



2024 Air Quality Annual Status Report (ASR)

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

Date: June, 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Rushcliffe Borough Council

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

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

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

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO ₂)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO ₂)	Sulphur dioxide (SO ₂) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM ₁₀ and PM _{2.5})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

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

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

Road traffic is the main source of air pollution within the Rushcliffe Borough and nitrogen dioxide (NO₂) is the primary pollutant of concern. Nitrogen dioxide is a brown gas with the chemical formula NO₂. It is chemically related to nitric oxide and together NO and NO₂ are known as NO_x. NO_x is released into the atmosphere when fuels are burned, for example petrol or diesel in a car engine, or natural gas in a domestic central heating boiler. NO₂ can affect our health and evidence indicates high levels can inflame the airways of our lungs, and over the long term can affect how well our lungs work. The concentration of NO₂ is measured as micrograms per cubic metre of air ($\mu\text{g m}^{-3}$) and to protect health the Government has set air quality standards. The hourly objective which is the concentration of NO₂ in the air averaged over a period of one hour, aims to ensure we are not exposed to high concentrations for short periods of time. The annual objective which is the concentration of NO₂ in the air averaged over a period of one year, aims to protect us over the longer term. Further details on the air quality standards can be found in Appendix E.

Road traffic is the largest source of NO_x emissions in the UK. NO_x emissions from burning fossil fuels are mainly as NO. However, some sources including diesel vehicles (particularly when moving slowly) can emit a lot of NO_x as NO₂ and these primary emissions of NO₂ can lead to high concentrations at the roadside. NO₂ is also formed in the atmosphere when there is a chemical reaction between NO and ozone, and this is known as secondary NO₂.

Rushcliffe Borough Council currently undertakes air quality monitoring for NO₂ at 31 monitoring sites across the Borough. Twenty-nine of these locations are passive sites, monitoring NO₂ using diffusion tubes which take samples over a one-month period (approximately) and are useful for assessing the annual objective of $40\mu\text{g m}^{-3}$. Diffusion tubes provide an inexpensive way of monitoring air quality at multiple sites and provide general indicators of concentrations and trends of pollutants over a period of time.

Rushcliffe Borough Council also have two continuous analysers (automatic) where air is continuously pumped into the analyser and the level of NO₂ recorded. These provide more accurate data on NO₂ concentrations however they are a more expensive way of monitoring air quality.

Rushcliffe Borough Council currently has two active Air Quality Management Areas (AQMAs) for NO₂. An AQMA is an area where air pollutant concentrations exceed or are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives and within Rushcliffe both were declared for NO₂ and

exceedance of the annual mean concentration objective of $40\mu\text{g m}^{-3}$. The location of the AQMAs can be seen at [Defra UK AIR website](#). Monitoring is undertaken in both AQMAs using both diffusion tubes (non-automatic or passive) and a continuous analyser (automatic).

Within AQMA No 1 Trent Bridge the highest NO_2 annual mean concentrations recorded in 2023 across all locations were $29.9\mu\text{g m}^{-3}$ at the diffusion tube location TBLB and $25.6\mu\text{g m}^{-3}$ at the continuous monitor. Therefore, the NO_2 annual mean concentrations were all well below the air quality objective. There were also no exceedances of the NO_2 hourly limit of $200\mu\text{g m}^{-3}$ and therefore no exceedance of the 1-hour mean air quality objective. The data continue the downward trend in the NO_2 annual mean concentration evident over the past five years. In general, and with the exception of location TBLB the NO_2 annual mean concentrations recorded at the ten existing locations across AQMA No 1 Trent Bridge were consistent with the 2022 data. The levels remain well below those recorded prior to the COVID-19 pandemic when national and regional lockdowns during 2020 and 2021 had a significant impact on traffic movement. The consistency between the 2022 and 2023 data may indicate a stabilisation in traffic flow as the population lifestyle changes, such as hybrid working, precipitated by the pandemic continue in the longer term. Less congestion at the junction of Radcliffe Road and Loughborough Road combined with increased electric vehicle uptake (private cars, taxis and buses) are likely the most significant contributors to the decrease in the NO_2 annual mean concentrations.

In AQMA No 1/2011 Stragglethorpe Road a maximum NO_2 annual mean concentration of $24.8\mu\text{g m}^{-3}$ was recorded at diffusion tube location A52/HHF1. This is well below the air quality objective. In AQMA No 1/2011 Stragglethorpe Road there was a significant decrease (from $35\mu\text{g m}^{-3}$ to $23.4\mu\text{g m}^{-3}$) in the measured NO_2 annual mean concentrations recorded at the continuous monitor when compared with 2022 data. Levels at the three diffusion tube locations (2 existing and 1 new) in 2023 were all consistent with the monitor data. There were no exceedances of the NO_2 hourly limit of $200\mu\text{g m}^{-3}$ and therefore no exceedance of the 1-hour mean air quality objective. The data remains well below the pre-pandemic levels and again this is most likely due to a combination of factors including the completion of junction improvements, the longer-term lifestyle impacts of the pandemic, including hybrid working, and increased electric vehicle use. Also, National Highways completed improvements at the Stragglethorpe junction during 2023 as part of their A52 Nottingham Junctions Improvement Scheme. Following the removal of the U-turn movement the phasing of the traffic signals was synchronised with the nearby Gamston

roundabout traffic signals to improve traffic flow. The speed camera was also repositioned to deter drivers from speeding.

In general, over the last five-year period monitoring data shows a decline in the NO₂ concentrations across the Borough. Across the monitoring network the NO₂ annual mean concentrations recorded in 2023 remain well below the levels recorded prior to the COVID-19 pandemic. In general, the 2023 data is consistent with that recorded in 2022 indicating lifestyle changes required to deal with the pandemic are having a longer-term impact on population behaviour e.g. hybrid working which reduces traffic congestion at peak times. In addition, Zap Map³, which is a charging point platform designed to support the electric vehicle (EV) community continues to report growth in the number of battery electric car registrations. There was an increase of 47% in the cumulative number of battery-electric cars in the UK between 2022 and 2023.

During 2023, Rushcliffe Borough Council and its partners continued to implement the measures contained in our 2021 [Air Quality Action Plan 2021-2026](#) (AQAP) to improve air quality in the two AQMAs and across the wider the Borough. Within the AQAP actions have been developed under nine broad topics:

- Traffic management;
- Transport planning and infrastructure;
- Policy guidance and development control;
- Alternatives to private vehicle use;
- Promoting low emission transport;
- Promoting travel alternatives;
- Public information; and
- Vehicle fleet efficiency.

The AQAP priorities are:

- To continue to monitor nitrogen dioxide levels at AQMA No1 Trent Bridge and at AQMA No1/2011 Stragglethorpe Road and to revoke the AQMAs (in consultation with Defra) if and when there is sufficient robust data to demonstrate concentrations are well below the air quality standard objectives⁴ for a period of four to five years;
- To work with Nottinghamshire County Council, as the highway authority at the location of AQMA No 1 Trent Bridge, to implement the relevant actions set out

³ [Electric Vehicle Statistics 2023 \(www.zap-map.com\)](https://www.zap-map.com)

⁴ Air Quality Standards 2010

within the AQAP to manage traffic volume and flow and enable residents to make smarter travel choices;

- To work with National Highways, as the highway authority at the location of AQMA No 1/2011 Stragglethorpe Road to implement the relevant actions set out within the AQAP to manage traffic volume and flow; and
- Rushcliffe Borough Council will continue to work with partners to actively promote policies to encourage an increased use of low emission travel options in the Borough; and to secure funding for the installation of a publicly accessible vehicle charging network infrastructure across our estate.

The aim of these priorities is to maintain sustained compliance with the air quality standards, to encourage a shift to low emission transport options and smarter travel choices to facilitate and encourage walking, cycling and public transport use, all of which have co-benefits on health and well-being.

Actions to Improve Air Quality

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

The Environmental Improvement Plan⁵ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁶ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁷ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of

⁵ Defra. Environmental Improvement Plan 2023, January 2023

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

⁷ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

As traffic is the main cause of the air pollution within the Borough the core actions continue to be the integration of measures within the Local Transport Plan (LTP) which is implemented by Nottinghamshire County Council Transport Planners and National Highways. Rushcliffe Borough Council will continue to work these partners to improve air quality across the Borough. This requirement for collaboration is further strengthened in the above referenced national Air Quality Strategy which sets out a framework to enable local authorities to deliver for their communities and contribute to the long-term air quality goals, including the new targets for fine particulate matter (PM_{2.5}). In recognition of air quality as a public health issue the strategy requires the involvement of Directors of Public Health in local air quality action and better collaboration between lower and upper tier authorities. Where causes of, or contributors to, an Air Quality Management Area fall within the control of another relevant body, those bodies should contribute measures to the Air Quality Action Plan and carry out those measures.

Within Rushcliffe Borough Council the Environmental Health Service continues to work with colleagues in the Planning Service to ensure air quality issues are considered as part of the policy and forward planning process, as well as during the development control process. Policy 41 of the Local Plan Part 2: Land and Planning Policies (adopted in October 2019) explicitly addresses air quality and development proposals that have the potential to adversely impact on air quality or are sensitive to poor air quality. Details of the Local Plan can be found on our webpages [RBC Local Plan](#). During the development process both construction and operational impacts are considered and where appropriate conditions imposed, or the application is amended to reflect any concerns identified.

During 2023, as in previous years there were a number of applications relating to proposed residential and commercial developments where air quality assessments were required and reviewed. Works are also progressing on previously permitted housing developments at various locations across the Borough, including Ruddington, Edwalton, Keyworth, Radcliffe on Trent, Newton, Clifton and East Leake. In addition to considering potential air quality impacts as part of the development process the Environmental Health Service are involved in ensuring effective measures to manage any fugitive dust emissions are in place during the construction works.

A Local Development Order was adopted in July 2023 for the development of the Ratcliffe on Soar Power Station which seeks to transform the wider Site into a centre for energy

production and storage, advanced manufacturing and industry. The Site covers 265 hectares with part comprising the power station used for the generation of electrical power from coal and gas oil; and part comprising agricultural land, settlement ponds, wooded areas and the ash disposal site. The Power Station is due to cease operations in 2024. Two hundred hectares have been designated as part of the East Midlands Freeport.

Rushcliffe Borough Council has a requirement for electric vehicle charging points (EVCP) to be installed on all residential and commercial developments (where possible) as part of any planning approval.

The road network within AQMA No 1 Trent Bridge is managed by Nottinghamshire County Council and the core actions continue to be the integration of measures within the Local Transport Plan (LTP) which is implemented by Nottinghamshire County Council and include

- Continued traffic control and management in the area to optimise traffic flow and minimise congestion;
- Cycling and walking infrastructure improvements;
- Public transport improvements, including the introduction of a low emission bus fleet; and
- Promotion of active travel alternatives.

The A52, the road associated with AQMA No 1/2011 Stragglethorpe Road is managed by National Highways. As part of their A52 Junction Improvement Scheme a U-turn ban has been implemented at the junction which has facilitated the adjustment of the traffic signal timings to reduce congestion. Although the U-turn ban was brought into force in 2022 the traffic signals timings could not be adjusted until early 2023 when improvement works at the nearby Gamston roundabout were completed. These works included the widening of all approaches to the roundabout, installation of new traffic lights and a traffic light controlled pedestrian crossing and a dedicated bus lane to reduce traffic congestion and queuing and improve safety. The traffic signals at the junction and the roundabout have now been synchronised to help improve traffic flow.

At a strategic level the new Rushcliffe Borough Council Corporate Strategy (2024-2027)⁸ retains 'The Environment' as one of the four priorities. In March 2020 the Council made a

⁸ [Rushcliffe Borough Council Corporate Strategy 2024-2027](#)

commitment to work towards being carbon neutral for its own operations by 2030. The Council continues to work to implement the [Carbon Management Plan 2022](#)⁹ which sets out the measures to be taken across key areas, including property assets, fleet, and policy & regulation. The implementation of some of these proposed changes will have a co-benefit of improving air quality across the Borough e.g. measures to accelerate the shift to low carbon transport across the Council fleet, promotion of active travel and the promotion of carbon reduction policies and guidance to developers. Specific measures include:

- Removal of large fossil fuel gas boilers at the Cotgrave Swimming Pool and replacing them with zero emission air source heat pump technologies;
- Vastly improving the efficiency of fuel poor properties across the Borough resulting in them having to use less fossil fuel gas heating and/or entirely taken off oil or LPG in off gas areas;
- Exploring 90% CO₂ reduction in heavy bin lorry fleet by fuelling them on HVO (Hydrogenated Vegetable Oil); and
- Purchase of all electricity for Council facilities from a REGO (Renewable Energy Guarantee of Origin) tariff.

Rushcliffe Borough Council seeks to reduce impacts on air quality and the environment in their ongoing capital projects. [Rushcliffe Oaks](#), our new crematorium facility and community space, located in Stragglethorpe near Cotgrave was opened in 2023. The modern contemporary building provides an environmentally conscious building and memorial gardens that are sensitive to its surroundings. To ensure the facility is as energy efficient as possible and to help meet the Council's target to be carbon neutral in its operations by 2030 an electric cremator has been installed. Recent research undertaken by Coventry University provides a comparison of gas and electric cremator emissions in the UK. The study undertaken as part of degree level thesis focuses on carbon dioxide (CO₂) and NO_x emissions and concludes an electric cremator produces 50-80% less CO₂ emissions and 33% less NO_x emissions¹⁰. The facility is operated by the Council.

⁹ Rushcliffe Borough Council [Carbon Management Plan 2022](#)

¹⁰ Copeland B (2021) A comparison of gas and electric cremator emissions in the UK. A dissertation submitted to the School of Energy, Construction and Environment, Faculty of Engineering, Environment and Computing, Coventry University in partial fulfilment of the requirements for the degree of Geography BSc (Hons)

The Bingham Arena and Enterprise Centre, a £16m leisure centre and office development project partly funded by the European Regional Development Fund (ERDF) and D2N2 Local Enterprise Partnership opened in 2023. The build is 80% lower carbon than standard new build leisure centres /offices due to the installation of a range of design parameters and equipment choices which will have a co-benefit of reducing the impact on air quality. These include combined heat and power units in the leisure centre, air source heat pumps and photovoltaic solar panels on the office roof.

To encourage an increased use of low emission travel options Rushcliffe Borough Council, using investment secured via the Transforming Cities Fund, continued their programme of installation of Electric Vehicle Charging Points (EVCP) across their estate, with two fast chargers at Rushcliffe Country Park. We will continue to explore funding opportunities to increase EV charging point coverage across the Council estate and work with others to try to overcome capacity issues and smarten the grid to facilitate charging point installation.

Throughout 2023 Rushcliffe Borough Council continued to promote its Walking and Cycling Action Plan (published in 2022) which aims to increase participation in walking and cycling by all in Rushcliffe. A series of cycling and walking events were held at locations across the Borough, including guided rides and learn to ride sessions. Further cycling and walking events are planned for 2024.

In addition, we continue to engage and with other organisations to promote greener transport measures and better air quality in the Nottinghamshire area. For example, Rushcliffe Borough Council are working with GP surgeries to encourage sign-up to the Active Practice Charter which seeks to encourage staff and patients to be more physically active and use their car less. We are also supporting the Rushcliffe Primary Care Network and Social Prescribing Team with the Rushcliffe Big Green Book which is a dictionary of nature-based activities and opportunities around the Borough which promotes active travel and aims to encourage people to get outside. We are seeking to improve collaboration with Public Health and the Primary Care Network to promote awareness of air quality for example by undertaking co-ordinated campaigns around Clean Air Day. We also promote resources developed by others and aimed to get residents active, including for example the [Nottingham Greenground Map](#) which was designed by Greenspace and the NHS Integrated Care System.

The Environmental Health service also continues to work with other local authorities and bodies (including the UK Health Security Agency (UKHSA), County Council Public Health and the Environment Agency) in the area through the Nottinghamshire Environmental

Protection Working Group (NEPWG). Air quality is one of the core agenda items and recently an air quality oversight group was set up with a view to take forward and implement the Air Quality Strategy for Nottingham and Nottinghamshire 2020-2030.

In 2019 the Air Quality Strategy for Nottingham and Nottinghamshire 2020-2030¹¹ was launched with an overall strategic vision for all of Nottinghamshire residents and visitors to have clean air that allows them to lead healthy and fulfilling lives. The strategy was prepared via a collaborative effort between Nottinghamshire County Council, Nottingham City Council and the Nottinghamshire Borough/District Authorities, including Rushcliffe Borough Council. The Strategy can be accessed via our webpage [Rushcliffe - Air Quality](#). This vision aligns with the ambition in the National Air Quality Strategy¹² to protect the nation's health and the government's plans for reducing vehicle emissions. It also recognises that implementation of the strategy will have local system-wide co-benefits such as increased physical activity through active travel, reduced congestion, connecting people in their communities through better design of place, improvements in environmental quality and climate change mitigation.

Improving air quality is also now a priority of the 2022-2026 Nottinghamshire Joint Health and Wellbeing Strategy¹³ as part of the ambition to develop Healthy and Sustainable Places.

In 2023 UKHSA published a report on the Health Effects of Climate Change (HECC) in the UK¹⁴ which has a chapter dedicated to the impacts of climate change and policy on air quality and human health. Climate change will have an impact on air pollution however, climate change mitigation measures that reduce emissions of greenhouse gases will help reduce air pollutants and lead to improvements in health outcomes.

Conclusions and Priorities

The air quality monitoring data for 2023 shows there were no exceedances of the NO₂ annual mean concentration air quality objective at any of the monitoring locations across the

¹¹ Air Quality Strategy for Nottingham and Nottinghamshire 2020-2030 (2020)

¹² Defra. National Air Quality Strategy: Framework for Local Authority Delivery, April 2023

¹³ [The Joint Health and Wellbeing Strategy for 2022 - 2026 | Nottinghamshire County Council](#)

¹⁴ [UKHSA Health Effects of Climate Change \(HECC\) in the UK Chapter 4 \(2023\)](#)

Borough. Overall, the data indicate a slight decrease in NO₂ annual mean concentrations when compared with 2022.

Over the past five years the NO₂ annual mean concentration in AQMA No 1 Trent Bridge has been consistently below the air quality objective of 40µg m⁻³. In 2020 at the continuous monitor there was a sharp decline, associated with the COVID-19 pandemic, to 27µg m⁻³ from the 2019 level of 37µg m⁻³. Since 2020 the levels recorded at the continuous monitor have remained below 30µg m⁻³ with a maximum of 29µg m⁻³ in 2021 and a minimum of 26µg m⁻³ in 2023. This pattern and trend are reflected across the diffusion tube network. As the concentrations remain well below the air quality objective work has commenced on the revocation of the AQMA and it is our intention to complete this in 2024.

