2020 Air Quality Annual Status Report (ASR)

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

May 2020

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Executive Summary: Air Quality in Our Area

Air Quality in Coventry

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

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

The main pollutants of concern in Coventry are nitrogen dioxide and particulate matter. These pollutants are predominantly associated with road traffic emissions particularly on busy roads and in areas where traffic queues regularly. The issues arise when people spend time near high levels of these pollutants whether through housing, working or recreation.

In Coventry, the main concern is centred on housing that is in close proximity to the major arterial routes with high levels of queuing traffic, principally around busy junctions and traffic lights. Current hotspots include parts of Holyhead Road, Walsgrave Road, Foleshill/Longford Road and Stoney Stanton Road.

Rather than focussing on individual roads and junctions, Coventry has declared the whole area as an AQMA. This decision was taken to ensure that the problem wasn't simply moved from one road or junction to another. More information is available at:

http://www.coventry.gov.uk/info/68/pollution/171/air_quality

Recent years' NO_2 diffusion tube monitoring results show that, whilst there are fluctuations, there is a general decline in levels of nitrogen dioxide and levels of PM_{10} do not exceed the national standards.

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

Coventry City Council continues to work closely with neighbouring authorities and Government Agencies to address poor air quality. It is one of seven local authorities in the West Midlands working in partnership to improve air quality and reduce emissions from road transport as part of 'The Low Emissions Towns and Cities Programme (LETCP)'

Coventry was identified by DEFRA in July 2017 as one of 28 cities requiring further action to tackle areas of poor air quality related to emissions of nitrogen dioxide.

Coventry received a Ministerial Direction to implement a Clean Air Zone (CAZ) however the Council has developed an alternative package of measures that is predicted to achieve compliance with the NO_2 objective in a shorter timescale. This alternative package was accepted by Defra and a revised Ministerial Direction has been issued in Feb 2020 with Defra also confirming that a Clean Air zone is not required in Coventry.

Coventry City Council (CCC) is committed to transforming Coventry into a cleaner and healthier city, supporting economic growth, improving health and providing a wider choice of travel options, and improvements in air quality underpin this vision. Coventry has been awarded the UK City of Culture for 2021, and making improvements to benefit air quality within the city fully aligns with the City of Culture themes of Being Human, Reinvention and Moving, and the vision of reimagining the place of culture in a diverse, modern Britain.

Coventry therefore has taken the opportunity to adopt a solution which will deliver a lasting improvement in air quality and to showcase this solution to a wider audience.

Coventry is renowned for its rich tradition in innovation, and CCC is keen to support innovative solutions involving emerging technology.

Actions to Improve Air Quality

There is a considerable amount of work being undertaken by Coventry City Council that has the potential to improve air quality whether directly or indirectly. Tables 2.1a and b provide a summary of the main actions being undertaken.

At a strategic level, the grant-funded LETCP is a group of seven West Midlands Local Authorities including Coventry. They are working towards improving air quality and reducing road traffic emissions across the West Midlands. The aim is to do this by promoting the uptake of low emission fuels and technologies, promoting active travel, establishing and sharing best practice policies and developing various tools and resources.

With the establishment of the West Midlands Combined Authority (WMCA), regional initiatives to achieve air quality improvements should be forthcoming (governance structures are being established during these formative stages). There will be major opportunities for regional sustainable growth to be secured with Coventry at the forefront of low emission vehicle technology research and development.

Coventry City Council currently has representatives at the Coventry and Warwickshire Air Quality Alliance. The alliance is an informal alliance of officers from Public Health, Planning Transport, Environmental Health and partner organisations across the sub region. Air Quality also features as a priority in the Coventry and Warwickshire Health Protection Strategy 2017-2021 (https://apps.warwickshire.gov.uk/contentplatform/open/WCCC-630-1096). The Alliance have been working in partnership to support collaborative efforts to improve air quality in Coventry and Warwickshire, which has included developing an active travel campaign: "Choose How You Move" (please see website at: www.coventry.gov.uk/activetravel), developing Coventry and Warwickshire-wide planning guidance for developers regarding Air Quality, and collaboratively reviewing air quality action plans.

Coventry City Council is supporting the West Midlands Air Quality Improvement Programme (WMAQIP). Led by the University of Birmingham, the project comprises three broad themes which aim to improve understanding of the region's air pollution challenges and to provide new capability to support clean air measures. Part of this work will be to look at $PM_{2.5}$ and it is hoped additional monitoring of $PM_{2.5}$ will commence in Coventry during 2020.

In addition, five local authorities from the Alliance have collaboratively developed a Supplementary Planning Document (SPD) on air quality, that sets out design criteria and measures developers are expected to implement as part of planning applications. It is hoped that developing this document on a regional basis will

improve consistency across the area. The SPD was adopted on the 6th September 2019 by Coventry City Council with the other authorities undertaking consultation.

The Council have been successful in bidding for £1.2 million of funding to install 39 rapid charging points around the city to charge electric taxis. The intention is to provide the infrastructure to support the uptake of ultra-low emissions electric taxis in Coventry, and reduce emissions from older diesel vehicles. The first of these were installed and operational during 2018 and has continued during 2019 along with the provision of on street charging points for residents to use. The Council also secured £1.5 million to upgrade over 100 National Express buses to Euro VI Standard engines (due for completion by the end of 2019) and £2.2 million for a fleet of 10 electric buses to operate in the City.

Coventry City Council secured £2 million from the Government to improve air quality along the A4600 corridor which runs between the City centre and M6 Junction 2. A package of measures has been developed including junction improvements, new technology to improve traffic management, public engagement and electric vehicle trials for taxi drivers in the City. Coventry will continue to bid for funding measures as they become available.

Coventry City Council is currently working with the Joint Air Quality Unit (JAQU) to produce an action plan detailing the measures the Council will take to reduce traffic related emissions in the city in the shortest possible time. Following submission of our Strategic Outline Business Case, the City Council has received a Ministerial Direction to implement a Clean Air Zone. However, an alternative package of measures designed to achieve compliance in a shorter timescale and without the need to implement a charging CAZ have been submitted to JAQU. Due to Brexit and the subsequent general election a decision on this package was delayed, but accepted in early 2020 and a revised Ministerial Direction has been issued. Public consultation on this action plan is due to commence in 2020.

Conclusions and Priorities

Exceedances in NO_2 continue to be identified inside the existing AQMA although the general trend shows that levels are declining. Implementing the measures identified

in the Local Air Quality Action Plan (LAQAP) is the primary focus. The key priorities for addressing air quality in these areas remains the reduction in queuing traffic and congestion at junctions.

Other priorities for 2020 include:

- Continue to monitor NO_2 concentrations at existing locations using existing technology and to introduce new technologies that will give more accurate, real-time measurements
- Continue to raise public awareness of air quality through campaigns for active travel such as City Ride events, a new 'Choose How You Move' website for Coventry and Warwickshire and promotion of Defra's 'Burn Right' campaign.
- Continue green procurement such as electric vehicle recharging points for the promotion of low emission transport and vehicle fleet efficiency improvements
- Undertake public consultation exercise on local air quality action plan to help inform final package of measures contained within the local air quality action plan*
- Submit final business case to JAQU by June 2020 and begin implementation of the plan*

*Delayed due to COVID-19 pandemic

Local Engagement and How to get Involved

A large proportion of road vehicles are private car users. There are lots of simple things the public can do to help improve air quality locally, such as:

- Using public transport and park and ride facilities
- Walking or cycling short journeys rather than using the car
- Share journeys with colleagues and friends
- Switch off car engines when stationary
- Choosing a low emission car for your next purchase – there are Government funds available

- Choosing an ultra-low NOx boiler with a dry NOx emission rate of 40mg/kWh or less for your next purchase
- Avoid burning garden and domestic waste and use local recycling facilities
- If using a wood burning stove or open fireplace, ensure the correct/smokeless fuels are being used. Please see the council website for more information: https://www.coventry.gov.uk/info/26/pollution_licensing/1368/smoke_control_areas/2 and the Burnright and Woodsure websites.

Further information can be found on the Council's website, and Defra's Local Air Quality Management (LAQM) website.

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1 Local Air Quality Management

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

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

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

2 Actions to Improve Air Quality

The whole of Coventry was declared as an AQMA in 2009 under the Local Air Quality Management (LAQM) regime but no AQAP has been produced since 2007 when three individual and small AQMA's were in effect. The city wide AQMA was declared in 2009 as a number of other pollution hotspots had been identified through the council's monitoring programme, and it was felt to declare further AQMA's would be difficult to manage with the additional risk that tackling hotspots in isolation could simply move the air quality problem from one place to another.

However, since 2009 there have been a number of challenges the local authority has faced and as a result it has not been possible to produce a revised AQAP that incorporates the 'new' hotspots. The 2007 AQAP is therefore out of date and has not been considered further as part of this report.

In July 2017 Defra published the *'UK Plan for Tackling Roadside Nitrogen Concentrations'* which identified Coventry as one of a further tranche of towns and cities requiring additional measures to ensure compliance with the NO_2 National Objective.

Coventry City Council were required to produce a local action plan identifying what further measures will be required to achieve compliance with the NO2 objective, using a Clean Air Zone as a baseline. In February 2019, Coventry City Council submitted the Strategic Outline Business Case for a £76 million package of measures aimed at achieving modal shift to reduce local car journeys, greening the vehicle fleet within the city, and introducing dynamic traffic management to move traffic away from the most polluted areas. This package was tested against a benchmark Clean Air Zone option, and found to be more economically and socially beneficial whilst still achieving compliance with the AQ requirements. In March 2019, Defra issued a Direction instructing the Council to undertake more work on the preferred package and a Clean Air Zone (CAZ) was retained as an option. The Council also held a Public consultation on the proposed measures. In June 2019 the Council submitted further AQ and traffic modelling evidence to Defra and the preferred package was refined to reflect Government and public consultation feedback. Following delays caused by Brexit and the general election, in February 2020 a new Government Direction was issued. This instructed CCC to implement the

refined preferred package and confirmed that a CAZ D is not required in Coventry. It also awarded £24.5 million in grant funding to support the implementation of the preferred package measures.

The LAQAP package focuses upon encouraging local trips to be made by walking and cycling rather than the car, with significant investment in a new high-quality cycle route between Coundon and the city centre, and on an engagement programme with schools, businesses and local communities building on the successful work already done in the Walsgrave corridor. The Council is also working with Transport for West Midlands on the **Mobility Credits** pilot programme which will give Coventry residents with an older, polluting car the chance to exchange their vehicle for mobility credits. The credits could be spent on bus and rail travel, as well as new transport modes such as car clubs or bikeshare schemes.

The package also focuses upon the greening of the fleet, with existing programmes to upgrade the bus, taxi and commercial fleets operating within the city, including the Electric Fleet First project that gives businesses the opportunity to try out electric vans, pool cars and taxis with the aim of encouraging them to switch to zero emission vehicles.

The third element of the package includes targeted junction and road layout changes on Holyhead Road and parallel routes to allow freer-flowing traffic, reduce congestion and to provide better walking and cycling routes from both **Spon End** and **Coundon** into the city. These measures will allow the traffic flows on Holyhead Road to be reduced through restrictions if necessary to allow NO_2 levels to be brought below legal limits on this route.

On Foleshill Road, traffic management measures will be introduced to remove through traffic, which will be encouraged to use the A444 to access the city centre instead.

The council are due to undertake a public consultation exercise in Spring 2020 and submit the final business case to JAQU in June 2020 (both now delayed by COVID-19).

The work to produce the LAQAP continues to take precedence over the LAQM plan

to comply with Defra timescales and the LAQAP will form the basis of a future LAQM AQAP.

This Annual Status Report reflects the huge amount of work taking place in Coventry to reduce traffic congestion, improve low emissions vehicles infrastructure and encourage more sustainable methods of transport, all of which will have a beneficial impact on air quality.

The Low Emissions Towns and Cities Programme (LETCP) is a partnership comprising the seven West Midlands local authorities, (Birmingham City Council, Coventry City Council, Dudley MBC, Sandwell MBC, Solihull MBC, Walsall Council and Wolverhampton City Council) working together to improve air quality and reduce emissions from road transport.

The objectives of the programme were to investigate and produce various regional strategies designed to improve air quality with a view to meeting national air quality standards. The intention is to do this by promoting the uptake of low emission fuels and technologies, establishing and sharing best practice policies, and developing various tools and resources.

Funded through a Department of Environment, Food and Rural Affairs (Defra) Air Quality Grant, the aims of the LETCP are to:

- Improve air quality through the reductions in road transport emissions, and simultaneously reductions in carbon emissions;
- Establish best practice policies and measures for the West Midlands, creating transferable models for other towns and cities;
- Improve health; and
- Maximise opportunities for economic development through the transition to a green economy.

Since the launch of the LETCP in 2011, we have been working with stakeholders to develop Good Practice Guidance on Planning and Air Quality (completed May 2014) and Procurement Guidance (completed Sept 2014) for the West Midlands and West Midlands Low Emission Zone (LEZ) feasibility studies and scenario modelling have been produced (2015).

A Low Emission Vehicle Strategy for the West Midlands (2016-2021) has been agreed by the LETCP and replaced the Low Emission Strategy (LES). The LES formed part of the adopted West Midlands Strategic Transport Plan *"Movement for Growth"* (discussed further below), which will be implemented by West Midlands Combined Authority (WMCA, June 2016).

The strategy includes consideration of:

- The introduction of mandated and voluntary Clean Air Zones (CAZ)
- Local authority policy developments to support current and future low emission activity
- Low & Ultra-Low Emission Vehicles and Infrastructure

See below for links to the reports**:**

http://cms.walsall.gov.uk/low_emissions_towns_and_cities_programme

As mentioned previously, the West Midland Combined Authority has also produced its new strategic transportation plan *'Movement for Growth'* for the next twenty years.

The three main objectives of the plan are:

- Improved national and regional links to boost the economy;
- Improved links across the Metropolitan Area to provide better access to jobs, leisure and services; and
- Improved links within local communities to reduce the reliance on cars for short distance trips.

To achieve these aims there is the intention to improve public transport and cycling networks across the WMCA region, with the associated benefits to air quality which is a key theme of the plan.

A summary of *'Movement for Growth'* is available at: https://westmidlandscombinedauthority.org.uk/media/1179/2016-06-01-mfg-summary-document_wmca.pdf

The full *'Movement for Growth'* report can be viewed at: https://westmidlandscombinedauthority.org.uk/media/1178/2016-06-01-mfg-full-document_wmca.pdf

To support the delivery of Movement for Growth, the WMCA approved the 2026 Delivery Plan for Transport in September 2017. The plan comprises the Delivery Plan and two supporting sets of documents:

- The 2026 Delivery Plan for Transport
- 16 Corridor Strategies
- Four Dashboards of Schemes

A complimentary document 'Movement for Growth: Health and Transport Strategy' sets out how WMCA intends to improve public health through transport.

In addition, Vision for Bus presents a clear vision of what the region requires from its bus network and sets nine bold objectives for improving bus travel in the West Midlands. This will ensure the bus network can adapt and embrace innovation and opportunities to meet current and future travel demand.

As complementary strands to this work, WMCA have a Sustainable Travel Team working with stakeholders across the region to reduce vehicle use.

At a local level, Coventry City Council (CCC) is committed to transforming Coventry into a cleaner and healthier city, supporting economic growth, improving health and providing a wider choice of travel options, and improvements in air quality underpin this vision. Coventry has been awarded the UK City of Culture for 2021, and making changes to improve air quality within the city fully aligns with the City of Culture themes of Being Human, Reinvention and Moving, and the vision of reimagining the place of culture in a diverse, modern Britain. Coventry therefore has an opportunity to adopt a solution which delivers a lasting improvement in air quality and to showcase this solution to a wider audience.

Coventry is renowned for its rich tradition in innovation, and CCC is keen to support innovative solutions involving emerging technology. The city is also a leader in the automotive industry and has a vision for a future that incorporates integration of systems and technology such as Ultra-Low Emission Vehicles (ULEV), connected

and autonomous vehicles, digital data / communications and energy generation, storage and distribution. The city is home to the factory manufacturing the world leader in electric powered taxis, as well as being selected as the site for the UK's Battery Industrialisation centre. Electric vehicles are therefore at the heart of this vision and will play a key part of reducing emissions from road transport.

Coventry is well connected to other major towns and cities in the UK due to its good access to the strategic road network and the national rail network. It is important that Coventry works closely with its key neighbours as this will allow Coventry to reduce NO_2 concentrations and improve the health and wellbeing of its residents and those who travel to work in Coventry or those who visit for other reasons.

Coventry City Council has secured funding from the Government sources listed above to implement a number of initiatives aimed at future-proofing the local transport network to accommodate low emission vehicles. This includes the installation of 39 rapid charging points for electric vehicles across the city, focussed on locations where taxis are going to require top-up charging. So far, 24 points have been installed and are operational and more chargers are being added to the network regularly. The most recent information is available via a real-time interactive map. This will provide the charging infrastructure to make it easier for local taxi drivers to operate electric vehicles. This work has been supplemented by the Council securing £300,000 from OLEV for the installation of up to 140 electric vehicle charging points in on-street locations in residential areas around the city. These areas are predominantly inner-city areas with limited off-street parking, and the charging points will remove one barrier to electric vehicle ownership for local residents. Further information is available at: https://www.plugincoventry.org/chargers-near-my-home. This grant funding has been supplemented by a further £100,000 of match funding provided by the private sector partners in the project.

