2025 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 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Department at South Norfolk and Broadland with the support and agreement Norfolk County Council Sustainable Transport Team and Norfolk Public Health as well as the following officers:

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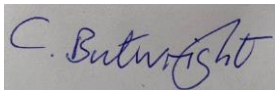
This ASR has been signed off by a Director of Public Health.



Christopher Butwright, Assistant Director of Public Health – Prevention and Policy, Norfolk County Council.

If you have any comments on this ASR please send them to Will Gorrod at:

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Executive Summary: Air Quality in Our Area

Air Quality in South Norfolk and Broadland

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Air quality across **South Norfolk and Broadland** continues to show a positive trend, with **no exceedances of national air quality objectives** recorded during the 2024 reporting year. The overall air quality remains good, and there is no requirement for the designation of any **Air Quality Management Areas (AQMAs)** in either district.

The **primary pollutant of concern remains nitrogen dioxide (NO_2)**, predominantly associated with emissions from road traffic. Elevated concentrations are still most noticeable in suburban areas around **Norwich** and in several **market towns**, although levels remain within acceptable limits.

Monitoring and Developments

- **NO_2 Monitoring**: Passive diffusion tubes continue to be used at **27 locations in South Norfolk** and **24 in Broadland**, providing consistent long-term data on NO_2 concentrations.
- **PM2.5 Monitoring**: In 2024, we expanded our monitoring capabilities by deploying **four Zephyr indicative monitors** to trial the measurement of **particulate matter (PM2.5)**. These monitors provide real-time, location-specific data and are helping to build a clearer picture of fine particulate pollution across the districts. As well as the diurnal variation in NO_2.

Some preliminary results from the Zephyr trial can be seen below in section 2.3:

We remain committed to improving air quality and will continue to monitor pollutant levels closely, explore opportunities for cleaner transport, and support public awareness initiatives in collaboration with our partners.

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

Table ES 1 – Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	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 tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

Actions to Improve Air Quality

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

The Environmental Improvement Plan (EIP) remains the central framework for driving environmental progress across England. In 2024, the government initiated a rapid review of the EIP, with findings published in early 2025. This review reaffirmed the importance of bold, targeted action to meet the Environment Act targets, including those related to air quality. A revised version of the EIP is expected to be published later in 2025, incorporating recommendations from the Office for Environmental Protection (OEP) and the rapid review process.

The National Air Quality Strategy, which outlines local authorities' responsibilities in reducing air pollution, continues to guide efforts to meet the interim and long-term PM2.5

targets. These targets are particularly important given the growing evidence of the health impacts of fine particulate matter.

To support these national objectives, South Norfolk and Broadland Councils have expanded their air quality monitoring programme. As of the 2024 reporting year, the councils have deployed:

- **4 Zephyr monitors**
- **2 Praxis monitors** (being trialled)

These low-cost indicative PM2.5 monitors are helping to build a broader and more granular dataset, enabling better identification of potential hotspots and supporting more informed local decision-making.

To ensure that the indicative PM2.5 monitoring is focused where it is most needed, a multi-source, evidence-based approach was used to identify communities with heightened vulnerability to air pollution across South Norfolk and Broadland. This approach integrates health, environmental, and socio-demographic data from the following sources:

1. **Health Risk and Life Expectancy Data**
2. **Deprivation Mapping**
3. **Health Outcomes – COPD Admissions**
4. **Vulnerability Index from UKHSA**
5. **Strategic Monitoring Deployment**

*For more detail see section 2.3

This evidence-led strategy aims to ensure that that both monitoring and mitigation efforts are directed where they can make the most meaningful difference.

We have developed a local Interim Air Quality Strategy with a final document in production for publication by the end of the year.

The councils continue to regulate local industrial emissions through the LAPPC and LA-IPPC regimes, ensuring that industrial processes are assessed and managed in line with national standards. Air quality considerations also remain embedded in the planning process, ensuring that new developments do not compromise local air quality.

In terms of sustainable transport, the councils support **Norfolk County Council's work** aimed at reducing transport emissions. Continued Initiatives such as the **introduction of cargo bikes** and the **extension of electric bus routes** into our districts are helping to

reduce reliance on conventional vehicles and promote healthier, low-emission alternatives. In 2024/25 the Park and ride contracts with Norfolk County Council are up for renewal. The intension is to introduce a new electric bus fleet, in addition to the existing electric bus network with the aim of reducing emissions even further.

Conclusions and Priorities

Air quality across both South Norfolk and Broadland continues to meet national standards. All monitored **NO_2 levels remain below the air quality objective thresholds**, and as such, **no detailed assessment is required** for any pollutants at this time. The Council will therefore proceed to the next **Annual Status Report (ASR) for 2025**.

Key Observations

- NO_2 levels remain low and continue to show a downward trend.
- The diffusion tube network is regularly reviewed. In the most recent review, several consistently low-reading tubes were removed and replaced with new locations to better reflect current conditions.
- Initial PM2.5 monitoring using indicative equipment suggests that concentrations are close to the new 2040 objective level set under the Environment Act 2021. However, the data indicates that much of this pollution is from regional or background sources, such as long-range transport and non-local emissions, which are not directly within the control of local authorities. This conclusion will be continually reviewed as we gather more data. It would support the exposure reduction approach.

Monitoring and Innovation

- Deployment of indicative monitors capable of continuously measuring NO_2, PM10, and PM2.5.
- These monitors are helping to build a more detailed understanding of local air quality and will support future decision-making and community engagement.

Community Engagement and Education

- Since 2022, the Council has delivered proactive education campaigns on the impacts of domestic wood burning, particularly as a secondary heating source.

- In 2025, we plan to support and promote Clean Air Night, an educational initiative highlighting the effects of domestic burning on air quality.
- We are also developing our local air quality strategy with engagement and education work aimed at domestic burning, agricultural emission and indoor air quality.

Air Quality is also identified in our Council's Environmental Strategies with the following actions identified:

- Proactive work with our partners and other stakeholders aiming to achieve a positive change to air quality, this could include, working with universities, bus, coach and taxi companies, haulage companies, schools and car sharing clubs.
- Raise awareness of air quality amongst our local businesses and residents.
- Pre-planning application support in more applications.
- Develop supplementary planning documents for air quality.

How to get Involved

For further information on air quality please contact us at:

cpandeq@southnorfolkandbroadland.gov.uk

If the public would like to find out more about air quality in general, there are a number of resources available. These include:

https://uk-air.defra.gov.uk/ (UK government air quality)

www.airqualityengland.co.uk (A quick reference to air quality information for a variety of local authority areas across England)

www.metoffice.gov.uk/guide/weather/air-quality (Met Office air quality web page)

People can help improve air quality by:

- Walking and cycling or using public transport instead of driving where possible,
- If using a car don't leave the engine running in queues or while waiting for someone.
- Looking for sustainable home energy suppliers who don't use fossil fuel.
- Avoiding burning at home, when possible.
- Planting more trees and greenery

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1 Local Air Quality Management

This report provides an overview of air quality in South Norfolk and Broadland during 2024. 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 South Norfolk and Broadland Councils to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

South Norfolk and Broadland Councils currently do not have any declared AQMAs. A local Air Quality Strategy has been drafted and is awaiting public consultation and sign off from council members later this year. Once published the air quality strategy for South Norfolk and Broadland Councils will be available at: www.southnorfolkandbroadland.gov.uk/environment/environmental-quality/air-quality

2.2 Progress and Impact of Measures to address Air Quality in South Norfolk and Broadland

Defra's appraisal of last year's ASR concluded

1. The Councils have considered the comments made during previous appraisals. This is commended and the Councils are encouraged to continue this approach for ASRs.

2. A local air quality strategy is now being developed and is set to be published in the next reporting year following the general election. This is welcomed.

3. The Councils have continued to provide clear evidence of several key actions to address PM2.5. Key examples include the partnership with "PlanetWatch" to focus on the Long Stratton and bypass development and the trial of indicative monitors across the borough in 2024. This is commended and indicative of good practice.

7. Extensive trend graphs and analysis have been provided for all monitoring data, which is commended.

8. There is a minor inconsistency between the data capture presented in Tables A.4/A.5 and Tables B.1/B.2. Tables B.1/B.2 indicates that all monitoring locations were operational for the full calendar year (2023). Hence, in Tables A.4/A.5, the Valid Data Capture for Monitoring period should be the same as the Valid Data Capture for 2023 at all monitoring locations. The Council is highly encouraged to amend this error in future reporting years.

9. The Council have provided excellent mapping of all monitoring locations within the district, which is commended.

South Norfolk and Broadland Councils have taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 19 measures are included within Table 2.1, with the type of measure and the progress South Norfolk and Broadland Councils have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

South Norfolk and Broadland Councils worked to implement these measures in partnership with the following stakeholders during 2024:

- Norfolk County Council Sustainable Transport Team
- Norfolk County Council Public Health

- Other Norfolk District Councils

The principal challenges and barriers to implementation that South Norfolk and Broadland Councils anticipate facing are funding and policy.

South Norfolk and Broadland Councils expect the following measures to be completed over the course of the next reporting year:

- Improve Monitoring Network through an additional 2 zephyr monitors in South Norfolk and Broadland
- Park and Ride: Assess opportunity for a zero-emissions bus fleet to operate the Norwich Park & Ride service when the contract is renewed in 2024/25
- Completion of Long Stratton Bypass. Continued monitoring of centre of Long Stratton to assess the affect on air quality of the measure.
- The Local Air Quality Strategy is due to be published following public consultation and councillor approval by the end of 2025

. South Norfolk and Broadland's priorities for the coming year continue to be the following:

- Increase education and awareness for public, policy makers and officers.
- Increase monitoring and information collection capability.
- Support pollution prevention and air quality improvement wherever possible.

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	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Increasing AQ Expertise in local councils through training, guidance, and knowledge sharing.	Collaborative working	Training	2024	N/A	Norfolk District Councils, Norfolk County Council, Natural England	Norfolk Public Health	-	N/A	N/A	On going	N/A	Increased Knowledge for officers and managers.	Quarterly Countywide AQ meetings and seminars.	Regular guest speakers from MMO, NHS, Natural England, Global Action Plan and others to increase AQ knowledge and understanding for officers and managers.
2	Construction of the Long Stratton Bypass	Traffic Management	Strategic highway improvements,	2024	2025	Norfolk County Council, Private Property Developers	Norfolk County Council, Private Property Developers				On Going	Likely significant	Reducing emissions and energy use and improving residents health and well being	Build underway	Monitoring project in place for NO2 and PM2.5 before and after measure introduced.
3	Publish Local Air Quality Strategy	Policy	Policy	2024	2025	South Norfolk Council, Broadland District Council	South Norfolk Council, Broadland District Council		Funded	No extra expense	On going	N/A	Strategy will be published	To be completed 2025	Due to go to environmental committee for approval (following public consultation) in 2025

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
4	Continue to Improve Monitoring Network.	Monitoring	Monitoring	2022	2026	Broadland and South Norfolk Council / Norfolk County Council	Environmental Protection Team/ Norfolk Public Health	-	Funded	£4,500 per monitor	On going	N/A	Increased data of pollution hotspots	4 Earthsense Zephyrs and 2 Praxis monitors have been procured by the Environmental Protection Team	We are awaiting funding from public health (NCC) for a further 2 Zephyr monitors.
5	Energy Efficiency of New Build Properties	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2005	-	Property Developers	Property Developers				On going	N/A	Reduction of energy bills and energy use	Implemented	Reduction of energy bills and energy use
6	Energy efficiency information for residents	Public Information	Via leaflets	2001	2023	Broadland and South Norfolk DC's	Broadland and South Norfolk DC's				On going	N/A	Reducing emissions and energy use	Providing information when requested	Reducing emissions and energy use
7	authority for the E.C.O (Energy Company Obligation) scheme	Public Information	Other	2013	-	Broadland and South Norfolk DC's and All L.A's	Broadland and South Norfolk DC's and All L.A's		-		On going	N/A	Reducing emissions and energy use	Providing information when requested	Reducing emissions and energy use
8	Health Improvement Grants	Other	Other	2018	-	Broadland and South Norfolk DC's	Broadland and South Norfolk DC's				On going	N/A	Reducing emissions and energy use and improving residents health and well being	On going	Reducing emissions and energy use and improving resident's health and well being
9	Warm Homes Fund	Other	Other	2018	-	Broadland District	Broadland District				On going	N/A	Reducing emissions	Planning	Reducing emissions and

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
						Council and some housing associations	Council and some housing associations						and energy use and improving residents health and well being		energy use and improving residents health and well being
10	Community Rail Partnerships	Promoting Travel Alternatives	Promote use of rail and inland waterways	1997	-	Norfolk Community Rail Partnership	Norfolk Community Rail Partnership, Local Rail Operator				On going	N/A	Individual up take	On going	Reducing emissions and congestion
11	Norfolk Bus Passenger Charter	Promoting Alternatives to private vehicle use	Low Emissions Strategy	2018	-	Norfolk County Council	Norfolk County Council				On going	N/A	Collaborative working to improve air quality within the Greater Norwich Area through various projects and initiatives	On going	Enhanced partnership in place between Norfolk County Council and local operators, as well as a Bus Service Improvement Plan Bus stop upgrades to 'Gold' standard have been carried out in Hellesdon, Aylsham, Loddon (x2), Broadland Business Park

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															and Acle. Wymondham and Sprowsston upgrades pending. 96 bus stops upgraded to improve accessibility. All bus stops in the district equipped with QR boards to provide access to online departure board information.
12	Air Quality Countywide Meetings	Other	Other	2023	-	Broadland District Council, South Norfolk Council, Norwich City Council, Norfolk County Council, Breckland Council, Great Yarmouth	Broadland District Council, South Norfolk Council, Norwich City Council, Norfolk County Council, Breckland Council, Great Yarmouth				On going	N/A	Collaborative working to improve air quality within Norfolk through various projects and initiatives	On going	Collaborative working to improve air quality within the Norfolk through various projects and initiatives including through joint bids for funding

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
						Council, West Norfolk Council	Council, West Norfolk Council								
13	Bike/Scooter/E-Bike Hire Scheme Introduction	Public Transportation	Other	2023	-	Norfolk County Council	Norfolk County Council				On going	N/A	Individual take up	On going	Reducing emissions and congestion
14	Cargo Bike Library for Businesses	Public Transportation	Other	2023	-	Norfolk County Council	Defra	Yes			On going	N/A	Business take up	On going	Reducing emissions and congestion, promoting healthier living
15	New Electric Bus Schemes	Public Transportation	Other	2023	-	Norfolk County Council	Norfolk County Council				On going	N/A	Number of Busses	On going	70 electric buses have now been added to the fleet in Norfolk and are running on a range of routes through Norwich and beyond
16	Cycling, walking and wheeling improvements	Public Transportation	Other			Norfolk County Council, South Norfolk and Broadland Councils	Norfolk County Council				On going	N/A	Individual take up	On going	Work to deliver the Greater Norwich Local Cycling and Walking Infrastructure Plan to improve cycling, walking and wheeling facilities

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
17	Electric vehicle charge points	Low Emission Technology	Other			Norfolk County Council, South Norfolk and Broadland Councils	Norfolk County Council				On going	N/A	Individual take up	Norfolk County Council and South Norfolk and Broadland Council's have collaborated on procurement of EV charge-points as well as on joint-funding for EV schemes. There are also proposals for additional EV charge points in Broadland car parks to be funded by the Local Electric Vehicle Infrastructure (LEVI) fund which Norfolk County Council manages.	Increase availability of EV charge points across the area, to promote EV update and ensure EV charging is considered in relevant Climate/Environmental strategies and policies
18	Park and Ride: Assess opportunity for a zero-emissions bus fleet to operate the Norwich Park & Ride service when the contract is renewed in 2024/25	Public Transportation	Other	2024	2024/5	Norfolk County Council	Norfolk County Council			£1-10 million	Planning	N/A	individual take up	On going	Park & Ride patronage continues to struggle post-COVID operating and 40-50% pre-

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															COVID levels. Procurement approach is to aim for zero emission fleet but this will be dependent on the responses received. Procurement taking place in 2024 for implementation in 2025.
19	School Travel Plans	Promoting travel alternatives	School Travel Plans	2024	Ongoing	Norfolk County Council	Norfolk County Council				Ongoing	N/A	Individual take up	A review is being undertaken to identify whether a comprehensive programme of support can be offered to schools to support more pupils travelling to school actively	Norfolk County Council already funds access to Modeshift Stars software for all schools, enabling them to generate and manage their own travel plans, with the ambition to have the majority of schools with an up to date school travel plan. Options being explored

