

Borough Council of
**King's Lynn &
West Norfolk**



2026 Air Quality Annual Status Report (ASR)

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

Date: June 2026

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Local Responsibilities and Commitment

This ASR has been prepared by the Environmental Quality Team, of the Borough Council of King's Lynn and West Norfolk. Officers involved in preparation and review of this ASR are set out within the above preface to this report.

Responsibility for the air quality function rests with BCKLWN whereas Norfolk County Council are the highways & public health authority.

This ASR has been signed off by Public Health, Norfolk County Council (Katherine Atwell, Public Health Principal).

If you have any comments on this ASR please send them to the Environmental Quality team;

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Executive Summary: Air Quality in Our Area

Air Quality in the Borough Council of King's Lynn and West Norfolk

Air pollution affects us all through a number of adverse health impacts. There is growing evidence that air pollution is a significant contributor to preventable ill health and a loss of life years. It can cause and worsen health effects in all individuals particularly society's most vulnerable, children, the elderly and those with heart and lung conditions. There is often a strong correlation with equality issues because the areas with poor air quality are often the less affluent areas^{1,2}.

Long-term exposure to air pollution can also cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy. Short-term increases in levels of air pollution can cause a range of health impacts including effects on lung function, exacerbation of asthma, increases in respiratory and cardiovascular hospital admissions and mortality. In addition, there is a growing evidence base which suggests that air pollution may also affect the brain and is linked to dementia and cognitive decline³.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages^{4,5} with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁶. The pollutant with the strongest epidemiological link to health outcomes is PM_{2.5}, as this has the ability along with other pollutants like the nitrogen dioxide (NO₂) to go deep into the lungs and absorbed into the blood stream. A brief explanation of the key

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

<https://www.local.gov.uk/publications/air-quality-briefing-directors-public-health>

² Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006; https://uk-air.defra.gov.uk/library/reports?report_id=424

³ Health Matters: Air Pollution, Public Health England 2018 [Health matters: air pollution - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/health-matters-air-pollution)

⁴ UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022

https://assets.publishing.service.gov.uk/media/62ab19c4e90e07038e6df074/CHaPR_AQ_Special_Edition_2206116.pdf

⁵ Defra. Air quality appraisal: damage cost guidance, March 2023; <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance>

⁶ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018;

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/708855/Estimation_of_costs_to_the_NHS_and_social_care_due_to_the_health_impacts_of_air_pollution_-_summary_report.pdf

pollutants relevant to Local Air Quality Management and the kind of activities they might arise from is provided in Table ES 1 below.

Table ES 1 - Description of Key Pollutants

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

The pollutants above, like the nitrogen dioxide (NO₂) and sulphur dioxide (SO₂) can react in the atmosphere in the presence of sunlight and other pollutants like ozone to produce a secondary form of fine particulate matter which generally predominates. It is why air pollution is best thought of as a mixture of gases and particles, all of which may interact and have greater effect if combined.

In terms of the Borough Council's area, it is essentially rural being the tenth largest district council area in England and Wales covering approximately 550 sq. miles with a population of 156,206 (from Dept. of Health 2024 data⁷). It comprises two market towns of King's Lynn and Downham Market, the Victorian coastal town of Hunstanton and more than a hundred villages of varying sizes.

The main source of air pollution in BCKLWN has been NO₂ emitted from road traffic within the main highway network comprising the A10, A47 plus the A148 (London Rd – Railway Road) in King's Lynn. The latter extends from the South Gate entrance, then northwards into the town centre where a gyratory system forms around the railway station and bus

⁷ [Public Health Outcomes Framework - Data | Fingertips | Department of Health and Social Care](#)

interchange areas. As the traffic becomes congested in these areas we have historically observed elevated levels of the pollutant nitrogen dioxide (NO₂) which has previously resulted in the annual mean objective (40 µg/m³) being exceeded with two Air Quality Management Areas (AQMAs) being declared (Railway Rd and Gaywood Clock).

In 2024 we had updated the AQAP with a new version (AQAP 2024-29) that was adopted through Council following a public consultation. At the same time and given the continued period of compliance at Gaywood Clock AQMA with last exceedance in NO₂ annual mean occurring in 2010, this was agreed to be revoked.

We had also stated in last year's ASR that we would be putting forward the remaining AQMA (Railway Rd – London Rd) for revocation given its continued period of compliance (5-years) with results all lower than 10% of the annual mean objective (<36 µg/m³; annual mean 40 µg/m³). The gradual reduction in the NO₂ annual means being observed has continued into 2025 with highest result observed at site 102 (29.1µg/m³) which compared to highest in 2024 (31.2µg/m³) at Site 2.

Both sites (102 and 2) are in a similar location close to the junction where buses join the northbound traffic along Railway Rd which is historically where we see the highest annual mean NO₂ concentrations. Figure ES 1 below shows the junction where buses leave the bus station to join the north-bound traffic along Railway Rd.

With more than 5-continuous years of compliance in addition to this gradual reduction being observed in the NO₂ annual means but critically, with no new developments shown to significantly impact air quality as described in Table C.1 the remaining AQMA (Railway Rd & London Road) has been taken through Council for revocation which was agreed on 23rd of April 2026⁸.

Following the revocation of the Railway Rd AQMA this will result in BCKLWN no longer having any AQMAs and in accordance with the policy guidance (LAQM PG22⁹) the local authority should put in place a local air quality strategy with proactive / preventative measures that improve air quality in line with the national framework of actions from the Air

⁸ <https://democracy.west-norfolk.gov.uk/ieListDocuments.aspx?CId=134&MId=6699>

⁹ Defra LAQM PG22, Policy Guidance; <https://laqm.defra.gov.uk/air-quality/featured/england-exc-london-policy-guidance/>

Quality Strategy (Defra, 2023¹⁰). This work will form the main priority going forward including the project on particulate matter.

Figure ES 1 - Albion Street junction where buses join northbound Railway Rd



In general the reduction in traffic related pollution being observed is consistent with changes in how we travel since the pandemic with more people working from home and also shopping online which helps to reduce travel movements through combined journeys. There has also been a gradual improvement in vehicle (EURO) emission standards associated with the uptake of more modern vehicles as well as an increase in the number of electric vehicles. This overall improvement in vehicle emission standards is reflected in improvements over the years in emission factors published by Defra (EFT, 2026¹¹).

¹⁰ Defra, 2023; <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery>

¹¹ EFT, 2026; <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/>

The air quality monitoring also extends to particulate matter (PM₁₀/PM_{2.5}) and nitrogen dioxide (NO₂) using low-cost sensors. This monitoring is non-reference / indicative; therefore results are appended to this report in [Appendix C](#).

No exceedances in any the national air quality objectives were observed from the council's monitoring in 2025.

Additional information on some local studies to help support this ASR is presented in [Appendix C](#) as follows;

- **West Winch Strategic Growth Area:** Within the year the new housing access road was granted planning permission. An update is provided.
- **The King's Lynn STARS (Sustainable Transport and Regeneration Scheme):** An update is provided on the STARS project.
- **King's Lynn Port:** In last year's ASR we reported that we received some complaints of dusts being emitted from loading operations at King's Lynn Port. We have been working with the Port to help develop a dust management plan. An update of this work is provided.
- **Medworth EfW Facility:** Also as reported in last year's ASR the Energy from Waste Facility obtained its Development Consent Order and environmental permit. An update of the local air quality monitoring scheme that is a requirement of the development consent is provided.
- **Parkway / Florence Fields Construction Dust Monitoring Scheme (DMS);** An update is provided on the dust monitoring scheme.

The recent decision of local government reorganisation will create a new unitary West Norfolk Council that will encompass a larger area as well as combining services. Once the new unitary council is formed, the LAQM function of reporting will eventually cover the larger administrative area.

Actions to Improve Air Quality

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

The national Air Quality Strategy (Defra 2023¹⁰) provides the strategic framework of actions for local authorities and other partners to follow to improve air quality. All local

authorities (including county councils), the Environment Agency, and designated relevant public authorities under the national strategy's Action [1] for local partners, requires having regard to the strategy when exercising functions of a public nature that could affect the quality of air. The national framework consolidated the LAQM reporting requirements with those from Clean Air Strategy of smoke controls and new requirements from the Environment Act 2021 to support the national targets on reducing PM_{2.5} emissions.

Improving air quality is a complex matter and only by working in partnership with key stakeholders to facilitate these improvements can appropriate actions be taken. Some examples of this work are set out below:

Priorities arising through the AQAP (2024-29):

Whilst we no longer have an AQMA, the AQAP is presented in Table 2.1 below as it was still relevant for this reporting period. Its priorities are useful to note going forward as these were formed following public consultation on the Air Quality Action Plan (AQAP) in 2024. After taking into account the comments from key stakeholders and from the public, the AQAP was agreed to be adopted through Council (September 2024¹²).

The main priorities within the AQAP were developed based on views of the public consultation with a range of measures developed under each priority to ensure effective delivery, as follows:

- **Priority 1: To increase active travel / modal shift to more sustainable transport options;** Based on feedback from the public consultation active travel modes were considered a top priority.

This also reflects national planning policy as transport (the principal source of the NO₂) according to the NPPF is 'made sustainable' by limiting the need to travel through active travel modes, as well as taking a priority first approach to these low emission forms of travel.

Soft measures like travel plans are preferable as they are lower in cost than infrastructure projects but can still achieve reductions in source contributions by raising awareness and/or encouraging or facilitating behavioural change. Studies of

¹² BCKLWN, Revocation of Gaywood Clock AQMA; https://www.west-norfolk.gov.uk/info/20137/air_quality/170/air_quality_management_areas

travel plans (Dept of Transport, 2005¹³) show that reductions in car journeys can range from 5 to 66% where these are successfully implemented.

We also included under this priority the Council's Active and Clean Connectivity Plan¹⁴ projects that include developing two active travel hubs and progressing the Local Cycling and Walking Infrastructure Plans (LCWIP) for the area^{15,16,17} as well continued support for a 'park and sail' project involving West Lynn Ferry.

- **Priority 2: Public Transport Improvements;** Public transport (bus service) improvements were also identified as a priority from the AQAP public consultation.

Measures were included such as newly identifying the need for electric (low emission) buses in King's Lynn since the previous source apportionment study showed a disproportionate amount of road-NO_x within Railway Rd AQMA from buses. This has been taken forward into the latest Transport Strategy for King's Lynn.

In addition, we included within this priority support for Norfolk County Council's Bus Service Improvement Plan (BSIP) which is being developed to help further secure modal shift towards more sustainable forms of transport.

- **Priority 3 Larger Transport Infrastructure Schemes;** The larger transport infrastructure schemes were also considered a priority as these schemes aim to improve air quality. These schemes are described further in [Appendix C](#).

It should be recognised however, that these priorities were formed based on a specific problem of traffic related pollution in King's Lynn. Going forward the challenge will be to take a wider population-based approach now the last remaining AQMA has been revoked.

Actions arising through the previous AQAP:

King's Lynn and West Norfolk Council have implemented a number of measures that are likely to have reduced concentrations of NO₂ and associated PM_{2.5} in the borough though existing AQAP for example;

¹³ Dept. of Transport, Newson, C., et al. (2002). [Making travel plans work: Lessons from UK case studies](#);

¹⁴ Active and

¹⁵ NCC LCWIP; <https://www.norfolk.gov.uk/what-we-do-and-how-we-work/policy-performance-and-partnerships/policies-and-strategies/roads-and-travel-policies/local-cycling-and-walking-infrastructure-plans>

¹⁶ NCC; <https://www.norfolk.gov.uk/news/2023/05/have-your-say-on-the-future-of-cycling-and-walking-in-norfolk>

¹⁷ BCKLWN ACCP; <https://www.visionkingslynn.co.uk/projects/active-and-clean-connectivity/>

- Improvements have been carried out to King's Lynn Transport Interchange (bus-rail) to help incentivise the use of public transport;
- Urban traffic control systems and selective vehicle detection systems have also been implemented in the town centre to help improve traffic flows;

Development control work

Within the year we have continued to secure best practice mitigation wherever possible through our work on planning applications. In the 2025 period we considered 93 planning applications, with the most significant (22) set out in Table C.1 in Appendix-C.

Low emission Council buildings

Council buildings have also been improved with the installation of heat pumps to replace gas boilers (zero NOx) at the main Council Office building. The recent Guildhall project, which is the country's oldest continuously used theatre space which dates back to 1445 is undergoing a major refurbishment including low emission technologies.

Solar panels have also been installed across a number of council assets with to date just over a 700kW (peak) of electricity generating capacity being installed. Figure ES.2 below shows the PV array at the Lynnsport Leisure Centre.

Figure ES 2 – Solar (Photovoltaic) Panels Installed at Lynnsport Leisure Building



Electric Vehicle (EV) Charging Infrastructure:

The Council successfully applied to OZEV in December 2021 for a grant to install twenty-six double fast EV charging points at council owned car parks across the district. Six sites with eighteen fast (7kW) charging points are currently operational with one further site still

to be completed. This additional site is planned to have eight fast charging points installed. They have been installed to give local residents with no off-street parking provision the opportunity to charge their electric vehicle overnight at one of the selected sites. They are available also for daytime use.

The Council has also replaced the four legacy 50kW Rapid charging points. Three new Rapid EVCP have been installed at St James' multi -storey car park, King's Lynn and one Rapid EVCP at Central car park, Hunstanton.

The locations and type of EV charging points district-wide is regularly updated so we recommend the use of zap map^{18,19} to keep up to date on the type and locations of EV infrastructure.

A new electric council maintenance van and its dedicated charging point has also been installed at the main council offices e.g. see Figure ES.3 below.

Figure ES 3 - New electric Council maintenance van and EV charging point



Measures aimed at PM_{2.5}:

We are working closely with Public Health on the Public Health Outcomes Framework (PHOF) indicator D01 on actions in relation to PM_{2.5}. Measures are explained further within

¹⁸ Zap Map; <https://www.zap-map.com/live/>

¹⁹ BCKLWN; Locations of EV charging infrastructure; https://www.west-norfolk.gov.uk/info/20095/energy_and_climate_change/921/electric_vehicle_charging_points

Chapter 2. Initial work has reviewed principal primary PM_{2.5} sources with a view to develop a strategy/project supported by Public Health aimed at reducing exposure to this pollutant borough wide.

Conclusions and Priorities

The key findings for this year are: -

- *No exceedances of the National Air Quality Strategy standards were identified for Nitrogen Dioxide (NO₂) during 2025. The last time an annual mean exceedance occurred was in 2019 (Railway Rd AQMA Site No 2).*
- *This is the 6th continuous year where compliant results have been observed with no exceedances of the NO₂ annual mean objective. In such instances the Technical Guidance (LAQM TG22²⁰) refers to having no AQMAs 'for which compliance with the relevant objective has been achieved for a consecutive five-year period'.*
- *Due to this continued period of compliance and as set out in last year's ASR, we have taken the remaining AQMA (Railway Rd) through Council for revocation. This was agreed at Council / Cabinet meeting 23rd of April 2026⁸.*
- *In 2025 the highest NO₂ annual mean concentration was at site 102 (29.1 µg/m³) which compared to 2024 at site 2 (31.2 µg/m³). Both sites (102 and 2) are in a similar location close to the junction where buses join the northbound traffic along Railway Rd. This is where we historically see the highest NO₂ annual mean concentrations.*
- *Trends in NO₂ following the first Covid lock-down year of 2020 showed a marked reduction of around 20% in the annual mean NO₂ concentrations. The concern had been the extent of traffic rebound, but annual mean NO₂ concentrations have shown a consistent and gradual reduction since with all results now at least 10% below the NO₂ objective (<36 µg/m³; annual mean objective 40 µg/m³).*
- *In 2025 we assessed 93 planning applications with the most significant (22) described in Table C.1 in Appendix C.*
- *No new developments were identified as likely to significantly impact overall NO₂ levels.*
- *No exceedances of PM₁₀ objectives level were indicated during 2025 from low-cost monitoring.*

²⁰ Defra LAQM TG22, Technical Guidance; [UK Regions \(exc. London\) Technical Guidance | LAQM](#)

Our priorities noting any anticipated changes for the forthcoming year are:

- *The AQAP will be replaced with an Air Quality Strategy (AQS) to facilitate improvements in air quality in due course.*
- *In support of the national population exposure reduction target for PM_{2.5} we will continue to work with Norfolk County Council's public health specialists to develop a health-based air quality project focussing on PM₁₀ & PM_{2.5} across the district by targeting the principal sources within this council's control.*
- *We will continue to attend and work jointly with the Norfolk countywide Air Quality Group to help progress the Air Quality Framework that is being promoted by Norfolk County Council Public Health.*
- *We will carry out an annual review of monitoring locations to ensure the monitoring remains representative of public exposure.*
- *Continue to collaborate closely with partners to implement King's Lynn Transport Strategy and assess regeneration and traffic management projects which will assist with reducing traffic related emissions.*
- *Continue to review planning applications.*
- *Submit an Order revoking Railway Rd AQMA to the LAQM portal.*
- *Submit an ASR in June next year (2026) including an update on the Air Quality Strategy for the BCKLWN area.*

How to get Involved

The framework that underpins this work comes under what is termed Local Air Quality Management (LAQM) framework. LAQM provides the tools to assess and monitor the pollution sources as well as the means to mitigate and where necessary offset these emissions through associated guidance.

As the air quality pollutants are common to sources of the greenhouse gases the LAQM framework has the potential to deliver wider ancillary benefits. Barriers can potentially form but can be minimised through effective policies & partnership working.

To help direct people to the relevant area of interest, we have structured air quality information within the Council's website under the following web pages:

- [Air Pollution Levels](#)²¹; this web page includes further information about the pollutants we monitor in the borough and how to access to view / download automatic air quality monitoring data via the [Norfolk AQ website](#) and [LAQM Dashboard](#). Both the Norfolk AQ website and LAQM Dashboard were updated within the year.
- [Air Quality Reports](#)²²: this includes the Annual Status Reports (ASR) on air quality, previous source apportionment studies and former AQAP.
- [Air Quality Information](#)²³: this web page provides a summary of the current priorities taken from the Executive summary of the ASR. This is updated annually.
- [Burning Wood and Coal](#)²⁴: this is a dedicated web page on burning of wood and coal with practical advice on minimising emissions with link to Defra's Burn Better, Breathe Better campaign. This section provides details on the Smoke Control Areas in King's Lynn.
- [Indoor Air Quality](#)²⁵: We also have a webpage on indoor air quality with information on some of the in-door pollutant sources and checklist from Asthma and Lung UK to help with conditions like asthma and COPD.
- [Smoke Control Areas](#)²⁶: this is a webpage on the Smoke Control Areas (SCA) in King's Lynn. The page has been updated to include the new enforcement provisions on smoke from a chimney in an SCA. The webpage includes an online tool to make it easier to report smoke within the SCAs.

Information is also available from Norfolk County Council's website on the Local Transport Plan's strategy for King's Lynn^{27, 28} and also a Local Cycling and Walking Infrastructure Plan (LCWIP¹⁵) for the area.

Further information on air quality and daily index forecasts is held nationally on Defra's UK Air resource site: <https://uk-air.defra.gov.uk/>.

²¹ https://www.west-norfolk.gov.uk/info/20137/air_quality/171/air_pollution_levels

²² https://www.west-norfolk.gov.uk/downloads/download/346/air_quality_information_documents

²³ https://www.west-norfolk.gov.uk/info/20137/air_quality/169/air_quality_information

²⁴ https://www.west-norfolk.gov.uk/info/20137/air_quality/633/burning_wood_and_coal

²⁵ https://www.west-norfolk.gov.uk/info/20137/air_quality/870/indoor_air_quality

²⁶ https://www.west-norfolk.gov.uk/homepage/309/smoke_control_areas

²⁷ Local Transport Plan v.4 Strategy for King's Lynn; <https://www.norfolk.gov.uk/what-we-do-and-how-we-work/policy-performance-and-partnerships/policies-and-strategies/roads-and-travel-policies/local-transport-plan>

²⁸ NCC, King's Lynn Area Transport Strategy; <https://www.norfolk.gov.uk/roads-and-transport/major-projects-and-improvement-plans/kings-lynn/about-transport-for-kings-lynn>

We participate in Clean Air Day²⁹ and Clean Air Night³⁰ and support the initiatives via the Council's communications network.

To obtain further information on these air quality issues or how to get involved with some of the issues / challenges please email the environmental quality team; environmental.quality@west-norfolk.gov.uk.

²⁹ https://www.actionforcleanair.org.uk/files/cad_24_events_guide_final.pdf

³⁰ <https://www.actionforcleanair.org.uk/campaigns/clean-air-night>

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1 Local Air Quality Management

This report provides an overview of air quality in the Borough Council of King's Lynn and West Norfolk (BCKLWN) during 2025. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out.

This Annual Status Report (ASR) is an annual requirement showing the strategies employed by the BCKLWN to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

The Borough Council of King's Lynn and West Norfolk currently does not have any declared AQMAs following revocation of the final AQMA (Railway Rd) agreed through Council on 23rd of April 2026⁸.

A local Air Quality Strategy is under development to prevent and reduce polluting activities. This will be developed with support from NCC Public Health focussing on PM₁₀ & PM_{2.5} across the district by targeting the principal sources that are within this council's control.

Maps showing the air quality monitoring locations are shown in [Appendix D](#).

2.2 Progress and Impact of Measures to address Air Quality in the Borough Council of King's Lynn and West Norfolk

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

"On the basis of the evidence provided by the local authority the conclusions reached are accepted for all sources and pollutants. Following the completion of this report, King's Lynn and West Norfolk Borough Council should submit an Annual Status Report in 2026".

Defra added that 'the report is well structured, detailed, and provides the information specified in the Guidance.

