2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

October 2021

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Executive Summary: Air Quality in Our Area

Air Quality in North Hertfordshire

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

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Air quality monitoring during 2020 has been significantly affected by the impact of the Covid-19 pandemic. Due to the lockdown restrictions, with enforced home working and reduced ability to travel, road traffic levels and traffic emissions have reduced, leading to significant reductions in air pollution and improved air quality. Summary road traffic data for Hertfordshire from the Department for Transport (DfT) show annual reductions in all motor vehicle traffic for 2020 by more than 20%, to levels lower than measured for over the last 25 years. Until it is clear what are the new normal traffic levels post-pandemic, the final review of the status of the AQMAs is not possible, thus final decisions on the review of the AQMAs will not be considered before 2023. This time frame will also enable the Inspector on the North Herts Local Plan to issue his final report and for the Council to come to a decision with regard the adoption of a Local Plan. This together with Stevenage's adopted Local Plan will enable a view to be taken as to the impact of future significant housing developments which will impact upon the two AQMAs.

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[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

Historically there have been two areas where pollution concentrations for nitrogen dioxide, close to busy road junctions in Hitchin have exceeded air quality objectives, resulting in declarations of Air Quality Management Areas on Stevenage Road (AQMA 2012) and Payne's Park Roundabout (AQMA 2017), both along the A602.

The latest, (post-pandemic) trends from long term monitoring sites show significant improvements in air quality at most monitoring sites. For the Stevenage Road AQMA, close examination of monitoring results highlights that pollution levels closest to the Hitchin Hill Roundabout have now fallen below objective levels, and results over the last 4 years, when corrected for relevant exposure are all below objective levels. For the Payne's Park AQMA there is a single monitoring site (NH93) within the AQMA, that remains above objective levels when corrected for relevant exposure, (for data to 2019, no data for 2020)

In summary: from results of monitoring data corrected for relevant exposure shows the following:

Stevenage Road AQMA

- No results above objectives for 4 years in succession (2020,2019, 2018,2017).
- No results within 10% of objective levels in the last three years (2020, 2019, 2018)

Payne's Park AQMA (Incomplete data for 2020)

- Two years with results above objectives in last 4 years (2018, 2017)
- Last 4 years with results within 10% of objective levels (2020,2019,2018,2017)

In summary these results suggest the following in relation to the continued status of these AQMAs.

Stevenage Road AQMA

- Continue monitoring in 2021 and 2022, and if no results within 10% of objectives, then recommend this AQMA should be revoked.

Payne's Park AQMA

- Retain the current AQMA. Continue monitoring during 2021-2, until all results are consistently below 90% of the objective level, before recommending revocation of the AQMA.

For Both AQMA sites

Review of monitoring locations within and close to each AQMA to provide evidence to review status of each AQMA.

Emissions from road transport along the A602 have been responsible for designation of both these AQMAs.

The locations of the AQMAs can be found in Appendix D, the formal designations can be found at http://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire and the AQMAs are also included within the national list of AQMAs that can be found at http://uk-air.defra.gov.uk/aqma/list.

As a result of the designation of the 2017 AQMA, NHDC consulted on and published a joint Action Plan to identify measures that can be taken to attempt to reduce emissions of nitrogen dioxide and improve air quality at both AQMAs.

The joint Action Plan can be found at http://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire and it is reviewed in Section 2 of this report.

The improvements in air quality reflected in the monitoring results at both AQMAs, are clearly a combined result of policies operating at a national, regional, and local levels. The reduction in levels of road traffic attributed to the pandemic, show a marked impact on the most recent monitoring results. This is in addition to specific measures developed in the joint Action Plan that have contributed to reductions in emissions from road transport, resulting in the improvements in local air quality now being recorded.

The continued status of both AQMAs for the next two years, highlights the need for continued action to support measures that contribute to improving air quality in AQMA hotspots and maintaining air quality below objective levels in all other areas.

Measures to reduce emissions to atmosphere are addressed by policies that are developed to tackle climate change, as well as air pollution. Transport Policies that control congestion at pollution hotspots on urban roads closest to housing are also significant.

Councillors at North Hertfordshire District Council (NHDC) approved a new Climate Change Strategy and action plan to help tackle climate change in the district, at a Cabinet meeting on 28 January 2019.

The new Strategy builds upon the passing of a Climate Emergency motion by the Council in May 2019, where the Council pledged to do everything within its power to achieve net zero carbon emissions in North Hertfordshire by 2030, one of the five objectives in the Council Plan 2020-2025.

The Council has agreed to:

- **Reduce the Council's carbon footprint** – including purchasing energy from renewable sources, consider the use of Ultra Low Emission Vehicles for all future operational vehicles, and minimising waste from Council activity.
- **Improve leadership in the fight against climate change in the district** – including installing additional electric vehicle charging points in Council car parks, holding more frequent Waste Electric, Electronic Equipment recycling events, and increasing local awareness of how to reduce, reuse and recycle plastic waste.
- **Work closely with partner organisations to tackle climate change in North Herts** – including supporting and engaging local community groups that address climate change, agreeing a plan to eliminate single use plastics from our Leisure Centres and swimming pools, and working with cycling groups to promote cycling as a means of transport.

NHDC has already actioned the following since passing its Climate Emergency motion last year:

- **Introduction of subsidised licensing fees for hackney carriages and private hire vehicles that use clean fuel.**
- **Approval of a Council motion to promote renewable energy and support the Government's Local Electricity Bill which if made law, would make the set up and running costs of selling local electricity to local customers affordable.**
- **Conversion of floodlighting on Norton Common in Letchworth from halogen to LED lighting, which will cut energy use by 50%.**
- **Launched a Plastic Free North Herts Campaign and helped promote businesses in the district who have achieved a plastic free status.**

Thus, measures to address climate change can be considered in tandem with measures to address air pollution, and vice-versa.

Full details of the actions the Council has taken to date, and measures it proposes to take are presented in the Council Plan and NHDC Cabinet approved proposals.

The measures in the Council plan and proposals that are particularly relevant in terms of addressing emissions from road transport include:

- **Consider all future operational vehicles leased or purchased by the council are Ultra Low Emission Vehicles and encourage contractors to adopt similar measures**

- **Installing additional electric vehicle charging points in council car parks to ensure that every car park has charging points in at least 5% of spaces, with a minimum of two spaces per car park.**
- **Installation of on street electric vehicle charging points in on street parking bays in town centres (in agreement with the County Council).**
- **Work with cycling groups to produce a cycling plan to promote cycling, including the use of electric bicycles, as a means of transport and identify simple to remove barriers.**

As reported in the 2019 ASR, NHDC continues to work closely with a number of key partnerships, including:

- Hertfordshire County Council, Transport Planning, Public Health, and Electric Vehicle and Future Transport Group.
- Herts & Bedfordshire Air Quality Forum
- NHDC Officers for Strategic Planning, Transport Planning, and Development Management.

The challenges to maintaining reduced levels of air pollution remain as previously reported, notably increased traffic related to housing and related infrastructure growth, and the potential growth in traffic that would be stimulated by the proposed expansion to Luton Airport to the south-west of the district.

During the last year NHDC have been engaged in making responses to the Secretary of State regarding the potential impacts of the proposed Luton Airport expansion.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through several mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Actions to improve air quality can be linked to measures developed to combat climate change. In May 2019 North Herts District Council declared a climate emergency and committed to take action to address the causes of climate change across the district. The Council pledged to do everything within its power to reduce carbon emissions from its own operations to a carbon neutral position by 2030. The Council's updated Climate Change Strategy 2021-26 sets out the actions that the Council will take to achieve this goal and states our/their objectives of achieving a net zero carbon district by 2040 and of becoming a district which is resilient to the unavoidable impacts of climate change. The Council has recently completed a feasibility study in relation to the procurement of EV charging Infrastructure in North Hertfordshire. Alongside a developing strategy for EV infrastructure on a County-wide basis, these initiatives are expected to provide the basis for the ongoing expansion of EV charging infrastructure.

As part of the Council's emerging Local Plan 2011-2031, NHDC published an accompanying Transport Strategy in 2017, with the stated aim of focusing on the potential for solutions and mitigations to better reflect the new sustainable transport priorities, which is further reflected in HCC's LTP4[i]. This includes a commitment to a transport user hierarchy, which seeks to prioritise active and sustainable modes of travel.

[5] Defra. Clean Air Strategy, 2019

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

Transport is recognised as one of largest contributors of Greenhouse Gases; as such, if the Council is to realise its aim of net zero carbon emissions across the district by 2040, then encouraging modal shift by residents in the District from private vehicles to greener modes will be required. In addition, as part of reaching the target of net zero carbon emissions from its own operations by 2030, the Council should consider the opportunities to transition its fleet from ICE to EV vehicles and other alternatives where possible, thereby setting a positive example. Within this context it is proposed that NHDC, working with partners will seek to provide a range of initiatives to provide residents with realistic options for undertaking day-to-day travel, such that they offer a genuine and attractive choice instead of using the car, under the banner of 'Sustainable North Hertfordshire'.

The updated Climate Change Strategy has three strategic priorities under which actions sit. These are:

Taking Action – taking direct actions to reduce the Council's carbon emissions.

Enabling Carbon Savings – ensuring that our policies enable citizens and businesses to reduce their emissions.

Inspiring the Community – encouraging citizens and businesses to go further and faster in cutting carbon emissions.

Actions that were progressed or achieved in 2020 and which relate to transport emissions and air quality include:

● Approval of changes to the Taxi and Private Hire Licensing Policy, including:

◦ No idling points system introduced to enforce against drivers who do not comply.

◦ Restricted use taxi ranks - when the infrastructure is in place, it is intended to restrict use of prime location taxi ranks to environmentally friendly vehicles.

◦ Require all new and replaced vehicles from 2028 to be ultralow emission vehicles.

● Engaged a consultant to help identify the Council's current carbon footprint (including Council fleet and the fleet of our key contractors).

● The Council's Community Safety Team replaced their vehicles with new, hybrid, Ultra Low Emission Vehicles

● Regular Transport Forum meetings now taking place to engage with the local community about public transport.

● Carried out a consultation to inform the development of an Electric Vehicle Strategy and now looking at options for electric vehicle charging infrastructure.

● Committed to using the Section 106 Sustainable Transport Funds the Council holds for measures that encourage cycling and walking as well as public transport.

● Made a successful submission for Hitchin to be part of the Intalink Feasibility studies. This is a collaboration between Hertfordshire County Council, bus rail operators, District and Borough councils in order to improve the bus network and user experience. This will see bus priority measures in Hitchin from 2022-2023.

● Letchworth Garden City and Royston have been approved for inclusion in the first round of the Sustainable Travel Towns Programme.

● Worked with Hertfordshire County Council to deliver new cycle stands in the district as part of the Department for Transport Emergency Active Travel Fund.

● The Council is working with Hertfordshire County Council to develop a Local Cycling and Walking Infrastructure Plan (LCWIP). The development of a LCWIP for the North Hertfordshire area commenced in December 2020 and is forecast for completion in early 2022. The LCWIP will be focusing on the five key urban centres of Hitchin, Letchworth Garden City, Baldock, Knebworth and Royston as well as the key corridors and feeder routes both within the settlements and between the neighbouring local authorities of Central Bedfordshire, Luton, Stevenage, Welwyn-Hatfield and Cambridgeshire.

The Climate Change Strategy also has the following proposed actions due for delivery between 2021 and 2026 which relate to transport emissions and air quality:

● In accordance with the Council's 2019 resolution, continue replacing all future operational vehicles leased or purchased by the Council with Ultra Low Emission Vehicles (ULEVs) or zero emission vehicles until the last non-ULEV vehicle leases expire (2022); and encourage contractors to adopt similar measures

● Begin transitioning to zero emission council vehicles as leases come up for expiry from 2025

● Reduce staff and Councillor business travel through use of Zoom and similar technologies as much as possible

● Reduce staff commuting through home working as much as practical

● Explore opportunities around low-emission refuse freighters

● Explore the creation of a 5-Year Plan to reduce emissions from the waste fleet

● As part of the ‘Sustainable North Hertfordshire’ programme, work to develop and support policies that encourage electric vehicle use and other ‘cleaner air’ initiatives across the district, including:

◦ Providing more electric car charging facilities in our car parks

◦ Exploring the possibility of making it cheaper for zero emission vehicles to use Council car parks

◦ Working with Hertfordshire County Council to improve the provision of on-street Electric Vehicle (EV) charging

◦ Exploring the opportunities for a holistic approach to a town-wide Electric Vehicle strategy which will include all users and operators, both public and private

◦ Working with other public and private entities/partners to improve provision of EV charging

◦ Progressing the implementation of a better cycle network in North Herts, linking the district and beyond

◦ Working with the relevant portfolio holders to prepare an annual Electric Vehicle Action Plan

● Further to the requirement for all new and replaced taxi vehicles to be ultra-low emissions from 2028, explore how the Council can support transitions to low emission vehicles before this date and to zero emission vehicles when the necessary infrastructure is in place

● Ensure that masterplans and planning applications for new development are designed around streets and routes for active travel (rather than cars) and create walkable neighbourhoods

● Enable residents to assess their carbon emissions, comparing them with the district and best practice

● Encourage residents to make behaviour changes by highlighting positive actions that can be taken, and informing them of more environmentally friendly options

● Encourage alternative models of working to reduce commuting levels across the district

During 2020 NHDC has engaged on the following:

- Prepared and agreed a scoping report setting out how the Council may wish to take forward its approach in the delivery of EV infrastructure within the district. This includes the preparation of an EV charging infrastructure feasibility study for Council owned car parks and engagement with potential suppliers and the County Council on a County-wide EV charging infrastructure strategy.
- With HCC via the Electric Vehicle (EV) Charging and Future Transport Working Group, in relation to future provision of on-street Electric Vehicle Charging Infrastructure
- The Herts & Bedfordshire Air Quality Forum
- The Public Health Board at HCC where a presentation was made on the Air Pollution Notification system to front line health services, highlighting the needs of the most vulnerable.

The NHDC Local Plan is still undergoing examination as reported in the 2020 ASR. The Inspector's report / and close of the examination is due in November 2021. The Local Plan is updating commitments to address climate change within the vision statement which highlights important links with air quality plans to reduce transport emissions, particularly from private transport:

- *The District will play its part in addressing climate change by improving opportunities for travelling by public transport, walking and cycling, using natural resources more efficiently, reducing the demand for water, securing high quality sustainable design and managing the risk of flooding.*

Further links between managing transport emissions and improving air quality are now embedded within the Local Transport Strategy for NHDC, where it states:

- *The focus should be on increasing the use of sustainable modes. A general increase in highway capacity into and through the towns is not recommended, the exception being where junction improvements can reduce AQMA issues without significantly increasing traffic through the town, or where they would have a more strategic function. The focus should instead be on managing the networks, smoothing flows, reducing speeds in the towns and providing better facilities for walking, cycling and buses.*

[Ref: NHDC Transport Strategy Section 5.9[ii]]

Conclusions and Priorities

Air Quality in North Hertfordshire District continues to improve with the two AQMAs at Stevenage Road Hitchin and Payne's Park, both meeting the Air Quality Objectives for the first time. However due, to some loss of local monitoring data, and the uncertain effects of the pandemic on long term traffic levels, no significant conclusion may be drawn at this point. The intention is to review the status of both AQMAs after two more year's monitoring and consider revocation.

As it stands there are no other locations where air quality objectives are being breached within the District, but the challenges of housing and associated growth in infrastructure, and potential for expansion at Luton Airport continue to provide challenges to the management of the local road transport network.

The future priorities for NHDC over the coming year are to continue to deliver sustainable programmes that address both air quality and climate change, particularly in relation to:

- Engaging with key stakeholders throughout NHDC to promote sustainable transport, particularly ULEVs and EVs across the district by promoting measures within Council fleets as an example of good practice
- Delivering a high-profile programme for extending the network of private and public EV charging facilities across the district, following the completion of the Council's EV Strategy
- Providing alternatives to use of private motor vehicles
- Promoting high quality ULEV public transport fleets
- Promoting travel plans and workplace travel plans that prioritise sustainable transport and engage with the public in making smart travel choices.
- Launching the EcoStars programme, designed to promote the uptake of Low Emission vehicles and fleets within local businesses and industry.

Local Engagement and How to get Involved

The potential for the residents and businesses of North Hertfordshire to have a positive impact on air quality is considerable by choosing, where practical, to travel using:

- public transport
- car sharing / car clubs including e-car clubs
- more sustainable private modes of transport (i.e. not petrol or diesel engine vehicles), particularly electric vehicles
- more modern models of petrol and diesel engine vehicles, which emit lower levels of pollution
- walking or cycling

During 2020 the Council has already sought residents' opinions regarding the development of the EV strategy.

Potentially useful sources of further information include:

https://www.goultralow.com/ = Central Government website about low emission vehicles

https://www.zap-map.com/live/ = Locations of EV charging points across UK

http://www.hertsdirect.org/services/transtreets/ltplive/ = HCC Local Transport Plan

In addition, the Hertfordshire and Bedfordshire Air Pollution Notification System is now operational.

By signing up for free at https://www.airqualityengland.co.uk/local-authority/knr-subscription the public are notified in advance of periods of moderate, high or very high air pollution in North Hertfordshire. It is hoped that this will increase awareness and encourage behaviours that have a lower adverse impact on local air quality as well as enabling those that are particularly vulnerable to poor air quality to take measures to avoid or mitigate its negative impacts on their health.

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1 Local Air Quality Management

This report provides an overview of air quality in North Hertfordshire during 2020. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

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 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

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

Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire.

A full list of AQMA in England can be found at https://uk-air.defra.gov.uk/aqma/list.

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

- NO_2 annual mean

The two AQMAs within NHDC are in Hitchin, on sections of the A602.

Stevenage Road AQMA (Declared June 2012)

- We propose to retain this AQMA for at least one more year. We will continue monitoring in 2021-2 and complete a review of monitoring locations. If no results are within 10% of objectives, then we will recommend this AQMA should be revoked.

Payne's Park AQMA (Declared January 2017)

- We propose to retain the current AQMA. Continue monitoring following a review of monitoring locations, until results are consistently below 90% of the objective level.

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	Name and Date of AQAP Publication	Web Link to AQAP
AQMA Stevenage Road	29th June 2012	NO2 Annual Mean	An area encompassing a number of residential properties fronting & located on the south side of Stevenage Road (A602)	NO	41.8µg/m^3	37ug/m^3	Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMAs Jan-18	https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire
AQMA	9th January 2017	NO2 Annual Mean	An area encompassing one residential property fronting & located on the west side of Park Way (A602) at the Payne's Park roundabout	NO	44.5µg/m^3	24.5ug/m^3**	Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMAs Jan-18	https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire

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

☒ **NHDC confirm that all current AQAPs have been submitted to Defra**

** Some Diffusion tube results missing used to ratify this AQMA

Progress and Impact of Measures to address Air Quality in North Hertfordshire

Defra's appraisal of last year's ASR concluded the conclusions reached are acceptable for all sources and pollutants. Following the completion of this report, North Hertfordshire District Council should submit an Annual Status Report in 2021.

There were no significant comments recorded, requiring further attention.

NHDC has taken forward several direct measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 23 measures are included within Table 2.2, with the type of measure and the progress North Hertfordshire District Council have made during the reporting year of 2020 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 their respective Action Plans.

- Engaging with key stakeholders throughout NHDC to promote sustainable transport, including the Sustainable Travel Town Initiative in Letchworth and Royston. Additionally, promoting ULEVs and EVs across the district by introducing measures within Council fleets as an example of good practice
- Delivering a high-profile programme for extending the network of private and public EV charging facilities across the district, following the completion of the Council's EV Feasibility Study for EV infrastructure in council car parks
- Working with HCC in promoting travel plans and workplace travel plans that prioritise sustainable transport and engage with the public in making smart travel choices.
- Launching the EcoStars programme, designed to promote the uptake of Low Emission vehicles and fleets within local businesses and industry.
- Completing the Cycling and Walking Infrastructure Plan in partnership with HCC for the District. This will identify the main cycling and walking routes across the towns which will help encourage active and safer travel and identify schemes for future funding.

Key completed measures are:

- Cark Park EVCI Feasibility Study
- Initial outline plan stage of Sustainable Travel Towns Programme, Councils Car Parks

- 1st round of stakeholder consultation and site inspection for walking and cycling routes
- Installed cycling stands in 4 Towns via the Active Travel Fund
- Introduced demand responsive public transport, serving rural East Hertfordshire

North Hertfordshire District Council expects the following measures to be completed over the course of the next reporting year:

- Progress towards procurement of Electric Vehicle Charging Infrastructure: Stage 1: Council Car Parks in Letchworth, Hitchin and Royston
- The EcoStars programme for promoting ULEVs in the freight and delivery sector in Hitchin
- The Walking and Cycling Strategy (WCS) to identify key schemes for implementation
- The Sustainable Travel Towns programme – to develop a detailed Action Plan with key stakeholders

North Hertfordshire District Council's priorities for the coming year are:

- Adoption of the Local Plan following the Inspectors Report

The principal challenges and barriers to implementation that North Hertfordshire District Council anticipates facing are:

- Uncertainties surrounding funding for key programmes

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

- EcoStars – delayed due to the pandemic lockdown
- WCS – no site inspections possible during pandemic lockdown
- All measures affected to a degree by reduced activities during pandemic lockdown

North Hertfordshire District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in both AQMA's no later than 2023

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Intro to & uptake of ECO Stars scheme in Hitchin industrial estates	Freight and Delivery Management	Delivery & Service Plans / Route Management Plans	2021	2022	Local Authority Environmental Health, Local Authority Transport Dept.	Developers & highway infrastructure funding	NO	Partially Funded	£10k - 50k	Implementation: Due to start November 2021	Reductions in emissions due to take up of ULEVs	Number of companies signed up	Contract signed and arranging start date	Due to start before end of 2021
2	Intro to & uptake of ECO Stars scheme in Hitchin Town Centre	Freight and Delivery Management	Delivery & Service Plans / Route Management Plans	Postponed for the short-medium term	Not actioned	Local Authority Environmental Health, Local Authority Transport Dept.	None	NO	Not Funded	£10k - 50k	On hold	Reductions in emissions due to take up of ULEVs	Number of companies signed up	Option for extension if measure 1 successful	Funding
3	Engage with & promote school travel plans in Hitchin schools	Promoting Travel Alternatives	School Travel Plans	2019	2024	Hertfordshire County Council	LA internally financed	NO	Partially Funded	< £10k	Ongoing. Road safety Officers promote Mode shift Stars travel plans and road safety initiatives across the County	Reduction in private car journeys to school & associated reduction in vehicle emissions	Number of schools with updated Travel Plans & proactively engaging with travel planning	9 schools in the Hitchin area are engaged with the Active and Safer Travel Team and are working on the national on-line Mode shift STARS travel plan.5 of these are holding an accreditation: Codicote CofE Primary – Bronze Offley Endowed Primary – Silver Whitehill Junior – Bronze The William Ransom Primary – Gold Wymondley JMI – Bronze Registered but not accredited: Hitchin Boys Kimpton Oughton Primary and Nursery Samuel Lucas	Work with Active & Safer Travel Team & contractors & schools to optimise existing or introduce new plans Staff time at both HCC and NHDC Environmental Protection Team to prepare & then implement work programme.
4	Promotion of walking & cycling for commuting in North Hertfordshire	Promoting Travel Alternatives	Promotion of walking and cycling	2019	LCWIP is currently due to completed in by end of January 2022.	North Hertfordshire Environmental Protection Team & HCC's Active & Safer Travel Team	Local Authority, Funding: Cost neutral relies on existing staff resources	NO	Not Funded	£10k - 50k	Completed	Not defined	Not defined	The Strategic Planning team are currently producing an LCWIP, (Local Cycling and Walking Infrastructure Plan) in partnership with HCC for the District; this will identify the main cycling and walking for future funding. The Active and Safer Travel Team also have dedicated cycle trainers that deliver Bikeability into schools, this is also promoted to all schools throughout the year	Work with NHDC Active Communities Team and HCC's Active & Safer Travel Team to investigate initiatives to promote walking & cycling
4a	Promotion of Walking & Cycling in accordance with COVID 19 Social Distancing Measures	Promoting Travel Alternatives	Promotion of walking and cycling	2020	2021	Hertfordshire County Council Transport	DfT High Street Fund, ERDF Funding,	NO	Funded	£10k - 50k	Completed	Not defined	Not defined	The Local Authority are working together with HCC to introduce social distancing measures for pedestrians in town centres and securing funding to implement cycle racks across all 4 town centres to promote cycling to these key destinations	Continue to work with HCC, and limitations to funding opportunities from Local Govt.
14	Baseline survey state of cycling provision in Hitchin	Transport Planning and Infrastructure	Cycle network	2018	Expected to be addressed by LCWIP, (Local Cycling and Walking Infrastructure Plan) in partnership with HCC for the District	North Hertfordshire Environmental Protection Team & Hertfordshire County Council	Not defined	NO	Not Funded	< £10k	Implementation	Reduced emissions due to modal shift	Numbers of public cycle parking, cycle lanes, cycle hire schemes	Some of this has already taken place but there is more to promote, including routes that have come out of the Active Travel Fund.	None
5	Increasing/ improving publicly available re-charging for Electric Vehicles (EV) in car parks	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	2020-1	2025	North Hertfordshire Environmental Protection Team	Not secured	NO	Not Funded	£50k - £100k	Planning	Reductions in emissions due to take up of ULEVs	Number of EV chargepoints in NHDC car parks	Recently completed a feasibility study on procurement of EV charging in public car parks	Funding and contractual issues for procurement

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
6	Increasing/ improving publicly available re-charging for on-street EV	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	Planned 2020-21	2032	Hertfordshire County Council	None	NO	Not Funded	£50k - £100k	Aborted	Reductions in emissions due to take up of ULEVs	Number of on-street EV chargepoints	HCC are developing a Herts EV strategy, which does not support large scale on street charging	Current County Council EV Charging Strategy does not favour on-street EV charging
7	Increasing private availability of recharging infrastructure for Electric Vehicles	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	2018 onwards	2032	North Hertfordshire Planning Department and Environmental Protection Team	Not defined	NO	Not Funded	£100k - £500k	Planning	Reductions in emissions due to take up of ULEVs	Number of EV chargepoints from private sector	Ongoing	Funding, and ongoing risk to private sector
8	Dedicated parking bays for EVs at charging points	Promoting Low Emission Transport	Priority parking for LEV's	Ongoing	2032	North Hertfordshire Environmental Protection Team and Strategic Planning Team	NHDC	NO	Partially Funded	< £10k	Implementation	Reductions in emissions due to take up of ULEVs	Usage stats for charge points	Standard conditions available & supported by Local Plan Policy & guidance document. Planning permissions being granted with EV infrastructure conditions in place	Significant barriers exist that require collaborative working & experience sharing to overcome. These include financial viability, civil engineering, accessibility & enforcement & health & safety issues
9	NHDC fleet review diesel to low emission vehicles	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2019 and ongoing	2022 (ULEVs)	North Hertfordshire District Council	NHDC	NO	Partially covered by reduced fuel costs, remainder subject to annual budget growth bids	£10-£20K	Implementation	Reductions in emissions due to take up of ULEVs	Numbers of ULEV as part of Council Fleet	2 Leased vehicles replaced with ULEVs in 20212 more leased EV vehicles on order for Dec 2021 Quotation being sought for 3 more leased EV vehicles for replacement in 2022	Lease expiry, range and cost. Availability of EV charging points within Council car parks across the district.
10	Establish legal status of anti-idling provision (S.42 Road Traffic Act 1988) & application by NHDC	Traffic Management	Anti-idling enforcement	Not actioned	N/A	North Hertfordshire Environmental Protection Team and Strategic Planning Team	NHDC	NO	Not defined	Not defined	Not Actioned	Reduction in emissions due to idling	N/A	No current progress	Local budget to enable enforcement actions
11	Review on-street parking designation & enforcement at Stevenage Road & Upper Tilehouse Street	Traffic Management	Parking Enforcement on Highway	2019	2020-21	North Hertfordshire Environmental Protection Team and Strategic Planning Team	Not defined	No	Not defined	Not defined	Not Actioned	Changes to parking controls & enforcement activity. Reduced queuing	Not defined	Not progressed due to lack of reaching a suitable consensus amongst residents	Not defined
12	Hitchin Industrial Estate Connectivity/ Relief Road	Transport Planning and Infrastructure	Strategic Highway Improvement	Not yet actioned	Not Actioned	Hertfordshire County Council	Not defined	No	Not defined	Not defined	Included in the draft North Hertfordshire Growth and Transport Plan yet to be formally adopted (anticipated end 2021)	Reduction in numbers of HGV passing through AQMAs	Numbers of HGV passing through AQMAs	The scheme is identified as a package in the HCC draft North Central Growth Transport Pan. This scheme is to be investigated as part of the A505 corridor study, which will include an assessment of the movement of commercial vehicles to/from the industrial estate to better understand the needs for potentially additional accesses for all users.	Subject to further investigation by HCC, and funding options to be considered.
13	Engage with Herts CC on development of LTP4 & Local Growth & Transport Plan	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2017	2021	North Hertfordshire Environmental Protection Team via Hertfordshire County Council	LTP = 2018/19 & GTP = 2019	No	Via LTP/GTP	Not defined	County Council have a tool to prioritise projects over the entire county.	Not defined	Not defined	Consultation responses have strengthened presence of Air Quality as an issue and the importance of mitigation and benefits of specific projects including some relevant to Hitchin in the LTP. North Central Hertfordshire area GTP was out for consultation in Summer 2019 early 2020	NHDC is only able to influence decision making by way of representation and provision of data. NHDC projects may not be prioritised on a county wide basis.