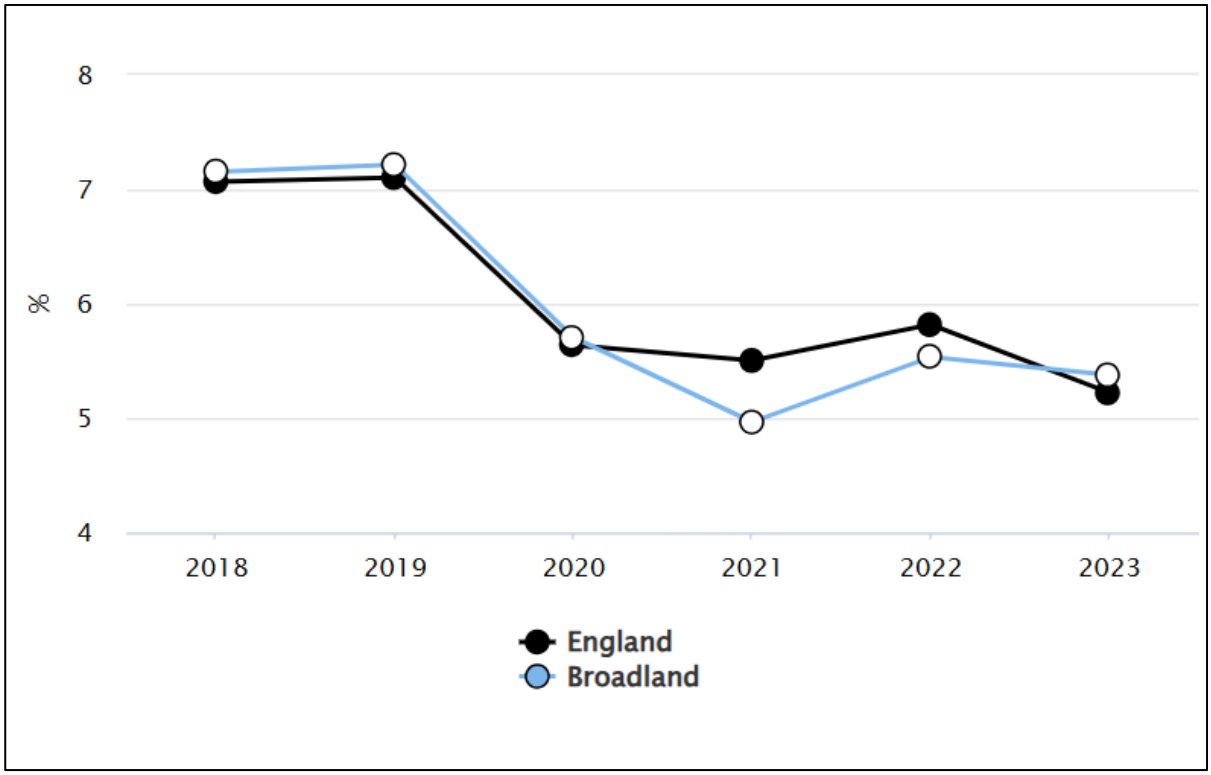
Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															for all schools in Norfolk to provide information on mode travelled to school throughout the academic year to provide baseline data to measure progress against.

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 Strategy[1], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$)). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The latest data on the fraction of mortality attributed to particulate air pollution in South Norfolk and Broadland, and how this compares to the average for England can be seen in the charts below (Source: The Public Health Outcome Framework, 2025).

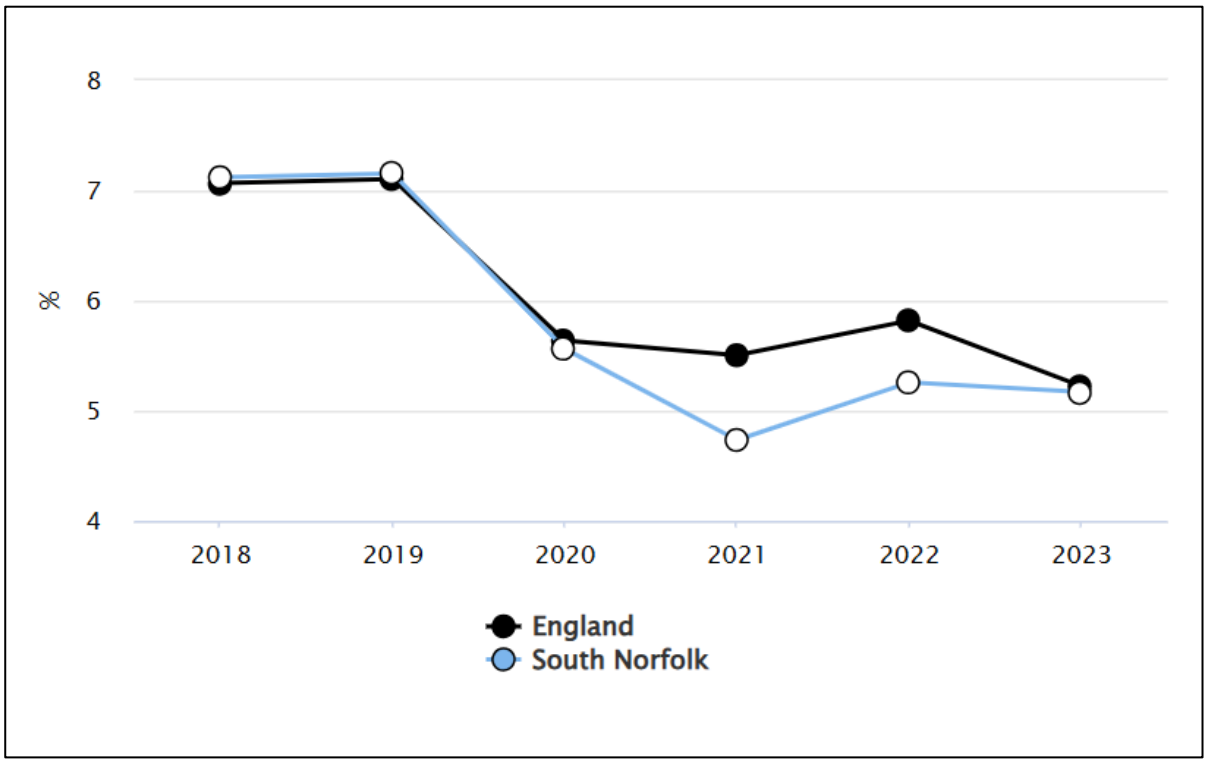
Plot A.1 – Fraction of Mortality Attributable to Particulate Air Pollution (Broadland)



Public Health Outcome Framework, 2025[5]. Background annual average $PM_{2.5}$ concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (https://uk-air.defra.gov.uk/interactive-map).

[1] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

Plot A.2 – Fraction of Mortality Attributable to Particulate Air Pollution (South Norfolk)



Public Health Outcome Framework, 2025[2]. Background annual average $PM_{2.5}$ concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (https://uk-air.defra.gov.uk/interactive-map).

South Norfolk and Broadland Councils are taking the following measures to address $PM_{2.5}$:

- Establishing a programme for monitoring particulate matter across the districts to understand levels and any areas of concern.
- The Councils continue to ensure regular two-way engagement with representatives of the Office for Health Improvement and Social Care, and the Director of Public Health at Norfolk County Council.
- The Councils are building stronger working relationships with Public Health including encouraging active travel (walking, cycling) to reduce local vehicle use.

[2] Public health profiles - OHID (phe.org.uk)

- We work with local industrial processes as part of our duties under the Integrated Pollution Prevention and Control Regulations to ensure local air quality is safeguarded.
- We review planning applications for new developments to ensure local air quality is considered via the planning regime.

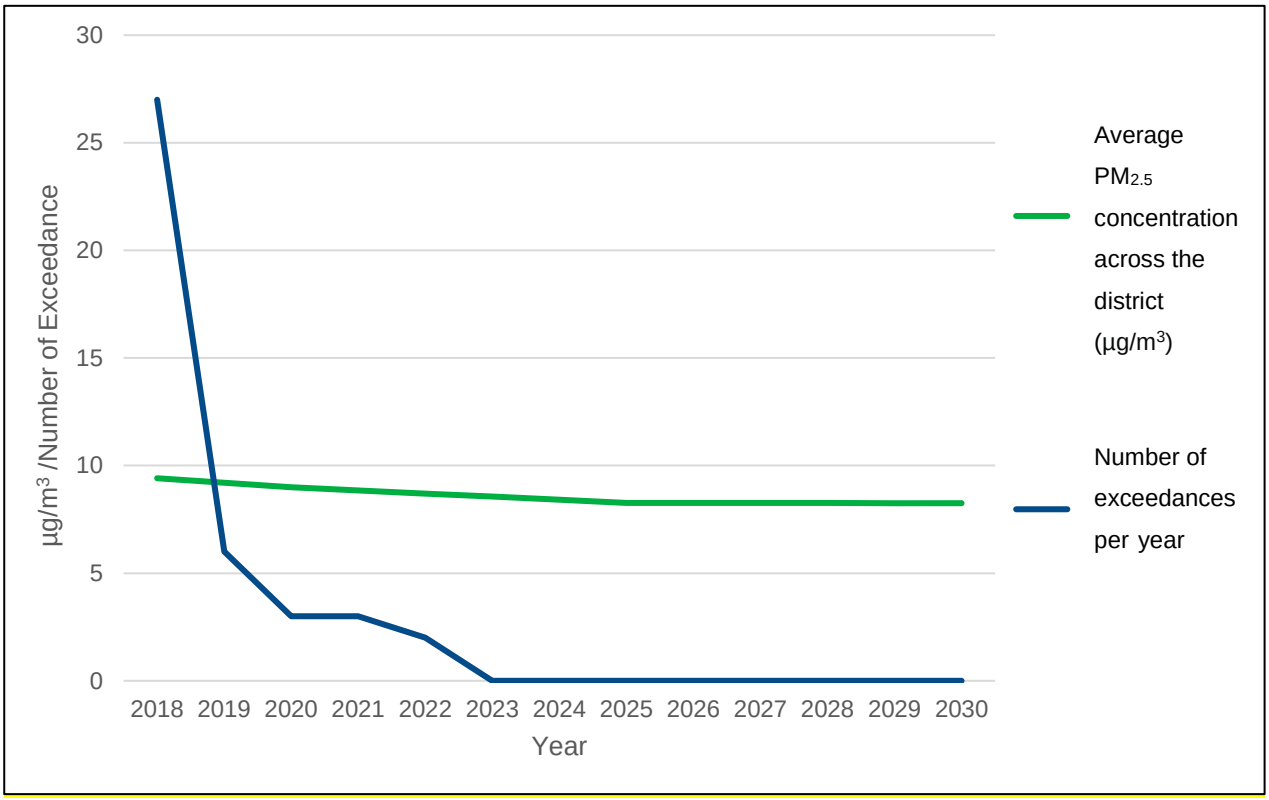
The Environment Bill was passed in 2020 and subsequent Environment Act 2021 has been published. The Environment Act 2021 establishes a legally binding duty on government to bring two new air quality targets into secondary legislation. This duty sits within the environmental target's framework outlined in the Environment Act (Part 1). The air quality targets set under the Act are:

- Annual Mean Concentration Target ('concentration target') - a maximum concentration of 10µg/m^3 to be met across England by 2040
- Population Exposure Reduction Target ('exposure target') - a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

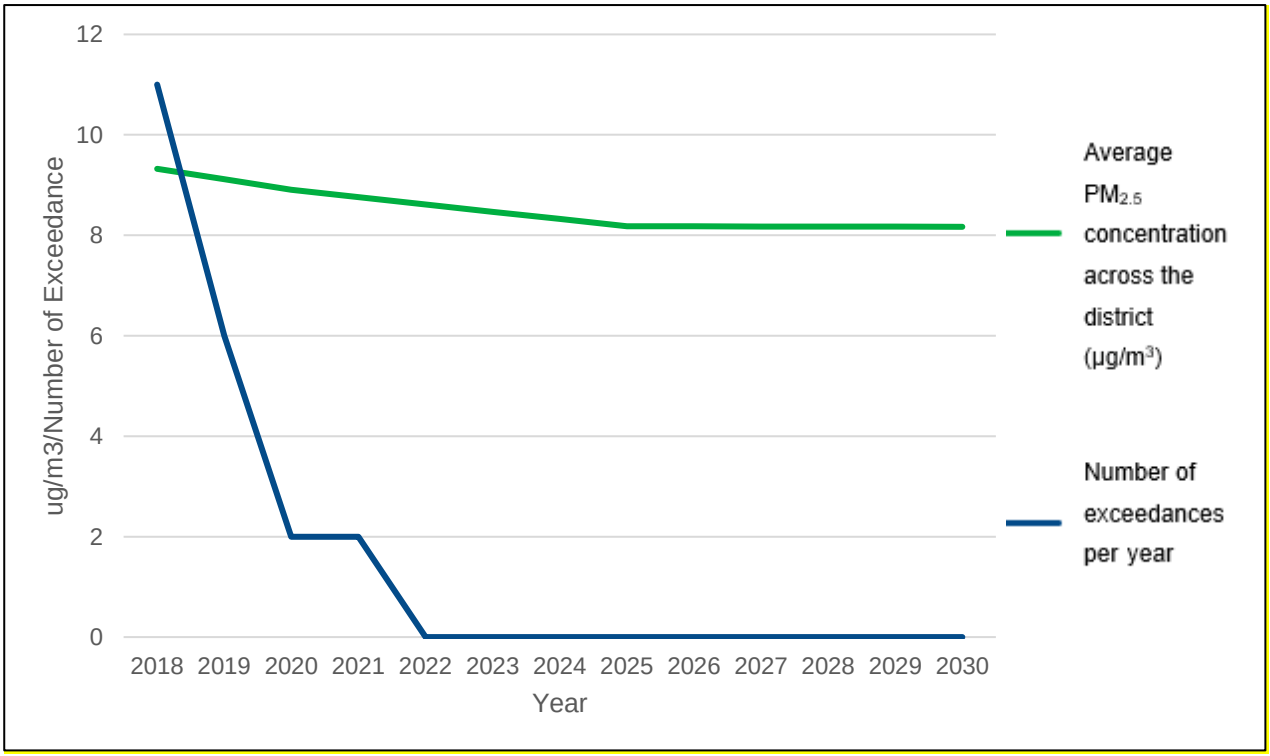
Broadland District Council and South Norfolk District Council have both referred to the DEFRA background concentration data[3] to consider $PM_{2.5}$ across the districts as well as using indicative monitoring data. This data has been used to assess if the background concentrations are above the relevant air quality targets. Average background concentration projections (shown in plot A.3 and A.4 below) for both councils show that both councils are already below the Environment Act 2021 annual mean concentration target.

[3] Background Mapping data for local authorities - Defra, UK

Plot A.3 - Projected South Norfolk $PM_{2.5}$/Modelled Exceedances 2018-2030



Plot A.4 - Projected Broadland $PM_{2.5}$/Modelled Exceedances 2018-2030



In 2022 South Norfolk Council partnered with the environmental monitoring and technology company “PlanetWatch” to launch a new pilot project in Long Stratton. As of the 2024 reporting year this pilot project has been scrapped.

In 2024 South Norfolk and Broadland Councils purchased two ‘Earthsense Zephyr’ indicative $PM_{2.5}$ and NO_2 monitors, which are currently deployed in both districts. This has expanded to four units as of 2025. These units are currently monitoring $PM_{2.5}$ and NO_2 levels at the locations where we have historically recorded the highest NO_2 diffusion tube concentrations in each district. Two further ‘Praxis’ monitors have also been procured with the intension of being used at sites with acute pollution problems, such as building sites. The overall aim of this equipment is to help provide more in-depth knowledge regarding air pollution in both districts. To ensure that the indicative PM2.5 monitoring is focused where it is most needed, a multi-source, evidence-based approach was used to identify communities with heightened vulnerability to air pollution across South Norfolk and Broadland. This approach integrated health, environmental, and socio-demographic data:

1. Health Risk and Life Expectancy Data

- The **UEA Health Data Interpretation Group** identified air pollution—particularly PM2.5—as a significant risk factor affecting life expectancy.
- Their analysis showed that even a small reduction in PM2.5 levels could lead to a measurable increase in healthy life expectancy, guiding the prioritisation of areas with higher modelled PM2.5 concentrations.

2. Deprivation Mapping

- Using the **Norfolk Insight Deprivation Map**, areas were assessed based on the **Index of Multiple Deprivation (IMD)**, which includes factors such as income, employment, education, health, and living environment.
- Communities with higher deprivation scores have been prioritised, as these populations are more likely to be affected by environmental stressors, including air pollution.

3. Health Outcomes – COPD Admissions

- Emergency hospital admissions for **Chronic Obstructive Pulmonary Disease (COPD)** were analysed at the ward level using data from **Public Health at Norfolk County Council**.

- While COPD is not directly caused by air pollution, high admission rates may indicate areas where pollution could be exacerbating existing health conditions, warranting further investigation.

4. Vulnerability Index from UKHSA

- A **pilot vulnerability indicator** developed by the UK Health Security Agency (UKHSA) was used to rank areas by their population-level vulnerability to air pollution.
- This index considered age demographics, deprivation, proximity to sensitive sites (e.g. schools, care homes), and modelled pollution levels (NO_2 and PM2.5).