Defra Specific Commentary:

1. *There is good in-depth discussion about the planning applications that the council have received in 2024.*

Response: We have carried this approach forward within this ASR showing the number of planning applications / permit consultations considered within the year with details of some of the more significant.

2. *There is good in-depth discussion about PM_{2.5} emissions in the council's administrative area, and the measures being put in place to reduce PM_{2.5} levels.*

Response: We have carried this approach forward within this ASR. The intention remains that we will be progressing the project on PM_{2.5}.

3. *KLaWNBC has a low-cost sensor, we encourage their use but advise any results should be presented in the Appendix and not in the main report. Please consult this FAQ: <https://laqm.defra.gov.uk/faqs/faq140/>*

Response: The results of the low-cost sensors are reported within the Appendix.

4. *KLaWNBC reporting of the AIR PT scheme results showcases KLaWNBC continued commitment to QA/QC. One comment would be to include an appendix showing figures with the AIR PT data.*

Response: We have included the AIR PT scheme figures for reference.

5. *The Gaywood Clock AQMA was still present on the portal. Please contact the LAQM Helpdesk for support in ensure revocation is reflected more widely.*

Response: LAQM Helpdesk were contacted (ref 10926). It has been confirmed following submission of Revocation Order that no further action is required.

6. The individual response to each comment from last year's appraisal is welcomed.

Response: Noted and carried forward.

7. There is a couple of slight errors that should be fixed.

1. The number of diffusion tube sites is reported as 75 sites stated in section 3.1.2 but in the tables, there are 76.

Response: The number of monitoring sites in 2024 was 76 (not 75 as stated). We have checked the number of sites for 2025.

2. AQAP measures haven't been highlighted.

Response: Measures have been highlighted based on agreed priorities for reference purposes. However, we no longer have an AQAP following revocation of the remaining AQMA (Railway Rd).

Both the Borough Council of King's Lynn and West Norfolk and Norfolk County Council have taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality.

Details of all measures completed, in progress or planned are set out in Table 2.1 below. Fifteen measures are included with the type of measure and the progress BCKLWN have made during the reporting year of 2025 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

More detail on these measures can be found in their respective plans / strategies, such as;

- Updated King's Lynn Transport Strategy 2025-2035³¹ with measures as consistent with AQAP.
- Bus Service Improvement Plan³².

³¹ [kings-lynn-draft-transport-strategy-2025-2035pdf](#)

³² <https://www.norfolk.gov.uk/busstrategy>

- Local Cycling and Walking Infrastructure Plans³³.

In terms of updates to the AQAP, Measure 5.2 requires improved air quality monitoring and information systems available to the public, which was progressed in the year. Air quality monitoring data is uploaded to the Norfolk Air Quality website³⁴. This was upgraded to a new version in the year which is much improved. All of the council's continuous air quality monitoring stations (reference as well as low-cost indicative) are available to view and download from this platform.

Within the year we have worked with the software supplier to add relevant thresholds to the graphs displaying results. This helps to quickly visualise periods of high results as shown in Figure 2.1 and Figure 2.2 below, which compare monthly PM₁₀ and PM_{2.5} concentrations to respective short-term and annual mean objectives. The platform also allows wind pollutant roses to be downloaded directly with Figure 2.3 below showing an example from the West Lynn Osiris using wind data obtained directly from the anemometer attached to the monitor. The new platform therefore helps when explaining data to others but also saves time from downloading and presenting the data separately.

³³ <https://www.norfolk.gov.uk/activetravel>

³⁴ <https://www.norfolkairquality.net/>

Figure 2.1 – Indicative hourly PM₁₀ results compared to short-term daily mean (50 µg/m³) from the West Lynn Osiris

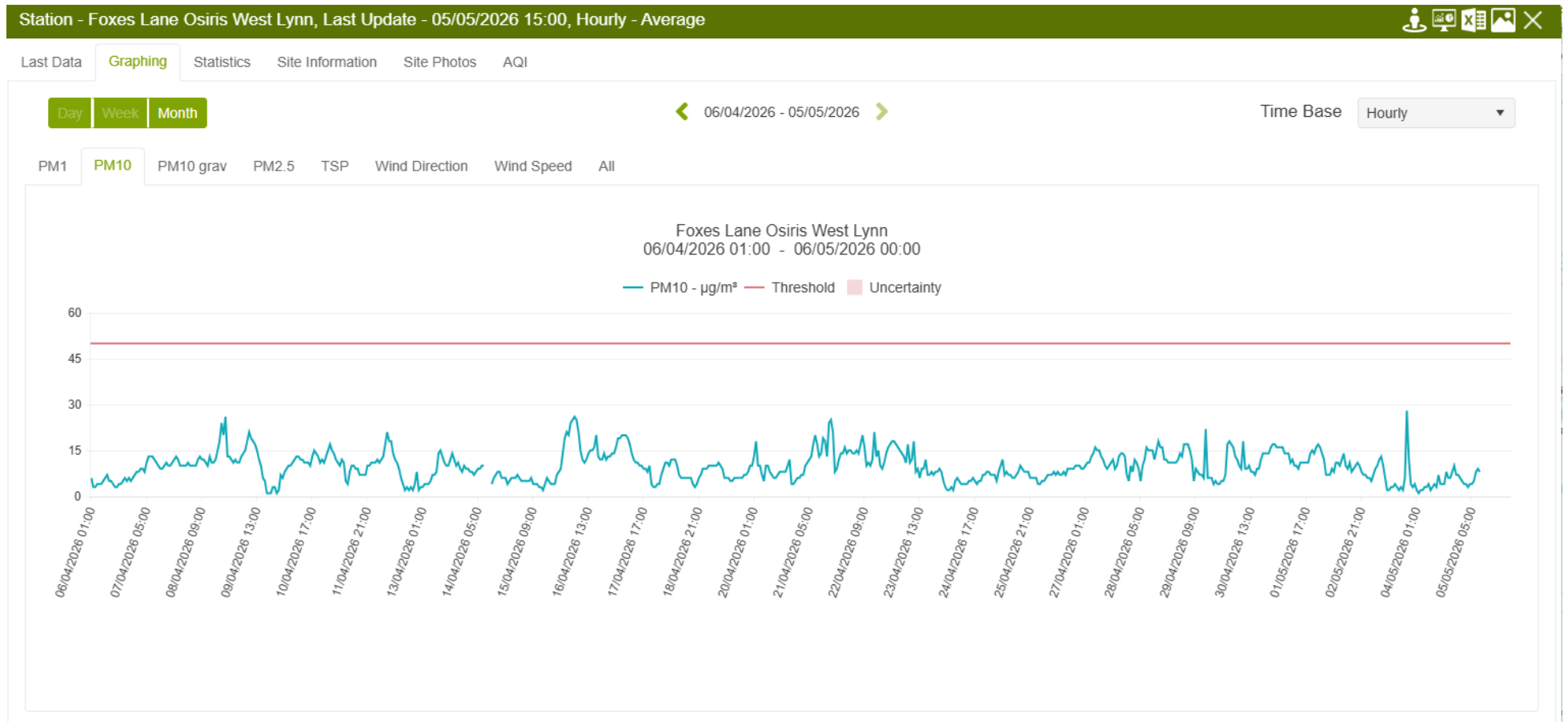


Figure 2.2 - Indicative PM_{2.5} results compared to the annual mean target concentration (10µg/m³) from the West Lynn Osiris

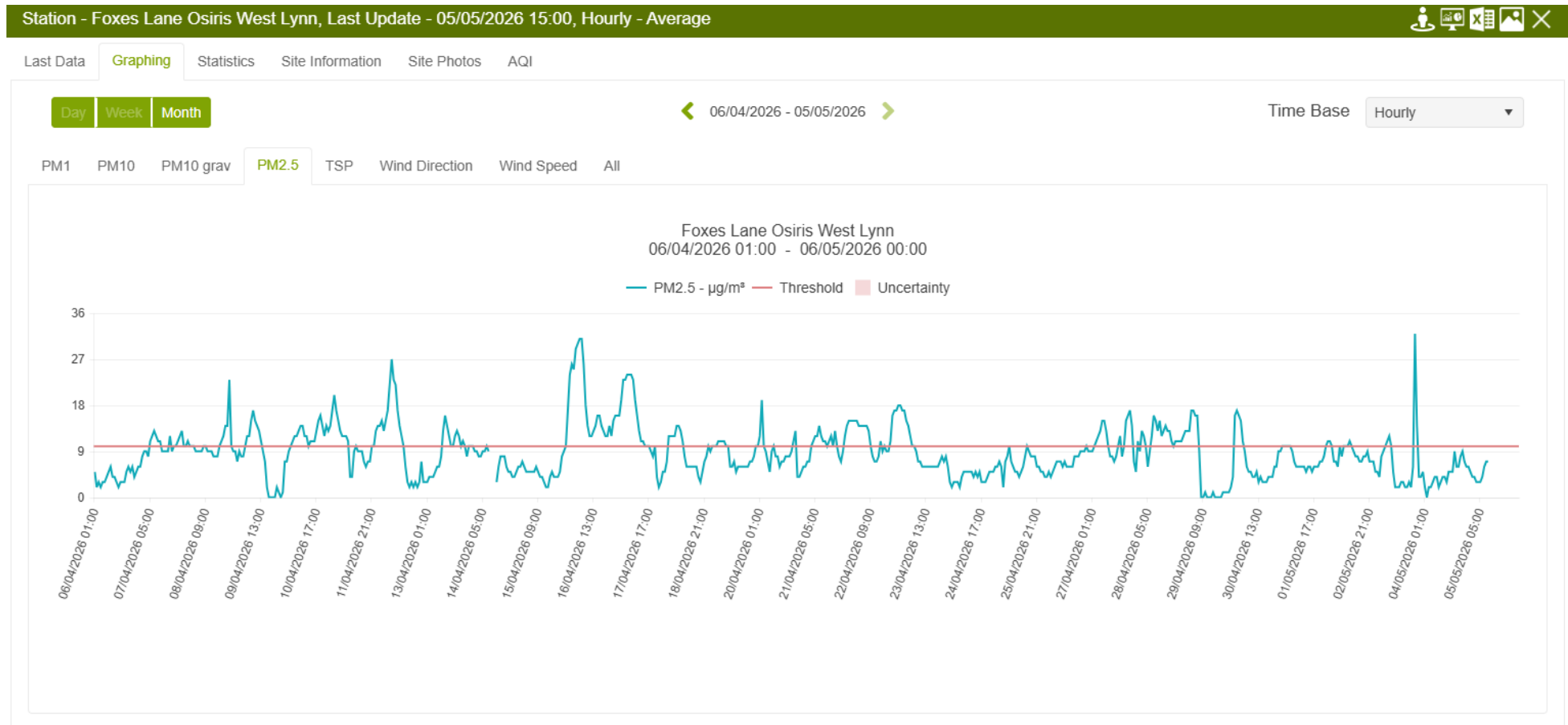


Figure 2.3 – Wind/pollutant rose plot from local monitoring results from West Lynn Osiris

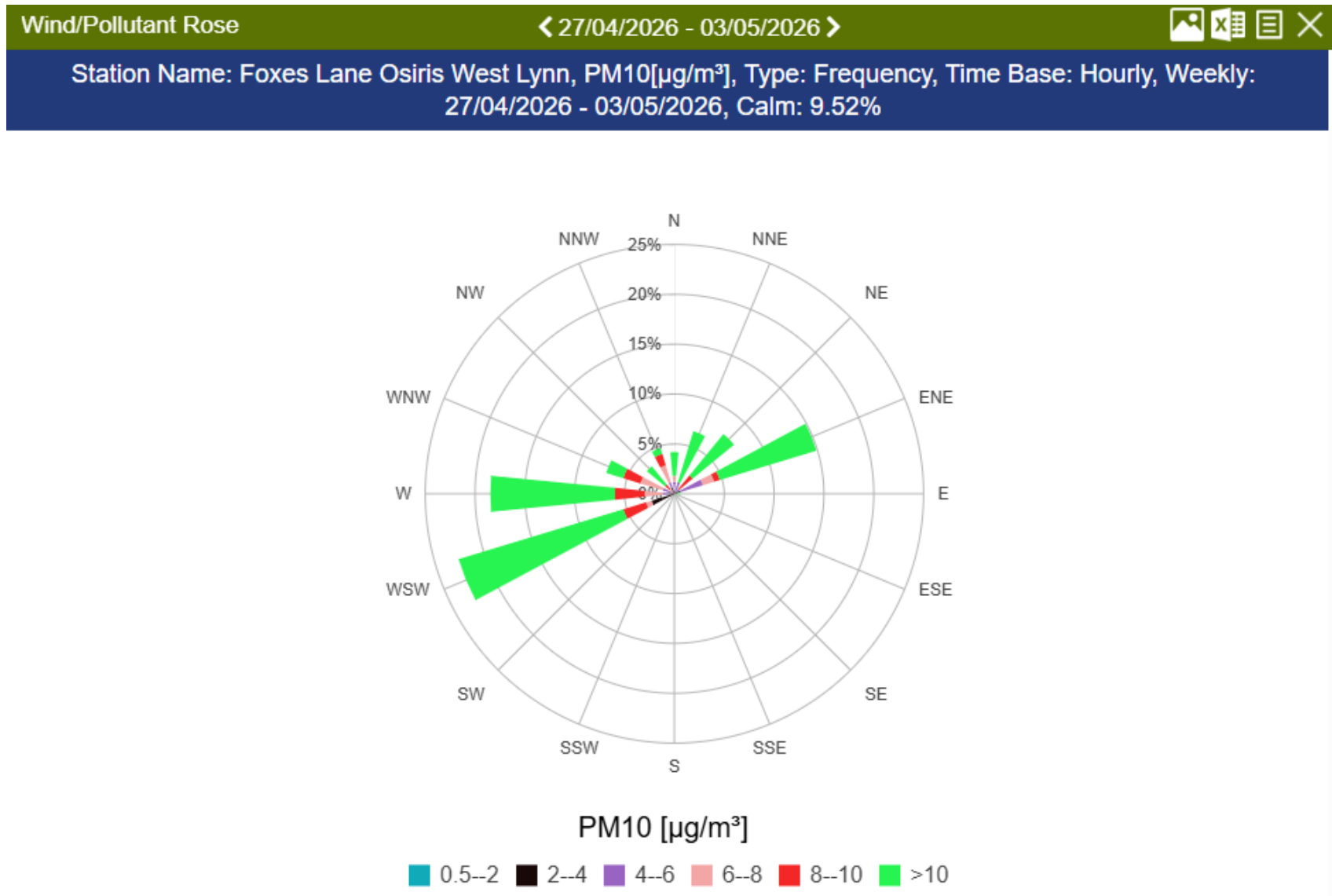


Table 2.1 - Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1.1	Improve active travel promotion to schools	Promoting Travel Alternatives	School Travel Plans	2024	2029	Norfolk CC Schools	NCC	Partially Funded	< £10k	Planning	NO ₂ / PM _{2.5} - Low	No. of schools around AQMAs with active travel plans	NCC provide funded access to Modeshift Stars for all schools, so that they can develop active travel plans. The number of schools with active travel plans is still not yet known.	School travel plans have been previously successful, but support has since stopped leaving schools to manage (funding issue).
1.2	To develop a BCKLWN Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	2024	2029	Borough Council of King's Lynn and West Norfolk Sustrans	BCKLWN	Partially Funded	< £10k	Planning	NO ₂ / PM _{2.5} - Low	Outcome(s) to be agreed from adopted / active TP	A BCKLWN workplace Travel Plan is being developed through a council working group.	No national guidance from DfT or best practice examples limits progress
1.3	Development of other workplace / business travel plans	Promoting Travel Alternatives	Encourage / Facilitate homeworking	2024	2029	Borough Council of King's Lynn and West Norfolk Private business	Town Deal and Business Rate Pool	Partially Funded	£50k - £100k	Planning	NO ₂ / PM _{2.5} - Low	No. of other workplaces with active travel plans	The Council is working with a number of key employers in King's Lynn (6) to help develop other workplace TPs under the Town Deal ACC programme to help identify any barriers to their wider implementation.	Barriers to implementation are part of the project brief.
1.4	Development of Active Travel Hubs	Transport Planning and Infrastructure	Intensive active travel campaign & infrastructure	2024	2029	Borough Council of King's Lynn and West Norfolk Norfolk CC	Town Deal & Business Rate Pool	Partially Funded	£1m - £10m	Planning	NO ₂ / PM _{2.5} - Low	No. of Active Travel Hubs	Two multi-modal active travel hubs are planned; one on outskirts of King's Lynn (Nar Ouse Enterprise Zone) and other in town centre (Baker Lane). No Hubs delivered as yet.	Hubs are planned, awaiting further development.
1.5	Implement the local cycling and walking infrastructure plan (LCWIP)	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2024	2029	Norfolk CC Borough Council of King's Lynn and West Norfolk	A&CC Town Deal project	Partially Funded	£1m - £10m	Planning	NO ₂ / PM _{2.5} - Low	Extent of Infrastructure / No. of LCWIP schemes.	A delivery programme is in progress for the LCWIP schemes with funding in place for 2024-2026 with the exception currently of the Tennyson Rd crossing.	The Tennyson Rd crossing needs to be integrated with a railway crossing.
1.6	Support Use of West Lynn Ferry	Promoting Travel Alternatives	Promote use of rail and inland waterways	2012	2029	Borough Council of King's Lynn and West Norfolk Norfolk CC	TBC based on successful business case	Not Funded	Unknown - TBC	Planning	NO ₂ / PM _{2.5} - Low	Continued operation of Ferry Service with funding where necessary to support	Funding has been agreed between BCKLWN and NCC for repairs and remedial works to both landings to bring the Ferry back into use.	Funding has been agreed for a study to assess longer term more permanent solution(s).
2.1	Work with Norfolk County Council to help deliver their Bus Service Improvement Plan (BSIP)	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2024	2029	Norfolk CC Bus Operators	DfT Bus Back Better	Funded	> £10m	Planning	NO ₂ / PM _{2.5} Low - Medium	TBC	The 22/25 BSIP programme is in delivery including implementation of bus lanes, subsidised fares and upgrades to bus stations and bus stops.	A consultation has been carried out (Jan 2025) to inform future priorities.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
2.2	Zero Emission Buses in King's Lynn	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2024	2029	Norfolk CC Bus Operators	DfT ZEBRA funding	Not Funded	Unknown - TBC	Planning	NO ₂ / PM _{2.5} - Medium	No. of zero emission buses	Norfolk CC will liaise with Bus Operators to develop and submit a bid if appropriate	NCC is awaiting further indications from the Department for Transport regarding whether future opportunities to bid for zero emission bus support will be forthcoming.
3.1	Review changes to the road system within the King's Lynn Town Centre gyratory system (Railway Rd AQMA).	Traffic Management	UTC, Congestion management, traffic reduction	2024	2029	Norfolk CC Borough Council of King's Lynn and West Norfolk	Dept for Transport	Partially Funded	< £10k	Planning	Reduction in NO ₂ / PM _{2.5} is dependent on AQ Modelling against preferred option(s)	Continued NO ₂ monitoring, with aim for downward trends	The STARS projects have received funding following an Outline Business Case.	AQ review is dependent on detailed traffic data.
3.2	Review traffic related changes as part of the Southgates Masterplan	Traffic Management	UTC, Congestion management, traffic reduction	2024	2029	Norfolk CC Borough Council of King's Lynn and West Norfolk	Dept for Transport	Partially Funded	< £10k	Planning	Reduction in NO ₂ / PM _{2.5} is dependent on AQ Modelling against preferred option(s)	Continued NO ₂ monitoring, with aim for downward trends	The STARS projects have received funding following an Outline Business Case.	AQ review is dependent on detailed traffic data.
3.3	Develop and Implement a comprehensive Car-Parking Strategy for King's Lynn	Traffic Management	UTC, Congestion management, traffic reduction	2024	2029	Norfolk CC Borough Council of King's Lynn and West Norfolk	BCKLWN	Funded	Unknown - TBC	Planning	NO ₂ / PM _{2.5} - Low	TBC	Work ongoing to review and deliver the draft parking strategy.	Parking strategy to review the options.
4.1	To consider air quality from new developments and secure mitigation	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2024	2029	Borough Council of King's Lynn and West Norfolk	BCKLWN	Funded	< £10k	Implementation	Minimum amount of pollution from schemes lifetime	No of planning application considered per year	On-going - no. of planning applications reviewed in 2024 (111).	Interim planning guidance only available for PM _{2.5} . Await final version.
5.1	Promote behaviour change from individuals and employers	Public Information	Via the Internet	2029	2029	Norfolk CC Public Health Borough Council of King's Lynn and West Norfolk	NCC	Partially Funded	Unknown - TBC	Implementation	NO ₂ / PM _{2.5} - Low	Increased awareness	A number of initiatives are promoted aimed at improving AQ including Clean Air Day, Defra's Burn Better, Breathe Better campaign.	County-wide framework will help to establish priority areas.
5.2	Improve Public Awareness (Air Quality Monitoring and Information)	Public Information	Via the Internet	2024	2029	Norfolk CC Public Health Borough Council of King's Lynn and West Norfolk	BCKLWN	Partially Funded	Unknown - TBC	Implementation	NO ₂ / PM _{2.5} - Low	Increased Awareness of Air Quality	The Norfolk Countywide Air Quality Partnership, with support from Public Health, are in the process of developing a strategic document to highlight air quality issues across the County. This will establish priority areas and actions will follow this, including potential comms and engagement work. Norfolk AQ Summit event held in Aug 2025 setting out the impacts from air pollution with a view for improved collaboration.	New website / monitors dependent on funding.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
6.1	To develop an Air Quality Project to review the impact of PM10 and PM2.5 across the district.	Public Information	Via the Internet	2024	2029	Norfolk CC Public Health Borough Council of King's Lynn and West Norfolk	DEFRA BCKLWN NCC	Partially Funded	Unknown - TBC	Planning	NO ₂ / PM _{2.5} - Low	Completion of project	Draft report prepared with help from public health focussing on PM2.5..	NCC Public Health support the project.

