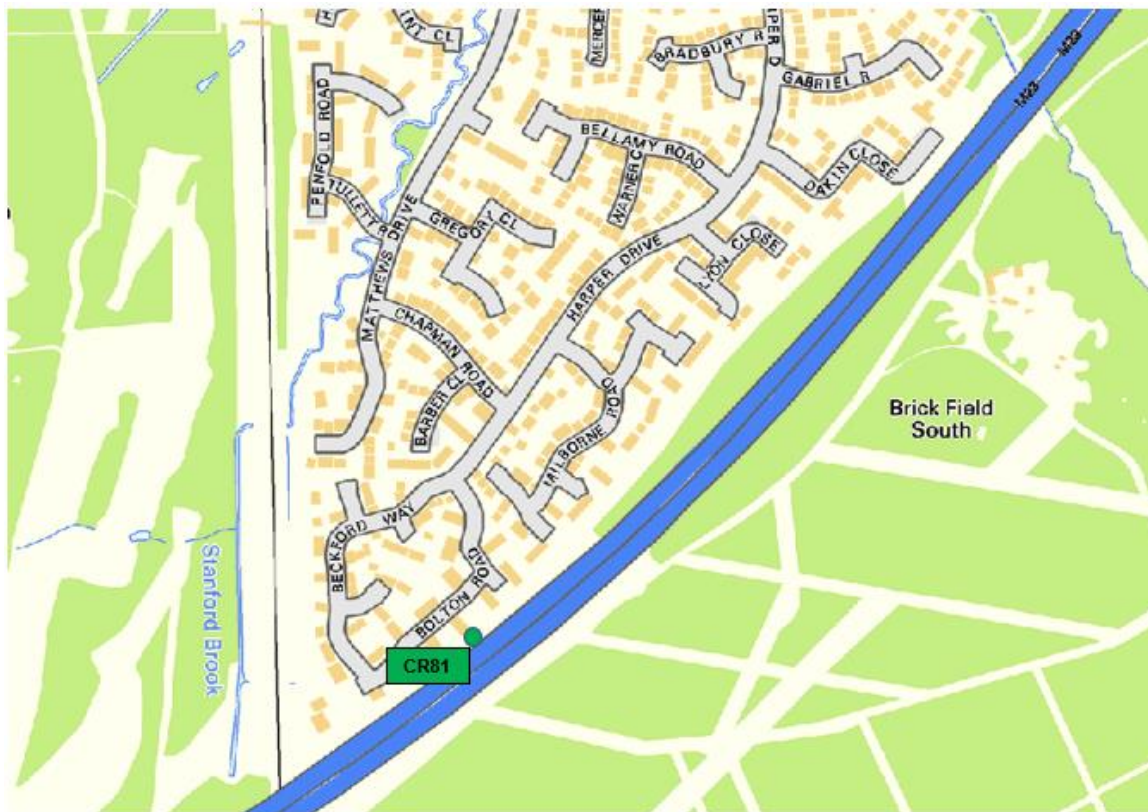


Figure D.19 Map of Diffusion Tube Site: CR112

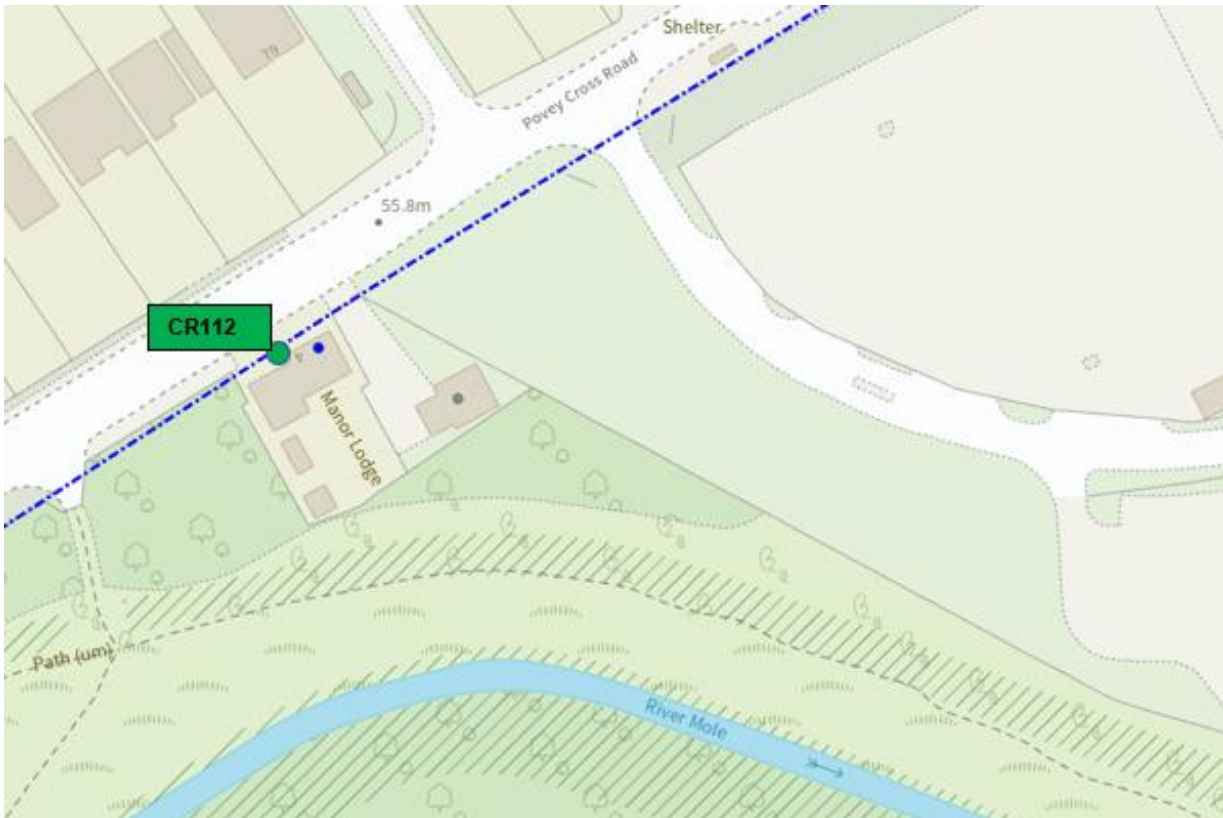