The third specific strand of work relates to the upgrading of the engines of the main local bus fleet operated by National Express, with over 100 buses being upgraded to Euro VI standard engines. An additional bid for the purchase of 10 electric buses has been made which would operate through two of the city's pollution hotspots. The bid was accepted and £1.5 million awarded in 2019.

Through the Early Measures Fund administered by Defra, the City Council was awarded £2.021 million to support a number of projects focused on improving air quality along the A4600 Walsgrave Road corridor that includes the Ball Hill area, a long standing pollution 'hotspot'. The funding has supported the purchase of air monitor sensors and electronic variable messaging signage (VMS); controlled by the city's Traffic Management team the VMS signs are capable of directing traffic away from the A4600 to alternate routes when the sensors indicate high air pollution levels. In addition, the funding has supported an upgrade of traffic signals along the route, travel planning sessions with local schools and large businesses and the purchase of four electric taxis to operate as a 'try before you buy' scheme whereby the four vehicles are available to lease to drivers for short term periods so that they can appreciate the benefits of electric vehicles in the hope they will go on to purchase a new electric taxi when they replace their current vehicle.

The Council is also working with Transport for West Midlands on the Mobility Credits pilot programme which will give Coventry residents with an older, polluting car the chance to exchange their vehicle for mobility credits. The credits could be spent on bus and rail travel, as well as new transport modes such as car clubs or bike-share schemes.

The £82 million project to upgrade Coventry Railway Station has commenced, and will ultimately create a multi-model transport hub with a new bus interchange. The work is programmed to be completed in time for Coventry being the UK City of Culture in 2021. Further public realm improvements include traffic free routes to promote pedestrian and cycling access to and from the city centre.

Coventry City Council is supporting the West Midlands Air Quality Improvement Programme. Led by the University of Birmingham, and supported by £5million of funding from the Natural Environment Research Council (NERC), the project comprises three broad themes which aim to improve understanding of the region's air pollution challenges, to provide new capability to support clean air measures and policy focussed upon the region, and to support the application of these to specific policy scenarios, questions and challenges.

During 2018, five local authorities from the Coventry and Warwickshire Air Quality Alliance collaboratively developed a Supplementary Planning Document (SPD) on air

quality, that sets out design criteria and measures developers will be expected to implement as part of future planning applications. The SPD builds on the existing West Midlands LETCP Planning Guidance (2014) to further promote low emission vehicles infrastructure, low emissions heating and power and tackling construction related air quality impacts. It is hoped that developing the document on a regional basis will improve consistency across the Coventry and Warwickshire area. The SPD was adopted in Coventry on the 6th September 2019 with the other authorities undertaking consultation during 2019 and early 2020.

An Active Travel Campaign for Warwickshire and Coventry was launched in August 2017. Officers have worked to develop a website which is an active travel information hub, under the 'Choose How You Move' branding, to publicise various travel tools such as journey planners, walking and cycling maps, the Coventry and Warwickshire Car Share scheme, as well linking to air pollution. An interactive map showing NO_2 monitoring sites across Coventry and Warwickshire and annual mean NO_2 concentrations has been developed, and is accessible through the campaign website:

https://www.warwickshire.gov.uk/active-travel-choose-move/active-travel-local-information/1

It is envisaged that further travel planning facilities will be required ahead of 2021 when Coventry is UK City of Culture and the 2022 Commonwealth Games, and these are under discussion.

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A city wide AQMA for nitrogen dioxide was declared, effective from 1st November 2009. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at:

https://www.coventry.gov.uk/info/68/pollution/171/air_quality

Alternatively, see Appendix D Maps of Monitoring Locations and AQMAs~~Appendix D: Map(s) of Monitoring Locations and AQMAs~~, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Formatte

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan		
						At Declaration	Now	Name	Date of Publication	Link
City-wide AQMQ	1st November 2009	NO_2 Annual Mean	Coventry City	The whole city as defined by the city boundary	YES	Annual average levels of NO_2 identified as exceeding 40µg/m^3 at a number of roadside locations in city	Predicted to be exceedances of annual mean NO_2 at various locations with relevant exposure in the city (within AQMA	2007 AQAP is outdated focus is currently on developing the local plan with JAQU		https://www.coventry.gov.uk/downloads/file/1773/air_quality_action_plan_2007

☒ **Coventry City Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

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

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

1. It is encouraging to see that the Council have reviewed their monitoring programme and have introduced new monitoring locations. The Council should continue to review the monitoring programme on a regular basis, to ensure that monitoring takes place at any sites of potential exceedance with relevant exposure.

A: Noted. The monitoring programme is reviewed annually and amended as new information comes to light. It is also anticipated that additional monitoring will be required from 2020 as part of the LAQAP work and we are currently reviewing this with our consultants.

2. As the last AQAP was published in 2007, this means that the Council's current AQMA (declared in 2009) does not have an AQAP. This is a serious issue as all AQMAs are required to have an AQAP. The Council have stated that they are currently working on an updated AQAP. The Council should make this their main priority and publish an AQAP as soon as possible.

A: Noted.

3. The Council have provided a link to an interactive map. However, when the link is opened, Page 1 does not appear to work, and an error message appears. The Council should ensure that this is fixed as soon as possible. Page 2 however does work and displays the NO_2 trends over time at different monitoring sites. This is an extremely useful tool; the Council should continue to update this tool.

A: Noted and corrected.

4. Table A.1 incorrectly displays the distance corrected NO_2 concentrations. In future reports can the Council please ensure that distance corrected values are only presented in Appendix B. Non-distance corrected NO_2 concentrations should be displayed in Table A.1.

A: Noted and corrected in this ASR.

5. There are some inconsistencies between the data in Table A.1 and Table B.2. NO_2 concentrations for FS1, QV1, GF1 and GS1 do not match between the two tables. In addition to this the Council state on Page 36 that they have 9 exceedances when 11 exceedances can be seen in Table B.2. Can the Council please ensure that this is corrected in future reports.

A: Noted and corrected in this ASR.

6. It would be useful if Section 2.3 could make reference to the Public Health Outcomes Framework, and the local indicator for PM2.5 in the district. The Council may wish to consider comparing the '3.01 - Fraction of mortality attributable to particulate air pollution indicator' value for Coventry to nearby LAs and National indicator values.

A: Noted and included in this ASR.

7. The Council have distance corrected their results although have not provided the calculations. It would be beneficial for the Council to include their distance correction calculations. The Council can use and present the distance correction calculator provided by Defra. https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html.

A: The Defra calculator was used for distance correction and this was clearly stated in appendix C. However, an example has been provided in this ASR for clarity.

8. The Council have present NO_2 trends however have provided a limited discussion on these trends. It would be beneficial for the Council to discuss NO_2 trends within the City and provide an insight to what may have caused these trends.

A: Noted.

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

Key completed measures are:

- Submission of outline business case containing package of measures to JAQU outlining how the council can achieve compliance in the shortest possible time as an alternative to a charging Clean Air Zone (accepted by JAQU in 2020)
- Formal adoption of the Coventry air quality SPD
- Installation of variable messaging signage (VMS) and air quality sensors along the A4600, including the Ball Hill corridor
- Bus Lane suspension trial completed and permanent removal of bus lanes to improve traffic flow along key routes
- Retrofitting of National Express bus fleet to Euro VI standard to reduce transport emissions

Coventry City Council expects the following measures to be completed over the course of the next reporting year:

- Submission of full business case (LAQAP) containing package of measures to JAQU outlining how the council can achieve compliance in the shortest possible time as an alternative to a charging Clean Air Zone
- Undertake public consultation on the LAQAP
- Commencement of key measures contained in the LAQAP to facilitate compliance with air quality standards
- Trial of mobility credit scheme whereby residents can trade old vehicles for public transport subsidies to reduce transport emissions
- Installation of additional PM2.5 monitors as part of Birmingham University project

Coventry City Council's priorities for the coming year are:

- A city-wide upgrade of traffic signal technology to provide the facility for enhanced proactive traffic management including, where appropriate, queue re-location. This would be supported by associated investment in Variable

Message Signs at key points on the local road network, and in enhanced traffic and air quality monitoring equipment. This will provide the infrastructure necessary to support the dynamic traffic management approach that will enable traffic to be diverted and encouraging away from pollution hotspots when emissions levels are measured as exceeding certain thresholds.

- To facilitate the introduction of dynamic traffic management, highway improvements are required to ensure that pinch points on the local road network are removed to allow traffic to be diverted away from pollution hotspots without creating a problem elsewhere. This package element is focussed on the Holyhead Road corridor and the parallel routes and further information is available on the Council's website. This package will relieve traffic pressures on Holyhead Road, ensuring reduced traffic flows and freer-flowing traffic thereby reducing NO_2 levels at the worst pollution hotspot within the city.
- A city-wide programme of travel planning initiatives to include all schools and educational establishments, all major businesses and employers, and local communities within or adjacent to the main corridors within which NO_2 levels are identified to be a problem. These initiatives will seek to reduce the number of car trips being made at a local level by encouraging people to adopt more sustainable and healthy alternatives such as walking, cycling or using public transport.
- Working with taxi businesses, public transport operators and businesses operating major fleets of vehicles to ensure that commercial vehicles operating within Coventry are upgraded to meet high standards in terms of low or zero emissions (Euro 4 standard for petrol vehicles, Euro VI for diesel vehicles). This will be through a mixture of financial incentives (funding support for the upgrade of vehicles) and business incentives (taxi licencing and bus contract conditions specifying a minimum standard of low and zero emission vehicles). The evidence base shows that a significant number of commercial vehicles operating within the city are non-compliant with the desired standard, so this programme would see greener, cleaner vehicles introduced onto the city's network.

- To support the engagement programme aimed at encouraging more people to cycle, improvements will be made to the city's cycle network, with high standard routes being built on four key corridors connecting the city centre with outlying suburbs and key destinations. These corridors are:

  1 City Centre to Coundon

  2 City Centre to Binley and Hospital

  3 City Centre to Whitley

  4 City Centre to University of Warwick

This seeks to encourage more cycling for local journeys by providing high standard infrastructure on key routes running through identified pollution hotspots.

The principal challenges and barriers to implementation that Coventry City Council anticipates facing are:

- Securing consensus from a wide range of stakeholders on the measures to be implemented;
- Obtaining statutory approvals and permissions where these are required;
- Maintaining the long-term effectiveness of measures through continued investment, given insecurity of resources especially revenue funding;
- Ability to influence other policy areas that impact on travel demand across the city, such as new development or education / social policies;
- Providing attractive and affordable alternatives to the car when the Council does not directly control public transport services;
- Possible new or changed legislative controls requiring the council to implement additional measures for particulate matter, which the current package of work and the proposals in the Business Case do not directly address

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

- Local Plan has required additional traffic and air quality modelling and ANPR surveys were delayed due to, roadworks, adverse weather and vandalism.
- SPD adoption has taken longer than anticipated due to additional consultation requirements.
- General election and Brexit at the end of 2019 delayed Ministerial approval of Coventry's alternative measures proposals in the LAQAP

Coventry City Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in 2023.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Park & Ride South (Memorial Park)	Alternatives to private vehicle use	Bus based Park & Ride	1988	Coventry City Council (CCC) & Stagecoach	CCC & TfWM	Uptake	Reduced vehicle emissions	On-going	N/A	Allows drivers to park and finish their journey into the city centre by bus
2	Canley Station Park & Ride	Alternatives to private vehicle use	Bus based Park & Ride	2008	CCC & Centro	CCC	Uptake	Reduced vehicle emissions	On-going	N/A	Allows commuters to park at the stations and continue their journey on train. 20 additional covered cycle racks have been provided
3	Tile Hill Station Park & Ride	Alternatives to private vehicle use	Bus based Park & Ride	2008	CCC & Centro	CCC	Uptake	Reduced vehicle emissions	On-going	N/A	Allows commuters to park at the stations and continue their journey on train. 32 extra covered cycle racks have been provided
4	Car Share Coventry & Warwickshire	Promoting Travel Alternatives	Personalised Travel Planning	2014	Jaguar Land Rover, CCC, Liftshare	CCC	Uptake	Reduced vehicle emissions	On-going	N/A	Car Share scheme has been provided by local businesses including Jaguar Land Rover who have over 10,000 people signed up
5	Mercury emissions trading scheme	Environmental Permits	Tradable permit system through permit systems and economic instruments	Jan-14	CCC / Solihull	CCC / Solihull	Uptake	Reduced industrial emissions	On-going	N/A	A trading scheme for mercury emissions from cremations has been established between Coventry and Solihull councils. The scheme allows two crematoria in Solihull to fulfil their obligations under the Environmental Permitting Regulations to abate at least 50% of their emissions for mercury by trading emissions permits with Coventry City Council under an independent burden sharing scheme
6	Coventry Local Plan and Coventry City Centre Area Action Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	CCC	CCC	Uptake	Reduction / mitigation in NOx and PM	On-going	Documents valid until 2031	Within these guidance documents there is a requirement for major developments to consider district energy systems for their heating and cooling needs. Information about the existing low carbon district energy network supplied by waste heat from the nearby waste incinerator is made available but developers are also advised that other similarly low carbon networks will also be acceptable. In addition, the documents contain policy requiring major development schemes to promote the shift to the use of sustainable low emission transport to minimise the impact of vehicle emissions on air quality and that major development proposals require the submission of an air quality assessment

7	Heatline Project	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources / replacement of combustion sources	2013	CCC, CDEC (Coventry District Energy Company), ENGIE	CCC	Uptake	Reduction / mitigation in NOx and PM	On-going	N/A	The Heatline district energy network uses waste heat from the municipal waste incinerator to heat eight major buildings within the city centre, one of which is Coventry Cathedral. The scheme eliminates the need for gas boilers at these premises and makes full use of the waste heat using a 650m3 thermal store. Carbon savings are around 1300 tonnes per year with NOx and particulate matter emissions from connected premises being reduced to zero. There is an active programme to connect further large buildings to the scheme including the new Friargate business district and a new leisure centre. Funding from the Heat Networks Delivery Unit of DECC is being used to explore the feasibility of new connections in the Canley area of the city to link with an existing network operated by the University of Warwick
8	Air Quality Supplementary Planning Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	To be adopted in 2020	CCC	CCC	Compliance	Improving air quality	On-going	N/A	A specific Policy Document (CCC, Air Quality SPD) has been created to support and provide technical guidance to policy EM7 (Air Quality) in the Coventry Local Plan and to be adopted by 2020.
9	Agile working-Kickstart team	Promoting Travel Alternatives	Encourage / Facilitate home-working	2018	CCC	CCC	Uptake	Reduction in vehicle emissions	On-going	N/A	The city council has been encouraging it's staff and providing the technology to do 'Agile working', reducing the need to travel to work if work can be managed at home.
10	Pedestrian Thoroughfare - public realm	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2017	CCC	CCC	Usage	Reduction in vehicle emissions	On-going	2021	Creation of Friargate bridge with a new pedestrian boulevard which creates a more direct route for pedestrians into city centre from railway station. This reduces reliance on taxis to move rail commuters arriving at the station into the City Centre. Walking and cycling routes have been improved from Greyfriars Lane to High Street and on Fairfax Street. Further improvements will be made as part of a wider programme of public realm improvements to be delivered by 2021.
11	Further public realm works	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2018	CCC, Network Rail, TfWM	CCC	N/A	Reduction in vehicle emissions	On-going	2021-22	£82m has been secured for additional public realm and major infrastructure improvements at Coventry Railway Station to create a high qualtity multi-modal transport interchange. The investment will create infrastructure to increase capacity to support rail passenger growth, and also include a new bus interchange. The pedestrian boulevard will extend to the front of the station, creating a traffic free route to improve pedestrian and cycle connectivity between the station and city centre. Works have commenced on site and are due to be completed by 2021/2. £44m of funding has been secured to deliver package of city centre public realm improvements, which are targeted to be implemented by 2022 to coincide with Coventry becoming the UK City of Culture. The works include improvements around the Waterpark and Greyfriars Lane, Hertford Street, Upper Precinct and Smithford Way. The works will complement public realm improvements delivered to date and enhance pedestrian and cycle connectivity.The works will be complemented by improved wayfinding to encourage journeys to be made by active travel.
12	Love Your Bike	Promoting Travel Alternatives	Promotion of cycling	2016	CCC	CCC	Uptake	Reduction in vehicle emissions	On-going	N/A	Love Your Bike sessions continued during 2019 with bike security marking by the Safer Travel Police.