Note: Priority measures based on the following

- A. To increase active travel / modal shift to more sustainable transport options (Measures 1.1 – 1.6)
- B. Public Transport Improvements (Measures 2.1 – 2.2)
- C. Larger Transport Infrastructure Schemes (Measures 3.1 – 3.3)

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy³⁵, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}) sources that are within their control. There is clear evidence that this fine particulate matter fraction less than 2.5 micrometres is strongly linked to adverse health impacts, including premature mortality, allergic reactions, and cardiovascular diseases. There is also a growing body of evidence that PM_{2.5} is linked to dementia which is of particular interest in Norfolk which has a rapidly ageing population, and where dementia is now one of the leading causes of mortality³⁶.

The Public Health Outcome Framework (PHOF) indicator D01 provides an attributable mortality estimate from long-term exposure to PM_{2.5} for each local authority in England when based on a population weighted average concentration. For the Borough Council of King's Lynn and West Norfolk's area the attributable mortality fraction due to this long-term exposure to PM_{2.5} was 5.2% in 2024³⁷.

In recognition of these health effects from PM_{2.5}, the Environment Act 2021 set national targets to reduce PM_{2.5} that local authorities are tasked to support. The national targets include an Annual Mean Concentration Target (AMCT) and also a Population Exposure Reduction Target (PERT) to be achieved by 2040. In summary;

- a) PM_{2.5} annual mean concentration target (AMCT) of 10 µgm⁻³ by 2040; and,**
- b) PM_{2.5} population exposure reduction target (PERT) of 35% reduction from a 2018 baseline by 2040.**

It is for Government to report on compliance against the PM_{2.5} Targets based on results from national network of reference air quality monitoring stations. However, as these stations are used to generate the modelled Defra background maps, then it is possible to provide an estimate of these targets locally based on the Defra background maps.

³⁵ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

³⁶ Air Pollution and dementia *BMJ* 2023; 381 doi: <https://doi.org/10.1136/bmj.p655> (Published 05 April 2023)

³⁷ Dept of Health and Social Care; Fingertips Data: [Public Health Outcomes Framework - Data | Fingertips | Department of Health and Social Care](#)

Table 2.2 below lists the local PM_{2.5} targets based on these modelled Defra background map concentrations projected forward to the respective target dates as a guide.

Table 2.2 – National PM_{2.5} Targets projected within BCKLWN.

National Target	PM _{2.5} National Target measure	Local Targets µg/m ³	Deadline
Annual Mean Concentration target (AMCT)	10 µg/m ³ concentration to be achieved nationwide	10 µg/m³	By 2040
Interim Annual Mean Concentration Target	12 µg/m ³ concentration to be achieved nationwide	12 µg/m³	By 2028
Interim Population exposure reduction target	22% reduction in average population exposure compared to 2018 baseline	Interim PERT Target 7.33 µg/m³	By 2028
Population exposure reduction target (PERT)	35% reduction in average population exposure compared to 2018 baseline (average 9.4µg/m ³ in 2018)	PERT Target of 6.1µg/m³	By 2040
Current average PM_{2.5} in BCKLWN (2025; unchanged from 2024)		5.6 µg/m³	In 2025

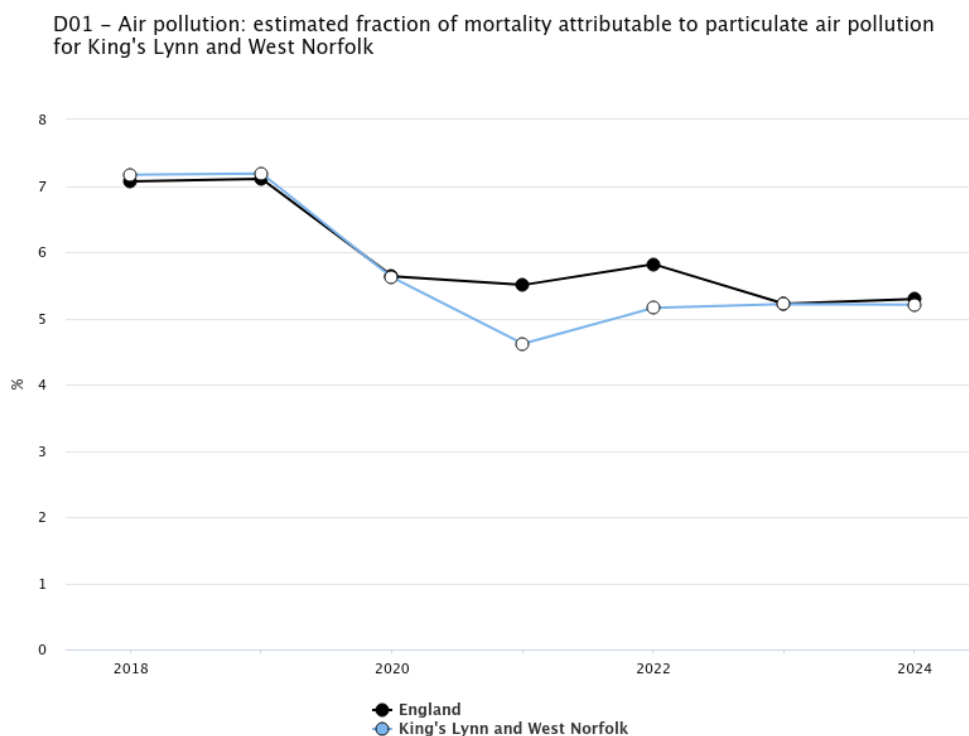
In terms of the AMCT as confirmed in last year's there are no 1km grid squares as shown by Defra background (modelled) PM_{2.5} concentrations in the BCKLWN area that exceed the target of 10µgm⁻³ by 2040.

However, in terms of the PERT, a 35% average reduction from the Defra background modelled concentrations in BCKLWN area in 2018 would mean the average annual mean PM_{2.5} concentration would need to reduce to 6.1 µgm⁻³ by 2040. The current annual average PM_{2.5} concentration for the BCKLWN area in 2025 based on Defra background maps is 5.6µgm⁻³ which is therefore lower than the projected PERT target for the BCKLWN area.

According to UK Informative Inventory Report (NAEI, 2026³⁸) the sector with largest source contribution for PM_{2.5} is the residential sector burning wood which accounts for over 40% of the PM_{2.5} emission from the combustion sector and about 11% of UK total. However, according to NAEI the activity data for the residential sector burning wood remains highly uncertain, mainly due to the lack of comprehensive fuel sales data for wood use.

A recent study of solid fuel appliances by Ricardo (2025³⁹) highlighted this uncertainty as it showed the pollution potentials of appliances (as emission factors in g/GJ) that are typically in use were substantially lower than previous estimates. The results of this 'real-world' study caused the Defra background maps for particulate matter to be revised downward by a considerable level in 2024. Trends as shown in Figure 2.4 below for the PHOF Indicator D01 which is based on this data, albeit population-based, has been consistent for the last 3 years which is similar to the national average.

Figure 2.4 – Trends in PHOF indicator D01 for BCKLWN area



To help reduce this level of uncertainty in the NAEI, we carry out monitoring of particulate matter using low-cost sensors at what are considered urban background locations but

³⁸ <https://naei.energysecurity.gov.uk/reports/uk-informative-inventory-report-1990-2024>

³⁹ Ricardo, 2025, Ricardo, 2025, https://uk-air.defra.gov.uk/library/reports?report_id=1167

located close to some potential point sources e.g. around the docks area in King's Lynn and close to an animal feed mill in Stoke Ferry. All of the low-cost monitors showed PM_{2.5} annual means as higher than the respective average PM_{2.5} predicted by Defra background e.g. with annual means ranging between 6.3 to 9.9µg/m³ as shown in Table C.8 in [Appendix C](#).

To address the potential for any pollution-related vulnerabilities we are working with Norfolk County Council Public Health and other specialists to develop a health-based project focussing on particulate matter. This will form part of the Air Quality Strategy going forward. Further details can be reported in next year's ASR.

In terms of measures to reduce average PM_{2.5} levels we are carrying out the following;

We review planning applications and where necessary recommend suitable conditions to help ensure only minimal pollution is emitted in line with the Interim Planning Guidance from Defra on PM_{2.5} and the National Air Quality Strategy (2023).

Measures already implemented within the King's Lynn Transport Strategy will help reduce levels of PM_{2.5} from the vehicle emissions including secondary PM_{2.5} produced from road-NO_x.

Regulation of LAPPC prescribed processes through environmental permits to ensure compliance with Best Available Techniques (BAT) and where necessary compliance with any emissions limits.

We have adopted a Climate Change Strategy and Action Plan and provided a £1,000,000 budget to help implement the Strategy. This work will help reduce carbon emissions but also PM_{2.5} emissions through the reduction in fossil fuel usage through:

- vehicles (via EV charging and active travel alternatives);
- domestic residential properties (Warm Homes, ECO 3 & 4);

Published advice on Council's website about indoor quality with links to check lists from Asthma and Lung UK to promote this information and help reduce exposure to the indoor PM_{2.5} and other pollutants.

We continue to work with colleagues within the Countywide Air Quality Group on PM_{2.5} work.

As wood burning from the domestic sector is thought to be responsible for such a large proportion of the total PM_{2.5} we have made it easier for individuals to report smoke from chimneys within any of the 8 Smoke Control Areas (SCAs) in King's Lynn via an online

tool^{40,41}. This tool went live in December 2023. For the 2025 period we did not receive any reports of smoke being emitted from a chimney within a Smoke Control Area. Conversely, over the same period and outside of the SCAs, there were 7 reports of smoke emitted from a chimney causing a potential nuisance. We will keep these instances of smoke emitted from chimneys under review.

To help promote best practice within the domestic sector burning wood we publicise the national Better Burn, Breathe Better (Defra) campaign through the council's website. This sets out the types of solid fuel which should be used and how to minimise PM_{2.5} emissions.

We have also participated in both Clean Air Day and Clean Air Night this year.

For the larger boilers burning wood (>45kW_{th}) we assess these individually and maintain an inventory of their emission rates. A summary of these installations is shown in Table F.1. The largest by thermal capacity in the area remains at around 3MW if based on its aggregated thermal capacity.

Lastly we maintain an inventory of Anaerobic Digestion (AD) Facilities in Table F.2 as the national emission inventory⁴² showed ammonia emitted from 'non-manure' digestate spreading such as from AD Facilities increased within the year by 77 per cent. The inventories may be useful for the project on PM_{2.5} especially as ammonia from AD facilities is source of secondary PM_{2.5}; a consideration wherever these wastes become aggregated around the AD Facility.

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

This section sets out the monitoring undertaken within 2025 by BCKLWN and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2021 and 2025 to allow monitoring trends to be identified and discussed.

⁴⁰ SCA reporting tool; https://www.west-norfolk.gov.uk/info/20137/air_quality/633/burning_wood_and_coal

⁴¹ Defra UK-Air; <https://uk-air.defra.gov.uk/data/sca/>

⁴² Defra, Emissions of air pollutants in the UK – Summary; <https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-summary>

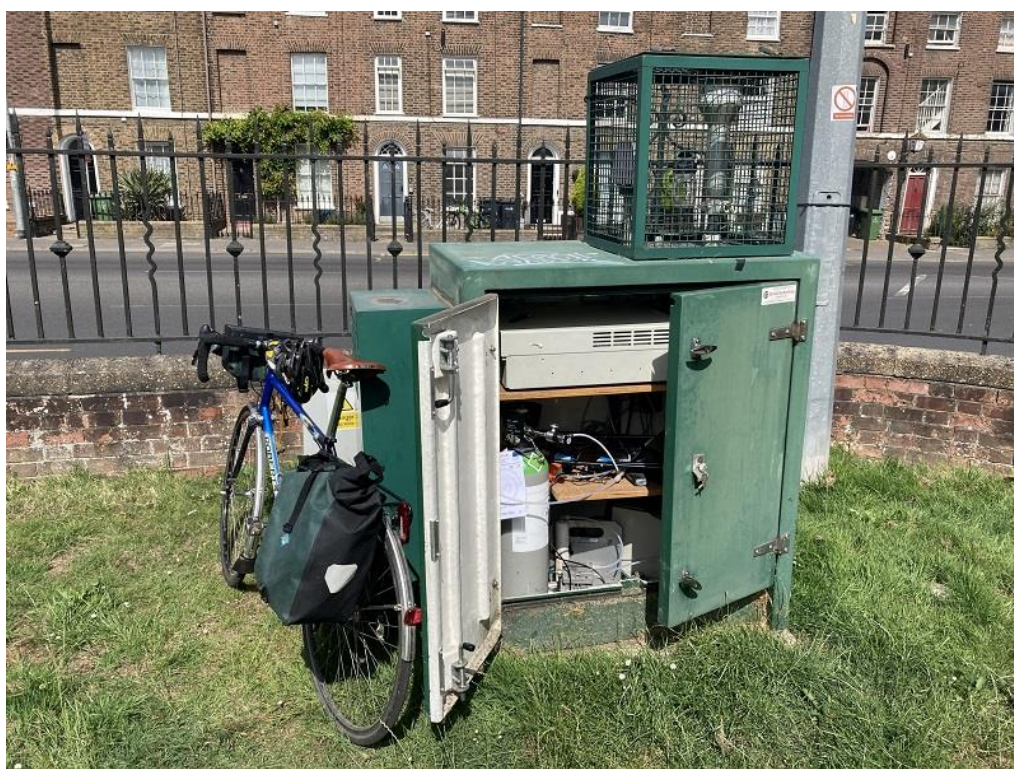
3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Reference monitors

BCKLWN undertook automatic (continuous) monitoring at 2 sites where NO₂ chemiluminescent analysers are installed during 2025. Figure 3.1 below shows the reference (chemiluminescent) analyser located at Southgates. Table A.1 in Appendix A shows the details of the automatic monitoring sites. Monitoring data is available via the [Norfolk Air Quality](#) website and also via [Defra's UK-Air](#) website.

Figure 3.1- Southgates Reference NO₂ analyser



Indicative / sensor-based monitors

We also carried out low cost (indicative) continuous monitoring at a number of sites during 2025 as shown in Table C.5. These included the following monitors;

- Earthsense Zephyr that analyses for PM₁₀, PM_{2.5} and NO₂ and is deployed along Railway Rd in King's Lynn. Figure C.1 in Appendix C shows the Zephyr monitor.
- 3x Turnkey Osiris monitors analyse both PM_{2.5} and PM₁₀ background concentrations around the main industrial areas such as either side of King's Lynn

Port and around an animal feed mill in Stoke Ferry. An example is shown in Figure C.2 Appendix C.

Results from the low-cost sensors are appended to this report (see Table C.6 to Table C.10 in [Appendix C](#)). Whilst non-reference, they benefit from iMCERTS accreditation for the PM₁₀ and PM_{2.5}.

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

The BCKLWN undertook automatic (continuous) monitoring at 72 sites during 2025. This compared to 76 sites in the previous year. The reason for the reduction was as follows;

- Site 46 was considered as not required as it is covered by site 66 Lynn Rd (Highgate Infant School);
- Site 39 was considered as not required as it is covered by another tube on the Tennyson Rd / Lynn Rd junction;
- Site 51 was considered not required as it is covered by other sites closer to the Gaywood Clock junction;
- Site 104 considered as not required as it is covered by other sites along the south bound part of the town centre gyratory (Blackfriars Rd) that are more relevant of public exposure;

Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

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

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

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

The main points to note in terms of NO₂ coming out of the data include the following;

- There were no exceedances of the air quality objectives for NO₂ in 2025;
- In 2025 the Railway Rd AQMA was agreed to be revoked at Council meeting 23rd of April 2026.
- All data has been properly ratified externally and corrected for bias using national factor and no distance correction has been applied.

Within Railway Rd AQMA

- In 2025 the highest NO₂ annual mean was from site 102 (28.5 µg/m³) within the Railway Rd AQMA which compared to 2024 (31.2 µg/m³ at Site 2). Both sites (102 and 2) are in a similar location close to the junction where buses join the northbound traffic along Railway Rd.
- Trend data since the Covid lock-down year of 2020 has shown a gradual decline in NO₂ pollutant concentrations (see Figure A.1 to Figure A.5). The concern had been the extent of NO₂ increasing after Covid due to traffic rebound, but annual mean NO₂ concentrations have shown a consistent and gradual reduction since, with all results now at least 10% below the NO₂ objective (<36µg/m³; objective 40µg/m³).
- Trend data is shown separately along the North and South bound flows of the A148 that forms the town centre's gyratory system in Figure A.1 and Figure A.2. This shows the annual mean NO₂ concentrations progressively increase and peak just

after the Albion St junction where buses join the North bound flow of Railway Rd and where a street canyon forms with buildings close to the kerb.

- The trend data even at this area that experiences highest NO₂ annual mean concentration shows a gradual and continued reduction in NO₂ pollutant concentrations with more than 5-continuous years of results now below the objective.

Outside of AQMAs

- Selected NO₂ monitoring trend data outside of the AQMAs is shown in Figure A.5 which highlights some trends at key sites;
 - **West Winch site 73**; An area that attracts public attention is the A10 as traffic flows and congestion are relatively high. Monitoring site 73 is located along the A10 at West Winch. Trends from this site show NO₂ to be relatively constant and significantly less than the objective since pre-Covid period.
 - **Site 87 Albion St**: This site is also useful as it is located at the junction with the bus station and Railway Rd. The monitoring site is set back from the junction and helps to show the proportion of road-NO₂ from buses / taxis and other vehicles leaving the station.
- Results were all less than the NO₂ annual mean objective, therefore no new AQMAs are proposed.

Short term NO₂ exposure

Short term (1-hour) exposure can be a concern along some routes that run parallel to busy roads, or at some bus stations / taxi ranks. Relevant and potential exposure occurs at King's Lynn Transport Interchange (site 5) and Vancouver car-park where taxi bays are located within a covered carpark (site 86).

Trend data is shown for these sites that are located outside of AQMAs but nevertheless where potential short-term exposure can occur. As can be seen in Figure A.5 results are significantly less than the 60µg/m³ NO₂ at site 86 level that would otherwise indicate an exceedance in the short-term mean objective.

Also presented in Table A.5 are results from the ratified continuous monitored NO₂ hourly mean concentrations for the past five years that are compared to the short term mean

objective of $200\mu\text{g}/\text{m}^3$ that must not to be exceeded more than 18 times per year. This shows no exceedances.

3.2.2 Particulate Matter (PM₁₀)

PM₁₀ monitoring is carried out using low-cost sensors only with results reported in Appendix C Tables C.7 and C.8. This consists of Turnkey Osiris dust monitors (PM₁₀ / PM_{2.5}) as well as an Earthsense Zephyr (PM₁₀ / PM_{2.5}). The Turnkey Osiris sensors benefit from heated air inlets to correct for humidity. Both the Zephyr and Osiris benefit from iMCERTS accreditation for PM₁₀ and PM_{2.5} and QC/QC as explained in Appendix C.

3.2.3 Particulate Matter (PM_{2.5})

Monitoring for this pollutant is carried out in conjunction with the PM₁₀ analysis through the Osiris and Zephyr monitors. Results are reported in Appendix C Table C.9.