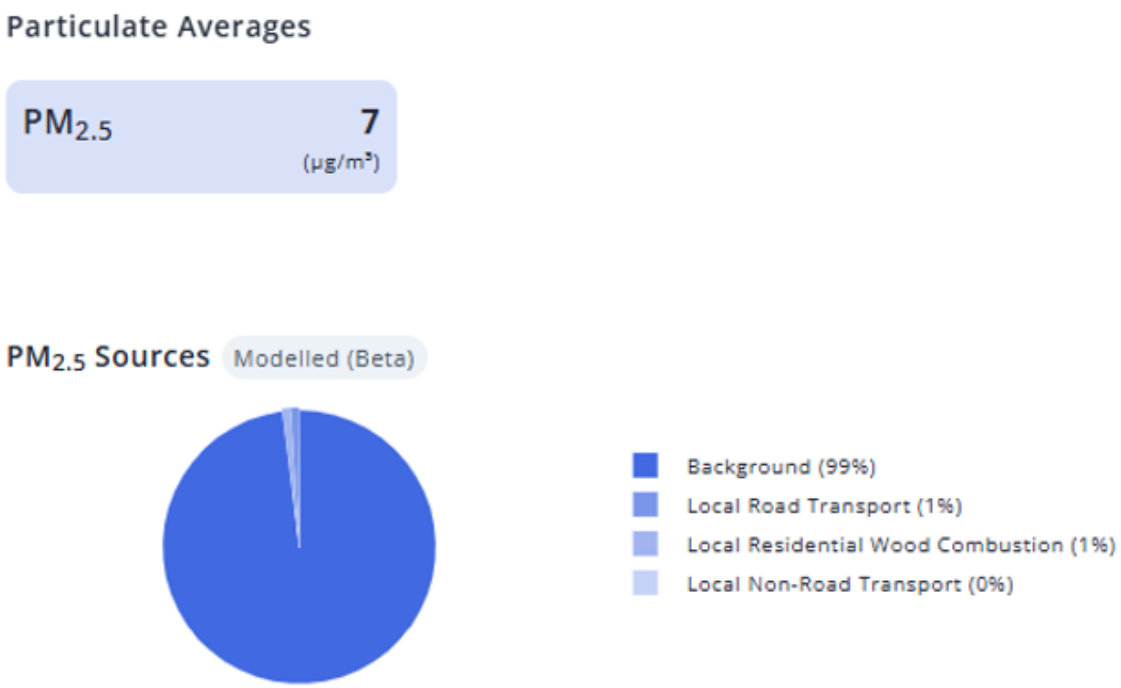
3 5. Strategic Monitoring Deployment

- Based on these data sources, areas with overlapping indicators of vulnerability—such as high deprivation, elevated PM2.5, and health sensitivity—were selected for the deployment of Zephyr indicative monitors.
- This targeted approach ensures that monitoring efforts are both equitable and impactful, focusing on communities where interventions could yield the greatest health benefits.
- With monitoring now in place, we can begin to explore tailored interventions appropriate to each community's needs. These may include:
    - Promoting active travel and cleaner transport options
    - Engaging schools and care facilities in awareness campaigns
    - Supporting local planning decisions that reduce exposure
    - Collaborating with health services to address pollution-related vulnerabilities

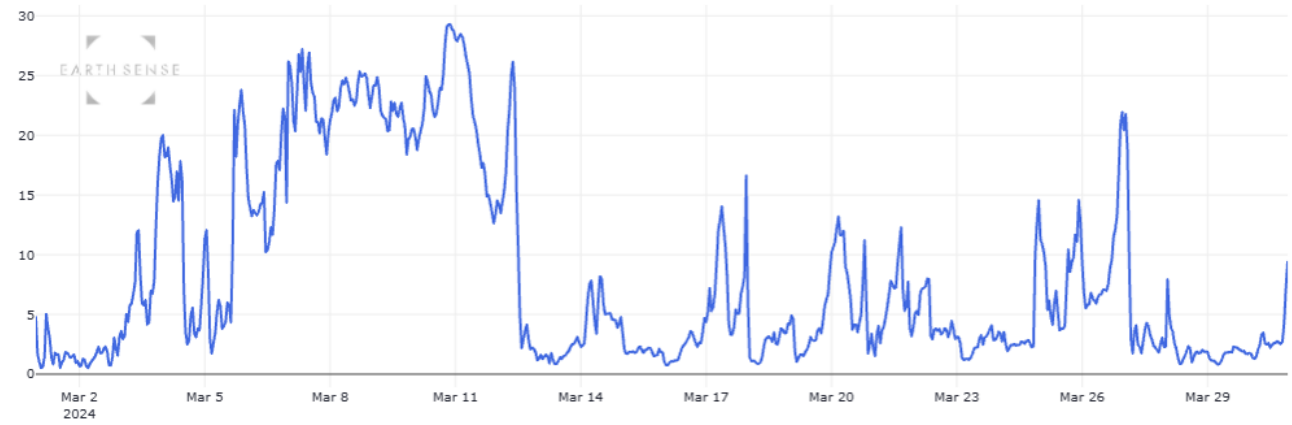
Long Stratton Bypass Monitoring Project

One of these units has been in deployed in the centre of Long Stratton since 2024 (recording NO_2 and $PM_{2.5}$ levels). Long Stratton Bypass is currently being constructed with the aim of reducing pollution levels in the area through diverting the busy A140 (see section 2.3). Data from the monitoring project can be seen below. The annual average Particular Levels recorded by the Zephyr monitor in Long Stratton for 2024 is **7 µg/m^3**. Modelled source apportionment (plot A.5) shows the overwhelming influence of background source. Monitoring will continue in Long Stratton once the bypass has been completed. The impact of the new road on pollution levels will then be able to be seen. The three other zephyr units have been deployed on rotation to areas of the district at highest risk to matter pollution (as discussed above). More information regarding these units will be presented in the next ASR.

Plot A.5 PM2.5 Particulate average for 2024 in Long Stratton and modelled PM2.5 Sources in Long Stratton 2024.



Plot A.6 Annual PM2.5 Concentrations in Long Stratton (24 Hour average)



Plot A.7 PM2.5 Concentrations in Long Stratton March 2024 (1 Hour Average) –Note the pollution event between March 5th and 12th.

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

This section sets out the monitoring undertaken within 2024 by South Norfolk and Broadland Councils and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

4.1 Summary of Monitoring Undertaken

4.1.1 Non-Automatic Monitoring Sites

South Norfolk and Broadland undertook non- automatic (i.e. passive) monitoring of NO_2 at 54 sites during 2024 Table A.1 and A2 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.

4.2 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.

4.2.1 Nitrogen Dioxide (NO_2)

Error! Reference source not found. and Table A. in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2024 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.

In 2024 there were no exceedances for NO_2, this follows a pattern of reducing NO_2 levels over the past several years (see Table A3 and A4). Following last years ASR a decision was taken to remove several of the lowest reading monitoring locations for the 2024 reporting year. Most of these locations have instead been replaced with diffussion tubes in other areas that we deemed were higher risk. We will be continueing this process at the end of the 2025 reporting year.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites – South Norfolk

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)
DT3	3- 90 THE STREET,PORINGLAND	Suburban	626798	302091	NO2	No		8.0	No	1.5
DT4	4-87 DENMARK ST,DISS	Suburban	611212	279623	NO2	No		1.5	No	2.5
DT5	5-131 VICTORIA RD,DISS	Suburban	611936	279576	NO2	No		7.0	No	1.5
DT7	7- A140 LONG STRATTON	Roadside	619725	292748	NO2	No		0.0	No	2.5
DT8	8- FAIRLAND ST,WYMONDHAM	Kerbside	611107	301436	NO2	No		2.0	No	2.5
DT9	9- KIRBY BEDON ROAD, BIXLEY	Kerbside	625451	306152	NO2	No		3.0	No	2.5
DT11	11- 2 THICKTHORN COTTAGES	Rural	618138	305619	NO2	No		22.0	No	1.5
DT12	12- RIGHTUP LANE,WYMONDHAM	Suburban	611533	300986	NO2	No		2.0	No	2.5
DT15	15- HARLESTON (HOTEL)	Roadside	624476	283267	NO2	No		1.0	No	2.0
DT16	16- DISS ROAD,SCOLE	Roadside	614893	278863	NO2	No		1.5	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT17	17-LONGWATER LANE (NEAR TO SCHOOL)	Roadside	616991	311546	NO2	No		2.0	No	3.0
DT18	18- LS CHINESE	Roadside	619714	292732	NO2	No		2.0	No	2.5
DT19	19- LS TRAFFIC LIGHT EAST	Roadside	619734	292751	NO2	No		0.0	No	2.5
DT20	20- LS FUNERAL DIRECTORS	Suburban	619643	292348	NO2	No		7.0	No	2.0
DT21	21- LS SOUTHBOUND 60 MTRS	Suburban	619696	292656	NO2	No		2.0	No	2.5
DT22	22- LS SWAN LANE CO-OP CHEM	Roadside	619711	292720	NO2	No		2.0	No	2.0
DT24	24- 14 STATION RD,WYMONDHAM	Suburban	611325	301191	NO2	No		10.0	No	1.5
DT25	25- BUS STOP,NWH RD, STRATTON	Roadside	619824	293031	NO2	No		2.0	No	2.5
DT29	29- 25 BROAD ST,HARLESTON	Suburban	624625	283496	NO2	No		1.5	No	2.5
DT30	30 - Morrisons/Parsons Diss	Roadside	611785	279593	NO2	No		5.0	No	2.5
DT32	32 - Bridge Street, Loddon	Roadside	636167	298802	NO2	No		2.0	No	2.0
DT33	33 - Tuttles Lane East, Wymondham	Roadside	612543	302678	NO2	No		2.0	No	2.5
DT34	34 - 44 Old Newmarket Road, Cringleford	Surburban	619278	305655	NO2	No		10.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT35	35 - Colney Lane / Newmarket Road, Cringleford	Roadside	619730	305855	NO2	No		3.0	No	2.5
DT36	36 - Dereham Road, Costessey	Kerbside	616842	310368	NO2	No		4.0	No	3.0
DT37	37 - Roundwell Medical Centre, Costessey	Suburban	616813	310415	NO2	No		15.0	No	2.0
DT38	38 - The Harte Pub Roundabout, Costessey	Roadside	617193	311669	NO2	No		1.0	No	2.0

Notes:

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

(2) N/A if not applicable.

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

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)
BN10	BN10 Yarmouth Road, Thorpe St Andrew	Roadside	625369	308437	NO2	No		1.0	No	3.0
BN11	BN11 Reepham Road, Hellsdon	Suburban	621649	311632	NO2	No		8.0	No	2.5
BN12	BN12 10 Boundary Road, Hellsdon	Suburban	621697	311569	NO2	No		6.0	No	2.0
BN13	BN13 214 Milecross Lane, Hellsdon	Suburban	621814	311640	NO2	No		9.0	No	2.0
BN15	BN15 Norwich Road, Wroxham Library Wroxham	Roadside	630113	318014	NO2	No		2.0	No	3.0
BN18	BN18 Middletons Lane, Hellsdon	Roadside	620186	311833	NO2	No		5.0	No	2.5
BN19	BN19 187 Yarmouth Road/Pound Lane, Thorpe St Andrew	Suburban	627492	308775	NO2	No		8.0	No	2.0
BN20	BN20 The Street, Acle	Kerbside	640165	310353	NO2	No		3.0	No	3.5
BN24	BN24 127 Fifers Lane, Hellsdon	Suburban	621466	312666	NO2	No		16.0	No	2.0
BN27	BN27 300 Wroxam Road, Sprowston	Suburban	625505	312473	NO2	No		3.0	No	3.0
BN29	BN29 27 High Street, Cawston	Roadside	613458	323917	NO2	No		2.0	No	3.0
BN30	BN30 Salhouse Road, Sprowston	Roadside	626169	311059	NO2	No		2.0	No	3.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
BN31	BN31 Chartwell Road, Old Catton	Roadside	623259	311310	NO2	No		2.0	No	3.0
BN33	BN33 Beighton White House, Beighton	Roadside	637750	309866	NO2	No		3.0	No	3.0
BN34	BN34 Cromer Road, Hellsdon	Kerbside	621712	311698	NO2	No		1.0	No	3.0
BN35	BN35 373 Drayton High Road, Hellsdon	Suburban	620206	311723	NO2	No		10.0	No	2.5
BN36	BN36 Norwch Road, Wroxham	Kerbside	629892	317484	NO2	No		1.5	No	3.0
BN41	BN41 High Street, Coltishall	Kerbside	626804	319855	NO2	No		5.0	No	2.5
BN42	BN42 Middletons Lane, Hellesdon	Roadside	621244	312899	NO2	No		2.0	No	3.0
BN43	BN43 56 Holt Road, Horsford	Roadside	619440	315682	NO2	No		1.5	No	2.5
BN44	BN44 Station Road, Reepham	Roadside	609926	322883	NO2	No		0.0	No	2.5
BN45	BN45 Red Lion Street, Aylsham	Kerbside	619349	326966	NO2	No		1.0	No	2.0
BN46	BN46 Norwich Road, Coltishall	Roadside	626776	319797	NO2	No		2.0	No	2.5
BN47	BN47 Plumstead Road East / Thunder Lane, Thorpe St Andrew	Suburban	626204	310046	NO2	No		14.0	No	2.0

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3) – South Norfolk

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT3	626798	302091	Suburban	100.0	100.0	12.6	13.4	13.3	12.1	11.6
DT4	611212	279623	Suburban	100.0	100.0	18.7	22.1	22.4	21.3	20.7
DT5	611936	279576	Suburban	91.7	90.5	19.5	21.9	21.5	19.0	19.2
DT7	619725	292748	Roadside	100.0	100.0	24.6	27.3	25.8	24.4	23.7
DT8	611107	301436	Kerbside	100.0	100.0	15.3	15.7	15.5	15.3	13.5
DT9	625451	306152	Kerbside	100.0	100.0	17.1	17.9	18.4	16.6	16.3
DT11	618138	305619	Rural	100.0	100.0	10.3	10.8	11.4	9.9	9.3
DT12	611533	300986	Suburban	100.0	100.0	17.2	18.8	18.7	17.1	15.3
DT15	624476	283267	Roadside	100.0	100.0	19.8	21.4	19.9	19.0	18.8
DT16	614893	278863	Roadside	100.0	100.0	14.0	14.5	14.6	13.6	13.2
DT17	616991	311546	Roadside	100.0	100.0	21.7	22.4	24.6	22.3	18.9
DT18	619714	292732	Roadside	100.0	100.0	18.0	20.4	20.0	18.9	17.4

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT19	619734	292751	Roadside	100.0	100.0	23.3	24.4	24.3	22.8	21.5
DT20	619643	292348	Suburban	100.0	100.0	19.6	21.0	21.8	21.1	18.2
DT21	619696	292656	Suburban	100.0	100.0	21.1	23.4	21.6	20.2	18.6
DT22	619711	292720	Roadside	100.0	100.0	15.0	15.5	16.1	15.1	14.4
DT24	611325	301191	Suburban	100.0	100.0	11.1	12.9	13.7	13.2	11.1
DT25	619824	293031	Roadside	100.0	100.0	19.8	21.2	21.1	19.8	19.0
DT29	624625	283496	Suburban	100.0	100.0	21.8	27.6	23.6	22.3	23.2
DT30	611785	279593	Roadside	100.0	100.0	15.8	19.4	17.6	15.8	13.8
DT32	636167	298802	Roadside	100.0	100.0					12.4
DT33	612543	302678	Roadside	91.7	92.4					18.4
DT34	619278	305655	Surburban	100.0	100.0					13.2
DT35	619730	305855	Roadside	91.7	90.5					12.4
DT36	616842	310368	Kerbside	100.0	100.0					20.2

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT37	616813	310415	Suburban	100.0	100.0					14.1
DT38	617193	311669	Roadside	100.0	100.0					11.8

☒ **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 µg/m^3.