In 2023 there was a significant fall in the NO₂ annual mean concentration recorded across AQMA No 1/2011 Stragglethorpe Road. Prior to 2020 levels had been hovering around the air quality objective of 40µg m⁻³ with 39µg m⁻³ recorded by the continuous monitor in 2018 and 41µg m⁻³ in 2019. In 2020 there was a decline in the NO₂ annual mean concentration to 31µg m⁻³ with an increase to 33µg m⁻³ in 2021 and a further increase to 35µg m⁻³ in 2022. In 2023 the NO₂ annual mean concentration recorded at the continuous monitor was 23µg m⁻³ which was consistent with that recorded by the three diffusion tubes. This decline may be attributable to improvements at the Stragglethorpe road junction which were completed in 2023. We will continue to monitor in the AQMA and review its status annually.

Over the coming year we will continue to monitor NO₂ annual mean concentrations across the Borough and work towards the implementation of the measures contained in our AQAP which was published in 2021 and sets out how Rushcliffe Borough Council and its partners will seek to improve air quality over the next five years.

As required by the National Air Quality Strategy¹⁵ Rushcliffe Borough Council will continue to engage with our partners including Nottinghamshire County Council Transport Planners and National Highways to secure improvements in air quality. We will work closely with other neighbouring authorities to share resources and knowledge for the benefit of residents across the wider Nottinghamshire area. We will seek to develop improved links and collaborations with other bodies/partners whose responsibilities/functions are also working towards air quality improvements, including County Council Public Health and Trading Standards.

¹⁵ Defra. National Air Quality Strategy: Framework for Local Authority Delivery, April 2023

Local Engagement and How to get Involved

Rushcliffe Borough Council provides residents with information on reducing their impact on the environment and air quality via links from our webpage [Transport - Rushcliffe Borough Council](#) where there is signposting to public transport and greener car travel, including car sharing. Events linked to our Walking and Cycling Action Plan such as the Summer of Cycling event in Rushcliffe Country Park are publicised on our website and via our social media channels. There is also detailed information on cycling and walking, including a cycle journey planners available via the Nottinghamshire County Council website [Walking, Cycling and Rights of Way - NCC](#).

All of our air quality reports, including the Annual Status Reports and Air Quality Action Plan can be found on our webpage [Air Quality - Rushcliffe Borough Council](#).

The [Nottingham and Nottinghamshire Air Quality](#) webpage was upgraded in 2023 to provide real time data from the continuous monitoring stations across the County in a more accessible and engaging format. Passive monitoring (diffusion tube) data can also be viewed.

Rushcliffe Borough Council engage with County Public Health and a range of NHS partners to promote and disseminate consistent messaging in the lead up to the annual Clean Air Day. This is generally done through our social media channels.

Over the course of 2024 it is our intention to engage in public awareness campaigns around domestic burning. We will seek to undertake these in conjunction with other partners and neighbouring authorities, and to make relevant information available to residents and businesses through a range of different media to ensure accessibility for all. Our recent public consultation on a proposal to create a Borough-wide Smoke Control Area received more than 1200 responses.

Any new planning proposals where consideration of potential air quality impacts may be required are available for consultation through the planning process. The public can view and provide comments on submitted air quality assessments.

Similarly, under the environmental permitting regime changes to existing or new permitted processes are subject to public consultation and we will ensure public engagement as well as statutory consultee engagement.

To get involved in improving air quality within the Borough the public can contact the Environmental Health Service – details are provided at the front of this report.

The Local Transport Plan (LTP) is implemented by County Council Local Transport Planners who can be contacted via the [Nottinghamshire County Council](https://www.nottinghamshire.gov.uk) website or Local Transport Plans and Development Team, Nottinghamshire County Council, County Hall, West Bridgford Nottingham NG2 7QP; Tel: 0300 500 8080.

Further information on the A52 junction improvements can be obtained from National Highways [A52 Nottingham Junctions](https://www.nationalhighways.gov.uk) website; Email: A52nottinghamjunctions@nationalhighways.co.uk; Tel: 0300 123 5000.

Local Responsibilities and Commitment

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

- Development Control;
- Policy Planning;
- Communities;
- Human Resources; and
- The Contract Hub.

This ASR has been approved by:



David Banks

Director - Neighbourhoods and Deputy Chief Executive

This ASR has been approved and been signed off on behalf of the Interim Director of Public Health by:



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1 Local Air Quality Management

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

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Rushcliffe Borough Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Rushcliffe Borough Council.

AQMA No 1 Trent Bridge covers an area of West Bridgford, including Lady Bay Bridge, Radcliffe Road, Trent Bridge and Loughborough Road junctions. This AQMA was declared in 2005 due to a NO₂ annual mean concentration of 47µg m⁻³ which is an exceedance of the Air Quality Standard objective (AQS) of 40µg m⁻³. Air quality monitoring is undertaken at a number of locations within the AQMA via a continuous monitor (active monitoring) and a series of diffusion tubes (passive monitoring).

AQMA No 1/2011 Stragglethorpe Road at Radcliffe on Trent is located at the Stragglethorpe junction of the A52 dual carriageway which is one of the main easterly routes into/out of Nottingham. The general aspect is open with a small group of residential properties in one area adjacent to the junction. This AQMA was declared in 2011 due to a NO₂ annual mean concentration of 50.5µg m⁻³.

Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean.

As the NO₂ annual mean concentration has been below the air quality objective for at least the last five years we propose to revoke AQMA No 1 Trent Bridge over the coming year.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA No 1 Trent Bridge	Declared 01/09/2005	NO ₂ Annual Mean	An area including Lady Bay Bridge/Radcliffe Road/Trent Bridge/Loughborough Road junctions in West Bridgford.	NO	47	30	6 years	Air Quality Action Plan for Rushcliffe dated December 2021	AQAP 2021
AQMA No1 2011 Stragglethorpe Rd	Declared 01/10/2011	NO ₂ Annual Mean	Land adjacent to A52 at Stragglethorpe Road Junction	YES	50.5	25	4 years	Air Quality Action Plan for Rushcliffe dated December 2021	AQAP 2021

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

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

Defra's appraisal of last year's ASR concluded the report was well structured, detailed, and provided the information specified in the Guidance. The specific comments are provided below and in this ASR, we have continued with the work and analysis referred to in the comments:

- Continue with reference to the Public Health Outcomes Framework, following the positive work made in the 2023 submission;
- Continue analysis of trends in the air quality data in comparison to the Air Quality Objectives; and
- Continue maintaining high standards of QA/QC procedures with sufficient supporting evidence provided, with robust analysis shown in this submission.

Rushcliffe Borough Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Sixty-four measures are included within Table 2.2, with the type of measure and the progress Rushcliffe Borough Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2. More detail on these measures can be found in our [Air Quality Action Plan 2021-2026](#). The primary required outcomes of the measures contained in the AQAP are to ensure

- The downward trend in NO₂ levels continues in both AQMAs to a point where there is sustained compliance with the AQS which will enable the revocation of both AQMAs; and
- We strive for continued improvements in air quality, to encourage a shift to low emission transports and smarter choices to facilitate and encourage walking, cycling and public transport use, all of which have co-benefits on health and well-being.

In **Error! Reference source not found.** the column labelled 'Measure No' generally reflects the numbering system used in the AQAP. The measures labelled NC 01-33 are the Nottinghamshire County Council measures which relate predominantly to AQMA No 1 Trent Bridge; NH 01-05 are the National Highways measures which relate predominantly

to AQMA No 1/2011 Stragglethorpe Road; and RB 01-26 are the Rushcliffe Borough Council measures which are generally applicable across the Borough. The expected efficacy of the measures is provided by a traffic light colour coded system with measures highlighted in green as the most effective and red as least effective.

Key completed measures are:

- The National Highways A52 Nottingham Junctions traffic improvement works at the Gamston roundabout were completed in early 2023. This allowed the traffic signal timings at the Stragglethorpe junction to be adjusted to fully implement the U-turn ban at the junction and synchronise traffic flow with the traffic signals on the roundabout. This U-turn ban prevents vehicles travelling east on the A52 (towards Radcliffe on Trent and Bingham) from making a U-turn at the junction. This should improve traffic flow and ease congestion at the junction which is the location of AQMA No 1/2011 Stragglethorpe Road.
- The Greater Nottingham Bus Partnership Group and the Nottinghamshire Enhanced Partnership which were established in 2022 to oversee delivery of the Bus Service Improvement Plans (BSIP) for the Greater Nottingham (Robin Hood) and Nottinghamshire areas (respectively) have refreshed their BSIPs. The core objectives of the BSIPs are the delivery of a bus network and an elevated passenger experience which delivers convenient, affordable, and reliable public transport journeys. Matters of note include:
 - Approximately 2500 people responded to the Greater Nottingham Bus Partnership Group on-line survey undertaken in 2023 to gather opinions from both users and non-users of buses in Greater Nottingham as to how bus services could be improved to attract more passenger trips. Outcomes included fully integrated bus services across the City, simple multi-modal ticketing and contactless payment options, more bus priority measures including expansion of the Traffic Light Priority scheme across more junctions, better customer information and networks to facilitate improved co-ordination and information sharing between operators;
 - An agreement has been put in place with local operators that from 2030 all new bus purchases will be zero emission;
 - It is now a contractual condition that buses should not idle beyond two minutes;

- A successful ZEBRA1 bid enabled the conversion of the Nottingham City Transport (NCT) Trent Bridge depot to electric to charge the fleet of 68 single deck buses. Single deck battery electric buses are due to come into service in 2024;
 - Continued commitment to pursue ZEBRA bids across the Greater Nottingham and Nottinghamshire networks;
 - Building on Active Travel Fund (ATF) to improve integration with cycling & walking;
 - The current bus fleet in Greater Nottingham is 93% Euro VI compliant or better, with some buses operating on Biogas. The small percentage of buses that are not operating with Euro VI will be replaced or updated by January 2024, in line with the Greater Nottingham Enhanced Partnership guidelines;
 - £0.5m has been assigned to support the installation of new bus lane cameras along key corridors and supporting the employment of a dedicated bus lane camera enforcement officer;
 - Working with NCT, NCiC and NCC secured ZEBRA funding for the migration of the Greenline buses which serve the Rushcliffe area to electric in next two years; and
 - Working to secure section 106 funding where new housing developments are occurring so as to ensure bus services can be extended or re-routed to support the increased demand, including at Fairham Pastures and Gamston Fields which are two large housing developments within Rushcliffe.
- NCC continued with their annual programme of bus infrastructure improvements delivered as part of the integrated transport block programme, including the installation of new bus shelters and real time bus information, and the update/maintenance of all stops e.g. updating network maps to ensure all information is current and accurate;
 - Since June 2022, local authorities have been able to apply to the Department of Transport (DfT) for the powers to enforce moving traffic offences. Such offences include banned turns, driving in pedestrian areas, environmental weight limits, box junctions etc. NCC's first pilot site was the box junction at Lady Bay Bridge, West

Bridgford which is located with AQMA No 1 Trent Bridge. Further pilot sites were planned, however, the DfT have paused any further applications;

- Electric Vehicle Charging Network - NCC is working to develop an Electric Vehicle Chargepoint Framework for the county. Consultation on a draft framework was undertaken between December 2023 and March 2024. NCC developed a bid in partnership with the district councils for LEVI capital funding for EV infrastructure. Funding has been secured and procurement is currently being undertaken;
- Electric Vehicle Cable Channels – NCC successfully secured (and received in January 2023) £774k from the Government’s Local Electric Vehicle Infrastructure (LEVI) Pilot Funding enabling the delivery of up to 300 EV cable channels. The trials grant permission to eligible households without off-street parking provision to commission the County Council’s highway partners, Via East Midlands Ltd., to install cable channels, which are cut into the footway to extend EV charging cables from an off-highway domestic EV charge point to the public highway through a discreet and safe conduit, without creating a trip hazard to road users or adding to street clutter. Delivery started in February 2023;
- Effective network management – The County Council continues to work with stakeholders to effectively manage its highway network. The local operating agreement between NCC and NH has been comprehensively reviewed to identify the relevant parts of the network which have interaction on each authority and to put in place appropriate communication channels for management of incidents and dissemination of information;
- Local Cycling & Walking Infrastructure Plan (LCWIP) – the County Council (in partnership with Derby City, Derbyshire County, and Nottingham City councils) have developed a D2N2 wide LCWIP. Stakeholder events and public engagement on the D2N2 LCWIP were undertaken in 2023. Future countywide infrastructure priorities will be identified through technical analysis undertaken as part of the LCWIP development and will be subject to feasibility and consultation. The overall aim is to develop comprehensive local cycling and walking networks across the D2N2 area;
- Rushcliffe Borough Council continues to work to deliver their Walking and Cycling Action Plan which was published in 2022 with the aim to increase participation in walking and cycling by all in Rushcliffe. The Council have supported Workplace Health initiatives to encourage staff to walk more, delivered a Summer of Cycling

Event at Rushcliffe Country Park, funded learn to ride session and guided bike rides around the Borough and undertaken improvements to some of our existing cycling infrastructure.

- Rushcliffe Borough Council has continued participation in the Green Rewards scheme which is a joint initiative with other Nottinghamshire Local Authorities to help and encourage residents make more sustainable choices and lower their carbon footprint. The Green Rewards app and web platform enables residents to accumulate points and earn the prizes for many activities they do every day at home or out and about. The scheme encourages active travel by rewarding activities such as walking/cycling to work/school and using public transport. Further details of the Green Rewards Scheme can be found on their webpage [Notts Green Rewards Scheme](#).
- Several partners and enterprises across the Borough (including the University of Nottingham, British Geological Survey, Artex, Belvoir Health Group) continue to share learning, views and skills on carbon reduction through the Rushcliffe Borough Council Big Business Carbon Club;
- Rushcliffe Borough Council continues to purchase all electricity from a REGO (Renewable Energy Guarantee of Origin) tariff;
- The RBC private hire and hackney vehicles policy refers to the increased use of Ultra Low Emission Vehicles (ULEV) and is likely to be enhanced further in the near future;
- Continuing to secure via planning condition the provision of electric vehicle charging points in new build residential and commercial developments;
- Requiring the submission of air quality assessments for developments in or close to the AQMAs prior to determination of a planning application;
- Increasing residents' awareness of air quality and the impact of poor air quality on health. Providing advice to help residents make better choices around actions that impact on air quality such as domestic burning, garden bonfires and vehicle emissions;
- Rushcliffe Borough Council has been working with GP practices across the Borough on the Green Impact for Health Scheme which is designed to encourage practices to take steps to become more environmentally friendly and all Rushcliffe

practices are now accredited. The scheme provides a free online toolkit with over 100 actions to improve environmental sustainability including strategies such as active travel. Rushcliffe Borough Council are supporting the Rushcliffe Primary Care Network and Social Prescribing Team with the Rushcliffe Green Calendar which includes Clean Air Day and Walk to School Month. More info can be found at [Rushcliffe Green Impact](#). Green social prescribing is a way of connecting people to nature based activities and green groups, projects and schemes in their local community for support with health and wellbeing. The Rushcliffe Big Green Book is a directory of nature-based activity providers which aims to be used as a tool to support identifying green social prescribing opportunities. It also includes a Greenground map (similar to a London underground map) to promote walking, cycling and cultural opportunities in the area for residents to become involved with.

- Integration of design parameters and plant/equipment in Rushcliffe Borough Council capital projects to help achieve carbon neutral status in its operations by 2030 with a co-benefit of improving air quality:
 - Rushcliffe Oaks, our new crematorium facility and community space in Stragglethorpe opened in 2023. This is one of only a few crematoriums nationwide with an electric cremator. Recent research undertaken by Coventry University provides a comparison of gas and electric cremator emissions in the UK. The study undertaken as part of degree level thesis focuses on carbon dioxide (CO₂) and NO_x emissions and concludes an electric cremator produces 50-80% less CO₂ emissions and 33% less NO_x emissions¹⁶. Rushcliffe Oaks is operated by the Council.
 - Bingham Arena and Enterprise Centre which is a £16m leisure centre and office development project partly funded by the European Regional Development Fund (ERDF) and D2N2 Local Enterprise Partnership opened in Spring 2023. The build is 80% lower carbon than standard new build leisure centres /offices due to the installation of a range of design parameters and equipment choices which will have a co-benefit of reducing

¹⁶ Copeland B A comparison of gas and electric cremator emissions in the UK. A dissertation submitted to the School of Energy, Construction and Environment, Faculty of Engineering, Environment and Computing, Coventry University in partial fulfilment of the requirements for the degree of Geography BSc (Hons)

the impact on air quality. These include combined heat and power units in the leisure centre, air source heat pumps and photovoltaic solar panels on the office roof.

- Work has commenced on the replacement of the gas boilers at the Cotgrave Leisure Centre and swimming pool with air source heat pumps. This work is funded by the Public Sector Decarbonisation Scheme and Rushcliffe Borough Council.
- The trial on fuelling the heavy refuse vehicle fleet by on HVO (Hydrogenated Vegetable Oil) was successful and is currently being implemented. It is anticipated all refuse vehicles will be fuelled by HVO by September 2024.
- The Regatta Way Active Travel Fund (ATF) Scheme was completed in August 2022 with the delivery of a segregated cycleway/footway along the A6011 Radcliffe Road to Adbolton Lane in West Bridgford, allowing cyclists to be better connected to facilities at Holme Pierrepont Country Park as well as other cycle routes in the wider area. The County Council secured funding from Tranche 2 of the ATF to undertake the improvements;
- Work has continued to progress on a scheme for a new dedicated pedestrian and cycle bridge over the River Trent with planning applications submitted to both Rushcliffe BC and Nottingham City Council in early 2024. The City Council secured funding (£9.25m) for the Waterside Bridge from the Government's Transforming Cities fund. The project is being led by Nottingham City Council, working in partnership with Rushcliffe Borough Council and in consultation with Nottinghamshire County Council;
- Rushcliffe Borough Council actively promoted Clean Air Day on 15th June 2023. We also undertook awareness raising around domestic burning across our social media channels in Autumn/Winter 2023. Both these projects were undertaken in conjunction with other Nottinghamshire local authorities and the County Council ;
- Rushcliffe Borough Council continues to support tree planting across the Borough including planting on the Rushcliffe estate, and the supply of free trees to members of the public and parishes & communities. In 2023/24, 1056 were supplied via the Free Tree Scheme to members of the public and 71 trees via the Community Trees Scheme to parishes and communities.