13	Let's Ride Coventry	Promoting Travel Alternatives	Promotion of cycling	2018	CCC, HSBC, British Cycling	CCC	10,500 participants in organised bike rides, 9,500 on City Ride. 1,000 on led rides in 2018.	Reduction in vehicle emissions	On-going	Annual Event	The partnership is supported by public health and includes satellite events in more deprived communities where levels of cycling are generally lower. Access to bicycles is a barrier to participation.
14	Coventry Station Masterplan	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2018	CCC, Network Rail, TfWM	CCC	Uptake	Reduction in vehicle emissions	On-going	2021	The Coventry Station Masterplan will deliver £82m infrastructure improvements at Coventry Rail Station, including a second station building and new bus interchange. A pedestrian tunnel under Warwick Road will be delivered to improve accessibility between the railway station and bus interchange, providing a step free and traffic free link between bus and rail services.
15	Purchase of 5 AQ Mesh air quality monitoring units	Public Information	Via other mechanisms	Jul-17	CCC, AQ Mesh	CCC	Feedback & Data Evaluation	Reduction in vehicle emissions	Sensors installed at 5 locations, data evaluation ongoing	On-going	AQ Mesh units installed in areas of known poor air quality. One is located adjacent to a school in partnership with Public Health.
16	VMS Project (linking VMS to divert traffic onto less polluted corridors)	Public Information	Via other mechanisms	2019	CCC	CCC	Reduced congestion	Reduction in vehicle emissions	On-going	N/A	A network of Variable Message Signs (VMS) signs have been installed on the gantries of the ring road to improve navigation around the city for motorists, buses and coaches, with signposting to car parks and the ability to change the messages for events or emergencies to manage traffic more effectively along key routes. The project has been completed and has been extremely useful in keeping all road users informed on all corridors including the ring road.
17	Real-Time Bay Availability System (aka Appy Parking), 2 additional projects have been funded by Innovate UK and DFT,	Traffic Management	UTC, Congestion management, traffic reduction	2019	Appy Parking, CCC DfT C-ITS	Appy Parking, CCC DfT C-ITS	Uptake	Reduction in vehicle emissions	Completed	Project completed in 2019 and now live	Council project with AppyParking is a work in progress, but the information it produces may eventually convert kerb side parking from a frustrating source of congestion and pollution into an efficient well managed urban transport market. Currently through the AppyParking app drivers are able to input their destinations, the length of time they want to park, and their expected arrival time. Soon, when they approach their destinations, the guidance system will give them turn-by-turn voice directions to available kerb or off-street parking spaces. The system will then show the best walking route to and from their destination. Following the delivery of the Real-time Bay Sensor project, Coventry City Council has partnered with AppyParking on a new and complementary Innovate UK funded project which will see the implementation of The Parking Platform™ (to be detailed in next years report for 2018), AppyParking's system to collect, aggregate and standardise parking restriction data across councils, creating a UK wide parking dataset.
18	Appy Parking-"Parking Platform" Project	Traffic Management	UTC, Congestion management, traffic reduction	2016	CCC	CCC	Digitising traffic regulation orders	Reduction in vehicle emissions	Completed	N/A	Assisting autonomous vehicles; embedding TRO's within the vehicles and guiding them to available parking areas and reducing congestion and emissions. All TRO's have now been digitised for exploitation for various different project.

19	Appy Parking - "Park AV" Project	Traffic Management	UTC, Congestion management, traffic reduction	2019	CCC	CCC	Autonomous valet parking	Reduction in vehicle emissions	Ongoing	2020	Allowing autonomous vehicles to find the nearest available parking space, reducing congestion and improving air quality. Developed the application in partnership with JLR and tried the application at various different parking scenarios.
20	UK Connected Intelligent Transport Environment (UK CITE)	Public Information	Other	2016	Led by Travel A.I including CCC / TfWM; Local Authorities Consultancies; TSC and Data Experts Innovate UK	Led by Travel A.I including CCC / TfWM; Local Authorities; Consultancies; TSC and Data Experts Innovate UK	Project Success	Reduction in vehicle emissions	Completed	N/A	First trials completed on test-track at Horiba MIRA (Autumn 2016), the second test track scenarios for connect vehicles and autonomous vehicles were completed (Spring 2017). Third closed on-street trials occurred Autumn 2017 with final open road tests at the latter stages of the project in Summer 2018. Test reaction to autonomous and semi-autonomous vehicles. Principally focused on the vehicle and user experience. Approx. 18 use cases will be tested, using info transmitted from infrastructure - the autonomous vehicle will then determine what to do and how to proceed. Driverless pods to be trialled in Milton Keynes at first and later in Coventry. To date the trials have been a huge success with large scale publicity and dissemination activities including local, national and international press. Largest trial and budget as part of Innovate UK's 'Introducing Driverless Cars to UK Roads' competition. This project has further been exploited by TfWM for the Midlands Future Transport Zone (MFTZ).
21	Citizen's at the City's Heart (CATCHI)	Public Information	Other	2017	CCC / TfWM	CCC / TfWM	Uptake	Reduction in vehicle emissions	Completed	N/A	Has two parts. One is developing the multimodal journey planner on phone. This will collect data on how people are travelling, and then provide real time information on how long a particular journey would really take people. The second part focuses on harvesting the data and making this available to policy-makers to help plan their policy and plan their networks. CCC in partnership with TfWM – to further develop CATCH & look at possibilities of integrating with the HoPE project. Project extended for one quarter until March end - completed 2017, finding are available for next 10 years, possibly use findings for 2021 city of culture visitor exerience public transport and tourist attractions, in partnership with TfWM
22	Bike Hire Scheme	Transport Planning and Infrastructure	Public cycle hire scheme	2015	Warwick Uni	Warwick Uni	Uptake	Reduction in vehicle emissions	On-going	N/A	50 bikes launched in 2015 at University of Warwick, and was doubled to 100 bikes in 2017. A city wide scheme is currently under development
23	Employee Training	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2016	CCC	CCC	Uptake	Reduction in vehicle emissions	On-going	N/A	All employees using City Council vehicles must complete defensive driver training including how to drive to reduce fuel use. Telematic units are currently fitted within all fleet vehicles to allow vehicles to be tracked and optimal routes to be identified – they are also used to encourage more efficient driving.
24	JLR Park & Ride	Alternatives to private vehicle use	Bus based Park & Ride	2018	Jaguar Land Rover	Jaguar Land Rover	Uptake	Reduction in vehicle emissions	On-going	N/A	Private park and ride for JLR staff and visitors. Operates between Birmingham Airport, Coventry Airport and Gaydon Plant Site. 1 Million passenger journeys per year.
25	SUITS - Sustainable Urban Integrated Transport Solutions (transferred project management TfWM).	Public Information	Other	2018	Led by Cov Uni inc CCC and a European Consortia Horizon 2020 (TfWM, Keelan WMCA)	Led by Cov Uni inc CCC and a European Consortia Horizon 2020 (TfWM, Keelan WMCA)	Uptake	Reduction in vehicle emissions	On-going	Jan-21	It will evaluate interventions that will improve Coventry's resilience and ability to deliver on reducing congestion, pollution and the development of inclusive transport measures impacting the quality of life for urban dwellers and commuters. Key outputs will be a validated capacity building program for transport departments, and resource light learning assets, decision support tools to assist in procurement, innovative financing, and engagement of new business partners and handling of open, real time and legacy data. Working with 9 local authorities, Coventry Unicvesity, Eurpoean Partners, and TfWM, Stakeholder engagement completed.

26	Choose How you Move Active Travel Campaign	Public Information	Via the Internet	2017	Public Health Cov & Warks	Public Health Cov & Warks	Uptake	Reduction in vehicle emissions	On-going	N/A	An Active Travel Campaign for Warwickshire and Coventry was launched in August 2017 (www.coventry.gov.uk/activetravel). Officers have worked to develop a website which is an active travel information hub, under the 'Choose how you Move' branding, to publicise various travel tools such as journey planners, walking and cycling maps, the Coventry and Warwickshire Car Share scheme, as well linking to air pollution. An interactive map showing NO2 monitoring sites across Coventry and 2016 annual mean NO2 concentrations has been developed, and is accessible through the campaign website. In addition, funding from Early Measures work has included Sustrans using the Choose How You Move branding to promote Active Travel (with a focus on the A4600 corridor, but also with a city-wide Comms campaign promoting Choose How You Move, and therefore active travel, even more. Transport is also in the early development stage of a digital travel planning platform that will provide users with a wide choice of smart, eco friendly travel options and will also act as a ticket for major events held in Coventry. The platform will also support people flow at events and train/bus stations.Use of the platform will also support Air Quality measures in place for Coventry
27	OLEV Funding for Electric Taxi Charging Points	Promoting Low Emission Transport	Taxi emission incentives	2018	CCC	Office for Low Emission Vehicles (OLEV)	Uptake	Reduction in vehicle emissions	On-going	2020	£1.2 million of funding awarded to the council to provide 39 rapid charge points for electric taxis. Intention is to provide strategically placed charging points around city to encourage uptake of low emissions taxis to reduce emissions and support the local taxi industry/investment in UK Automotive industry.
28	OLEV Funding for on street residential chargepoints scheme	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	CCC	Office for Low Emission Vehicles (OLEV)	Uptake	Reduction in vehicle emissions	On-going	2020	£300k of funding awarded to CCC to provide 90 slow and fast charge points for residents that don't have off street parking facility, to encourage them to own or lease electric vehicles
29	JAQU Funding for AQ Early Measures [VMS]	Public Information	Other	2019	CCC	Defra	Providing information on Air Pollution and advise on alternate travel route	Improving air quality	Complete	2019	£2 million of funding was awarded to CCC to deliver projects under the Air Quality Early Measures Scheme. 4 VMS have been installed that will display warnings of high air pollution and advise on alternate routes at two identified hot spots in Coventry
30	JAQU Funding for AQ Early Measures [AQ Sensors]	Other	Other	2019	CCC	Defra	Monitoring air pollution	Improving air quality	Complete	Complete	£2 million of funding was awarded to CCC to deliver projects under the Air Quality Early Measures Scheme. 12 air monitoring sensors have been installed. During high air pollution readings, a warning is sent to the Council's UTMC whereby advisory messages are displayed on the VMS signs with warnings of high air pollution and advise on alternate routes at two identified hot spots in Coventry

31	JAQU Funding for AQ Early Measures [Signal upgrade]	Traffic Management	UTC, Congestion management, traffic reduction	2019	CCC	Defra	Upgrade of traffic signals along the A4600 [an identified AQ hotspot]	Improving air quality	Completed	Complete	£2 million of funding was awarded to CCC to deliver projects under the Air Quality Early Measures Scheme. 7 traffic signal Junctions along A4600 have been upgraded to facilitate latest technology and bringing it current standards.
32	JAQU Funding for AQ Early Measures [4 x LEVC TX leasing]	Promoting Low Emission Transport	Taxi emission incentives	2019	CCC	Defra	uptake of E-Taxis	Improving air quality	On-going	N/A	£2 million of funding was awarded to CCC to deliver projects under the Air Quality Early Measures Scheme. A 'try before you buy' scheme has been launched allowing hackney carriage owners/drivers to try the new LEVC electric taxi with a petrol range extender before committing to purchasing the vehicle. CCC is providing financial incentives when new ULEV or electric hackney carriage is purchased. 10 new electric taxis have been purchased through this scheme to date.
33	Burn Right & Ready to Burn Campaigns	Public Information	Via the Internet	2019	Led by Defra and promoted by CCC	Defra	Project Success	Reduction in PM2.5	Completed	On-going	Campaigns educating the public about use of correct fuel in open fires and woodburning stoves with the aim of reducing smoke and PM2.5 emissions
34	Bus Lane Suspension	Traffic Management	Other	2019	CCC	CCC	reduced congestion on key route network	Reduction in vehicle emissions	Completed	N/A	Evidence showed congestion in Coventry to be rising faster than almost anywhere else due to the growth of the city and its economy. To tackle the growing congestion issue, an evidence based bus lane review was recommended, where a number of bus lanes were suspended and results were monitored on a monthly basis for 18 months, showing improvement in congestion.
35	Intelligent Variable Messaging System (iVMS)	Public Information	Via other mechanisms	2019	"CCC; Siemens Mobility; SGIL; Coventry University; Horiba MIRA CWLEP"	"CCC; Siemens Mobility; SGIL; Coventry University ; Horiba MIRA CWLEP"	Uptake	Reduction in vehicle emissions	Completed, final report submitted to LEP and approved.	N/A	"The analysis of the reduced travel times (congestion) at peak periods leads to some improved accessibility for city centre economic activities, especially using the Binley Rd corridor, where at peak times (assuming 6% App penetration rate) congestion is all but removed. Assuming that these savings can be realised over the year on a consistent basis there is a reduction in congestion in all corridors, with a reduced period where free flow is not possible. Further, the three test corridors represent important routes into Coventry, but only part of the total road network – around just over a fifth of average daily vehicle counts. The savings estimated above can be expected to be greater if the traffic management systems operate city-wide. It is possible to provide some indication of effects on vehicle emissions of time savings on the corridors, as calculated by Coventry University Centre for Future Transport and Cities. The most substantial achievement of the iVMS project has been to develop and extend the local test bed environment for vehicle technologies (and related smart city activity) across a number of dimensions. The bluetooth technology has helped to inform the new DEFRA funded Early Measures Feasibility Project (from 2018 onwards) especially along the A4600 key route into the city. "
36	Binley Business Park - SusCom	Promoting Travel Alternatives	Workplace Travel Planning	2018	CCC, Partners - Binley Business Park, Coventry Building Society, Tsys, St. Gobain, Keogh, Orbit Housing.	CCC, Partners - Binley Business Park, Coventry Building Society, Tsys, St. Gobain,	Uptake of sustainable travel	Improving air quality	On-going	On-going	Joint travel plan between several large businesses to control traffic mangement and encourage employees to take up sustainable travel. CCC engaged with businesses in travel planning, engaged with future mobility zones (WMCA).

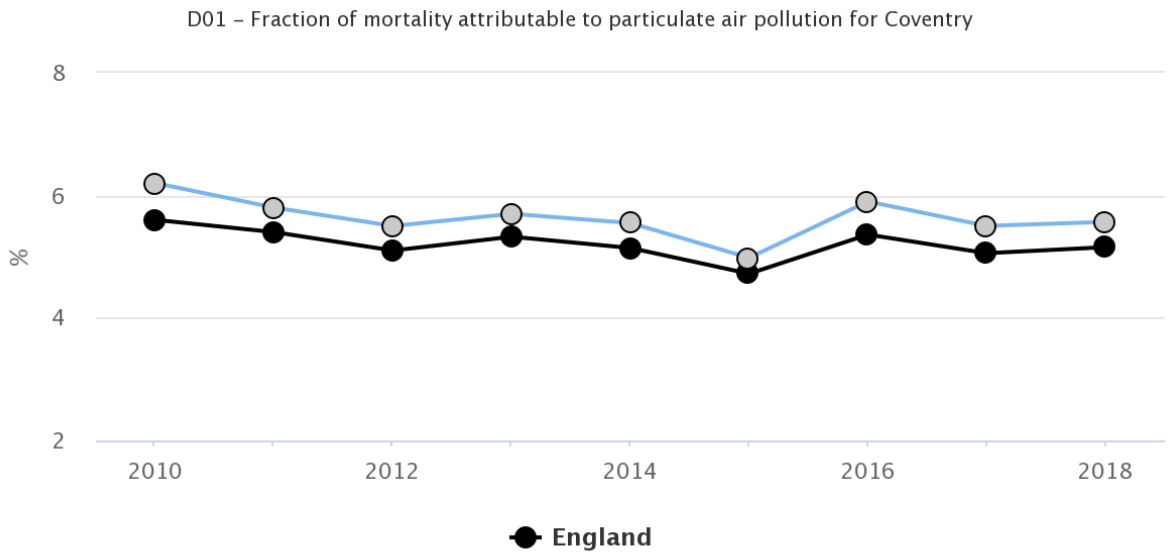
						Keogh, Orbit Housing.					
37	West Midlands Air Quality Improvement Programme	Policy Guidance and Development Control	Other policy	2019	University of Birmingham	University of Birmingham	Uptake of tools and/or policy	Reduction / mitigation in NOx and PM	On-going	2022	Led by the University of Birmingham, and supported by £5million of funding from the Natural Environment Research Council (NERC), the project comprises three broad themes which aim to improve understanding of the region's air pollution challenges, to provide new capability to support clean air measures and policy focussed upon the region, and to support the application of these to specific policy scenarios, questions and challenges
38	Friargate Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	2018	CCC	CCC	Uptake	Reduction in vehicle emissions	On-going	N/A	A travel plan has been developed as part of the council's relocation to new offices in a more sustainable location adjacent to the railway station. The building includes cycle parking and changing facilities as well as a fleet of pool bikes and pool cars including electric vehicles to reduce private car use for travel to work and for business journeys.
39	UK Autodrive	Promoting Travel Alternatives	Other	2016	Led by Arup managing several partners incl CCC; Axa, Milton Keynes Council, Transport Systems Catapult, Ford, JLR, TMETC, RDM	Led by Arup managing several partners incl CCC; Axa, Milton Keynes Council, Transport Systems Catapult, Ford, JLR, TMETC, RDM	Project Success	Reduction in vehicle emissions	Complete	N/A	Has two parts. One is developing the multimodal journey planner on phone. This will collect data on how people are travelling, and then provide real time information on how long a particular journey would really take people. The second part focuses on harvesting the data and making this available to policy-makers to help plan their policy and plan their networks. CCC in partnership with TfWM – to further develop CATCH & look at possibilities of integrating with the HoPE project. After project end TfWM looking at how to utilise the app further
40	The UK Battery Industrialisation Centre (UKBIC)	Vehicle Fleet Efficiency	Other	2017	Funding awarded to consortium of CCC, CWLEP, and WMG, at the University of Warwick. New Business created - UKBIC Ltd	UK Government's Faraday Battery Challenge (Innovate UK) and WMCA Loan	Uptake	Reduction in vehicle emissions and improving air quality	Ongoing	N/A	The UK Battery Industrialisation Centre (UKBIC) is part of the UK Government's Faraday Battery Challenge.