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

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

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.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 NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3) – Broadland

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 2024 (%) (2)	2020	2021	2022	2023	2024
BN10	625369	308437	Roadside	100	100.0	16.5	19.3	18.4	18.9	17.9
BN11	621649	311632	Suburban	100	100.0	21.0	25.0	23.7	20.1	20.1
BN12	621697	311569	Suburban	100.0	100.0	19.7	21.6	20.7	17.7	17.3
BN13	621814	311640	Suburban	100	100.0	15.8	18.8	17.7	15.7	15.8
BN15	630113	318014	Roadside	100.0	100.0	14.3	15.7	17.3	14.7	13.8
BN18	620186	311833	Roadside	100.0	100.0	12.4	14.1	13.5	13.6	12.2
BN19	627492	308775	Suburban	100.0	100.0	16.7	19.0	18.6	18.1	16.9
BN20	640165	310353	Kerbside	100.0	100.0	15.5	16.9	16.8	16.4	16.7
BN24	621466	312666	Suburban	100.0	100.0	12.2	13.8	13.0	12.1	11.9
BN27	625505	312473	Suburban	83.3	83.6	19.5	20.4	21.2	21.7	19.2
BN29	613458	323917	Roadside	100.0	100.0	12.5	14.5	13.9	12.2	11.8
BN30	626169	311059	Roadside	91.7	92.5	15.2	16.7	17.4	18.0	17.1

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 2024 (%) (2)	2020	2021	2022	2023	2024
BN31	623259	311310	Roadside	100.0	100.0	24.0	28.4	26.2	23.9	23.7
BN33	637750	309866	Roadside	100.0	100.0	14.7	17.5	16.1	13.9	13.0
BN34	621712	311698	Kerbside	100.0	100.0	25.4	30.0	29.0	24.5	26.1
BN35	620206	311723	Suburban	100.0	100.0	14.3	19.0	15.9	15.7	14.3
BN36	629892	317484	Kerbside	100.0	100.0	17.8	21.5	20.6	18.2	18.6
BN41	626804	319855	Kerbside	100.0	100.0				15.2	15.2
BN42	621244	312899	Roadside	100.0	100.0					19.5
BN43	619440	315682	Roadside	83.3	80.4					16.0
BN44	609926	322883	Roadside	100.0	100.0					17.0
BN45	619349	326966	Kerbside	91.7	91.4					14.4
BN46	626776	319797	Roadside	100.0	100.0					16.3
BN47	626204	310046	Suburban	100.0	100.0					10.7

☒ **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 µg/m^3.

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

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

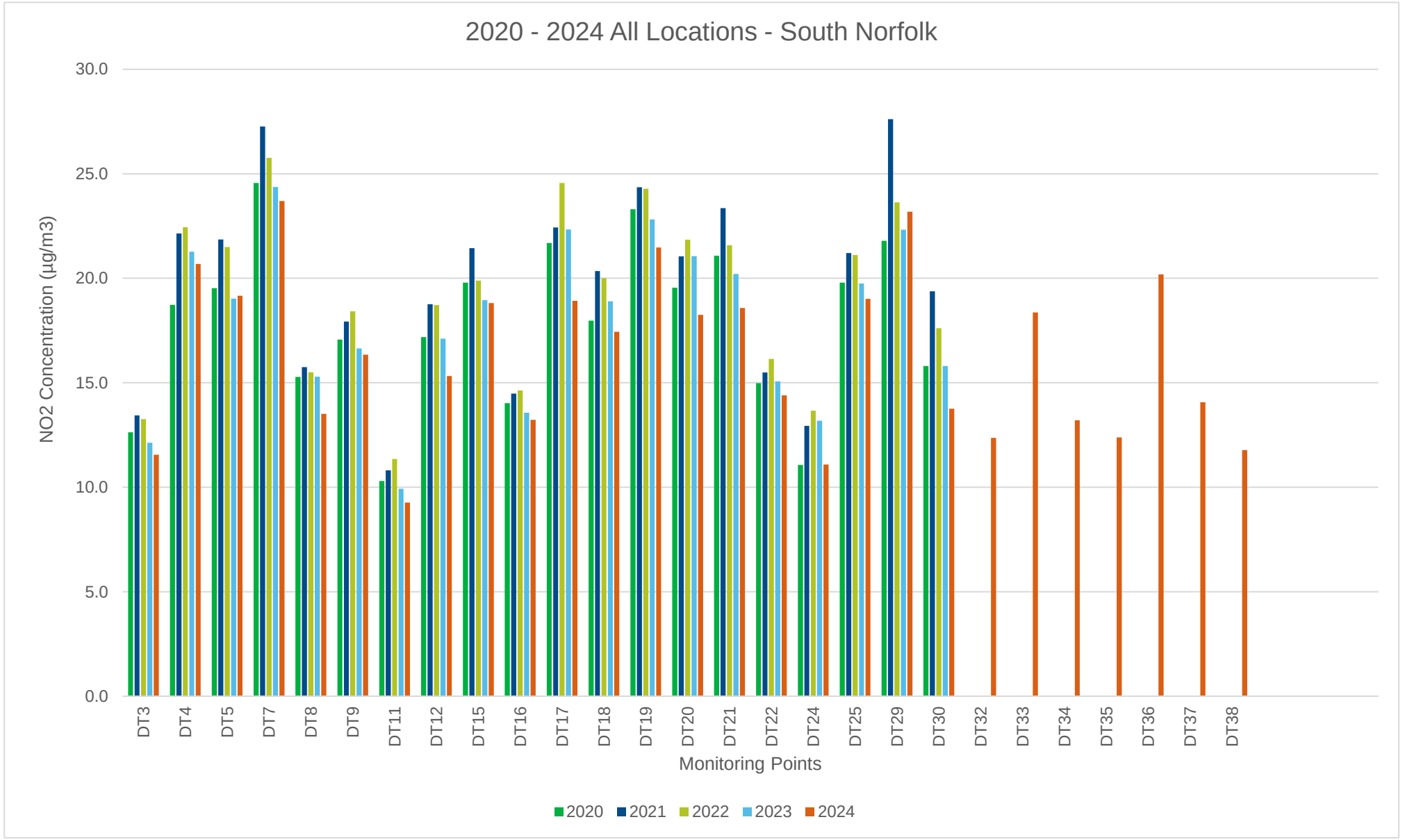
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

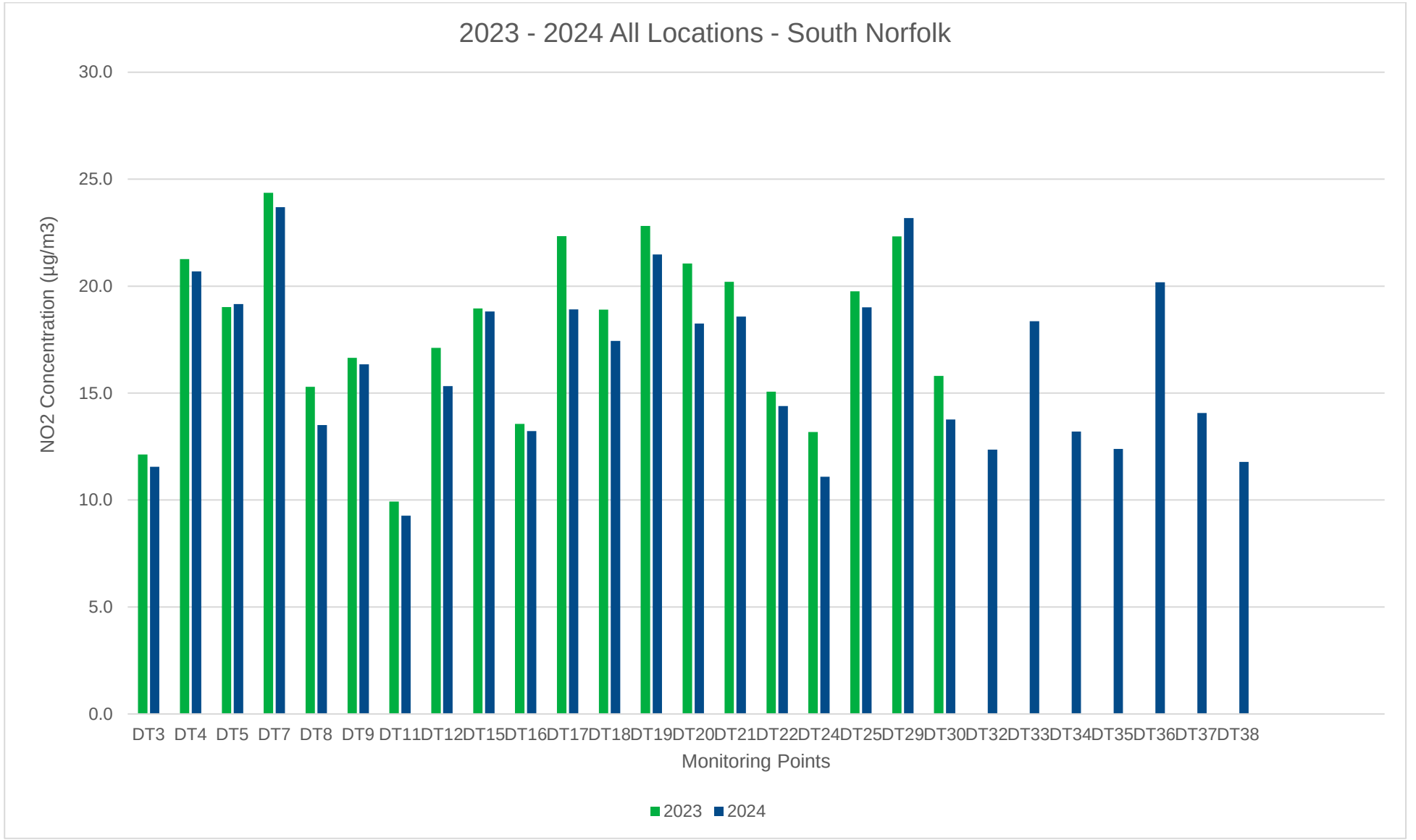
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

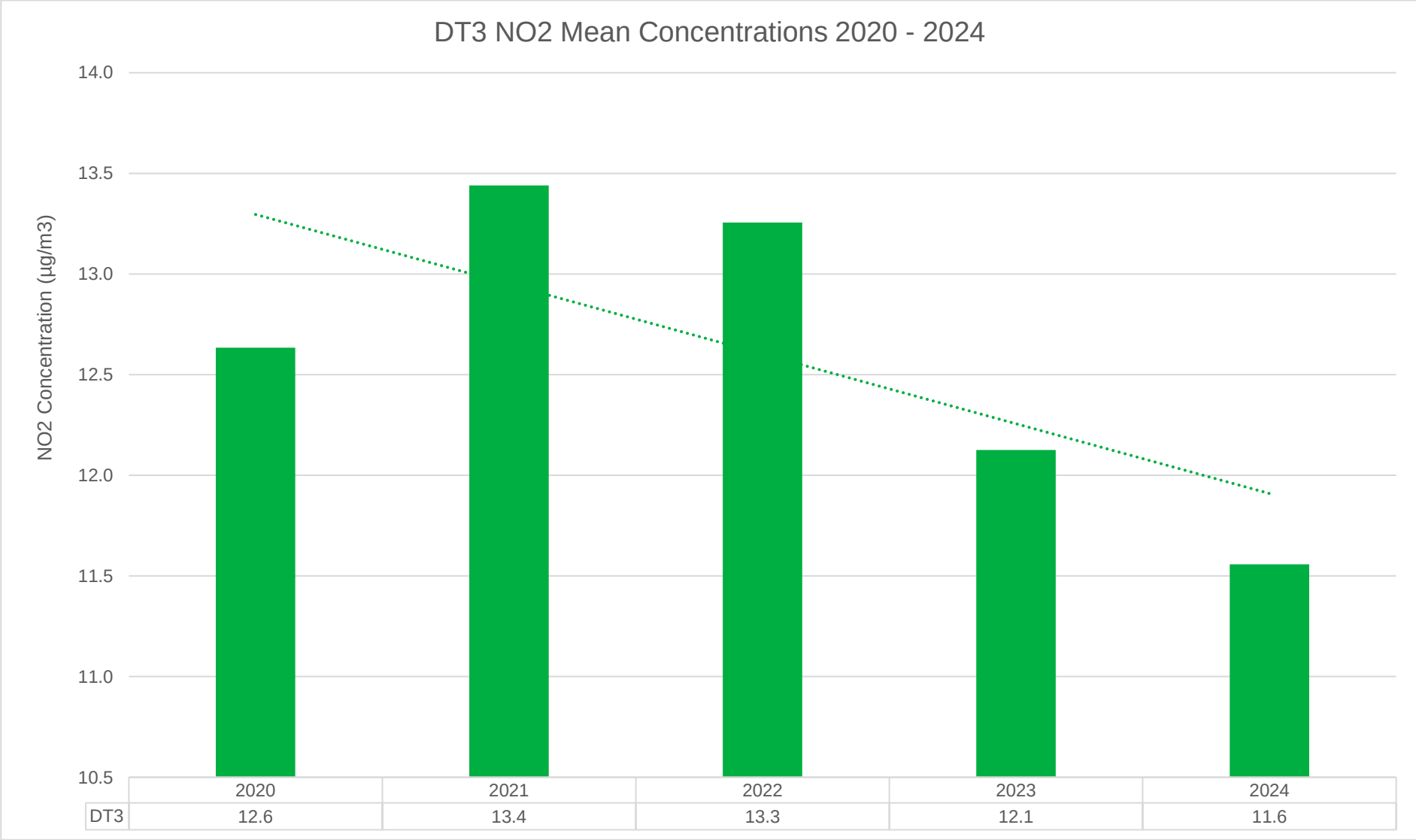
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

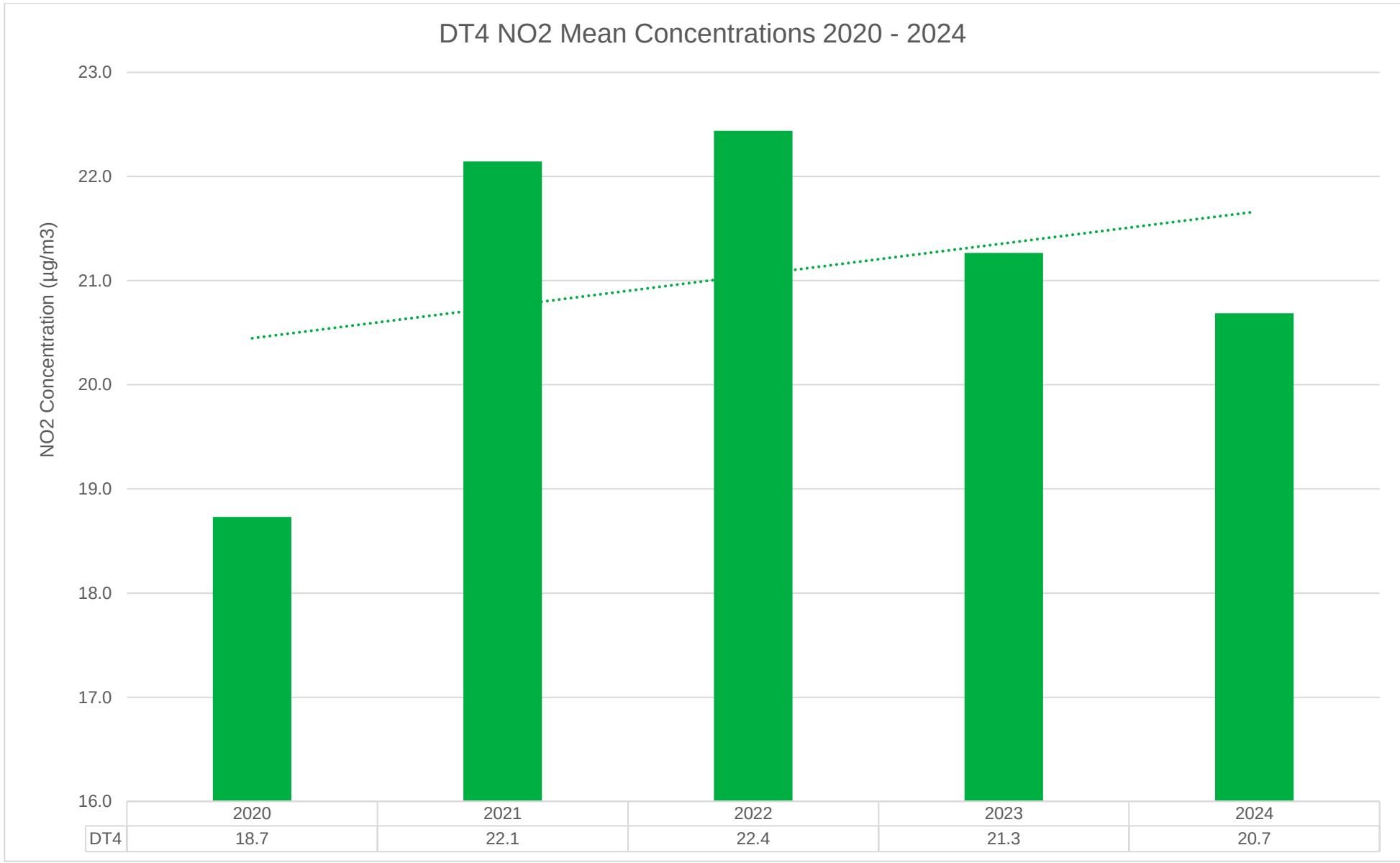
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