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

- National Highways will continue to progress with their A52 Nottingham Junctions traffic improvement programme. Following completion of works at the smaller junctions, including the Stragglethorpe Road, work has commenced on the larger Nottingham Knight and Wheatcroft Island roundabouts. These works will seek to improve traffic flow and ease congestion on the A52, the main arterial route into the City;
- NCC successfully secured (and received in January 2023) £774k from the Government's Local Electric Vehicle Infrastructure (LEVI) Pilot Funding enabling the delivery of up to 300 EV cable channels. This EV cable channel pilot programme is currently in progress;
- Continued development and public engagement around the two Bus Service Improvement Plans (BSIP) for Nottinghamshire; the BSIP for the Greater Nottinghamshire (Robin Hood) area which was developed in partnership with NCiC, and the BSIP for Nottinghamshire to help develop the bus network;
- In May 2024 the Rushcliffe Borough Council Cabinet, in response to a public consultation on Smoke Control Area coverage (see Section 2.3) resolved to deliver a public awareness campaign on domestic burning and the public health impacts of smoke emissions;
- Installation of visual infrastructure in Bingham (cycle route maps etc) and an associated public awareness campaign to promote active travel (cycling and walking) in the town. The need for this project arose out of the recent parking survey which identified more people would engage in active travel if they were more familiar with cycling and walking routes;
- Rushcliffe Borough Council will continue to explore funding opportunities to increase EV charging point coverage across our estate and work with the relevant organisations/bodies as part of the D2N2 Local Energy Area Plan (LEAP) to smarten the grid and attempt to resolve infrastructure constraints that may be limiting the ability to expand the charging point network to other locations;
- As part of the Rushcliffe Walking and Cycling Action Plan the Council will continue to engage and support active travel schemes and initiatives, including funding and hosting Guided Ride Leaders courses and bicycle registration and marking

sessions with the Police, and engaging in the Nottinghamshire Strategic Walking Partnership;

- Continued development of the County level Local Cycling & Walking Infrastructure Plan (LCWIP). Future countywide cycling infrastructure priorities will be identified through technical analysis undertaken as part of the LCWIP development (which along with other priorities, takes into consideration air quality) and will be subject to feasibility, consultation, and County Council Cabinet Member approval;
- Work will continue on the two-year project for the removal of the large fossil fuel gas boilers at the Cotgrave Swimming Pool for replacement with zero emission air source heat pump technologies in line with Net Zero by 2030 strategy as committed in the Rushcliffe Borough Council Climate Change Strategy (2021 – 2030);
- Rushcliffe Borough Council will continue to explore funding options for the replacement of gas boilers across its estate, and assist Parish Councils in assessing and upgrading their buildings/operations;
- Rushcliffe Borough Council will continue its programme for conversion of its heavy bin lorry fleet to HVO (Hydrogenated Vegetable Oil) fuel;
- Continue to promote awareness campaigns to improve air quality, for example around Clean Air Day and engine anti-idling. Where possible we will undertake these campaigns in conjunction with other partners, including the Primary Care Network, Public Health and neighbouring authorities to help disseminate the messages as widely as possible;
- In line with the National Air Quality Strategy¹⁷ we will seek to continue to improve links and increase collaboration between partners to achieve improvements in air quality. This may be achieved through existing networks, including the NEPWG and/or the creation of new networks; and
- NCC are looking at potentially introducing a Lane Rental scheme within the county. This would involve determining the topmost congested roads in the county and then, following consultation, making an Order which will allow NCC (as the Highway Authority) to apply a levy/charge to anyone undertaking either street works (utilities) or roadworks (Council) during the peak times on these roads. The intention of the

¹⁷ Defra. National Air Quality Strategy: Framework for Local Authority Delivery, April 2023

scheme is to minimise works from taking place during the peak times, which would lead to excessive congestion (which impacts on air quality). Any income raised through the scheme can be reinvested in projects to reduce congestion/improve highways, and subsequently air quality. The anticipated start date for a Lane Rental scheme in the county is April 2025.

Rushcliffe Borough Council's priorities for the coming year are to continue to work with our partners to:

- implement the relevant actions set out within the [AQAP 2021 - 2026](#) to manage traffic volume and flow and enable residents to make smarter travel choices; and
- actively promote policies to encourage an increased use of low emission travel options in the Borough; and to secure funding for the installation of a publicly accessible vehicle charging network infrastructure across our estate.

Rushcliffe Borough Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Nottinghamshire County Council;
- National Highways; and
- our neighbouring Local Authorities within Nottinghamshire and Nottingham City.

The East Midlands Combined County Authority (EMCCA) was created in 2023 through a devolution deal and involves Nottinghamshire County Council, Nottingham City Council, Derbyshire County Council and Derby City Council all working together to support the East Midlands region as a whole. In May 2024 a regional mayor was elected for the East Midlands. Although local authorities will still be responsible for most public services the combined county authority, and its Mayor, will take on specific transport powers. The D2N2 Local Enterprise Partnership will be integrated into the combined county authority which will continue to develop and deliver projects such as the D2N2 Local Cycling and Walking Infrastructure Plan (LCWIP).

Rushcliffe Borough Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in both AQMA No 1 Trent Bridge and AQMA No 1/2011 Stragglethorpe Road. We aim to complete the revocation of AQMA No 1 Trent Bridge during 2024. At AQMA No 1/2011 Stragglethorpe Road the 2023 data showed a drop in the NO₂ annual mean concentration which we are hopeful indicates the recently completed traffic management works have eased congestion and that this will be sustained in future years.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
RB26	Develop and run public awareness campaign around domestic burning	Public Information	Other	2023	2025	Local Authority Environmental Health, Local Authority Media	RBC Environmental Health	NO	Partially Funded	< £10k	Planning	Reduced emissions from domestic burning	Reduction in smoke complaints arising from domestic burning	Comms around public health risks associated with PM _{2.5} emissions from domestic burning released in Autumn/Winter 2023. Campaign to continue into 2024.	Comms need to be targeted and mindful of constraints faced by residents e.g. limited alternative options for domestic heating in rural areas, cost of living crisis.
NC24	Nottinghamshire on-street EV charging pilot scheme - electric vehicle cable channels (EVCC)	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2030	NCC/Via EM	Privately funded by resident and OZEV LEVI pilot funding	No	Privately funded by resident and OZEV LEVI pilot funding	Costs to be determined	In progress	Reduction in pollutants and emissions due to increased use of low emission vehicles.	Number of EVCC installed and back-office data from EV charge point	NCC approved the trialling of on-street EV charging cable channels at Transport & Environment Committee in February 2022. NCC successfully secured (and received in January 2023) £774k from the Government's Local Electric Vehicle Infrastructure (LEVI) Pilot Funding enabling the delivery of up to 300 EV cable channels. Delivery started in February 2023.	NCC's EV cable channel pilot programme is currently in progress.
NH02	Ban on the U-turn east to west and reconfiguration of the signals to improve efficiency.	Traffic management	Strategic highway improvements	2016	2023	National Highways	National Highways	NO	Funded	£1 million - £10 million	Completed	Improved traffic flow	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.	Completed. The Traffic Regulation Order (TRO) facilitated a reconfirmation of the signal control which will reduce the signal cycle time (and hence shorter red periods, queues and idling) and improve capacity. It is these changes that will bring about any change in emissions and air quality. Signal reconfiguration was undertaken when the roadworks at nearby Gamston roundabout were completed in Spring 2023.	The 2023 monitoring data indicates a significant drop in the NO ₂ annual mean concentrations from the 2022 levels. Monitoring in 2024 will hopefully confirm these reduced levels are sustained.
NC01	Optimisation of traffic signals	Traffic Management	UTC, Congestion management, traffic reduction			Nottinghamshire County Council (NCC)/Via EM		NO	Funded	£1 million - £10 million	Implementation	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	SCOOT and MOVA equipped signals are relayed back to the Traffic Control Centre so that they can be altered in real time as required. Implementation ongoing	Implementation ongoing

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
NC02	Traffic control and management - traffic control centre that monitors traffic movement and provides real time traffic control over many traffic signal installations	Traffic Management	UTC, Congestion management, traffic reduction	2019		Nottinghamshire County Council (NCC)/Via EM Ltd/Nottingham City Council (NCiC)	NCC and NCiC revenue funding	NO	Funded	£100k - £500k	Implementation	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	NCC has traffic management control patrols on arterial routes across the county to identify hot spots where parking affects traffic flow, and remove/dissuade people from parking in a way which affects traffic flow at peak period travel times. Bus lane cameras are used in the county, as well as CCTV cars that mostly patrol around schools to enforce the 'Keep Clears', which help in improving air quality around the school gates.	The UTCC is a shared facility between Nottinghamshire County Council and the City Council. Estimated cost shown is the County Council's annual contribution. Potential barrier: Lack of future revenue funding
NC03	Co-ordination of street works to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, Congestion management, traffic reduction	2019		NCC/Via EM/NCiC	NCC & NCiC revenue funding	NO	Funded	£100k - £500k	Implementation	Reduced emissions of NO2 and PM by reducing congestion on the roads	Restrain average journey times in the morning peak to a 1% increase per year	Implementation on-going	NCC introduced a streetworks permit scheme on 1 April 2020 to help plan/coordinate roadworks on its managed highway network. Streetworks management is undertaken by Via EM on behalf of NCC. The fundamental aim of the coordination/inspection regime is to facilitate necessary works, whilst minimising disruption by reducing duration etc. Regular coordination meetings held between all works promoters and regional partners in addition to regular meetings between NH and regional partners to create a framework programme of planned works affecting strategic and local routes. Detailed journey time monitoring undertaken annually since 2005/06.
NC04	Incident management and effective contingency planning to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, congestion management, traffic reduction	2019		NCC/via EM/NCiC/NH	NCC/via EM/NCiC/National Highways: NCC, NCiC, National Highways revenue funding	NO	Funded	£100k - £500k	Implementation	Reduced vehicle emissions		The local operating agreement between NCC and NH has been comprehensively reviewed to identify the relevant parts of the network which have interaction on each authority and to put in place appropriate communication channels for management of incidents and dissemination of information. Key locations on the local network have been identified and associated diversion routes investigated in line with the developing network hierarchy. Incidents dealt with through agreed procedures and regular partnership meetings held. Working in close collaboration with the NCiC and NH, tactical diversion routes have been developed for the emergency diversion of traffic from any part of the strategic road network, to reduce the delay in rerouting traffic to ease congestion at the time of incidents. Detailed journey time monitoring undertaken annually since 2005/06. A traffic control centre monitors traffic movement on the local highway network (not the trunk road/motorways) and provides real time traffic control over many traffic signal installations.	A potential barrier to this work is a lack of future revenue funding. The UTCC is a shared facility between NCC and NCiC. Estimated cost shown is NCC's annual contribution. Cost dependent on the number of incidents.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
NC05	Bus stop clearways	Traffic Management	UTC, congestion management, traffic reduction	2016		NCC/Via EM	NCC revenue funding	NO	Funded	£50k - £100k	Implementation	Reduced vehicle emissions	Manage parking to improve journey time reliability	Bus stop clearways are introduced at bus stops within the county, where parked vehicles are identified as impeding traffic flows. CCTV enforcement car introduced in 2016, second vehicle purchased in 2018; and third vehicle introduced in 2019.	The estimated cost provided is the annual cost of this measure. Further clearways will only be considered should vehicles parking in bus stops be identified as impeding traffic flows
NC06	Real time travel information	Public Information	Other			NCC / Via EM Ltd	NCC revenue funding	NO	Funded		Implementation	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	Information conveyed by all forms of media (press, radio, website, social media etc.). The Travelwise centre remains in operation 24hrs a day, every day.	Nottingham Travelwise website: https://www.itsonottingham.info/
NC07	On-street parking management and control	Traffic Management	Emission based parking or permit charges	2012		NCC	NCC revenue funding	NO	Funded		Completed	Reduced emissions of NO2 and PM	Manage parking to improve journey time reliability	Implementation on-going; Improvements will be considered should vehicle parking be identified as impeding traffic flows.	Parking restrictions already in place within AQMA. No additional side-road/off-line locations currently identified as requiring restrictions to aid traffic flow
NC08	Nottingham city workplace parking levy (WPL)	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2012		NCIC	WPL funding	NO	Funded		Implementation	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	Implementation on-going	Whilst not within the county remit the scheme may reduce the number of vehicles travelling through the AQMA en-route to the City
NC09	NCC travel plan	Promoting Travel Alternatives	Workplace Travel Planning	2012		NCC	NCC revenue funding	NO	Not Funded		Paused	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	NCC's travel plan has been in operation for over 20 years. It is currently under review to take account of new hybrid working arrangements.	Review ongoing
NC10	Personal travel planning (PTP) with residents	Promoting Travel Alternatives	Personalised Travel Planning	2012		NCC/AECOM; integrated transport block	Access Fund funding	NO	Funded		Completed	Reduced Emissions of NO2 and PM due to increase in use of alternative methods of sustainable travel	Restrain average journey times in the morning peak to a 1% increase per year	NCC have delivered Personalised Travel Planning (PTP) to residents, jobseekers, workplaces and schools across various parts of the county, over a number of years. PTP undertaken with West Bridgford residents in 2016. Further Access Fund funded travel planning undertaken in West Bridgford during 2018	Future PTP will be delivered should revenue funding sources be identified and secured for its delivery

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
NC11	Car sharing scheme	Alternatives to private vehicle use	Car & lift sharing schemes	2010	2023	NCC	NCC	NO	Funded	< £10k	Completed	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	<p>Covid-19 pandemic has impacted on people's travel to work patterns/behaviours, which has impacted significantly on car sharing demand.</p> <p>A review of the car sharing scheme found 3,250 members were registered, but not active. Activity and use of the scheme has been minimal for a number of years and consequently funding could not be justified and hence the licence has not been renewed.</p>	Funding could not be justified and hence licence has not been renewed.
NC12	Development of ITSO public transport smartcard ticketing	Transport Planning and Infrastructure	Public transport improvements stations and services	2014	2024	NCC/NCiC/PT operators		NO	Funded	Ongoing	Completed	Reduced emissions of NO2 and PM due to increased passenger transport patronage	Increased passenger transport patronage	<p>Integrated ticketing strategy developed in 2014/15. A new smartcard platform was introduced in 2014 and the Robin Hood card scheme was introduced in 2015. All the major bus operators have now introduced contactless payments for their own ticketing products alongside the Robinhood card and this was completed in around March 2020.</p> <p>The first multi-operator contactless ticketing system in the UK outside London was launched in the Nottingham area in May 2022. Public transport users can now pay a single daily capped fare across the majority of the city's buses and trams using their chosen contactless payment method.</p>	<p>The Nottinghamshire Enhanced Partnership is seeking to use indicative BSIP funding to deliver a multi operator ticket (MOT) in Newark & Mansfield, alongside development of an add-on for passengers travelling into the Robinhood network in Greater Nottingham.</p> <p>MOT strategy completed: December 2022 Mansfield scheme to launch: September 2023 Robinhood add-on to launch: March 2024</p>
NC13	Countywide off-peak concessionary public transport fare scheme for the over 60s and disabled.	Transport Planning and Infrastructure	Public transport improvements stations and services	2019		NCC/NCiC/PT operators	NCC	NO	Funded	>£10 million	Implementation	Reduced emissions of NO2 and PM due to increased passenger transport patronage	Increased passenger transport patronage	Countywide off-peak concessionary public transport fare scheme available for the over 60s and disabled.	The estimated cost provided is the annual cost of this measure.
NC14	Web based journey planners	Public Information	Other	2019		NCC	NCC	NO	Funded		Implementation	Reduced Emissions of NO2 and PM due to increase in use of alternative methods of sustainable travel	Increased walking/cycling/ passenger transport trips	<p>Nottinghamshire is part of the national, multi-modal Traveline journey planner.</p> <p>Web links to the Traveline site are publicised and available from NCC's website.</p> <p>New Live Travel Suite to be launched in July 2023 to replace Travelline offering enhanced features for journey planning.</p>	<p>Journey planner on NCC's website: http://www.nottinghamshire.gov.uk/transport/public-transport/plan-journey</p> <p>Web based tools are also included on NCC's Travel Choice website: https://travelchoice.nottinghamshire.gov.uk/journey-planner</p>

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NC15	Enhancements to bus services operating within the AQMA	Transport Planning and Infrastructure	Other			NCC/PT operators		NO	Funded		Implementation	Increased passenger transport patronage, reduced vehicle emissions	Increased passenger transport patronage, reduced vehicle emissions	Implementation on-going	Capacity increases will be considered should passenger information demonstrate that there is insufficient capacity on existing services
NC16	Park and ride site to the east of Nottingham	Alternatives to private vehicle use	Bus based Park & Ride		2026	NCC	No funding source identified	NO	Not Funded		In planning	Reduced vehicle emissions	Restrain average journey times in the morning peak to a 1% increase per year	No site currently identified. No funding source identified	Scheme dependent on identifying appropriate site, business case for any proposals and securing funding for its delivery
NC17	Annual walking and cycling promotional marketing	Promoting Travel Alternatives	Promotion of cycling	2017		NCC	NCC revenue funding	NO	Funded		Implementation	Increased cycling trips	Reduced Emissions of N02 and PM due to increased cycling uptake	Marketing of cycling is undertaken in a variety of formats for both commute and leisure trips. Various NCC campaigns have been undertaken including 'cycling week', 'Notts Routes & Rides' and cycle maps. NCC's website and Travel Choice webpages provide information on cycling across the county (for residents and businesses)	Travel Choice website: https://travelchoice.nottinghamshire.gov.uk/getting-around-nottinghamshire/cycle/
NC18	Annual walking and cycling promotional marketing	Promoting Travel Alternatives	Promotion of walking	2019		NCC	NCC revenue funding	NO	Funded		Implementation	Increased walking trips	Reduced emissions of N02 and PM due to more people walking	General promotion (e.g. website and literature) ongoing. NCC's website and Travel Choice webpages provide information on alternatives to using private vehicles, including cycle maps, leisure 'Routes and Rides' and the Rights of Way network	Travel Choice website: https://travelchoice.nottinghamshire.gov.uk/getting-around-nottinghamshire/walk/
NC19	Adult and child cycle training	Promoting Travel Alternatives	Promotion of cycling		Ongoing	NCC	DTT funding/PH funding	NO	Funded		Implementation	Increased cycling trips	Reduced emissions of N02 and PM	Across the county, 11,709 people received cycle training during 2023/24 and in Rushcliffe specifically, training was delivered to 2,495 people. Implementation is ongoing.	
NC20	Cycling networks as part of Active Travel Funding (ATF) Tranche 1	Transport Planning and Infrastructure	Cycle network	2020	2020	NCC	Active Travel Fund	NO	Funded	£1 million - £10 million	Completed	Increased cycling trips	Reduced emissions of N02 and PM	The government set up the Active Travel Fund to support the Gear Change strategy and to provide funding to support local authorities in implementing measures which will benefit walking and cycling. The first tranche of funding was announced in May 2020. NCC secured £0.26m towards the County Council's Emergency Active Travel Fund (Tranche 1) proposals, aimed at delivering quick emergency interventions to make cycling and walking safer.	complete