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
15	Workplace & School based car sharing including consideration of preferential parking	Alternatives to private vehicle use	Car & lift sharing schemes	2019	Ongoing	North Hertfordshire Environmental Protection with Hertfordshire County Council Travel Planning Team	Not defined	No	Not defined	Not defined	Informal car share for schools. Workplace and Residential Carshare promoted in Travel Plan Guidance	Not defined	Engagement by schools and businesses	Schools encouraged to consider promotion of car sharing between parents/carers where practicable. Linked directly to Measure 3	Lift share no longer promoted at County level due to safeguarding issues. Carsharing not actively promoted.
16	Car clubs for new developments	Alternatives to private vehicle use	Car & lift sharing schemes	2018	Not defined	North Hertfordshire Environmental Protection with Hertfordshire County Council Travel Planning Team	Developer contributions from Planning Conditions	No	Not defined	Not defined	Ongoing	Not defined	Prevalence of car clubs in North Herts & number of Travel Plans with Car Clubs specified by condition	Standard conditions available & supported by Local Plan Policy & guidance document. Planning permissions being granted with Travel Plans in place	Co-operation from developers
17	Participate in National Clean Air Day	Public Information	Via the Internet	Ongoing annual event	Ongoing	Hertfordshire County Council and North Hertfordshire District Council	Funded by Herts and Beds air Quality Group of Local Authorities	No	Ongoing	Not defined	Focus on uptake of Air Pollution Notification System	Not defined	Increased uptake of the Air Pollution Notification System	Ongoing since 2019	Postponed in 2020 due to pandemic
18	Air Quality Notification System	Public Information	Air Pollution Alert	2018	Ongoing	North Hertfordshire DC, other Herts local authorities & Herts County Council Public Health	LAs in Herts, HCC, Public Health	No	Ongoing	Set-up cost £1122.73 annual cost £113.64	Ongoing	Not defined	Number of participants in scheme. 116 signed up	AQ alert launched 2019. Consideration of future projects to increase uptake with communications campaign.	Ability to get sign up will depend on access to vulnerable and interested groups and therefore publicity and support from partners.
19	Reducing emissions from public transport	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	No progress	None	North Hertfordshire District Council & Herts CC & bus companies	Not defined	No	Not defined	Not defined	Ongoing	NO2 reduction of 0.009g/km per Euro 5 bus	Number of buses retrofitted	Intalink Enhanced Partnership between HCC, Districts and public transport operators, managed by HCC https://www.hertfordshire.gov.uk/media-library/documents/highways/transport-planning/local-transport-plan-live/intalink-enhanced-partnership-plan-and-scheme-feb-2020.pdf	Engagement with transport operators
20	Engage with schools to raise awareness of air pollution	Public Information	Other	2020 onwards	Ongoing	North Hertfordshire in liaison with Herts CC Active & Safer Travel Team	Not defined	No	Not defined	Not defined	Ongoing	Not defined	Number of schools in Hitchin utilising the Air Pollution teaching toolkit	Air Quality for Schools Toolkit Resources are uploaded to the Herts Grid for learning. Codicote School was approached in the June to take part in our targeted Anti – Idling Campaign. The school displayed the recyclable Anti – Idling boards for half a term and shared the animation with their staff, parents and pupils. The Anti-Idling video https://youtu.be/S9myTtxrZ-s 10 schools in Hitchin registered for our Walk to School Week and Clean Air Day campaigns, reaching 2,259 pupils	Toolkit is available needs to be effectively publicised within North Hertfordshire and need to have funding available to encourage its uptake
21	Local Plan Policy and Air Quality Planning Guidance Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Delivered 2018	2018	North Hertfordshire's Environmental Protection and Planning Teams	NHDC	No	Completed	Not defined	Completed, in active use	Not defined	Recommendations for developers to include EV charging	Ongoing. It is actively used for all relevant planning applications	Planning consultations need to be continually responded to, to ensure developments are appropriate and mitigation is implemented
22	Herts & Beds Air Quality Forum including Public Health, Transport Planners & Development Control representation	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Ongoing	Ongoing	Hertfordshire and Bedfordshire Local Authorities	NHDC	No	Ongoing from local budgets	Not defined	Ongoing	Not defined	County-wide initiatives and joint working on bids and projects	Active & well-established Forum, regular meetings.	Participation from Local Authority partners with County Council

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

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

North Hertfordshire District Council is taking the following measures to address $PM_{2.5}$:

- Continuation of the effective partnership working arrangements with Hertfordshire County Council Public Health that have been in place since 2014/15. This has occurred as a result of three key drivers:
    - Increased evidence and awareness of the harm from exposure to $PM_{2.5}$
    - The transfer of central government funding from a central public health body to County Councils
    - The existence of the Public Health Outcome Indicator (PHOI) for the fraction of mortality attributable to particulate air pollution measured as fine particulate matter $PM_{2.5}$ (PHOI 3.01).

  The outcomes of this work resulted in the formation of an Air Quality (Public Health) Planning Group. The group now operates as a task and finish group for particular air quality projects with the routine engagement and information sharing taking place within the meetings of the Hertfordshire and Bedfordshire Air Quality Forum.

- Access to Public Health funding for each of the ten Hertfordshire Local Authorities enabled North Hertfordshire District Council to purchase and establish a $PM_{2.5}$ Beta Attenutation Measurement (BAM) Real-Time Analyser in its area. The analyser is located within the Stevenage Road, Hitchin Air Quality Management Area in the expectation that this location represents a worst-case measurement of $PM_{2.5}$ concentrations within North Hertfordshire.

  2020 represents the fourth full year of $PM_{2.5}$ monitoring within North Hertfordshire and the data are included within this report.

  The provision of monitoring equipment was considered a priority because it was identified that there was no actual baseline data available within Hertfordshire. So, the validity of the modelled value for the PHOI for Hertfordshire and its Local Authorities could not be judged nor subsequent changes measured.

- The North Hertfordshire District Council Environmental Protection Officer is responsible for preparing an annual report on $PM_{2.5}$ monitoring across Hertfordshire

for Hertfordshire County Council's Public Health. The report based on the 2017 data is published at http://www.airqualityengland.co.uk/local-authority/hnb-reports

North Hertfordshire District Council has not yet identified any measures targeted specifically at reducing $PM_{2.5}$ and it is considered unlikely that any such measures will be identified over the coming years. Instead, and in line with Technical Guidance LAQM.TG16 it is anticipated that:

- Measures to reduce emissions of NOx by encouraging a move away from internal combustion engine vehicles to ultra-low emission vehicles (ULEV) will reduce $PM_{2.5}$ emissions from exhausts
- Measures to reduce road travel altogether will reduce $PM_{2.5}$ emissions from brake and tyre wear and dust re-suspension.

The above is considered the most pragmatic and viable approach and it has also taken into account how North Hertfordshire ranks in terms of PHOI alongside other areas of Hertfordshire and Bedfordshire (Table 2.3).

North Hertfordshire District Council has Smoke Control Areas designated in Letchworth Garden City, which date from the 1960s.

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

This section sets out the monitoring undertaken within 2020 by North Hertfordshire District Council, and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

North Hertfordshire District Council undertook automatic (continuous) monitoring at 2 sites during 2020. Table A.1 in Appendix A shows the details of the automatic monitoring sites. Table A3, Appendix A, presents automatic monitoring results for North Hertfordshire District Council, with automatic monitoring results also available through the UK-Air website .

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

3.1.2 Non-Automatic Monitoring Sites

North Hertfordshire District Council undertook non- automatic (i.e. passive) monitoring of NO2 at 48 sites during 2020. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

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.

3.1.3 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. 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 2020 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The following figures F3.1 and F3.3 show trend data for AQMA monitoring sites without corrections for distance.

Figure 3.2 highlights the application of distance corrections as applied to the two monitoring sites in the Stevenage Road AQMA that are furthest from the roundabout.

Overall, within the AQMA, there are 6 monitoring points, one automatic site and 5 additional diffusion tube points. In 2020, all sites showed reductions, with no results above objective levels, reflecting the reduced traffic levels during the pandemic.

When corrected for distance, there are no monitoring results within the Stevenage Road AQMA above, and a single result (NH1) within 10% of the AQ objective.

On this basis continued monitoring for 2021 and 2022 is proposed until all results remain less than 90% of objective levels.

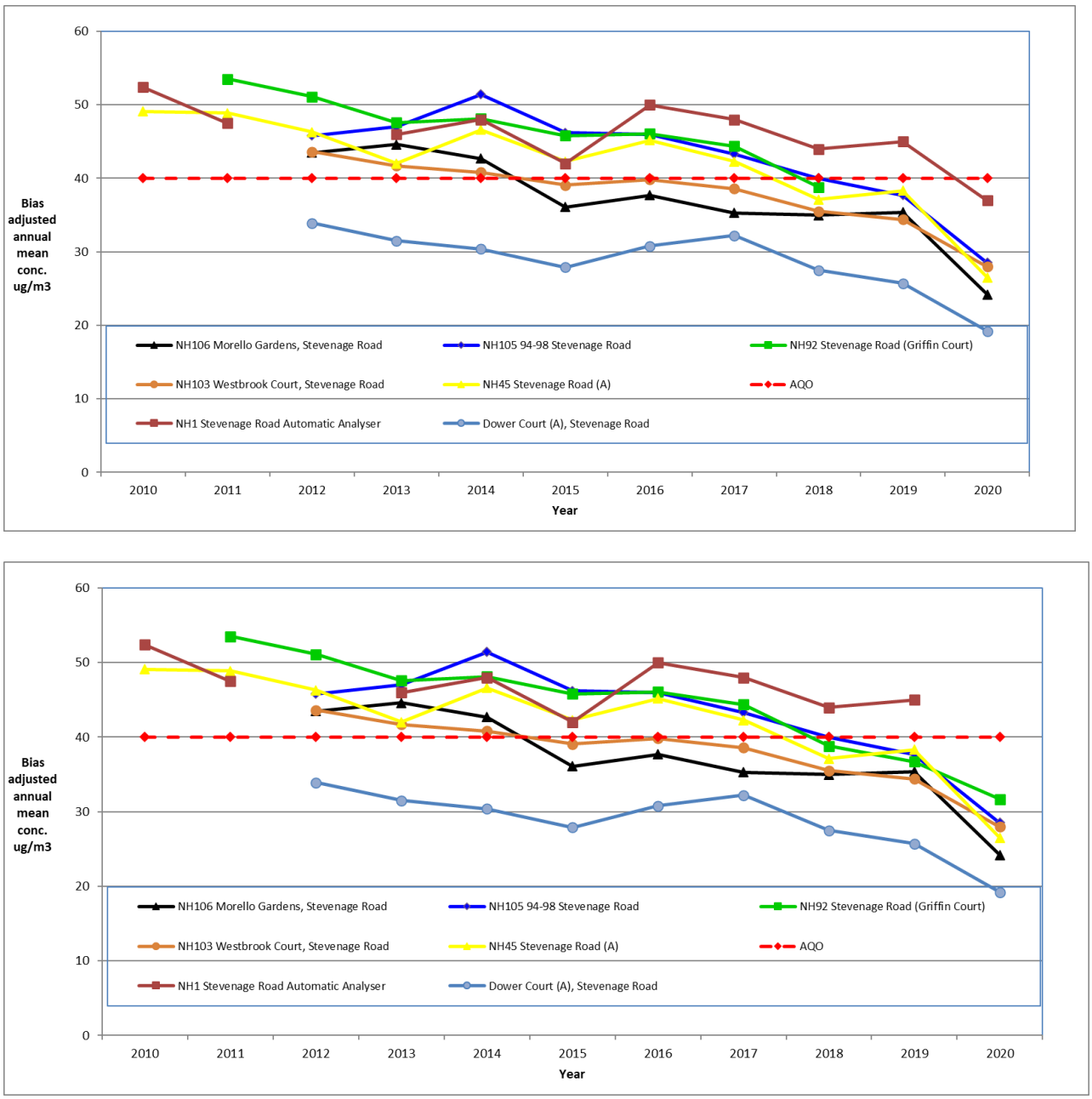


Figure 3.1: Trends in NO_2 concentrations at monitoring sites (all except NH106) located within the AQMA at Stevenage Road, Hitchin

The continued trend in reductions of monitored pollution levels at two sites, previously showing exceedances are highlighted in Figure 3.2 below. These results are now significantly below objective levels.

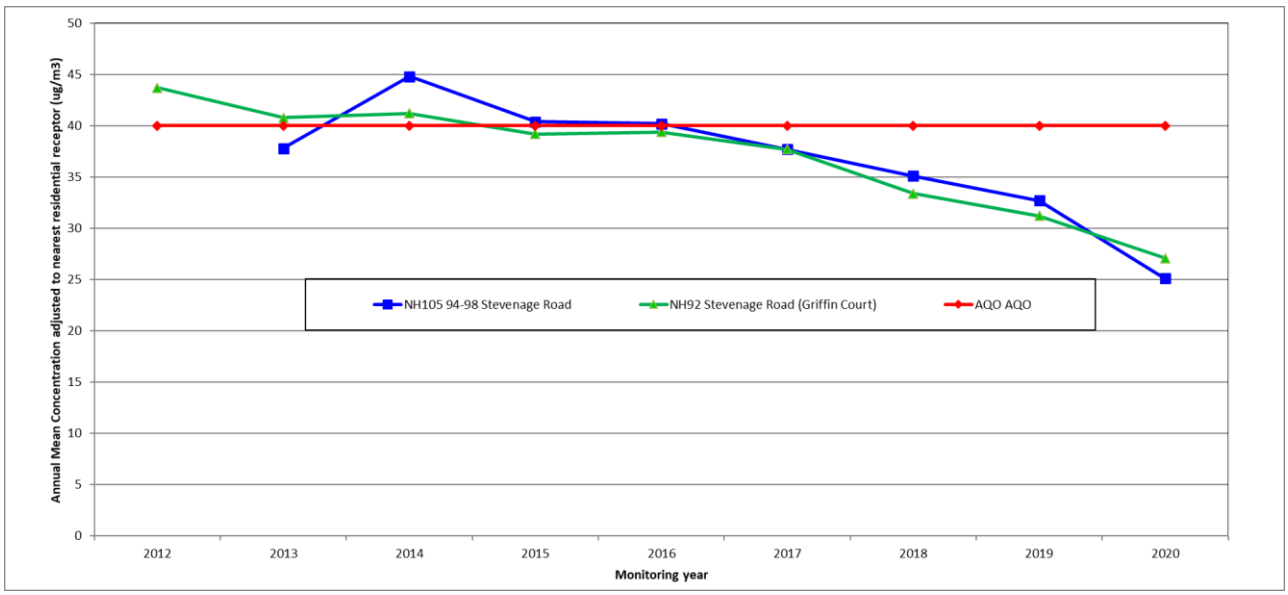


Figure 3.2: Trends in NO_2 concentrations monitored at NH105 and NH92 adjusted to be relevant to the nearest residential receptors

Figure 3.3 below, highlights trends for monitoring results within the Payne's Park AQMA up to 2019. The most recent results all highlight the continued trend of reductions in monitored levels of pollution at all sites, however, there has been a loss of some diffusion tube data for 2020, thus these results are not conclusive.

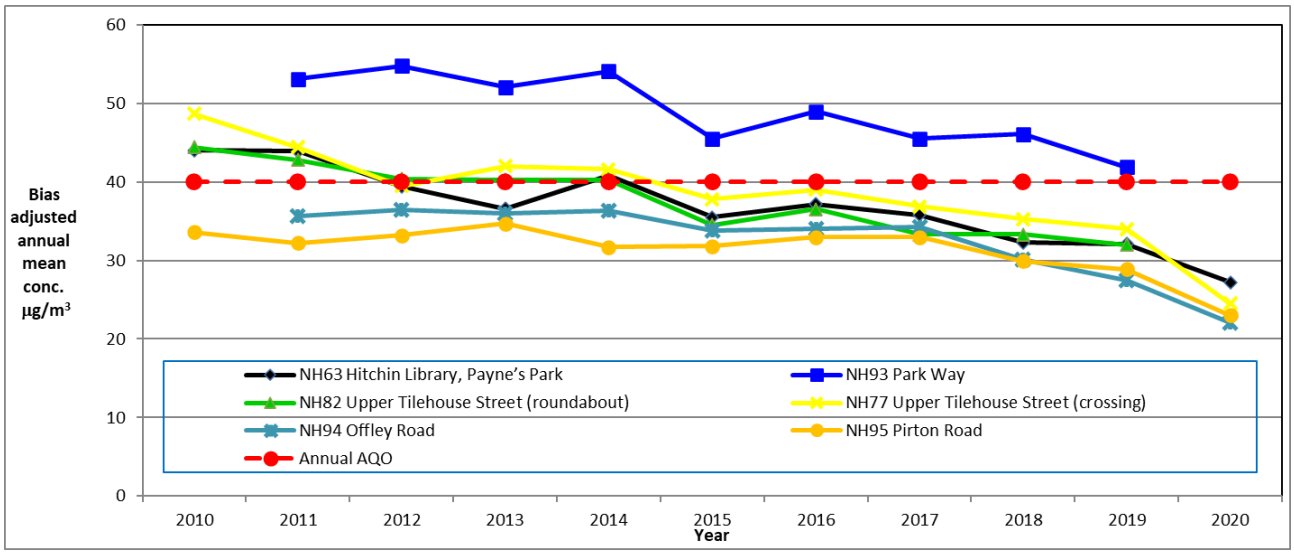


Figure 3.3: Trends in NO_2 concentrations at monitoring sites at Payne's Park, Hitchin

The monitoring site NH93, remains the critical receptor as representative of the only residential dwelling within the AQMA at 41 Upper Tilehouse Street. Due to loss of data during 2020 no result can be reported for 2020. The recent results to 2019 for NH93 (prior to distance correction are illustrated below in Figure 3.4).

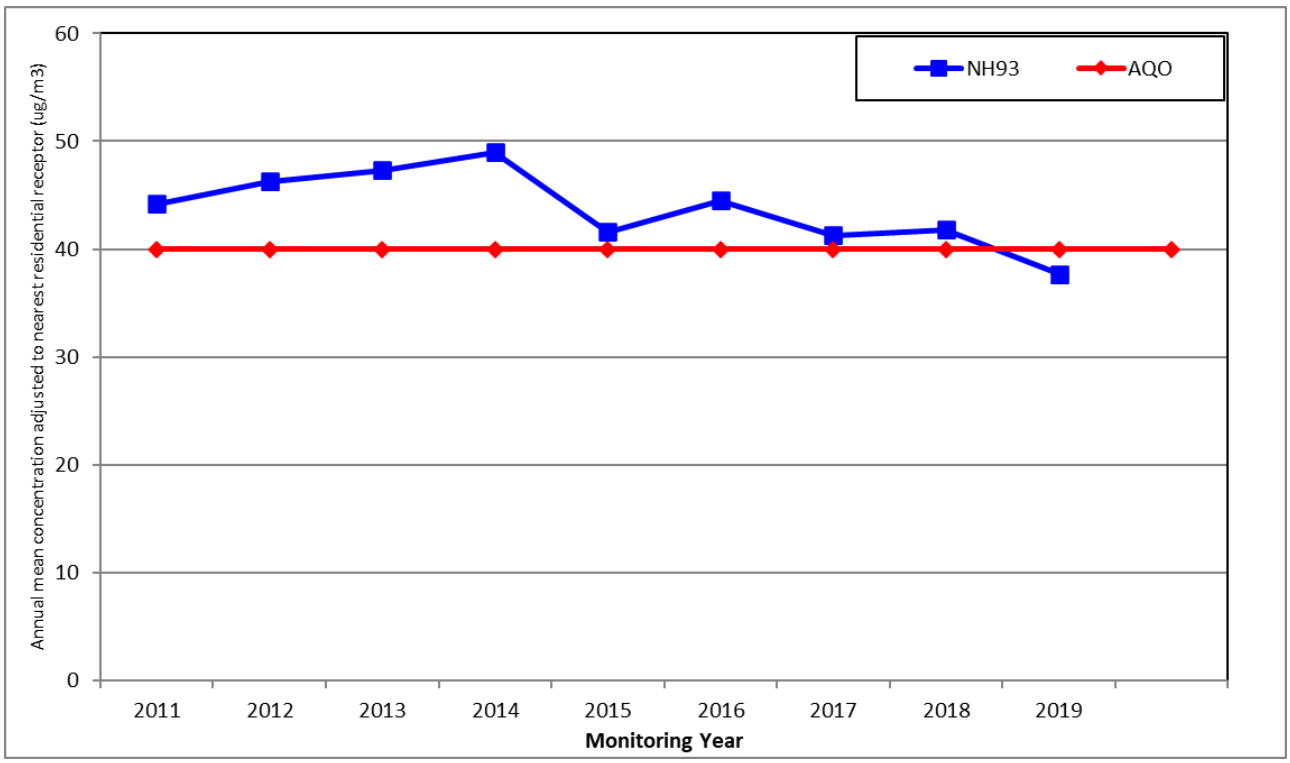


Figure 3.4: Trends in NO_2 concentrations monitored at NH93 adjusted to be relevant to the nearest residential receptor (41 Upper Tilehouse Street).

Figure 3.5 below highlights the continuing trend in reductions in monitored pollution levels at monitoring site NH93.