Figure D.20 Map of Diffusion Tubes Sites: CR51,52, 53, 54

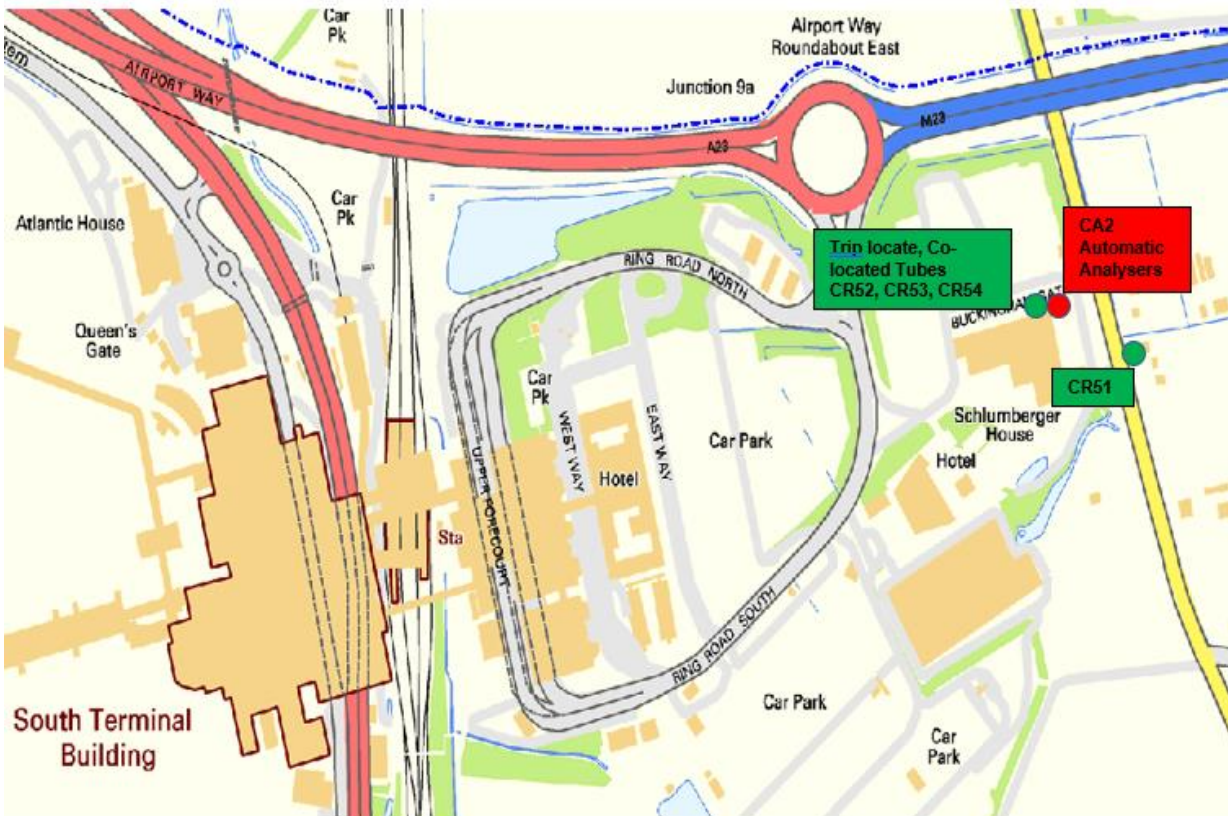
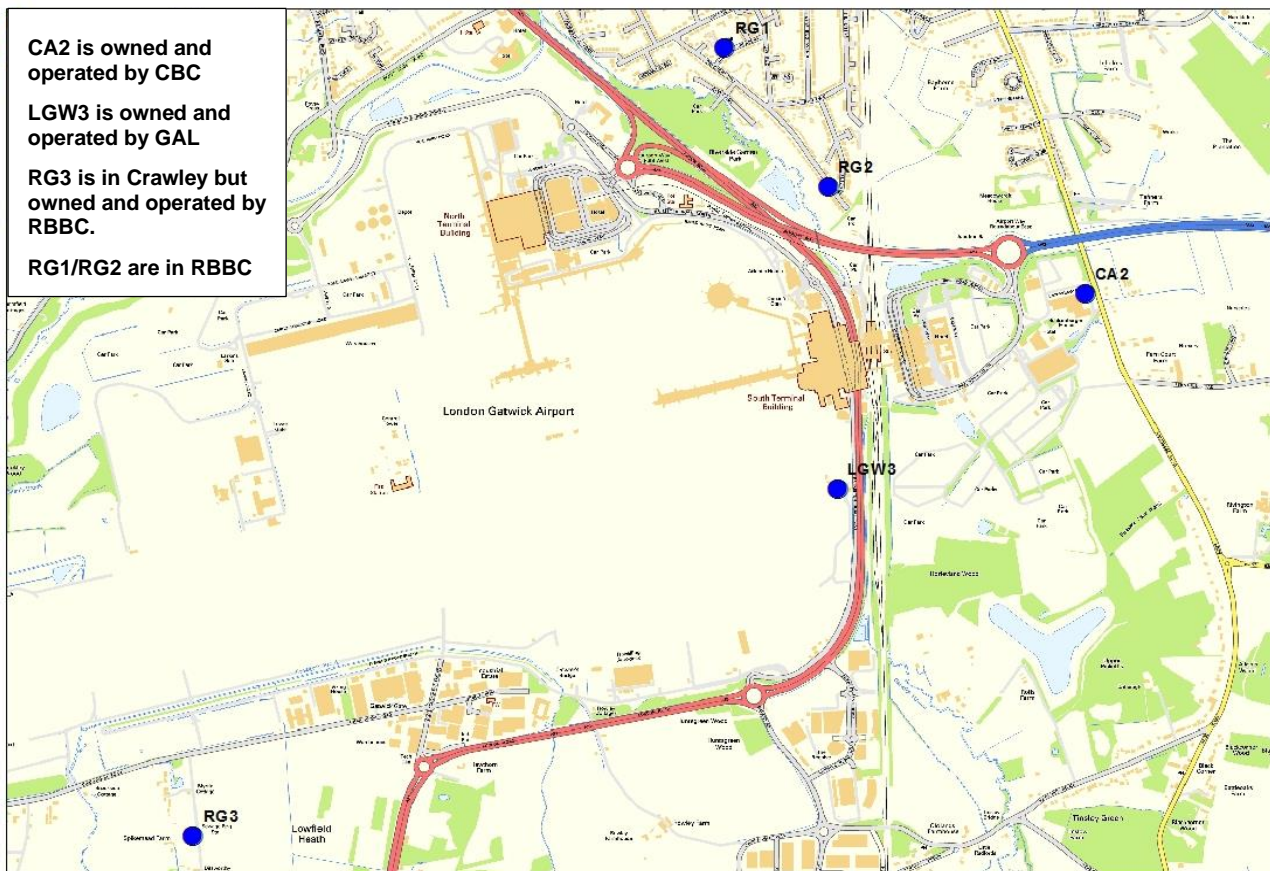