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

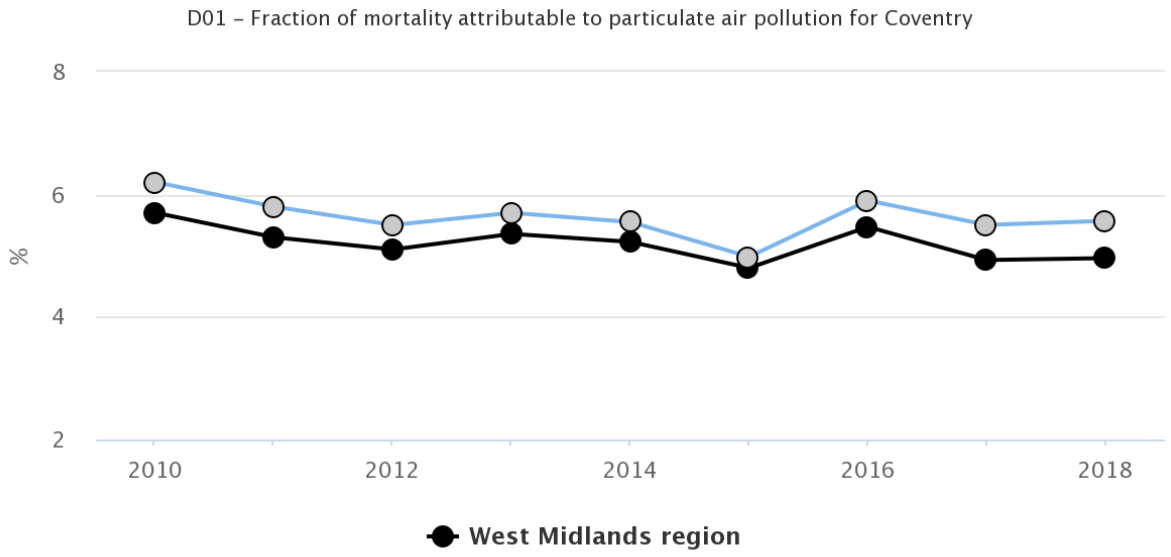
As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health,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

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	–	-	5.2	-	-
West Midlands region	–	-	5.0	-	-
Sandwell	–	-	5.8	-	-
Coventry	–	-	5.6	-	-
Walsall	–	-	5.5	-	-
Birmingham	–	-	5.5	-	-
Dudley	–	-	5.2	-	-
Solihull	–	-	5.2	-	-
Nuneaton and Bedworth	–	-	5.2	-	-
Wolverhampton	–	-	5.1	-	-
Tamworth	–	-	5.1	-	-
Rugby	–	-	5.1	-	-
Warwick	–	-	5.0	-	-
North Warwickshire	–	-	4.9	-	-
Worcester	–	-	4.8	-	-
Bromsgrove	–	-	4.8	-	-
Stratford-on-Avon	–	-	4.7	-	-
Redditch	–	-	4.7	-	-
Lichfield	–	-	4.6	-	-
Cannock Chase	–	-	4.6	-	-
Wychavon	–	-	4.6	-	-
South Staffordshire	–	-	4.6	-	-
East Staffordshire	–	-	4.6	-	-
Wyre Forest	–	-	4.5	-	-
Stoke-on-Trent	–	-	4.4	-	-
Malvern Hills	–	-	4.3	-	-
Stafford	–	-	4.2	-	-
Herefordshire	–	-	4.2	-	-
Newcastle-under-Lyme	–	-	4.2	-	-
Telford and Wrekin	–	-	4.1	-	-
Shropshire	–	-	3.8	-	-
Staffordshire Moorlands	–	-	3.8	-	-

The 2018 data above from PHE shows Coventry has the second highest levels in the West Midlands area with only Sandwell having higher levels. This is above England's average.



The above shows PHE trend data for $PM_{2.5}$ mortalities. Coventry is tracking in-line with England but lies above the average values. This is the same against the West Midlands data shown below.



In response, the Coventry and Warwickshire Health Protection Strategy for the period 2017-2021 identifies the need to tackle areas of poor air quality, with a key performance indicator being a reduction in $PM_{2.5}$.

Coventry City Council is taking the following measures to address $PM_{2.5}$:

Coventry City Council is currently trialling two different technologies that are capable of measuring $PM_{2.5}$ Airsensa and AQ Mesh. Airsensa has unfortunately been on hold for some time due to unforeseen circumstances with the supplier, and we have been working to evaluate AQ Mesh data capture due to reliability issues.

It is still intended to place at least one monitor on the façade of a school to measure pupil's exposure and to raise awareness of air quality in conjunction with colleagues from Public Health.

The city council has recently purchased the Zephyr sensor supplied by Earthsense that also has $PM_{2.5}$ monitoring capability. This data will be subject to evaluation.

The city council have been working with Birmingham University on the NERC funded WMAir project (Clean Air Science for the West Midlands', https://wm-air.org.uk/). Part of this work is looking at PM2.5 emissions and it is anticipated that this will include additional monitoring. The project is applying environmental science expertise to support the improvement of air quality, and associated health, environmental and economic benefits, across the West Midlands. Current work will see approximately 10 particulate matter sensors being deployed across Coventry during summer/autumn 2020. These will support a range of air quality applications, such as understanding air quality in traffic hotspots and along busy routes, in areas of deprivation, and at construction sites and schools. These measurements will support local initiatives such as the Coventry air quality action plan, emergency active travel use (on the back of Covid-19), and Coventry City of Culture activities. There is also potential for further work involving air quality and health modelling applications, such as case studies exploring active travel, air quality alliance knowledge transfer and planning development/mitigation measures.

Coventry City Council are concerned about particulates released by wood burning stoves with some studies estimating 38% of local particulate emissions come from wood burning. We are promoting the Defra campaign through our website to educate the public and the 'Ready to Burn' and 'Burn Right' websites, encouraging the use of the correct fuels to reduce emissions from these appliances. A campaign around wood burning stoves and particulate emissions featured on the council website and council produced newsletters in the winter of 2019/2020. The aim was to educate the public about the correct use of wood burners and fuels promoting the Woodsure and

Burnright websites and emphasising concerns about PM2.5 emissions. Further campaigns around domestic bonfires are planned for 2020.

The supplementary planning document on air quality, developed with partner authorities from Warwickshire, aims to tackle particulate emissions by providing guidance to developers on reducing construction related emissions of particulate matter by requiring developers to produce construction management plans on controlling dust and dirt, use of Non-Road Mobile Machinery (NRMM) and emissions limits on new biomass plant.

Coventry City Council currently has representatives at the Coventry and Warwickshire Air Quality Alliance. The Alliance have been working in partnership to support collaborative efforts to improve air quality in Coventry and Warwickshire, which has included developing an active travel campaign: "Choose how you move" (please see website at: www.coventry.gov.uk/activetravel), developing Coventry and Warwickshire-wide planning guidance for developers regarding Air Quality, and collaboratively reviewing air quality action plans.

The majority of Coventry is covered by 31 separate smoke control orders made between 1959 and 1984

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Coventry City Council no longer undertakes any automatic (continuous) monitoring. However, it is continuing to trial two different technologies that are capable of continuously measuring $PM_{2.5}$. More information on the AirSensa technology is available at:

http://www.airsensa.org/

And the AQ Mesh technology at:

http://www.aqmesh.com/

National monitoring results from the AURN site in the Allesley area of the city operated by Defra are available at https://uk-air.defra.gov.uk/ and results from the second AURN unit known as Coventry Binley Road are available at: https://uk-air.defra.gov.uk/

3.1.2 Non-Automatic Monitoring Sites

Coventry City Council undertook non- automatic (passive) monitoring of NO_2 at 63 sites during 2019. Table A.1~~Table A.2~~ in Appendix A shows the details of the sites.

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

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias[4], "annualisation" (where the data capture falls below 75%), and distance correction[5]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2~~Table A.3~~ in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3. Note that the concentration data presented in Table A.2~~Table A.3~~ represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

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

The results of diffusion tube monitoring across the city during 2019 show a slight increase in the majority of tube results compared to 2018. However, the overall trend over the last nine years' worth of data, shows a decline in nitrogen dioxide levels across the city. This is broadly in-line with the trend for nitrogen dioxide levels across England. Appendix A contains graphs which show the trend in nitrogen dioxide tube results for the past nine years for five main areas of the city.

In 2019, there were 15 tubes that exceeded the annual mean (40 µg/m^3) of a total of 63 tubes. One of these HR1c exceeded 60 µg/m^3. This tube is located close to the road which is a small stretch of a busy road on an incline and with a street canyon and is not representative of a receptor. Once distance corrected to the nearest receptor, 10 tubes exceeded the annual mean (40 µg/m^3) and none exceeded 60 µg/m^3.

Coventry City Council has created an interactive map which shows the locations of the tubes with monitoring results from 2011 to 2019. This is available at:

[4] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[5] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

https://www.coventry.gov.uk/info/68/pollution/171/air_quality/5

All exceedances occur in an AQMA as the whole of Coventry has been declared as one AQMA.

Appendix A: Monitoring Results

Table A.12 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
CC01/1*N	Holyhead Road, Beaumont Court	Roadside	432105	279578	NO_2	YES	4.10	3.10	NO	2.80
HR1	Holyhead Road	Roadside	432683	279240	NO_2	YES	0	5.80	NO	2.70
HR1C	73 Holyhead Road	Roadside	432712	279227	NO_2	YES	4.20	1.80	NO	2.50
HR2C	104 Holyhead Road	Roadside	432525	279345	NO_2	YES	0	6.10	NO	2.10
HR4	89 Holyhead Road	Roadside	432639	279258	NO_2	YES	0	7.80	NO	3.00
HR5	School	Roadside	432730	279238	NO_2	YES	3.20	1.80	NO	2.50
HR6	75 Holyhead Rd	Roadside	432706	279228	NO_2	YES	0	6.00	NO	3.00
BH1a	Walsgrave Road, Library	Roadside	434987	279209	NO_2	YES	2.90	2.93	NO	2.67
BH2b	Walsgrave Road, Outside 161	Roadside	435126	279284	NO_2	YES	2.0	3.10	NO	2.80
BH4	Walsgrave Road, 243	Roadside	435331	279358	NO_2	YES	2.20	1.30	NO	1.80
BH13	196/198 Walsgrave Road	Roadside	435507	279387	NO_2	YES	0	5.20	NO	2.50
BH14	238 Walsgrave Road	Roadside	435655	279356	NO_2	YES	8.00	9.60	NO	2.50

BH15i	Walsgrave Road, Post Office	Roadside	435184	279298	NO_2	YES	3.50	4.50	NO	2.30
FS1	Fairfax Street, Pool Meadow	Kerbside	433569	279234	NO_2	YES	3.90	1.00	NO	3.00
QV1	Lampost outside student block	Roadside	433029	278798	NO_2	YES	2.12	1.95	NO	2.57
GF1	Greyfriars Taxi rank	Kerbside	433407	278882	NO_2	YES	0	0.47	NO	2.59
GS1	Outside Gosford Books	Roadside	433899	278845	NO_2	YES	0	9.80	NO	2.80
STL1	End of Stonehouse Lane	Roadside	436203	275841	NO_2	YES	9.00	12.00	NO	2.45
LON8	On no. 703 London Rd	Roadside	436551	275703	NO_2	YES	0	17.90	NO	2.45
LON12	Between 76 & 78 London Road	Roadside	434073	278459	NO_2	YES	2.00	2.00	NO	2.72
SE1	Spon End, 58a	Kerbside	432084	279042	NO_2	YES	2.60	0.10	NO	2.00
SE3	97 Spon End	Roadside	432303	279028	NO_2	YES	0	2.30	NO	3.10
QAV01	Queensland Avenue, Fairytale Flowers	Kerbside	431595	278991	NO_2	YES	5.20	0.10	NO	2.50
QAV12	Queensland Avenue, 2	Roadside	431704	278680	NO_2	YES	0	4.30	NO	2.00
QAV13	Hearsall Lane, 181	Roadside	431763	278657	NO_2	YES	0	4.90	NO	2.50
R5	Foleshill Road, 275	Roadside	433716	280503	NO_2	YES	0	3.70	NO	2.80
R6	Foleshill Road, between 181 & 183	Roadside	433609	280246	NO_2	YES	2.20	2.05	NO	2.72
R8a	Foleshill Road, Outside 411	Roadside	433991	280998	NO_2	YES	1.11	1.65	NO	2.5
R9	Foleshill Road, 324	Roadside	434059	281105	NO_2	YES	1.83	3.07	NO	2.65

LR1	23 Longford Road	Roadside	434836	283030	NO_2	YES	0	5.60	NO	2.00
LR2	24 Longford Road	Roadside	434880	283077	NO_2	YES	0	4.20	NO	2.00
LR3	Longford Road, 139	Roadside	435016	283515	NO_2	YES	0	8.50	NO	1.50
BRN2	Burnaby Road, 19	Roadside	433605	281965	NO_2	YES	0	5.50	NO	2.75
BRN5	41 Holbrooks Lane	Roadside	433639	281995	NO_2	YES	0	6.70	NO	2.00
BA1	Beake Avenue/Radford Road	Roadside	432526	280806	NO_2	YES	0	7.50	NO	3.00
SS1	Stoney Stanton Road, 154	Roadside	434062	280082	NO_2	YES	0	3.70	NO	2.50
SS2	Stoney Stanton Road, 155	Roadside	433994	279969	NO_2	YES	0	4.50	NO	2.50
SS3	R/O 21 Torcastle Close (faces SS Rd)	Roadside	434842	281272	NO_2	YES	0	4.50	NO	2.50
SS5	Lampost L21CAC	Roadside	433852	279814	NO_2	YES	1.80	2.00	NO	2.51
BELL1	16 Hall Green Road	Roadside	435849	282211	NO_2	YES	0	5.70	NO	2.50
BELL2	314 Bell Green Road	Roadside	435826	282158	NO_2	YES	0	2.90	NO	2.70
FGS2	Select & Save, Far Gosford Street	Roadside	434450	279001	NO_2	YES	0	2.40	NO	2.70
FGS3a	Pig in the middle café	Roadside	434530	279026	NO_2	YES	0	5.50	NO	2.50
FGS4	Callice Court	Roadside	434203	278892	NO_2	YES	0	5.40	NO	2.80
GR1	217 Gulson Road	Kerbside	434679	278920	NO_2	YES	0	4.50	NO	2.50
GR2a	Elliots, 13 Gulson Road	Roadside	434053	278604	NO_2	YES	1.20	2.80	NO	2.80

Grange 3	161/163 Grange Road	Kerbside	435791	284285	NO_2	YES	1.44	0.30	NO	2.43
SHP1	257 Sir Henry Parkes Road	Roadside	430447	277080	NO_2	YES	0	9.93	NO	2.37
SHP2	262 Sir Henry Parkes Road	Roadside	430364	277059	NO_2	YES	0	12.47	NO	2.30
SHP3	Outside 190 Sir Henry Parkes Road	Roadside	430566	277231	NO_2	YES	4.16	4.60	NO	2.40
BL1	Corner Broad Lane / Dunchurch Highway	Roadside	430043	278890	NO_2	YES	9.60	1.50	NO	2.55
RR1	Opposite Chantry Place	Kerbside	433550	279478	NO_2	YES	/	0.10	NO	2.00
RR2	Near Junction 1	Kerbside	433525	279502	NO_2	YES	/	0.10	NO	2.90
RR3	Opposite to RR2	Roadside	433552	279524	NO_2	YES	/	1.40	NO	2.50
RR4	Ringway Queens East side		433026	278572	NO_2	YES	/	0.10	NO	2.60
RR5	Ringway Queens West side		432940	278620	NO_2	YES	/	0.10	NO	2.80
SA1	L12PIP	Roadside	427538	277397	NO_2	YES	9.70	1.60	NO	2.50
SA2	Outside 62	Roadside	427624	277863	NO_2	YES	7.70	2.50	NO	2.50
SA4	Outside 12	Roadside	427623	278116	NO_2	YES	0.50	6.00	NO	2.20
HL1	Junction with Broad Lane	Roadside	427249	279780	NO_2	YES	6.70	1.10	NO	2.75
BS1A	Outside 162 Bennetts Road South	Roadside	431927	282911	NO_2	YES	8.7	3.40	NO	3.00
KG1	Outside no 6	Roadside	431956	282113	NO_2	YES	6.70	2.70	NO	3.00
EB1	70 Aldermans Green Road	Roadside	435928	283069	NO_2	YES	0	8.60	NO	2.00