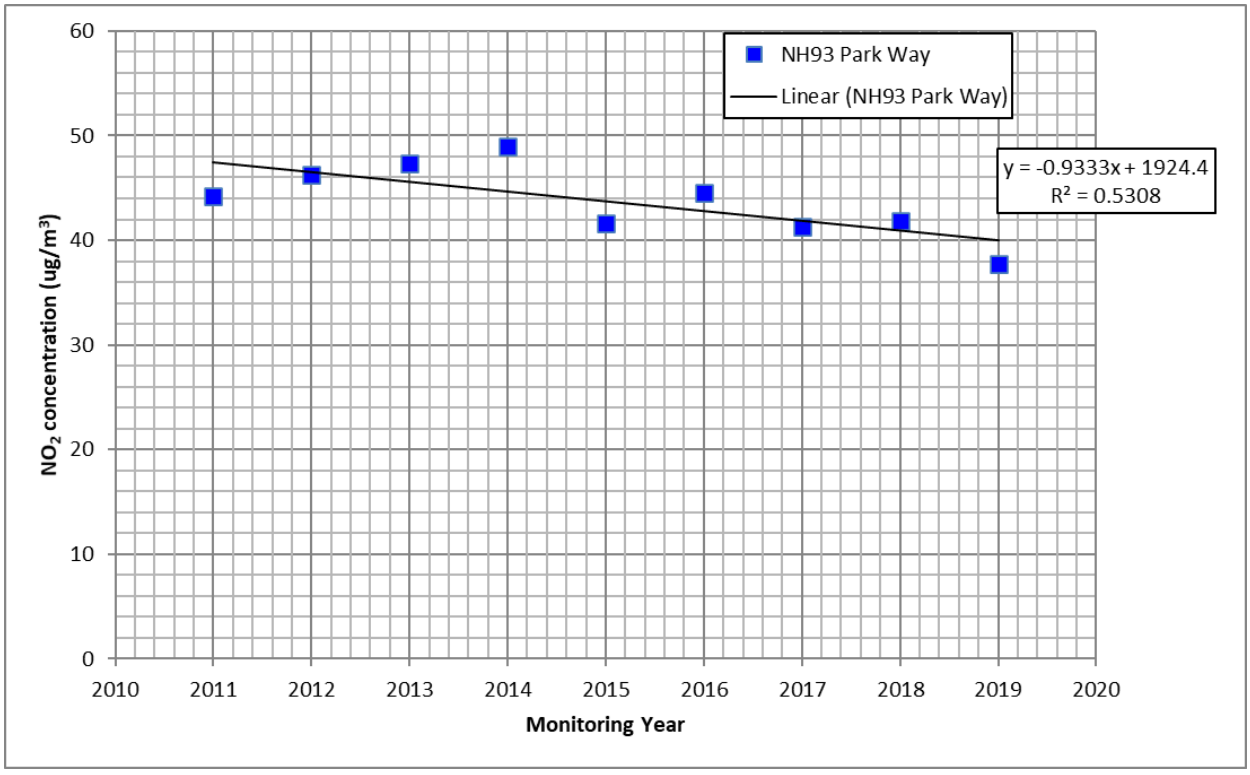


Figure 3.5: Trend-line for NO_2 concentrations as calculated at 41 Upper Tilehouse Street

An extrapolation of trend results for NH93 is shown below in Figure 3.6, highlighting that if this trend continues the results for NH93 are expected to be below 90% of objective levels for 2020. (No result was recorded for 2020)

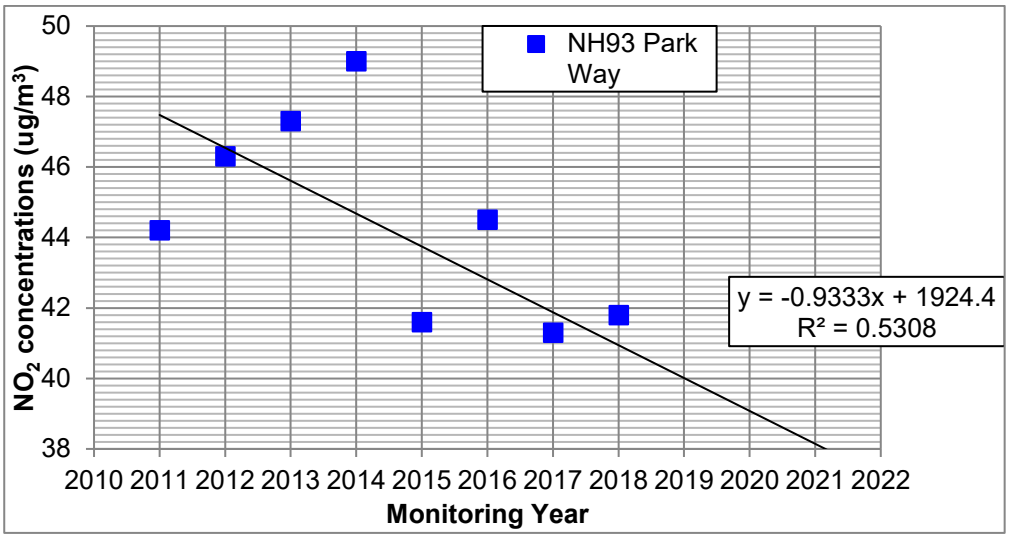


Figure 3.6: Predicted change in NO_2 concentrations at 41 Upper Tilehouse Street based on extrapolation of eight years of monitoring

The following figures 3.7-3.10 provide updated trends in traffic data for monitoring points closest to each AQMA. Traffic count data from DfT is available for years up to 2020.

For the Stevenage Road AQMA, and the Payne's Park AQMA, traffic data for the A602 shows a significant reduction for 2020, compared to the previous years.

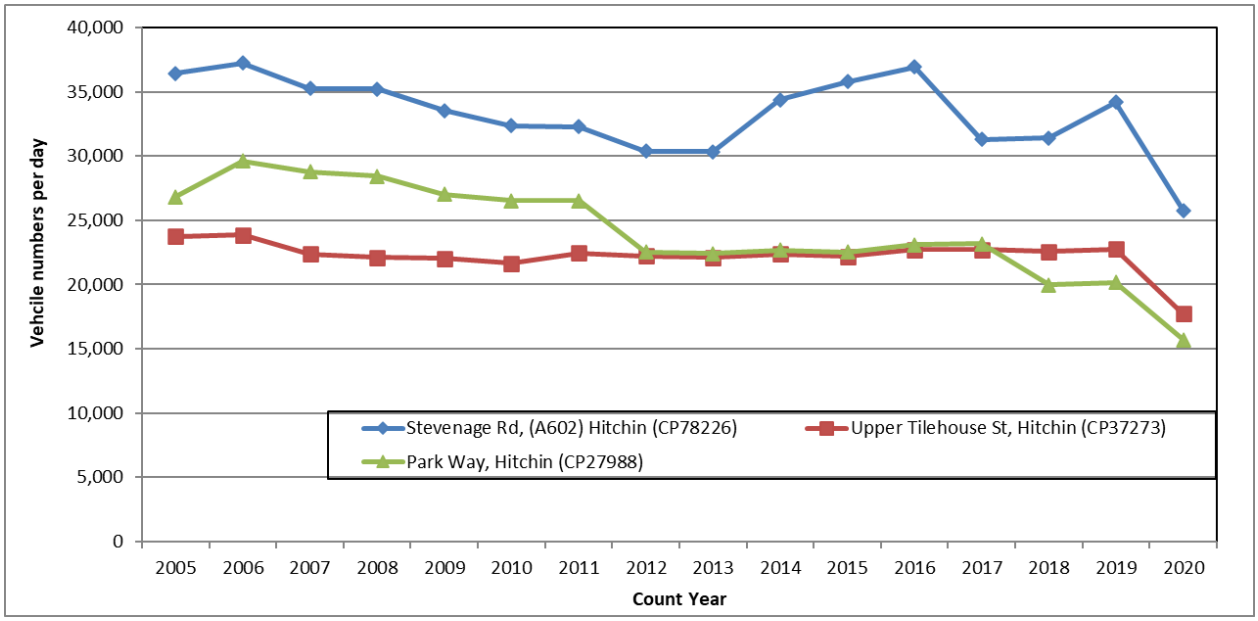


Figure 3.7: Trends in road traffic counts at the three DfT count points closest to the Stevenage Road AQMA and Payne's Park AQMA in Hitchin

Figures 3.8-3.10 below provide a breakdown of vehicle counts by vehicle categories for the three sites reported above and show the trend in closest pollution monitoring data within each AQMA.

The A602 data representative of traffic through AQMA1, the Stevenage Road AQMA highlights a significant reduction in recent traffic counts with a reduction in monitored pollution levels in 2020.

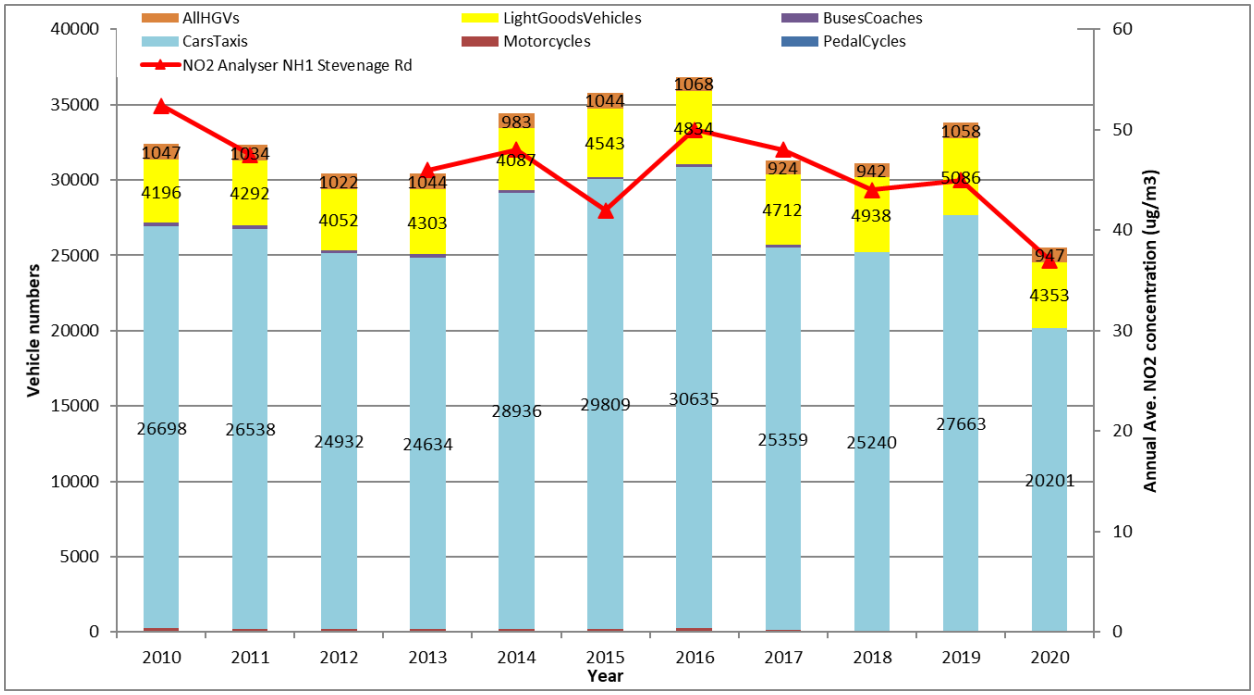


Figure 3.8: Road traffic counts at DfT point 78226 within the Stevenage Road AQMA Hitchin compared to mean annual average NO_2 measured by the automatic analyser (red line)

The following figures 3.9-3.10 show detailed traffic data representative of the Payne's Park AQMA, alongside monitored pollution levels within the AQMA. The recent traffic data for Park Way highlights a reduction in annual traffic flows, with no monitoring result for 2020. The results in Figure 3.10 confirm the traffic reductions for Upper Tilehouse Street with an associated reduction in pollution levels nearby. However, it is likely that local pollution levels within the AQMA are significantly influenced by localised congestion, independent of total traffic flows.

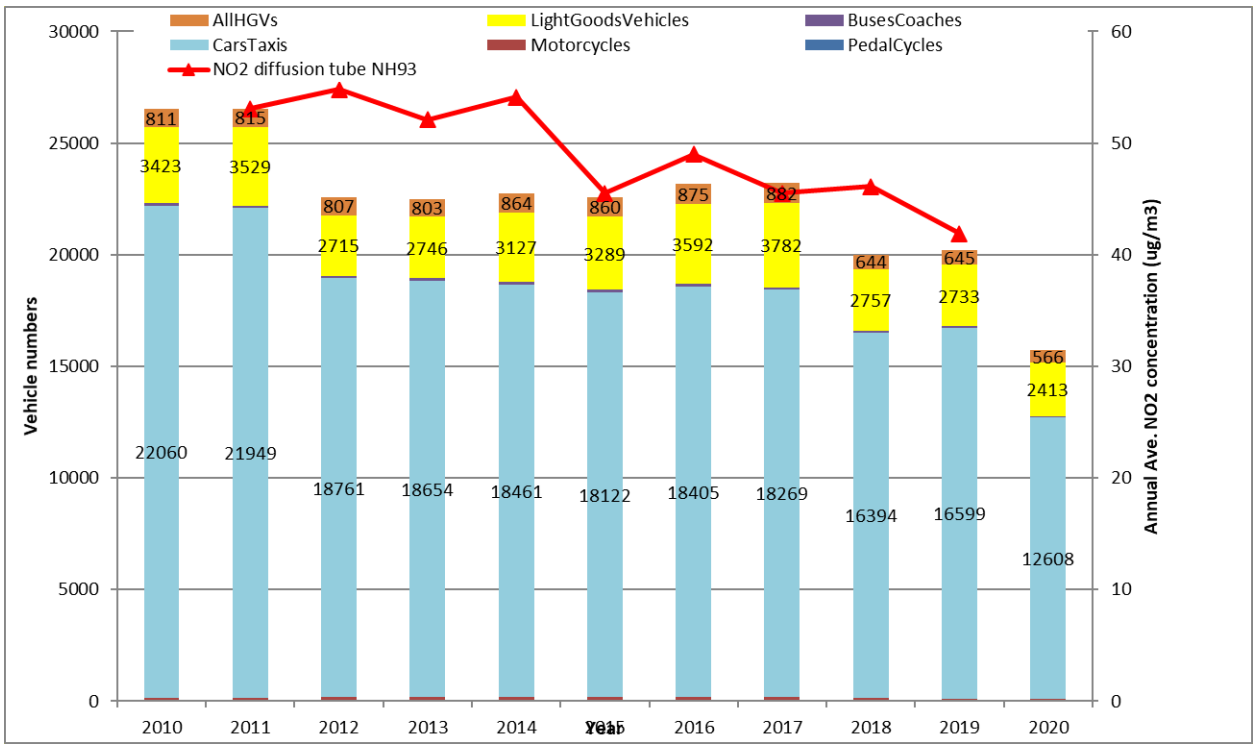


Figure 3.9: Road traffic counts at DfT point 27988 at Park Way, Hitchin compared to the mean annual average NO_2 measured by diffusion tube NH93

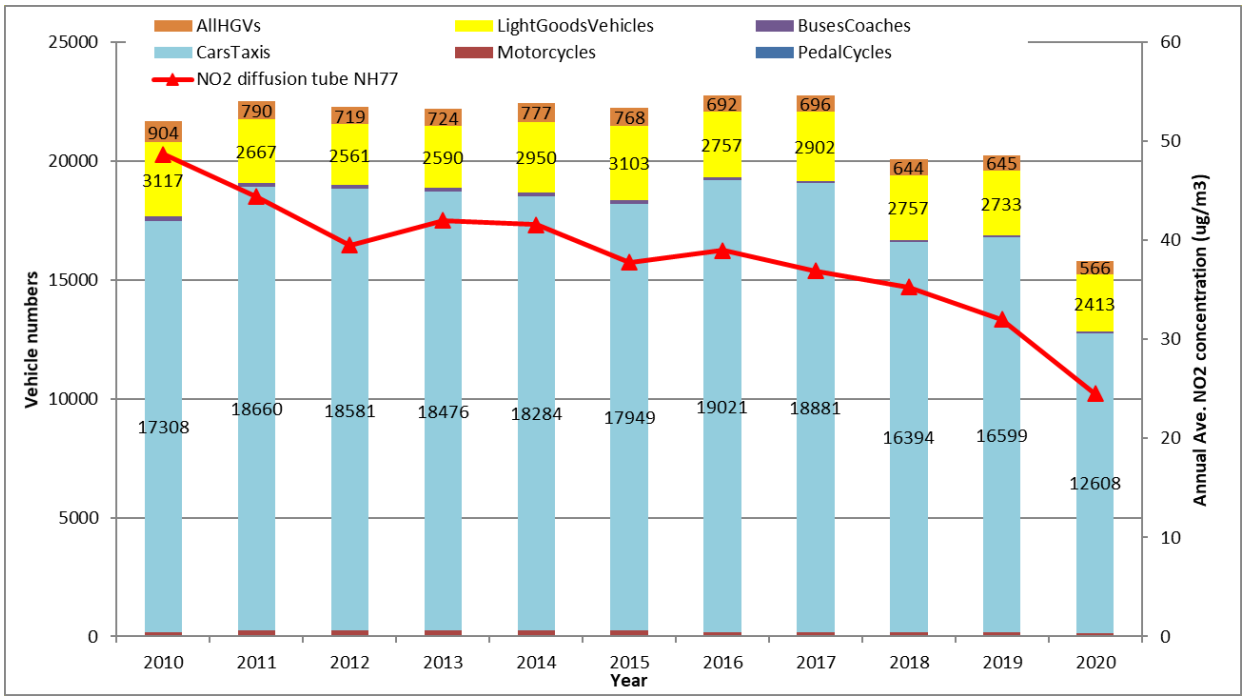


Figure 3.10: Road traffic counts at DfT point 37273 at Upper Tilehouse Street, Hitchin compared to the mean annual average NO2 measured by diffusion tube NH77

Another area of local significance is Baldock, and trends in recent air pollution monitoring data for sites in Baldock are shown below in Figure 3.11. The most recent monitoring data for 2020, continues to confirm recent trends of reductions in pollution levels at all

monitoring sites in Baldock, with no result available for site NH93, (within the AQMA), previously being above objective levels, (before correcting for distance to relevant exposure).

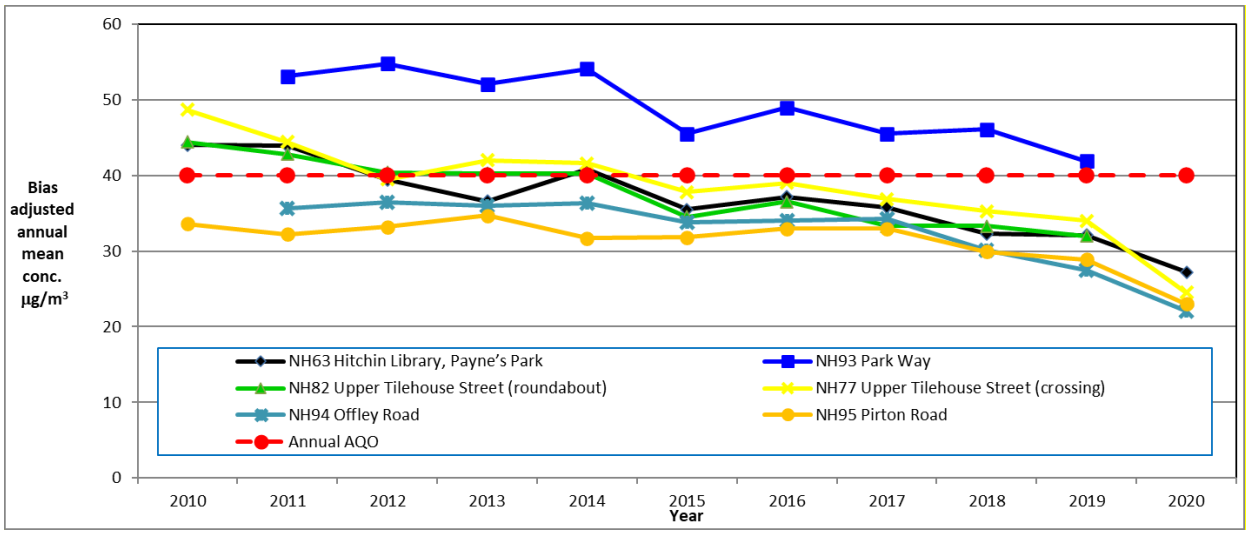


Figure 3.11: Trends in NO_2 concentrations at monitoring sites in Baldock

3.1.4 Particulate Matter (PM10)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

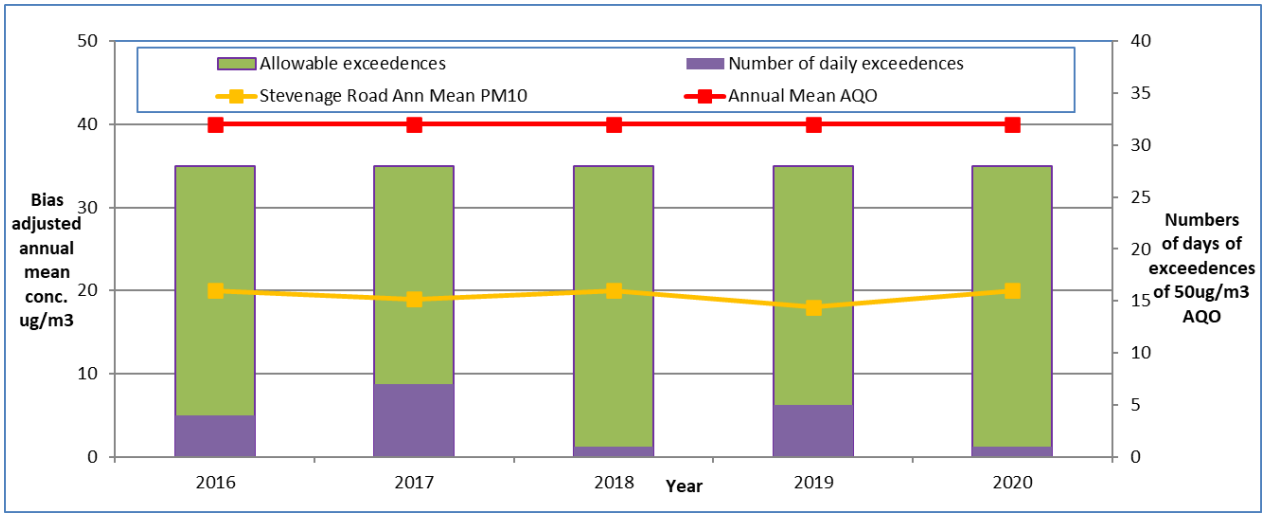


Figure 3.12: PM10 concentrations measured at Stevenage Road, Hitchin

2020 was the fifth full year of PM10 monitoring at the Stevenage Road location. The data from all five years are displayed in Figure 3.12 and show that the mean average concentrations for all years were below the 40µg/m3 AQO. The number of daily exceedences of the 50µg/m3 AQO are also shown in Figure 3.12 as displayed with the number of allowable exceedences in a calendar year, confirming there are no exceedances of any objectives for PM10, based upon results of continuous monitoring.

3.1.5 Particulate Matter ($PM_{2.5}$)

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

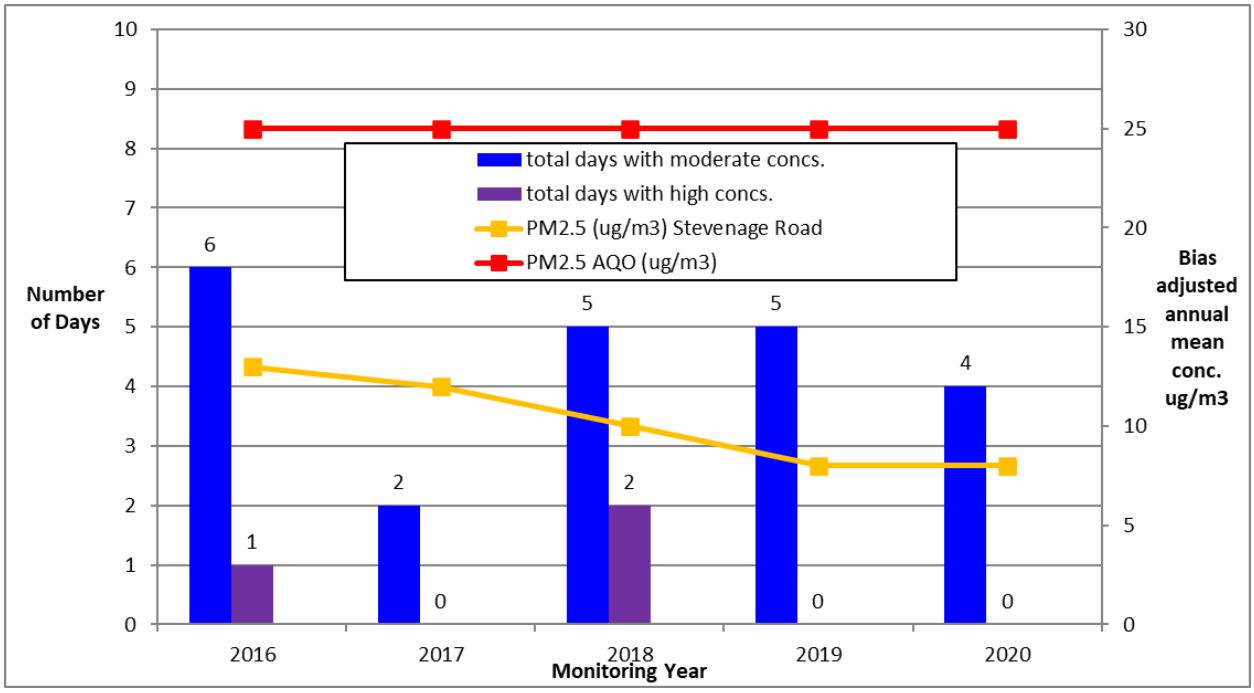


Figure 3.13: PM2.5 concentrations measured at Stevenage Road, Hitchin

2019 was the fifth full year of PM2.5 monitoring at the Stevenage Road location. The data displayed in Figure 3.13 above show that the mean average concentrations for each year continue below the non-statutory target value of 25µg/m^3. The number of days when moderate and high (as defined by the Defra Daily Air Quality Index) concentrations of PM2.5 were measured is also displayed in Figure 3.13. There is no limit or objective in place specifying how many, if any, days of exceedences of a given PM2.5 concentration are allowed. The annual mean concentrations continue to exhibit a trend of falling values, significantly below objective levels.