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NC21	Cycling networks - development of Local Cycling and Walking Infrastructure Plan (LCWIP)	Transport Planning and Infrastructure	Cycle network	2019	2023	NCC/NCiC/DCC/DCiC/borough and district councils/Sustrans/other stakeholders	DfT funding	No	Funded	Within existing resources	Completed	Reduced Emissions of NO2 and PM	Increased cycling trips	<p>A D2N2 Local Cycling and Walking Infrastructure Plan (LCWIP) has been developed.</p> <p>Data collected; three stakeholder events held to date, and further public engagement on the D2N2 LCWIP took place between December 2022 and March 2023.</p> <p>The D2N2 LCWIP will become the responsibility of the East Midlands Combine County Authority (EMCCA), and will be reviewed and continue to evolve and develop over time.</p>	<p>Future countywide cycling infrastructure priorities will be identified through technical analysis undertaken as part of the LCWIP development (which along with other priorities, takes into consideration air quality) and will be subject to feasibility, consultation, and County Council Cabinet Member approval.</p> <p>The D2N2 LCWIP public engagement focused on cycle corridors only, and not specific schemes. Any future cycle improvement schemes will be subject to funding availability, feasibility consultation, and approvals.</p>
NC22	Bus fleet low emission vehicles	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport			NCC/NCiC/PT operators; NCT (operator)	OLEV funding	NO	Funded	£1 million - £10 million	Implementation	Reduced emissions and ongoing take-up of cleaner vehicles	Reduced emissions of NO2 and PM due to increased use of low emission vehicles	<p>OZEV/OLEV funding in the county</p> <p>Green/Clean Bus Technology Fund in the council</p> <p>Euro VI buses/fleets in the county</p>	
NC23	Introduction of wider network of EV charging points to encourage the take-up of alternative fuel vehicles	Promoting Low Emission Transport	Potential residential EV charging infrastructure (on and off street)	2023/24	2025/26	NCC / Borough and District Councils	OZEV funding (LEVI)	NO	Not Funded	£1 million - £10 million	Implementation	Number of EV charging installed and back-office data from EV chargepoint	Reduced emissions of NO2 and PM due to increased use of low emission vehicles	<p>NCC is working to develop an Electric Vehicle ChargePoint Framework for the county. Consultation on a draft framework was undertaken between December 2023 and March 2024.</p> <p>NCC have developed bid in partnership with the district councils for LEVI capital funding for EV infrastructure. Funding has been secured and procurement is currently being undertaken.</p>	<p>LEVI revenue and capital funding secured for EV infrastructure programme development, NCC are currently producing procurement documents to go out to tender, likely to be August 2024. Measure is reliant on a successful LEVI bid</p>
NC24	Nottinghamshire on-street EV charging pilot scheme - electric vehicle cable channels (EVCC)	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2030	NCC/Via EM	Privately funded by resident and OZEV LEVI pilot funding	No	Privately funded by resident and OZEV LEVI pilot funding	Costs to be determined	In progress	Reduction in pollutants and emissions due to increased use of low emission vehicles.	Number of EVCC installed and back-office data from EV charge point	<p>NCC approved the trialling of on-street EV charging cable channels at Transport & Environment Committee in February 2022.</p> <p>NCC successfully secured (and received in January 2023) £774k from the Government's Local Electric Vehicle Infrastructure (LEVI) Pilot Funding enabling the delivery of up to 300 EV cable channels.</p> <p>Delivery started in February 2023.</p>	<p>NCC's EV cable channel pilot programme is currently in progress.</p>

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NC25	Lane rental scheme	Traffic Management	UTC, Congestion management, traffic reduction			NCC		NO			Planning	Reduced emissions of NO2 and PM by reducing congestion on the roads	Restrain average journey times in the morning peak to a 1% increase per year	NCC are looking at potentially introducing a Lane Rental scheme within the county. This would involve determining the top most congested roads in the county and then, following consultation, making an Order which will allow NCC (as the Highway Authority) to apply a levy/charge to anyone undertaking either streetworks (utilities) or roadworks (Council) during the peak times on these roads. The intention of the scheme is to minimise works from taking place during the peak times, which would lead to excessive congestion (which impacts on air quality). Any income raised through the scheme can be reinvested in projects to reduce congestion/improve highways, and subsequently air quality. The anticipated start date for a Lane Rental scheme in the county is April 2025.	
NC26	Cycling network and infrastructure	Transport Planning and Infrastructure	Cycle network	2018		NCC / Via EM	LGF/ DfT / developer contributions	NO	Not Funded		Planning	Reduced emissions of NO2 and PM	Increased cycling trips	Cycling infrastructure improvements are delivered as part of NCC's annual integrated transport programme. However, costs are extremely high so NCC requires external funding to deliver them. NCC submits bids to Active Travel England for funding and districts secure developer contributions for improvements as part of new developments. The D2N2 Local Cycling and Walking Infrastructure Plan (LCWIP) will be used to help identify and prioritise future improvements should DfT funding be made available for their delivery.	The D2N2 LCWIP will be used to help identify potential future cycle improvement schemes. Any future cycle improvement schemes will be subject to funding availability, feasibility consultation, and approvals. A potential barrier to such projects is the availability of funding, feasibility and public acceptable of proposals.
NC27	Pedestrian infrastructure improvements	Transport Planning and Infrastructure	Other			NCC / Borough and District Councils	NCC and various other sources of funding e.g. S38, S278 and S106	NO	Funded			Reduced emissions of NO2 and PM due to more people walking	Increased walking trips	Pedestrian improvements (e.g. pedestrian crossing, dropped kerbs, footways) are developed and delivered as part of NCC's annual integrated transport programme. In addition to the integrated transport block funding, improvements are also delivered using funding secured through the planning process (e.g. S38, S106, S278).	NCC's annual integrated transport programme is published on the Council's website: Decision Details: 2023-24 Highways Capital and Revenue Programmes (nottinghamshire.gov.uk) Schemes identified are subject to feasibility and availability of funding. A potential barrier to such schemes is the lack of future funding.
NC28	New Trent crossing	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane			NCiC / NCC	Transforming Cities Fund (TCF)	NO	Not Funded	> £10 million	Planning	Reduced Emissions of NO2 and PM due to increase in use of alternative methods of sustainable travel	Increased walking and cycling trips	Funding for a new cycle/pedestrian bridge between West Bridgford and the City as part of the Nottingham Transforming Cities Fund Bid. Feasibility work is underway. Construction schedules are to be determined and the scheme is still subject to feasibility, business case, planning, consultation, funding availability and political and public acceptability. Planning applications were submitted to Nottingham City Council and Rushcliffe Borough Council in 2024, and decisions pending.	A new road bridge was not prioritised for inclusion in a highway programme following feasibility studies undertaken in 2016. Such a scheme may be reviewed alongside future Local Plan growth strategies (post 2032) but will be subject to necessary approvals, feasibility, business case for any proposals, identifying appropriate site, prior to consultation and securing funding. The proposed foot/cycle bridge scheme is still subject to feasibility, business case, planning, consultation, funding availability and political and public acceptability.

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NC29	Moving Traffic Enforcement	Traffic Management	UTC, Congestion management, traffic reduction	2023		NCC	NCC	NO	Funded		Planning	Reduced emissions of N02 and PM by reducing congestion on the roads	Restrain average journey times in the morning peak to a 1% increase per year	Since June 2022, local authorities have been able to apply to the DfT for the powers to enforce moving traffic offences. Such offences include: banned turns, driving in pedestrian areas, environmental weight limits, box junctions etc. NCC's first pilot site was the box junction at Lady Bay Bridge, West Bridgford. Further pilot sites were planned, however, the DfT have paused any further applications.	
NC30	School travel plans	Promoting Travel Alternatives	School Travel Plans	2012		NCC	NCC	NO	Not Funded		Completed	Reduced Emissions of N02 and PM due to increase in use of alternative methods of sustainable travel	Restrain average journey times in the morning peak to a 1% increase per year	Following a trial with four pilot schools in 2019/20, the online school travel toolkit was rolled out to all County schools during the 2020/21 academic year. The Nottinghamshire School Travel Toolkit provides school children, parents and staff with information and advice on improving travel to and from Nottinghamshire's schools.	Costs detailed are for the School Travel Toolkit only. There currently is not any funding available for delivering travel planning to individual schools. Link to School travel toolkit: https://www.nottinghamshire.gov.uk/education/travel-to-schools/school-travel-toolkit
NC31	Promoting travel choices - Consideration of car club into the county	Alternatives to private vehicle use	Car Clubs			NCC	NCC	NO	Not Funded		Planning	Reduced emissions of N02 and PM	Restrain average journey times in the morning peak to a 1% increase per year. A reduction in staff business emissions and cost, through both a car club and a wider review of staff travel habits.	NCiC scheme introduced in 2014, with the provider reviewed in 2018. Expansion of scheme into county dependent on its success, which is still unclear. Work has been undertaken to look at the feasibility of a partnership with a Car Club operator in the county, for both residents and internal use (i.e. staff travel). The work will feed in to a wider fleet review and review of staff business travel, with a few more aspects to be expanded upon. Funding for implementation to be determined.	Dependent on the determination of business case and commercial operator coming forward. Barriers include financial risk, organisational culture (i.e. using personal cars less) and specific service needs.
NC32	Bus service improvements	Transport Planning and Infrastructure	Public transport improvements - interchanges stations and services	2019	2025	NCC / NCiC / PT operators	DfT	No	Funded	£25m	Ongoing	Reduced emissions of N02 and PM due to increased passenger transport patronage	Increased passenger transport patronage	NCC have developed two Bus Service Improvement Plans (BSIP) for Nottinghamshire; the BSIP for the Greater Nottinghamshire (Robin Hood) area which was developed in partnership with NCiC, and the BSIP for Nottinghamshire. The plans, which were approved at the Transport and Environment Committee in November 2021, outline the Council's ambitions for improving bus services within the county.	Bus service provision is provided on a commercial basis with support from NCC where justified; and reviewed periodically.
NC33	Concessionary fare schemes	Transport Planning and Infrastructure	Other	Ongoing	Ongoing	NCC / PT operators	NCC	No	Funded	> £10m	Ongoing	Reduced emissions of N02 and PM due to increased passenger transport patronage	Increased passenger transport patronage	Countywide off-peak concessionary public transport fare scheme available for the over 60s and disabled.	The estimated cost provided is the annual cost of this measure.

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NH01	Using new traffic light control technology to minimise the frequency of stops for large vehicles (lorries & buses predominantly). It is hoped that reducing stops for these vehicles it will reduce their emissions; further benefits may accrue by reducing their idle time and the capacity implications of larger, slower, vehicles pulling off at the front of a traffic queue.	Traffic management	Strategic highway improvements			NH		NO	Funded		Implementation	Improved traffic flow	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.		Technology is effective at detecting large vehicles and influencing signal control. Control set up used showed benefits in some cases but in others proved detrimental by overriding the well developed adaptive control system (MOVA). The net effect was shown to be negative on stops and delays however this did not translate into a material change in air quality readings; it is assumed therefore that even focussing on the positive elements the level of impact from this system is too small to have a meaningful impact on emissions at a single junction. NH have reverted out those changes shown to be detrimental but left in those they are confident were beneficial. As part of the proposed upcoming changes as part of the A52 Nottingham Junctions project NH are hoping to further review and see if some softer priority measures can be re-introduced for HGVs.
NH02	Ban on the U-turn east to west and reconfiguration of the signals to improve efficiency.	Traffic management	Strategic highway improvements	2016	2023	National Highways	National Highways	NO	Funded	£1 million - £10 million	Completed	Improved traffic flow	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.	Completed. The Traffic Regulation Order (TRO) facilitated a reconfirmation of the signal control which will reduce the signal cycle time (and hence shorter red periods, queues and idling) and improve capacity. It is these changes that will bring about any change in emissions and air quality. Signal reconfiguration was undertaken when the roadworks at nearby Gamston roundabout were completed in Spring 2023.	The 2023 monitoring data indicates a significant drop in the NO ₂ annual mean concentrations from the 2022 levels. Monitoring in 2024 will hopefully confirm these reduced levels are sustained.
NH03	Introduction of wider network of EV charging points to encourage the take-up of alternative fuel vehicles	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging	2020		NH (EV infrastructure on the trunk road network)					Implementation	No. of EV charge points introduced in the Borough	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.		Implementation ongoing. Review of on-street and rural EV charging infrastructure undertaken during 2020/21

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NH04	Co-ordination of street works to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, congestion management, traffic reduction			NH		NO	Funded		Implementation	Improved traffic flow, reduced vehicle emissions	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.	Implementation ongoing.	
NH05	Walking and cycling infrastructure improvements	Transport Planning and Infrastructure	Cycle Network	2020		NH		NO	Not Funded		Planning	Walking and cycling infrastructure improvements	Reduction in NO ₂ annual mean concentration of 1µg m ⁻³ required to achieve the AQS – further reduction (in the region of 10%) required to demonstrate well below the AQS and sustained compliance.	NH seeking funding for a strategic study to identify further options and explore potential routes to funding and delivery	The A52 corridor from Bingham to Gamston (and further into Nottingham City) has been identified as having potential for wider walking, cycling and public transport improvements and NH are seeking funding for a strategic study to identify further options and explore potential routes to funding and delivery.
RB01	Off-street parking management and control (including review of car parking offer/charging)	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway			RBC	LA funded	NO	Funded	< £10k	Implementation	Improved traffic flow, reduced vehicle emissions	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)		Not relevant within AQMA No 1/2011 Stragglethorpe Road
RB02	Ensure sustainable development on sites within Borough that may impact on AQMA	Policy Guidance and Development Control	Other policy	2012	2032	RBC	LA funded	NO	Funded		Implementation	Developments within and potentially impacting on an AQMA supported by AQ assessments. No. of AQ impact assessments related to AQMA	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Implementation ongoing - Ensuring AQ is at the heart of planning decision.	Resource permitting - Propose to adapt and introduce EMAQN Air Quality and Emissions Mitigation – Guidance for Developers for RBC to ensure consistency of approach

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RB03	Co-ordination of land-use planning and transport infrastructure	Policy Guidance and Development Control	Other policy	2012	2032	RBC/NCC/NH		NO			Implementation	No. of impact assessments	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Implementation ongoing - Ensuring AQ is at the heart of planning decision.	
RB04	Use of planning conditions for mitigation; inc. travel plans etc. and to ensure for planning applications within AQMAs that are introducing sensitive receptors to the area that air quality assessments are required, and developments with vulnerable end users that the assessment takes account of air quality and PM2.5	Policy Guidance and Development Control	Other policy	2012	2031	RBC		NO			Implementation	No. of travel plans required as planning conditions and number of AQ assessments submitted with mitigation measures put in place	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Ongoing as part of the development control process - Development specific requirement	
RB05	Secure appropriate levels of developer contributions (Section 106 and/or CIL) for use on sustainable transport and air quality improvement projects	Policy Guidance and Development Control	Other policy	2012	2032	RBC/NCC		NO			Implementation	Sums collected for such infrastructure projects	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Ongoing as part of the development control process - Development specific requirement	
RB06	Promote carbon reduction policies and guidance to developers working within Rushcliffe with a co-benefit of improving air quality	Policy Guidance and Development Control	Other policy	2019	2030	RBC		NO	Funded		Implementation	No. of EV charge points introduced in the Borough through planning conditions.	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Ongoing - driven by the policies in the Local Plan adopted in 2019	Provision of/for EV charging points in new residential and commercial developments.
RB07	Workplace travel plans	Promoting Travel Alternatives	Workplace Travel Planning	2016		RBC planning/NCC		NO			Implementation	Restrain average journey times in the morning peak to a 1% increase per year	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Developed with businesses as part of planning conditions when secured by RBC. Targeted travel planning (funded by the County Council) was held at workplaces within the AQMA during 2014/15	

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RB08	RBC travel plan	Promoting Travel Alternatives	Workplace Travel Planning	2019		RBC/ RBC planning/NCC		NO			Implementation	Restrain average journey times in the morning peak to a 1% increase per year	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)		RBC developed travel plan as a planning condition for occupation of new premises
RB09	Flexible working arrangements	Promoting Travel Alternatives	Encourage / Facilitate home-working	2020		RBC		NO			Implementation	Restrain average journey times in the morning peak to a 1% increase per year	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	RBC operate flexible working arrangements for appropriate staff	Flexible/remote working arrangements have been updated/revised as part of the smarter ways of working framework in new People Strategy which was adopted in 2021
RB10	Travel planning with residents at new developments	Promoting Travel Alternatives	Personalised Travel Planning	2016		RBC		NO			Implementation	Restrain average journey times in the morning peak to a 1% increase per year	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Implementation ongoing. Planning conditions secured by RBC to ensure residential travel planning is undertaken where appropriate	
RB11	Introduction of wider network of off-street EV charging points to encourage take up of alternative fuel vehicles	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019		RBC/NCiC;		NO	Funded	£500k - £1 million	Implementation	Reduced vehicle emissions. No. of EV charge points introduced across the Borough	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Successful in funding bid to OZEV – residents off street charging provision in Gamston, at Bingham Arena and Gresham Sports Pavillion in 2022. Site investigation ongoing to determine feasibility of other sites. Currently assessing other potential funding schemes.	RBC working in partnership with NCiC to develop the CP infrastructure along the D2N2 corridor –funding via Transforming Cities Fund. Implementation ongoing. Constraints identified in some locations due to power supply issues. Working with electricity distributor to improve supply provision.
RB12	Develop a strategy for further EV provision across the Borough	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020		RBC		NO	Funded		Implementation	Reduced vehicle emissions. No. of EV charge points introduced across the Borough	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Installation of one solar canopy hub – others under consideration	Constraints identified around power supply in some locations. Partnering with City under Transforming Cities Fund to increase D2N2 offering across the Borough; exploring wider options. Assessing other potential funding sources e.g. LEVI
RB13	Promotion of low emission vehicles through taxi licensing	Promoting Low Emission Transport	Taxi emission incentives	2021		RBC		NO	Not Funded		Planning	Reduced vehicle emissions	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Review of taxi licence criteria/incentives for use of electric vehicles. Under consideration – exploring possible options	Currently reviewing case studies