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.23 – Annual Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CC01/1*N	432105	279578	Roadside	Diffusion Tube		100	36.83	**41.27**	36.76	30.42	34.17
HR1	432683	279240	Roadside	Diffusion Tube		100	**55.07**	**60.58**	**52.77**	**47.11**	**49.44**
HR1C	432712	279227	Roadside	Diffusion Tube		100	**91.79**	**90.16**	**79.21**	**71.45**	**69.66**
HR2C	432525	279345	Roadside	Diffusion Tube		100	30.22	35.92	26.93	27.50	28.77
HR4	432639	279258	Roadside	Diffusion Tube		100	/	/	/	**46.27**	**44.10**
HR5	432730	279238	Roadside	Diffusion Tube		91.7	/	/	/	**53.88**	**48.37**
HR6	432706	279228	Roadside	Diffusion Tube		100	/	/	/	**55.53**	**49.60**
BH1a	434987	279209	Roadside	Diffusion Tube		91.7	37.67	**41.61**	37.56	33.87	37.05
BH2b	435126	279284	Roadside	Diffusion Tube		100	/	/	/	/	**42.96**
BH4	435331	279358	Roadside	Diffusion Tube		91.7	**47.09**	**54.63**	**45.27**	**41.83**	**41.68**
BH13	435507	279387	Roadside	Diffusion Tube		100	36.88	38.02	34.07	30.88	33.13
BH14	435655	279356	Roadside	Diffusion Tube		100	**40.68**	**47.32**	37.50	36.33	37.35
BH15i	435184	279298	Kerbside	Diffusion Tube		100	**45.41**	**51.76**	**40.86**	**40.11**	39.96
FS1	433569	279234	Kerbside	Diffusion Tube		100	**46.19**	**52.35**	**45.91**	**43.75**	**44.59**

QV1	433029	278798	Roadside	Diffusion Tube		100	**42.07**	**44.60**	38.65	32.96	37.30
GF1	433407	278882	Kerbside	Diffusion Tube		91.7	38.39	**42.35**	25.53	33.95	33.55
GS1	433899	278845	Roadside	Diffusion Tube		100	**41.21**	**40.28**	35.30	32.94	34.61
STL1	436203	275841	Roadside	Diffusion Tube		100	/	/	35.20	31.33	33.61
LON8	436551	275703	Roadside	Diffusion Tube		91.7	/	/	29.97	25.30	25.32
LON12	434073	278459	Roadside	Diffusion Tube		100	**44.68**	**49.51**	**48.82**	**43.13**	**45.77**
SE1	432084	279042	Kerbside	Diffusion Tube		100	37.40	**42.49**	35.35	34.02	36.41
SE3	432303	279028	Roadside	Diffusion Tube		100	36.99	**41.96**	36.62	31.92	34.60
QAV01	431595	278991	Kerbside	Diffusion Tube		100	**46.73**	**51.56**	**41.90**	37.82	39.99
QAV12	431704	278680	Roadside	Diffusion Tube		100	35.52	33.69	31.12	32.41	33.76
QAV13	431763	278657	Roadside	Diffusion Tube		100	35.78	**42.73**	37.34	33.74	35.18
R5	433716	280503	Roadside	Diffusion Tube		100	**44.52**	**49.01**	**40.13**	39.48	38.58
R6	433609	280246	Roadside	Diffusion Tube		100	**48.78**	**56.22**	**50.72**	**46.34**	**48.08**
R8a	433991	280998	Roadside	Diffusion Tube		100	/	**/**	/	/	**40.51**
R9	434059	281105	Roadside	Diffusion Tube		100	39.74	**41.71**	36.86	36.20	37.28
LR1	434836	283030	Roadside	Diffusion Tube		100	**40.45**	**45.07**	37.80	34.88	37.59
LR2	434880	283077	Roadside	Diffusion Tube		91.7	**41.57**	**45.32**	37.17	38.10	37.79
LR3	435016	283515	Roadside	Diffusion Tube		100	39.73	**44.68**	38.71	37.12	35.53

BRN2	433605	281965	Roadside	Diffusion Tube		100	35.83	**41.79**	35.98	34.41	34.54
BRN5	433639	281995	Roadside	Diffusion Tube		100	38.53	**41.39**	32.57	35.40	33.78
BA1	432526	280806	Roadside	Diffusion Tube		100	36.05	39.71	33.75	32.65	31.93
SS1	434062	280082	Roadside	Diffusion Tube		100	33.47	**41.19**	34.25	34.08	33.31
SS2	433994	279969	Roadside	Diffusion Tube		100	34.77	38.84	31.27	33.19	33.61
SS3	434842	281272	Roadside	Diffusion Tube		100	35.66	**42.80**	36.09	35.29	36.72
SS5	433852	279814	Roadside	Diffusion Tube		100	**45.55**	**53.18**	**45.80**	**44.86**	**45.81**
BELL1	435849	282211	Roadside	Diffusion Tube		100	37.16	**42.19**	38.15	36.26	37.49
BELL2	435826	282158	Roadside	Diffusion Tube		91.7	34.84	39.46	35.20	33.37	33.48
FGS2	434450	279001	Roadside	Diffusion Tube		91.7	36.24	39.09	32.67	32.36	32.88
FGS3a	434530	279026	Roadside	Diffusion Tube		100	35.85	**41.00**	33.78	32.87	32.83
FGS4	434203	278892	Roadside	Diffusion Tube		100	/	/	/	**40.75**	36.92
GR1	434679	278920	Roadside	Diffusion Tube		100	35.12	39.04	33.45	33.06	32.31
GR2a	434053	278604	Roadside	Diffusion Tube		83.3	/	/	/	39.29	**48.22**
Grange 3	435791	284285	Kerbside	Diffusion Tube		66.7	/	/	35.37	33.07	36.36
SHP1	430447	277080	Roadside	Diffusion Tube		100	33.15	/	/	28.04	27.54
SHP2	430364	277059	Roadside	Diffusion Tube		100	27.45	35.24	28.58	29.52	27.83
SHP3	430566	277231	Roadside	Diffusion Tube		100	32.34	38.17	33.98	33.46	31.34

BL1	430043	278890	Roadside	Diffusion Tube		83.3	**43.02**	36.78	31.60	31.19	30.05
RR1	433550	279478	Kerbside	Diffusion Tube		100	/	/	/	39.12	39.22
RR2	433525	279502	Kerbside	Diffusion Tube		100	/	/	/	38.45	38.23
RR3	433552	279524	Roadside	Diffusion Tube		91.7	/	/	/	**47.63**	**51.60**
RR4	433026	278572	Kerbside	Diffusion Tube		75	/	/	/	/	37.17
RR5	432940	278620	Kerbside	Diffusion Tube		66.7	/	/	/	/	**41.85**
SA1	427538	277397	Roadside	Diffusion Tube		100	/	/	/	26.72	24.00
SA2	427624	277863	Roadside	Diffusion Tube		100	/	/	/	30.21	27.57
SA4	427623	278116	Roadside	Diffusion Tube		91.7	/	/	/	26.82	25.77
HL1	427249	279780	Roadside	Diffusion Tube		91.7	/	/	/	26.41	23.60
BS1A	431927	282911	Roadside	Diffusion Tube		66.7	/	/	/	/	26.90
KG1	431956	282113	Roadside	Diffusion Tube		100	/	/	/	33.43	29.81
EB1	435928	283069	Roadside	Diffusion Tube		91.7	/	/	/	30.01	28.81

☒ **Diffusion tube data has been bias corrected**

☒ **Annualisation has been conducted where data capture is <75%**

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

Notes:

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

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

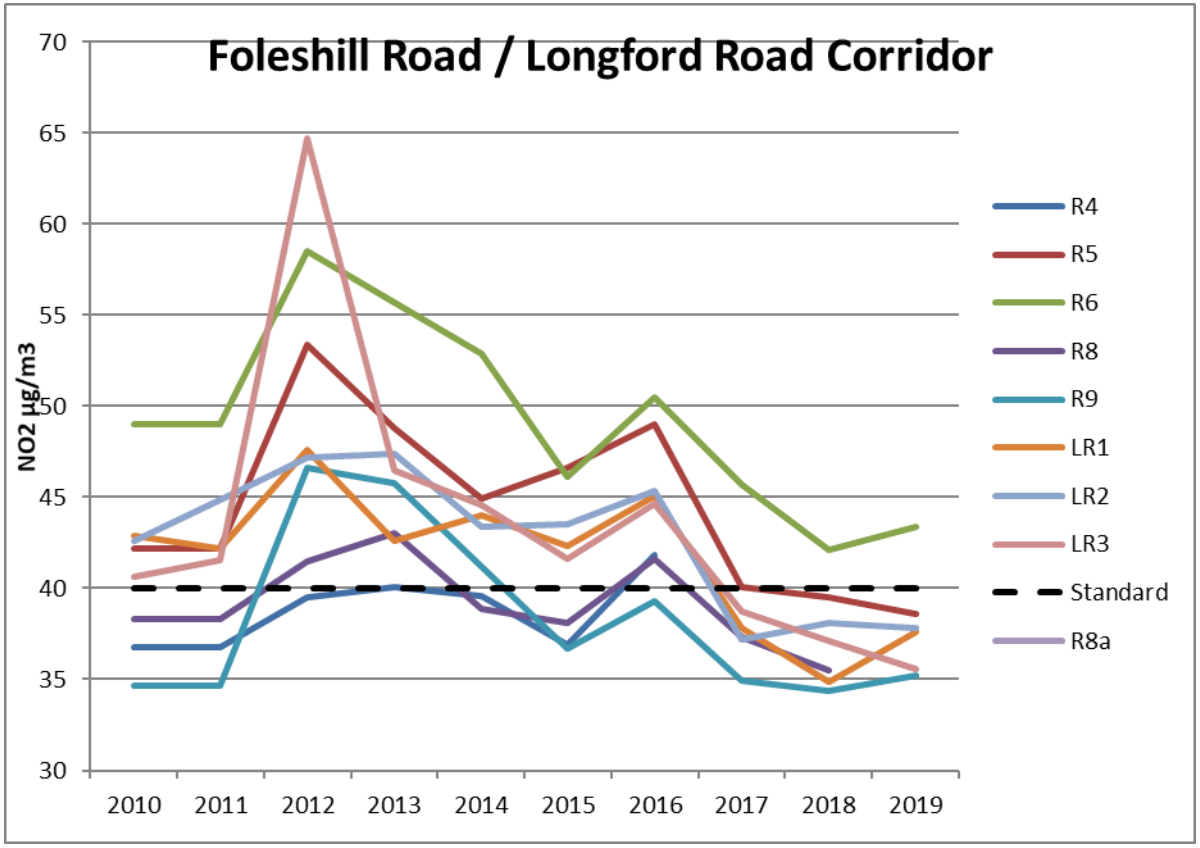
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

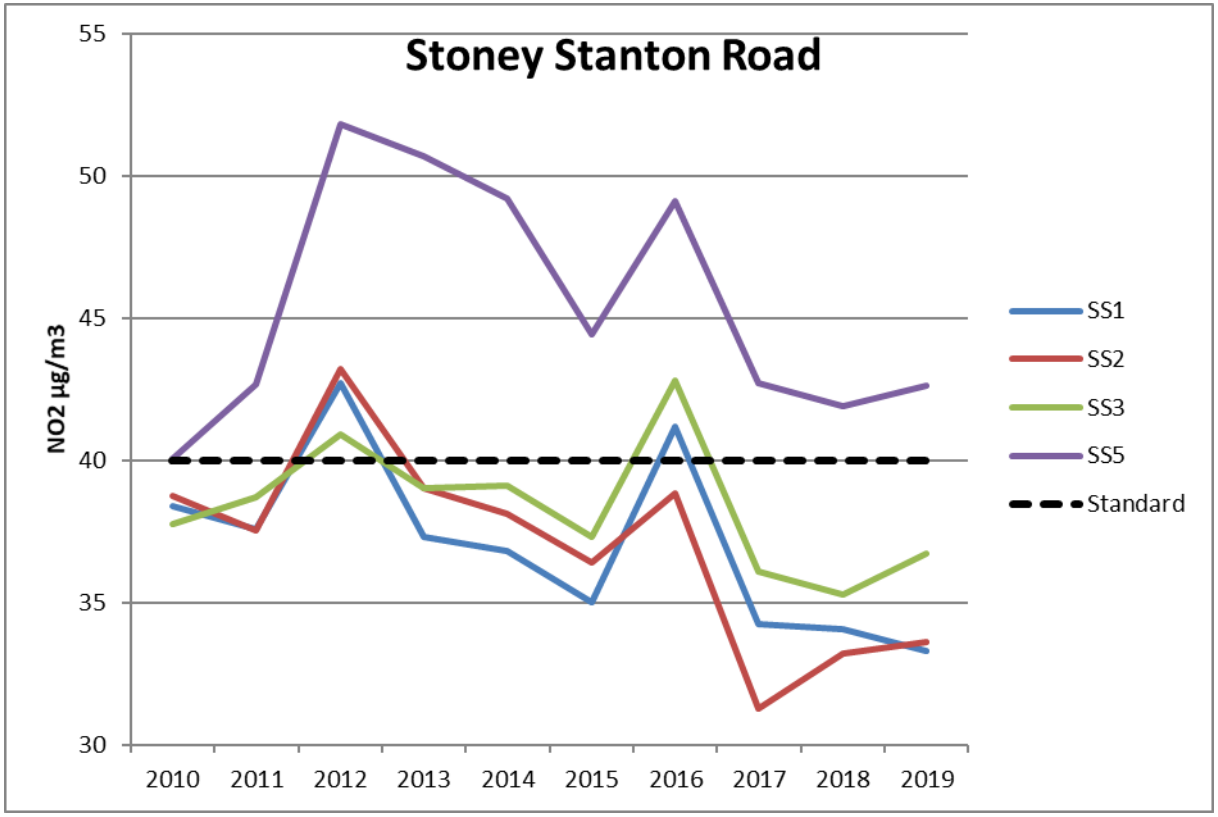
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

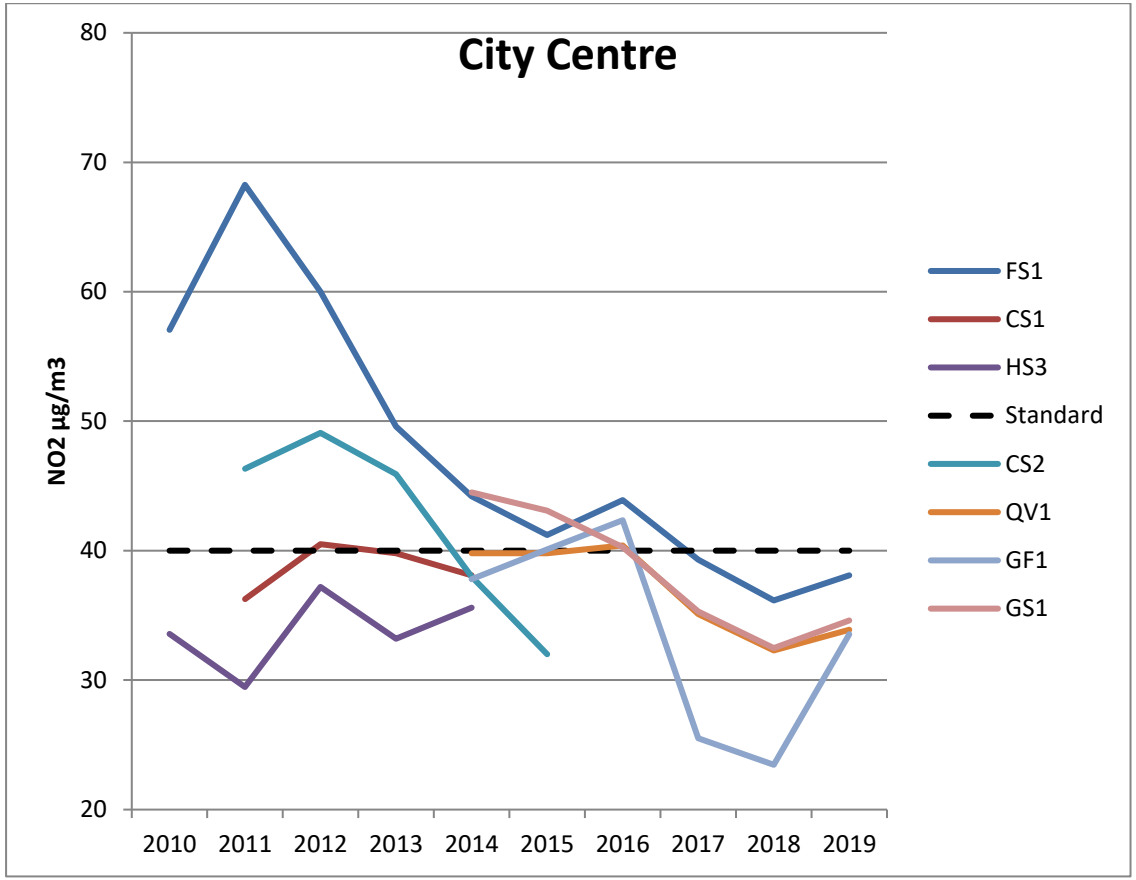
(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