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? ⁽¹⁾	Monitoring Technique	Distance to Relevant Exposure (m) ^(1,2)	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
CM_SG	Southgate AQMS	Roadside	562226	319196	NO2	No	N/a	Chemiluminescence	13.4	4.0	1.7
CM_GW	Gaywood AQMS	Roadside	563445	320475	NO2	No	N/a	Chemiluminescence	5.3	1.7	1.7

Notes:

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

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)
1	Railway Rd No. 1	Kerbside	562074	320300	NO2	No	5.1	1.8	No	2.5
2	Railway Rd No.4	Roadside	562108	320196	NO2	No	0.0	1.7	No	2.4
3	Railway Rd No.5	Roadside	562116	320094	NO2	No	0.0	1.5	No	2.4

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)
5	King's Lynn Bus Station	Urban Centre	562003	320098	NO2	No	0.0	0.5	No	2.2
6	Southgates Monitoring Station	Roadside	562225	319196	NO2	No	13.4	4.0	Yes	1.7
7	Southgates Monitoring Station	Roadside	562225	319196	NO2	No	13.4	4.0	Yes	1.7
8	Southgates Monitoring Station	Roadside	562225	319196	NO2	No	13.4	4.0	Yes	1.7
9	Stonegate Street	Roadside	561911	319710	NO2	No	0.0	6.0	No	2.5
10	London Rd No.1	Roadside	562099	319670	NO2	No	0.0	6.0	No	1.4
11	London Rd No. 2	Roadside	562165	319575	NO2	No	0.0	6.8	No	2.2
12	London Rd No.3	Roadside	562242	319452	NO2	No	0.0	4.4	No	2.1
13	London Rd No.4	Roadside	562263	319374	NO2	No	0.0	5.0	No	2.2
14	London Rd No.5	Roadside	562227	319266	NO2	No	0.0	4.3	No	2.2
15	Ford Building, South Gate	Roadside	562189	319101	NO2	No	1.0	0.5	No	2.2
18	Hardwick Rd, South Gate	Roadside	562266	319042	NO2	No	0.0	9.0	No	2.2
19	Vancouver Av	Roadside	562277	319098	NO2	No	0.0	5.6	No	1.7

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)
20	London Rd No.10	Roadside	562249	319275	NO2	No	0.0	3.7	No	2.2
22	London Rd No.6	Roadside	562284	319385	NO2	No	0.0	5.0	No	2.1
23	London Rd No.7	Roadside	562161	319614	NO2	No	0.0	4.5	No	2.1
24	London Rd No.8	Roadside	562130	319660	NO2	No	0.0	5.3	No	2.0
25	Framingham's Almshouses	Urban Background	562190	319694	NO2	No	0.0	77.0	No	1.8
26	Railway Rd No.7	Roadside	562131	319996	NO2	No	0.0	3.0	No	2.2
27	St John's Terrace	Roadside	562177	319999	NO2	No	0.0	5.1	No	2.1
28	St John's / Blackfriar's	Roadside	562253	320015	NO2	No	0.0	1.4	No	2.6
29	Waterloo St	Urban Background	562182	320057	NO2	No	0.0	3.0	No	1.6
30	Portland St	Urban Background	562207	320108	NO2	No	2.7	0.8	No	2.4
31	Railway Rd No.2	Roadside	562128	320131	NO2	No	0.0	2.0	No	2.3
32	Railway Rd No.3	Roadside	562119	320216	NO2	No	0.0	2.0	No	2.4
33	Wellesley St	Roadside	562202	320158	NO2	No	1.8	1.4	No	2.4

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)
34	Blackfriars No.2	Roadside	562244	320128	NO2	No	0.0	2.3	No	2.4
35	Blackfriars No.1	Roadside	562244	320238	NO2	No	0.0	4.4	No	2.3
36	Norfolk St	Roadside	562216	320318	NO2	No	0.0	2.0	No	2.2
37	The Shrubberies, Blackfriars	Roadside	562253	320258	NO2	No	0.0	4.4	No	2.2
38	Littleport St	Roadside	562256	320322	NO2	No	0.0	2.6	No	2.4
40	The Swan, Gayton Road	Roadside	563490	320469	NO2	No	0.0	2.8	No	2.5
41	Wootton Rd No.2	Roadside	563477	320514	NO2	No	0.0	2.0	No	4.0
42	Wootton Rd No. 1	Roadside	563480	320581	NO2	No	0.0	3.0	No	1.7
43	Lynn Rd No.1	Roadside	563411	320476	NO2	No	0.0	6.0	No	3.3
44	Lynn Rd No. 2	Roadside	563377	320484	NO2	No	0.0	2.0	No	3.8
45	Gaywood Rd No.3	Roadside	563202	320488	NO2	No	0.0	4.5	No	2.2
47	Austin St No.1	Roadside	562186	320376	NO2	No	0.0	3.2	No	2.1
48	Austin St No.2	Roadside	562172	320370	NO2	No	0.0	2.1	No	2.6

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)
52	Lynn Rd No.3	Roadside	563288	320504	NO2	No	0.0	6.6	No	1.7
58	Nar Ouse Way, South Gate	Roadside	562171	319018	NO2	No	40.0	2.5	No	2.5
62	Burney Rd, South Lynn	Roadside	561608	318601	NO2	No	0.0	6.8	No	1.8
66	Highgate Infant School	Urban Background	562595	320527	NO2	No	0.0	17.0	No	2.4
67	Greyfriars School, London Road	Urban Background	562235	319578	NO2	No	0.0	19.9	No	2.3
68	St James Nursery London Road	Urban Background	562142	319837	NO2	No	0.0	31.6	No	2.0
69	Whitefriars Primary School No1	Urban Background	561993	319394	NO2	No	0.0	25.1	No	2.2
70	Whitefriars Primary School No2	Urban Background	561929	319354	NO2	No	0.0	N/a	No	2.4
73	West Winch, A10 Main Road	Roadside	563161	315848	NO2	No	0.9	1.6	No	2.0
75	The Swan, Gayton Road	Roadside	563468	320469	NO2	No	0.0	2.1	No	2.9
76	Hardwick Bridge Residential Park	Roadside	562597	318739	NO2	No	0.0	8.5	No	1.7
79	Gaywood Rd / Tenn Rd junction	Roadside	562799	320468	NO2	No	0.0	1.8	No	2.2

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)
86	Taxi Rank at Bus Station	Other	562018	320138	NO2	No	0.0	1.0	No	2.3
87	Albion St / Railway Rd junction	Roadside	562102	320163	NO2	No	0.0	2.5	No	2.1
89	Whitefriars Terrace	Roadside	561887	319466	NO2	No	0.0	1.4	No	2.4
90	Spenser Rd	Roadside	563366	322065	NO2	No	0.0	6.0	No	1.8
91	Reid Way	Roadside	563255	321613	NO2	No	0.0	4.7	No	2.3
92	Garden Court	Roadside	563256	321588	NO2	No	0.0	15.0	No	2.2
94	Wisbech Rd, South Lynn	Roadside	561957	318963	NO2	No	0.0	7.3	No	2.0
95	Harvest House, Wisbech Road	Roadside	562058	319038	NO2	No	0.0	7.2	No	1.9
96	Carp Terrace, King's Lynn	Roadside	562042	319011	NO2	No	0.0	8.4	No	1.9
97	Low Road / Grimston Rd junction.	Roadside	564503	322411	NO2	No	0.0	8.0	No	2.0
98	Greenpark Avenue	Roadside	562821	320964	NO2	No	0.0	4.8	No	1.8
99	West Walton High School	Suburban	547792	313121	NO2	No	27.0	1.0	No	2.3

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)
100	Chapnall Rd, Wisbech	Suburban	547902	310395	NO2	No	0.0	14.0	No	1.8
101	Elm High Rd No.2, Wisbech	Roadside	547094	307850	NO2	No	0.0	5.2	No	1.8
102	Railway Rd No.6	Roadside	562104	320209	NO2	No	0.0	1.7	No	2.1
103	Railway Rd No.7	Roadside	562116	320128	NO2	No	0.0	1.7	No	2.1
110	Elm High Rd No.1, Wisbech	Roadside	546884	308315	NO2	No	0.0	6.0	No	2.2
111	Queen Mary Rd NB No.1	Roadside	563370	320416	NO2	No	0.0	8.0	No	2.3
112	Queen Mary Rd SB No.1	Roadside	563402	320381	NO2	No	0.0	17.3	No	2.3
113	Queen Mary Rd NB No.2	Roadside	563344	320176	NO2	No	0.0	10.1	No	2.3

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
CM_SG	562226	319196	Roadside	98.6	98.6	17.6	14.0	14.8	13.6	14.0
CM_GW	563445	320475	Roadside	98.8	98.8	26.4	24.0	24.8	22.6	22.5

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

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

☒ Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2025.

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
1	562074	320300	Kerbside	100.0	100.0	28.7	28.4	27.5	24.9	25.9
2	562108	320196	Roadside	100.0	100.0	33.7	32.9	32.5	31.2	28.5
3	562116	320094	Roadside	92.3	92.3	30.1	29.1	28.5	26.3	25.3
5	562003	320098	Urban Centre	100.0	100.0	20.5	20.3	19.9	18.6	17.7
6	562225	319196	Roadside	100.0	100.0	18.2	17.8	14.4	12.7	14.7
7	562225	319196	Roadside	100.0	100.0	18.1	17.5	14.4	13.9	15.3
8	562225	319196	Roadside	100.0	100.0	18.3	17.4	14.3	13.8	15.1
9	561911	319710	Roadside	92.3	92.3	15.2	15.0	12.9	11.4	12.7
10	562099	319670	Roadside	90.4	90.4	29.0	27.8	26.2	27.1	27.4
11	562165	319575	Roadside	100.0	100.0	22.3	22.8	21.1	19.7	19.7
12	562242	319452	Roadside	92.3	92.3	23.5	24.5	23.6	22.2	21.1
13	562263	319374	Roadside	100.0	100.0	22.9	22.2	21.0	19.0	19.6

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
14	562227	319266	Roadside	100.0	100.0	25.5	24.0	23.5	22.8	20.9
15	562189	319101	Roadside	100.0	100.0	29.6	28.2	26.9	25.6	26.2
18	562266	319042	Roadside	100.0	100.0	19.9	19.7	17.8	15.9	16.5
19	562277	319098	Roadside	100.0	100.0	18.4	18.6	16.5	15.4	16.7
20	562249	319275	Roadside	92.3	92.3	23.8	22.7	23.0	20.0	22.8
22	562284	319385	Roadside	100.0	100.0	25.2	23.7	23.3	20.4	23.1
23	562161	319614	Roadside	100.0	100.0	26.4	25.4	24.2	21.4	24.1
24	562130	319660	Roadside	100.0	100.0	23.8	23.9	23.4	20.6	21.6
25	562190	319694	Urban Background	100.0	100.0	11.5	11.7	11.9	9.1	9.7
26	562131	319996	Roadside	82.7	82.7	26.3	25.4	25.2	24.4	22.6
27	562177	319999	Roadside	100.0	100.0	22.8	22.2	21.2	18.4	18.8
28	562253	320015	Roadside	92.3	92.3	22.4	22.5	21.5	20.7	19.9
29	562182	320057	Urban Background	100.0	100.0	13.3	13.4	12.5	10.8	11.2

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
30	562207	320108	Urban Background	100.0	100.0	14.9	14.6	13.2	12.0	13.0
31	562128	320131	Roadside	75.0	75.0	24.0	19.8	23.3	20.4	23.8
32	562119	320216	Roadside	100.0	100.0	22.8	21.9	20.5	19.1	20.5
33	562202	320158	Roadside	100.0	100.0	20.8	21.9	20.9	17.8	17.4
34	562244	320128	Roadside	100.0	100.0	23.5	24.1	23.1	19.3	20.4
35	562244	320238	Roadside	100.0	100.0	22.4	22.3	21.7	19.4	19.2
36	562216	320318	Roadside	100.0	100.0	21.0	21.6	19.9	17.3	18.7
37	562253	320258	Roadside	100.0	100.0	23.9	22.1	19.8	18.6	19.7
38	562256	320322	Roadside	100.0	100.0	26.9	27.9	25.2	23.0	24.4
40	563490	320469	Roadside	100.0	100.0	25.6	26.7	26.0	23.0	23.6
41	563477	320514	Roadside	100.0	100.0	25.2	26.3	25.1	23.8	26.8
42	563480	320581	Roadside	100.0	100.0	23.7	23.2	21.6	19.8	19.3
43	563411	320476	Roadside	100.0	100.0	25.4	24.4	23.5	21.4	21.6

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
44	563377	320484	Roadside	100.0	100.0	27.0	27.8	27.4	25.2	26.9
45	563202	320488	Roadside	100.0	100.0	22.3	21.4	20.5	17.4	18.2
47	562186	320376	Roadside	100.0	100.0	23.6	24.7	22.0	20.6	21.3
48	562172	320370	Roadside	100.0	100.0	15.6	21.9	18.6	20.3	20.8
52	563288	320504	Roadside	100.0	100.0	23.6	23.1	22.4	19.9	19.5
58	562171	319018	Roadside	100.0	100.0	20.9	21.0	18.7	17.3	18.4
62	561608	318601	Roadside	92.3	92.3	10.9	10.4	10.0	7.9	8.9
66	562595	320527	Urban Background	82.7	82.7	17.5	17.3	16.4	13.8	13.8
67	562235	319578	Urban Background	100.0	100.0	11.6	12.0	10.6	9.2	10.2
68	562142	319837	Urban Background	100.0	100.0	14.1	13.2	11.3	11.2	10.8
69	561993	319394	Urban Background	100.0	100.0	9.8	9.2	9.0	7.0	8.3
70	561929	319354	Urban Background	100.0	100.0	9.1	8.1	8.1	6.6	8.1
73	563161	315848	Roadside	100.0	100.0	16.5	16.6	15.5	15.9	16.8

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
75	563468	320469	Roadside	100.0	100.0	28.0	27.7	25.4	24.1	25.2
76	562597	318739	Roadside	100.0	100.0	14.0	14.8	13.0	11.6	12.5
79	562799	320468	Roadside	100.0	100.0	26.0	25.8	24.7	22.4	16.1
86	562018	320138	Other	80.8	80.8	20.1	22.1	19.9	19.3	19.1
87	562102	320163	Roadside	100.0	100.0	24.1	23.0	21.3	19.5	20.0
89	561887	319466	Roadside	100.0	100.0	9.7	9.7	8.5	9.2	8.4
90	563366	322065	Roadside	90.4	90.4	11.8	11.8	10.4	9.6	10.1
91	563255	321613	Roadside	100.0	100.0	11.0	11.1	9.8	8.4	9.0
92	563256	321588	Roadside	90.4	90.4	9.7	10.1	8.3	7.7	8.3
94	561957	318963	Roadside	100.0	100.0	16.4	16.9	15.5	13.3	13.1
95	562058	319038	Roadside	100.0	100.0	13.0	12.6	13.0	10.3	11.1
96	562042	319011	Roadside	84.6	84.6	15.1	15.7	13.7	11.4	10.8
97	564503	322411	Roadside	100.0	100.0	15.1	15.6	14.2	12.3	11.9

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
98	562821	320964	Roadside	100.0	100.0	11.2	11.6	9.9	8.9	9.4
99	547792	313121	Suburban	100.0	100.0	7.8	7.4	6.5	5.6	8.5
100	547902	310395	Suburban	82.7	82.7	9.5	9.2	8.3	6.7	8.3
101	547094	307850	Roadside	100.0	100.0	27.8	28.3	26.5	26.4	23.6
102	562104	320209	Roadside	100.0	100.0	-	32.1	29.7	29.2	29.1
103	562116	320128	Roadside	100.0	100.0	-	30.7	29.3	26.9	26.8
110	546884	308315	Roadside	100.0	100.0	-	-	14.6	14.3	12.2
111	563370	320416	Roadside	100.0	100.0	-	-	-	10.0	11.1
112	563402	320381	Roadside	100.0	100.0	-	-	-	8.0	9.8
113	563344	320176	Roadside	90.4	90.4	-	-	-	7.8	9.5

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

☒ Diffusion tube data has been bias adjusted.

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

Notes:

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

Exceedances of the NO_2 annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, 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.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations along the A148 Railway Rd (Gyratory North Bound)

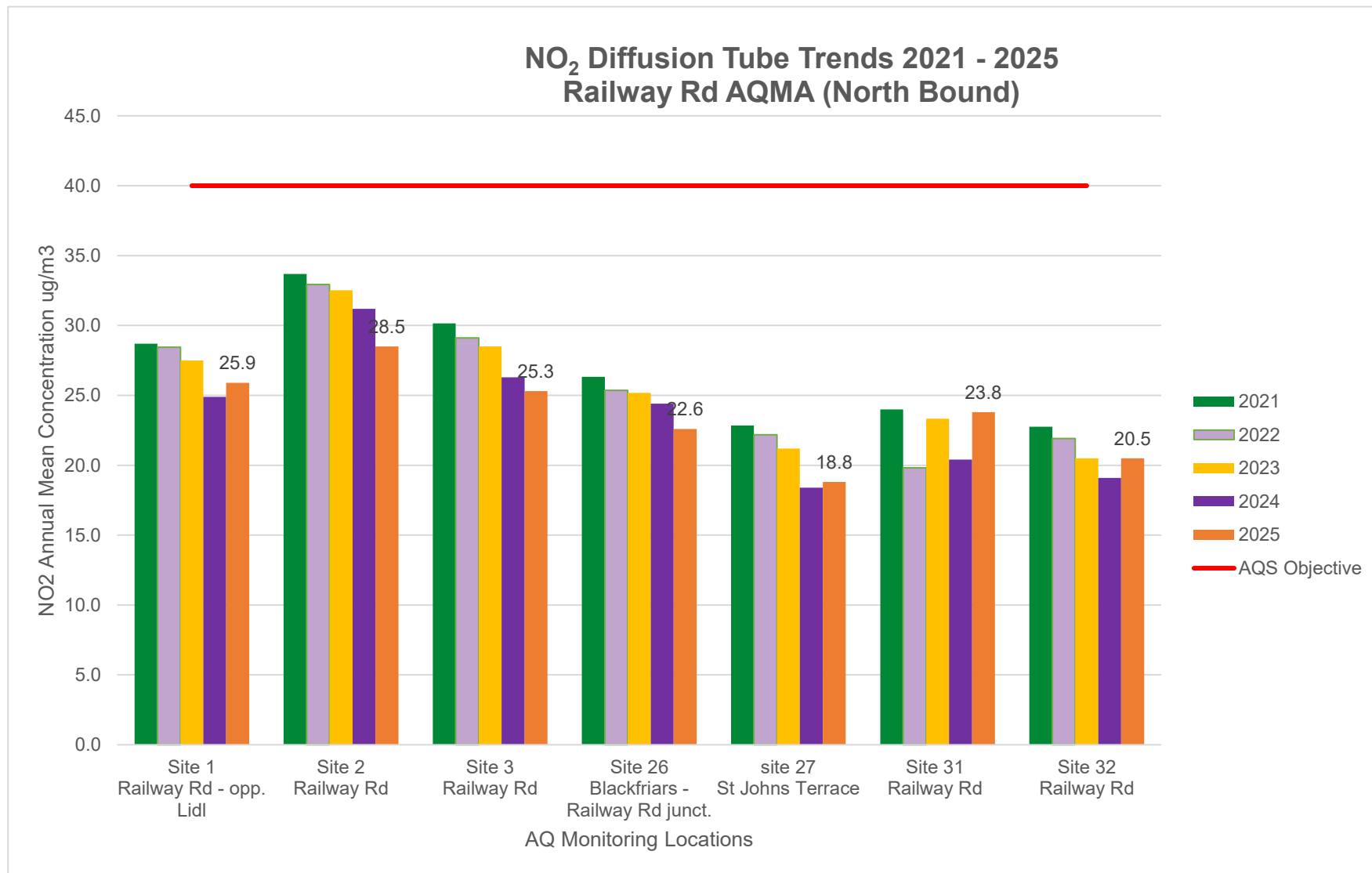


Figure A.2 Trends in Annual Mean NO₂ Concentrations along the A148 Blackfriars Rd (Gyratory South Bound)

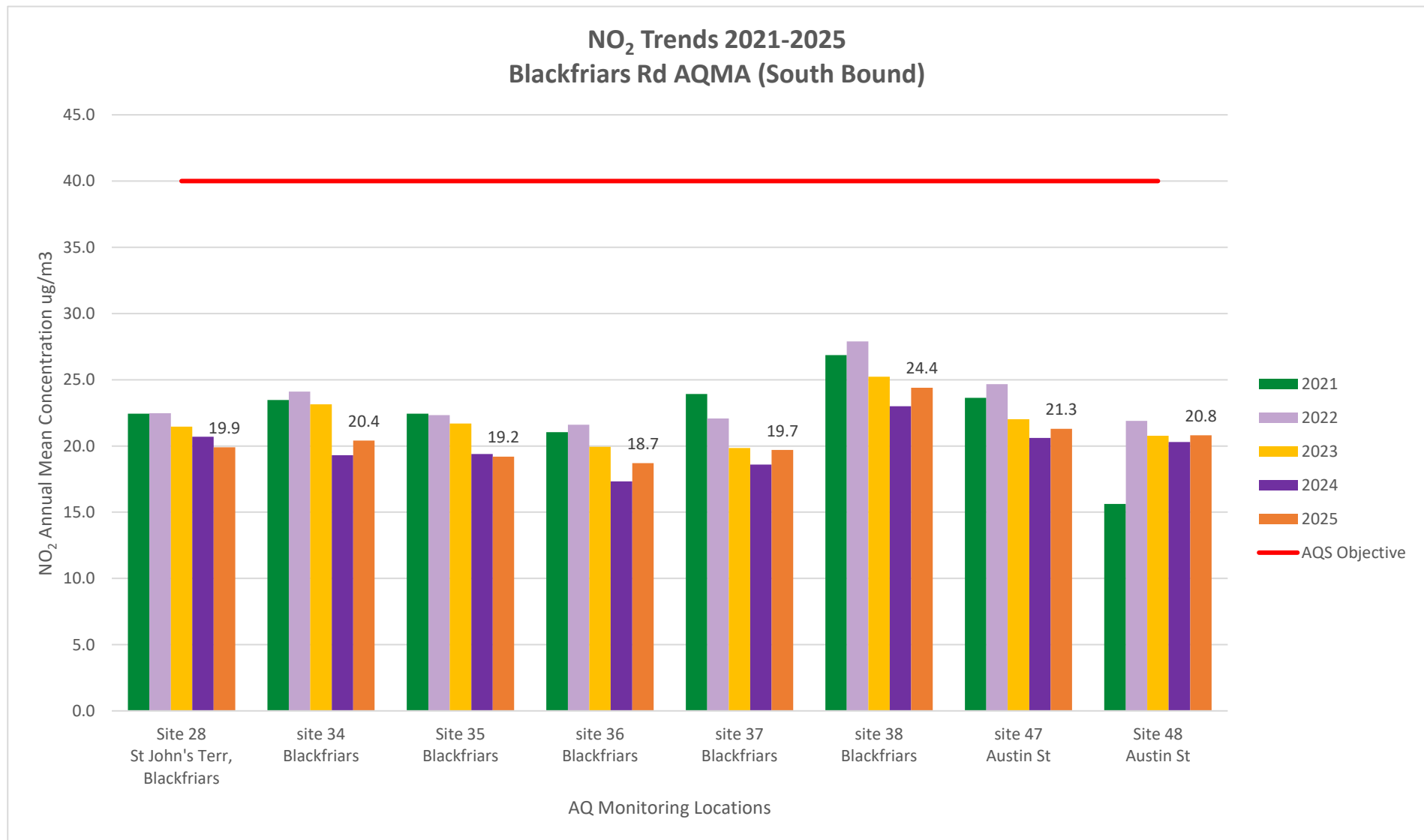


Figure A.3 Trends in Annual Mean NO₂ Concentrations around Gaywood Clock Junction 2021-2025