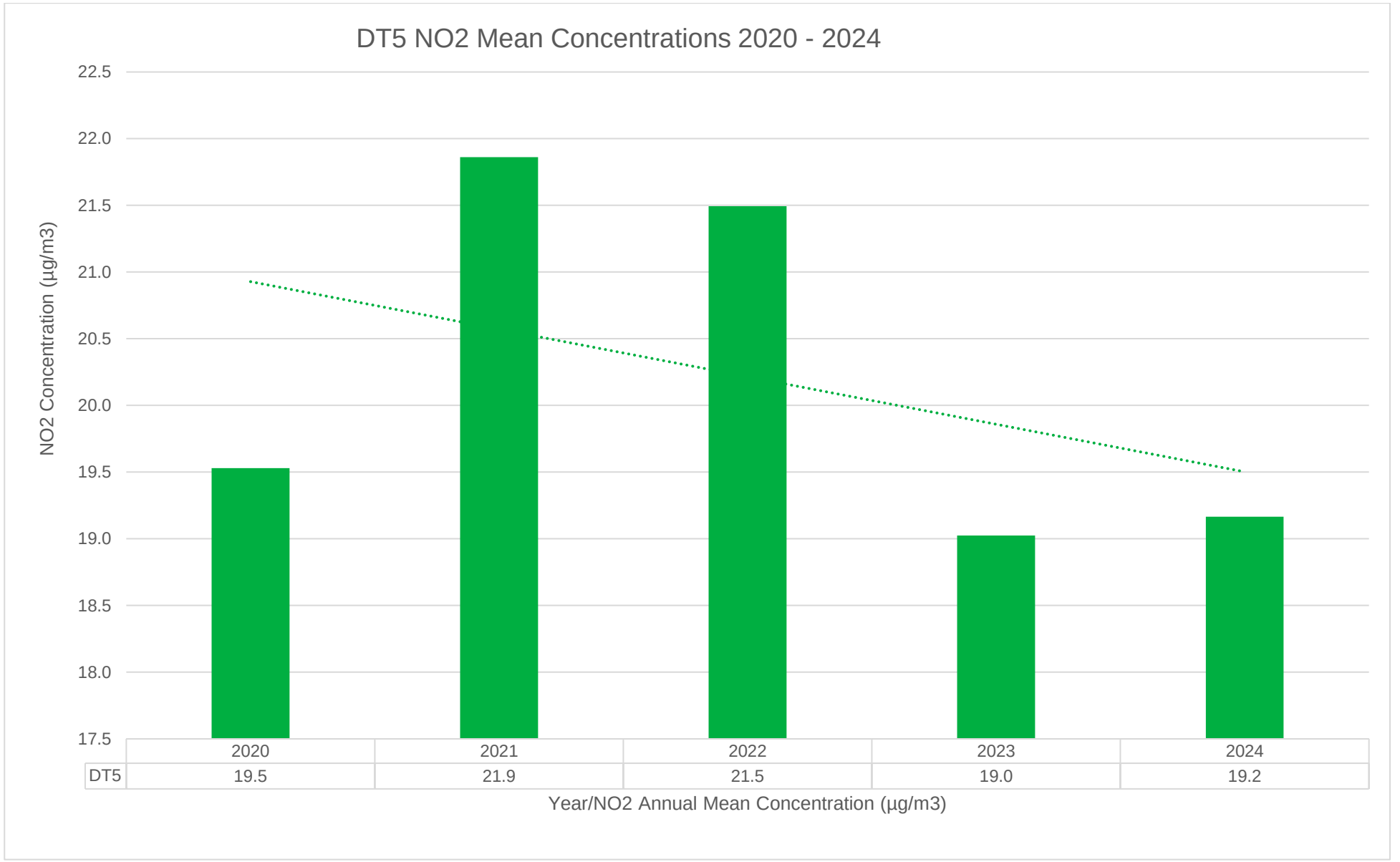
Figure A.1 – Trends in Annual Mean NO_2 Concentrations – South Norfolk

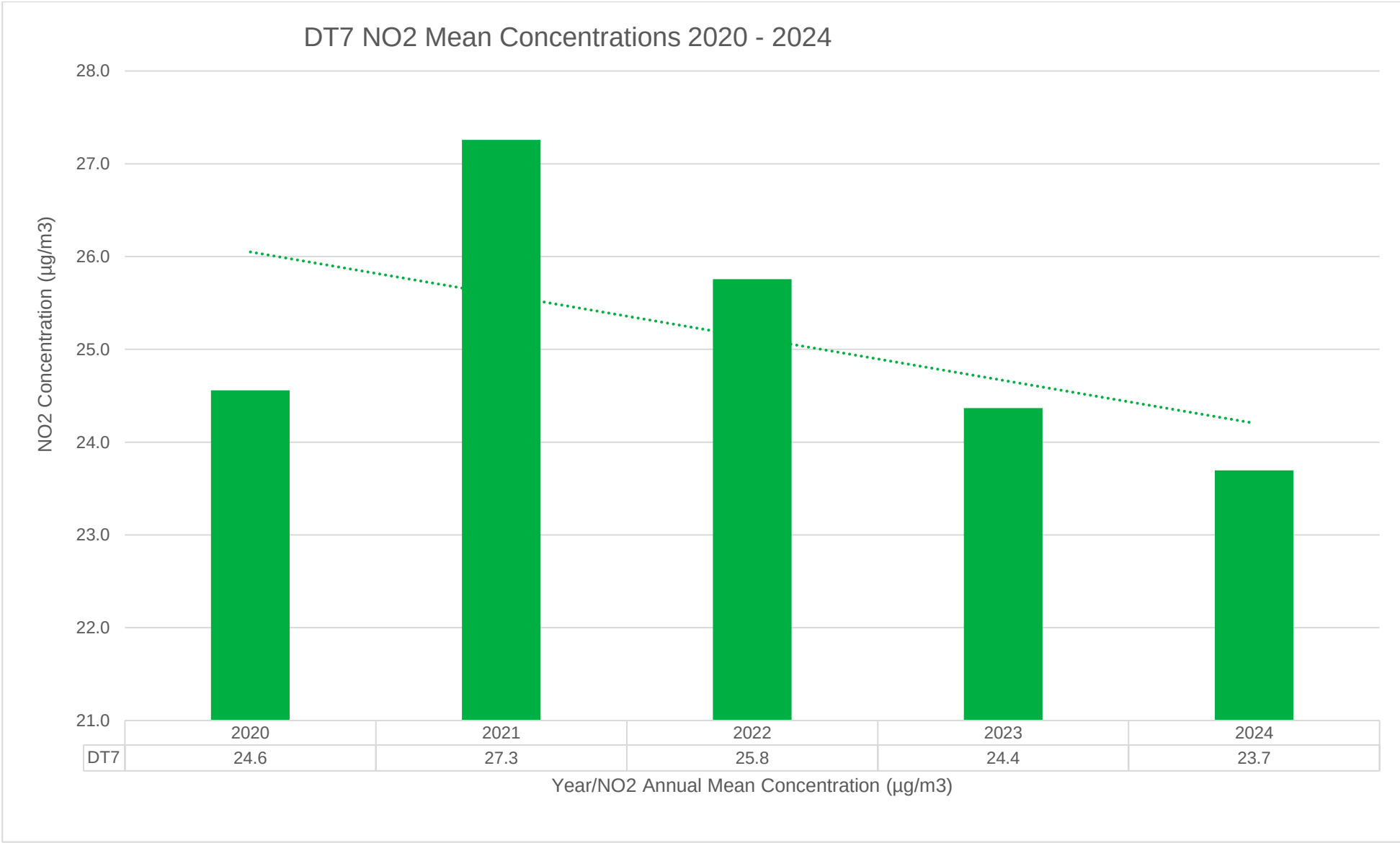


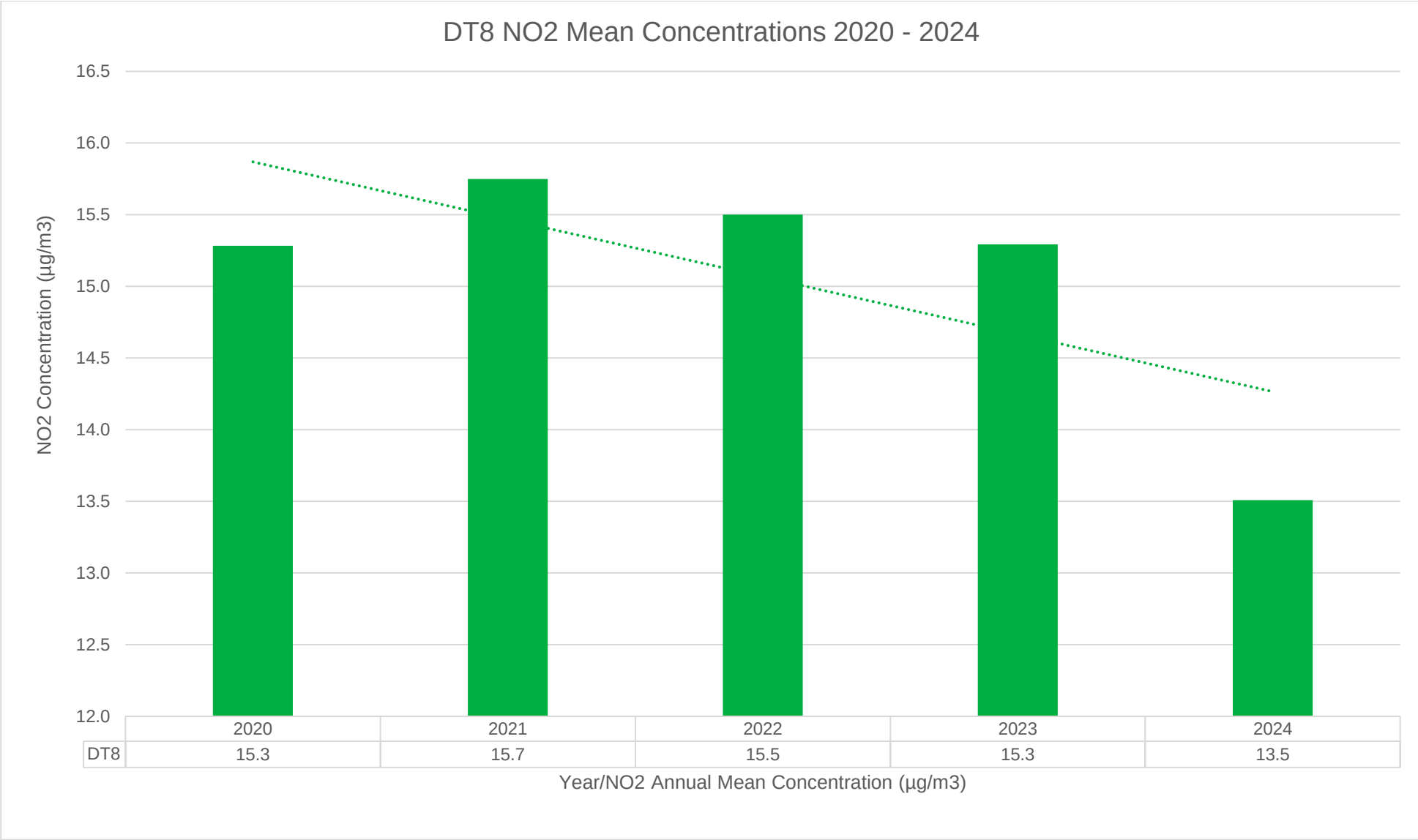

2023 - 2024 All Locations - South Norfolk
30.0
25.0
20.0
15.0
10.0
5.0
0.0
NO2 Concentration (µg/m3)
DT3 DT4 DT5 DT7 DT8 DT9 DT11 DT12 DT15 DT16 DT17 DT18 DT19 DT20 DT21 DT22 DT24 DT25 DT29 DT30 DT32 DT33 DT34 DT35 DT36 DT37 DT38
Monitoring Points
2023
2024

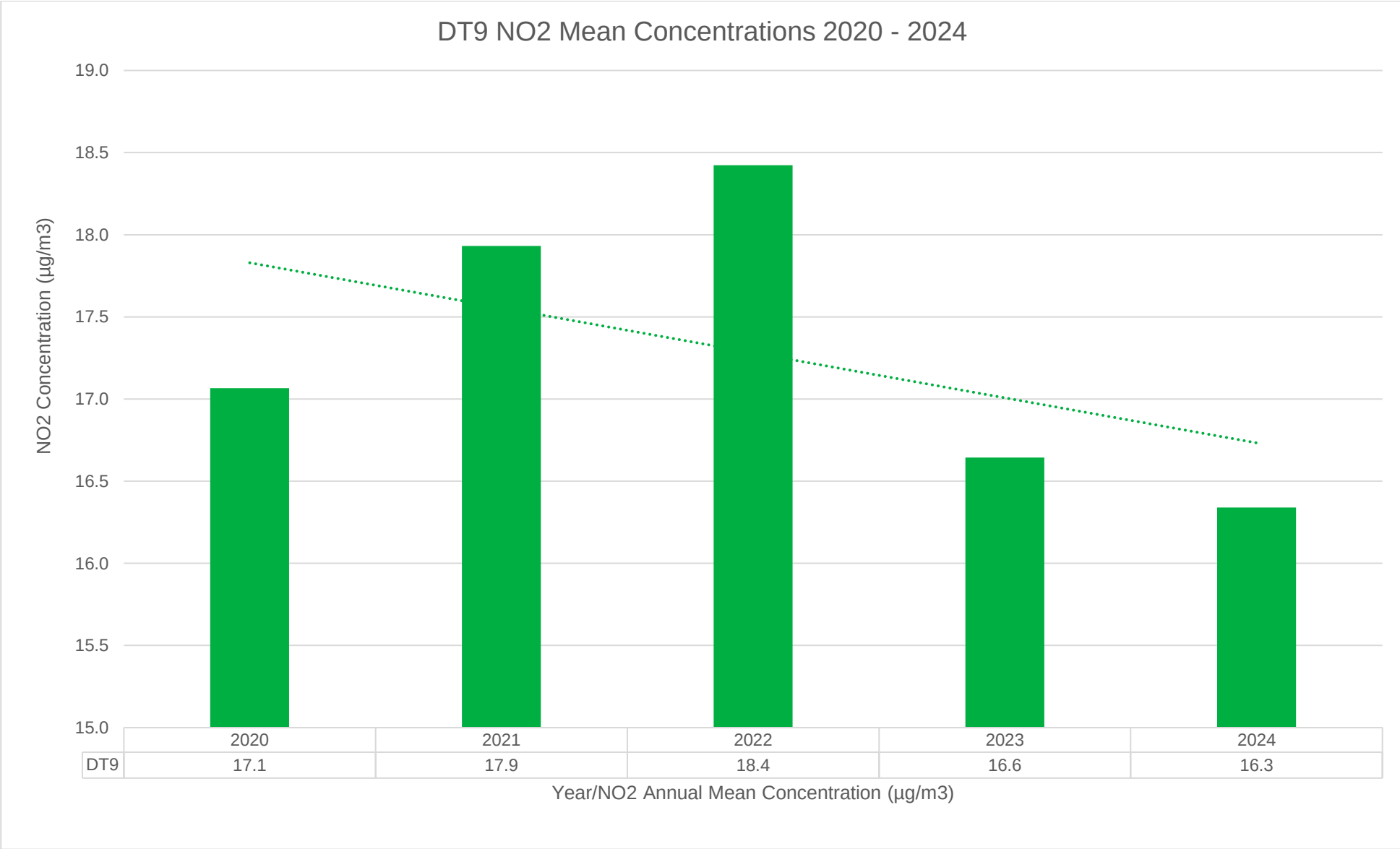

DT3 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
2020
2021
2022
2023
2024
DT3
12.6
13.4
13.3
12.1
11.6

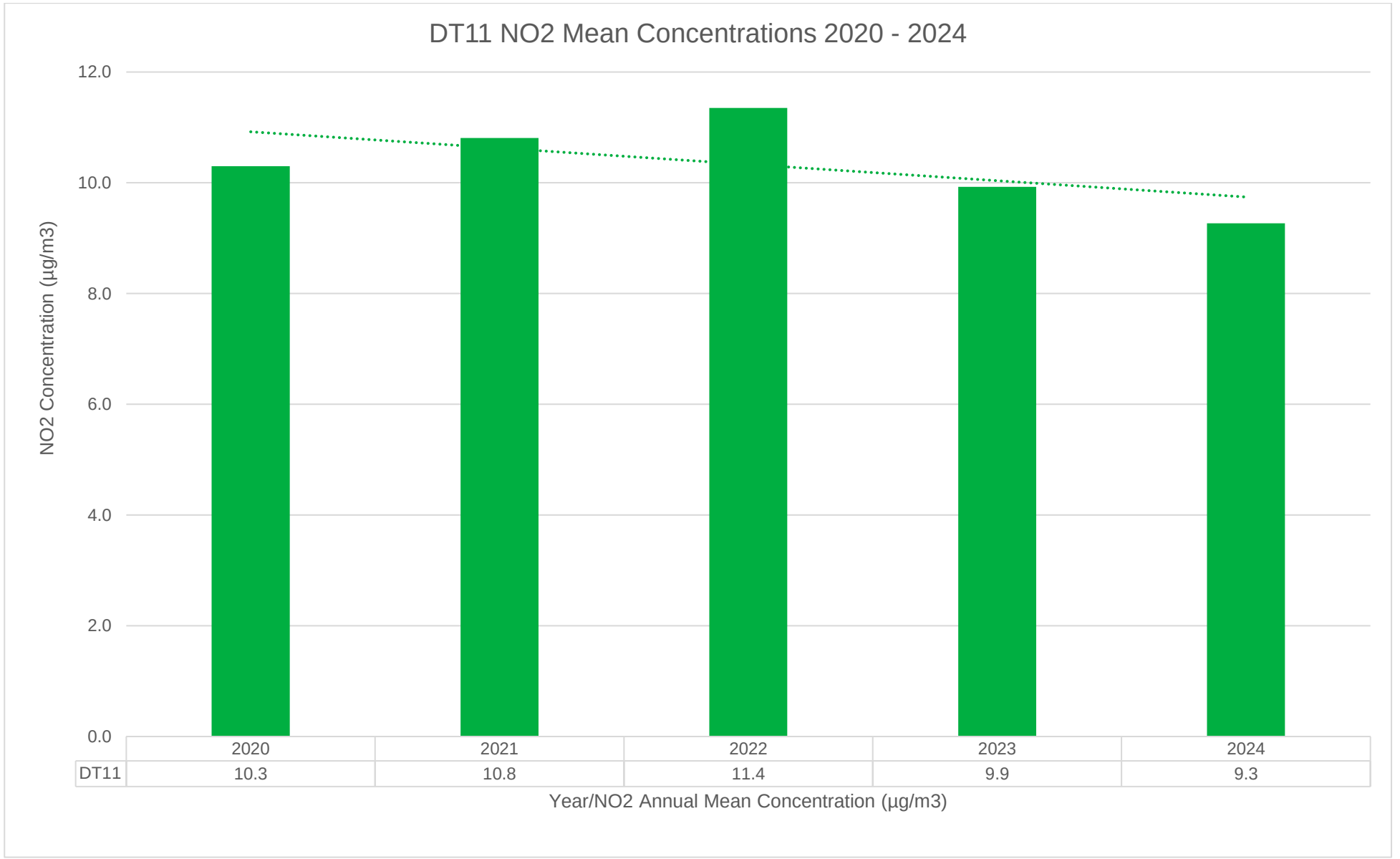

DT4 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
2020
2021
2022
2023
2024
DT4
18.7
22.1
22.4
21.3
20.7