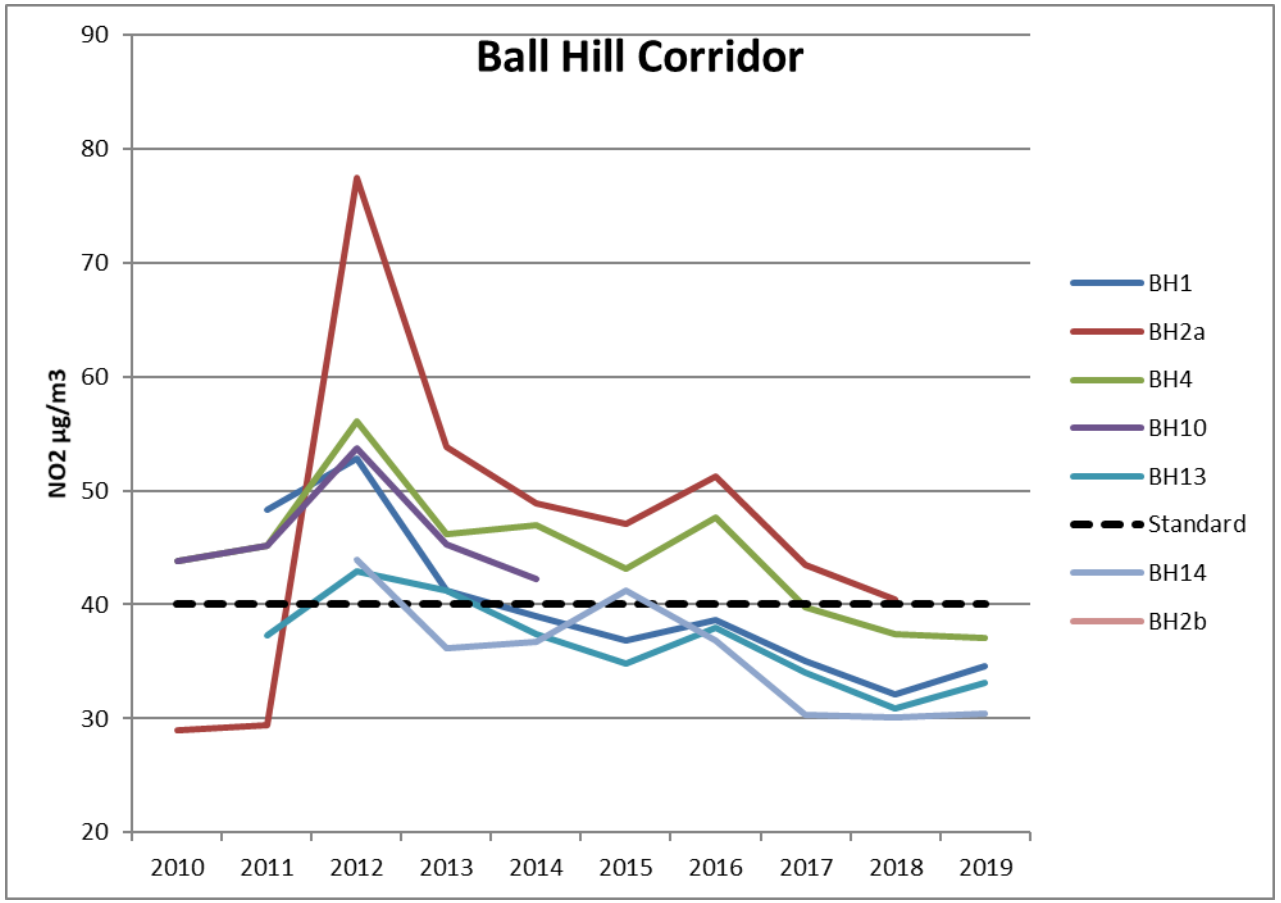
(4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

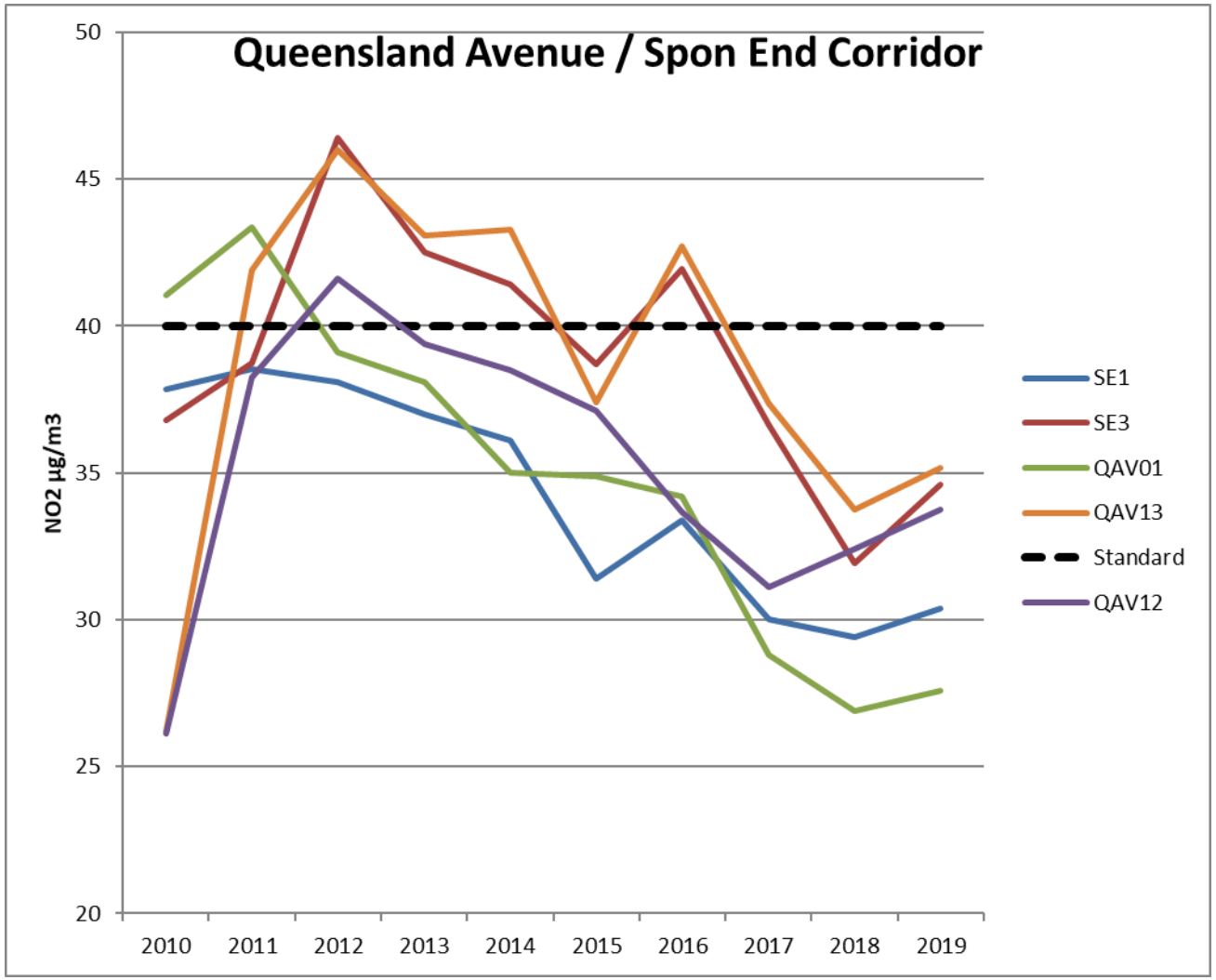
Figure A.1 – Trends in Annual Mean NO_2 Concentrations at Façade




Stoney Stanton Road
NO2 µg/m3
55
50
45
40
35
30
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
SS1
SS2
SS3
SS5
Standard


City Centre
NO2 µg/m3
80
70
60
50
40
30
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
FS1
CS1
HS3
Standard
CS2
QV1
GF1
GS1


Ball Hill Corridor
NO2 µg/m3
90
80
70
60
50
40
30
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
BH1
BH2a
BH4
BH10
BH13
Standard
BH14
BH2b


Queensland Avenue / Spon End Corridor
NO2 µg/m3
50
45
40
35
30
25
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
SE1
SE3
QAV01
QAV13
Standard
QAV12

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CC01/1*N	432105	279578	49.14	41.88	36.34	31.49	30.04	27.21	34.18	32.53	36.09	38.08	42.50	41.39	36.74	34.17	31.7
HR1	432683	279240	62.23	54.06	47.91	48.46	47.82	51.16	52.54	43.28	49.00	68.00	56.98	56.44	53.16	**49.44**	**49.4**
HR1C	432712	279227	93.28	76.16	69.09	67.06	68.61	74.03	79.09	71.67	72.87	88.33	83.30	55.30	74.90	**69.66**	**57.3**
HR2C	432525	279345	44.69	29.89	28.77	37.13	28.75	27.12	27.88	19.08	28.90	32.67	40.83	25.55	30.94	28.77	28.8
HR4	432639	279258	57.24	45.03	40.17	59.54	43.87	39.25	35.75	37.47	24.58	71.96	66.09	48.08	47.42	**44.10**	**44.1**
HR5	432730	279238	71.55	49.34	46.09	50.58	53.77	43.46	/	51.64	50.42	53.52	55.43	46.35	52.01	**48.37**	**42.5**
HR6	432706	279228	65.79	55.14	53.30	48.17	50.85	55.20	53.57	50.91	35.65	60.01	56.64	54.74	53.33	**49.60**	**49.6**
BH1a	434987	279209	58.55	40.44	41.67	41.39	33.33	31.45	35.53	32.93	36.61	42.67	43.68	/	39.84	37.05	34.6
BH2b	435126	279284	71.66	43.24	56.96	42.22	42.68	40.74	45.98	37.37	44.90	50.56	58.10	19.94	46.20	**42.96**	**40.0**
BH4	435331	279358	57.63	47.15	/	50.14	45.93	37.90	40.42	39.22	41.56	51.66	60.16	21.28	44.82	**41.68**	37.1
BH13	435507	279387	50.26	40.29	37.81	29.84	28.44	31.43	30.34	30.21	31.47	38.08	42.45	36.92	35.63	33.13	33.1
BH14	435655	279356	56.28	42.93	44.10	37.46	32.62	32.62	34.25	33.08	34.93	43.16	51.47	39.06	40.16	37.35	30.4
BH15i	435184	279298	65.16	36.89	38.22	44.51	38.13	39.79	39.72	33.52	41.20	45.96	59.10	33.42	42.97	39.96	33.9
FS1	433569	279234	64.80	43.90	50.06	51.57	42.11	42.23	49.18	34.60	48.56	50.94	61.74	35.63	47.94	**44.59**	38.1
QV1	433029	278798	56.47	43.79	43.59	33.76	34.78	34.16	38.82	33.51	39.81	43.64	43.97	35.04	40.11	37.30	33.9

GF1	433407	278882	60.61	36.85	35.79	35.78	29.81	29.69	/	25.25	31.63	38.39	41.48	31.57	36.08	33.55	33.6
GS1	433899	278845	52.21	40.59	35.65	35.45	31.51	36.77	31.22	26.68	35.34	42.30	43.05	35.78	37.21	34.61	34.6
STL1	436203	275841	52.27	43.81	36.44	26.85	26.32	30.04	32.10	32.30	33.72	40.44	43.93	35.47	36.14	33.61	30.0
LON8	436551	275703	44.06	28.23	31.43	18.66	22.01	23.41	25.02	22.98	28.47	31.09	/	24.10	27.22	25.32	25.3
LON12	434073	278459	62.05	45.46	51.61	36.86	41.96	39.62	48.56	49.18	53.46	55.62	60.47	45.72	49.21	**45.77**	**41.9**
SE1	432084	279042	50.32	38.07	38.04	41.24	35.24	35.53	35.68	30.70	36.75	40.25	51.43	36.57	39.15	36.41	30.4
SE3	432303	279028	54.49	36.75	36.63	37.57	31.83	32.99	31.76	25.76	34.38	39.64	49.98	34.67	37.20	34.60	34.6
QAV01	431595	278991	60.72	41.28	39.99	45.08	44.23	36.04	38.85	32.91	38.98	45.67	52.72	39.53	43.00	39.99	27.6
QAV12	431704	278680	50.60	40.06	36.56	36.64	31.25	29.87	30.88	26.04	34.59	40.69	44.72	33.77	36.31	33.76	33.8
QAV13	431763	278657	44.70	36.74	37.36	41.29	31.10	35.87	33.46	34.59	33.19	44.00	43.76	37.94	37.83	35.18	35.2
R5	433716	280503	53.27	40.51	40.12	40.03	38.72	38.58	41.42	36.18	41.71	43.32	48.02	35.96	41.49	38.58	38.6
R6	433609	280246	73.07	48.69	52.87	41.65	51.88	44.79	52.28	42.22	53.08	52.41	60.63	46.78	51.70	**48.08**	**43.4**
R8a	433991	280998	53.37	45.24	41.85	52.06	41.26	38.29	38.87	26.66	42.28	47.05	56.24	39.52	43.56	**40.51**	38.3
R9	434059	281105	51.33	44.45	35.67	39.73	30.59	35.50	33.49	32.76	36.31	54.20	46.48	40.58	40.09	37.28	35.2
LR1	434836	283030	55.97	39.96	40.50	37.66	38.54	34.60	37.96	30.85	39.33	43.10	50.36	36.25	40.42	37.59	37.6
LR2	434880	283077	50.37	45.91	35.85	46.45	36.61	39.45	36.03	32.55	/	42.77	47.81	33.22	40.64	37.79	37.8
LR3	435016	283515	54.01	37.77	44.93	37.98	35.38	28.08	36.74	33.07	26.06	43.07	42.36	39.06	38.21	35.53	35.5
BRN2	433605	281965	46.95	41.91	35.06	38.33	33.78	33.36	32.56	32.31	33.17	39.85	43.99	34.43	37.14	34.54	34.5
BRN5	433639	281995	45.01	35.39	36.66	42.83	32.91	33.76	32.00	26.24	34.25	37.28	42.14	37.42	36.32	33.78	33.8
BA1	432526	280806	42.74	38.54	32.99	33.20	25.22	29.35	33.78	30.94	35.06	40.19	36.93	33.05	34.33	31.93	31.9
SS1	434062	280082	46.98	34.53	37.10	34.73	31.62	33.10	34.29	26.62	33.87	38.75	46.22	31.95	35.81	33.31	33.3
SS2	433994	279969	45.69	40.49	32.62	42.66	32.61	33.23	27.85	28.43	34.03	42.17	44.60	29.30	36.14	33.61	33.6
SS3	434842	281272	46.78	45.62	40.65	42.24	34.95	34.13	34.23	33.80	37.27	40.86	46.91	36.37	39.49	36.72	36.7
SS5	433852	279814	60.03	44.72	52.37	42.64	45.91	43.65	45.47	43.63	50.13	57.28	59.22	46.06	49.26	**45.81**	**42.6**
BELL1	435849	282211	51.58	45.07	36.15	37.60	34.46	35.14	37.18	34.07	38.82	46.70	46.43	40.54	40.31	37.49	37.5
BELL2	435826	282158	41.35	39.04	35.85	35.30	30.00	32.25	34.04	35.65	32.65	41.21	38.62	/	36.00	33.48	33.5

FGS2	434450	279001	45.15	34.91	37.71	38.13	/	28.38	31.12	26.64	33.80	38.36	44.44	30.23	35.35	32.88	32.9
FGS3a	434530	279026	45.41	33.81	40.65	38.01	35.26	28.01	32.33	27.38	34.10	33.76	43.68	31.23	35.30	32.83	32.8
FGS4	434203	278892	49.35	43.20	45.88	40.10	36.65	33.17	33.12	26.27	35.39	42.22	52.98	38.07	39.70	36.92	36.9
GR1	434679	278920	47.59	37.58	39.09	31.47	32.89	31.95	30.40	29.18	31.79	36.82	43.12	25.07	34.75	32.31	32.3
GR2a	434053	278604	63.75	44.87	58.85	36.45	42.18	41.86	48.37	/	53.74	58.31	70.13	/	51.85	**48.22**	**45.8**
Grange 3	435791	284285	/	/	/	27.38	27.97	/	31.90	31.82	34.75	38.33	45.57	31.16	33.61	36.36	32.9
SHP1	430447	277080	38.74	32.38	27.66	31.10	27.80	27.40	24.91	24.68	28.47	31.89	36.91	23.44	29.61	27.54	27.5
SHP2	430364	277059	37.20	32.64	27.89	32.26	27.96	26.83	25.55	20.95	27.93	32.98	39.58	27.27	29.92	27.83	27.8
SHP3	430566	277231	38.80	36.63	34.44	35.50	32.92	31.03	28.78	26.63	32.38	36.71	47.23	23.36	33.70	31.34	28.8
BL1	430043	278890	41.15	34.11	32.32	36.93	29.33	30.89	29.48	/	31.16	/	33.96	23.79	32.31	30.05	25.1
RR1	433550	279478	55.06	40.91	36.97	53.31	40.78	34.99	34.69	29.72	37.92	48.71	62.15	30.84	42.17	39.22	N/A
RR2	433525	279502	48.15	34.40	40.02	50.63	41.06	36.03	33.85	30.75	41.58	44.68	57.68	34.52	41.11	38.23	N/A
RR3	433552	279524	65.48	65.37	63.46	42.03	/	48.22	49.49	45.27	56.03	57.57	58.97	58.42	55.48	**51.60**	N/A
RR4	433026	278572	/	/	/	33.93	37.46	33.77	36.84	34.88	43.11	48.35	49.03	42.34	39.97	37.17	N/A
RR5	432940	278620	/	/	/	47.39	38.93	36.69	35.89	/	43.73	41.26	60.29	35.00	42.40	**41.85**	N/A
SA1	427538	277397	34.94	29.66	25.35	30.37	20.82	22.52	22.35	14.86	23.34	29.77	34.20	21.54	25.81	24.00	18.9
SA2	427624	277863	38.36	30.44	24.82	32.03	21.84	23.69	24.27	20.75	28.74	35.17	41.70	34.00	29.65	27.57	22.3
SA4	427623	278116	41.77	/	29.82	25.13	24.01	23.35	25.67	22.06	25.24	26.19	34.73	26.87	27.71	25.77	25.4
HL1	427249	279780	36.78	25.32	21.82	/	20.91	20.66	22.24	17.79	23.20	27.94	33.60	28.82	25.37	23.60	19.1
BS1A	431927	282911	/	/	/	26.42	24.27	24.04	25.59	24.28	26.50	/	37.11	20.18	26.05	24.23	22.4
KG1	431956	282113	44.49	38.22	27.03	32.43	26.81	27.93	25.14	22.17	31.66	40.05	41.71	26.94	32.05	29.81	24.7
EB1	435928	283069	39.93	32.88	31.08	30.79	26.94	/	25.73	25.26	25.48	33.77	38.93	30.01	30.98	28.81	28.8

☒ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

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

Notes:

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

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

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

(2) Distance corrected to nearest relevant public exposure.