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)
NH1	Stevenage Road NOx	Roadside	518740	228348	NO2	YES	Chemiluminescent	11	2	1.5
NH2	Stevenage Road PM	Roadside	518713	228349	PM10, PM2.5	YES	TEOM, BAM	19	2	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)
NH06	Melbourn Road, Opposite Town Hall, Royston	Roadside	535906	240794	NO2		7.0	1.1	No	2.1
NH45	Stevenage Road A, Hitchin	Roadside	518708	228347	NO2	AQMA1	19.0	2.0	No	2
NH59	(NH04a) Clothall Road, Baldock	Roadside	524649	234061	NO2		11.0	3.0	No	2
NNH60	(NH13a) Willian Road, Hitchin	Roadside	519916	230099	NO2		29.0	1.1	No	2
NH61	(NH53a) Whitehorse Street, Baldock (nr town hall)	Roadside	524428	233882	NO2		35.0	2.0	No	2.1
NH63	(NH02a) Library Hitchin	Roadside	518160	229092	NO2	AQMA2	30.0	3.5	No	2
NH67	Cadwell Court, Hitchin	Roadside	519225	230553	NO2		12.0	2.0	No	2.1
NH127	64 Grove Road, Hitchin	Roadside	518821	229993	NO2		0.0	7.0	No	2
NH72	Opp Rose Crown, Whitehorse Street, Baldock	Roadside	524502	233948	NO2		27.0	2.0	No	2
NH103	Westbrook Court, Hitchin	Roadside	518773	228342	NO2	AQMA1	10.0	2.4	No	2
NH77	Upper Tilehouse Street, Hitchin (traffic lights)	Roadside	518006	229032	NO2	AQMA2	5.0	1.5	No	2

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)
NH82	Upper Tilehouse Street, Nr Roundabout	Roadside	518129	229065	NO2	AQMA2	7.0	1.5	No	2
NH87	11 Stevenage Road, Hitchin	Roadside	518731	228362	NO2		0.0	15.0	No	1.9
NH88	Church St, Baldock (Opp. Town Hall)	Kerbside	524448	233898	NO2		13.0	0.5	No	2
NH89	London Road, Hitchin	Roadside	518706	228293	NO2		20.0	1.9	No	2
NH91	St John's Road, Hitchin	Roadside	518656	228406	NO2		5.0	7.9	No	2.1
NH92	Stevenage Road (Griffin), Hitchin	Roadside	518872	228305	NO2	AQMA1	5.0	2.0	No	2
NH93	Park Way, Hitchin	Roadside	518130	229036	NO2	AQMA2	3.0	1.6	No	1.8
NH94	Offley Road, Hitchin	Roadside	517915	228967	NO2		7.0	2.3	No	2
NH95	Pirton Road, Hitchin	Roadside	517886	228975	NO2		22.0	1.3	No	2
NH98	Walsworth/Radcliffe Road, Hitchin	Roadside	519080	229510	NO2		4.0	1.5	No	2
NH99	Nightingale Road, Hitchin	Roadside	518953	229786	NO2		5.0	1.7	No	2
NH108	Hitchin - Hermitage Road (97)	Roadside	518534	229302	NO2		3.0	0.8	No	2
NH104	Dower Court (A), Stevenage Road, Hitchin	Roadside	518757	228334	NO2	AQMA1	0.0	3.3	No	1.8
NH105	94-98 Stevenage Road, Hitchin	Roadside	519067	228255	NO2	AQMA1	7.0	3.5	No	2.1

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)
NH106	Morello Gardens, Stevenage Road, Hitchin	Roadside	519250	228218	NO2		5.0	1.4	No	2
NH107	Whitehill Road, Hitchin	Roadside	518720	228335	NO2		26.0	2.3	No	2
NH110, NH111, NH112	Stevenage Road, AQ Analyser 3, Hitchin	Roadside	518740	228348	NO2	AQMA1	11.0	2.0	Yes	1.2
NH114	Old Park Road, Hitchin (number 20)	Roadside	518150	229160	NO2	AQMA2	0.0	2.5	No	2.1
NH115	Old North Road, Royston	Roadside	535373	241466	NO2		9.0	1.0	No	1.9
NH116	6 Horseshoe, Park Street, Hitchin	Roadside	518492	228669	NO2		0.0	2.4	No	1.8
NH117	Hitchin - Fishponds Road	Roadside	518278	229752	NO2		0.0	3.3	No	2
NH119	High Street (125) Codicote	Roadside	521767	218110	NO2		0.4	1.1	No	2
NH120	Five House Farmhouse Sandon Rd, Therfield	Rural	533805	233823	NO2		11.4	1.2	No	1.9
NH121	1 Hadrians Way, Baldock	Roadside	523849	233497	NO2		5.0	11.0	No	2
NH122	29 Hopewell Rd, Baldock	Roadside	523917	233917	NO2		7.0	1.5	No	2
NH123	Dunkerley Ct, LGC	Roadside	522289	232985	NO2		0.0	5.3	No	2
NH124	82 Bedford Rd, LGC	Roadside	520967	233073	NO2		13.0	3.2	No	2
NH125	11 Luton Rd, Cockernhoe	Rural	512486	223251	NO2		9.0	3.0	No	2

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)
NH128	57 Codicote High Street	Roadside	521497	218415	NO2		9.0	1.2	No	2
NH129	119 London Road, Knebworth	Roadside	525205	220142	NO2		1.5	2.3	No	2
NH130	Opp Old White Horse, Station Rd, Baldock	Roadside	524597	234119	NO2		6.0	1.5	No	2
NH131	The Clock House, Turnpike Lane, Ickleford	Kerbside	518215	231528	NO2		0.5	0.2	No	2
NH132	Opp Laurel Way, Arlesey Road, Ickleford	Roadside	518283	231366	NO2		20.0	1.5	No	2
NH133	George & Dragon, High Street, Graveley	Roadside	523124	227776	NO2		7.0	1.5	No	2
NH134	6 Bucks Head Cottages, Stevenage Rd, L.Wymondley	Roadside	521516	227449	NO2		10.0	3.5	No	2

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 NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NH1	518740	228348	Roadside	86	86	**50**	**48**	44	45	37

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

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

Notes:

The annual mean concentrations are presented as µg/m^3.

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

All means have been "annualised" as per LAQM.TG16 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 NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

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 2020 (%) (2)	2016	2017	2018	2019	2020
NH06	535906	240794	Roadside	32.7	32.7	25.9	26.5	24.6	24.8	21.7
NH45	518708	228347	Roadside	32.7	32.7	**45.2**	**42.3**	37.1	38.3	26.5
NH59	524649	234061	Roadside	32.7	32.7	27.7	26.3	26.2	23.4	18.5
NNH60	519916	230099	Roadside	32.7	32.7	29.9	29.4	28	24.5	17.6
NH61	524428	233882	Roadside	15.4	15.4	30.3	27.7	27.2	26.8	-
NH63	518160	229092	Roadside	32.7	32.7	37.2	35.8	32.3	32.1	27.2
NH67	519225	230553	Roadside	32.7	32.7	27.15	28.3	23.7	23.5	20.0
NH127	518821	229993	Roadside	15.4	15.4			21.9	21.0	-
NH72	524502	233948	Roadside	32.7	32.7	32.0	31.3	27.5	26.8	24.2
NH103	518773	228342	Roadside	32.7	32.7	39.8	38.6	35.5	34.4	28.0

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 2020 (%) [2]	2016	2017	2018	2019	2020
NH77	518006	229032	Roadside	32.7	32.7	39.0	36.9	35.3	34.0	24.5
NH82	518129	229065	Roadside	15.4	15.4	36.5	33.3	33.3	32.0	-
NH87	518731	228362	Roadside	32.7	32.7	26.9	26.9	23.8	23.7	33.5
NH88	524448	233898	Kerbside	32.7	32.7	39.9	**40.5**	34.7	35.7	32.3
NH89	518706	228293	Roadside	32.7	32.7	29.7	28.2	22.8	23.6	19.4
NH91	518656	228406	Roadside	32.7	32.7	31.8	32.2	27.4	29.8	26.7
NH92	518872	228305	Roadside	32.7	32.7	**46.0**	**44.4**	38.8	36.7	31.7
NH93	518130	229036	Roadside	7.7	7.7	**49.0**	**45.5**	**46.1**	**41.9**	-
NH94	517915	228967	Roadside	32.7	32.7	34.1	34.3	30.1	27.5	22.1
NH95	517886	228975	Roadside	32.7	32.7	31.8	33	29.9	28.9	23.0
NH98	519080	229510	Roadside	32.7	32.7	30.4	28.6	26.6	26.6	22.6
NH99	518953	229786	Roadside	32.7	32.7	30.7	29.8	29.2	28.0	18.1
NH108	518534	229302	Roadside	32.7	32.7	34.0	33.1	32.1	31.8	23.9
NH104	518757	228334	Roadside	32.7	32.7	30.8	32.2	27.5	25.7	19.2
NH105	519067	228255	Roadside	32.7	32.7	**46.0**	**43.3**	**40**	37.7	28.5
NH106	519250	228218	Roadside	32.7	32.7	37.7	35.3	35	35.4	24.2
NH107	518720	228335	Roadside	32.7	32.7	29.0	27.8	25.6	26.5	21.9
NH110, NH111, NH112	518740	228348	Roadside	32.7	32.7	**53.6**	**50.7**	**44.9**	**44.9**	35.4
NH114	518150	229160	Roadside	32.7	32.7	30.5	29	27	25.2	20.7
NH115	535373	241466	Roadside	32.7	32.7	26.5	26.8	24.2	24.3	21.5
NH116	518492	228669	Roadside	32.7	32.7		35.8	33.6	31.2	20.5
NH117	518278	229752	Roadside	32.7	32.7		28.1	24.5	26.0	21.2
NH119	521767	218110	Roadside	32.7	32.7		26.1	24.4	23.0	18.9
NH120	533805	233823	Rural	7.7	7.7		13.7	12	12.1	-
NH121	523849	233497	Roadside	32.7	32.7			23.8	20.9	16.6
NH122	523917	233917	Roadside	15.4	15.4			21	19.6	-
NH123	522289	232985	Roadside	15.4	15.4			19	19.0	-
NH124	520967	233073	Roadside	32.7	32.7			18.4	18.6	15.8

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 2020 (%) (2)	2016	2017	2018	2019	2020
NH125	512486	223251	Rural	25.0	25.0			15.8	17.7	18.4
NH128	521497	218415	Roadside	32.7	32.7				25.0	24.0
NH129	525205	220142	Roadside	15.4	15.4				27.2	-
NH130	524597	234119	Roadside	32.7	32.7				30.7	25.7
NH131	518215	231528	Kerbside	32.7	32.7				38.0	28.9
NH132	518283	231366	Roadside	32.7	32.7				18.7	16.9
NH133	523124	227776	Roadside	32.7	32.7				18.2	17.0
NH134	521516	227449	Roadside	32.7	32.7				18.6	13.5

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☒ **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 µg/m^3.

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

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

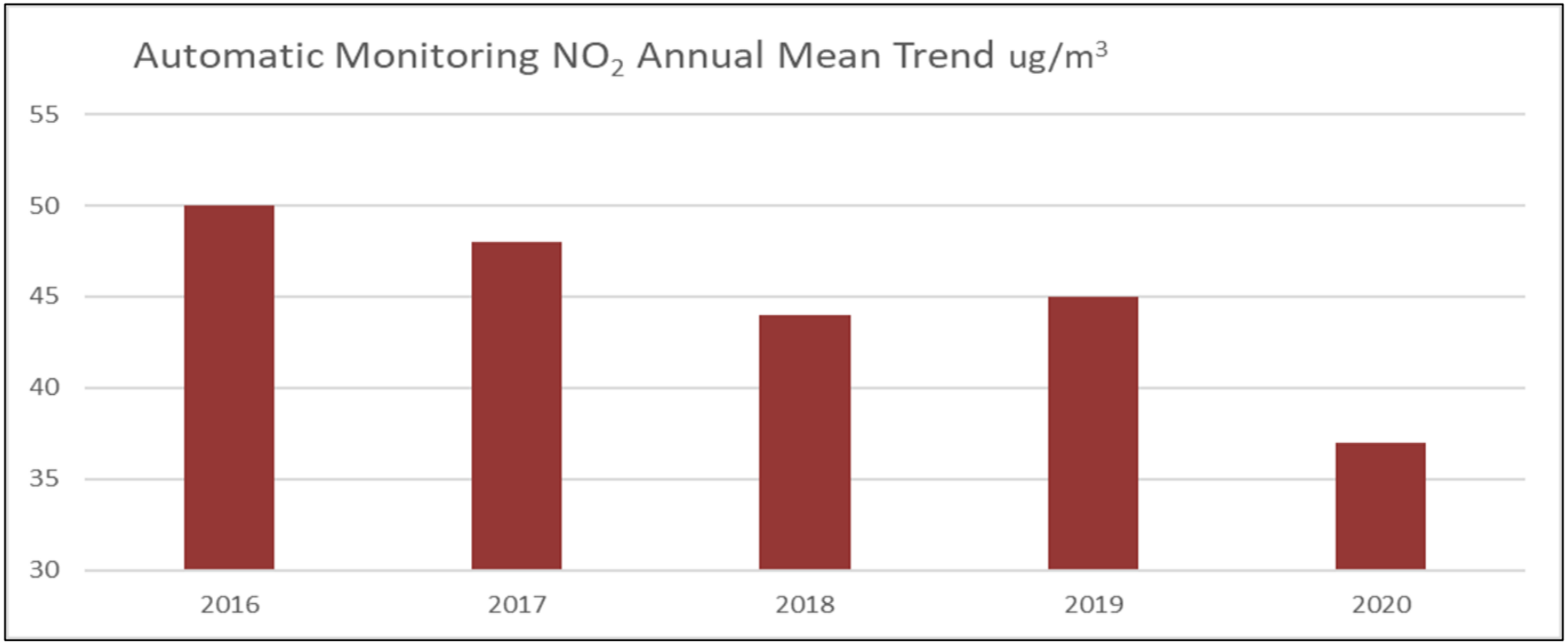
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

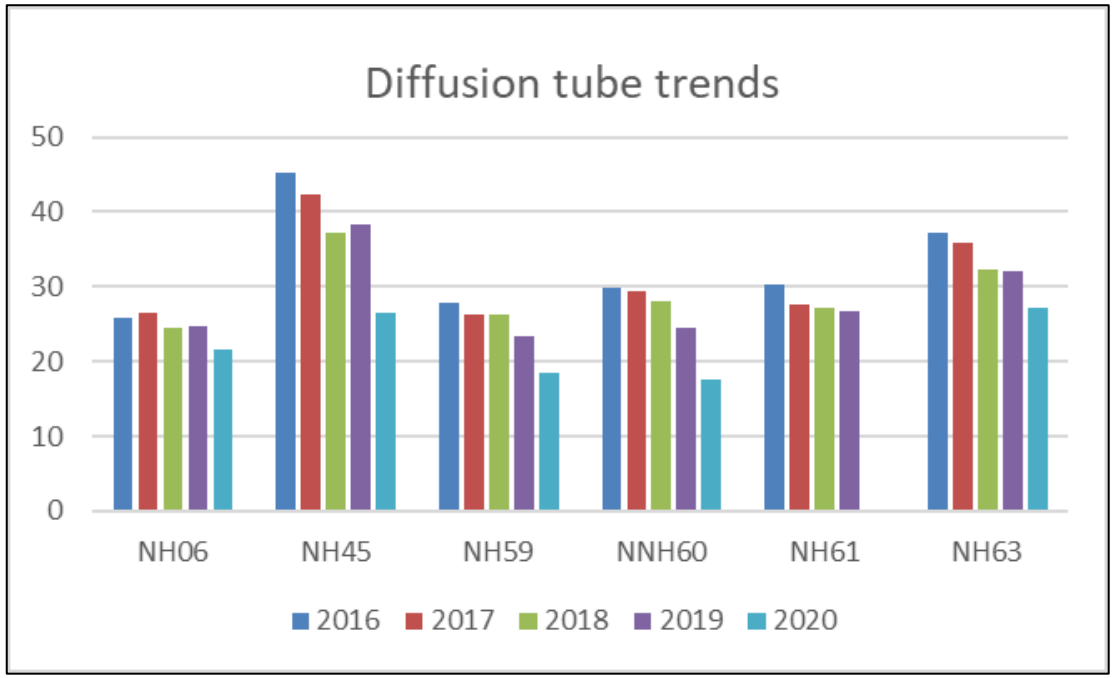
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

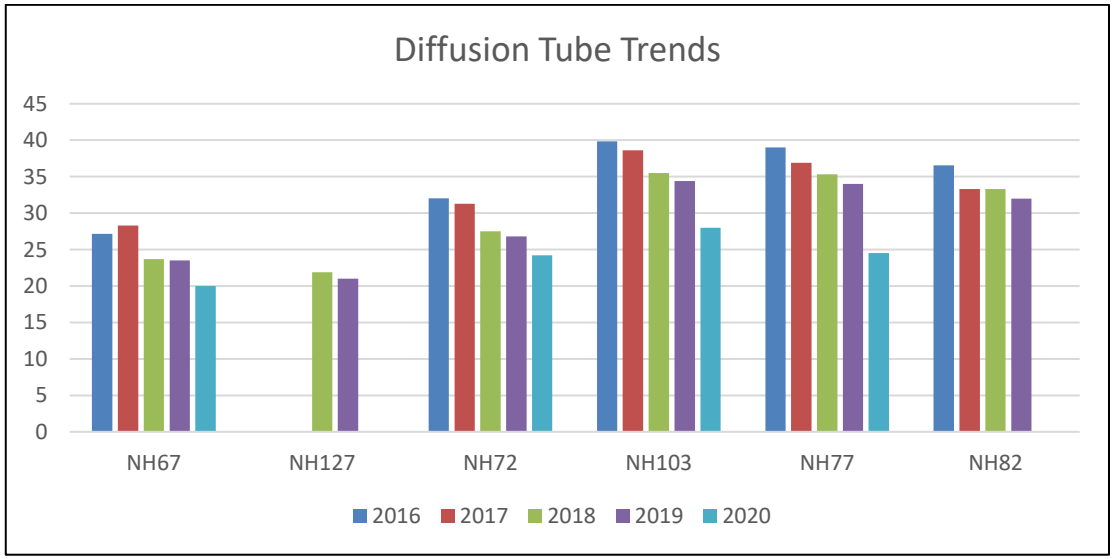
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

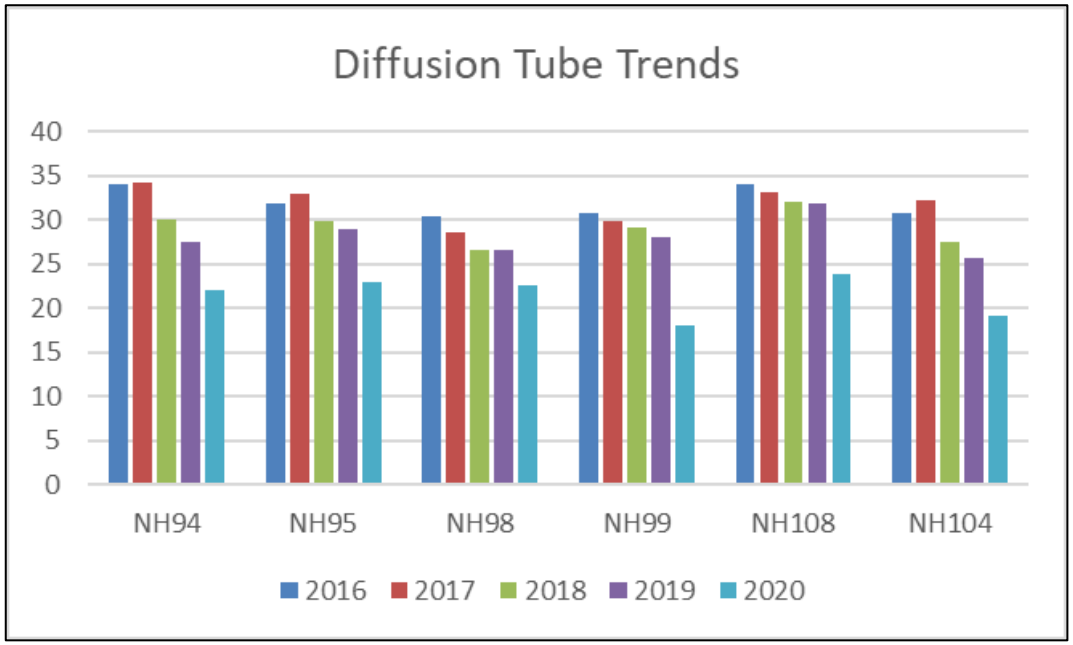
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

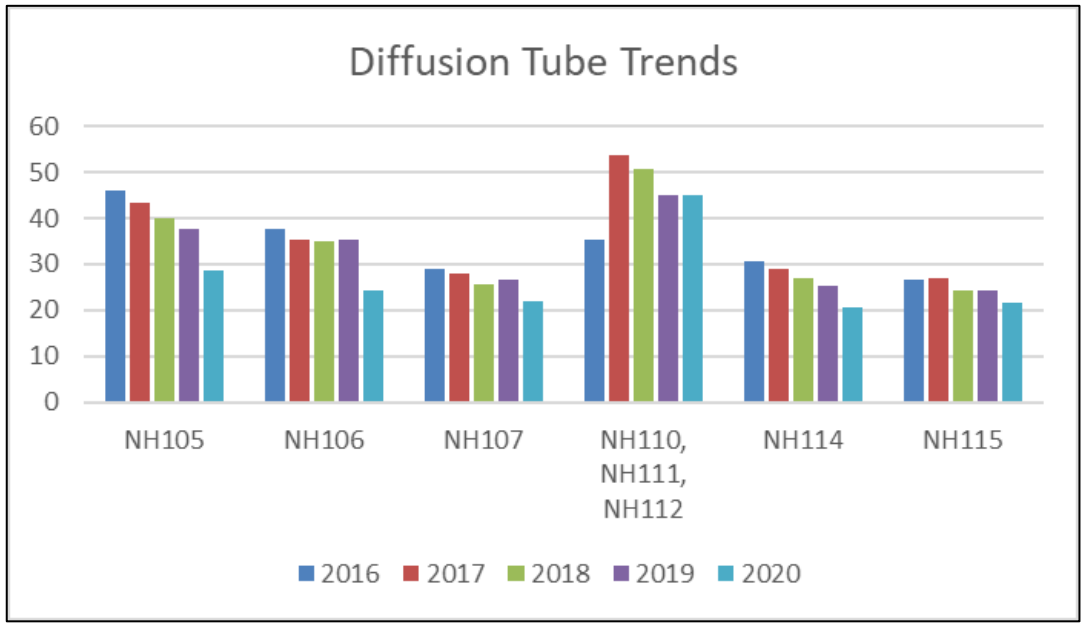
Figure A.1 – Trends in Annual Mean NO_2 Concentrations

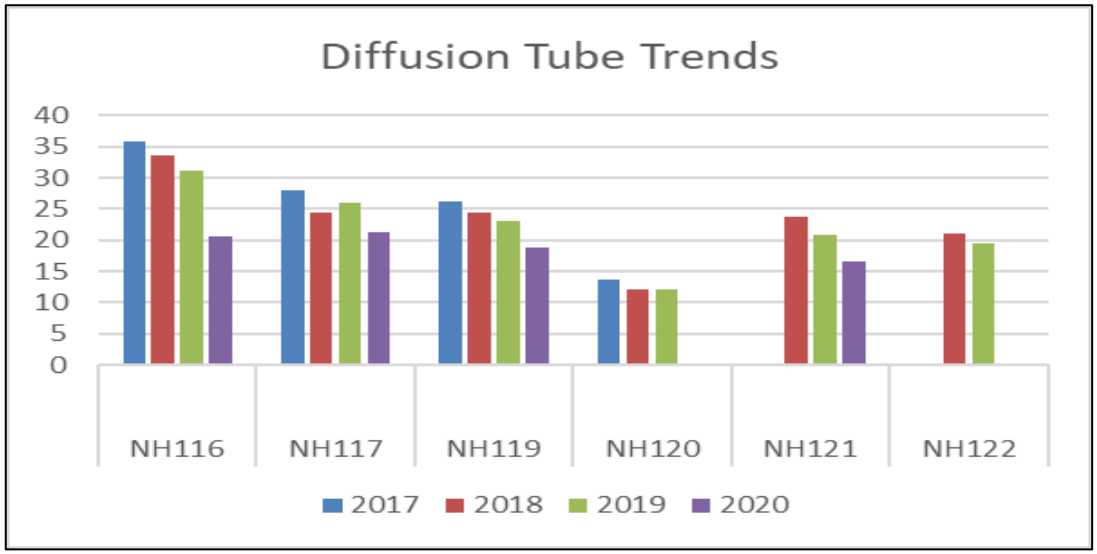


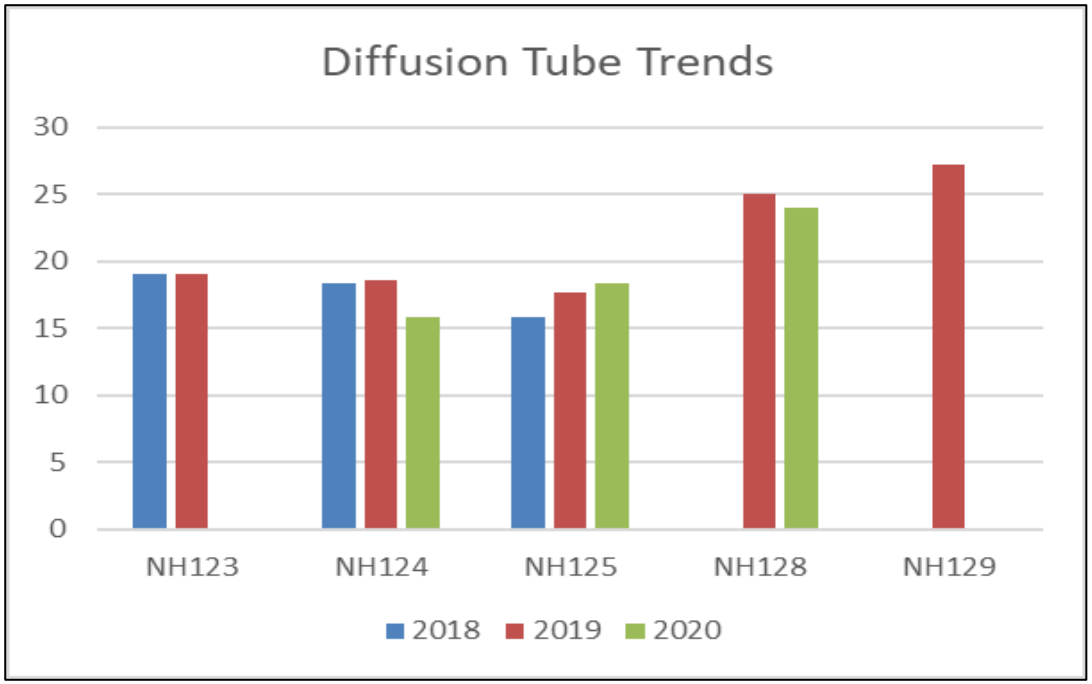

Diffusion tube trends
50
40
30
20
10
0
NH06
NH45
NH59
NNH60
NH61
NH63
2016
2017
2018
2019
2020


Diffusion Tube Trends
45
40
35
30
25
20
15
10
5
0
NH67
NH127
NH72
NH103
NH77
NH82
2016
2017
2018
2019
2020


Diffusion Tube Trends
40
35
30
25
20
15
10
5
0
NH94
NH95
NH98
NH99
NH108
NH104
2016
2017
2018
2019
2020


Diffusion Tube Trends
60
50
40
30
20
10
0
NH105
NH106
NH107
NH110, NH111, NH112
NH114
NH115
2016
2017
2018
2019
2020


Diffusion Tube Trends
40
35
30
25
20
15
10
5
0
NH116
NH117
NH119
NH120
NH121
NH122
2017
2018
2019
2020