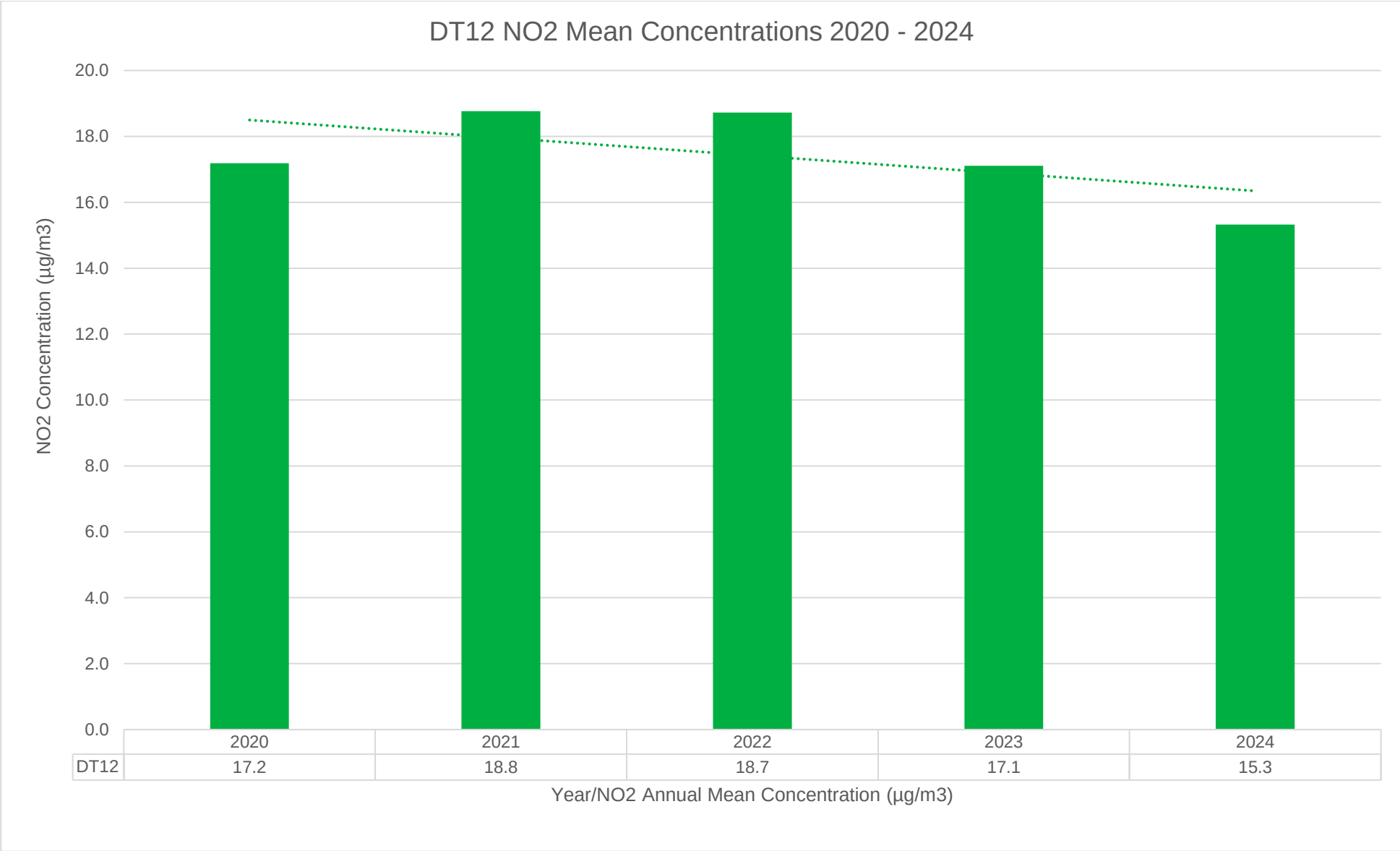

DT5 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
22.5
22.0
21.5
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
2020
2021
2022
2023
2024
DT5
19.5
21.9
21.5
19.0
19.2
Year/NO2 Annual Mean Concentration (µg/m3)

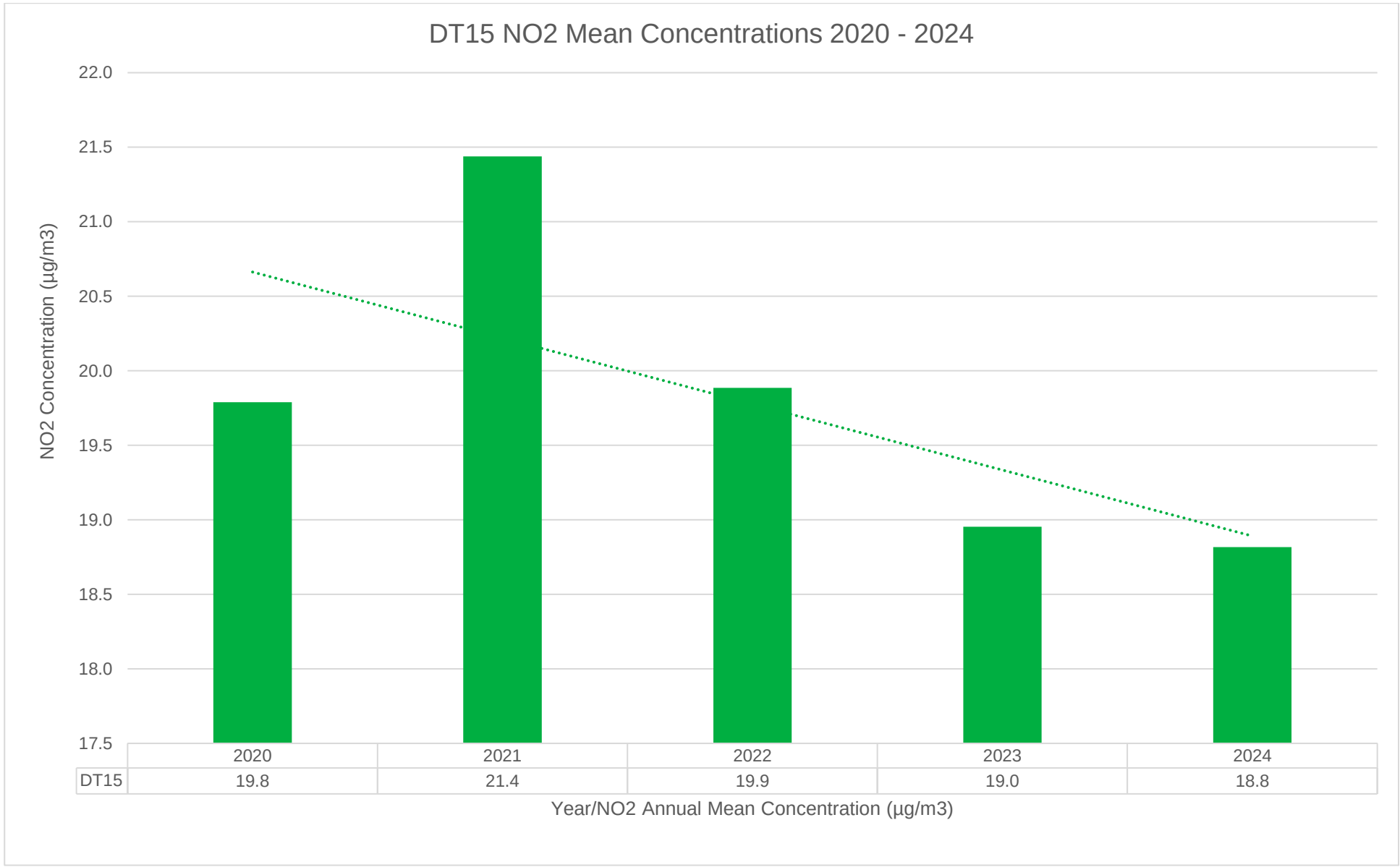

DT7 NO2 Mean Concentrations 2020 - 2024
28.0
27.0
26.0
25.0
24.0
23.0
22.0
21.0
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT7
24.6
27.3
25.8
24.4
23.7
Year/NO2 Annual Mean Concentration (µg/m3)

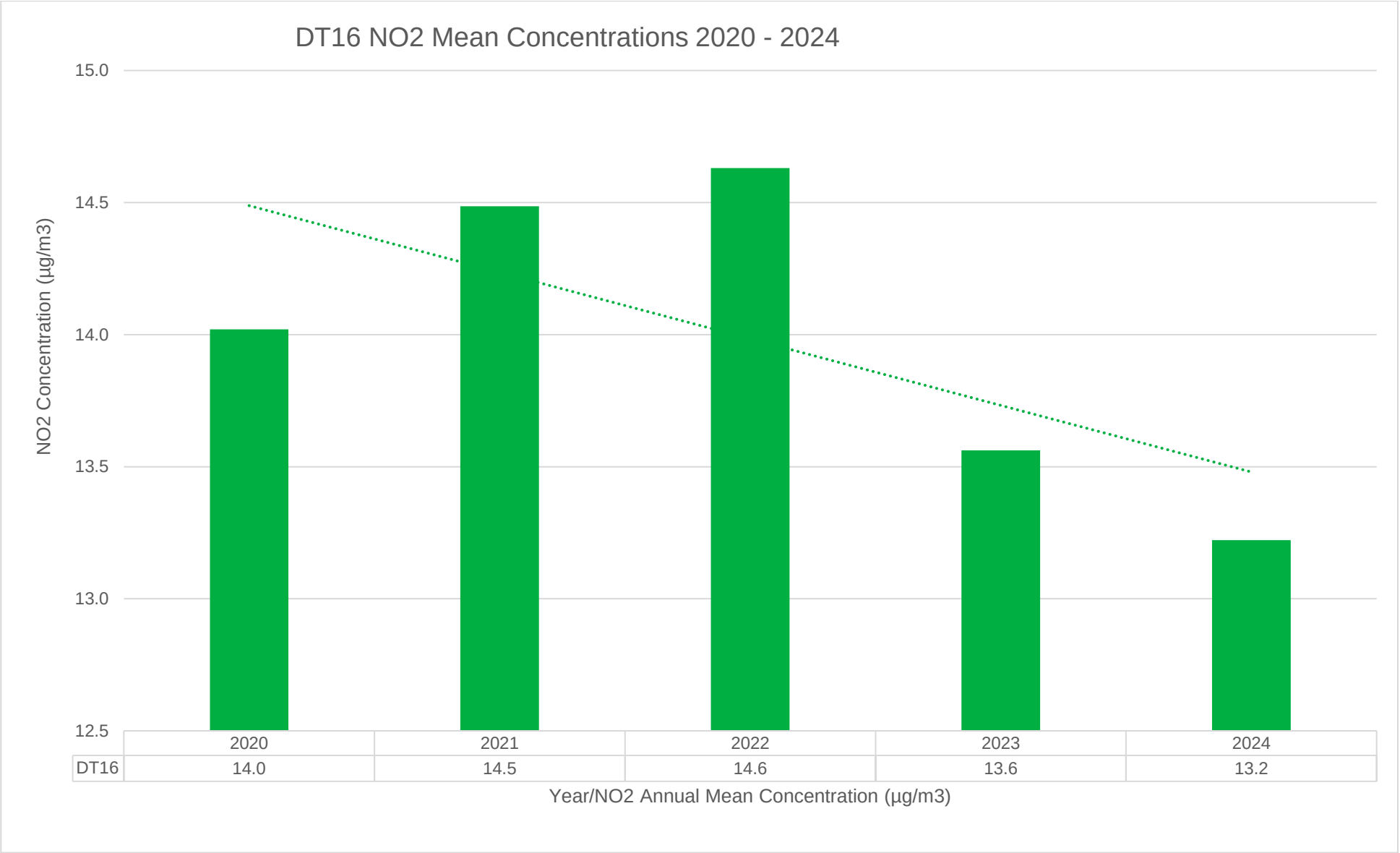

DT8 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
16.5
16.0
15.5
15.0
14.5
14.0
13.5
13.0
12.5
12.0
2020
2021
2022
2023
2024
DT8
15.3
15.7
15.5
15.3
13.5
Year/NO2 Annual Mean Concentration (µg/m3)


DT9 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
2020
2021
2022
2023
2024
DT9
17.1
17.9
18.4
16.6
16.3
Year/NO2 Annual Mean Concentration (µg/m3)

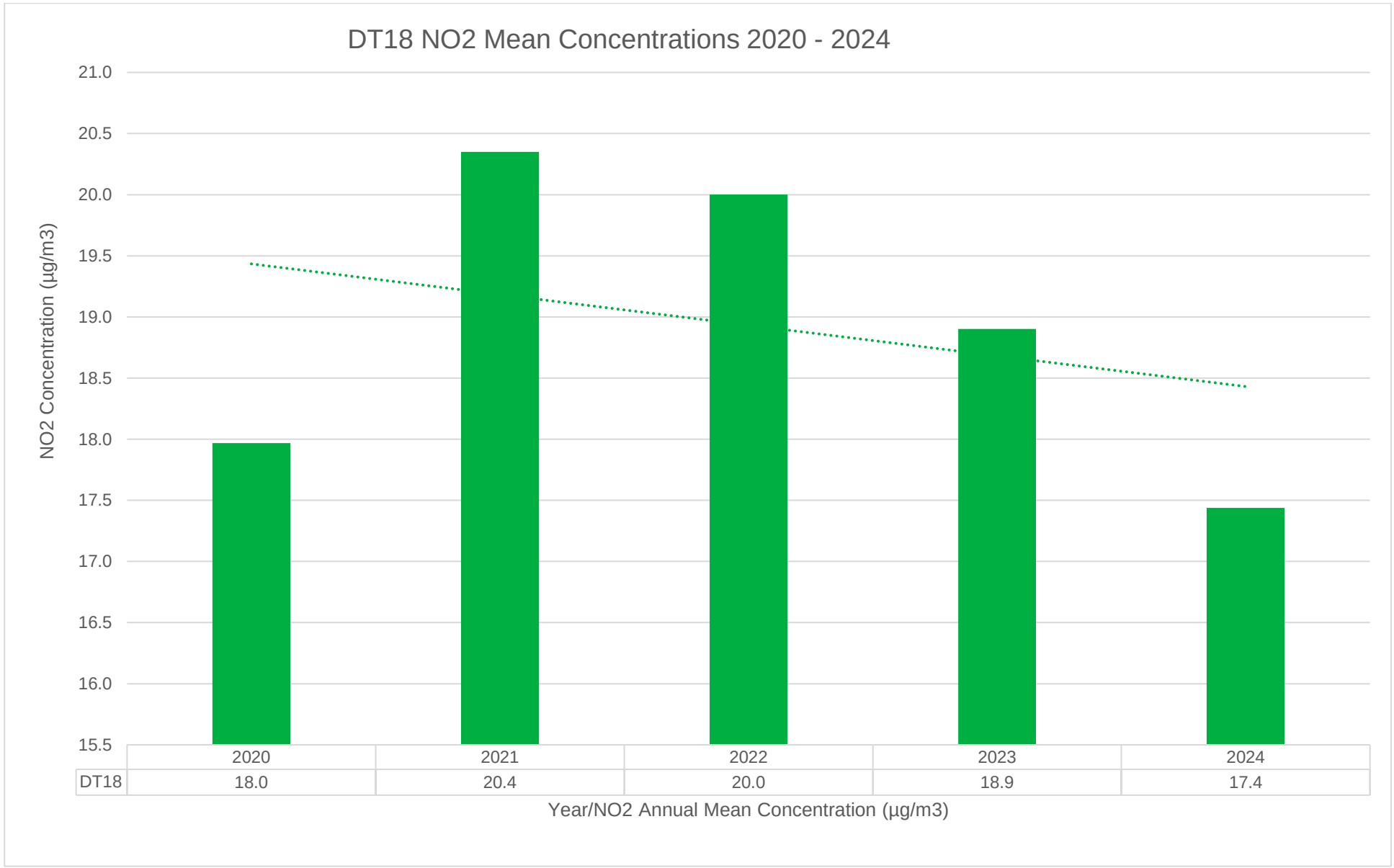

DT11 NO2 Mean Concentrations 2020 - 2024
12.0
10.0
8.0
6.0
4.0
2.0
0.0
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT11
10.3
10.8
11.4
9.9
9.3
Year/NO2 Annual Mean Concentration (µg/m3)