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RB14	Procurement of new RBC vehicles	Vehicle Fleet Efficiency	Other	2020		RBC		NO	Not Funded		Planning	Reduced vehicle emissions	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	No. of electric and/or other low emission vehicles within RBC fleet. Replace Rushcliffe Country Park diesel buggies with electric buggies.	Applicable to RBC operations - link with Carbon Management Plan
RB15	Investigate potential replacement/upgrading of RBC refuse trucks & vans with ULEV, Biogas, hydrogen fuelled vehicles	Vehicle Fleet Efficiency	Other	2021		RBC		NO	Funded		Implementation	Reduced vehicle emissions. No. of electric and/or other low emission vehicles within RBC fleet	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Programme for conversion of RBC refuse vehicles to Hydrogenated Vehicle Oil (HVO) ongoing	Applicable to RBC operations - link with Carbon Management Plan and accelerating shift to low carbon transport.
RB16	Integrate RBC driver training with annual certification and investigate in-cab monitoring and route optimisation	Vehicle Fleet Efficiency	Other	2021		RBC			Not Funded		Planning	Reduced vehicle emissions	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)		Applicable to RBC operations - link with Carbon Management Plan and accelerating shift to low carbon transport.
RB17	Widen access to staff cycle purchase scheme	Promoting Travel Alternatives	Promotion of cycling and walking	2015	2025	RBC		NO	Funded	£10k - 50k	Implementation	Increase in cycle purchases via staff scheme	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	RBC staff initiative. 41 people have availed of the scheme since it was introduced in 2015	Scheme open to all staff
RB18	Work with partners to promote active travel to the public - (e.g. school travel plans including accreditation (stars) and walking bus; travel choice programme including active travel; well-being at work scheme / work place health; business e-bike scheme; healthy futures fund – cycling on prescription; community cycling groups; Ridewise training	Promoting Travel Alternatives	Promotion of cycling and walking	2016		NCC/RBC		NO			Implementation	Increase cycling and walking	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Implementation ongoing. Further bike repair and learn to cycle sessions made available in 2023. Green Rewards scheme introduced in 2020 - encouraging active travel where residents who sign up to the scheme can earn points which give discounts in local shops and entry into prize draws.	119 people had their bikes registered across 6 events which took place in Keyworth, East Leake, Bingham, Ruddington and West Bridgford. Continued growth of the Green Rewards scheme. Delivered Summer of Cycling Event at Rushcliffe Country Park. Continued promotion of Green prescribing.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
RB19	Continued development and implementation of RBC cycling strategy	Promoting Travel Alternatives	Promotion of cycling and walking	2021		RBC		NO	Not Funded		Implementation	Increased cycling trips; reduced vehicle emissions	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	RBC Cycling and Walking Action Plan published in 2022 - The aim is to 'increase participation in walking and cycling by all in Rushcliffe' focussing on 3 priority outcomes – Promotion; Safety; Infrastructure. Increase awareness through events & publication of Borough wide cycling map; improvements to infrastructure; working with partners including Big Business Carbon Club partners and schools to promote cycling; development of policy to ensure Section 106 agreements are realised.	The RBC Cycling and Walking action Plan supports the NCC cycling strategy with RBC working in collaboration with NCC to develop the cycling infrastructure.
RB20	Raise awareness of the wider government initiatives to reduce air emissions e.g. ban on the sale of house coal and wet wood	Policy guidance and development control	Low emissions strategy	2021		RBC		NO	Not Funded		Implementation	Reduction in complaints relating to domestic burning	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Working to increase awareness of air pollution associated with domestic burning. Public consultation undertaken on proposal to expand Smoke Control Area coverage. Cabinet resolved to retain existing coverage and review again in 2 years. In the meantime public awareness campaign to be delivered around risks associated with domestic burning.	Working with Nottinghamshire County Council Trading Standards & neighbouring authorities to ensure appropriate fuel is sold in the Borough
RB21	Work with partners to encourage more sustainable travel	Promoting Travel Alternatives	Promotion of cycling and walking	2020		NCC/RBC		NO	Not Funded		Implementation	reduced vehicle emissions, increased cycling/walking, wider benefit to public health	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Linking with public health to promote the health benefits of walking and cycling. Link with NCC Travel Choice programme https://travelchoice.nottinghamshire.gov.uk/	RBC working with GPs - Active Practice Charter looking to encourage staff and patients to be more physically active and less sedentary. Six of eleven practices now accredited. Green social prescribing is a way of connecting people to nature based activities and green groups, projects and schemes in their local community for support with health and wellbeing. The Rushcliffe Big Green Book is a directory of nature-based activity providers which aims to be used as a tool to support identifying green social prescribing opportunities. It also includes a Greenground map (similar to a London underground map) to promote walking, cycling and cultural opportunities in the area for residents to become involved with
RB22	Regulation of Permitted Activities	Environmental permits	Introduction /increase of environmental funding through permit systems and economic instruments	2012	2032	Environment Agency and RBC		NO			Implementation	Conditions applied in line with Defra guidance and support best practice	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Ongoing programme for inspection of permitted activities	
RB23	New Trent Crossing	Promoting Travel Alternatives	Promotion of cycling and walking	2020	2024	NCiC working in partnership with RBC & NCC	Transforming Cities Fund	NO	Funded	£1 million - £10 million	Implementation	Increase cycling and walking; reduction in number of car journeys	Sustain compliance & reduce NO ₂ concentrations to well below the AQS objective (in the region of 10%)	Works ongoing, planning applications submitted to Rushcliffe BC and Nottingham City Council in Spring 2024.	The City Council secured £9.25m in 2020 from the Government's Transforming Cities programme to deliver this scheme as part of a programme to invest in local transport infrastructure that will improve sustainable transport, support growth, and encourage more low carbon journeys.
RB24	Promotion of Clean Air Day and other awareness campaigns	Other	Other			RBC working with other Nottinghamshire authorities, Public Health and the NHS Primary Care Network		NO	Not Funded		Implementation	Increase public awareness	improve air quality	Plan to collaborate more closely with partners to facilitate wider dissemination of the air quality related messages	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
RB25	Active Travel Plan in Bingham	Promoting Travel Alternatives	Promotion of cycling	2023	2025	RBC	UKSPF	NO	Funded	<£10k	Planning	Reduced NO ₂ and PM	Increase cycling and walking; reduction in number of car journeys	Funding allocated from UKSPF fund	Funding runs out in March 2025
RB26	Develop and run public awareness campaign around domestic burning	Public Information	Other	2023	2025	Local Authority Environmental Health, Local Authority Media	RBC Environmental Health	NO	Partially Funded	< £10k	Planning	Reduced emissions from domestic burning	Reduction in smoke complaints arising from domestic burning	Comms around public health risks associated with PM2.5 emissions from domestic burning released in Autumn/Winter 2023. Campaign to continue into 2024.	Comms need to be targeted and mindful of constraints faced by residents e.g. limited alternative options for domestic heating in rural areas, cost of living crisis.

Note: Measure No in the above table reflects the numbering system used in the 2021 AQAP – measures NC 01-33 are the Nottinghamshire County Council measures which relate predominantly to AQMA No 1 Trent Bridge; NH 01-05 are the National Highways measures which relate predominantly to AQMA No 1/2011 Stragglethorpe Road; and RB 01-26 are the Rushcliffe Borough Council measures which are generally applicable across the Borough. The expected efficacy of the measures is provided by a traffic light colour coded system with measures highlighted in green as the most effective and red as least effective.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy¹⁸, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}). There is clear evidence that PM_{2.5} (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Rushcliffe Borough Council does not undertake monitoring for particulate matter however an indication of the background concentrations of PM_{2.5} can be obtained from the current Defra background mapping resource available via [UK-AIR](#). The background data provides estimated concentrations of PM_{2.5} across the Borough for 2023 (base year 2018) and indicates concentrations range from 7.3µg m⁻³ to 9.7µg m⁻³. Across the wider Midlands region estimated concentrations of PM_{2.5} range from 5.0µg m⁻³ to 11.9µg m⁻³.

The Environment Act 2021 established a legally binding duty on government to bring forward at least two new air quality targets in secondary legislation by 31 October 2022. This duty sits within the environmental targets framework outlined in the Environment Act (Part 1). The air quality targets set under the Act are:

- Annual Mean Concentration Target ('concentration target') - a maximum concentration of 10µg/m³ to be met across England by 2040.
- Population Exposure Reduction Target ('exposure target') - a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

The targets were set into law by The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023¹⁹ which also contains provisions on how these will be monitored and assessed.

¹⁸ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

¹⁹ The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

(<https://www.legislation.gov.uk/uksi/2023/96/contents/made>)

The Office for Health Improvement and Disparities (OHID) Public Health Outcomes Framework (PHOF) indicator D01 provides estimates of local mortality burdens associated with particulate air pollution. This data, presented for each local authority, is based on the research evidence of mortality risk and modelled levels of background air pollution to which populations are exposed at a local level. Since 2022 the PHOF utilises a new method for the calculation of the local mortality burdens and as a result comparison with data from previous years may not be directly comparable. The attributable fraction (i.e. the proportion of deaths estimated as due to long-term exposure to anthropogenic particulate PM_{2.5} air pollution) for Rushcliffe for the most recent year available (2022²⁰) was 6.2% which is in line with the regional level of 5.9% and the national level of 5.8%.

The Nottingham and Nottinghamshire Air Quality Strategy 2020-2030 aims are (1) to reduce average concentrations of NO₂ and particulate matter across the County; and (2) to reduce the estimated proportion of disease and deaths attributable to air pollution. Table 4 below is taken from Appendix 3 of the Strategy and provides estimates of the reduction in mortality and morbidity in Nottingham and Nottinghamshire if residents exposed to high levels of PM_{2.5} in 2017 were exposed to lower levels over the next decade.

Table 4 Estimated reduction in mortality and morbidity in Nottingham & Nottinghamshire over 10 years if residents exposed to high levels (≥12.3 µg/m³) of particulate matter (PM_{2.5}) in 2017 were exposed to lower levels (<12.3 µg/m³)[‡] over the next decade (Source: Local analysis using PHE 2018 air pollution healthcare costs tool)

Local authority	Adults (aged 19 or older)						Children (age 18 or younger)	
	Coronary heart disease [‡]	COPD	Stroke	Diabetes	Lung cancer	Deaths [‡]	Asthma	Diabetes
Ashfield	367	211	94	374	9	115	112	4
Bassetlaw	406	222	100	437	10	125	97	4
Broxtowe	480	264	124	485	13	151	122	3
Gedling	475	260	129	433	12	144	132	4
Mansfield	309	164	82	316	7	97	78	2
Newark and Sherwood	444	246	126	401	11	123	103	3
Rushcliffe	419	228	112	426	10	113	116	3
Nottinghamshire	2,900	1,595	768	2,871	72	868	759	22
Nottingham	1,796	1,049	480	1,938	47	546	433	11

[‡] For diseases, the numbers represent how many fewer residents would have the disease in 2027 if all residents lived in low PM_{2.5} pollution areas - as opposed to the situation in 2017.

[‡] The number of deaths is the average, annual number of deaths avoided between 2017 and 2027 if all residents lived in low PM_{2.5} pollution areas - as opposed to the situation in 2017.

[‡] High and low levels are set by the model.

As domestic burning is recognised as a contributor to PM_{2.5} emissions our 2022 ASR indicated Rushcliffe Borough Council was exploring the possibility of making adjustments to the Smoke Control Area coverage across the Borough. Smoke Control Area coverage

²⁰ Public Health Outcomes Framework – Rushcliffe 2022 (<https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/rushcliffe>)

in the Borough is limited to an area covering parts of West Bridgford and Edwalton which was declared under numerous Smoke Control Orders in the 1970s and 1980s. Following endorsement by the Communities Scrutiny Group in October 2023 a public consultation on a proposal to declare a Borough-wide Smoke Control Area was undertaken for a six week period in February/March 2024. Approximately 1200 responses were received from residents, with approximately 80% not in agreement with the proposal. Comments received included concerns that the proposed expansion of the Smoke Control Area coverage was disproportionate to the potential benefits to be gained across Rushcliffe and could result in significant financial impacts for residents living in more rural areas where other sources of heating are not so readily available. At a meeting in May 2024 Cabinet resolved to a) agree the existing Smoke Control Area coverage remains unchanged for a period of two years at which time it will be reviewed; and b) approve the development and delivery of a public awareness campaign around domestic burning.

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

- As indicated above and in response to Cabinet consideration of the Smoke Control Area coverage we will continue to develop and run awareness campaigns around domestic burning encouraging the use of appropriate appliances and fuels, particularly as the public consultation responses indicated some confusion around the understanding of Smoke Control Areas and the terminology used such as exempt/approved appliances and controlled fuels;
- In 2023 Nottinghamshire local authorities, including Rushcliffe, engaged with County Council Trading Standards to ensure consistency across the County in implementing the measures introduced by the Environment Act 2021 around smoke control areas and the retail sale of appropriate fuels. This engagement will continue into 2024;
- We continue to work with transport partners (Nottinghamshire County Council and National Highways) and other stakeholders to reduce transport impacts as a whole. This has benefit not only for NO₂ but all emissions from transport sources, including PM_{2.5};
- We will continue to recommend planning conditions requiring submission for approval of Construction Method Statements to ensure potential impacts on air quality, including dust emissions are appropriately mitigated during construction;

- We will continue to screen planning applications to identify proposed developments where air quality and emissions of particulate matter require more detailed assessment, including commercial wood/biomass plants;
- Rushcliffe Borough Council are partners in the newly formed Notts Air Quality Oversight Group which includes representatives from Public Health, Nottinghamshire and Nottingham local authorities, Transport Planning, National Highways, NHS partners and UKHSA. One of the main objectives for this group is to review the Nottingham and Nottinghamshire Air Quality Strategy and take forward the actions and objectives to ensure these reflect current air quality priorities and continue to meet the overall aim for all of Nottinghamshire residents and visitors to have clean air that allows them to lead healthy and fulfilling lives;
- We will continue to work and share knowledge with our neighbouring authorities as part of the Nottinghamshire Environmental Protection Working Group (NEPWG). In recent years the group has developed and run County wide campaigns around domestic burning ensuring focussed messages are released on a weekly basis in the winter months to highlight the public health risks and provide advice on how to reduce emissions;
- We will continue to investigate complaints of smoke emissions, including domestic burning, garden bonfires and other sources, educating where appropriate on the impacts of smoke emissions and taking enforcement action where necessary. This enforcement action may be in the form of Fixed Penalty Notices if a Council wide policy is put in place to introduce a civil financial penalty scheme as introduced by the Environment Act 2021; statutory nuisance provisions and where appropriate waste enforcement powers under the Environmental Protection Act 1990; and
- Rushcliffe Borough Council continue to offer a fortnightly garden waste collection service which helps reduce the number of garden bonfires.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Rushcliffe Borough Council undertook automatic (continuous) monitoring at two sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [Nottingham Air Quality](#) page presents automatic monitoring results for Rushcliffe Borough Council, with automatic monitoring results also available through the UK-Air.

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

3.1.2 Non-Automatic Monitoring Sites

Rushcliffe Borough Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 29 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

As part of our ongoing review and management of the local air quality network two locations (Cot PO and GR1) were removed from the 2022 network. Cot PO and GR1 were new locations in 2022 and monitoring for a twelve-month period showed annual mean concentrations (bias adjusted and annualised) of 15.9µg m⁻³ and 16.3µg m⁻³ respectively. As the levels are significantly below the objective it is not considered necessary to continue to monitor at these locations.

Two additional locations (TB2 and A52/HHF3) were added to the network in 2023. TB2 is located at the Trent Bridge continuous monitor in AMQA No 1 Trent Bridge to obtain some additional data to support the revocation of the AQMA. A52/HHF3 is located at the Holme

House continuous monitor within AQMA No 1/2011 Stragglethorpe Road to obtain additional data following the implementation of U-turn ban and alterations in the traffic light sequencing at the junction.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

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

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant. It was not necessary to undertake distance correction for any of the diffusion tube locations across the Rushcliffe Borough Council monitoring network in 2023. The diffusion tubes were installed in accordance with the 2023 diffusion tube calendar. Annualisation was required at two locations (TBLB and TB2) where data capture was 73.1% and 65.4% respectively, and below the 75% data capture threshold.

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year. There were no exceedances of the hourly air quality objective at either continuous monitoring site which is consistent with the trend for the past five years. The maximum hourly mean recorded by the continuous monitors was

93.5 $\mu\text{g}/\text{m}^3$ in AQMA No 1/2011 Stragglethorpe Road and 116.3 $\mu\text{g}/\text{m}^3$ in AQMA No 1 Trent Bridge.

The data presented in Table A.3 and Table A.4 show the NO₂ annual mean concentration did not exceed the air quality objective at any location during 2023. It can be seen from Figure 1 the NO₂ annual mean concentration recorded at all locations across the network continues the overall downward trend identified over the past five years. The most significant decrease in the NO₂ annual mean concentrations was recorded at the continuous monitor in AQMA No 1/2011 Stragglethorpe Road where the level fell from 35 $\mu\text{g m}^{-3}$ in 2022 to 23 $\mu\text{g m}^{-3}$ in 2023. Across the diffusion tube network, the recorded NO₂ annual mean concentrations were generally consistent with those recorded in 2022. This could possibly be related to a stabilisation in traffic flow following the COVID-19 pandemic. At the majority of locations, the 2023 NO₂ annual mean concentrations were at or below the levels recorded in 2020 when the COVID-19 pandemic national lockdowns led to significant decreases in traffic levels.

In AQMA No 1 Trent Bridge the highest measured NO₂ annual mean concentration was 29.9 $\mu\text{g m}^{-3}$, recorded at the passive monitoring location TBLB. All locations within AQMA No 1 Trent Bridge, with the exception of locations TBLB and LR1, recorded NO₂ annual mean concentrations at or below the 2022 levels. At TBLB there was an increase of 45% from 20.6 $\mu\text{g m}^{-3}$ to 29.9 $\mu\text{g m}^{-3}$ and an increase of 4.5% at location LR1 from 22.6 $\mu\text{g m}^{-3}$ to 23.6 $\mu\text{g m}^{-3}$. There does not appear to be an obvious reason for the increase at TBLB and it is worth emphasising despite the increase at this location all NO₂ annual mean concentrations remain well below both the AQO and the 2019 (pre COVID-19 pandemic) levels. The maximum hourly mean was 116 $\mu\text{g m}^{-3}$ therefore there were no exceedances of the NO₂ hourly limit of 200 $\mu\text{g m}^{-3}$. The data (continuous and passive) for AQMA No 1 Trent Bridge for the period from 2019 to 2023 is presented in Figure A.2. The overall 5-year data trend shows a decrease in the recorded NO₂ annual mean concentrations with perhaps the plateauing in 2022 and 2023 being indicative of a stabilisation in traffic flow following the population lifestyle changes as a result of the COVID-19 pandemic, including for example increased numbers of people working from home some or all of the time and/or lesser emphasis on the morning/evening commute. The increase in the number of electric vehicles (EV) and possibly the ongoing cost of living crisis may also be contributing factors.

In AQMA No 1/2011 Stragglethorpe Road the highest measured NO₂ annual mean concentration was 24.8 $\mu\text{g m}^{-3}$, a decrease of 28% when compared with the 2022 data.