Diffusion Tube Trends
30
25
20
15
10
5
0
NH123
NH124
NH125
NH128
NH129
2018
2019
2020

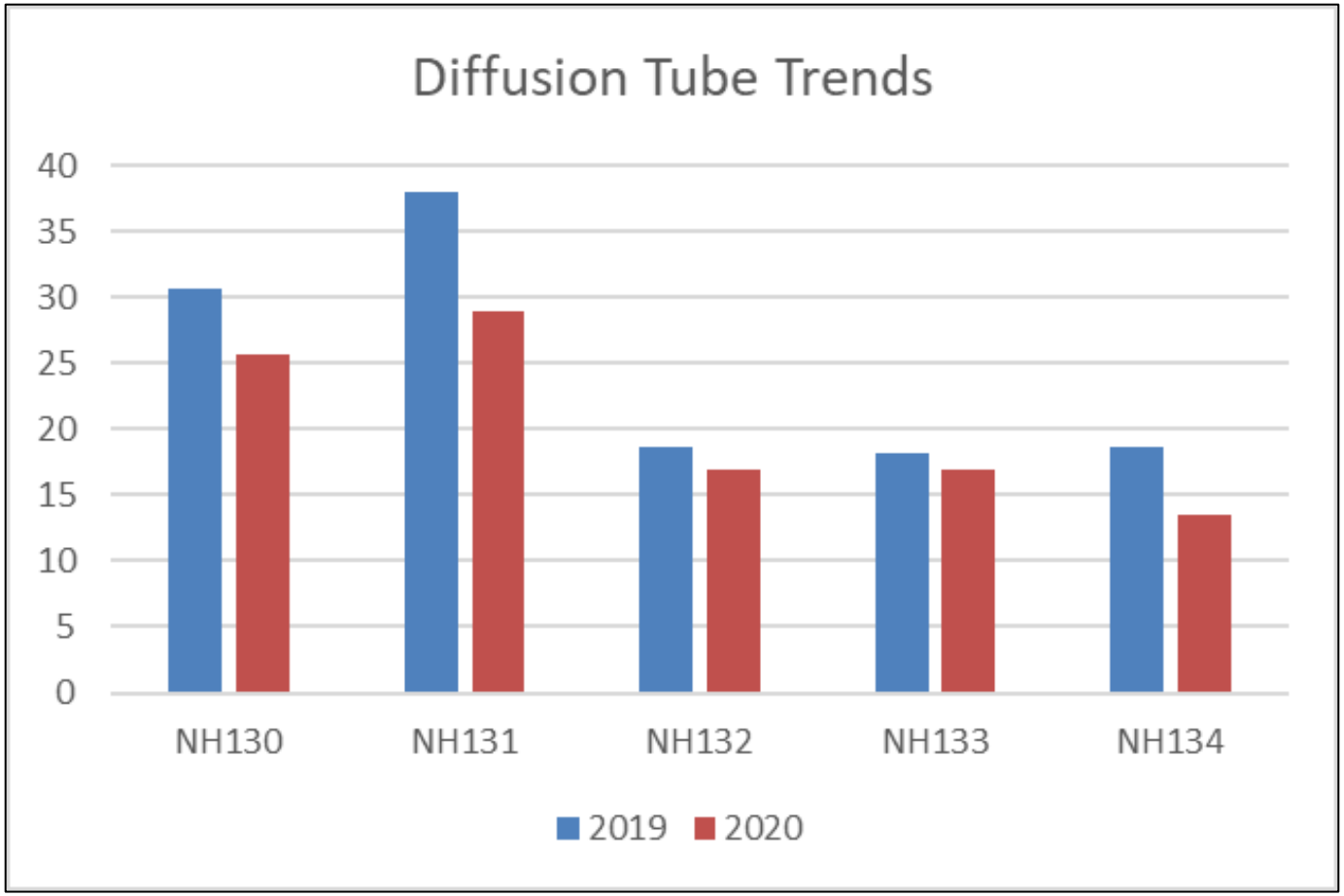

Diffusion Tube Trends
40
35
30
25
20
15
10
5
0
NH130
NH131
NH132
NH133
NH134
2019
2020

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NH1	518740	228348	Roadside	86	86	10	4	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 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%).

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

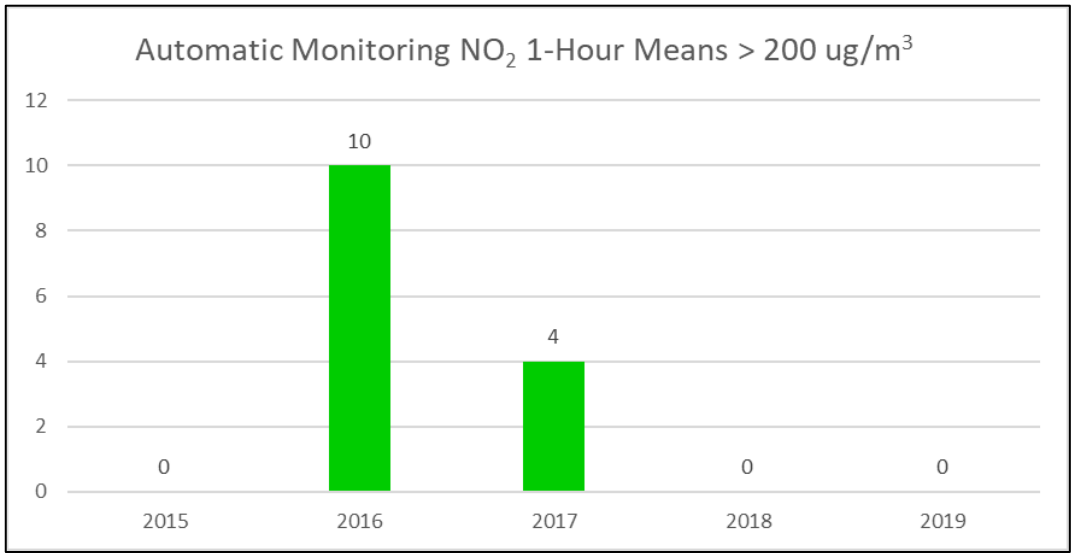


Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NH2	518713	228349	Roadside	95	95	25.5	20.1	21.5	20.4	19.7

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM_{10} annual mean objective of 40µg/m³ are shown in **bold**.

All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

Figure A.3 – Trends in Annual Mean PM_{10} Concentrations

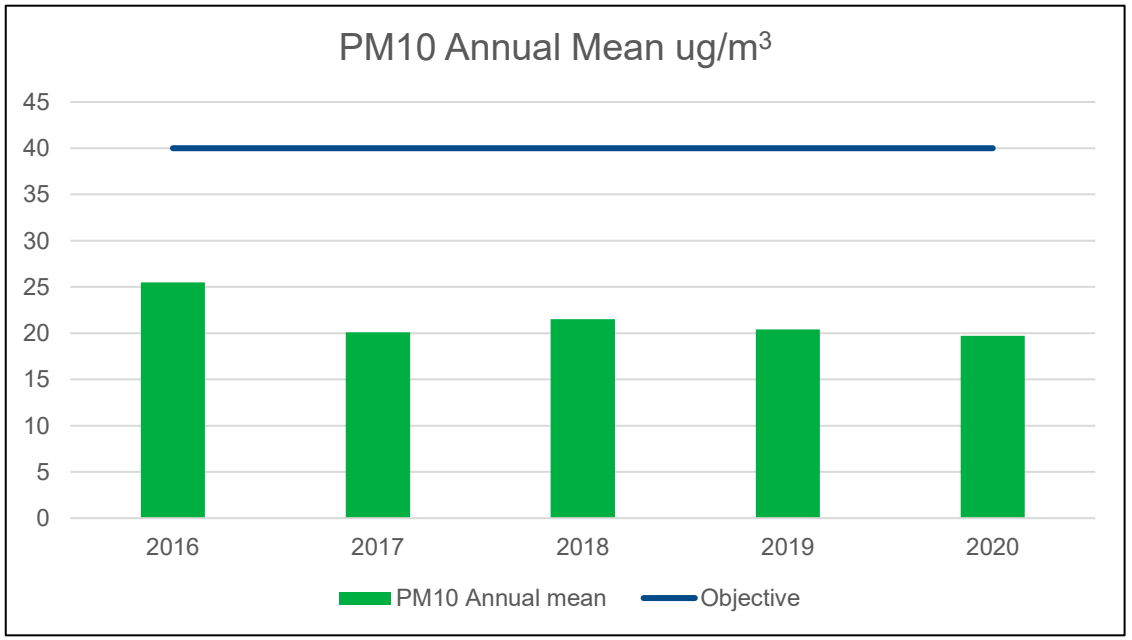


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NH2	518713	228349	Roadside	95	95	4	7	1	5	1

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.
Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.
If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

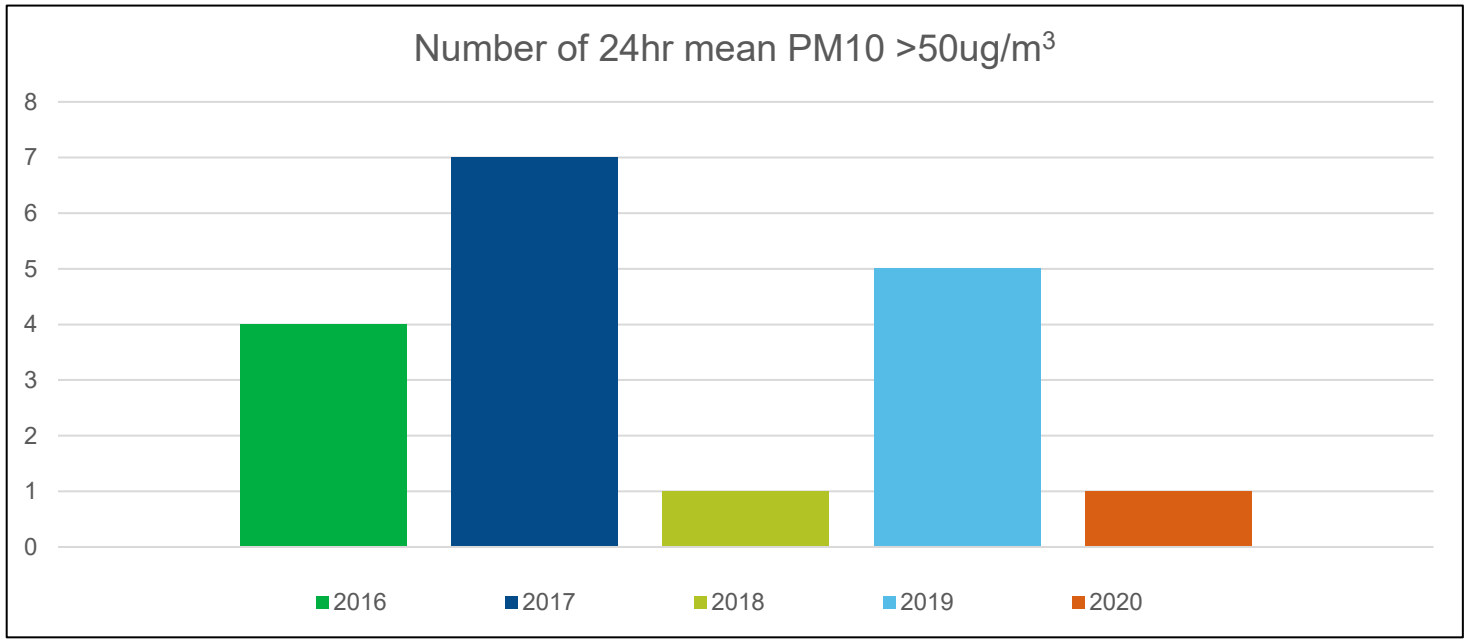


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

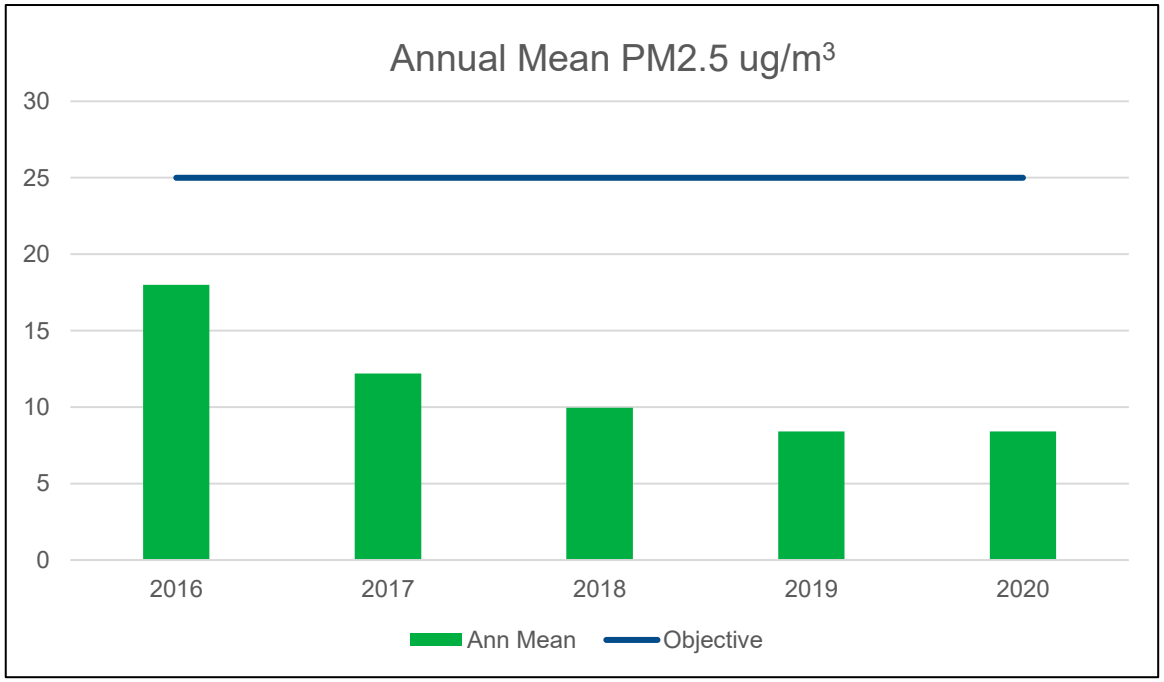
Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NH2	518713	228349	Roadside	83	83	18.0	12.2	9.96	8.4	8.4

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.
All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NH06	535906	240794	42.2	30.5									37.6	27.2	34.4	21.7		
NH45	518708	228347	57.9	35.0									48.2	26.8	42.0	26.5		AQMA1
NH59	524649	234061	37.2	27.3									30.3	21.9	29.2	18.5		
NNH60	519916	230099	32.2	26.4									28.6	24.0	27.8	17.6		
NH61	524428	233882	40.3	29.8												-		
NH63	518160	229092	54.5	38.9									42.9	36.0	43.1	27.2		AQMA2
NH67	519225	230553	34.0	34.6									24.8	32.9	31.6	20.0		
NH127	518821	229993	46.1	23.1												-		
NH72	524502	233948	44.0	37.6									38.2	33.1	38.2	24.2		
NH103	518773	228342	53.6	40.7									41.3	41.4	44.3	28.0		AQMA1
NH77	518006	229032	48.2	37.3									42.1	27.5	38.8	24.5		AQMA2
NH82	518129	229065	43.7	36.2											30.6	-		AQMA2
NH87	518731	228362	36.8	28.9									127.8	18.1	42.2	33.5		Doubtful due to uncertain result for November
NH88	524448	233898	62.7	50.7									51.5	39.6	50.2	32.3		
NH89	518706	228293	37.9	27.9									32.6	24.0	35.0	19.4		
NH91	518656	228406	48.4	44.8									38.5	36.9	36.4	26.7		
NH92	518872	228305	58.1	47.3									52.9	42.4	35.7	31.7		AQMA1
NH93	518130	229036	55.2												28.7	-		AQMA2
NH94	517915	228967	44.9	28.4									33.9	32.7	37.7	22.1		
NH95	517886	228975	42.8	37.6									33.0	32.0	30.4	23.0		
NH98	519080	229510	42.0	32.0									36.3	32.4	45.0	22.6		
NH99	518953	229786	35.3	28.6									34.5	16.2	38.3	18.1		
NH108	518534	229302	43.9	34.6									38.7	33.7	34.6	23.9		
NH104	518757	228334	35.8	28.5									33.3	24.1	-	19.2		AQMA1
NH105	519067	228255	52.1	38.6									45.8	43.5	-	28.5		AQMA1
NH106	519250	228218	43.0	28.7									45.6	35.9	56.0	24.2		
NH107	518720	228335	41.4	29.6									35.4	31.9	32.8	21.9		
NH110, NH111, NH112	518740	228348	59.8	42.6									60.2	57.1	34.0	35.4		AQMA1
NH114	518150	229160	35.2	30.2									35.9	29.7	32.4	20.7		AQMA2
NH115	535373	241466	39.9	29.0									35.6	31.4	33.5	21.5		
NH116	518492	228669	39.1	25.0									29.8	35.6	30.0	20.5		
NH117	518278	229752	39.5	28.2									34.6	31.5	26.3	21.2		
NH119	521767	218110	36.3	23.3									32.3	27.9	25.1	18.9		
NH120	533805	233823	20.1												26.3	-		
NH121	523849	233497	29.9	20.1									28.8	26.2	37.9	16.6		
NH122	523917	233917	42.3	29.8											40.7	-		
NH123	522289	232985	29.9	19.4											45.6	-		
NH124	520967	233073	29.2	15.6									28.5	26.9	26.7	15.8		
NH125	512486	223251		26.0									28.2	24.7	26.9	18.4		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NH128	521497	218415	34.0	56.7									33.8	27.1	21.4	24.0		
NH129	525205	220142	36.9	25.2											34.4	-		
NH130	524597	234119	54.2	33.9									33.8	40.8	42.0	25.7		
NH131	518215	231528	55.3	37.7									48.0	41.5	29.2	28.9		.
NH132	518283	231366	32.2	21.1									28.8	24.6	27.8	16.9		
NH133	523124	227776	30.2	20.9									28.2	28.3	43.1	17.0		
NH134	521516	227449	24.5	17.7									21.6	21.6	31.6	13.5		

☒ All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16

☒ Local bias adjustment factor used

☒ National bias adjustment factor used

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

☒ North Hertfordshire District Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

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

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

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 North Hertfordshire District Council During 2020

North Hertfordshire District Council has not identified any significant new sources relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by North Hertfordshire District Council During 2020

North Hertfordshire District Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are 50% triethanolamine (TEA) in acetone and are supplied and analysed by SOCOTEC Didcot. SOCOTEC follows the procedures set out in the Harmonisation Practical Guidance. SOCOTEC also participates in the Workplace Analysis Scheme for Proficiency (WASP) and is currently ranked as a Category Satisfactory laboratory. This information was used in selecting the below bias adjustment factor.

Data from the diffusion tubes has been compared and bias corrected to the factors produced from the UK co-location database. The bias adjustment factor has been taken from the March 2020 version of the Diffusion Tube Bias Adjustment Factors spreadsheet available from the Defra Review and Assessment website (http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html).

According to the above database the bias adjustment factor for SOCOTEC in 2020 was 0.76.

Diffusion Tube Annualisation

Annualisation was required for all diffusion tube sites and detailed within

Table C.2. below

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 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.TG16 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.

North Hertfordshire District Council have applied a national bias adjustment factor of 0.76 to the 2020 monitoring data. A summary of bias adjustment factors used by North Hertfordshire District Council over the past five years is presented in Table C.1.

The national factor has continued to be used due to greater reliability.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.76
2019	National	03/20	0.75
2018	National	03/19	0.76
2017	National	03/17	1.03
2016	National	03/16	0.95

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within North Hertfordshire District required distance correction during 2020.

Non-automatic annual mean NO_2 concentrations for 2020 data have not been corrected for distance due to the low data capture and low results, all significantly below objective levels.

QA/QC of Automatic Monitoring

The R&P 1400a Tapered Element Oscillating Measurement (TEOM) monitor at Stevenage Road, Hitchin is subject to calibration visits and filter checks and changes on a monthly basis by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The calibration readings are reported to Ricardo Energy and Environment who are retained by NHDC to verify and ratify the data generated by the monitor. This process includes the application of the volatile correction model (VCM) and the results of the data reported have had this applied and have been demonstrated as equal to the gravimetric equivalent.

The Met-One Smart Heated BAM 1020 $PM_{2.5}$ monitor at Stevenage Road requires no periodic calibration checks, only a tape change approximately once every six weeks which is undertaken by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The outcome of the servicing and the associated performance of the monitor are reported to Ricardo Energy and Environment who are retained by NHDC to verify and ratify the data generated by the monitor.

The Teledyne-API T200A chemiluminescence monitor at Stevenage Road is subject to calibration checks and filter checks and changes on a monthly basis by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The calibration readings are reported to Ricardo Energy and Environment who are retained by NHDC, as part of the larger Hertfordshire and Bedfordshire Air Quality Network, to verify and ratify the data generated by the monitor.

The continuous monitoring data is available for viewing on-line, or downloading from either:

Hertfordshire and Bedfordshire Air Quality Network

UK-Air (on behalf of DEFRA)

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

Volatile Correction Model (VCM) has been applied to the PM10 Teom Data, prior to summarising.

Correction factors have been applied to the PM2.5 BAM data. No further corrections have been applied.

Automatic Monitoring Annualisation

All automatic monitoring locations within North Hertfordshire District recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO_2 Fall-off with Distance from the Road

No fall-off with distance corrections have been made for 2020 data, due to low data capture, and lower traffic flows during the pandemic. All annualised and bias corrected diffusion tube data results are significantly below objective levels.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Site 1 Bedford	Annualisation Factor Site 2 Canterbury	Annualisation Factor Site 3 Northampton	Annualisation Factor	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
NH06	0.7270	0.8255	0.9440		0.8322	34.4	28.6	
NH45	0.7270	0.8255	0.9440		0.8322	42.0	34.9	
NH59	0.7270	0.8255	0.9440		0.8322	29.2	24.3	
NNH60	0.7270	0.8255	0.9440		0.8322	27.8	23.1	
NH63	0.7270	0.8255	0.9440		0.8322	43.1	35.8	
NH67	0.7270	0.8255	0.9440		0.8322	31.6	26.3	
NH72	0.7270	0.8255	0.9440		0.8322	38.2	31.8	
NH103	0.7270	0.8255	0.9440		0.8322	44.3	36.8	
NH77	0.7270	0.8255	0.9440		0.8322	38.8	32.3	
NH87	0.7270	0.8255	0.9440		0.8322	52.9	44.0	
NH88	0.7270	0.8255	0.9440		0.8322	51.1	42.5	
NH89	0.7270	0.8255	0.9440		0.8322	30.6	25.5	
NH91	0.7270	0.8255	0.9440		0.8322	42.2	35.1	
NH92	0.7270	0.8255	0.9440		0.8322	50.2	41.8	
NH94	0.7270	0.8255	0.9440		0.8322	35.0	29.1	
NH95	0.7270	0.8255	0.9440		0.8322	36.4	30.2	
NH98	0.7270	0.8255	0.9440		0.8322	35.7	29.7	
NH99	0.7270	0.8255	0.9440		0.8322	28.7	23.8	
NH108	0.7270	0.8255	0.9440		0.8322	37.7	31.4	
NH104	0.7270	0.8255	0.9440		0.8322	30.4	25.3	
NH105	0.7270	0.8255	0.9440		0.8322	45.0	37.4	
NH106	0.7270	0.8255	0.9440		0.8322	38.3	31.9	
NH107	0.7270	0.8255	0.9440		0.8322	34.6	28.8	
NH110	0.7270	0.8255	0.9440		0.8322	-	-	*Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only*
NH111	0.7270	0.8255	0.9440		0.8322	-	-	*As above*
NH112	0.7270	0.8255	0.9440		0.8322	56.0	46.6	*As above*
NH114	0.7270	0.8255	0.9440		0.8322	32.8	27.3	
NH115	0.7270	0.8255	0.9440		0.8322	34.0	28.3	
NH116	0.7270	0.8255	0.9440		0.8322	32.4	26.9	
NH117	0.7270	0.8255	0.9440		0.8322	33.5	27.8	
NH119	0.7270	0.8255	0.9440		0.8322	30.0	24.9	

Site ID	Annualisation Factor Site 1 Bedford	Annualisation Factor Site 2 Canterbury	Annualisation Factor Site 3 Northampton	Annualisation Factor	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
NH121	0.7270	0.8255	0.9440		0.8322	26.3	21.8	
NH124	0.7270	0.8255	0.9440		0.8322	25.1	20.8	
NH125	0.7640	0.8406	1.1504		0.9184	26.3	24.2	
NH128	0.7270	0.8255	0.9440		0.8322	37.9	31.5	
NH130	0.7270	0.8255	0.9440		0.8322	40.7	33.8	
NH131	0.7270	0.8255	0.9440		0.8322	45.6	38.0	
NH132	0.7270	0.8255	0.9440		0.8322	26.7	22.2	
NH133	0.7270	0.8255	0.9440		0.8322	26.9	22.4	
NH134	0.7270	0.8255	0.9440		0.8322	21.4	17.8	