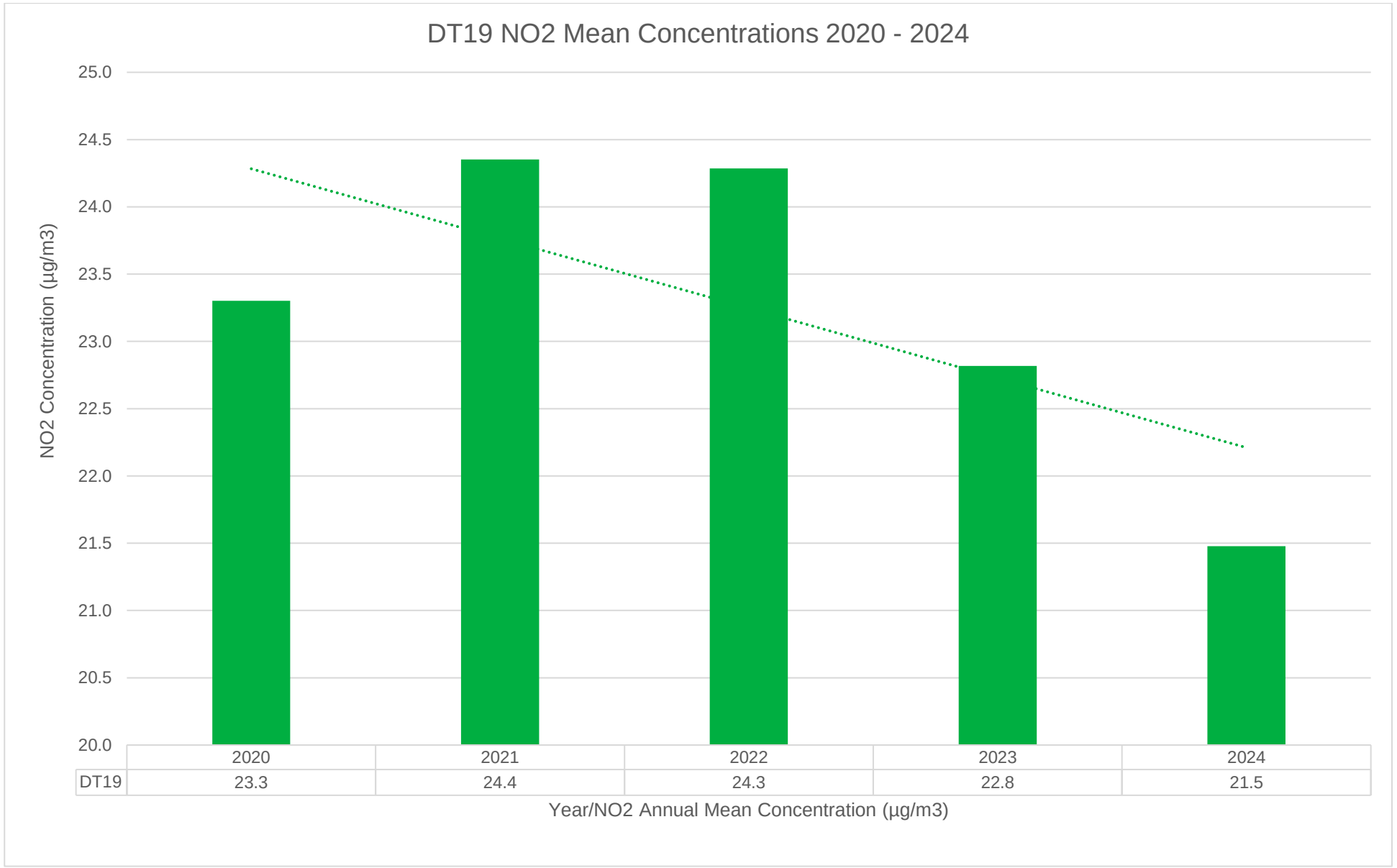

DT12 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2020
2021
2022
2023
2024
DT12
17.2
18.8
18.7
17.1
15.3
Year/NO2 Annual Mean Concentration (µg/m3)

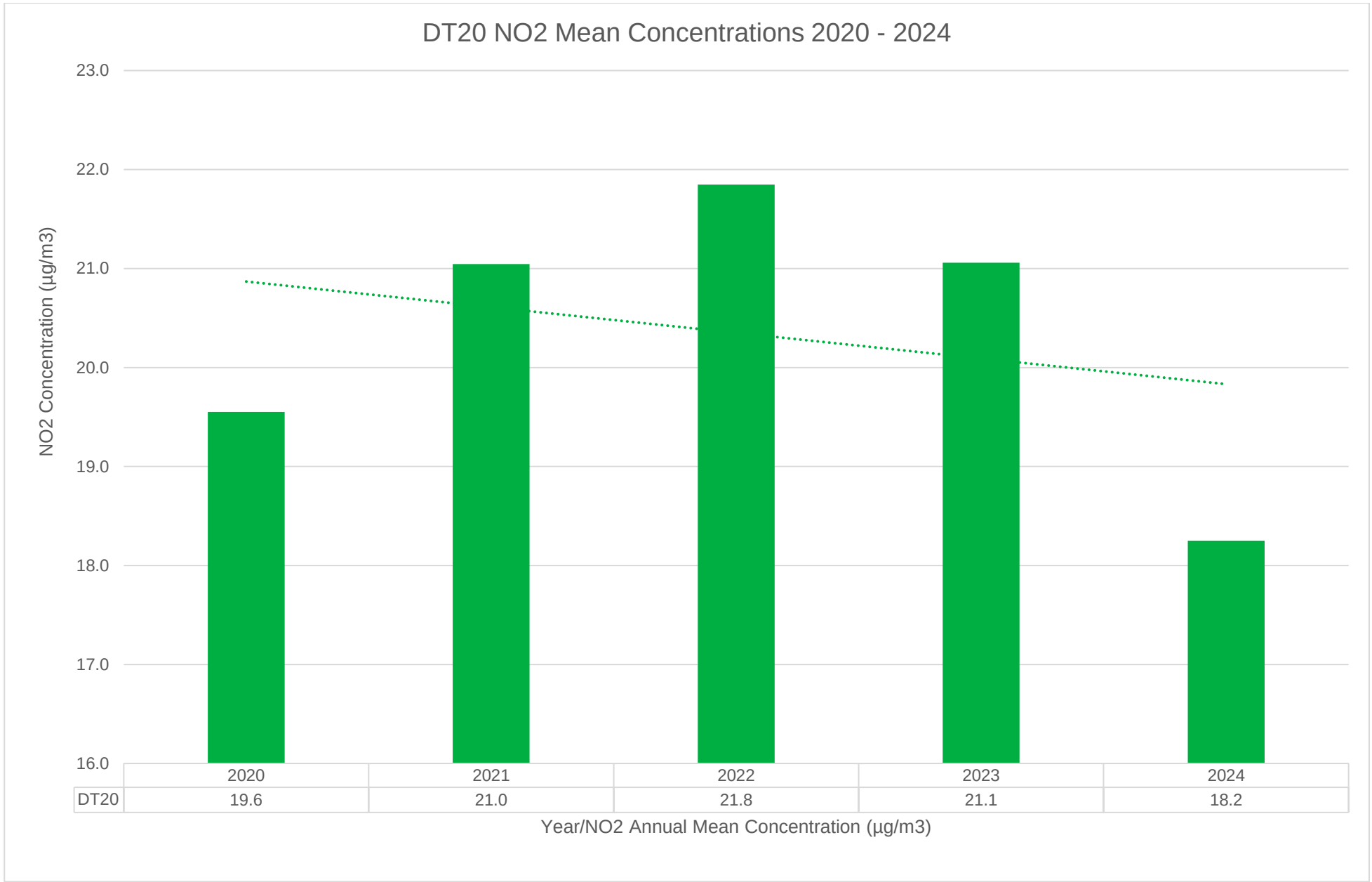

DT15 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
22.0
21.5
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
2020
2021
2022
2023
2024
DT15
19.8
21.4
19.9
19.0
18.8
Year/NO2 Annual Mean Concentration (µg/m3)

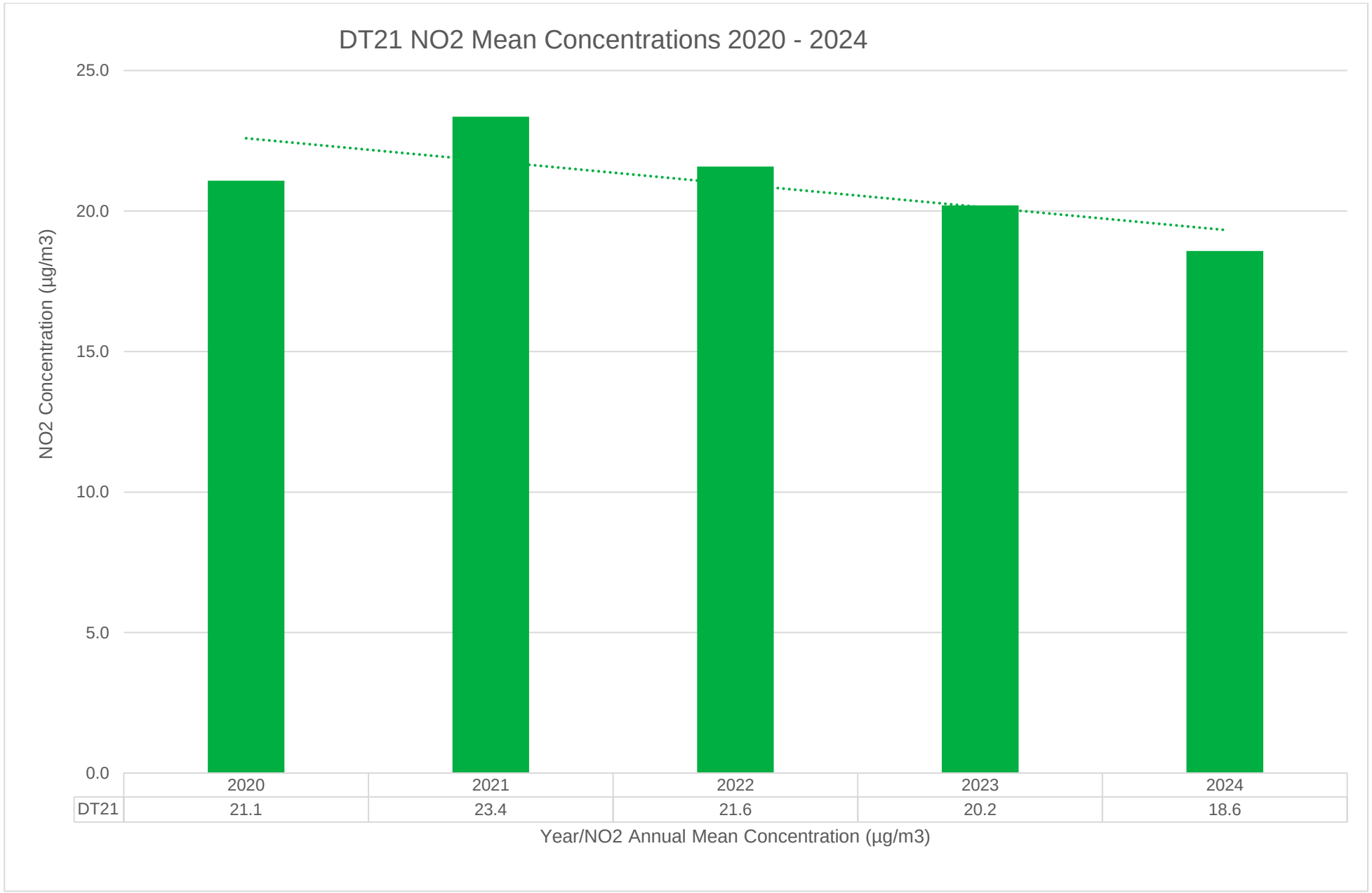

DT16 NO2 Mean Concentrations 2020 - 2024
15.0
14.5
14.0
13.5
13.0
12.5
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT16
14.0
14.5
14.6
13.6
13.2
Year/NO2 Annual Mean Concentration (µg/m3)

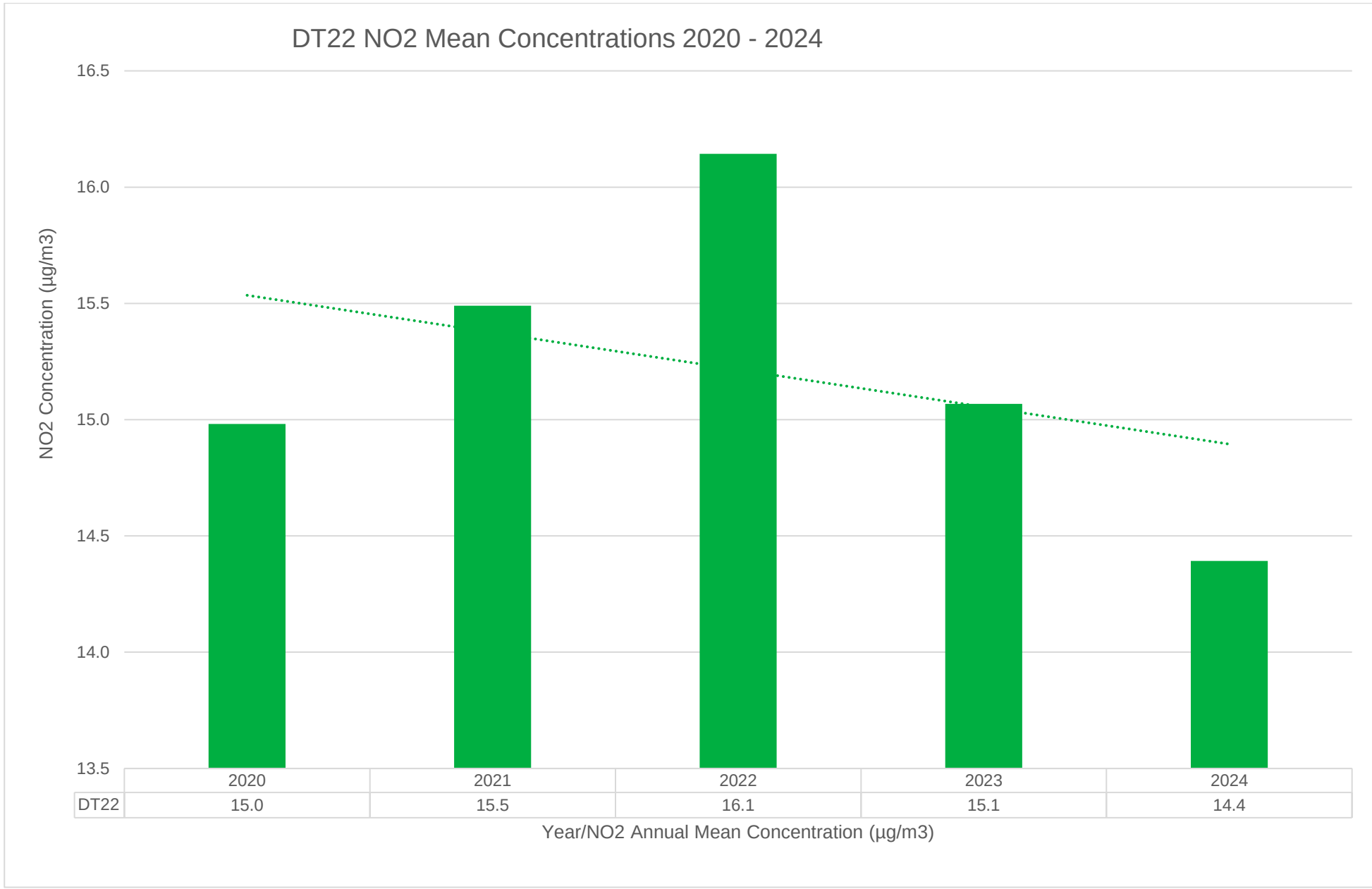
DT17 NO2 Mean Concentrations 2020 - 2024
30.0
25.0
20.0
15.0
10.0
5.0
0.0
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT17
21.7
22.4
24.6
22.3
18.9
Year/NO2 Annual Mean Concentration (µg/m3)