The maximum hourly mean was $93.5\mu\text{g m}^{-3}$ therefore there were no exceedances of the NO_2 hourly limit of $200\mu\text{g m}^{-3}$. Figure A.3 shows the trends in annual mean NO_2 concentrations across all locations (continuous & passive) in AQMA No 1/2011 Stragglethorpe Road between 2019 and 2023. There were no exceedances of the annual mean objective in 2023 and the concentrations at all locations remained significantly lower than pre-2020 levels. There has been a significant decrease in the NO_2 annual mean concentration recorded by the continuous monitor from $35\mu\text{g m}^{-3}$ to $23.4\mu\text{g m}^{-3}$ (34% decrease). The NO_2 annual mean concentrations recorded at the two existing passive monitoring locations have remained consistent from 2022 to 2023 ($25.5\mu\text{g m}^{-3}$ and $24.8\mu\text{g m}^{-3}$ at A52/HHF1 and $25.4\mu\text{g m}^{-3}$ and $22.3\mu\text{g m}^{-3}$ at A52/HHF4). The NO_2 annual mean concentration recorded at the new location (A52/HHF3) is consistent with the existing locations and the continuous monitor. During 2022 and 2023 roadworks were ongoing at the Gamston roundabout in the vicinity of AQMA No 1/2011 Stragglethorpe Road as part of the National Highways A52 Nottingham Junctions Improvement scheme. Although the order to remove the U-turn movement at the Stragglethorpe junction was brought into force in May 2022, the timings on the new traffic signals remained unchanged until the work at Gamston roundabout was completed in April 2023. The decrease in the recorded NO_2 annual mean concentration at the continuous monitor may be attributable to a reduction in congestion at the Stragglethorpe junction due to the U-turn ban and the associated alterations to the traffic light sequencing.

Figure A.4 shows the NO_2 annual mean concentrations across the monitoring network for 2019 – 2023 at sites not located in an AQMA. At the majority of sites the NO_2 annual mean concentrations recorded in 2023 are consistent with the 2022 levels with the biggest difference being a 9.5% decrease in the levels recorded at location Sains, falling from $24.0\mu\text{g m}^{-3}$ to $21.7\mu\text{g m}^{-3}$. To improve clarity on the chart the monitoring locations (CotPO and GR1) removed from the network in 2023 have been removed from the plotted dataset.

As the NO_2 annual mean concentrations in AQMA No 1 Trent Bridge have been below the air quality objective for a number of years, Rushcliffe Borough Council have commenced the revocation of the AQMA. This should be completed within the current year and an update will be provided in next year's ASR.

In AQMA No 1/2011 Stragglethorpe Road NO_2 annual mean concentrations have decreased significantly since declaration and have been at or close to the objective over the past few years. In 2023 a significant decrease was recorded in the NO_2 annual mean concentration at the continuous monitor. Significant traffic improvement works were

completed in early 2023 on the A52 in and around the Stragglethorpe junction and it is likely the fall in the NO₂ annual mean concentration reflects the improvements in traffic flow and reduced congestion at the junction. We anticipate these reduced levels will be sustained and we will continue to monitor within the AQMA and review the data annually.

3.2.2 Particulate Matter (PM₁₀)

Rushcliffe Borough Council does not monitor Particulate Matter (PM₁₀).

3.2.3 Particulate Matter (PM_{2.5})

Rushcliffe Borough Council does not monitor Particulate Matter (PM_{2.5}).

3.2.4 Sulphur Dioxide (SO₂)

Rushcliffe Borough Council does not monitor sulphur dioxide (SO₂).

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
Trent Bridge	Loughborough Road/Trent Bridge, West Bridgford	Roadside	458256	338156	NO ₂	YES (AQMA No1 Trent Bridge)	Chemiluminescent	0	3.75	1.5
Holme House	Holme House, A52 Stragglethorpe junction, Radcliffe on Trent	Roadside	463005	338208	NO ₂	YES (AQMA No1/2011 Stragglethorpe Road)	Chemiluminescent	0	7.5	1.5

Notes:

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

(2) N/A if not applicable

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
WLR/2	39/41 WILFORD LANE	Roadside	457873	337426	NO ₂	NO	0.0	9.0	No	2.2
A52/SA	A52 SOUTH AVE, RADCLIFFE	Roadside	465929	339543	NO ₂	NO	0.0	4.2	No	2.9
CL	CLOVERLANDS	Roadside	457223	335033	NO ₂	NO	0.0	16.3	No	2.5
HR	HAMPTON ROAD	Urban Background	458326	336714	NO ₂	NO	0.0	5.4	No	2.1
LR	LOUGHBOROUGH ROAD (RES)	Roadside	458126	337727	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	8.9	No	1.9
A52/RT	A52/RT	Roadside	464644	338730	NO ₂	NO	6.5	3.3	No	2.0
Radcliffe Road	RR	Roadside	458284	338150	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	4.0	No	2.3
TBLA	TRENT BOULEVARD A	Roadside	458752	338278	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	7.1	No	2.0
TBLB	TRENT BOULEVARD B	Roadside	458756	338267	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	3.4	No	2.4
TBI	TBI	Roadside	458274	338117	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	6.6	No	2.6
WL3	WL3	Roadside	458134	337581	NO ₂	YES (AQMA No 1 Trent Bridge)	5.2	2.1	No	2.9

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Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
Windy Ways	WW	Roadside	457651	334840	NO ₂	NO	0.0	12.0	No	1.8
A52/HHF 1	A52 HOME HOUSE 1	Roadside	463011	338213	NO ₂	YES (AQMA No1/2011 Stragglethorp e Road)	0.0	6.0	Yes	2.5
A52/HH 2	A52 HOLME HOUSE 2	Roadside	463040	338232	NO ₂	YES (AQMA No1/2011 Stragglethorp e Road)	0.0	6.0	Yes	1.2
15 KG	15 Kirk Hill	Roadside	470202	340092	NO ₂	NO	2.0	0.5	No	2.5
RU.RD.	Rugby Road	Roadside	458132	336462	NO ₂	NO	3.5	2.0	No	2.5
2LA	2A Long Acre, Bingham	Roadside	470248	339834	NO ₂	NO	0.0	1.2	No	2.6
Trent B1	Trent Buildings	Roadside	458249	338167	NO ₂	YES (AQMA No 1 Trent Bridge)	0.0	3.6	Yes	2.5
A52/HHF 3	A52 HOLME HOUSE 3	Roadside	463005	338208	NO ₂	YES (AQMA No1/2011 Stragglethorp e Road)	0.0	6.0	Yes	1.2
Mag 1	Magnolia 1, Edwalton	Kerbside	459366	334244	NO ₂	NO	12.9	0.9	No	2.6
Mag 2	Magnolia 2, Edwalton	Kerbside	459324	334227	NO ₂	NO	3.9	1.9	No	2.6
LR 1	Loughborough Road 1	Roadside	458100	337543	NO ₂	YES (AQMA No 1 Trent Bridge)	9.0	2.4	No	2.6

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Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
WL 1	Wilford Lane 1(Centenary)	Kerbside	458055	337566	NO ₂	YES (AQMA No 1 Trent Bridge)	7.0	2.0	No	2.6
NK 1	Nottingham Knight	Kerbside	457612	334859	NO ₂	NO	10.8	2.3	No	2.1
Spa	SPA Ruddington	Kerbside	457303	333214	NO ₂	NO	0.0	2.2	No	2.6
Main St. R	Main street Rempston3	Roadside	457621	324386	NO ₂	NO	30.0	1.6	No	2.6
A52 Bass	A52 Bassingfield	Roadside	461816	337855	NO ₂	NO	2.5	10.0	No	2.5
TB2	Trent Bridge 2	Roadside	458256	338156	NO ₂	YES (AQMA No 1 Trent Bridge)	2.5	3.6	Yes	2.5
CR1	Clifton Road Ruddington	Roadside	457262	333336	NO ₂	NO	2.8	1.7	No	2.5

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
Trent Bridge	458256	338156	Roadside		99.5	37	27	29	28	26
A52 Holme House	463005	338208	Roadside		89.6	41	31	33	35	23

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

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

Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
WLR/2	457873	337426	Roadside		100.0	26.3	17.3	18.8	16.3	16.5
A52/SA	465929	339543	Roadside		92.3	27.6	19.8	21.3	17.3	17.9
CL	457223	335033	Roadside		92.3	28.5	20.5	20.8	19.4	18.5
HR	458326	336714	Urban Background		92.3	21.0	14.2	14.4	14.0	13.7
LR	458126	337727	Roadside		100.0	27.0	21.4	23.3	20.2	20.2
A52/RT	464644	338730	Roadside		92.3	27.3	21.5	21.7	18.7	19.3
Radcliffe Road	458284	338150	Roadside		82.7	29.8	23.9	24.5	22.2	21.9
TBLA	458752	338278	Roadside		92.3	31.4	23.4	24.8	22.3	21.7
TBLB	458756	338267	Roadside		73.1	32.7	23.2	26.5	20.6	29.9
TBI	458274	338117	Roadside		90.4	39.3	28.1	30.3	27.9	26.7
WL3	458134	337581	Roadside		100.0	33.8	25.4	25.5	24.2	24.2
Windy Ways	457651	334840	Roadside		100.0	36.2	27.6	30.7	30.0	29.9

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Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
A52/HHF1	463011	338213	Roadside		100.0	37.4	24.3	27.4	25.5	24.8
A52/HH 2	463040	338232	Roadside		84.6	38.1	26.9	29.1	25.4	22.3
15 KG	470202	340092	Roadside		100.0	23.8	17.8	19.2	16.1	16.5
RU.RD.	458132	336462	Roadside		100.0	28.4	19.3	20.8	19.9	19.4
2LA	470248	339834	Roadside		100.0	30.9	23.3	23.6	21.3	21.5
Trent B1	458249	338167	Roadside		92.3	37.3	26.6	29.3	26.6	25.6
A52/HHF3	463005	338208	Roadside		75.0					23.4
Mag 1	459366	334244	Kerbside		100.0	28.3	20.3	21.0	19.4	18.4
Mag 2	459324	334227	Kerbside		100.0	28.3	19.0	20.1	19.4	19.1
LR 1	458100	337543	Roadside		100.0	30.3	25.2	25.7	22.6	23.6
WL 1	458055	337566	Kerbside		100.0	32.6	25.5	28.4	24.9	24.6
NK 1	457612	334859	Kerbside		100.0	40.1	28.1	27.2	29.5	28.4
Spa	457303	333214	Kerbside		100.0	30.4	21.1	24.2	24.0	21.7
Main St. R	457621	324386	Roadside		90.4			16.4	18.1	15.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
A52 Bass	461816	337855	Roadside		84.6			14.6	13.8	14.5
TB2	458256	338156	Roadside		65.4					26.8
CR1	457262	333336	Roadside		100.0				21.1	19.5

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

Diffusion tube data has been bias adjusted.

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations Across all Diffusion Tube Locations Between 2019 and 2023

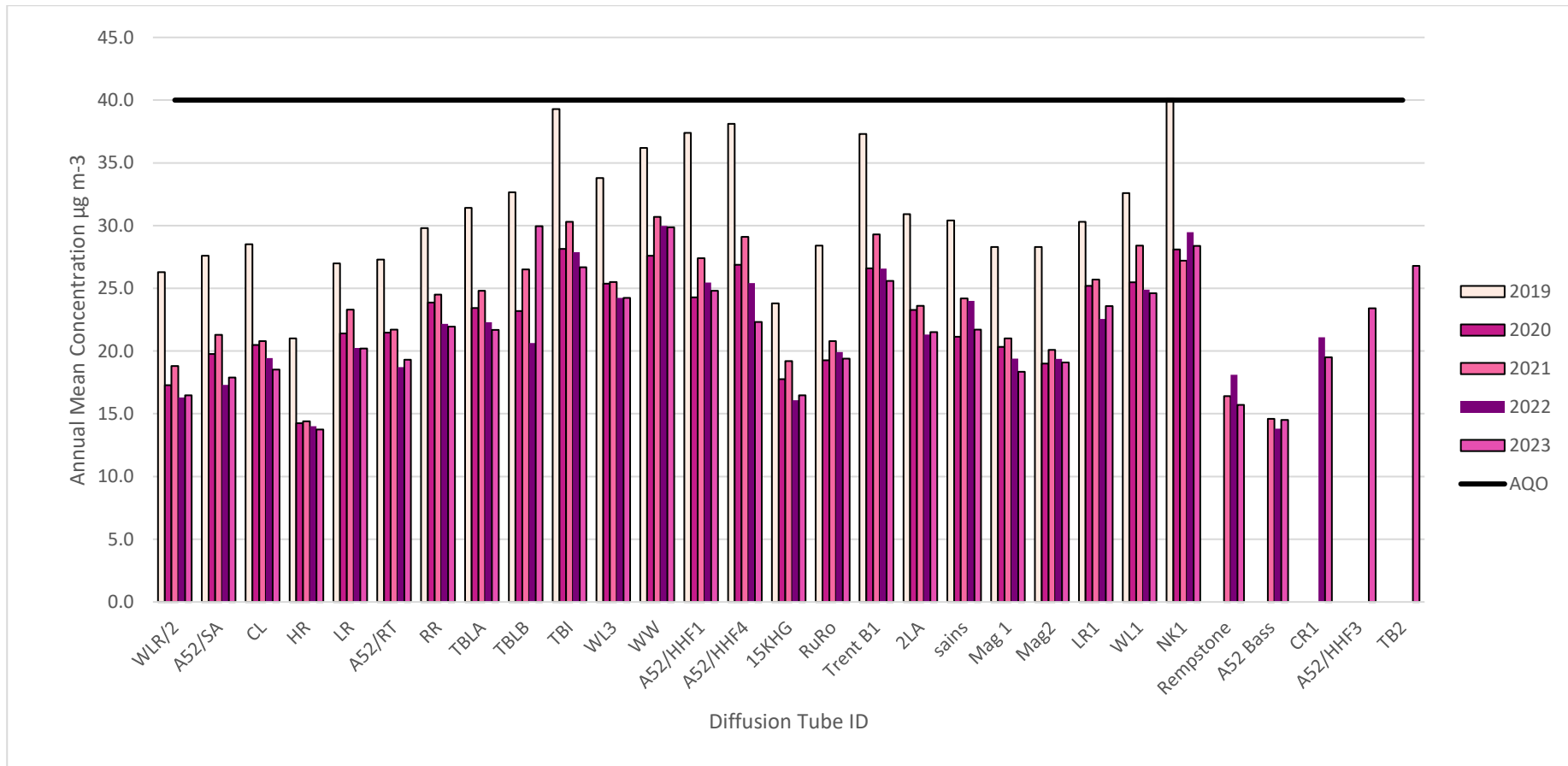


Figure A.2 – Trends in Annual Mean NO₂ Concentrations Across All Locations (Continuous & Passive) in AQMA No 1 Trent Bridge between 2019 and 2023

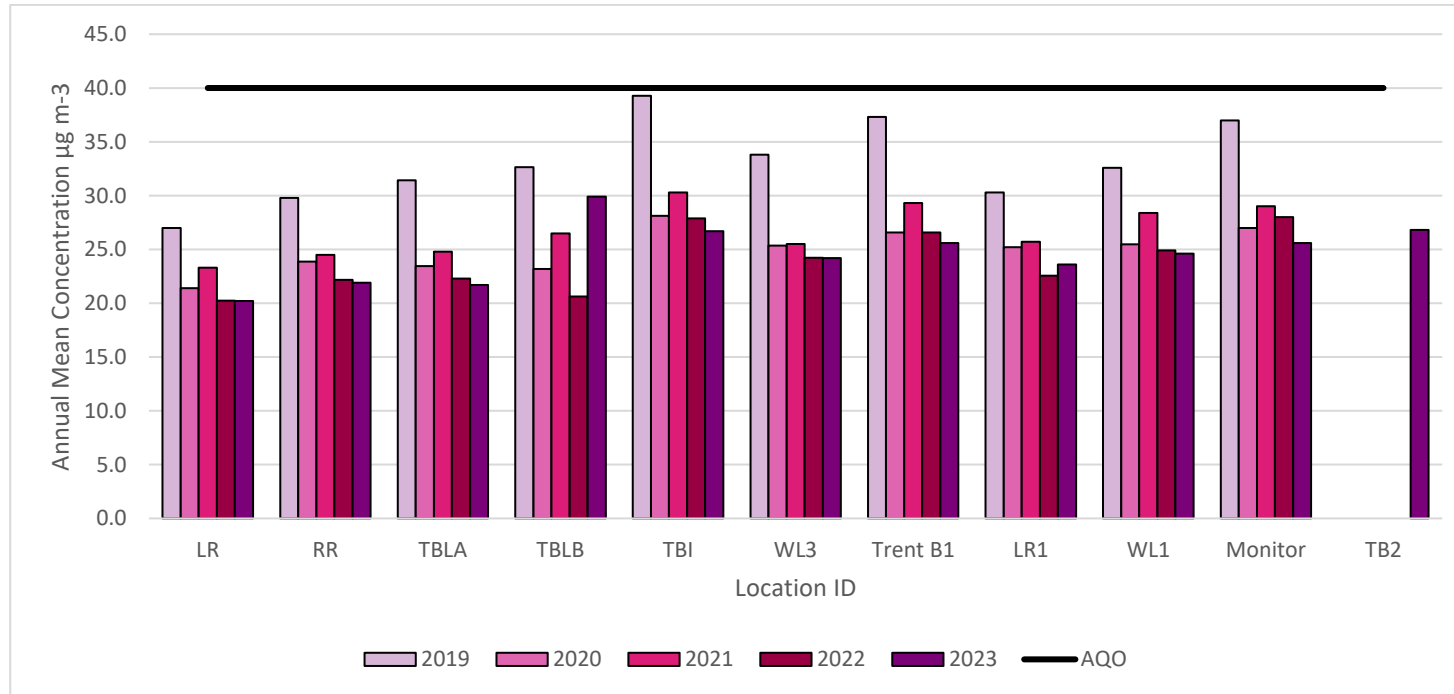


Figure A.3 – Trends in Annual Mean NO₂ Concentrations Across All Locations (Continuous & Passive) in AQMA No 1/2011 Stragglethorpe Road between 2019 and 2023