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

Diffusion Tube Bias Adjustment Factors

The bias adjustment figure for 2019 was taken from the March 2020 version of the National Diffusion Tube Bias Adjustment Factor spreadsheet, as Coventry no longer has any automatic monitoring data. There were a total of 27 studies that contributed and therefore the adjustment factor of 0.93 is thought to be representative.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/20

Follow the steps below in the correct order to show the results of relevant co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2020
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2019	R	Blackburn with darwen Borough Council	10	29	21	36.9%	G	**0.73**
Gradko	20% TEA in water	2019	R	Cheshire West and Chester	12	39	38	2.0%	G	**0.98**
Gradko	20% TEA in water	2019	R	Cheshire West and Chester	11	34	34	-2.1%	G	**1.02**
Gradko	20% TEA in water	2019	R	Gedling Borough Council	12	32	30	7.3%	G	**0.93**
Gradko	20% TEA in water	2019	R	NOTTINGHAM CITY COUNCIL	10	37	40	-7.0%	G	**1.07**
Gradko	20% TEA in water	2019	R	Bedford Borough Council	11	29	29	-1.0%	G	**1.01**
Gradko	20% TEA in water	2019	R	Bedford Borough Council	12	37	32	13.0%	G	**0.89**
Gradko	20% TEA in water	2019	R	Gateshead Council	12	30	25	18.1%	G	**0.85**
Gradko	20% TEA in water	2019	R	Gateshead Council	10	32	34	-7.2%	G	**1.08**
Gradko	20% TEA in water	2019	R	Gateshead Council	12	34	27	23.7%	P	**0.81**
Gradko	20% TEA in water	2019	R	Gateshead Council	11	40	44	-10.5%	G	**1.12**
Gradko	20% TEA in water	2019	KS	Marylebone Road Intercomparison	12	85	65	30.1%	G	**0.77**
Gradko	20% TEA in water	2019	R	Borough Council of King's Lynn and West Nc	9	27	21	28.4%	G	**0.78**
Gradko	20% TEA in water	2019	R	Lancaster City Council	13	40	34	16.4%	G	**0.86**
Gradko	20% TEA in water	2019	R	Lancaster City Council	12	31	31	1.6%	G	**0.98**
Gradko	20% TEA in Water	2019	R	Monmouthshire County Council	12	39	39	1.3%	G	**0.99**
Gradko	20% TEA in water	2019	UC	Belfast City Council	10	29	24	21.8%	G	**0.82**
Gradko	20% TEA in water	2019	R	Dudley MBC	12	33	32	4.5%	G	**0.96**
Gradko	20% TEA in water	2019	R	Dudley MBC	12	44	42	3.9%	G	**0.96**
Gradko	20% TEA in water	2019	UB	Dudley MBC	12	23	19	19.8%	G	**0.83**
Gradko	20% TEA in water	2019	UB	Eastleigh Borough Council	12	24	26	-7.1%	G	**1.08**
Gradko	20% TEA in water	2019	R	Gateshead Council	12	34	27	23.7%	P	**0.81**
Gradko	20% TEA in water	2019	R	Gateshead Council	11	40	44	-10.5%	G	**1.12**
Gradko	20% TEA in water	2019	R	Gateshead Council	10	32	34	-7.2%	G	**1.08**
Gradko	20% TEA in water	2019	R	Gateshead Council	12	30	25	18.1%	G	**0.85**
Gradko	20% TEA in water	2019	R	Thurrock Borough Council	12	29	24	21.6%	G	**0.82**
Gradko	20% TEA in water	2019	R	Brighton & Hove City Council	11	45	50	-9.3%	G	**1.10**
Gradko	20% TEA in water	2019		**Overall Factor[3] (27 studies)**				**Use**		**0.93**

Figure C1: A screenshot of the National Diffusion Tube Bias Adjustment Factor spreadsheet, showing the laboratory, preparation method and factor used

QA/QC of Diffusion Tube Monitoring

The test laboratory currently used by Coventry City Council is Gradko International Ltd. Gradko participates in the Workplace Analysis for proficiency (WASP) scheme managed by the Health and Safety Laboratory and the independent AIR-PT scheme operated by LGC Standards.

For the period January 2018 to November 2019 Gradko laboratory has had results which were determined to be 100% satisfactory:

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of ≤ ± 2 as defined above.

AIR PT Round	AIR PT AR024	AIR PT AR025	AIR PT AR027	AIR PT AR028	AIR PT AR030	AIR PT AR031	AIR PT AR033	AIR PT AR034
Round conducted in the period	January – February 2018	April – May 2018	July – August 2018	September – October 2018	January – February 2019	April – May 2019	July – August 2019	September – November 2019
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	75 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	100 %	100 %	100 %	100 %	100 %	NR [2]	100 %	25 %
SOCOTEC	100 % [1]	100 % [1]	100 % [1]	100 % [1]	87.5 % [1]	100 % [1]	100 % [1]	100 % [1]
Exova (formerly Clyde Analytical)	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	100 %	100 %	50 %	100 %	100 %	100 %	100 %	50 %
Gradko International [1]	100 % [1]	100 %	100 %	100 %	75 %	100 %	100 %	100 %
Kent Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	NR [2]	NR [2]	NR [2]	25 %	50 %	100 %	50 %	100 %
Milton Keynes Council	100 %	75 %	100 %	100 %	100 %	100 %	50 %	100 %
Northampton Borough Council	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %
Staffordshire County Council	50 %	100 %	100 %	100 %	100 %	75 %	75 %	75 %
Tayside Scientific Services (formerly Dundee CC)	100 %	NR [2]	100 %	NR [2]	100 %	NR [2]	100 %	NR [2]
West Yorkshire Analytical Services	50 %	75 %	100 %	100 %	100 %	100 %	100 %	50 %

Distance Correction

Diffusion tubes that are not representative of a relevant exposure have been distance corrected using the NO_2 fall-off with distance calculator available on the LAQM website in-line with the guidance in LAQM TG16.

For example, for the tube KG1, the following calculation was undertaken:

BUREAU VERITAS

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.7	metres
Step 2	How far from the KERB is your receptor (in metres)?	9.4	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	13.60368	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	29.8053106	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	24.7	µg/m^3

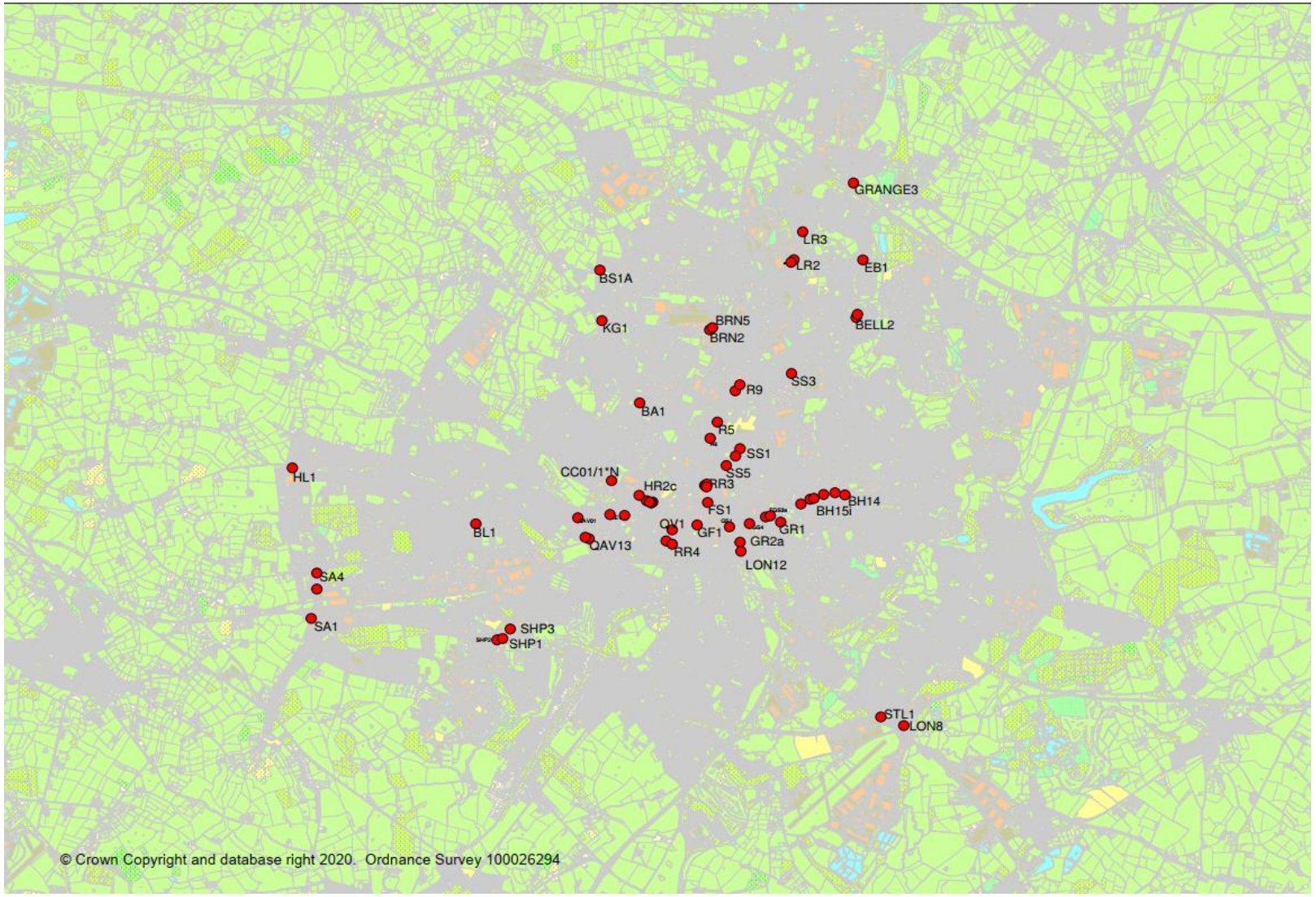
The 2019 background value for each km grid square was obtained from the Estimated Background Air Pollution Maps (base year 2017), downloaded from https://uk-air.defra.gov.uk/data/laqm-background-home.

Annualisation

Diffusion tube results which have a capture rate of less than 75% but greater than 25% have been annualised following the guidance in LAQM TG16. Results from diffusion tubes with less than 25% capture rate have been recorded in table B1 as raw data but have been excluded from further processing or analysis.

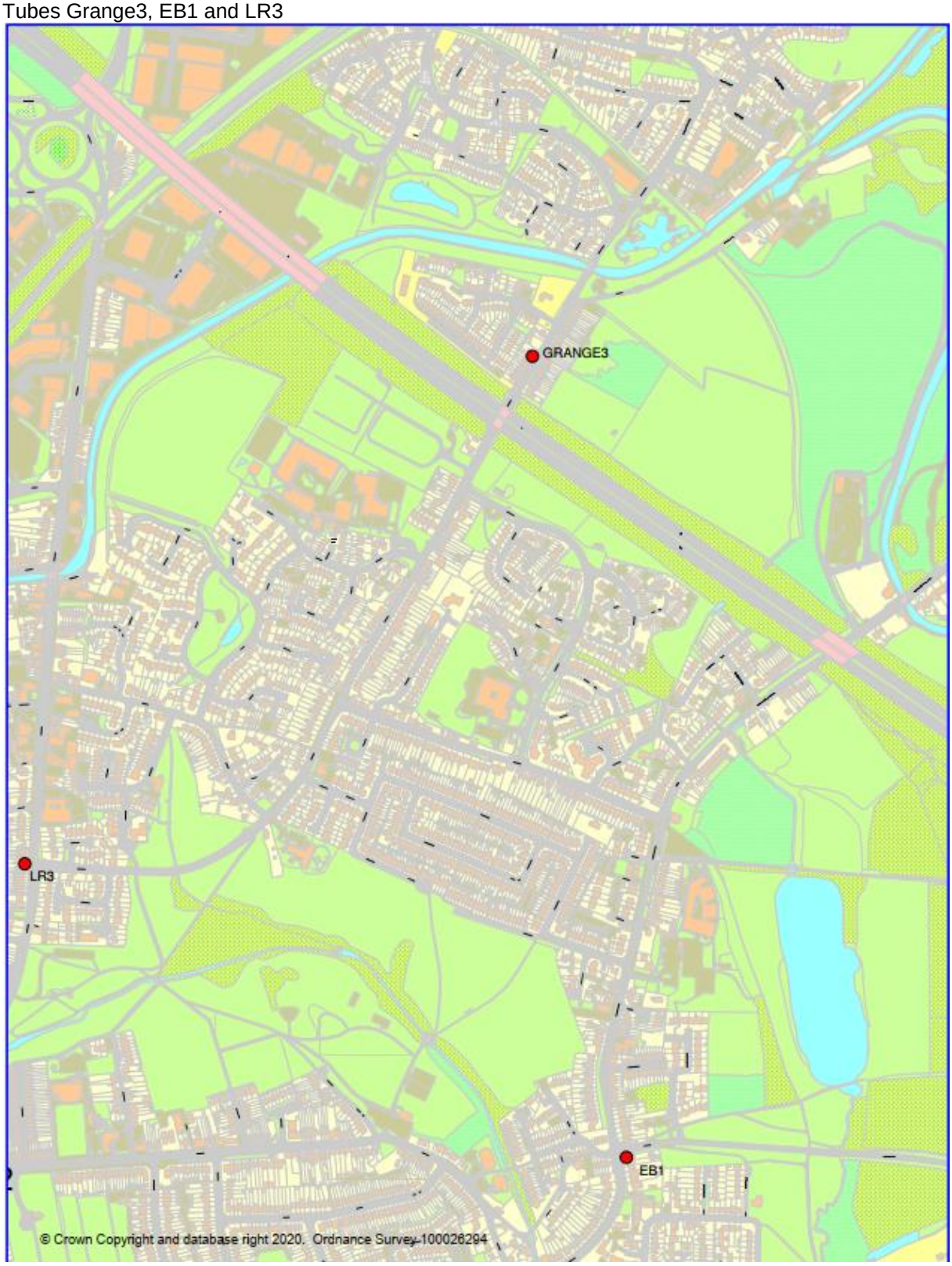
													Raw Ave
Grange 3													33.60951
		April	May	July	Aug	Sept	Oct	Nov	Dec	Period Mean	Annual Mean	Ratio (AM/PM)	
Coventry Allesley		16	16	14	14	16	21	27	26	17	20	1.176471	
Coventry Binley Rd		30	28	25	24	28	31	36	34	27.66666667	31	1.120482	
nottingham Centre		25	23	19	19	24	28	35	34	23.66666667	28	1.183099	
Birmingham Acocks Green		21	15	11	12	14	20	26	19	15.33333333	18	1.173913	Annualised
											AVERAGE	1.163491	39.10436
RR5													Raw Ave
													42.39747
AVERAGE													
		April	May	June	July	Sept	Oct	Nov	Dec	Ave	Annual	Ratio	
Coventry Allesley		16	16	13	14	16	21	27	26	18.625	20	1.073826	
Coventry Binley Rd		30	28	24	25	28	31	36	34	29.5	31	1.050847	
nottingham Centre		25	23	20	19	24	28	35	34	26	28	1.076923	
Birmingham Acocks Green		21	15	12	11	14	20	26	19	17.25	18	1.043478	Annualised
											Average	1.061269	44.9951
BS1A													Raw Ave
													26.05031
Average													
		April	May	June	July	Aug	Sept	Nov	Dec	Ave	Annual	Ratio	
Coventry Allesley		16	16	13	14	14	16	27	26	17.75	20	1.126761	
Coventry Binley Rd		30	28	24	25	24	28	36	34	28.625	31	1.082969	
nottingham Centre		25	23	20	19	19	24	35	34	24.875	28	1.125628	
Birmingham Acocks Green		21	15	12	11	12	14	26	19	16.25	18	1.107692	Annualised
											Average	1.110763	28.93571