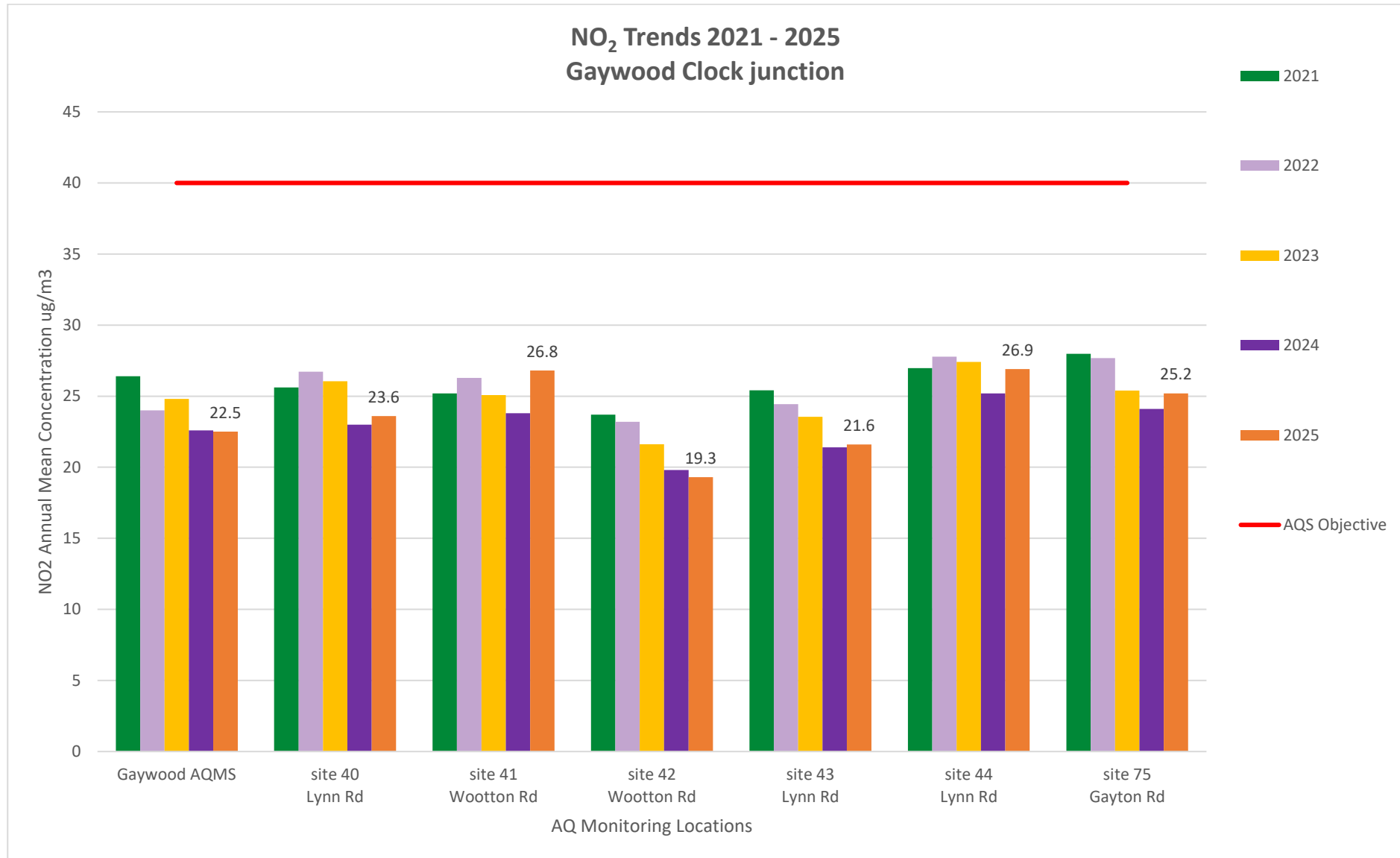


Figure A.4 Trends in Annual Mean NO₂ Concentrations

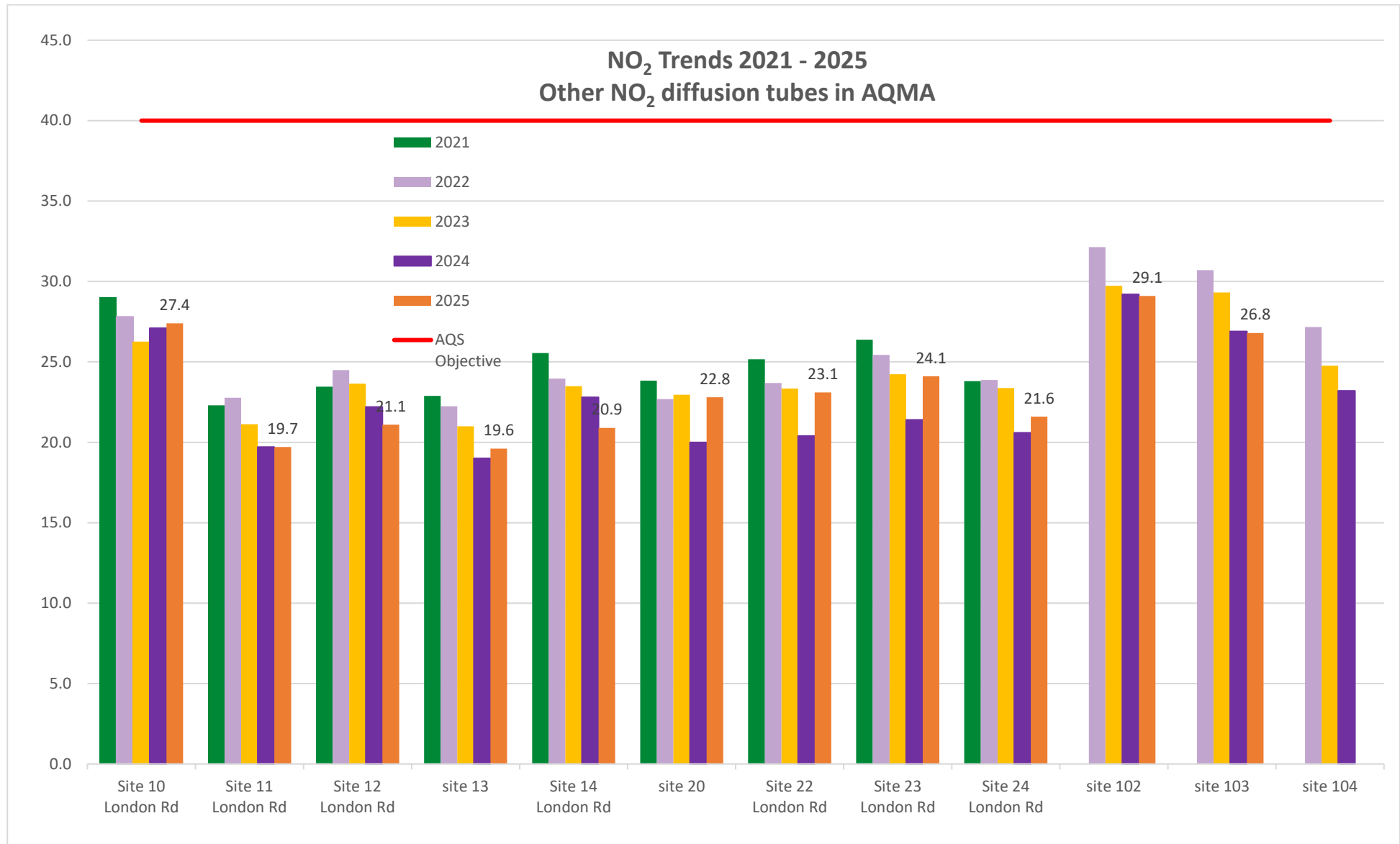


Figure A.5 - Trends in Annual Mean NO₂ Concentrations at key sites outside of AQMA

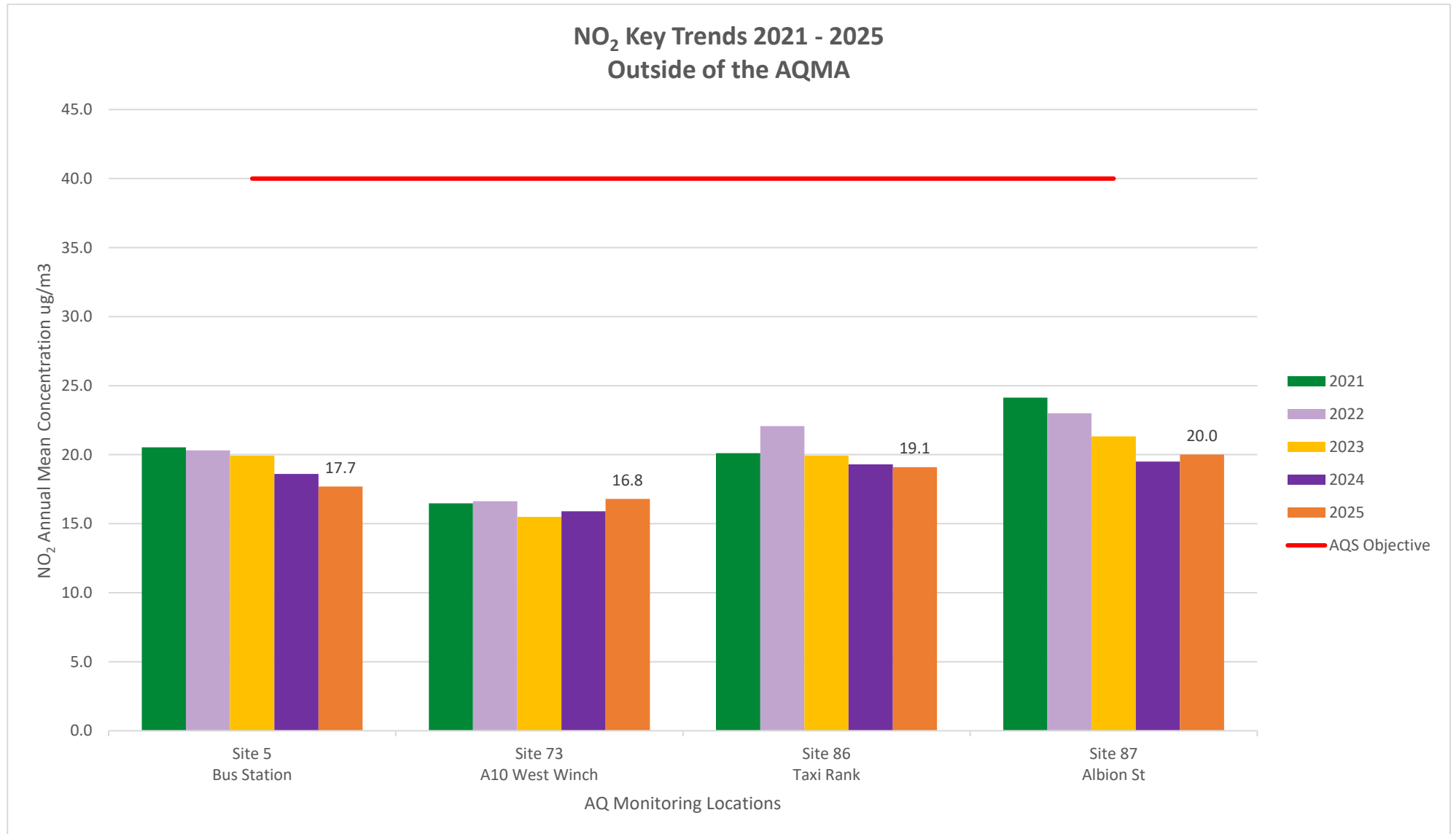


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
CM_SG	562226	319196	Roadside	98.6	98.6	0	0	0	0	0
CM_GW	563445	320475	Roadside	98.8	98.8	0	0	0	0	0

Notes:

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

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

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2025

Table B.1 – NO₂ 2025 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	562074	320300	42.8	39.8	40.0	32.3	23.2	28.4	30.1	30.5	29.9	34.3	34.9	32.6	33.2	25.9		
2	562108	320196	40.5	37.4	37.7	32.1	30.5	41.7	39.1	31.5	32.8	39.6	42.6	32.8	36.5	28.5	-	
3	562116	320094	-	41.1	37.4	31.9	29.7	29.3	34.6	30.6	30.1	30.8	33.8	28.1	32.5	25.3	-	
5	562003	320098	19.9	27.6	24.6	22.1	24.9	21.0	20.2	24.4	19.9	22.8	25.5	20.1	22.8	17.7	-	
6	562225	319196	28.3	27.2	22.4	16.6	11.2	15.2	16.1	14.2	17.0	16.4	19.0	21.8	18.8	14.7	-	
7	562225	319196	30.1	25.0	21.5	16.7	12.0	15.3	15.6	15.9	17.7	20.1	23.6	21.4	19.6	15.3	-	
8	562225	319196	29.3	25.6	18.9	16.1	11.8	15.9	16.1	15.7	16.7	19.8	22.2	23.9	19.3	15.1	-	
9	561911	319710	-	23.7	24.7	17.6	10.3	11.8	13.8	13.6	14.0	15.3	16.3	18.3	16.3	12.7	-	
10	562099	319670	42.2	41.5	42.9	32.4	23.7	36.1	33.7	33.1	32.4	31.5	37.3	-	35.2	27.4	-	
11	562165	319575	32.9	29.4	29.3	24.9	14.3	24.5	21.9	23.4	24.6	26.1	25.8	25.7	25.2	19.7	-	
12	562242	319452	-	33.3	27.7	22.4	16.6	30.0	25.6	25.9	25.0	29.7	32.7	28.6	27.0	21.1	-	
13	562263	319374	36.0	29.5	28.2	21.4	15.5	26.2	25.9	23.1	21.9	23.0	24.7	25.8	25.1	19.6	-	
14	562227	319266	38.4	33.0	25.8	24.4	18.0	29.1	24.3	20.5	25.3	29.5	31.8	22.0	26.8	20.9	-	
15	562189	319101	34.2	29.3	40.4	34.7	30.3	35.0	37.0	34.8	29.5	32.6	32.3	32.9	33.6	26.2	-	
18	562266	319042	31.9	27.2	25.5	22.2	15.1	20.2	15.8	17.1	13.6	20.5	25.1	19.0	21.1	16.5	-	
19	562277	319098	28.2	27.4	22.7	21.3	14.4	20.7	17.7	18.2	19.5	20.5	24.2	22.6	21.5	16.7	-	
20	562249	319275	33.4	39.3	35.0	36.4	15.5	25.0	21.3	30.5	27.4	28.0	-	29.8	29.2	22.8	-	
22	562284	319385	37.9	35.4	35.7	32.2	19.8	22.8	24.1	27.7	26.6	28.6	31.6	32.3	29.6	23.1	-	

23	562161	319614	31.1	39.1	41.0	35.6	27.3	23.2	28.4	30.4	24.7	27.4	29.4	33.1	30.9	24.1	-	
24	562130	319660	25.8	34.8	38.1	35.5	24.8	23.9	22.9	28.3	25.0	26.0	23.3	23.7	27.7	21.6	-	
25	562190	319694	22.2	16.6	14.1	10.0	6.3	11.5	9.7	8.9	10.9	12.0	12.7	15.0	12.5	9.7	-	
26	562131	319996	-	37.0	34.1	31.6	26.4	23.5	27.0	30.9	26.1	-	27.8	25.1	29.0	22.6	-	
27	562177	319999	30.1	30.0	30.7	23.9	18.1	21.2	25.8	21.2	19.0	23.9	24.9	19.8	24.1	18.8	-	
28	562253	320015	-	30.7	28.0	21.9	17.7	26.8	25.8	26.4	25.7	25.2	27.3	24.7	25.5	19.9	-	
29	562182	320057	19.3	21.2	17.4	12.5	7.8	11.5	11.8	10.7	12.6	14.8	17.5	15.5	14.4	11.2	-	
30	562207	320108	21.3	22.3	20.8	14.9	13.7	12.6	14.9	12.5	14.6	17.4	17.5	17.7	16.7	13.0	-	
31	562128	320131	27.5	38.2	42.8	34.9	26.7	24.2	24.2	-	25.4	-	30.4	-	30.5	23.8	-	
32	562119	320216	32.2	31.1	33.5	27.6	20.1	22.5	24.8	23.7	23.1	22.1	28.0	27.1	26.3	20.5	-	
33	562202	320158	19.3	31.1	26.0	23.4	14.0	21.3	20.1	19.1	21.3	22.8	25.0	24.3	22.3	17.4	-	
34	562244	320128	31.7	33.3	27.4	22.7	18.0	25.1	24.9	25.4	24.2	27.8	29.1	24.7	26.2	20.4	-	
35	562244	320238	29.8	30.4	30.2	23.0	17.6	24.3	27.2	23.8	20.3	19.4	27.5	22.5	24.7	19.2	-	
36	562216	320318	33.2	34.2	26.5	22.5	16.4	21.4	19.3	23.1	20.5	22.4	26.7	21.9	24.0	18.7	-	
37	562253	320258	26.4	33.8	38.2	27.5	20.7	19.3	22.9	23.0	19.8	22.8	24.3	24.4	25.3	19.7	-	
38	562256	320322	43.1	42.1	32.0	29.2	18.8	32.0	23.8	30.8	25.6	35.7	33.4	28.9	31.3	24.4	-	
40	563490	320469	39.6	35.9	33.3	29.9	19.0	34.2	25.7	32.4	26.5	29.7	32.0	24.8	30.3	23.6	-	
41	563477	320514	41.8	43.1	37.8	37.2	25.2	30.5	29.2	33.3	31.1	36.0	36.0	31.8	34.4	26.8	-	
42	563480	320581	36.1	29.3	23.6	23.9	16.8	25.2	24.7	23.2	23.0	25.9	24.8	19.7	24.7	19.3	-	
43	563411	320476	29.7	35.5	36.7	28.5	21.3	24.5	33.2	21.9	23.4	24.9	27.7	25.7	27.8	21.6	-	
44	563377	320484	36.2	41.0	44.7	39.6	29.7	30.7	34.5	32.9	29.4	28.7	32.7	33.3	34.5	26.9	-	
45	563202	320488	24.8	30.5	31.3	27.3	20.3	19.2	23.2	19.7	19.1	20.3	21.8	22.5	23.3	18.2	-	
47	562186	320376	34.4	38.0	31.3	32.9	18.3	23.6	23.2	23.6	23.8	24.2	28.7	26.4	27.4	21.3	-	

48	562172	320370	38.7	34.2	28.0	25.1	13.8	30.1	22.7	26.6	24.0	25.9	28.2	22.7	26.7	20.8	-	
52	563288	320504	28.9	31.5	36.0	29.5	21.6	24.6	22.3	19.8	19.9	19.3	23.1	23.7	25.0	19.5	-	
58	562171	319018	29.6	33.6	35.7	27.2	15.9	16.7	14.2	22.8	18.6	17.3	26.2	25.4	23.6	18.4	-	
62	561608	318601	-	17.5	13.6	11.5	7.1	9.5	8.9	9.3	10.3	12.0	12.2	13.7	11.4	8.9	-	
66	562595	320527	26.8	22.2	22.6	17.4	12.3	17.2	12.9	12.8	17.1	15.7	-	-	17.7	13.8	-	
67	562235	319578	23.9	18.0	14.6	10.3	6.2	10.9	9.9	9.9	11.0	12.7	15.4	13.6	13.0	10.2	-	
68	562142	319837	19.4	18.7	16.8	10.1	9.8	11.8	14.5	11.4	12.6	14.1	13.0	14.7	13.9	10.8	-	
69	561993	319394	17.6	15.0	13.9	10.3	5.9	7.5	8.4	7.3	10.2	7.7	12.6	11.1	10.6	8.3	-	
70	561929	319354	16.3	15.0	14.8	9.4	5.1	7.1	6.9	7.4	9.1	8.6	12.7	11.5	10.3	8.1	-	
73	563161	315848	22.4	29.0	29.5	25.5	17.7	15.5	20.0	17.5	19.3	18.0	21.0	22.4	21.5	16.8	-	
75	563468	320469	42.8	42.7	29.2	35.6	21.9	34.2	28.7	28.0	28.3	28.2	34.7	33.4	32.3	25.2	-	
76	562597	318739	25.2	21.6	18.4	14.5	8.3	15.8	12.5	13.3	14.9	15.3	17.2	15.6	16.1	12.5	-	
79	562799	320468	27.0	27.0	25.1	23.5	18.3	17.1	18.1	17.4	16.4	17.1	21.1	19.5	20.6	16.1	-	
86	562018	320138	29.1	30.5	27.4	23.1	14.4	26.4	22.5	25.1	20.1	-	25.8	-	24.4	19.1	-	
87	562102	320163	26.1	32.0	38.9	31.2	22.5	19.1	24.3	24.3	20.9	20.2	25.1	23.5	25.7	20.0	-	
89	561887	319466	14.6	15.8	14.6	9.6	6.1	8.0	7.5	7.1	9.6	10.0	12.6	13.8	10.8	8.4	-	
90	563366	322065	17.1	17.3	16.2	11.5	7.3	10.3	10.5	10.1	11.9	-	15.3	15.0	13.0	10.1	-	
91	563255	321613	12.8	15.7	14.2	10.1	6.9	9.9	9.2	9.1	11.0	12.6	12.4	14.5	11.5	9.0	-	
92	563256	321588	16.1	16.0	14.4	10.0	6.1	8.0	7.4	7.2	9.9	9.8	12.8	-	10.7	8.3	-	
94	561957	318963	23.9	20.4	18.9	16.1	12.5	16.8	15.2	14.6	13.6	17.3	17.5	15.3	16.8	13.1	-	
95	562058	319038	19.9	20.8	18.2	15.0	9.6	15.8	8.9	8.8	12.6	12.0	14.8	14.3	14.2	11.1	-	
96	562042	319011	-	20.4	-	15.6	7.7	13.7	11.2	13.0	13.1	8.3	18.2	17.9	13.9	10.8	-	
97	564503	322411	22.3	22.1	18.0	16.1	9.0	13.2	10.4	12.7	13.2	14.7	16.0	14.8	15.2	11.9	-	

98	562821	320964	21.3	16.3	14.6	10.1	6.9	9.5	9.0	8.3	10.7	12.3	13.5	12.5	12.1	9.4	-	
99	547792	313121	18.6	17.0	12.7	10.3	5.4	9.0	7.6	6.1	11.0	9.7	11.0	12.2	10.9	8.5	-	
100	547902	310395	-	16.8	13.1	10.1	5.7	7.7	-	7.1	8.7	10.8	13.4	13.3	10.7	8.3	-	
101	547094	307850	23.9	38.4	33.5	32.0	23.2	37.1	24.1	32.0	31.1	29.7	32.4	26.1	30.3	23.6	-	
102	562104	320209	33.2	41.7	40.4	35.2	25.6	41.5	41.0	34.4	34.4	38.6	47.6	34.5	37.3	29.1	-	
103	562116	320128	39.0	42.3	37.6	32.2	24.6	35.8	37.1	37.6	24.9	35.2	36.2	29.9	34.4	26.8	-	
110	546884	308315	23.0	20.1	16.4	19.2	11.5	12.7	11.3	13.4	14.5	13.4	14.5	17.7	15.6	12.2	-	
111	563370	320416	18.6	18.8	20.7	12.6	9.5	11.8	11.4	8.8	13.2	14.5	15.8	15.0	14.2	11.1	-	
112	563402	320381	19.3	16.9	14.7	11.2	8.6	8.9	9.6	8.9	10.9	12.0	15.3	14.9	12.6	9.8	-	
113	563344	320176	20.7	15.2	16.9	10.7	7.0	8.3	-	8.2	10.2	9.2	13.6	14.4	12.2	9.5	-	

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

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

☐ Local bias adjustment factor used.