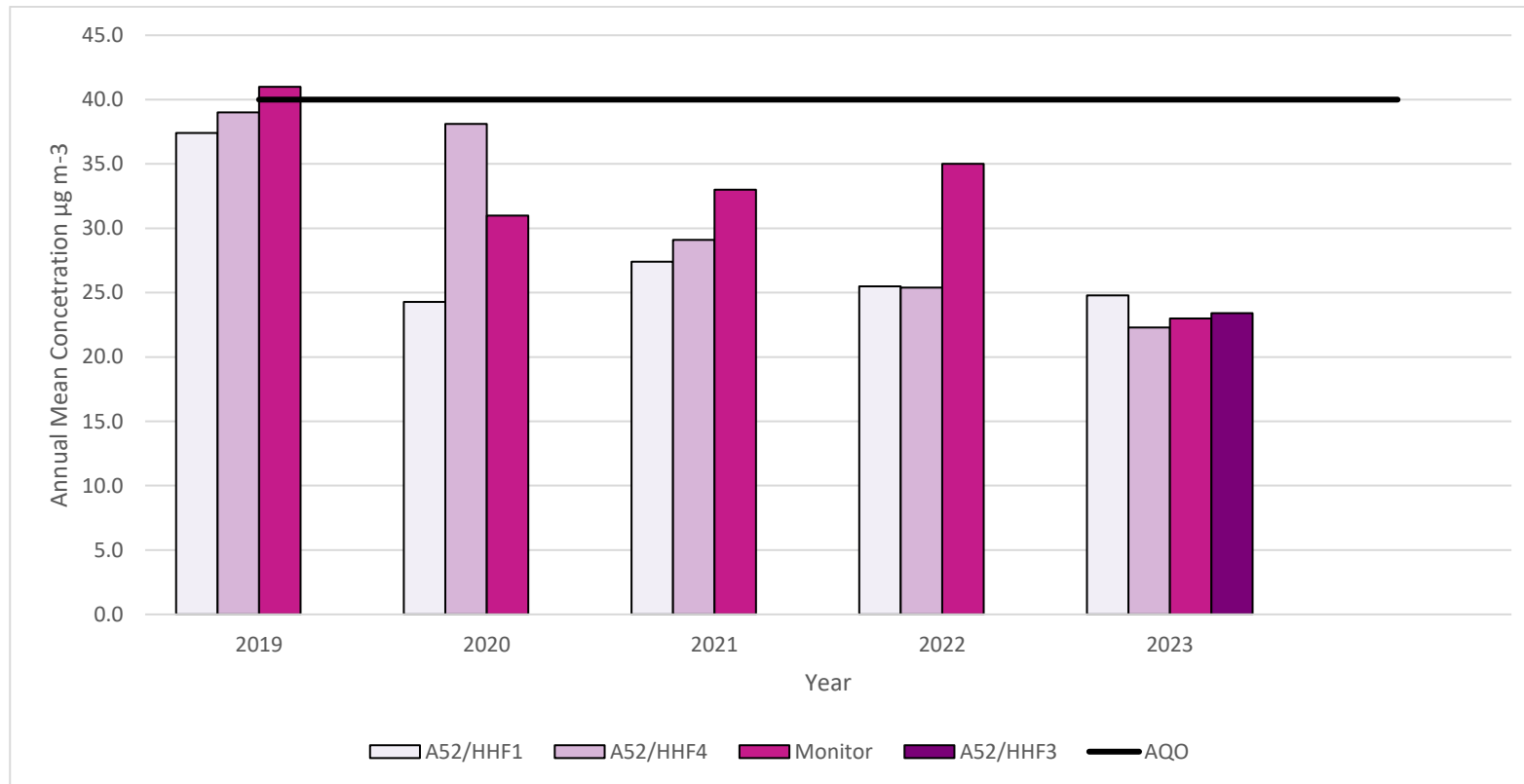


Figure A.4 – Trends in Annual Mean NO₂ Concentrations Across All Diffusion Tube Locations not in an AQMA between 2019 and 2023

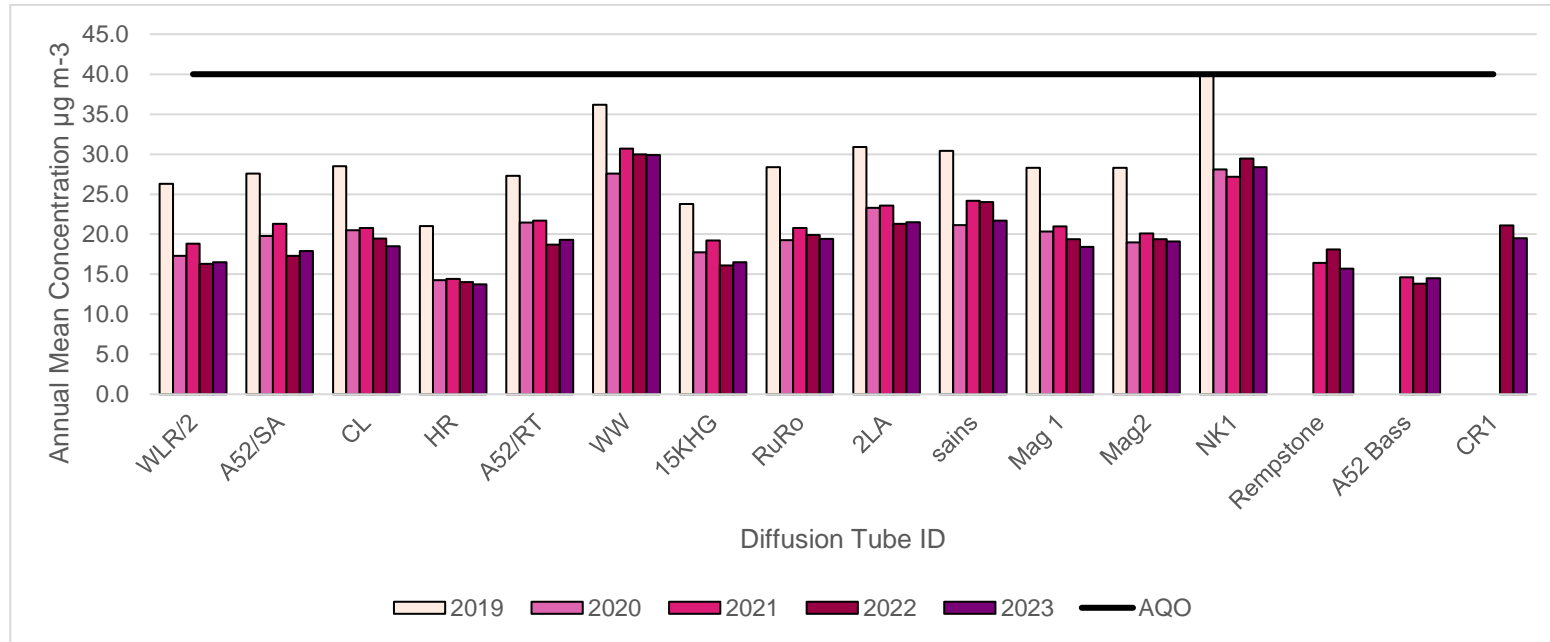


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
Trent Bridge	458256	338156	Roadside		99.5	0	0	0	0	0
A52 Holme House	463005	338208	Roadside		89.6	0	0	0	0	0

Notes:

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

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

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2023

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
WLR/2	457873	337426	25.9	25.9	19.5	18.5	17.1	16.1	13.0	17.1	22.1	23.8	26.4	18.9	20.3	16.5	-	
A52/S A	465929	339543	25.9	25.5	21.1	21.5	20.7	19.1	19.9	20.1		24.4	27.5	17.5	22.1	17.9	-	
CL	457223	335033	32.5	31.7	23.0	20.3	16.8	8.7	19.2	21.0		24.3	27.7	26.5	22.9	18.5	-	
HR	458326	336714	24.9	23.3	16.1	12.4	11.8	19.1	9.8	12.0	13.4	18.6	25.3		17.0	13.7	-	
LR	458126	337727	31.3	31.1	25.0	23.0	22.1	18.4	19.6	21.3	25.4	28.2	30.3	23.6	24.9	20.2	-	
A52/R T	464644	338730	28.9	27.0	20.8	20.4	23.1	24.5	16.6	23.2	23.7	26.3	27.8		23.8	19.3	-	
Radcliffe Road	458284	338150	34.4	34.1	28.0	25.1			19.2	23.3	25.8	28.3	30.9	21.9	27.1	21.9	-	
TBLA	458752	338278	34.4	34.2	26.6	23.4	21.7	20.9	23.1	25.3	26.4		31.7	26.8	26.8	21.7	-	
TBLB	458756	338267	43.7	47.3	34.0	32.8	30.7		29.5	35.4	38.2	41.2			37.0	29.9	-	
TBI	458274	338117	37.8	39.8	34.5	32.5	29.5	26.6	29.5	30.1	36.2	35.3		30.7	32.9	26.7	-	
WL3	458134	337581	39.1	40.7	30.5	23.0	23.2	18.7	23.8	25.7	30.1	32.5	40.1	31.5	29.9	24.2	-	
Windy Ways	457651	334840	42.6	43.1	37.9	31.4	37.7	34.2	34.2	32.0	41.7	37.1	36.2	34.4	36.9	29.9	-	
A52/H HF1	463011	338213	35.9	37.3	31.0	28.3	28.6	29.1	27.4	27.4	32.9	28.8	33.0	27.7	30.6	24.8	-	
A52/H H 2	463040	338232		32.9	29.5	30.9	13.4	30.3		26.9	33.4	30.5	24.5	23.5	27.6	22.3	-	
15 KG	470202	340092	27.4	26.0	20.8	17.0	15.8	15.5	16.3	18.0	20.7	22.2	26.0	18.4	20.3	16.5	-	
R.U.R D.	458132	336462	30.4	31.4	24.5	21.8	21.3	17.8	17.6	20.1	23.4	26.5	32.2	19.8	23.9	19.4	-	
2LA	470248	339834	33.4	33.6	26.4	23.8	21.6	20.7	23.8	23.8	26.5	28.9	28.8	28.0	26.6	21.5	-	
Trent B1	458249	338167	33.6	37.3	34.2	31.8	32.7	30.8	22.5	28.1	31.6	33.8	31.7		31.6	25.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
A52/H HF3	463005	338208			32.6	32.9	30.5	32.2	24.9	32.3	33.2	17.1		24.8	28.9	23.4	-	
Mag 1	459366	334244	28.6	28.0	21.9	20.1	19.3	17.0	18.4	20.5	22.5	26.0	28.1	21.6	22.7	18.4	-	
Mag 2	459324	334227	32.0	30.5	22.0	19.8	17.7	17.4	20.0	22.5	24.5	26.0	28.4	22.2	23.6	19.1	-	
LR 1	458100	337543	37.2	42.0	30.9	27.1	29.6	25.7	19.1	21.7	26.1	26.8	36.3	26.9	29.1	23.6	-	
WL 1	458055	337566	35.5	35.3	29.3	28.7	28.6	27.6	25.6	27.8	34.3	33.2	29.7	28.7	30.4	24.6	-	
NK 1	457612	334859	39.8	42.6	32.9	36.3	30.1	29.3	32.8	34.3	38.3	36.7	34.5	33.0	35.0	28.4	-	
Spa	457303	333214	30.8	31.1	27.9	27.0	28.0	26.3	20.1	22.5	28.5	29.3	29.0	21.2	26.8	21.7	-	
Main St. R	457621	324386	21.0	25.9	20.8	18.1	17.4	15.2	17.8	19.2	19.6	23.1		14.6	19.3	15.7	-	
A52 Bass	461816	337855	21.0	22.3	17.0	15.6	31.9	14.2	8.5	12.8	14.1		21.4		17.9	14.5	-	
TB2	458256	338156		36.2		31.0	34.4	31.3	22.1	27.8	31.2			20.9	29.4	26.8	-	
CR1	457262	333336	33.3	33.0	26.0	21.6	20.2	14.2	20.1	19.6	25.1	25.7	30.1	20.7	24.1	19.5	-	

All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.

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

Local bias adjustment factor used.

National bias adjustment factor used.

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

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

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Rushcliffe Borough Council During 2023

Rushcliffe Borough Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Rushcliffe Borough Council During 2023

Rushcliffe Borough Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

All monitoring and data management is undertaken by fully trained in-house employees who have several years' experience in air quality monitoring and data management. Any new personnel undertake appropriate supervised training in line with the Service's competency scheme prior to any unsupervised monitoring, calibration or data management. Currently two personnel are trained and competent to undertake such work.

The location of the diffusion tube monitoring sites is reviewed periodically (at least annually). Locations may be removed where for example data indicates annual mean concentrations are consistently well below the Air Quality Objective; and new locations may be added where potential new sources have been identified or concerns have been raised by the public.

Nitrogen Dioxide Diffusion Tube Monitoring

Rushcliffe Borough Council use Gradko diffusion tubes prepared using 20% Triethanolamine (TEA) in water to measure nitrogen dioxide at the passive monitoring sites across the Borough. The diffusion tubes are stored in an airtight bag in a refrigerator upon receipt in the post and are used within 6 weeks of the preparation date displayed on the label.

Tube batches are exposed at selected sites to the atmosphere for approximately 4 weeks with the changeover date aiming to be +/-one day of the published diffusion tube change over date for the month to allow comparison with other Local Authority studies if necessary. All tubes are mounted using spacer brackets and grommets supplied by Gradko.

Each tube is labelled with a bar code and unique identification number. Each batch is supplied with a data collection form to record the location, date and time each tube is exposed in that period. The exposure period is calculated using an Excel spreadsheet and in addition Gradko recheck the calculated exposure period for each tube on receipt at the laboratory.

On the day of collection, the tubes are sent in an airtight bag to Gradko International Limited for analysis, together with a control blank that is stored unexposed in the sample fridge. The diffusion tubes are analysed within the scope of Gradko International Limited Laboratory Quality Procedures utilising in-house Laboratory Method GLM7. Gradko is a UKAS accredited laboratory and undertakes diffusion tube monitoring and analyses on the same basis for a number of other local authorities and environmental consultants. All local authorities in the Nottinghamshire Pollution Working Group use Gradko for their diffusion tube monitoring and analyses.

Nitrogen dioxide absorbed as nitrite by TEA is determined by spectrophotometric measurement at 540nanometres. Nitrite reacts with the added reagent to form a reddish-purple azo dye and the optical density of this complex is measured using Camspec UV/Visible Spectrophotometer. The concentrations of nitrogen dioxide are then calculated from a pre-calibrated response factor and exposure times. The values are blank corrected using the blank 'control' diffusion tube provided by Rushcliffe Borough Council.

The accuracy of the measurements made by Gradko are monitored by participation in an external laboratory measurement proficiency scheme, the Workplace Analysis Scheme for Proficiency (WASP), implemented by the Health and Safety Laboratory in Sheffield. The results of the most recent WASP analysis are available [LAQM - Diffusion Tube QA/QC Framework](#).

All diffusion tube data is checked on a monthly basis to identify any spurious data and compared with other local monitoring sites to further identify any suspect data.

The 2023 monitoring was completed in accordance with the 2023 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. Therefore, based on this criteria annualisation was required for two diffusion tube locations in 2023 – TBLB which had 9 months of data (73.1% data capture) and TB2 which had 8 months of data (65.4% data capture). Annualisation was undertaken using the Diffusion Tube Data Processing Tool. The nearest continuous background sites were Nottingham Centre (Defra UK-AIR ID: UKA00274), Leicester University (Defra UK-AIR ID: UKA00573) and Burton on Trent Horninglow (Defra UK-AIR ID: UKA00652) each of which had data capture greater than 85% for 2023. In 2022 we used data from the Derby St Alkmund's Way (Defra UK-AIR ID: UKA00630) site for annualisation purposes. However, as the data capture at this location was less than the required 85% in 2023 it could not be used and Burton on Trent Horninglow (Defra UK-AIR ID: UKA00652) was used instead. The annualisation tool calculated average annualisation factors of 1.01 for location TBLB and 1.16 for location TB2 which were used to adjust the raw data simple annual mean at these locations.

Table C.1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Site ID	Annualisation Factor Nottingham Centre	Annualisation Factor Leicester University	Annualisation Factor Burton on Trent Horninglow	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
TBLB	1.0219	0.9963	1.0103	-	1.0095	37.0	-
TB2	1.0949	1.1356	1.1563	-	1.1289	29.4	33.1

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Rushcliffe Borough Council have applied a national bias adjustment factor of **0.81** to the 2023 monitoring data. This was derived from the national database of bias factors (Database_Diffusion_Tube_Bias_Factors_v03_24-FINAL) for Gradko tubes, 20% TEA in water and based on 23 studies.

A summary of bias adjustment factors used by Rushcliffe Borough Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.81
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	03/21 v2	0.81
2019	National	03/20	0.93

NO₂ Fall-off with Distance from the Road

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

No diffusion tube NO₂ monitoring locations within Rushcliffe Borough Council required distance correction during 2022.

QA/QC of Automatic Monitoring

The NO₂ continuous monitor within AQMA No 1 Trent Bridge is located at the junction of Radcliffe Road and Loughborough Road, West Bridgford and is a permanent site. It was installed at this location in 2017 and is a ML9841B single chamber chemiluminescence analyser and is approved by TUV, USEPA and NETCEN. Within AQMA No 1/2011 Stragglethorpe Road a chemiluminescence analyser was installed adjacent to the dwelling façade in a Kaizen enclosure in early 2014.

The analysers have a resolution of 0.001ppm and a reported lower detection limit of <0.5ppb. The linearity error of the analyser is +/-1% of the full scale (from best line fit), and the precision is 0.5ppb or 1% of concentration reading (whichever is greater).

Instrument Checks and Calibration

Daily automated calibration: Zero air is generated by passing air through the scrubbers and the reaction cell. Span gas is generated by a permeation tube and passed to the reaction chamber to give the span calibration response. The daily automatic calibrations are used to check the instrument performance and drift.

Analyser Inspection and Manual Calibration: The analysers are covered by an annual service and maintenance contract to include calibration checks, flow and leak checks, cleaning of components, analyser diagnostic checks, replacement of faulty components and consumables and fault call-out.

Manual calibration checks are carried out by Rushcliffe Borough Council staff on a fortnightly basis using scrubbed zero air derived from the integrated scrubber column and a certified NO/NO_x calibration gas is supplied by BOC gases. The BOC gas is changed when the certification expires. The analyser is taken out of service and the inlet filter changed prior to connecting the calibration gases. The zero air and NO/NO_x gases are run through the analyser and the response times noted together with the instrument gain factor. The output of the analyser (e.g. the gain) is only reset or altered following equipment service or repair or if drift occurs necessitating a change of the gain setting. The calibration zero values, span values and gas certified values are used to rescale the raw data received from the analyser.

Validation: all data are continuously screened algorithmically and manually for anomalies. There are several techniques designed to discover spurious and unusual measurements within large datasets. These anomalies may be due to equipment failure, power failure, human error, interference or other disturbances. Automatic screening can only safely identify spurious results that need further manual investigation.

Raw data from the gaseous instruments are scaled into concentrations using the latest values derived from the automatic and manual calibrations. These instruments are not absolute and suffer drifts. Both the zero baseline and the sensitivity may change over time. Regular calibrations with certified gas standards are used to measure the zero and sensitivity. However, these are only valid for the moment of the calibration since the instrument will continue to drift.

Data Ratification

All raw data is examined for consistency and the existence of any spurious results. Negative values are examined and either removed or rescaled further and high values interrogated to see if the readings are consistent with expectations or an equipment error may have occurred. Data obtained during calibration checks is automatically excluded from the database by a software service switch on the instrument panel which is used during calibration checks.

If any doubts exist as to the satisfactory status of any data, it is excluded from the database calculations. The reason for exclusion of a dataset is annotated against it to allow for traceability and data ratification. The most common reason for exclusion is monitor breakdown leading to consistently high or low readings. However, a power failure can also be a cause as can specific events noted by Officers during visits e.g. trucks/equipment in operation next to the monitor for building façade maintenance or similar.