Appendix D Maps of Monitoring Locations and AQMAs



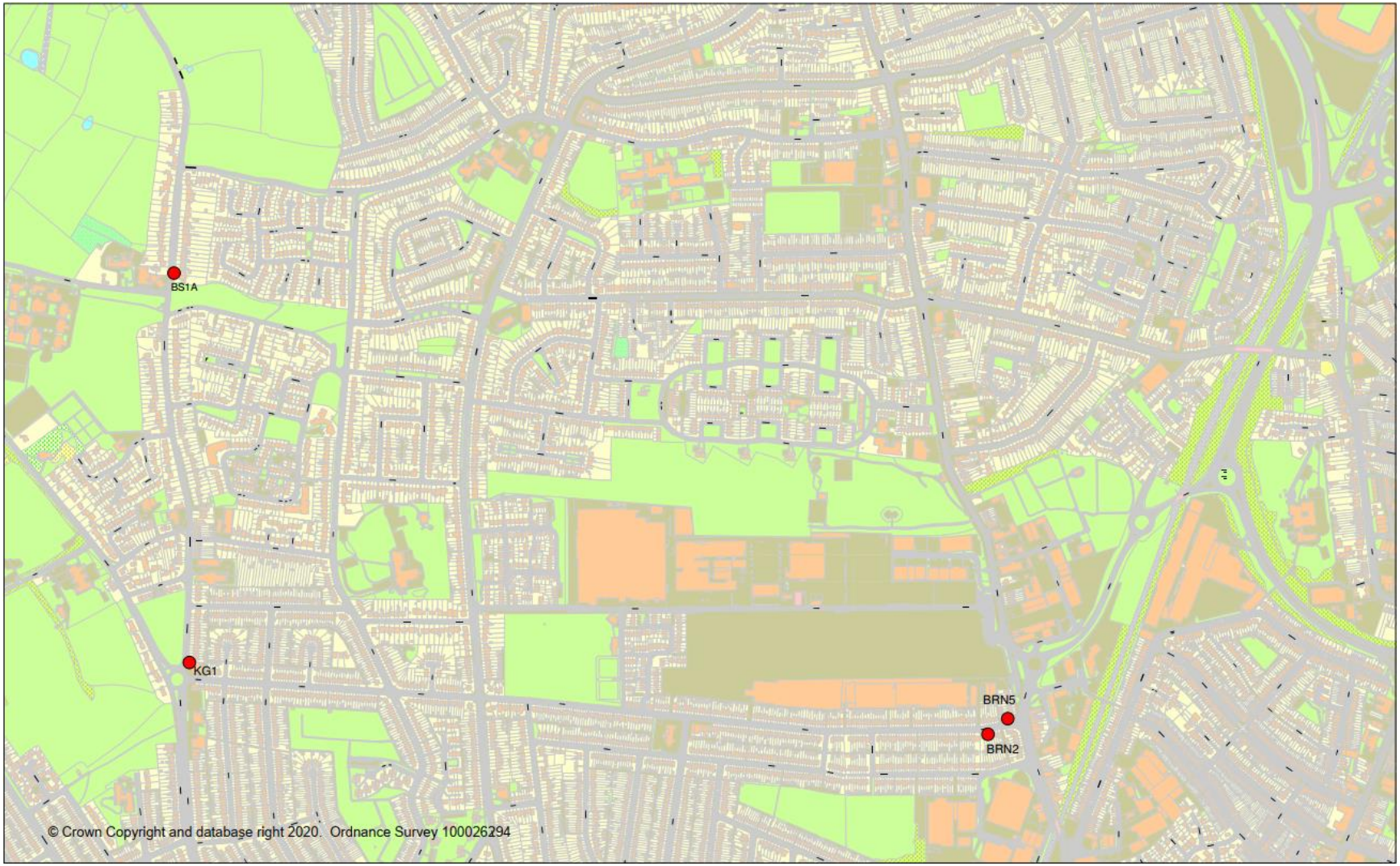
Tube map with key tubes labelled to provide context for more detailed sectional maps below.

Tubes Grange3, EB1 and LR3

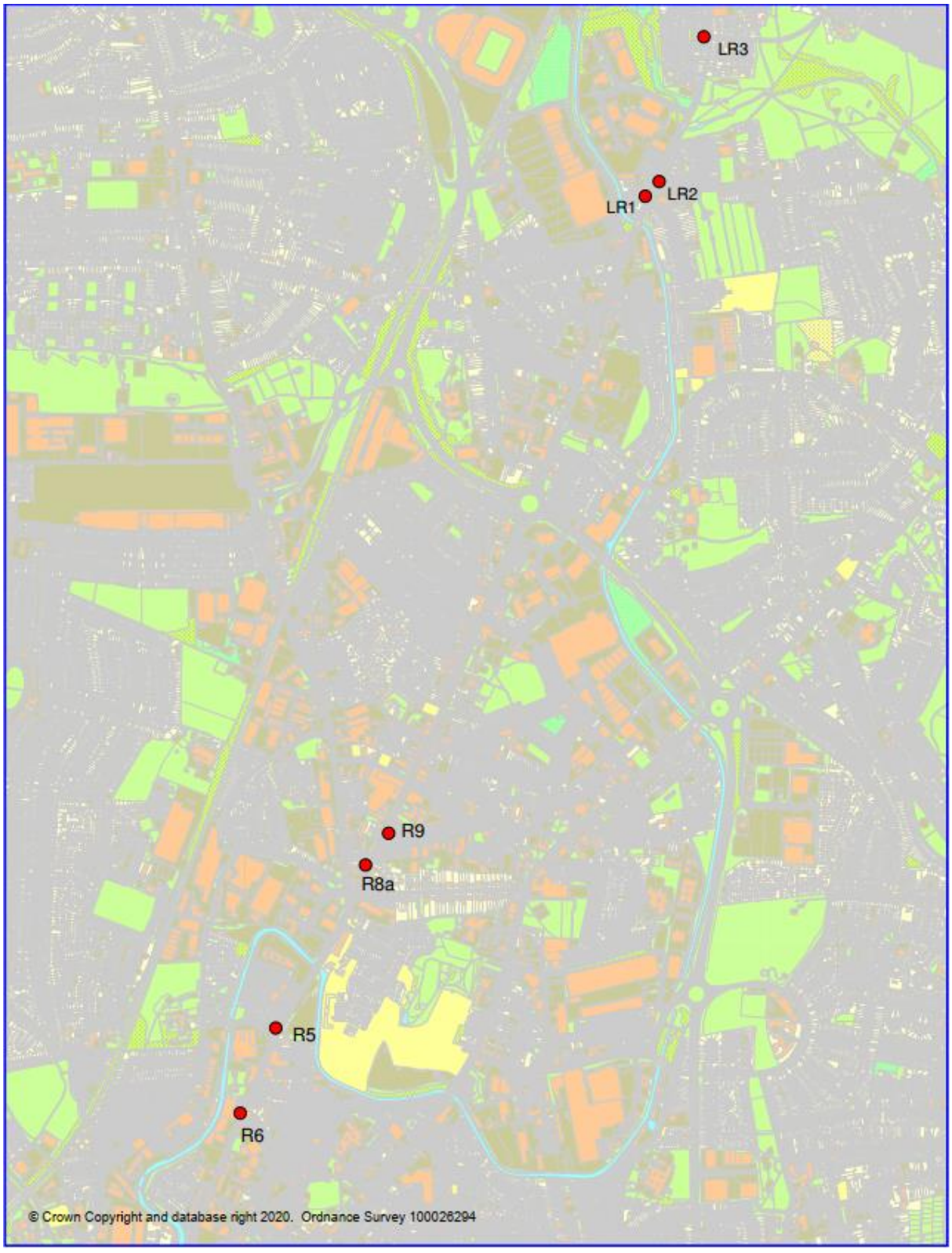


Tubes EB1 , BELL1 and BELL2

Tubes BS1A, KG1 and BRN



Foleshill Road / Longford Road Tubes

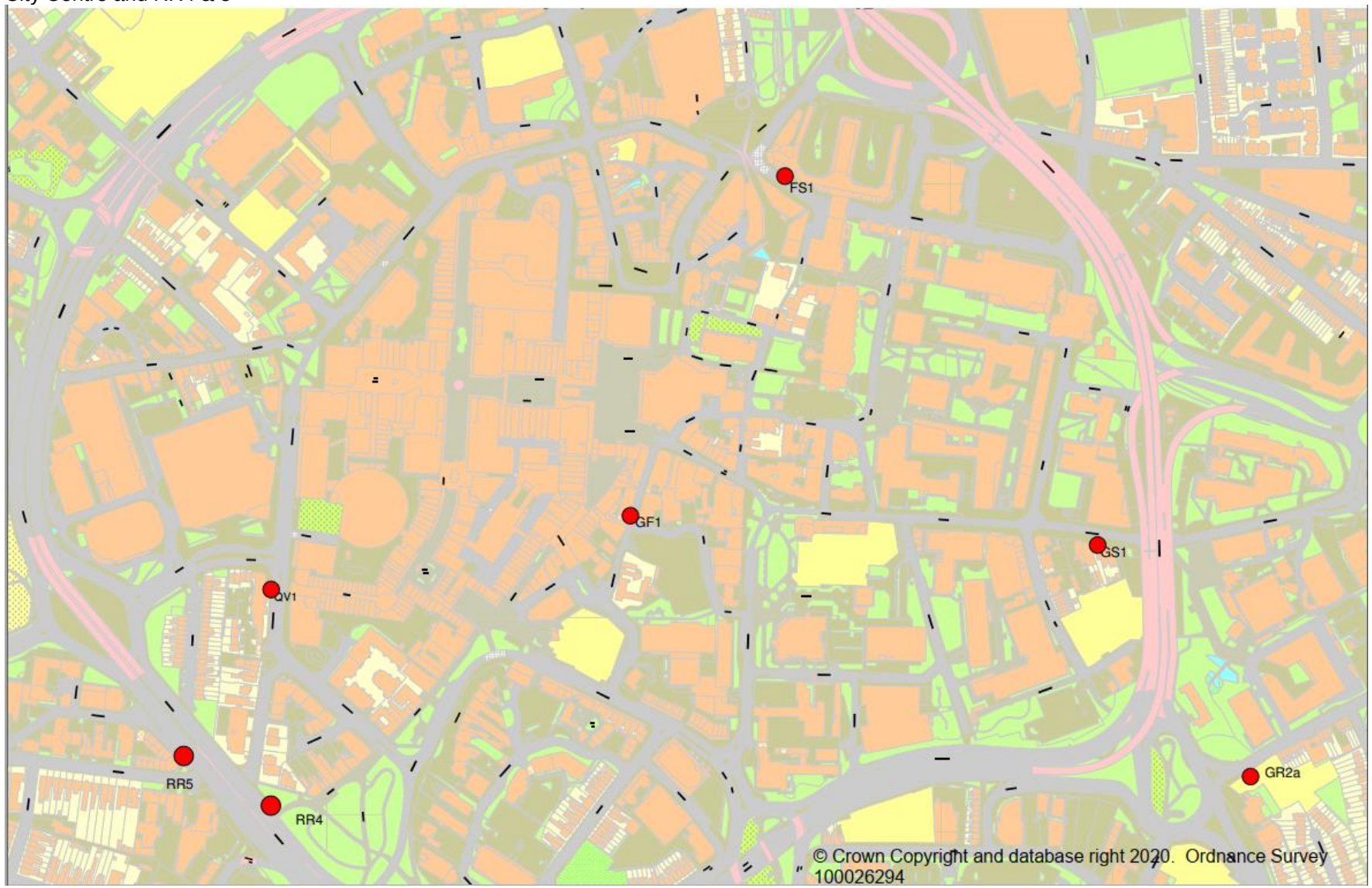


Tubes Stoney Stanton Road Tubes

Burnaby Road and Beake Avenue Tubes

Holyhead Road tubes

City Centre and RR4 & 5



City Centre and RR1 – 3

Far Gosford Street and City Centre Tubes

Queensland Avenue / Spon End tubes

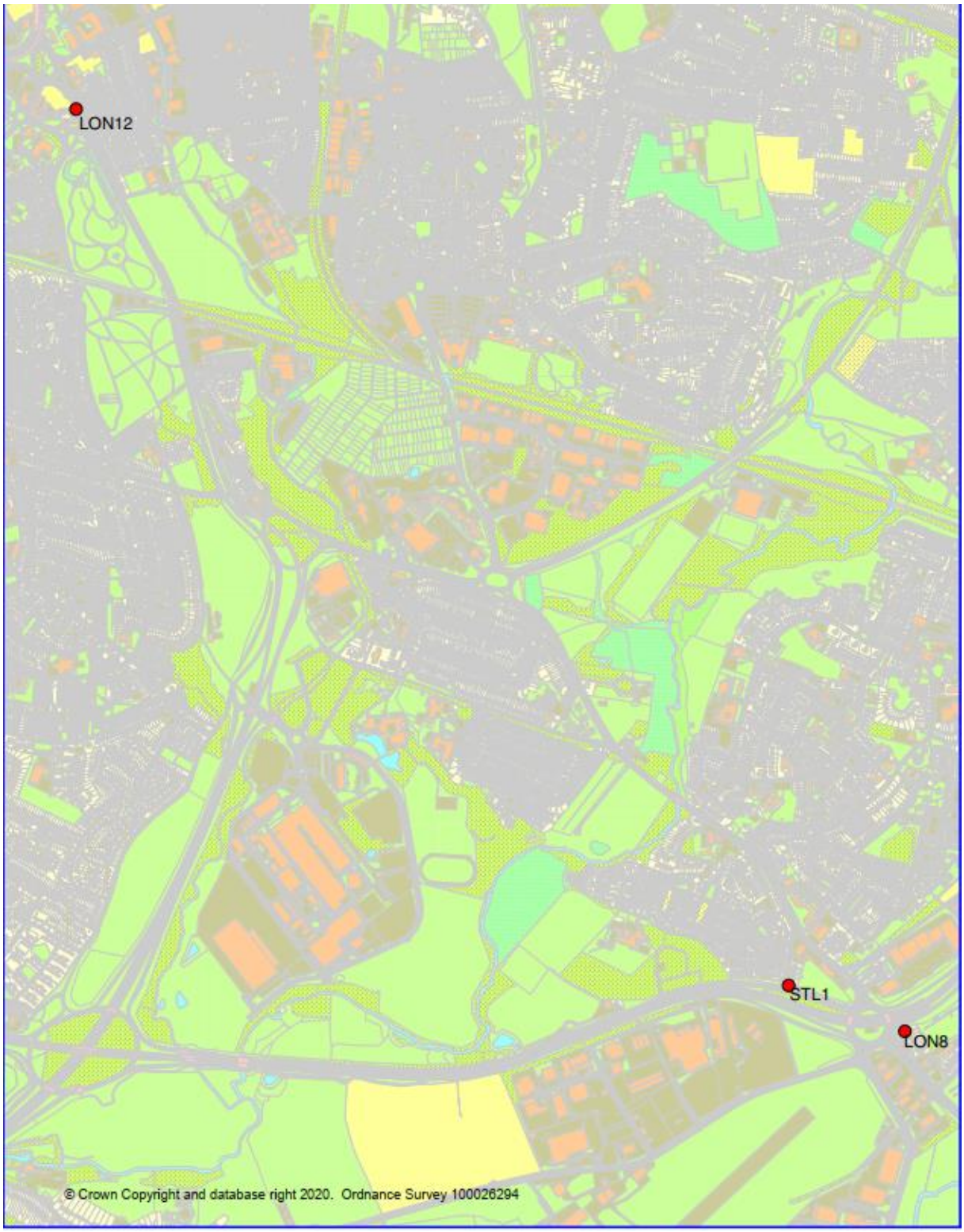
Broad Lane and Hockley Lane Tubes

Sir Henry Parkes Road Tubes

Station Avenue Tubes

Ball Hill Tubes

London Road Tubes



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[6]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
ANPR	Automatic Number Plate Recognition
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
AURN	Automatic Urban and Rural Network - the main network used for compliance reporting against the Ambient Air Quality Directives. It includes automatic air quality monitoring stations measuring oxides of nitrogen (NO_x), sulphur dioxide (SO_2), ozone (O_3), carbon monoxide (CO) and particles (PM_{10}, $PM_{2.5}$).
CAZ	Clean Air Zone
CCC	Coventry City Council
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
JAQU	Joint Air Quality Unit
LAQAP	Local Air Quality Action Plan
LAQM	Local Air Quality Management
LES	Low Emission Strategy
LETCP	Low Emissions Towns and Cities Programme
LEZ	Low Emission Zone

NERC	Natural Environmental Research Council
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NRMM	Non-Road Mobile Machinery - a broad category which includes mobile machines, and transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads.
OLEV	Office for Low Emission Vehicles
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
SO_2	Sulphur Dioxide
SPD	Supplementary Planning Document
TfWM	Transport for West Midlands
ULEV	Ultra-low Emission Vehicles
VMS	Variable Messaging Signage
WMAQIP	West Midlands Air Quality Improvement Programme
WMCA	West Midlands Combined Authority