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

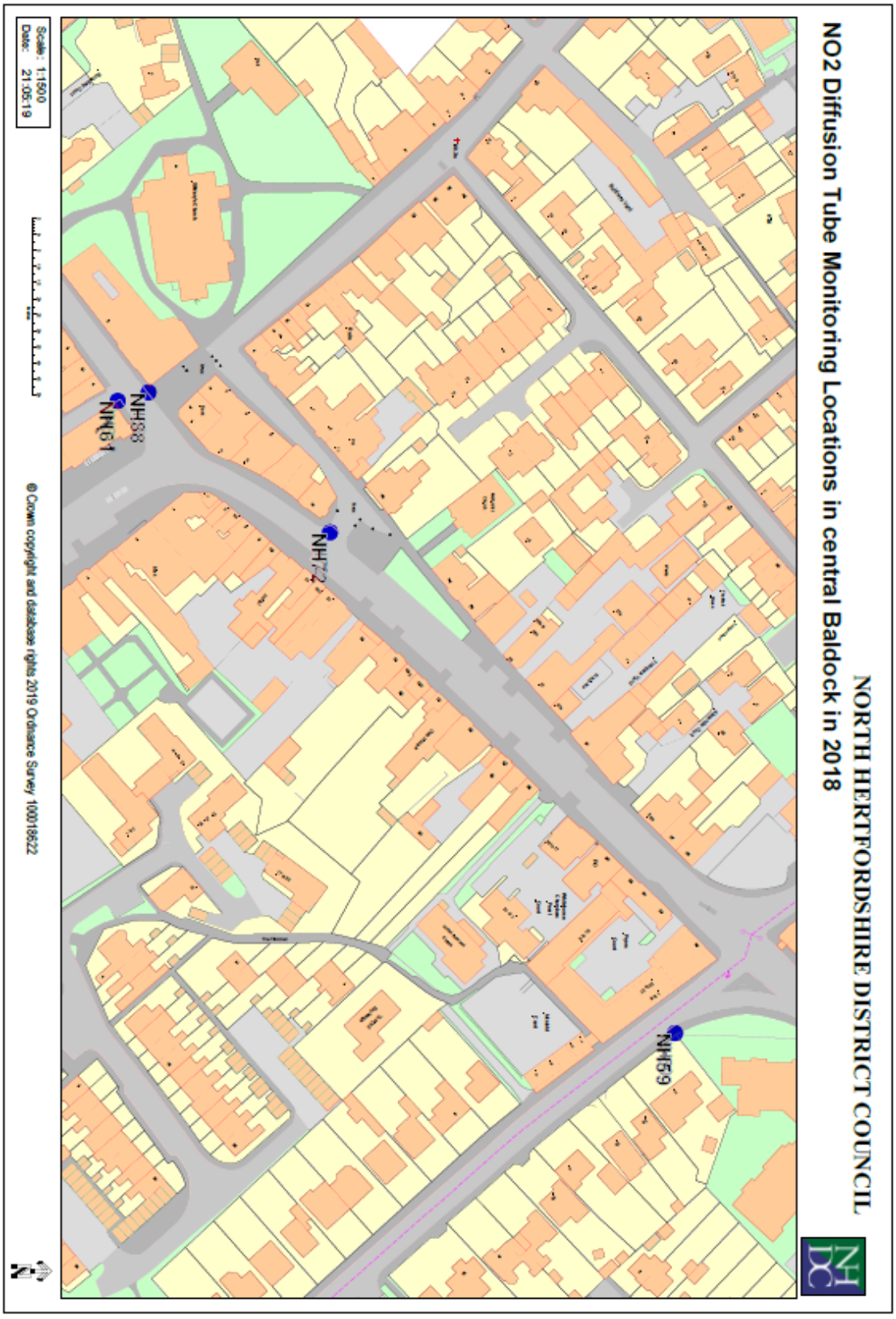


Figure D.1 Diffusion Tube Monitoring Locations (NH72, NH88, NH59 & NH61) in central Baldock - 2018

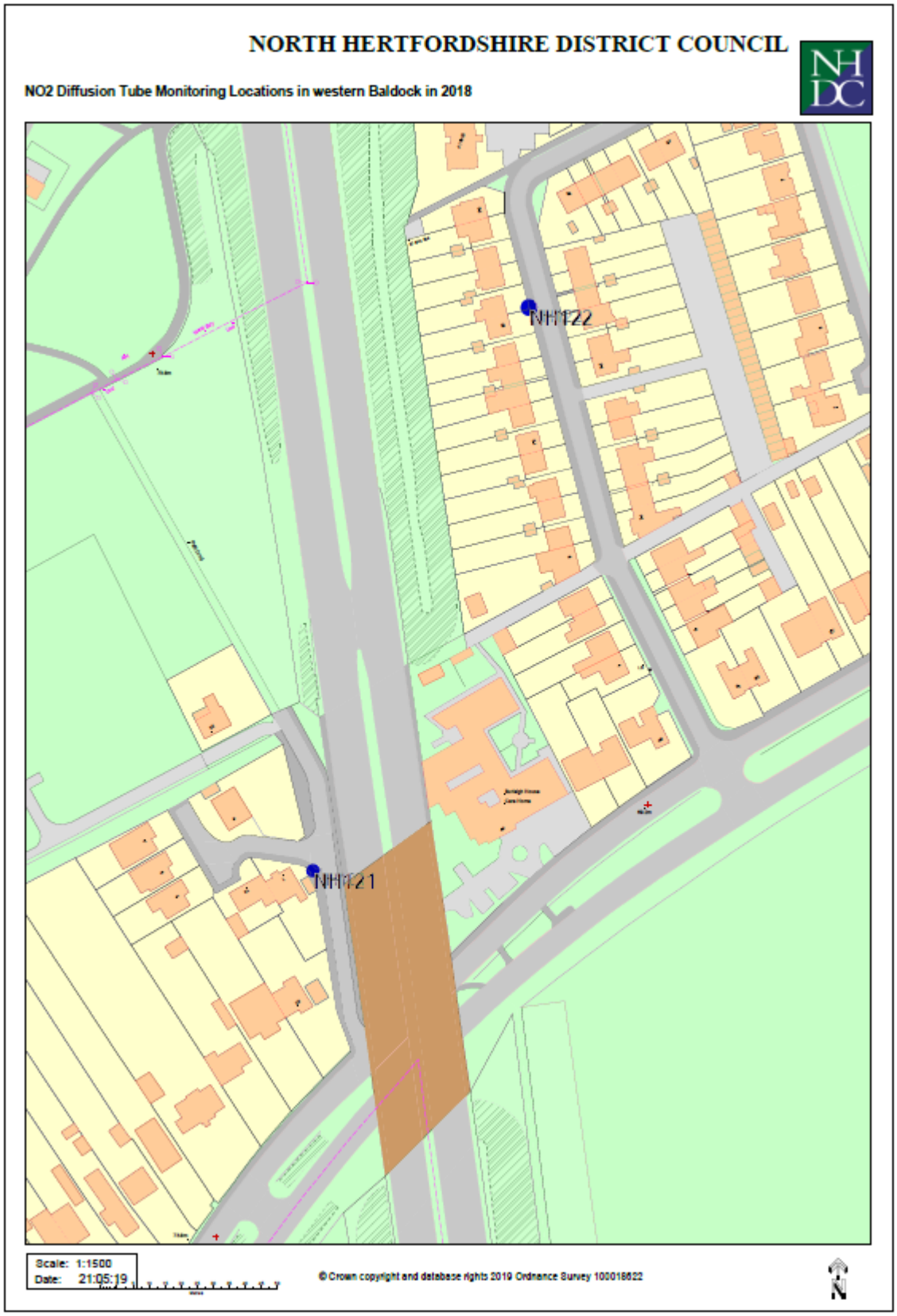


Figure D2: Diffusion Tube Monitoring Locations (NH121 & NH122) in western Baldock - 2018

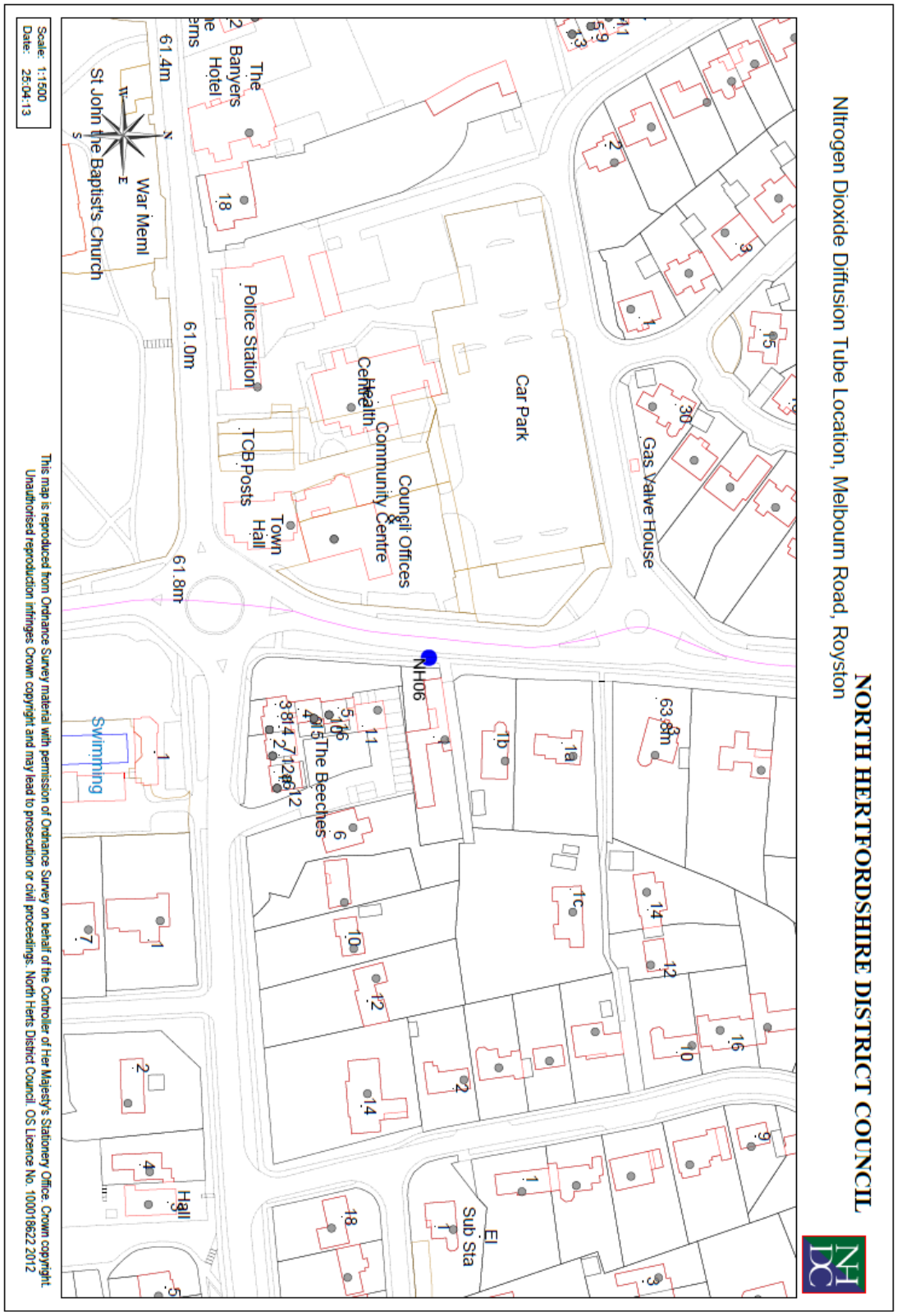


Figure D3: Diffusion Tube Monitoring Location (NH06) at Melbourn Road, Royston - 2018

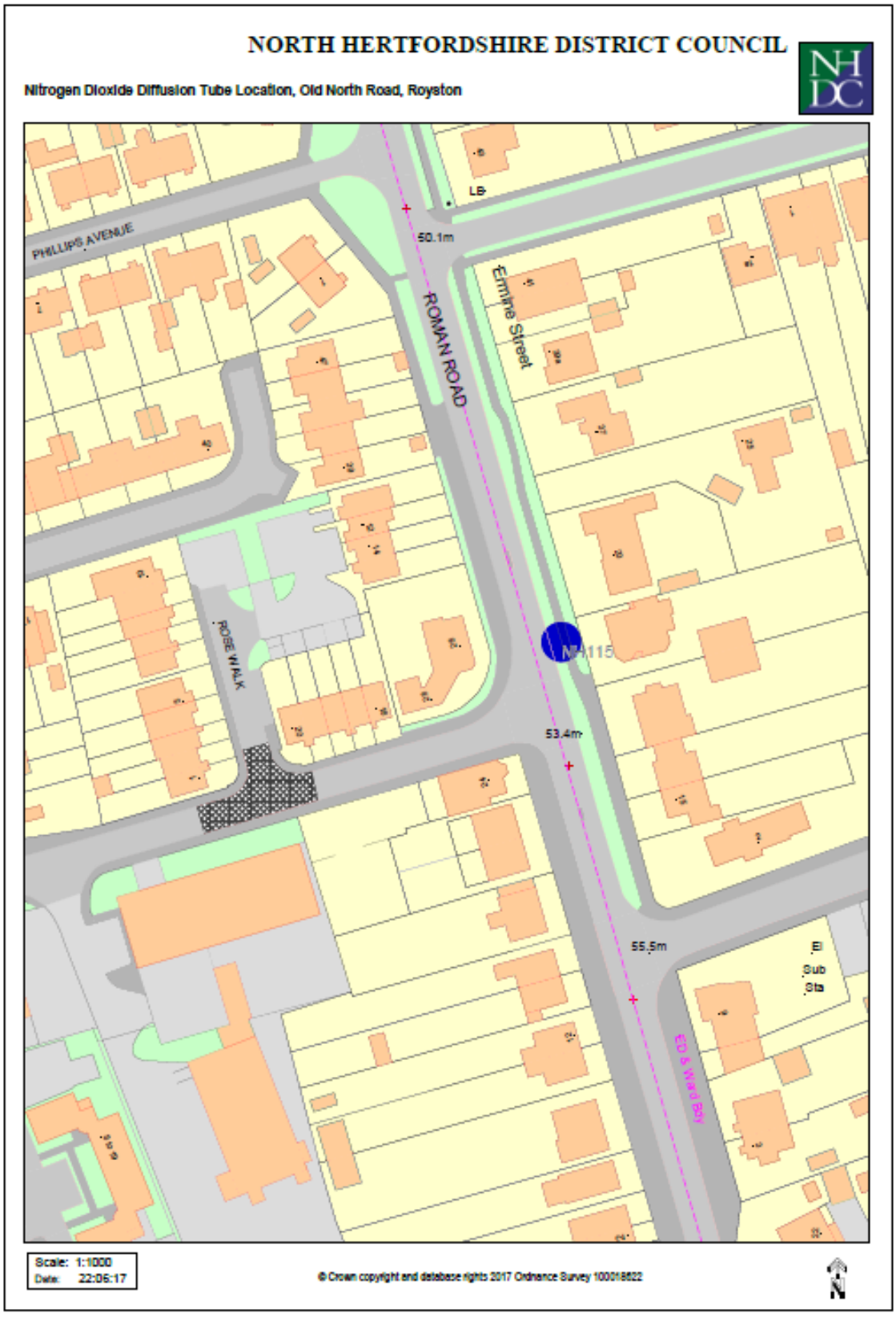


Figure D4: Diffusion Tube (NH115) Monitoring Location at Old North Road, Royston - 2018

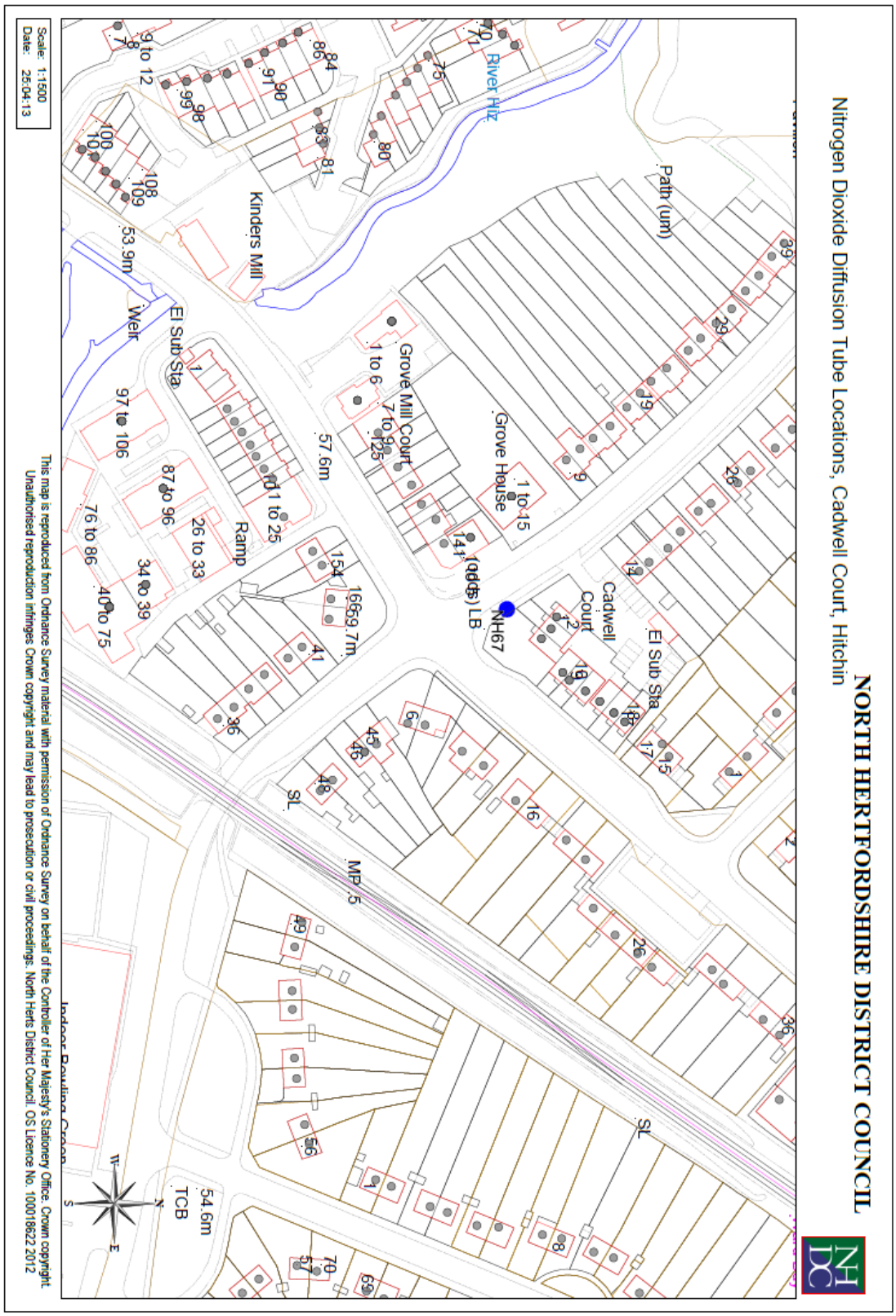


Figure D5: Diffusion Tube (NH67) Monitoring Location at Cadwell Court, Hitchin - 2019

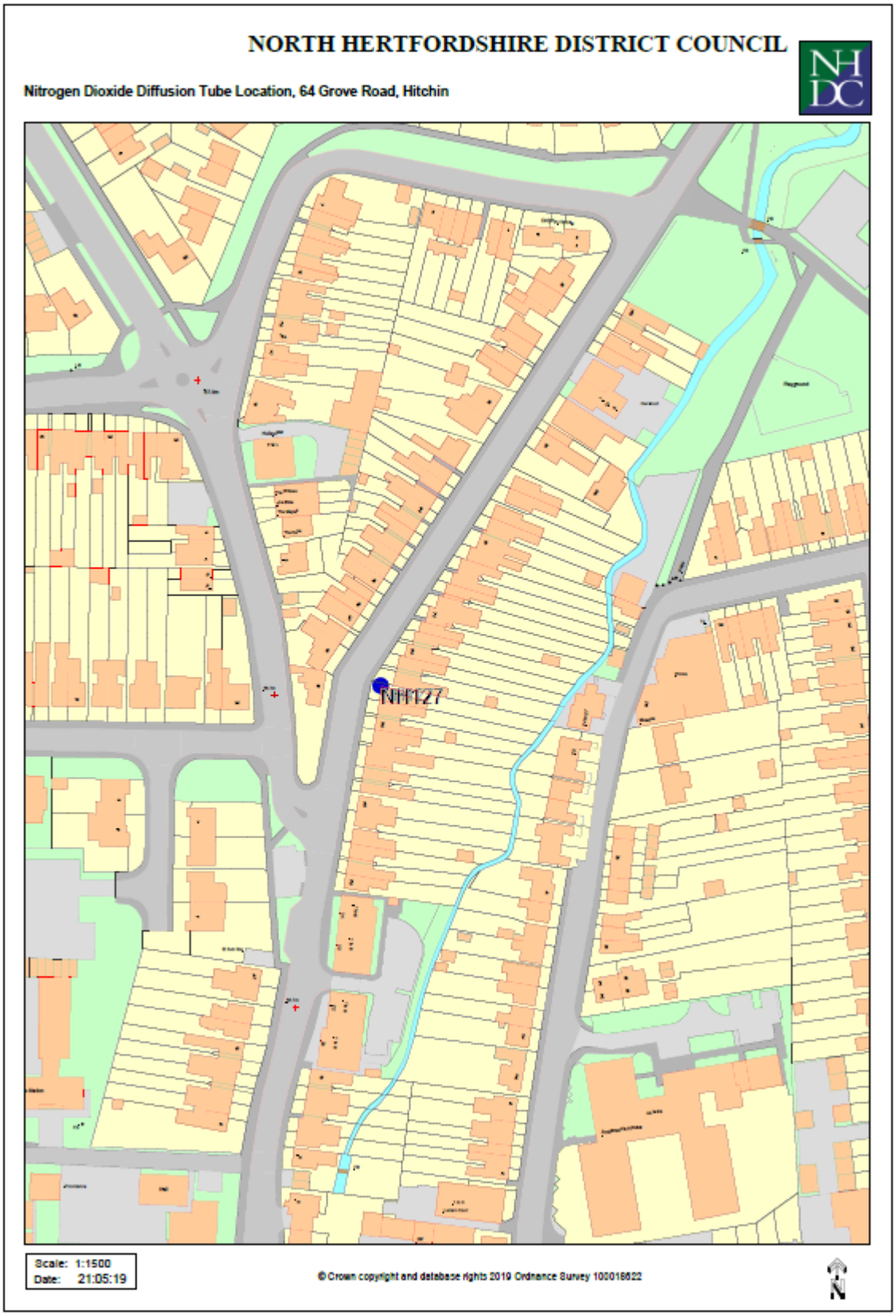


Figure D6: Diffusion Tube (NH127) Monitoring Location at Grove Road, Hitchin - 2019

Figure D7: Diffusion Tube Monitoring Locations (NH99 & NH98) in the Nightingale Road Area of Hitchin – 2019

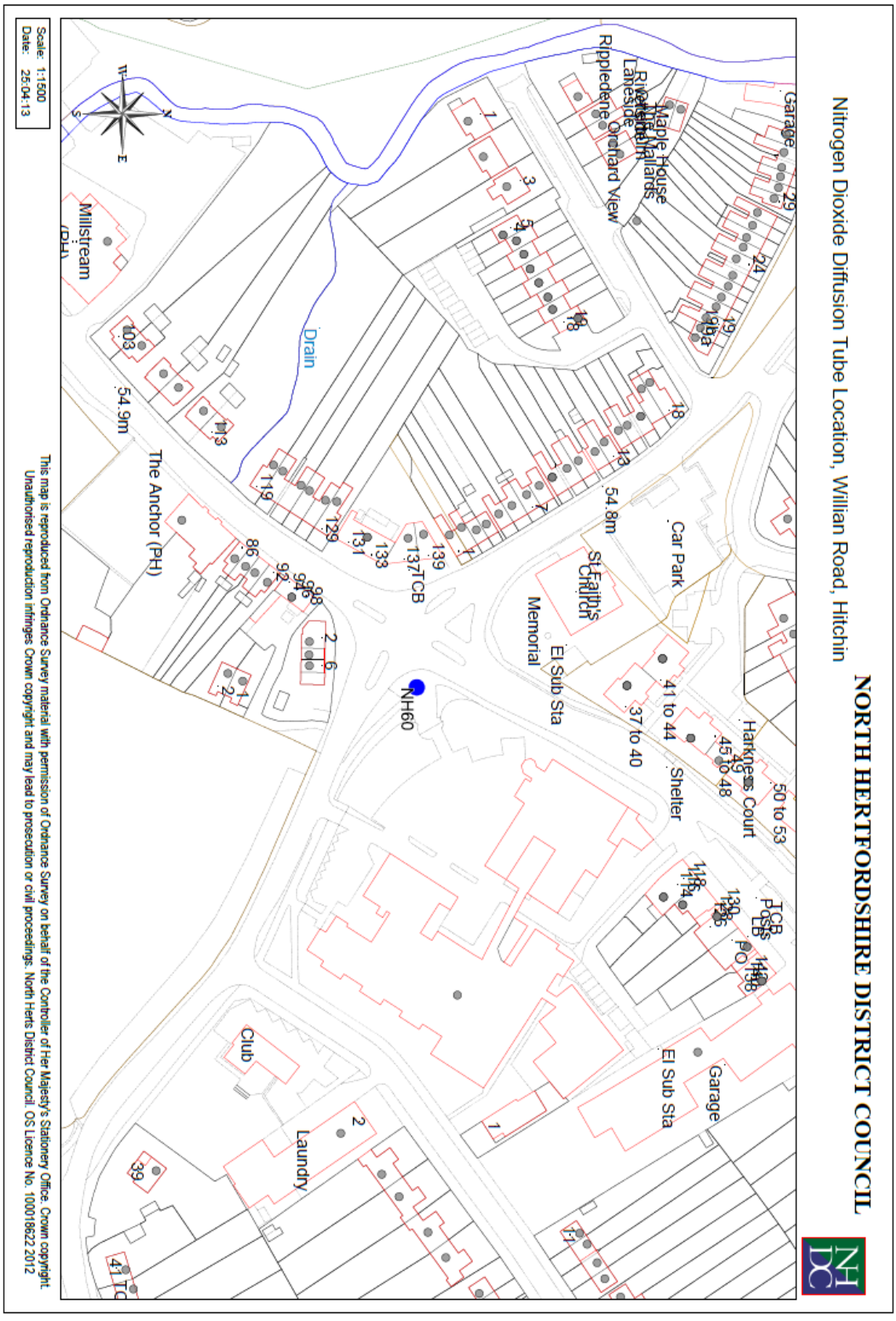


Figure D8: Diffusion Tube Monitoring Location (NH60) at Willian Road, Hitchin - 2019