Information from other analysers on the system can also be accessed to compare any data that may be experiencing high or low readings to enable a decision to be made on the status of any highlighted data. This includes the Automatic Urban and Rural Network (AURN) monitors operated by Nottingham City Council.

Air Quality Data Management (AQDM) prepare a monthly monitoring report of provisional measurements for the Rushcliffe and Nottingham network and every quarter the available information is critically assessed so that the best data scaling is applied, and all anomalies are appropriately edited. Although this quarterly data processing helps build a reliable dataset as unexpected faults can be identified during the routine servicing or independent audits the data can only be fully ratified in 12 month or annual periods. Data ratification is undertaken by AQDM to LAQM (TG16) standards using the AURN methodology and reported for each of the two continuous monitors. The data presented in this ASR has been ratified.

Historic and live data for Rushcliffe Borough Council is available to view via the [UK AIR](#) website.

Automatic Monitoring Annualisation

All automatic monitoring locations within Rushcliffe Borough Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

The NO₂ annual data capture for the continuous monitor located in AQMA No 1 Trent Bridge was 99.5% and 89.6% for the continuous monitor located in AQMA No1/2011 Stragglethorpe Road.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO₂ concentrations corrected for distance are presented in Table A.3.

No automatic NO₂ monitoring locations within Rushcliffe Borough Council required distance correction during 2023.

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

Figure D.1 – Map showing the Borough wide diffusion tube network

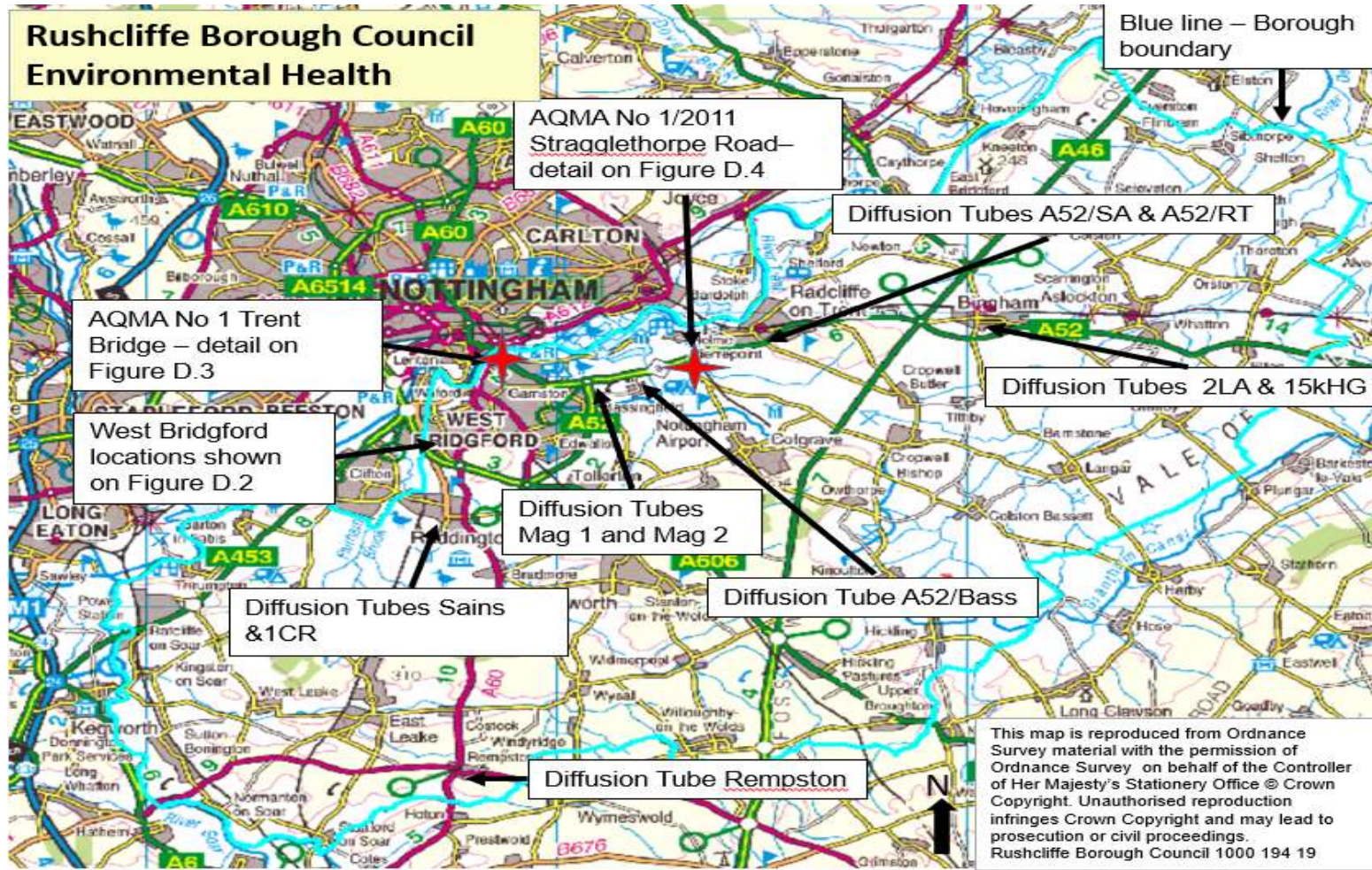


Figure D.2 – Map showing the diffusion tube network across West Bridgford

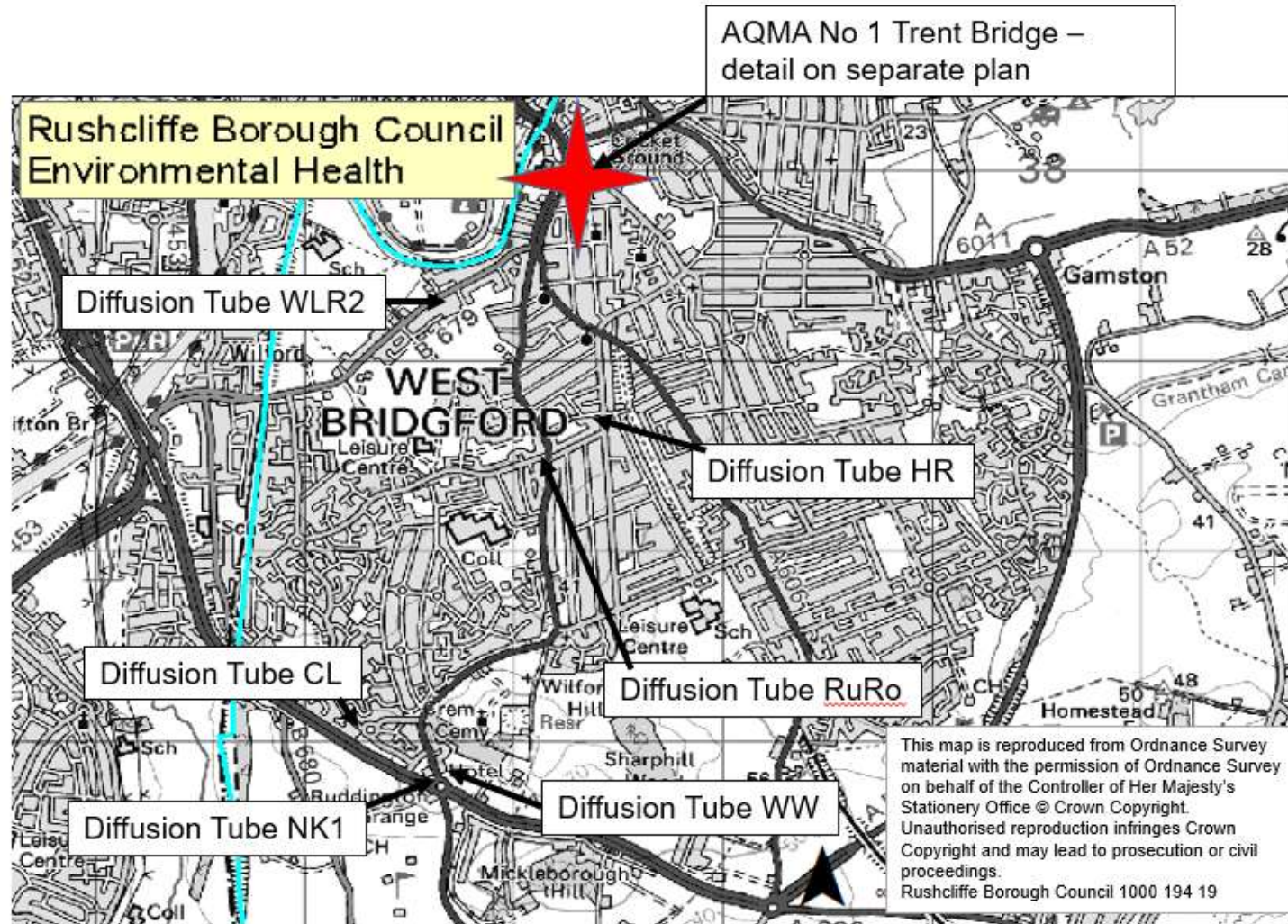


Figure D.3 – Map showing location of AQMA No 1 Trent Bridge and continuous monitor and diffusion tube locations

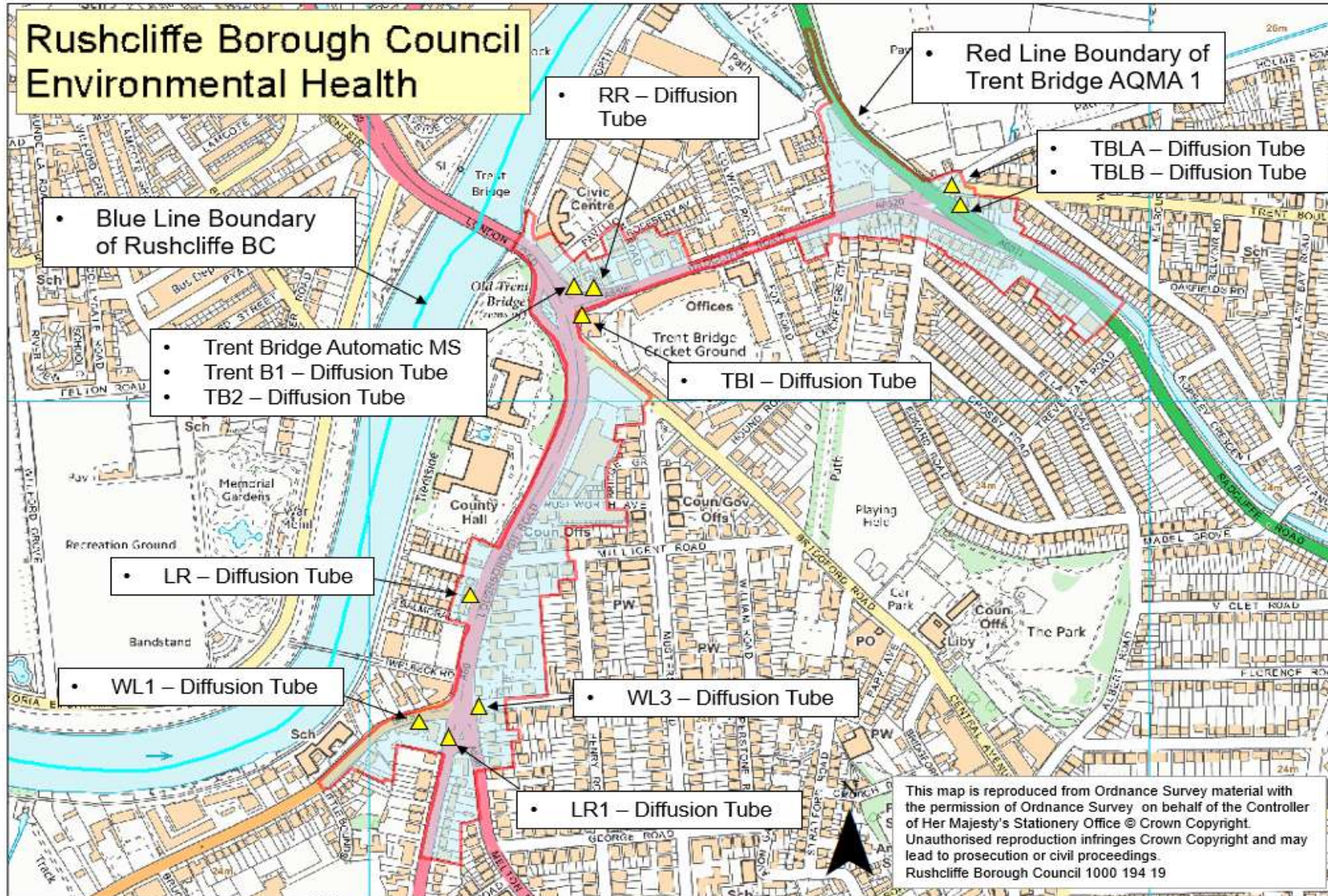
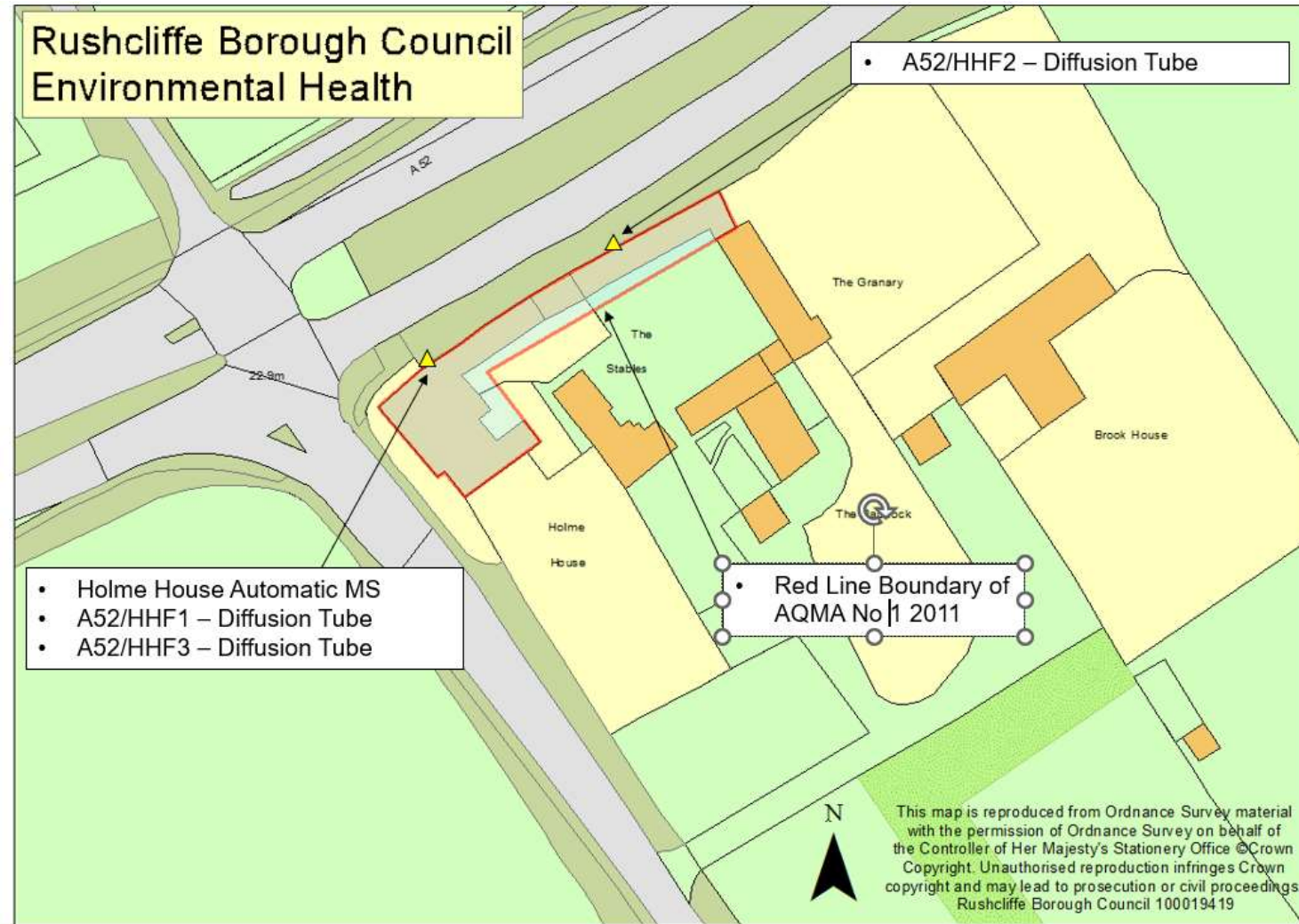


Figure D.4 – Map of AQMA No 1/2011 Stragglethorpe Road showing continuous monitor and diffusion tube locations



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England²¹

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

²¹ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQDM	Air Quality Data Management - the company that collects and processes Rushcliffe Borough Council's continuous monitor air quality data
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	Annual Status Report
ATP	Active Travel Fund
AURN	Automatic Urban and Rural Network - The AURN is the UK's largest automatic monitoring network and is the main network used for compliance reporting against the Ambient Air Quality Directives.
BSIP	Bus Service Implementation Plans
D2N2	Local Enterprise Network area covering Derby, Derbyshire, Nottingham and Nottinghamshire
D2N2 LEAP	D2N2 Local Energy Area Plan
D2N2 LEP	D2N2 Local Enterprise Partnership
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EMCCA	East Midlands Combined County Authority
ERDF	European Regional Development Fund
EU	European Union
EV	Electric Vehicle
EVCC	Electric Vehicle Cable Channels
EVCP	Electric Vehicle Charging Points
FDMS	Filter Dynamics Measurement System
HECC	Health Effects of Climate Change
HVO	Hydrogenated Vegetable Oil

OFFICIAL

Abbreviation	Description
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LEVI	Local Electric Vehicle Infrastructure (Office for Zero Emissions Vehicles) - Fund supports local authorities in England to plan and deliver chargepoint infrastructure for residents without off-street parking
LPG	Liquified Petroleum Gas
LTP	Local Transport Plan (Nottinghamshire County Council)
NCC	Nottinghamshire County Council
NCiC	Nottingham City Council
NCT	Nottingham City Transport
NEPWG	Nottinghamshire Environmental Protection Working Group
NH	National Highways
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
OHID	Office for Health Improvement and Disparities
OZEV	Office for Zero Emission Vehicles
PHE	Public Health England (now replaced with Office for Health Improvement and Disparities (OHID) and UK Health Security Agency (UKHSA))
PHOF	Public Health Outcomes Framework
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
RBC	Rushcliffe Borough Council
REGO	Renewable Energy Guarantee of Origin
SO ₂	Sulphur Dioxide
UKHSA	United Kingdom Health Security Agency (formerly known as Public Health England)
UKSPF	United Kingdom Shared Prosperity Fund (Department of Levelling Up, Housing & Communities)
ULEV	Ultra Low Emission Vehicles
ZEBRA	Zero Emission Bus Regional Areas

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