Figure D.21 – Map of Diffusion Tubes Site: CR113



Figure D.22 – Map of Automatic Monitoring Sites in Crawley



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AADT	Annual Average Daily Traffic
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
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CBC	Crawley Borough Council
CGP	Crawley Growth Programme
CAZ	Clean Air Zones
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
DFT	Department for Transport
EA	Environment Agency
EFT	Emissions Factor Toolkit
EPAQS	Expert Panel on Air Quality Standards
EU	European Union
FDMS	Filter Dynamics Measurement System
FIDAS	Fine Dust Aerosol Spectrometer
GAL	Gatwick Airport Ltd
LAQM	Local Air Quality Management
LEP	Local Enterprise Partnership
LEZ	Low Emission Zone

LPTS	Local Plan Transport Strategy
NAQS	National Air Quality Strategy
NPPF	National Planning Policy Framework
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
OLEV	Office for Low Emission Vehicles
PHE	Public Health England
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
SAQP	Sussex Air Quality Partnership
WHO	World Health Organisation
WSCC	West Sussex County Council
ZEC	Zero Emission Capable

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.
- Sussex Air Quality Emissions Mitigation Guidance 2021
- Draft Crawley Borough Council Local Plan 2024-2040
- Crawley Growth Programme
- Crawley Town Centre Regeneration Programme 2016
- National bias adjustment factor spreadsheet: <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>
- Tube precision spreadsheet: www.airquality.co.uk/archive/laqm/tools/AEA_DifTPAB_v03.xls
- Bureau Vitas LAQM Diffusion Tube Data Processing Tool
- [Public Health Outcomes Framework](#)