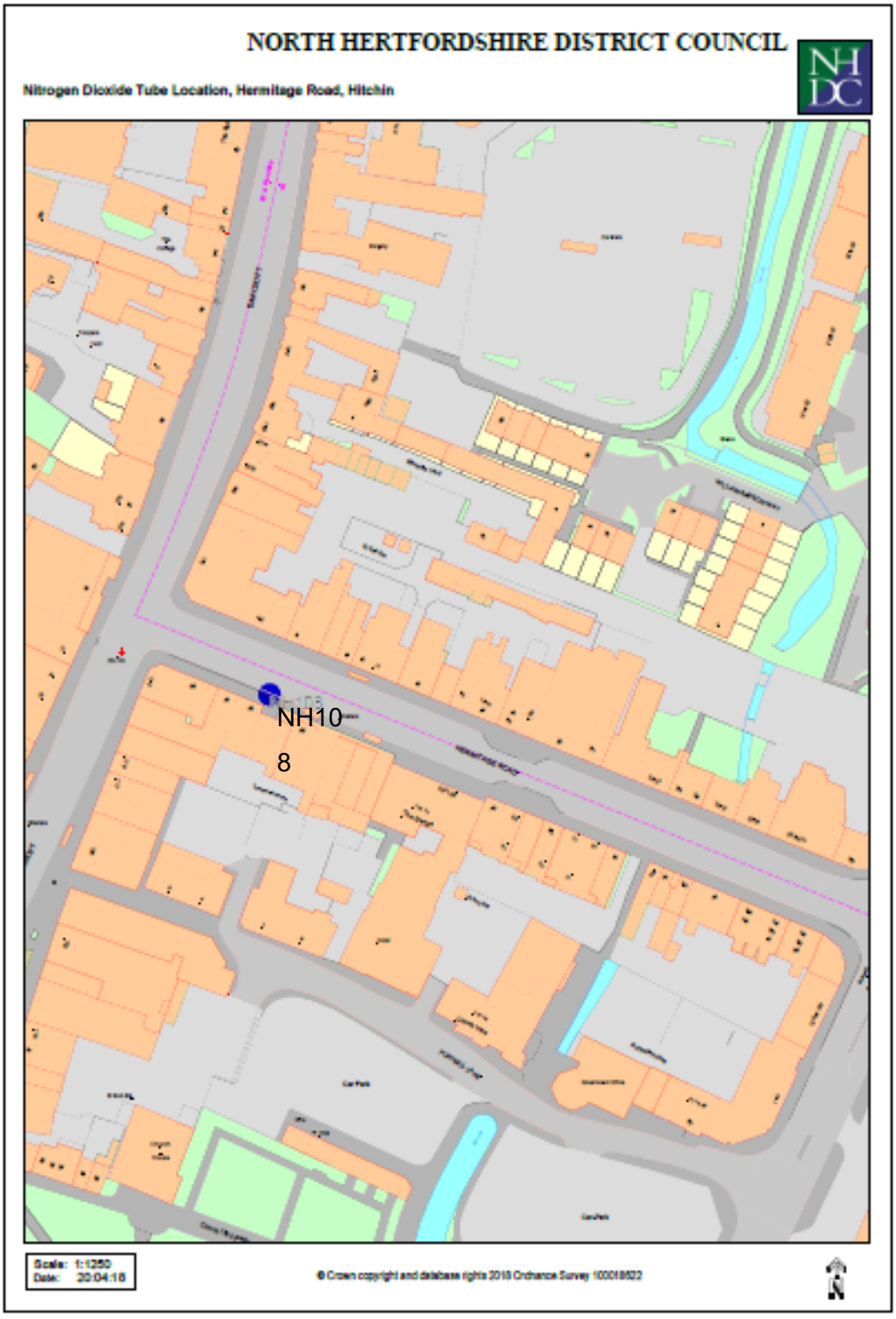


Figure D9: Diffusion Tube Monitoring Location (NH108) at Hermitage Road, Hitchin – 2019

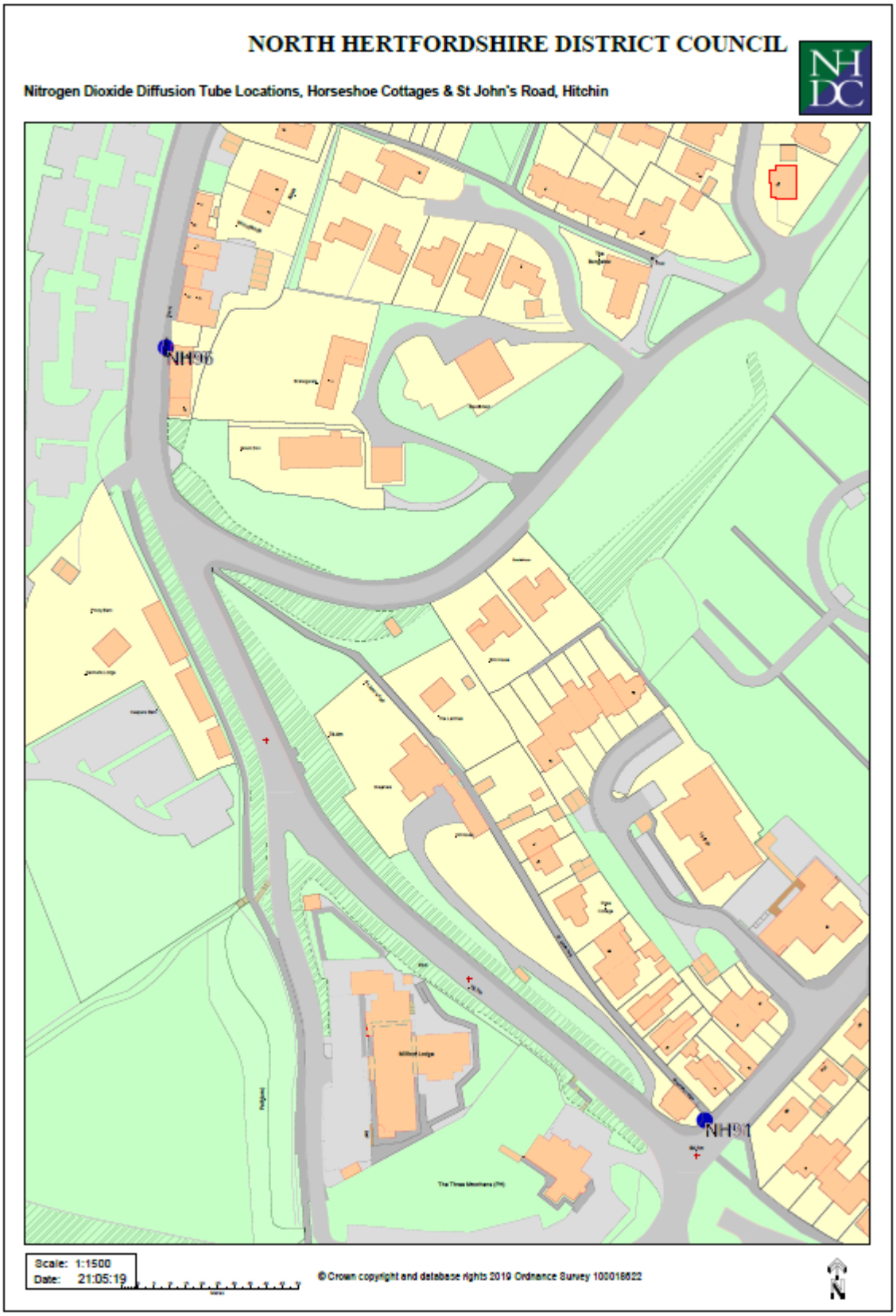


Figure D10: Diffusion Tube Monitoring Locations (NH116) at 6 Horseshoe Court, Park Street and (NH91) at St John's Road, Hitchin - 2019

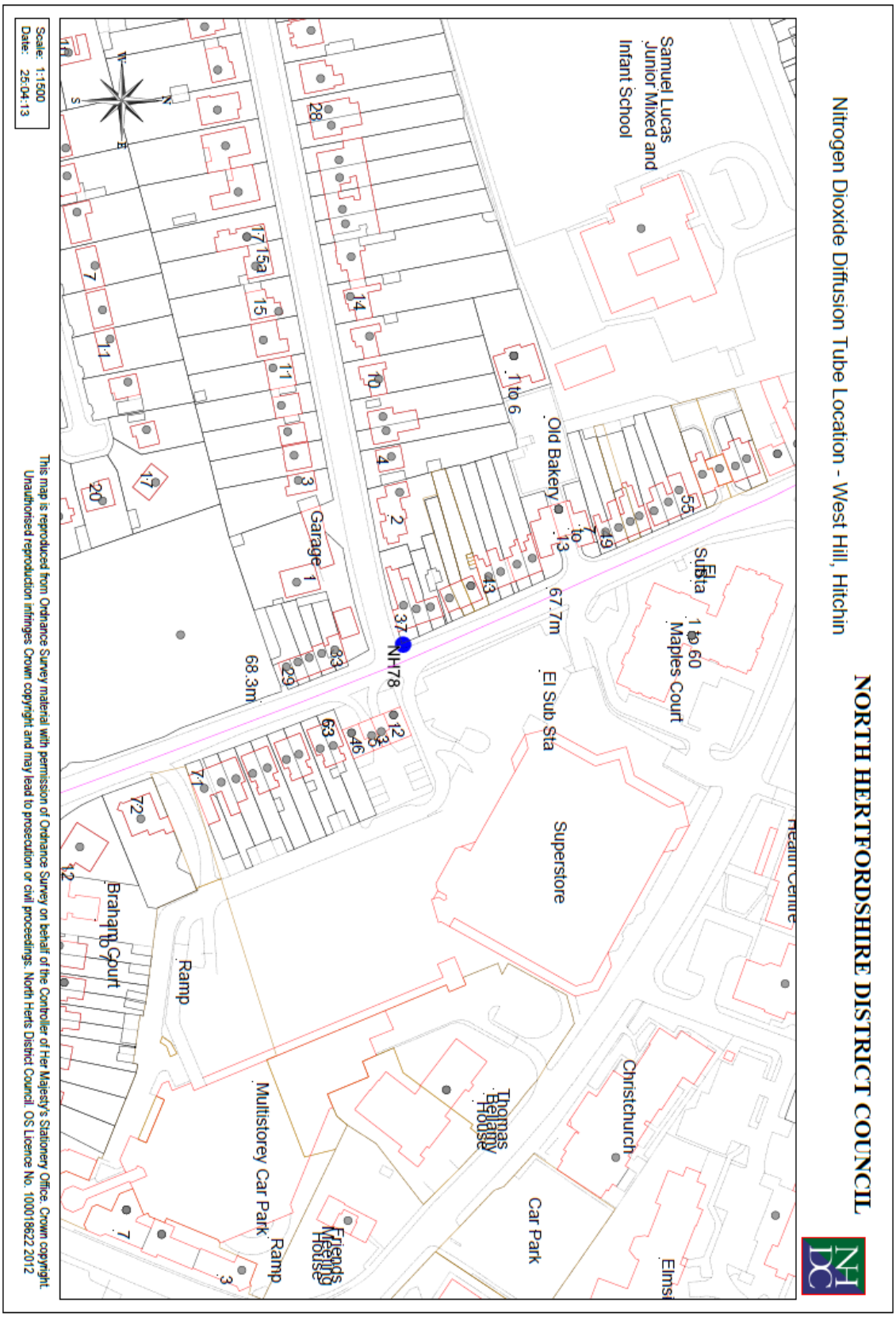


Figure D11: Diffusion Tube Monitoring Location (NH78) at West Hill Hitchin – 2019

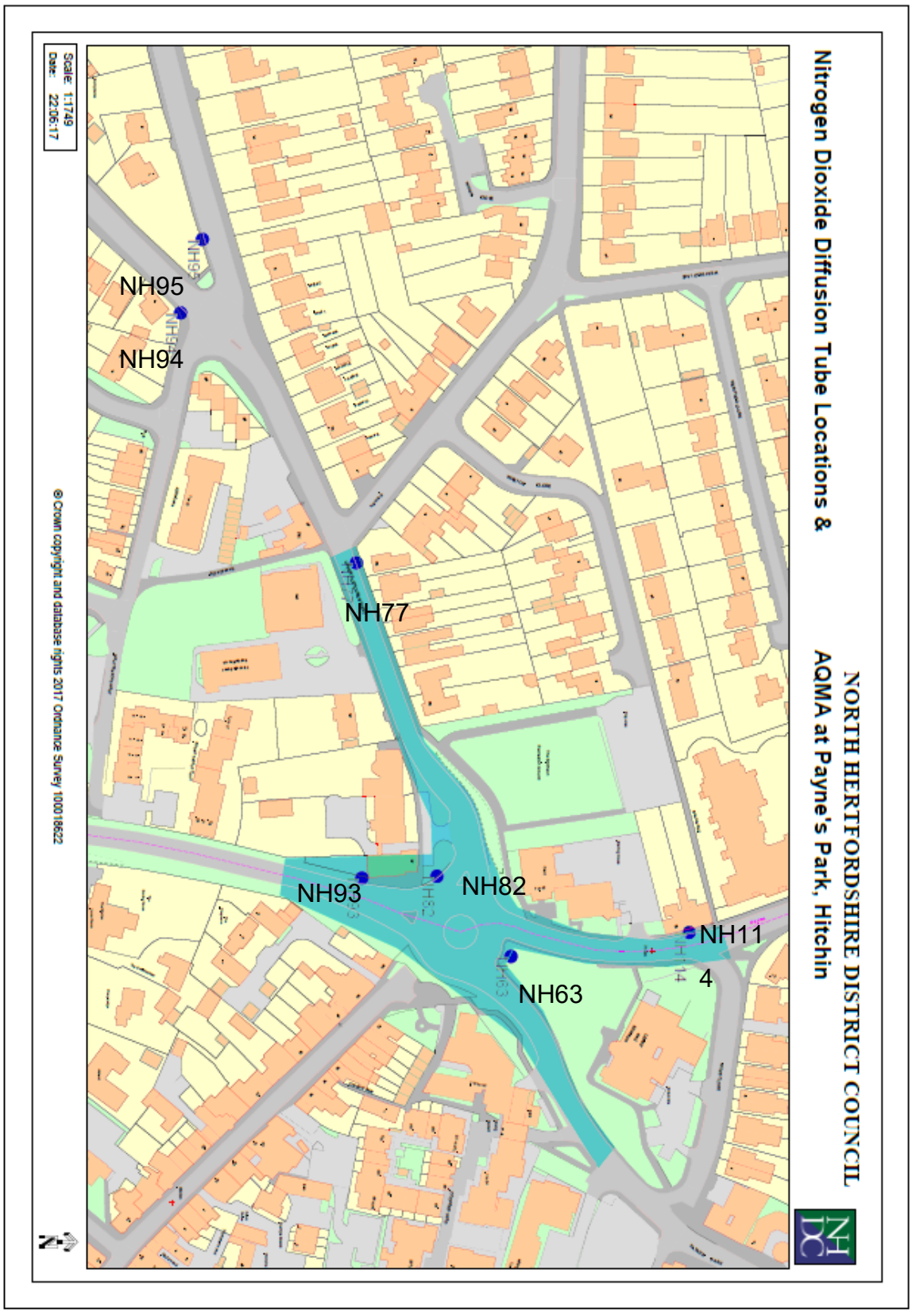


Figure D12: Diffusion Tube Monitoring Locations (NH93- NH95, NH77, NH82, NH63 & NH114) & Extent of AQMA at Payne's Park, Hitchin – 2019

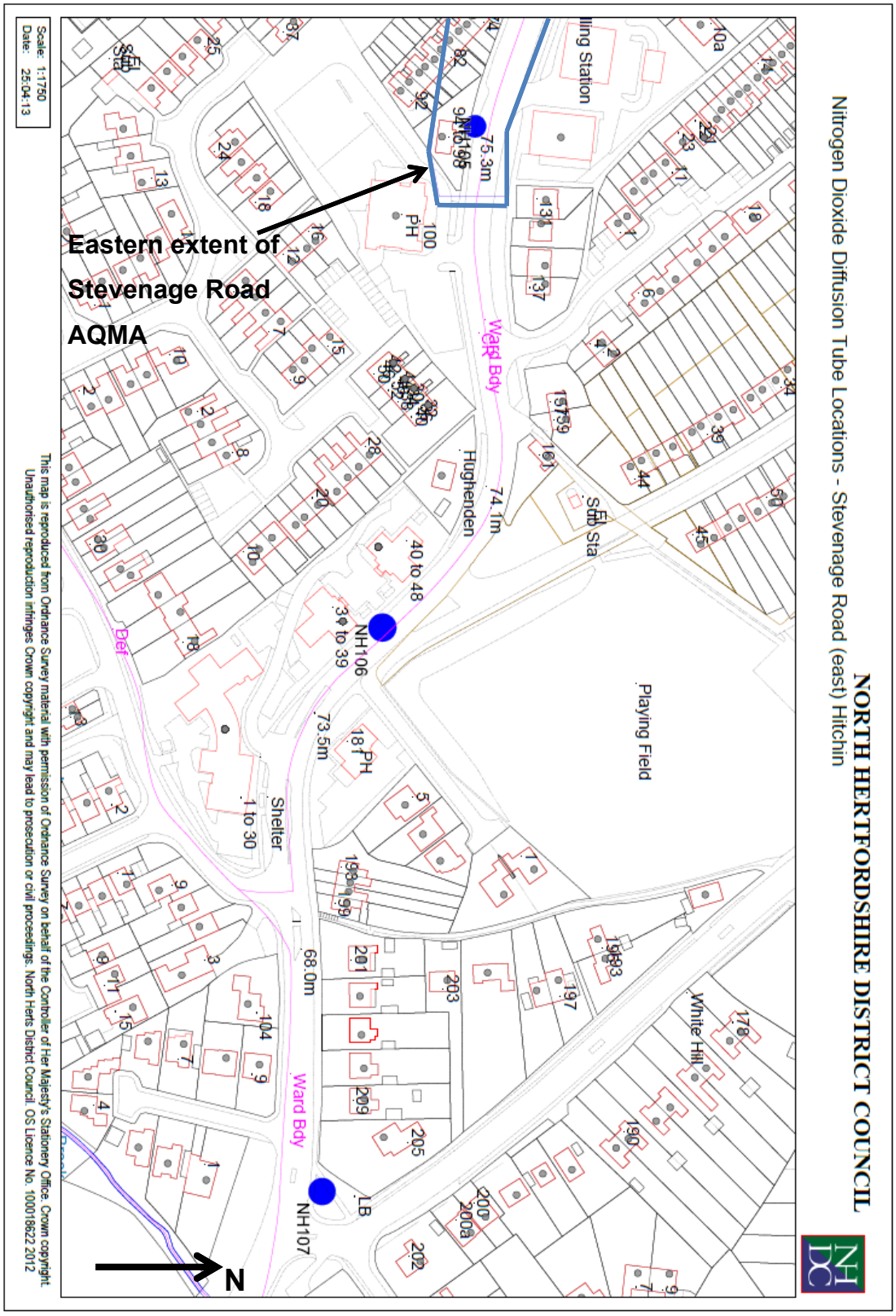


Figure D13: Diffusion Tube Monitoring Locations (NH105, NH106 & NH107) & Eastern Extent of the Stevenage Road AQMA at Stevenage Road, Hitchin – 2019

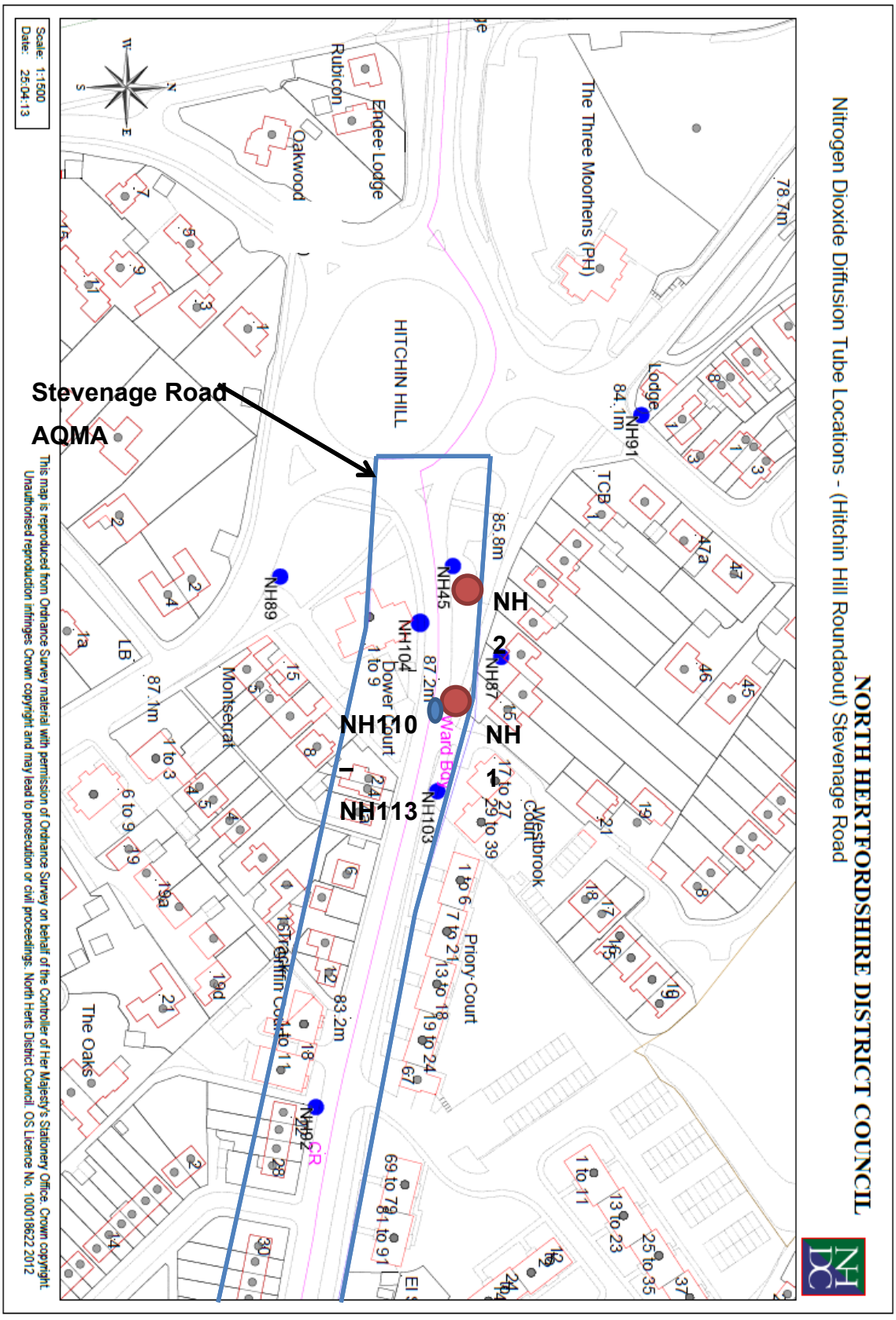


Figure D14: Diffusion Tube Monitoring Locations (NH45, NH87, NH89, NH91, NH92, NH103, NH104 & NH110-112), Real-Time Analyser Locations (NH1 and NH2) & the Stevenage Road AQMA at Stevenage Road, Hitchin – 2019

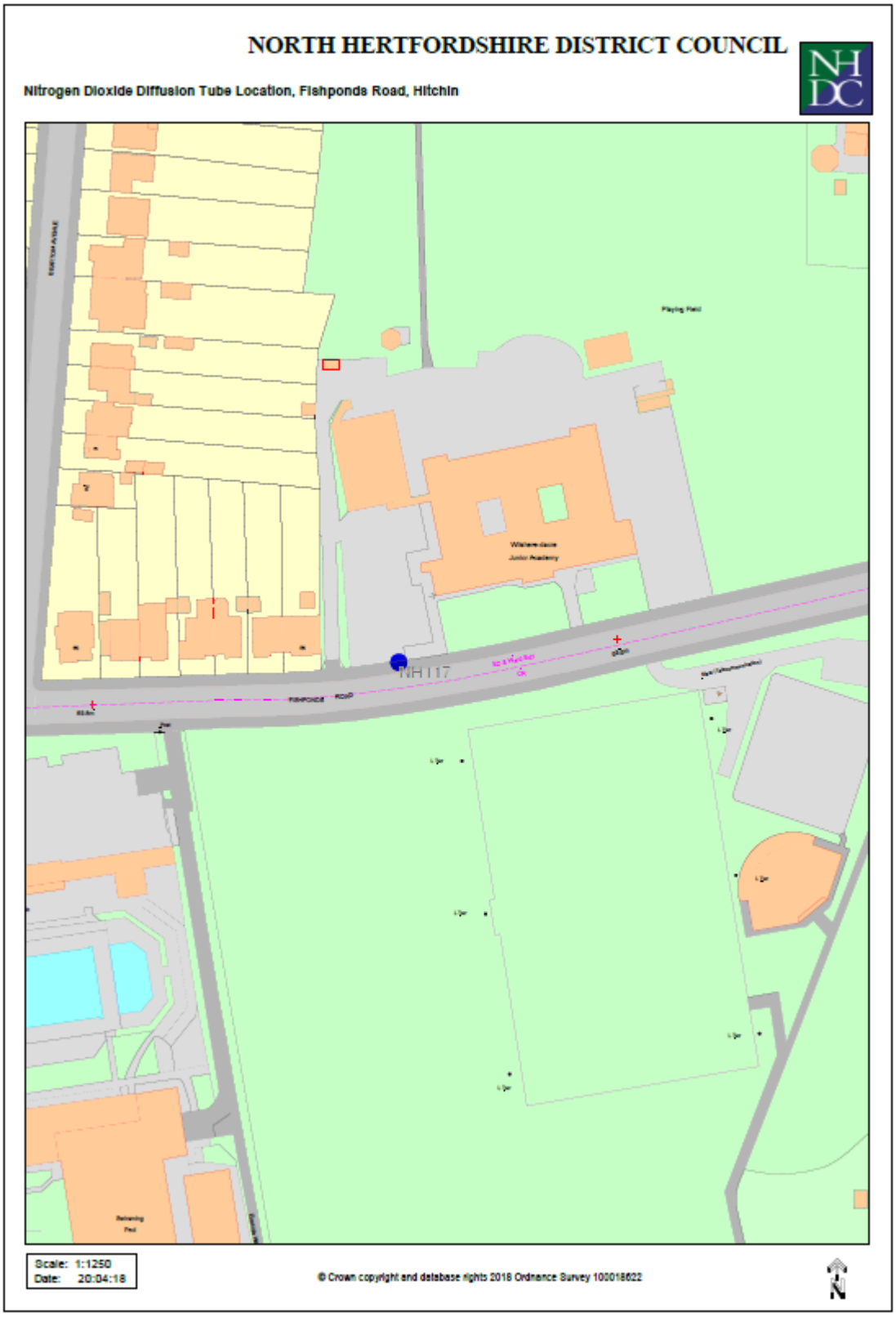


Figure D15: Diffusion Tube Monitoring Location (NH117) at Fishponds Road, Hitchin - 2019