☒ National bias adjustment factor used.

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

☒ BCKLWN confirm that all 2025 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within BCKLWN During 2025

For the 2025 review period Table C.1 below highlights some of the most significant new developments considered for air quality. Overall there were 93 planning applications considered in 2025 with the following 22 applications listed in Table C.1 below as being considered the most significant. A summary of the potential changes are noted against each development.

None of these potential new sources were considered to significantly impact air quality.

Table C.1 - Most Significant Planning Applications in 2025

Planning Ref.	Address	Proposal	Comments
13/01615/OM 18/02289/OM FUL/2024/0001	West Winch Strategic Growth Area (WWGA) for up to 4,000 dwellings within the A10 growth corridor.	Development progressing in line with masterplan with; a) Up to 1110 dwellings plus primary school and local centre. b) County Matters: Housing Access Road (WWHAR) c) Up to 500 dwellings plus neighbourhood centre.	The new housing access / enabling road (WWHAR; ref: FUL/2024/0001) as reported in last year's ASR has now been granted permission within the year (Nov 2025). The road will link the A10 to A47 and provide the housing access for the schemes coming forward. It is designed to relieve congestion on the A10 through traffic calming measures.
Nationally Significant Infrastructure	Medworth EfW Facility located in Wisbech in neighbouring Fenland DC	Energy from Waste Facility (EfW) with a maximum gross capacity of 58MW	The development is located in Fenland DC but borders on BCKLWN area. The development consent order to operate the EfW Facility was granted by the Secretary of State in 2024.

Planning Ref.	Address	Proposal	Comments
Project (NSIP) - EN010110	area but close to BCKLWN area.		Emissions once operational will be minimised through BAT when regulated by an environmental permit (EPR/HP3441QA). The local air quality monitoring scheme is now operational (commenced Sept 2025). The DCO Requirement for the AQMS has been discharged in Sept 2025. Construction works have commenced.
Nationally Significant Infrastructure Project (NSIP) - EN0210003 & EN020036	Eastern Green Link (EGL) 3-4 and Grimsby to Walpole (G2W). Projects extend into the Walpole area close to the existing substation.	The EGL3-4 and G2W projects consists of constructing below ground high voltage cables and upgrading overhead transmission lines, plus associated converter and substations to supply up to 4GW of offshore wind electricity into the grid.	The projects are still at pre-application stage. Air Quality matters were set out within Scoping Reports, and with PINS adopting the Scoping Opinion. We have been consulted on the preliminary environmental matters as set out within PEIR. There is the potential for significant number of construction HGV to be assessed, and construction dusts mitigated through CEMP. Baseline air quality monitoring has agreed to be undertaken.
Nationally Significant Infrastructure Project (NSIP) - WA010004	Anglia Water, Fens Reservoir near to Chatteris in Cambs (Fenland DC).	New Fens Reservoir located in Cambs area but with associated pipeline to connect to new service reservoirs including one at Bexwell, Downham Market in BCKLWN area	The project is at pre-application stage. Air Quality matters were set out within a Scoping Report with PINs adopting the a Scoping Opinion. We have been consulted on the preliminary environmental concerns (SEIR Oct 2025) ahead of the application for development consent. Baseline AQ monitoring has agreed to be undertaken given the potential for significant levels of construction traffic over a wide area.

Planning Ref.	Address	Proposal	Comments
Nationally Significant Infrastructure Project (NSIP) – ref EN0110013	The Drovers Solar Farm just north of Swaffham in Breckland Council area.	The Drovers Solar Farm is for generation and export of over 50 MW of electricity. Scheme includes BESS, solar / PV panels and substations to connect locally to overhead 400kV transmission lines.	The project is located within neighbouring Breckland Council Area but with some of the construction access routes in the BCKLWN area. The DCO application has been submitted to PINs now for examination following the pre-application enquiries. The council has submitted its relevant representation on AQ matters.
25/01610/FM	Palm Paper Poplar Avenue King's Lynn	The proposal is for a new Anaerobic Digestion (AD) facility to generate biogas from organic matter contained within the waste effluent that goes to an existing wastewater treatment facility.	The emissions from the AD Facility will be controlled via a variation to existing environmental permit regulated by the EA. Emission statement confirms that the biogas produced will supply existing boilers (so no additional off-site HGV to export the biogas once operational). The biogas generated is expected to reduce gas consumption (and NOx emissions) by a considerable amount of around 5-6% of site totals. An air quality and odour emission assessment showed a negligible process contribution of NO ₂ and SO ₂ (<0.4 µg/m ₃) associated from occasional flaring of the biogas.
SCO/2024/0003	Estuary Farm, Edward Benefer Way, King's Lynn	Scoping Opinion request for new Anaerobic Digestion (AD) facility	The proposed AD is to process up to 60,000 tpa of feedstocks with resultant biogas to supply 2x 1.35MWth CHP to be used to dry existing permitted waste composting facility (currently dried by 3x 370kW biomass boilers). The AD will require an environmental permit as greater than 100 tonnes of waste feedstocks to be used per day. AQ Assessment by APS (Kalaco, July 2024) screened principal pollutants

Planning Ref.	Address	Proposal	Comments
			(NO ₂ and SO ₂) emitted from 8.8m stack and 13.2m flare using SCAIL that showed impacts likely to be negligible. No gas mains to the site, which will means some storage of the biogas and additional HGV to export.
Environmental permit consultation EPR/VP3520LB/A001	Setchey Poultry Farm, Setch Road, Setchey	Application environmental permit to rear up to 415,000 broilers in 12 new mechanically ventilated poultry houses	Given the stocking rate is in excess of LAQM TG-22 Table 7-3 screening threshold for poultry farms, advised that consideration is given to assess PM ₁₀ as there appears to be relevant exposure.
Environmental permit consultation EPR/PP3523MS/A001	Tithe Farm, Broad Drove, Grimston PE32 1QG	Application for environmental permit to rear up to 193,000 broilers in 6 poultry houses	Stocking rates less than LAQM TG-22 screening criteria for poultry farms, so no requirement for further assessment on PM ₁₀ . However, requested further information to demonstrate that designs are in accordance with relevant guidelines.
25/01958/FM	Land On The South East Side of Scania Way, Hardwick Industrial Estate, King's Lynn	New Lidl retail store and 2 drive-thru units	Development would generate daily vehicle movements in excess of IAQM screening criteria (around 2600 vpd). However, as no sensitive receptors (dwellings) located nearby no objection raised. Staff travel to be subject to a sustainable travel plan reported to the local Highways Authority.
22/00479/DISC_D	Queen Elizabeth Hospital, King's Lynn	Discharge of condition 8 of permission 22/00479/F - Development of a Diagnostic Assessment Centre	No objection to discharge condition 8 that relates to a new EV charging scheme for the Hospital. The parking scheme included 20 No. of up to 22kW EV charging points towards the front of Hospital and adjacent to the diagnostics building.

Planning Ref.	Address	Proposal	Comments
FUL/2025/0046	Blackborough End Household Waste Site, Mill Drove, Blackborough End, Norfolk	Application seeks to vary the infilling and final restoration of the waste landfill site to Dec 2037 (instead of Dec 2026).	No objection in terms of air quality as long as track out of dusts is controlled by a DMP as conditioned and approved by the LPA. The variation would consolidate all HGV via the Mill Drove access route due to the designated HGV haul route but without any wheel wash facility to mitigate dusts. The infilling / restoration will be associated with around 80 HGV per day plus 4 tanker movements for leachate removal over the extended period (to 2037).
FUL/2025/0037	Middleton Aggregates Ltd East Winch Road, Blackborough End, Norfolk	Variation to extend operation of mineral extraction and restoration by 18-months; completion by June 2027.	Application related to the above application (FUL/2025/0046) that once mineral extraction has ceased, infilling and final restoration will occur. No objection to proposed extension of mineral extraction, as HGV not changing significantly.
FUL/2026/0001	Feltwell Quarry, Lodge Road, Feltwell, Thetford, Norfolk IP26 4DR	Variation for increased inert materials to be imported to the quarry to allow restoration a higher level (near original ground level).	Mineral extraction anticipated to be completed by 2026 with additional infilling and restoration completed by in accordance with existing consented period (2042). Around 26 HGV per day. No objection as long as a works are subject to a suitable dust management plan as approved through condition. There is no existing DMP or wheel wash facility to minimise dust emissions as per best practice guidance.
25/00895/FM	Smithdon High School, Downs Road, Hunstanton	Internal and external alterations to the Grade II* listed Smithdon High School	Works involved large scale refurbishment of School by Dept. of Education due to Grade II* listing including new ground source heating

Planning Ref.	Address	Proposal	Comments
		by the Department for Education	system (to replace gas) and new internal ventilation systems. Following enquiries it was confirmed that the in-door AQ is to be controlled using CO₂ as a proxy in accordance with best practice guidance (Building Bulletin 101 (2018) and CIBSE Guide A). Construction dusts to be managed by a CEMP. A travel Plan to be implemented to help influence existing and future travel behaviours including expanded secure bicycle parking, plus EV charging spaces (10) and EV-ready bays as proposed. No objection to the proposals as AQ to be improved.
FUL/2025/0034	Downham Market Academy, Bexwell Road, Downham Market	Proposed standalone specialist resource base (SRB) with associated infrastructure	No objection to new school building on condition that indoor air quality is controlled as per Building Bulletin 101 (BB101) using carbon dioxide as a proxy for the air quality. To accommodate loss of parking, additional car parking spaces were proposed plus 12 no. cycle spaces and to update the school's sustainable travel plan.
25/02032/FM	Land at Houghton Estate, Bircham Road, Houghton	Proposed eco-retreat comprising 45 tourist cabin accommodation with associated facilities, landscaping, parking and access	Major application for 45 holiday cabins but fitted with outdoor wood burning stoves. Recommended that the development is made conditional on a suitable scheme to ensure emissions from wood burners are minimised in accordance with local policy LP18 (Design & Sustainable Development).
25/00961/OM	Land to the east of Nightingale	Residential development for 260 dwellings sharing	Initial air quality screening assessment (RSK, May 2025) did not consider cumulative effects of traffic when

Planning Ref.	Address	Proposal	Comments
	Lane, Downham Market	access with an earlier consented development of 300 dwellings.	access is shared with earlier phase of development. It was agreed to resubmit and assess using air dispersion modelling. Following re-submission, no objection raised, subject to the monitoring of construction dusts being secured through suitable condition.
25/01801/FM	Land south of Bridle Lane, Downham Market	Phase-2 residential development for 116 dwellings sharing access with an earlier consented development of 226 dwellings.	Carried out a junctions screening assessment, as only a DMRB screen carried out based on changes in traffic flow at the shared access junction. No objection, as combined flows less than junctions criteria. Recommended a condition to secure construction dust monitoring as part of CEMP.
25/01802/FM	J And I Motor Engineers, South Lynn Plain, King's Lynn	Construction of 19 dwellings with access following demolition of existing.	As access was via AQMA, ensured that development is consistent with AQAP. Only 19 parking spaces including one space for visitors allocated on site. No objection raised as long as bicycle parking is in accordance with best practice guidance in consultation with local highways.
25/01068/FM	Land off Brook Lane, Brookville	Solar farm (15MW) plus associated infrastructure	No objection, as HGV as less than IAQM screen for AQ assessment (up to 30 per day during the main construction period).

Additional Air Quality Works Undertaken by the Borough of King's Lynn and West Norfolk During 2025

West Winch Strategic Growth Area – AQ Study and New Housing Access Road

Previously, we had reported on a study (Bureau Veritas, 2023⁴³) that was carried out as part of the examination of new local plan on potential air quality impacts from traffic generated by the West Winch Growth Area (WWGA). The WWGA is a strategic growth area allocated for up to 4,000 new dwellings. The Bureau Veritas (2023) study highlighted that when based on the raw traffic data that nitrogen dioxide potentially increasing in King's Lynn.

However, as explained in last year's ASR following this study there is a new local plan adopted through Council (March 2025⁴⁴) that includes specific Policy E2.1 for a range of sustainable transport measures plus a 'masterplan' to co-ordinate overall development provisions. In particular, the strategic growth area has been dependent on a new housing access road (West Winch Housing Access Road, WWHAR) that has now progressed with planning permission being granted within the year (FUL/2024/0001). The road will link the A10 to A47 and provide the access for the developments coming forward as well as relieving congestion on the A10 in West Winch through traffic calming measures.

We have a NO₂ diffusion tube (site 73) sited in West Winch to help show changes in NO₂ concentrations. Trends over the last 5-years at site 73 are shown Figure A.5 that shows relatively constant NO₂ annual mean concentrations over this period with latest as 16.8µg/m³ i.e. significantly less than the objective.

Modelling of traffic once the WWHAR is operational showed a further improvement in air quality along the A10 as traffic becomes reassigned from the A10 onto the A47 and with a negligible impact elsewhere.

King's Lynn STARS project (Sustainable Transport and Regeneration Scheme)

The King's Lynn Sustainable Transport and Regeneration Scheme was awarded funding from the Dept of Transport recently in 2026⁴⁵ following an outline business case. The scheme is designed to improve access to cycle and walking by realigning traffic in places

⁴³ Bureau Veritas, AQ Technical Note, May 2023; https://www.west-norfolk.gov.uk/info/20216/local_plan_review_2016_-_2036/1070/consultation_on_additional_evidence_base_documents

⁴⁴ BCKLWN. Local Plan 2021 – 2040; [Local Plan final April 2025.pdf](https://www.west-norfolk.gov.uk/info/20216/local_plan_review_2016_-_2036/1070/consultation_on_additional_evidence_base_documents)

⁴⁵ <https://www.norfolk.gov.uk/39998>

away from sensitive receptors along the busy London / Railway Roads that is likely to result in a fall-off in road-NO_x in some locations. The Eathsense Zephyr being located along Railway Rd whilst low-cost (indicative) will help to assess any short-term impacts in the area (see Figure C.1 below showing the location of the Zephyr).

Figure C.1 – Earthsense Zephyr located along Railway Rd close to area with highest NO₂ concentrations.



Results for 2025 from the Zephyr are shown in Table C.9 to Table C.10, which showed the NO₂ annual mean was less than the objective (27.7µg/m³ NO₂) and which was similar to nearest NO₂ diffusion tube sites (3 and 103).

There was one short term episode indicated of an hourly NO₂ level higher than the 200µg/m³ NO₂ objective occurring on a Sunday evening (11th May 2025) due to road resurfacing works occurring in the area. There is an annual allowance of 18 hours before the overall objective is exceeded.

An update of this project and any improvements in air quality can be reported in next year's ASR.

Associated British Ports King's Lynn Port – Dust Management Plan

In last year's ASR it was mentioned that we have received some complaints of dusts being emitted from loading operations at King's Lynn Port typically of food grade malt, grain and barley for export. The products are loaded into ships berthed at the Port using conveyors.

Local Authorities according to LAQM TG-22 are encouraged to co-ordinate and co-operate with Ports in preparing and maintaining a port air quality strategy. We have been working with the Port to develop a Dust Management Plan aimed at minimising particulate matter emissions. This builds on a Detailed Assessment that the council had carried out at the Port (Bureau Veritas 2016⁴⁶). The DMP has been finalised and communicated to the relevant stakeholders.

The work has included a review of the operations aimed at minimising dusts but also included a review of the air quality monitoring carried out around the Port by both this Council and also the Associated British Port (ABP) to ensure it makes best use of the monitors and is more representative of exposure. Map of the monitoring locations is shown in Figure D.3 which shows the location of the two Council Osiris's and also the two ABP Earthsense Zephyrs. The work has resulted in the Page Stair Lane Osiris being relocated to West Lynn. This became operational in Sept 2025 and is shown below in Figure C.2 below which shows the Osiris in West Lynn and the attached anemometer.

Table C.6 and Table C.7 in Appendix C shows PM₁₀ results from the Council Osiris monitors with no exceedances observed in 2025.

Not only does the monitoring around the Port give improved coverage there is now an improved interface provided by the [Norfolk Air Quality](https://www.norfolk.gov.uk/air-quality) website for the public when viewing the results e.g. see Figure 2.1, Figure 2.2 and Figure 2.3 in Chapter 2.

⁴⁶ https://www.west-norfolk.gov.uk/download/downloads/id/2336/detailed_assessment_july_2016.pdf

Figure C.2 – West Lynn Osiris with attached anemometer



Medworth Energy from Waste Facility

We can also provide an update on the 58MW Medworth Energy from Waste Facility that whilst located in Fenland DC area, it is sited close to, and downwind of residents within BCKLWN area.

The emissions from the Facility will be controlled through an environmental permit (EPR/HP3441QA) regulated by the Environment Agency that was granted in May 2024 which ensures emissions are minimised to Best Available Techniques and the setting of relevant Emission Limits Values at source.

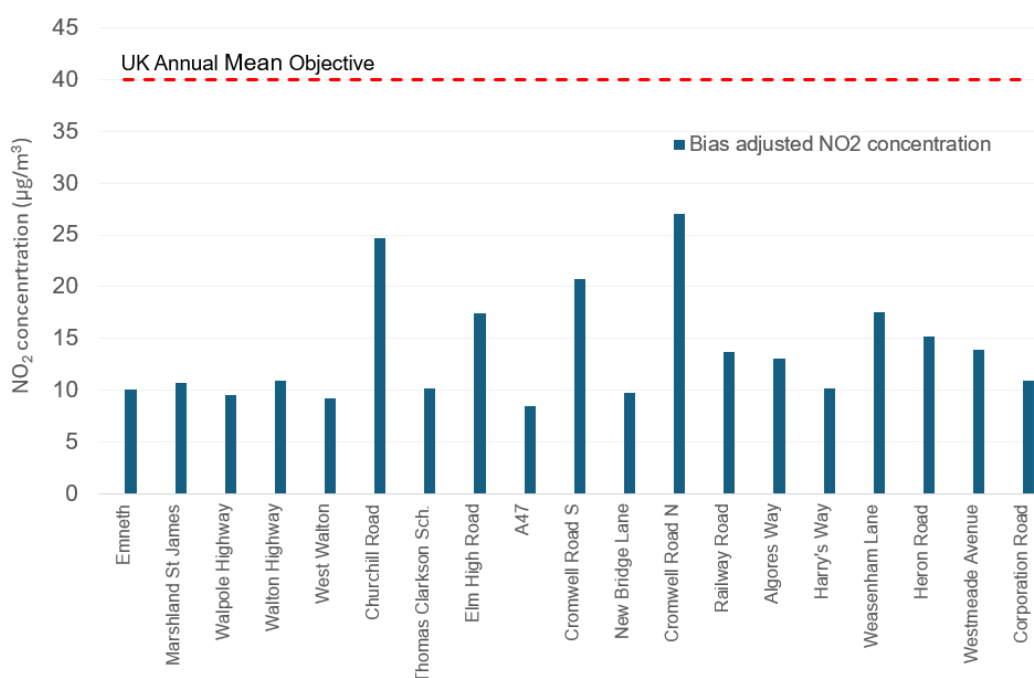
The development was subject to a joint Local Air Quality Monitoring Strategy (LAQMS) agreed between Fenland DC and BCKLWN. The LAQMS scheme includes a reference analyser in Fenland DC as well as a low-cost sensor (Earthsense Zephyr) in this council's area as well as passive NO₂ diffusion tubes extending out from the Facility into the outlying areas. The LAQMS became operational from Sept 2025 following commencement of the

Authorised development. Regular compliance reports are produced summarising the air quality results, which are available to download from Medworth's website⁴⁷.

Results from Medworth's Earthsense Zephyr showed the period mean concentrations (Oct-Dec 2025) since commencement as NO₂ (13.2µg/m³); PM₁₀ (9.3µg/m³); PM_{2.5} (5.7µg/m³) and no short-term exceedances. Results from the bias adjusted diffusion tubes are shown below in Figure C.2 when compared against the annual mean objective.

These results will help to inform the baseline prior to the Facility becoming operational.

Figure C.3 Diffusion tube time-weighted mean, bias-corrected, for all diffusion tube locations for the period September to December 2025, compared with the UK annual mean objective (taken from Medworth Quarterly Report (Sept-Dec 2025)).