Figure D16: Diffusion Tube Monitoring Location (NH118) at High Street (27), Graveley – 2019

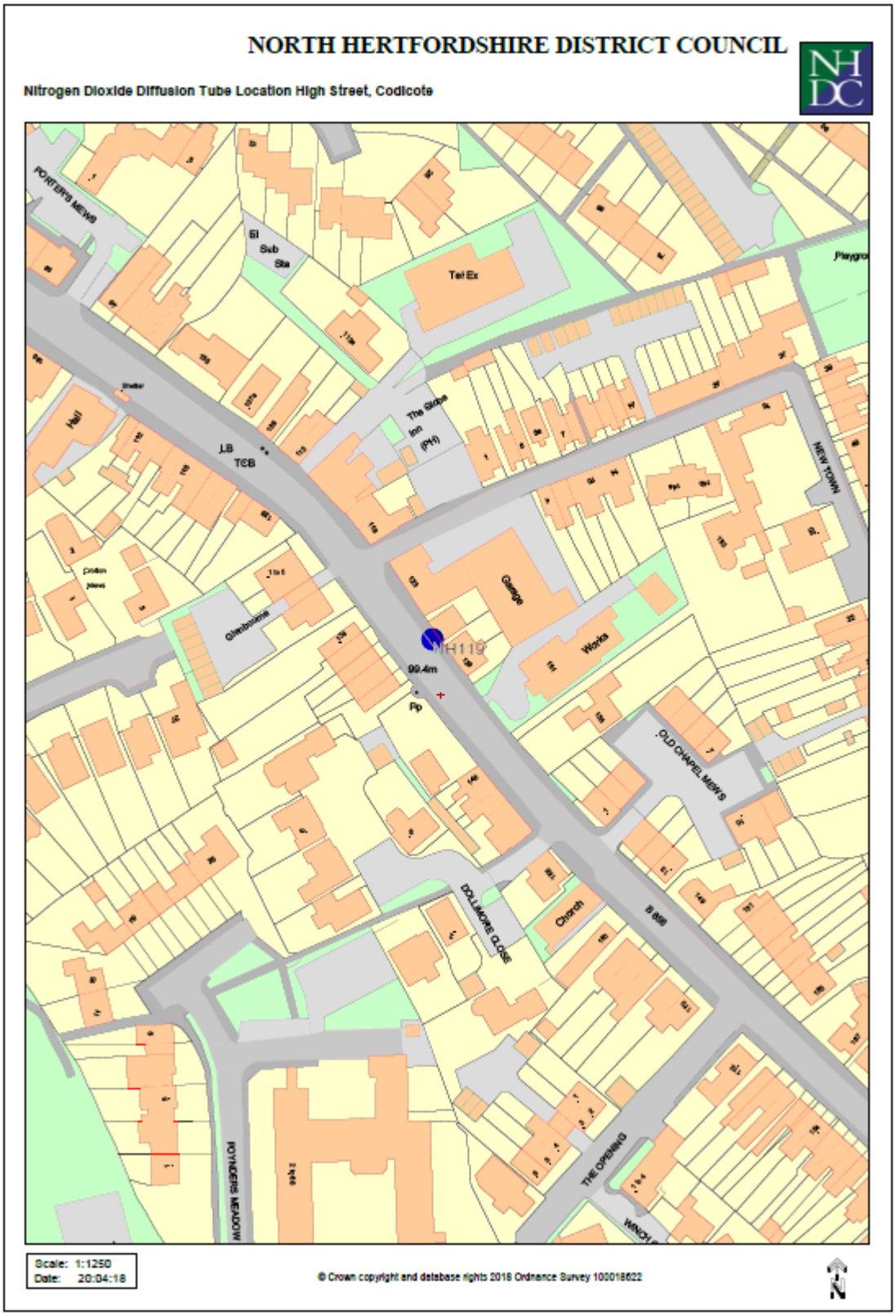


Figure D17: Diffusion Tube Monitoring Location (NH119) at High Street (125), Codicote - 2019

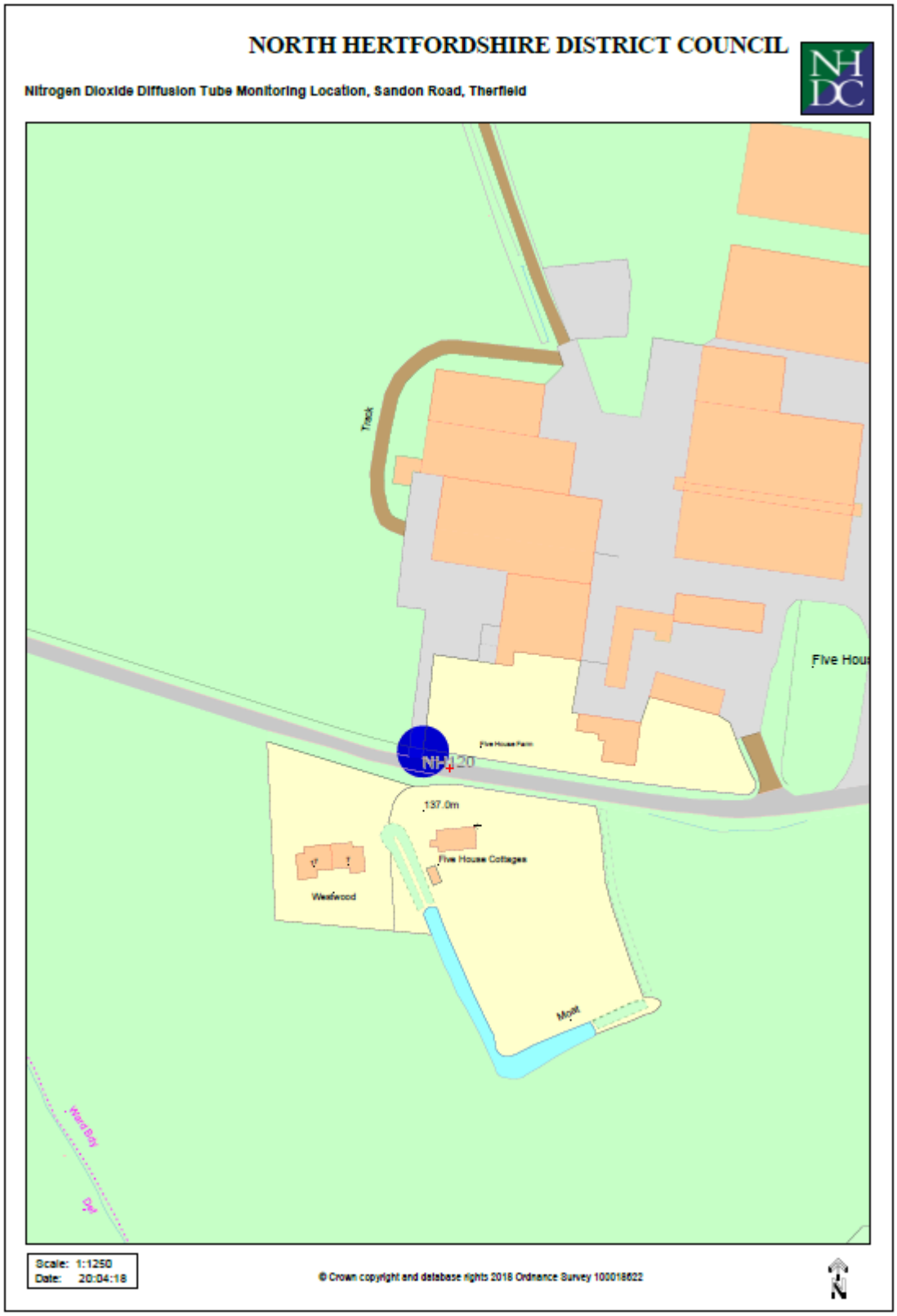


Figure D18: Diffusion Tube Monitoring Location (NH120) at Five House Farmhouse, Sandon Lane, Therfield - 2019

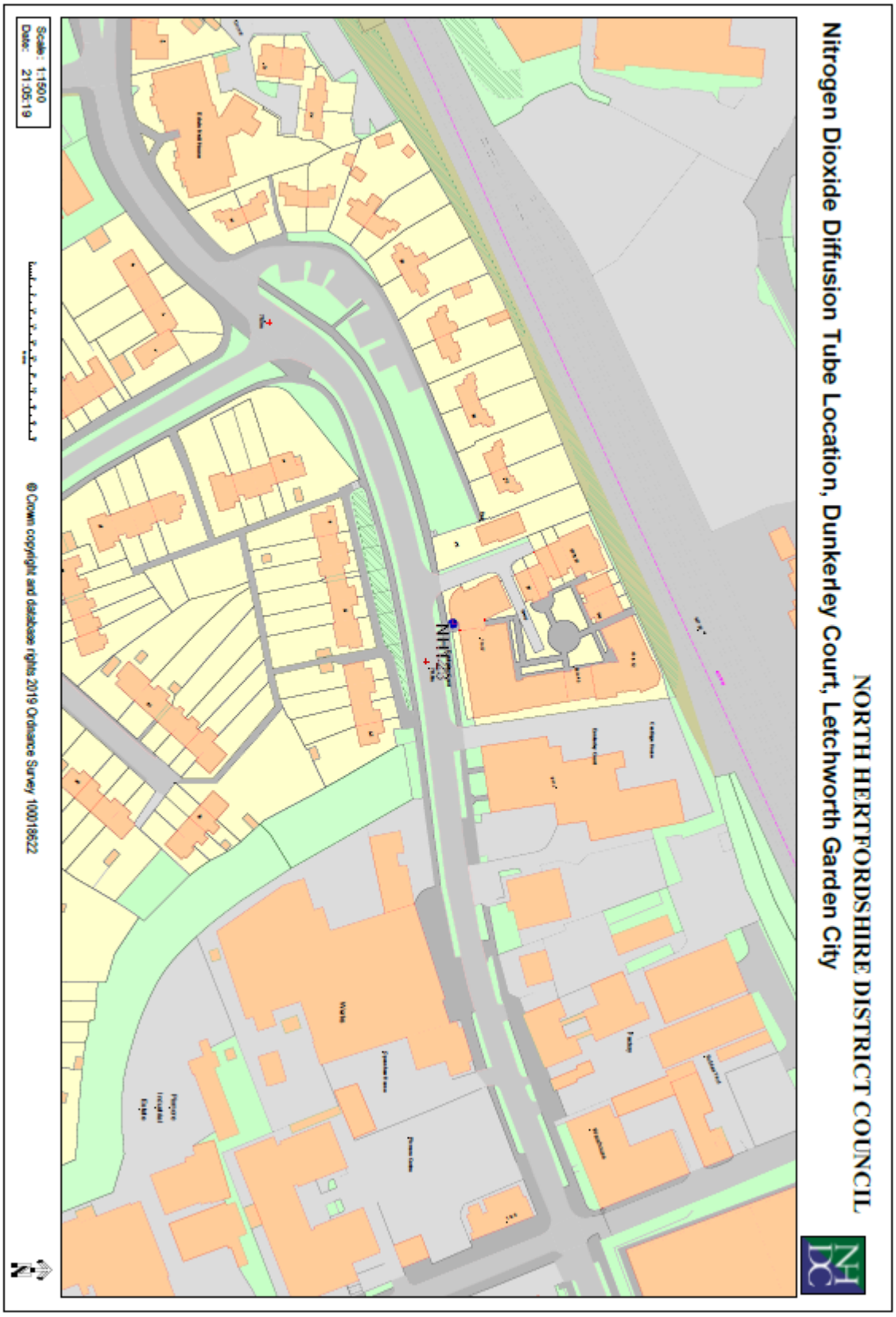


Figure D19: Diffusion Tube Monitoring Location (NH123) at Dunkerley Court, Letchworth Garden City - 2019

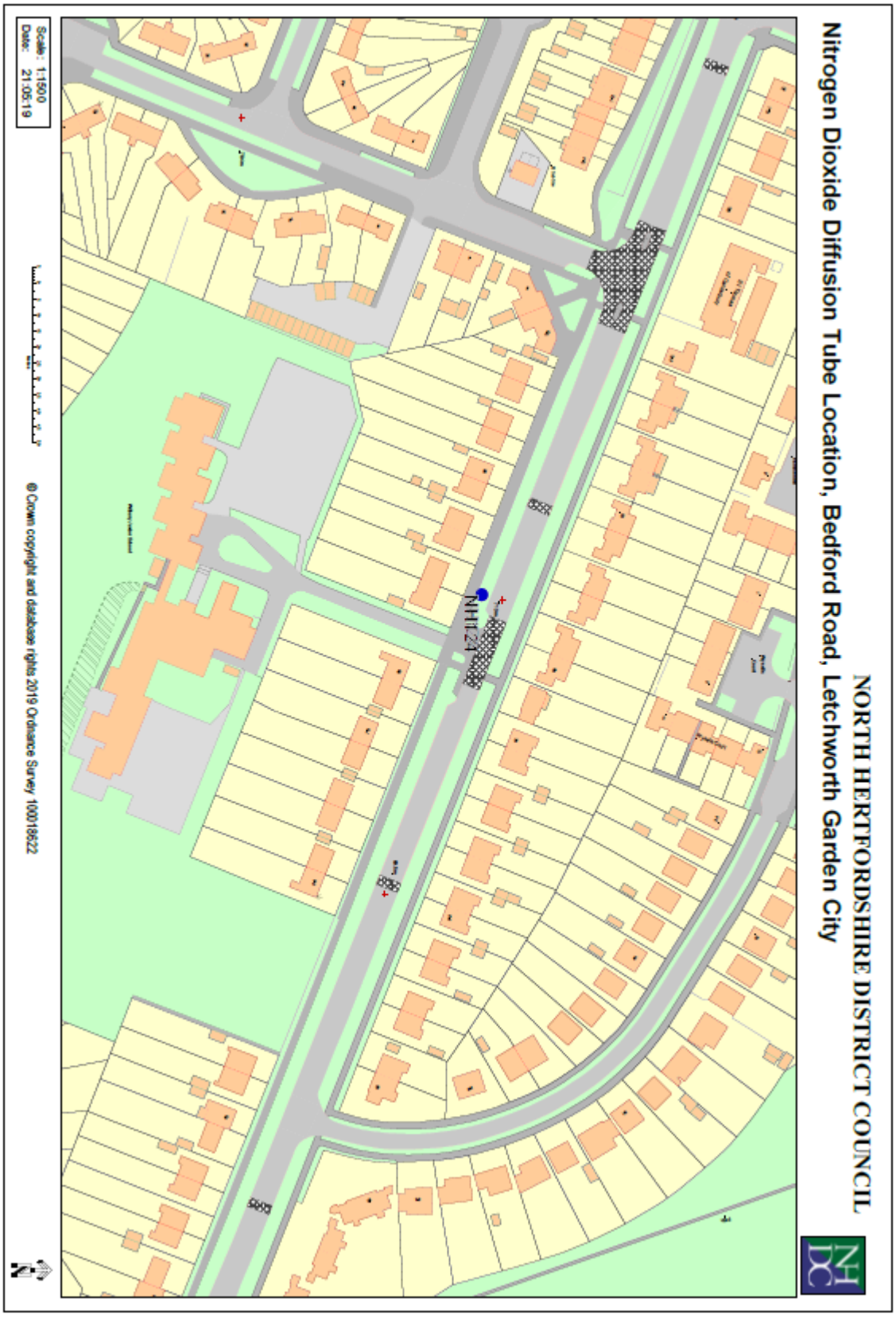


Figure D20: Diffusion Tube Monitoring Location (NH124) at 82 Bedford Road, Letchworth Garden City - 2019

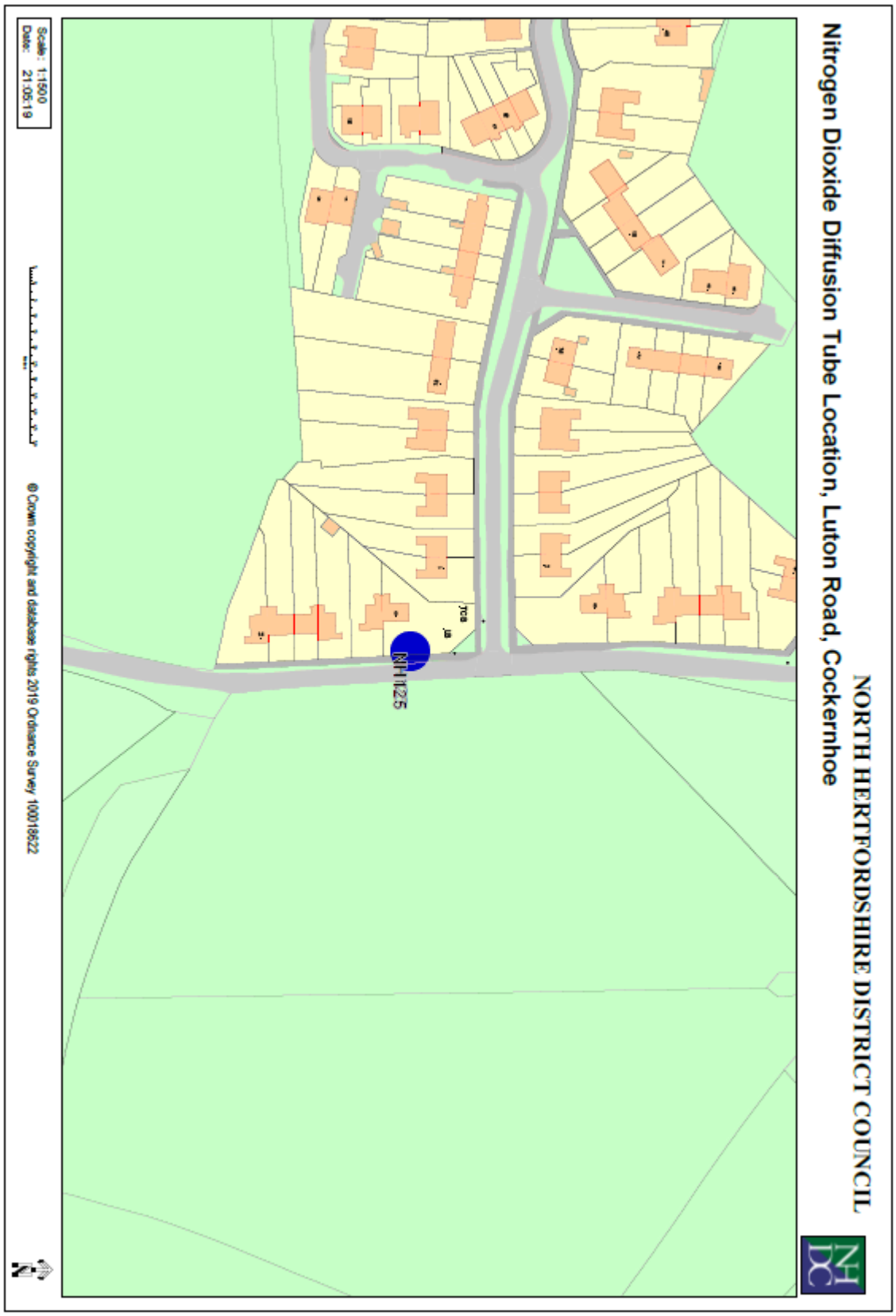


Figure D21: Diffusion Tube Monitoring Location (NH125) at 11 Luton Road, Cockernhoe - 2019

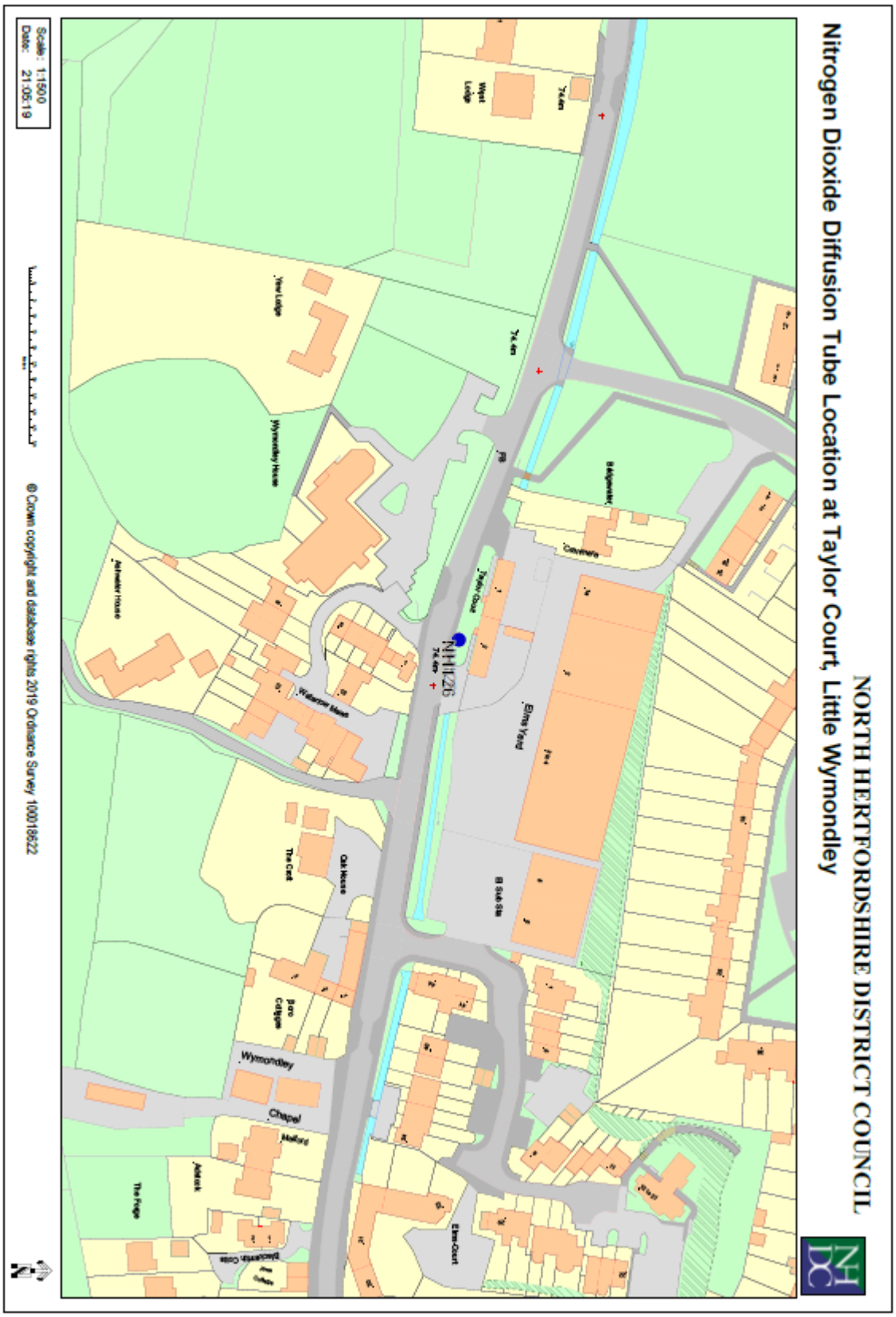


Figure D22: Diffusion Tube Monitoring Location (NH126) at 2 Taylor Court, Little Wymondley - 2019

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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

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

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

[8] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[9] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within North Hertfordshire

The following provides a summary of the key impacts of COVID-19 on monitored air concentrations within North Hertfordshire during 2020

The key information has been included within Section 3 of this ASR report, and may be summarised as follows:

- There has been a MEDIUM IMPACT on passive monitoring as defined by the Impact Matrix[iii] from the Covid-19 Supplementary Guidance, illustrated below as Table F1
- Only 4 separate months of monitoring data were able to be collected for 2020, January, February, November and December. This has resulted in the results being subjected to the annualization process, whereby trends from nearby automatic monitoring sites are used to predict the expected levels where there is no local data, for the months of March-October.
- Figures F3.1 to F3.3 in Section 3 summarise the trends in monitored air pollution levels within the two AQMAs registered in North Hertfordshire, AQMA1 Stevenage Road, Hitchin; and AQMA2 Payne's Park, Hitchin.
- The general traffic levels in both these AQMAs showed a very significant drop in 2020, comped to previous years. In 2020 traffic levels dropped by 26%in AQMA1 compared to the average of the previous 4 years, and by 28% for AQMA2.
- Prior to 2020, air pollution levels (for uncorrected monitoring data) for AQMA1 showed an average reduction in monitored concentrations of 5% per year between 2016 to 2019.

- Between 2019 and 2020 there was an average of a 20% reduction in monitored pollution concentrations within AQMA1.
- For AQMA1, this has now led to no results within 10% or above objective levels in the last 3 years, thus results are in compliance with the annual mean objective. On this basis, subject to confirmation from monitoring results for 2022, it is expected that the Council will be able to propose to revoke AQMA1 in 2023.
- Similarly, for AQMA2, Paynes Park, Hitchin, showed an average reduction in monitored concentrations of 4.7% per year between 2016 to 2019.
- Between 2019 and 2020 there was an average of a 18% reduction in monitored pollution concentrations within AQMA2.

Opportunities Presented by COVID-19 upon LAQM within North Hertfordshire

No LAQM related opportunities have arisen as a consequence of COVID-19 within North Hertfordshire.

Challenges and Constraints Imposed by COVID-19 upon LAQM within North Hertfordshire

- The implementation of action plan measure 1: Implementation of EcoStars Scheme in Hitchin Industrial Estate was delayed due to the Covid-19 Pandemic, where face to face contacts were restricted. **Medium Impact**
- During 2020, access to a number of diffusion tube monitoring sites was restricted due to their locations on residential buildings. Therefore, it was not possible to maintain diffusion tube exposure periods for April to June in line with the national monitoring calendar for a number of sites. This has affected data capture within 2020, resulting in monitoring sites having to be annualised. **Medium Impact**

The impacts as presented above are aligned with the criteria as defined in Table F 1, with professional judgement considered as part of their application.

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: Large
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
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
SO_2	Sulphur Dioxide

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[i] https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/planning-in-hertfordshire/transport-planning/local-transport-plan.aspx

[ii] https://www.north-herts.gov.uk/files/ed14-nhdc-transport-strategy-october-2017pdf-0

[iii] https://laqm.defra.gov.uk/wp-content/uploads/2021/08/Covid-19-Supplementary-Guidance-for-Local-Air-Quality-Management-Reporting-in-2021-v1.pdf

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