Parkway / Florence Fields Construction Dust Monitoring Scheme (DMS);

This is a development of 226 residential dwellings as approved under planning ref 21/01873/FM. The site is located in Gaywood, King's Lynn.

Due to the proximity of the construction site to nearby schools (King's Lynn Academy to the immediate west and Howard Junior School to the east) the development was made conditional on a dust monitoring scheme with short term alerts set to ensure early

⁴⁷ <https://www.mvv-medworthchp.co.uk/documents>

preventative actions are taken by the contractor to minimise exposure. The scheme was based on alerts of the short-term 1-hr PM₁₀ (190ug/m³) concentration in accordance with IAQM guidance (IAQM, 2018⁴⁸).

Two low-cost Dustsens DM30 monitors were initially installed on the boundary fence by the developer. Owing to concerns with the quality of the data being generated, it was agreed to relocate the BCKLWN monitor (OS3WR Osiris) to provide a more robust data. This was became operational in Sept 2025.

No PM₁₀ site alerts over the IAQM dust threshold (190ug/m³) from the Parkway Osiris were recorded from Sept 2025 when monitoring commenced. There was also no exceedance in the PM₁₀ annual (period) mean and no short-term daily exceedances.

The Parkway Turnkey Osiris has since been replaced in Spring 2026 with another low-cost sensor (Airly PM) due to need to power the device without mains electricity. This will be reported in next year's ASR.

QA/QC of Diffusion Tube Monitoring

During the 2025 period we continued to use diffusion tubes supplied by Socotec (Didcot) using the 50% TEA in acetone preparation method. Using passive sampling methods by diffusion tubes and correcting for the bias against reference analysers is considered a relatively simple and cost-effective method of monitoring pollutant concentrations in the Borough.

The analysis by Socotec benefits from UKAS accreditation and the laboratory also participate in an external QC (AIR PT) scheme of spiked samples to test the laboratory's analytical performance on a quarterly basis⁴⁹.

Diffusion Tube Annualisation

Where data collection is poor for diffusion tube sites then it is necessary to estimate an annual average from the part-year average in accordance with para 7.140 of LAQM TG-22 by correcting results to other continuous background monitoring sites. Within the year data

⁴⁸ IAQM, 2018 Air Quality Monitoring in the Vicinity of Demolition and Construction Sites
https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

⁴⁹ Defra, Diffusion tube QA/QC Framework; <https://iaqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>

collection for diffusion tubes was good (>75%) and therefore there was no need to annualise the data.

Table C.2 shows Socotec achieved the relevant satisfactory z-score (< +/-2) for 2025 for all rounds apart the periods Jan-Feb and Oct-Dec when it achieved the score for only 87.5% of spiked samples. This performance was achieved however from analysing double the amount of spiked samples when compared to other laboratories in the Air NO₂ PL scheme. The variance in spiked samples is noted and a potential matter for consideration when next reviewing diffusion tube contracts.

Diffusion Tube Annualisation

Where data collection is poor for diffusion tube sites then it is necessary to estimate an annual average from the part-year average in accordance with para 7.140 of LAQM TG-22 by correcting results to other continuous background monitoring sites. Within the year data collection for diffusion tubes was good (>75%) and therefore there was no need to annualise the data.

Table C.2 - AIR NO₂ PT Summary Results (2024 - 26).

Table 1: Laboratory summary performance for AIR NO₂ PT rounds AR062, 63, 65, 66, 68, 69, 71, 72 and 74

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO₂ PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of $\leq \pm 2$ as defined above.

AIR PT Round	AIR PT AR062	AIR PT AR063	AIR PT AR065	AIR PT AR066	AIR PT AR068	AIR PT AR069	AIR PT AR071	AIR PT AR072	AIR PT AR074
Round conducted in the period	January – February 2024	April – June 2024	July – August 2024	September – October 2024	January – February 2025	April – June 2025	July – September 2025	October – December 2025	January – February 2026
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	0 %
SOCOTEC	100 % [1]	100 % [1]	100 % [1]	100 % [1]	87.5 % [1]	100 % [1]	100 % [1]	87.5 % [1]	100 % [1]
Exova (formerly Clyde Analytical)	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	75 %	100 %	100 %	100 %	100 %	75 %	100 %	100 %	100 %
Gradko International	100 %	100 %	100 %	100 %	50 %	75 %	100 %	100 %	100 %
Kent Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	50 %	50 %	50 %	50 %	100 %	100 %	75 %	50 %	100 %
Milton Keynes Council	100 %	NR [2]	50 %	100 %	100 %	75 %	75 %	50 %	75 %
Northampton Borough	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	NR [2]
South Yorkshire Air Quality Samplers	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]
Staffordshire County Council, Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	NR [2]	NR [2]	100 %	NR [2]	NR [2]	NR [2]	NR [2]	100 %	NR [2]
West Yorkshire Analytical Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]

[1] Participant subscribed to two sets of test results (2 x 4 test samples) in each AIR PT round.

[2] NR, No results reported.

[3] Cardiff Scientific Services, Exova (formerly Clyde Analytical), Kent Scientific Services, Kirklees MBC, Northampton Borough Council and West Yorkshire Analytical Services; no longer carry out NO₂ diffusion tube monitoring and therefore did not submit results.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2026 ASR have been corrected for bias using an adjustment factor.

Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method. BCKLWN have applied a national bias adjustment factor of 0.78 to the 2025 monitoring data.

A single triplicate co-location study at the Southgates reference NO_x/NO₂ monitor was used to calculate a local bias factor with the calculation enclosed in Table C.4. Whilst the Diffusion Tube Data Processing Tool showed good overall precision and data capture, the December period was considered poor (69%). For this reason we have chosen the national bias factor (0.78) a result of 17 studies to give a better representation of overall bias. A summary of bias adjustment factors used by BCKLWN over the past five years is presented in Table C.3 below.

Table C.3 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2025	National	03/26 (17 studies)	0.78
2024	Local	-	0.76
2023	Local	-	0.78
2022	National	03/23 (27 studies)	0.83
2021	National	03/22 (32 studies)	0.84

Table C.4 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	11				

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Bias Factor A	0.74 (0.7 – 0.78)				
Bias Factor B	35% (29% - 42%)				
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	18.9				
Mean CV (Precision)	5.2%				
Automatic Mean ($\mu\text{g}/\text{m}^3$)	14.0				
Data Capture	100%				
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	3 14 (13 – 15)				

NO₂ Fall-off with Distance from the Road

The NO₂ diffusion tube monitoring locations did not require any distance correction during 2025 period.

QA/QC of Automatic Monitoring

QC/QA Applied to the Reference Monitors;

To ensure data is of sufficient quality from the two continuous / reference NO₂/NO_x monitors located at Southgates and Gaywood Clock to satisfy LAQM TG-22 the following procedures were implemented;

- Data ratification; Automatic monitoring data presented in this ASR is ratified by Air Quality Data Management (AQDM) services. Envitech Europe host the results via a county-wide web portal (www.norfolkairquality.net) and simultaneously also export results to Defra's UK-Air network (<https://uk-air.defra.gov.uk/>) for public dissemination of data.
- LSO type visits; 4-weekly LSO type visits carried out by a member of the Environmental Quality team. The frequency of visits can be increased dependent on findings. Within the year the air conditioning unit at Gaywood Clock was replaced (January 2025). The A/C unit is serviced under contract by Progen Ltd.
- Annual external audits; Annual external audits are carried out by Ricardo AEA Ltd including calibration against certified external source of NO gas. The audit inspection was carried out on 11th of December 2025 which found converter efficiencies as less than recommended values which required rescaling and flow

rates outside of recommended levels. Flow rates reported to service engineers who re-calibrated flow rates (22/12/2025).

- 6-monthly servicing; Servicing is carried out by Matts Monitors which comprises a 6-monthly routine maintenance program plus 24-hr call outs to help ensure continuity of data.
- There was no annualisation carried out of the automatic monitoring data as data acquisition was considered good (>75%) in line with TG-22.
- There was no correction for distance carried out for NO₂ as results were sufficiently low (less than 10% of the objective) not to warrant this.

QC/QA Applied to the Low-Cost Sensor Monitors;

Whilst the following units are non-reference they are still subject to the following;

- Osiris PM monitors are serviced and calibrated under a 24-month contract by the supplier (Turnkey). The contract includes a co-location calibration against Turnkey's reference analyser. No correction factor was applied in the year. The service covers parts such as battery, pump, and photometer plus consumables such as filters. Turnkey Osiris analysers benefit from heated inlet to correct for high moisture content and iMCERTS. They are subject to quarterly filter change and flow rate check by BCKLWN. The data is supplied by Turnkey but as explained above is managed by AQDM and uploaded by Envitech Europe to the Norfolk web portal for public dissemination.

Overall, the QA/QC of data by AQDM highlighted that the Osiris PM₁₀ and PM_{2.5} results compared well with the nearby reference stations after measurements during instrument faults were eliminated.

- Earthsense Zephyr;

The Zephyr is supplied with a calibration from new after it is co-located against Earthsense reference analysers (NO_x / PM) and any correction factor applied before receipt.

The Zephyr monitor benefits from being accredited to iMCERTs for PM₁₀ and PM_{2.5}. The Zephyr monitor is covered by a service contract that covers all parts and a replacement sensor typically every 2-years.

Data from the Earthsense Zephyr is subject to QA/QC by AQDM services with results uploaded onto a Norfolk Air Quality website provided by Envitech services

AQDM concluded that the Zephyr NO₂, PM₁₀, PM_{2.5} results compared well with the nearby reference stations.

Summary of Low-Cost Air Quality Sensor Monitoring

Table C.5 – Details of Low-Cost Sensor 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)
OS1PS	Page Stair Lane, King's Lynn	Urban Background	561527	320437	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	5	3.3	3.5
OS2ER	Estuary Road, King's Lynn	Urban Background	561593	321466	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	2	1	3.5
OS3WR	Wretton Road, Stoke Ferry	Urban Background	570438	299905	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	24	19	3.5
OS4BD	Buckenham Drive, King's Lynn	Urban Background	570264	299943	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	12	1	3.2
OS5FL	Foxes Lane, West Lynn	Urban Background	561148	320500	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	7	1	3.0
OS6PK	Parkway, Kings Lynn	Other – construction site	563319	319786	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	N/a	N/a	3.0
OS7IR	Indigo Rd, Stoke Ferry	Urban Background	570433	300156	PM ₁₀ PM _{2.5}	No	Indicative, Nephelometer with heated inlet and filter	7.5	0.5	3.0
EZ1	Railway Road, King's Lynn	Roadside	562116	320109	PM ₁₀ PM _{2.5} NO ₂	No	Indicative, Cartridge based sensor with fan	0.0	1.6	2.4

Table C.6 – Indicative Annual mean PM10 Monitoring Results (µg/m3)

Site ID	Make	Site Name	Annual Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
OS1PS	Turnkey Osiris	Page Stair Lane, King's Lynn	58.0	82.7	8.0	19.0	11.3	12.6	13.1
OS2ER	Turnkey Osiris	Estuary Road, King's Lynn	84.8	84.8	16.0	15.1	13.1	19.2	17.9
OS3WR	Turnkey Osiris	Wretton Road, Stoke Ferry	32.9	84.6	12.0	16.1	15.8	19.4	21.4
OS4BD	Turnkey Osiris	Buckenham Drive, King's Lynn	21.6	100.0	12.0	15	16.3	16.8	14.9
OS5FL	Turnkey Osiris	Foxes Lane, West Lynn	30.3	99.5	-	-	-	-	11.1
OS6PK	Turnkey Osiris	Parkway, Kings Lynn	25.3	52.1	-	-	-	-	17.9
OS7IR	Turnkey Osiris	Indigo Rd, Stoke Ferry	70.6	89.8	-	-	-	-	16.2
EZ1	Earthsense Zephyr	Railway Road, King's Lynn	100.0	100.0	-	-	-	12.6	13.1

(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 C.7 – Indicative 24-Hour Mean PM₁₀ Monitoring Results showing number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	Make	Site Name	Annual Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
OS1PS	Turnkey Osiris	Page Stair Lane, King's Lynn	58.0	82.7	0	5	1 (20.5)	1	0
OS2ER	Turnkey Osiris	Estuary Road, King's Lynn	84.8	84.8	2	0	0	3	0
OS3WR	Turnkey Osiris	Wretton Road, Stoke Ferry	32.9	84.6	0	0	3	6	3
OS4BD	Turnkey Osiris	Buckenham Drive, King's Lynn	21.6	100.0	0	1	0	5	0
OS5FL	Turnkey Osiris	Foxes Lane, West Lynn	30.3	99.5	-	-	-	-	0
OS6PK	Turnkey Osiris	Parkway, Kings Lynn	25.3	52.1	-	-	-	-	0
OS7IR	Turnkey Osiris	Indigo Rd, Stoke Ferry	70.6	89.8	-	-	-	-	2
EZ1	Earthsense Zephyr	Railway Road, King's Lynn	100.0	100.0	-	-	-	0	1

Notes:

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

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

(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 C.8 - Indicative Annual mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	Make	Site Name	Annual Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
OS1PS	Turnkey Osiris	Page Stair Lane, King's Lynn	58.0	82.7	4	7	6.6	6.7	6.3
OS2ER	Turnkey Osiris	Estuary Road, King's Lynn	84.8	84.8	6	6.5	6.1	10.0	7.6
OS3WR	Turnkey Osiris	Wretton Road, Stoke Ferry	32.9	84.6	5	7.5	7.0	9.2	9.9
OS4BD	Turnkey Osiris	Buckenham Drive, King's Lynn	21.6	100.0	6	6	7.5	6.9	7.6
OS5FL	Turnkey Osiris	Foxes Lane, West Lynn	30.3	99.5	-	-	-	-	8.2
OS6PK	Turnkey Osiris	Parkway, Kings Lynn	25.3	52.1	-	-	-	-	10.2
OS7IR	Turnkey Osiris	Indigo Rd, Stoke Ferry	70.6	89.8	-	-	-	-	6.3
EZ1	Earthsense Zephyr	Railway Road, King's Lynn	100.0	100.0	-	-	-	8.3	8.7

Table C.9 - Indicative Annual mean NO₂ Monitoring Results (µg/m³) from Earthsense

Site ID	Site Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean Data
EZ1	Railway Road, King's Lynn	36.9	31.8	33.5	26.4	25.3	22.8	25.8	22.4	23.5	27.3	28.1	28.4	27.7

Table C.10 - Indicative Number of NO₂ Hourly Means > 200 µg/m³.

Site ID	Make	Site Name	Annual Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2021	2022	2023	2024	2025
EZ1	Earthsense Zephyr	Railway Road, King's Lynn	100.0	100.0	-	-	-	0	1

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

Figure D.1 – Map of Monitoring Sites around the revoked Railway Rd AQMA

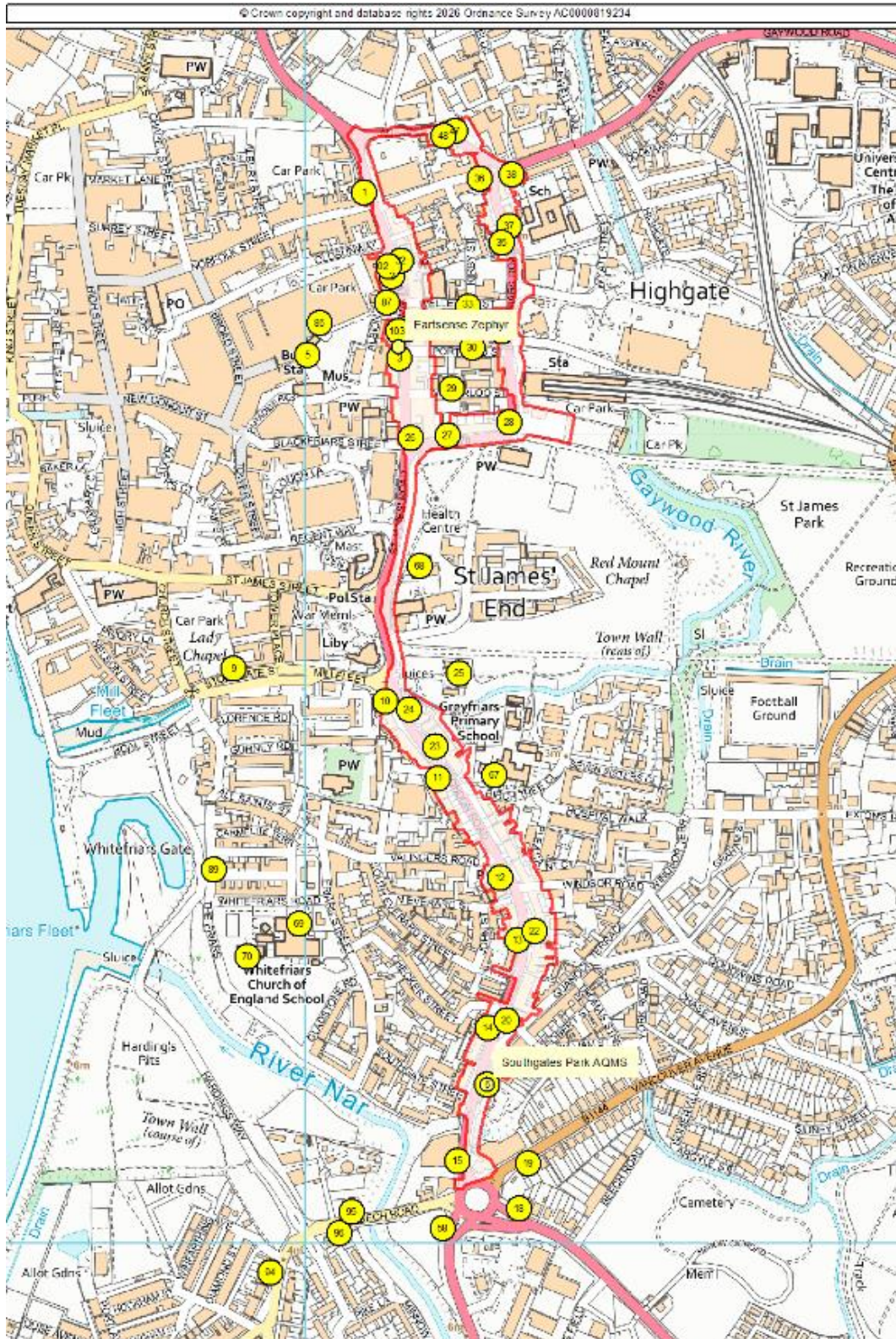


Figure D.2 – Map of Monitoring Sites around the Gaywood Clock Junction in King's Lynn

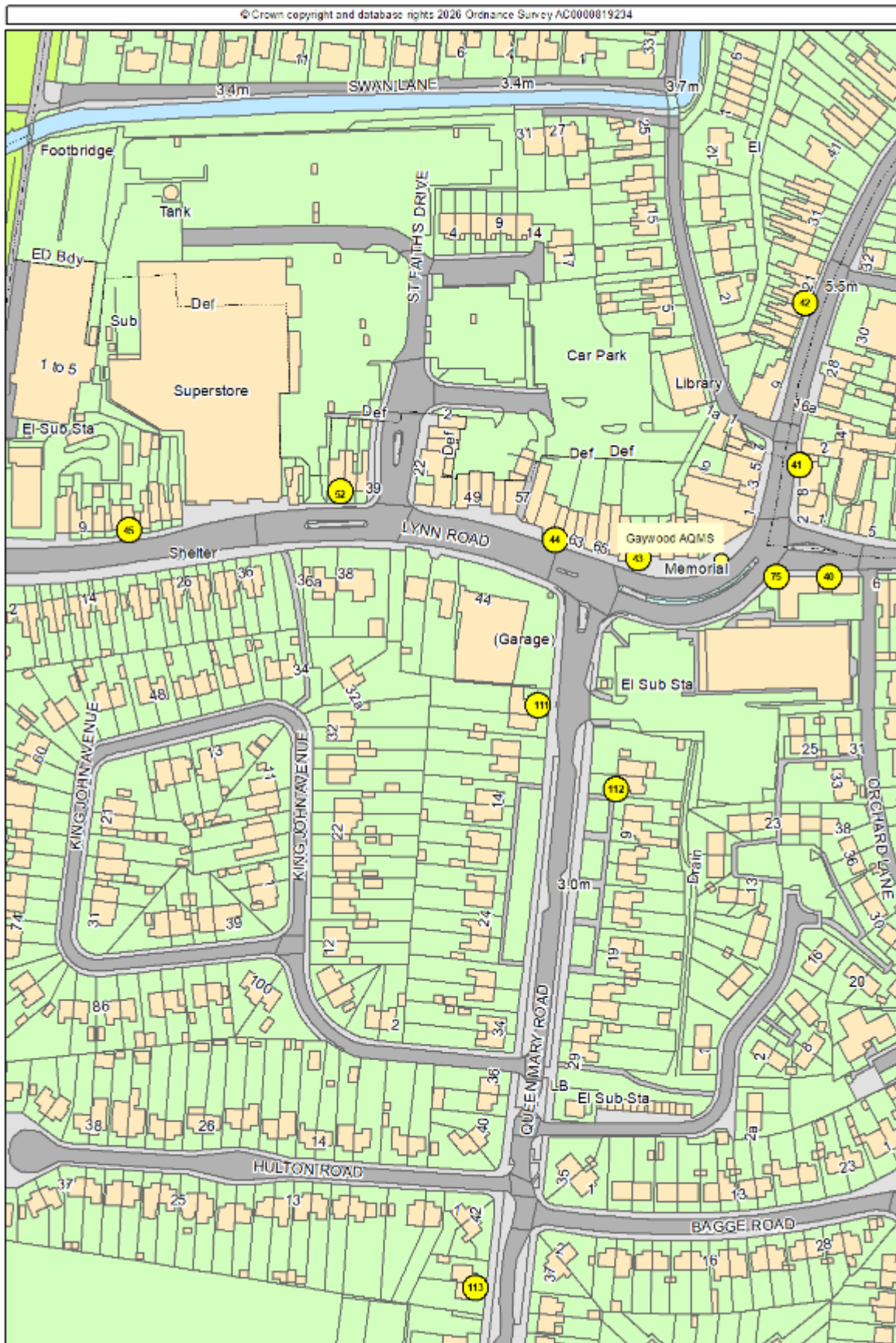
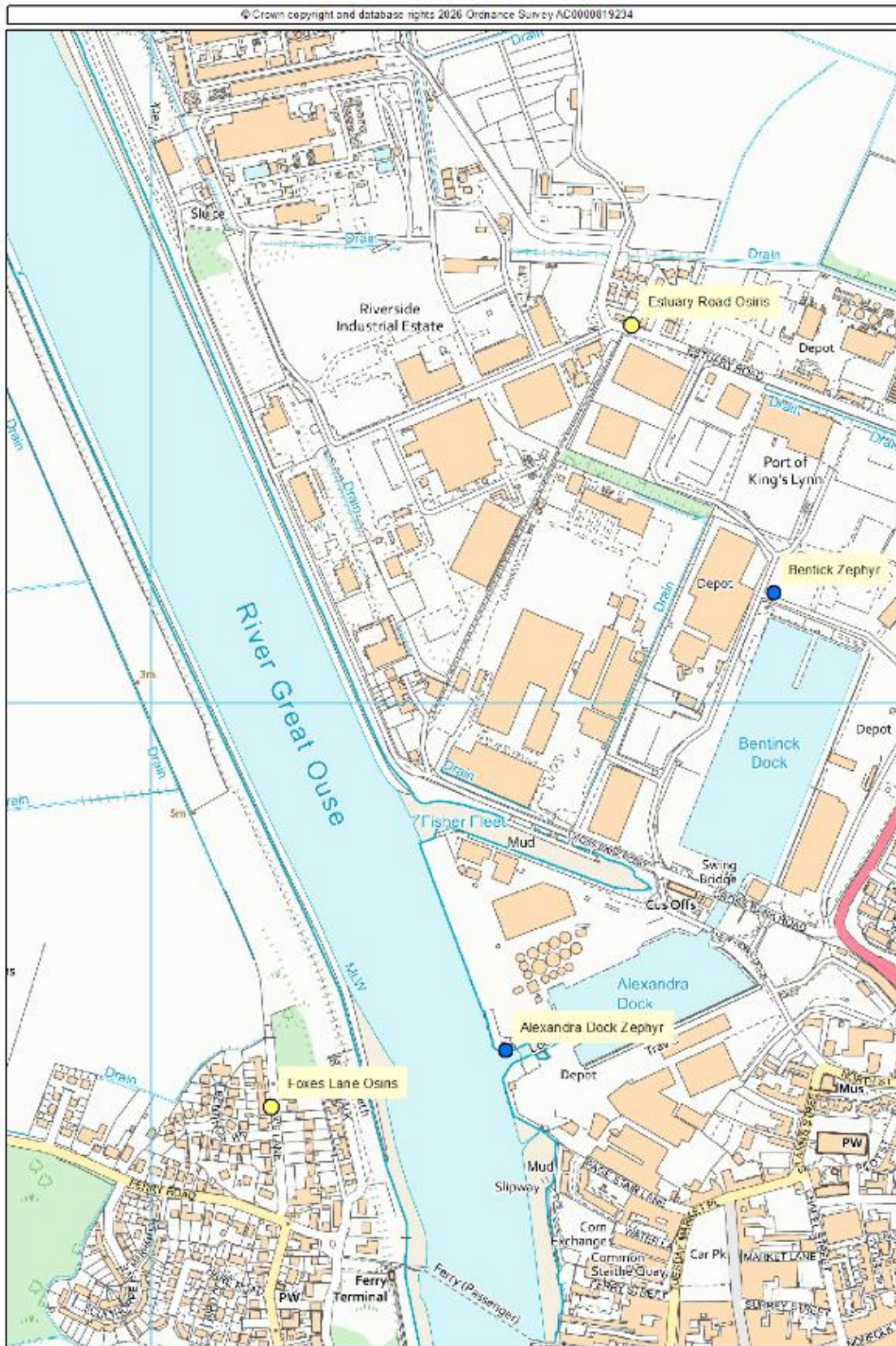


Figure D.3 - Map of the Monitoring Sites around King's Lynn Port



Note – sites denoted **yellow** are BCKLWN Osiris monitors and in **blue** are EarthSense Zephyrs operated by Associated British Ports.

Figure D.4 - Map of the Monitoring Sites in Stoke Ferry

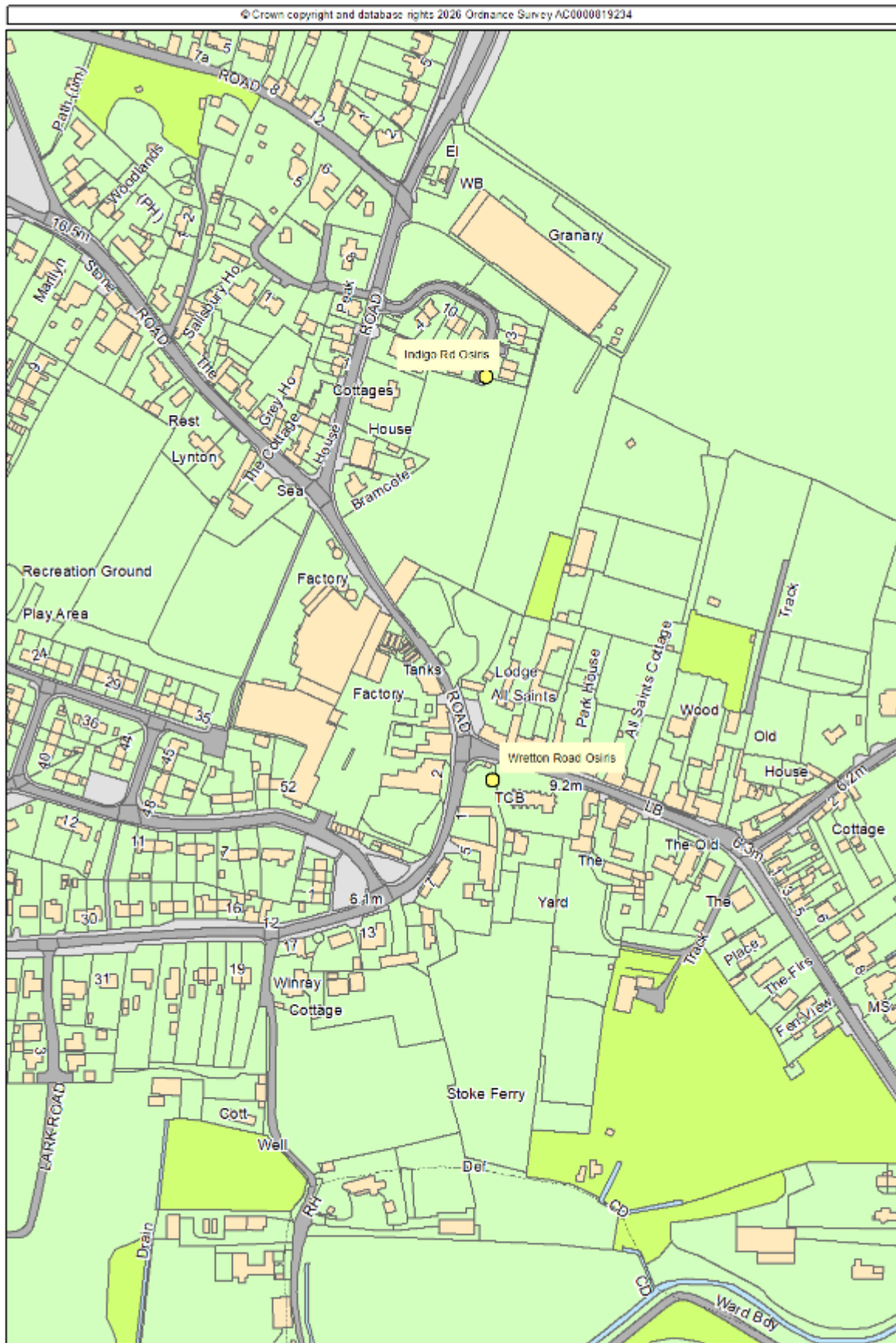


Figure D.5 - Map of the Diffusion Tube sites around North Lynn Approach

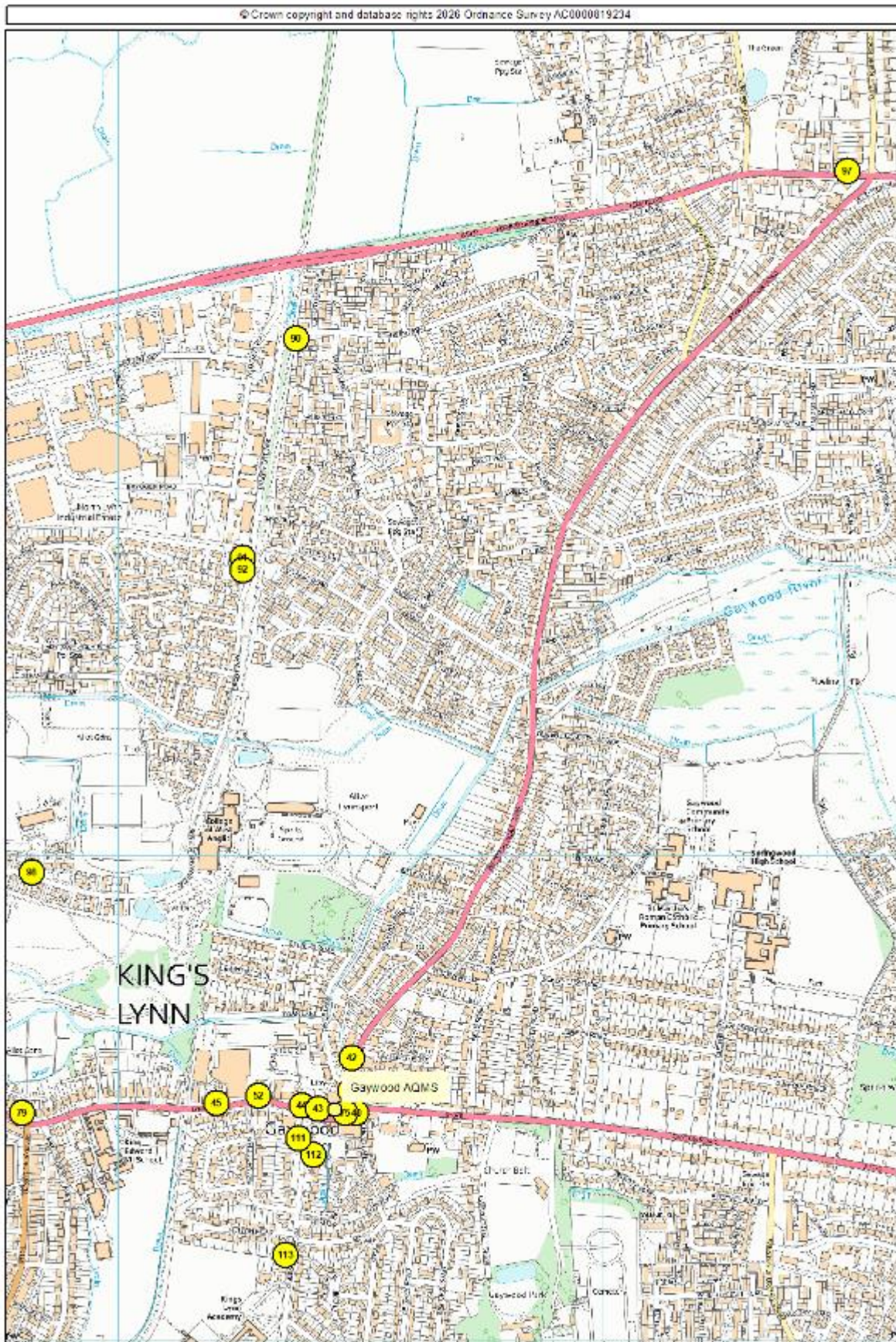


Figure D.6 - Map of the NO₂ Diffusion tube sites around the South Lynn Approach, including A10 (West Winch)

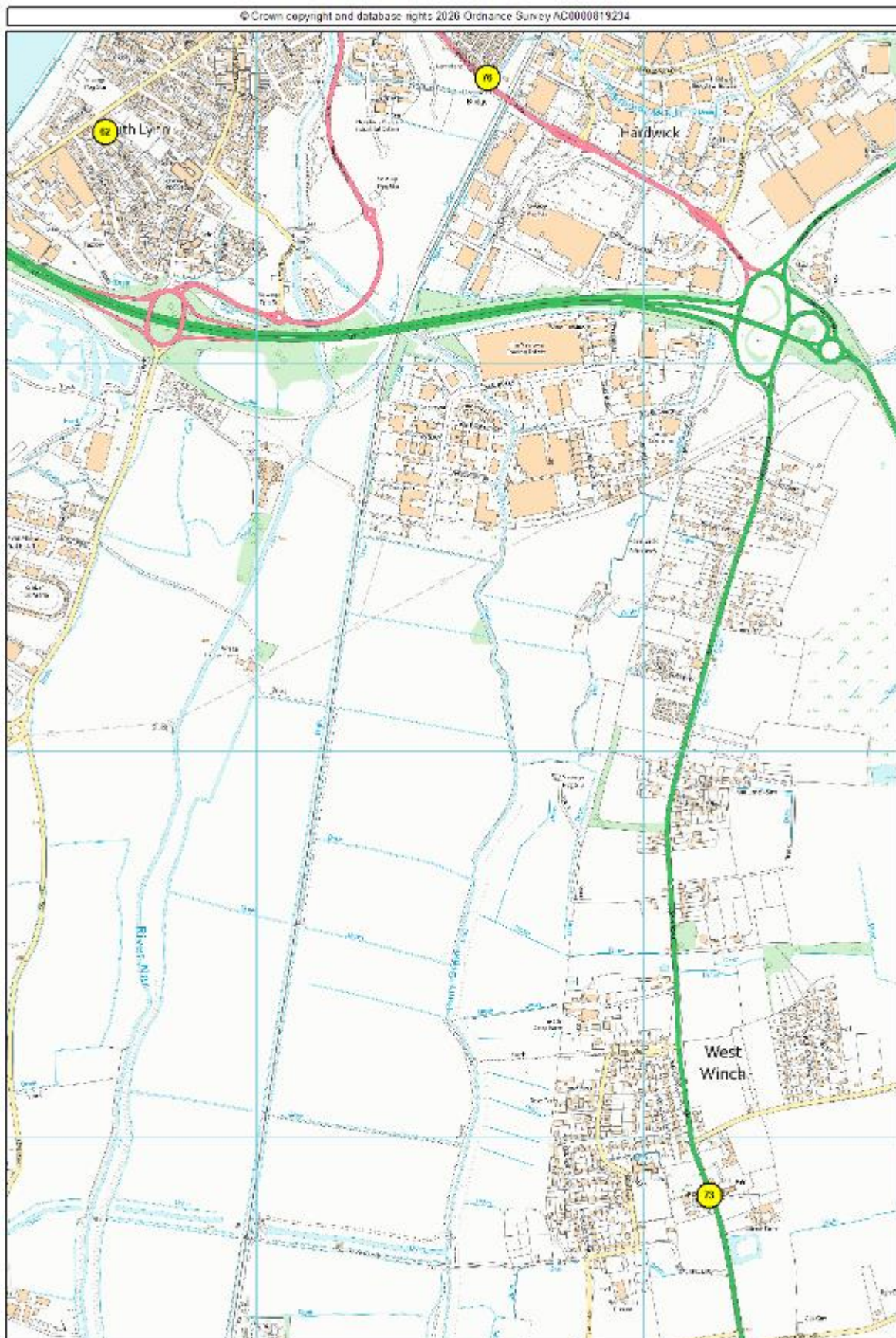


Figure D.7 - NO2 Diffusion site locations around Wisbech



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁵⁰

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

⁵⁰ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Table F.1 – Biomass Boilers >45kWth

Name	Planning / Permit reference	therm_output (kW)	make appliance	fuel type
Lodge Farm Hunstanton	24/01263/F	100	Herz Firematic or Pelletec	Woodchip
Westacre Estate	Certificate of Lawfulness 24/01384/LDE	200	Heizomat HSK-RA 200kW	Woodchip
Greenworld	Retrospective 21/01087 Permit EPR/HP3096NJ	3x 370	Dragon Heat	Woodchip from permitted composting facility
Fring Estate Church Farm	24/00920/AG	Aggregated 220	2x Windhager 60kW Hargasser 99kW	Wood pellet Wood chip
Anglia Wood Fuel Fring Estate Fring		990	Heizomat Model RH-AK 1000	Wood chip
Reeve Wood King's Lynn	Variation of existing	199	ETA Hack 199	chips
Kevley, Upwell	12/00356/F 13/00292/F	3x 995	Linka	Straw bales
Hillgate Nurseries, Terrington St Clement	12/00349/F	990	Uniconfort	Woodchip
Belmont nursery, Terrington St Clement PE34 4JL	LAPPC066	990	Uniconfort	Waste wood
Houghton Hall	12/01975/F 12/01976/LB	700	Gilles HPKI-K 700 multi-cyclone	
Construction Industry Training Centre CITB	11/01819/F	600	Herz BioFire 600	Wood chip pellets
Big K Ltd, Whittingham	21/00794/FM	600	Talbotts MWE 600	Wood chip
Iceni Academy, Methwold	15/01767/F	500	ETA Hack VRBG3	Wood Pellet
Rokewood Nursery, Walsoken	14/00417/F	390	FARM 2000 HT80R	logs
Downham Country Garden Store, Stonecross Rd, PE38 0AD	23/01524/F	295	Glenfarrow 295	Waste wood (non-treated)
Whitegate Nurseries, Terrington St John	22/01103/F	240	Remeha Gilles HPKI-240	Woodchip

Reeve Flooring, King's Lynn	14/00974/F	199	ETA Hack 199	chips
Dersingham St George's Church of England Junior School	14/01483/F	199	ETA Hack 199	pellets
Roydon Hall Farm	15/00103/F	150	HDG Compact 150	
Eastgate Farm, Marham	20/00181/F	150	HDG 150 Hackgut	
College of West Anglia (COWA)	12/00696/F 11/00609/FM	130	Hertz Firematic Biocontrol	pellets
Barwick Hall Farm, Stanhoe	19/01224/LDE	120	GILLES HPK-RA 120	Wood Chip
Ken Hill Farms Estate, Snettisham	21/00601/F	88	E Classic 3200	Logs
Newcome-Baker Farms Limited, Wethered Manor, Sedgeford	17/01685/F	Thermal capacity not known		Straw
Wiggenhall St Germans Primary School, Wiggenhall	Y/7/2010/2021	Thermal capacity not known		

Table F.2 - Anaerobic Digestion Facilities

Name	Planning / Permit reference	Power of CHP	Comments
Riverside AD Estuary Rd, King's Lynn	FUL/2024/0010	235kW	AD Facility with approval to process up to 55,000 tpa of feedstocks with resultant biogas to power CHP (235kWth). Air dispersion modelling carried out by Isopleth (01.0043.003 v1) of the NO ₂ from stack and flare showing negligible impact.
Estuary Farm, Greenworld	SCR/2024/0002 SCO/2024/0003	2x 1.35MW	AD Facility seeking approval to process up to 60,000 tpa of feedstocks with resultant biogas to power CHP (2x 1.35MW). Spare heat from AD to supply existing drying / composting facility that processes 10,000 tpa feedstocks and heated by 3x 370kW biomass boilers. Air quality impacts screened using SCAIL by APS (Kalaco, July 2024) of the NO ₂ and SO ₂ from stack and flare.
Wellington Lodge Farm	16/01151/FM 23/01276/F	Gas injected	AD Facility processes up to 65,000 tpa of feedstocks Gas injected into grid.

Warren Energy Ltd, Breckland Farm	FUL/2021/0011	800kW	Current variation FUL/2021/0011 is to reduce feedstocks down to original amount 49,000 tpa but to seek flexibility over feedstocks to allow other sources as opposed to those solely from the 'estate' farms.
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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'
AQA	Air Quality Assessment
ASHP	Air Source Heat Pump
AADT	Annual Average Daily Traffic
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
AURN	Automatic Urban and Rural Network
BCKLWN	The Borough Council of King's Lynn and West Norfolk
BAT	Best Available Technology
BESS	Battery Energy Storage Systems
CMP / CEMP / CTMP	Construction Management Plan / Construction Environmental Management Plan / Construction Traffic Management Plan
CHP	Combined Heat and Power
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
DMP	Dust Management Plan
EfW	Energy from Waste Facility
ES	Environmental Statement
EV	Electric Vehicle Charging
EU	European Union
FDMS	Filter Dynamics Measurement System
IAQM	Institute of Air Quality Management

Abbreviation	Description
LAQM	Local Air Quality Management
LHA / HA	Local Highways Authority / Highways Authority
LAPPC	Local Air Pollution Prevention and Control
MVHR	Mechanical Ventilation and Heat Recovery
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
QEH	Queen Elizabeth Hospital
RMM	Reserved Matters planning application
SO ₂	Sulphur Dioxide
SCA	Smoke Control Area
TP / TA / TS	Travel Plan / Transport Assessment / Transport Statement
tpa	Tonnes per annum
TSP	Total Suspended Particulates
vpd	Vehicles per day
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 National Highways
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides

Abbreviation	Description
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