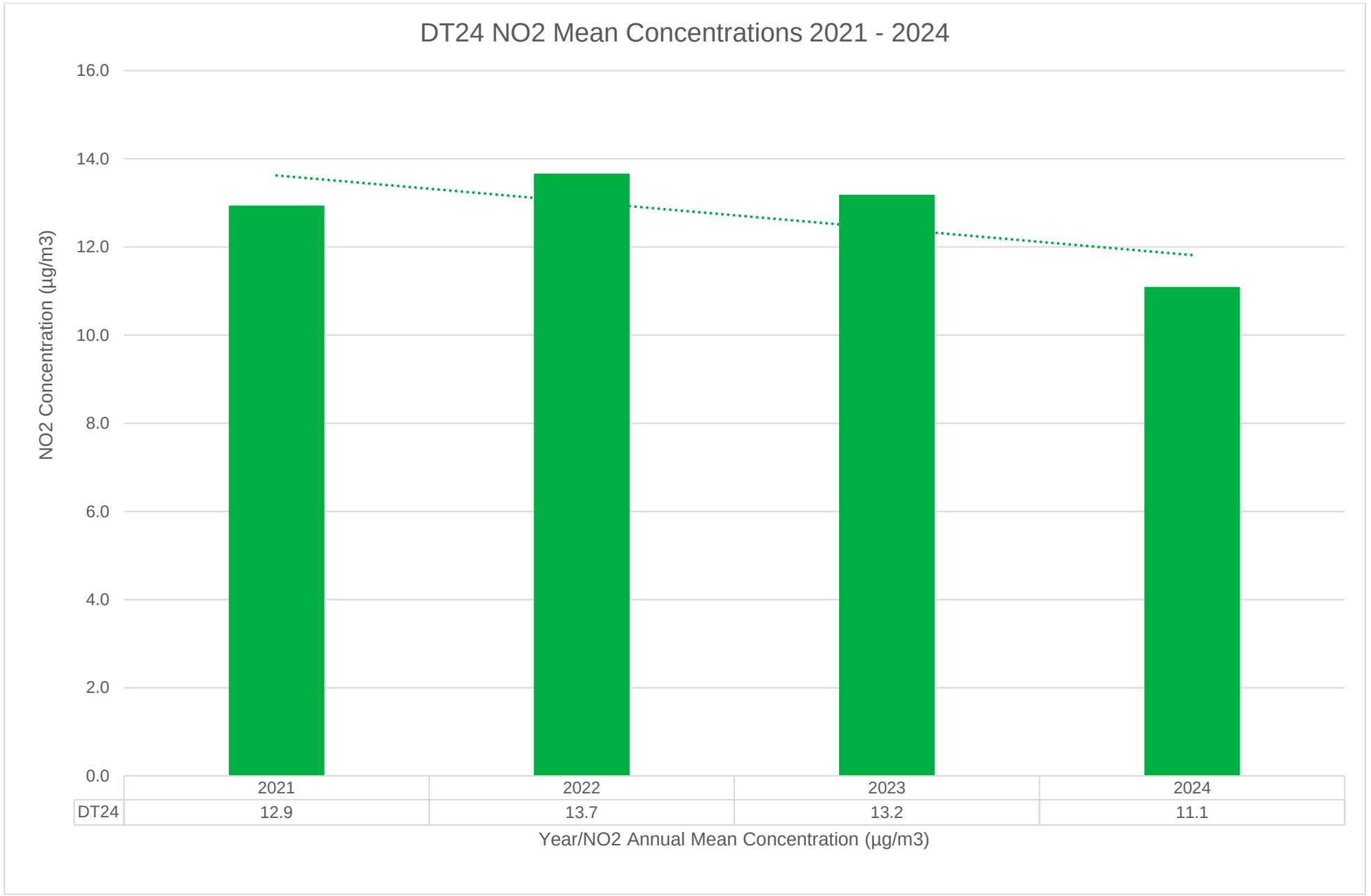

DT18 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
2020
2021
2022
2023
2024
DT18
18.0
20.4
20.0
18.9
17.4
Year/NO2 Annual Mean Concentration (µg/m3)

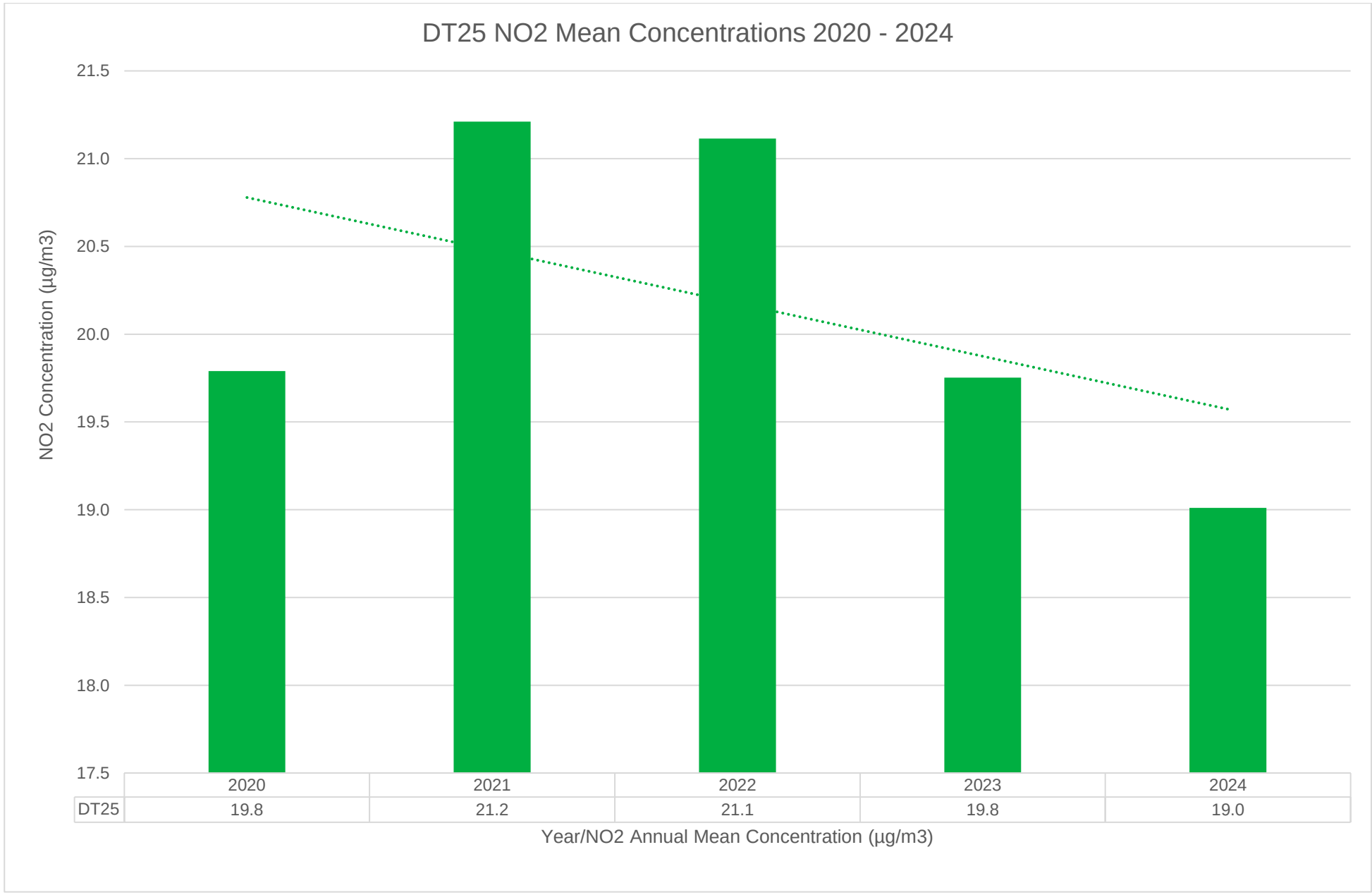

DT19 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
25.0
24.5
24.0
23.5
23.0
22.5
22.0
21.5
21.0
20.5
20.0
2020
2021
2022
2023
2024
DT19
23.3
24.4
24.3
22.8
21.5
Year/NO2 Annual Mean Concentration (µg/m3)

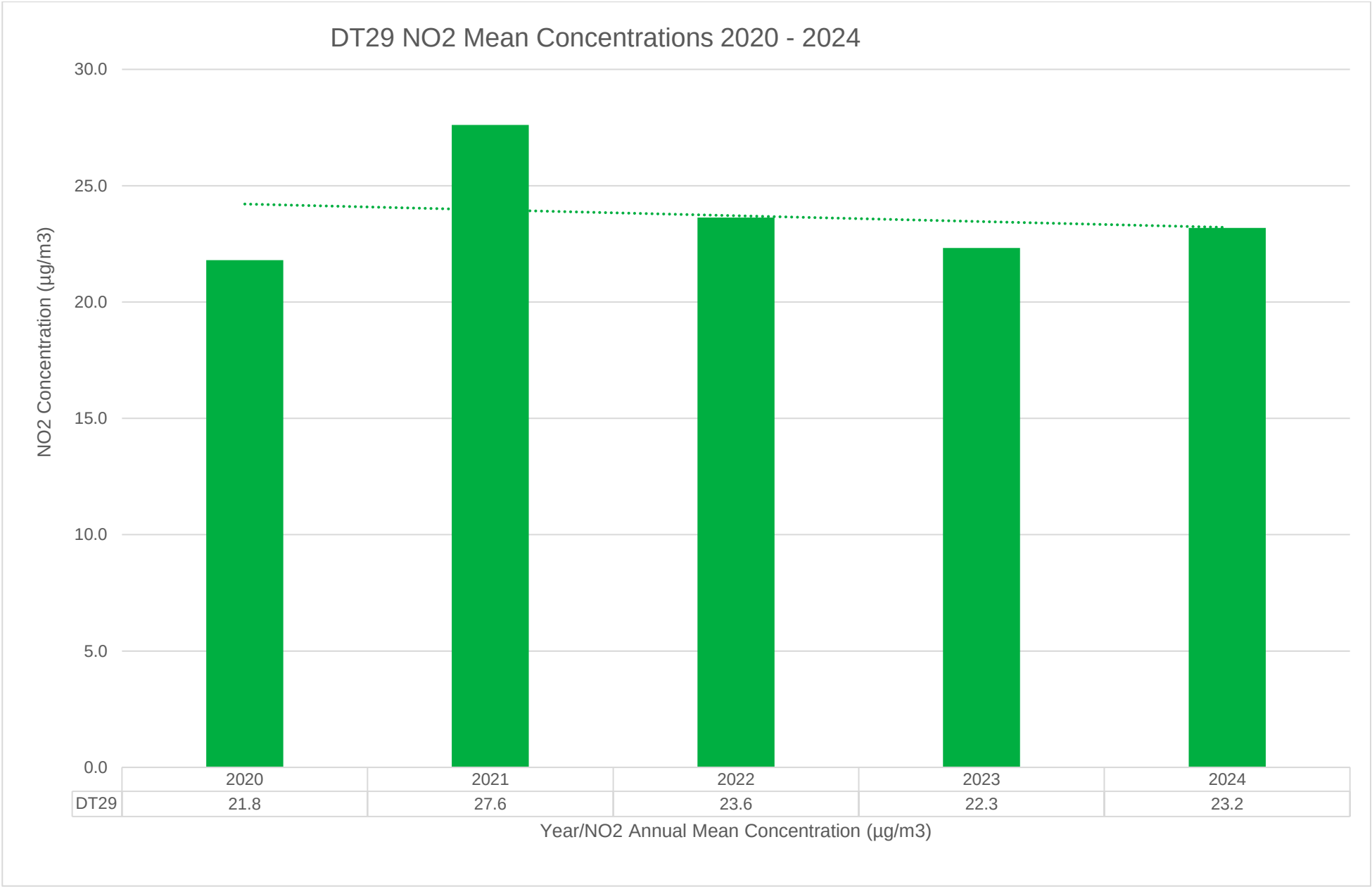

DT20 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
2020
2021
2022
2023
2024
DT20
19.6
21.0
21.8
21.1
18.2
Year/NO2 Annual Mean Concentration (µg/m3)

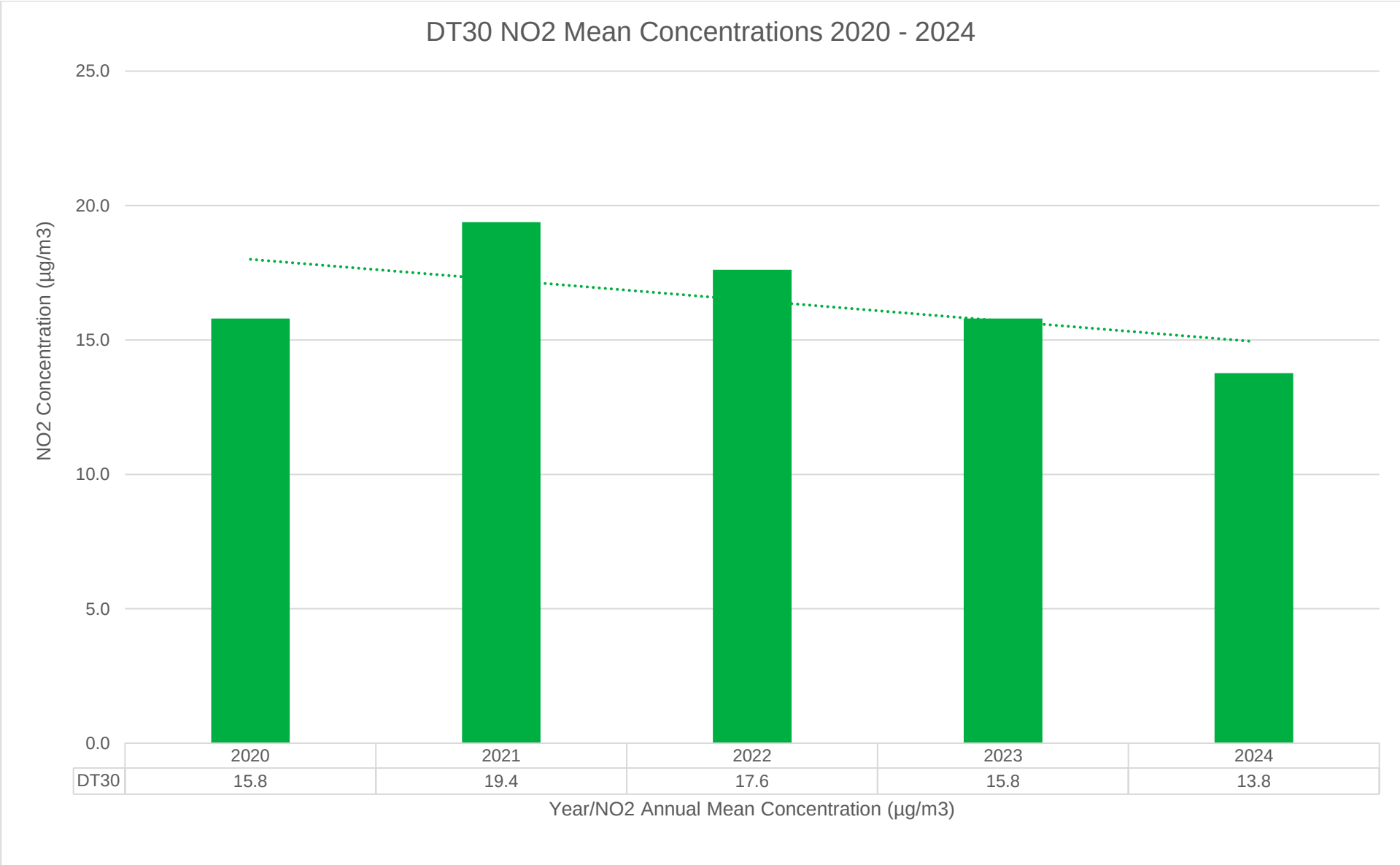

DT21 NO2 Mean Concentrations 2020 - 2024
25.0
20.0
15.0
10.0
5.0
0.0
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT21
21.1
23.4
21.6
20.2
18.6
Year/NO2 Annual Mean Concentration (µg/m3)


DT22 NO2 Mean Concentrations 2020 - 2024
16.5
16.0
15.5
15.0
14.5
14.0
13.5
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT22
15.0
15.5
16.1
15.1
14.4
Year/NO2 Annual Mean Concentration (µg/m3)


DT24 NO2 Mean Concentrations 2021 - 2024
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
NO2 Concentration (µg/m3)
2021
2022
2023
2024
DT24
12.9
13.7
13.2
11.1
Year/NO2 Annual Mean Concentration (µg/m3)

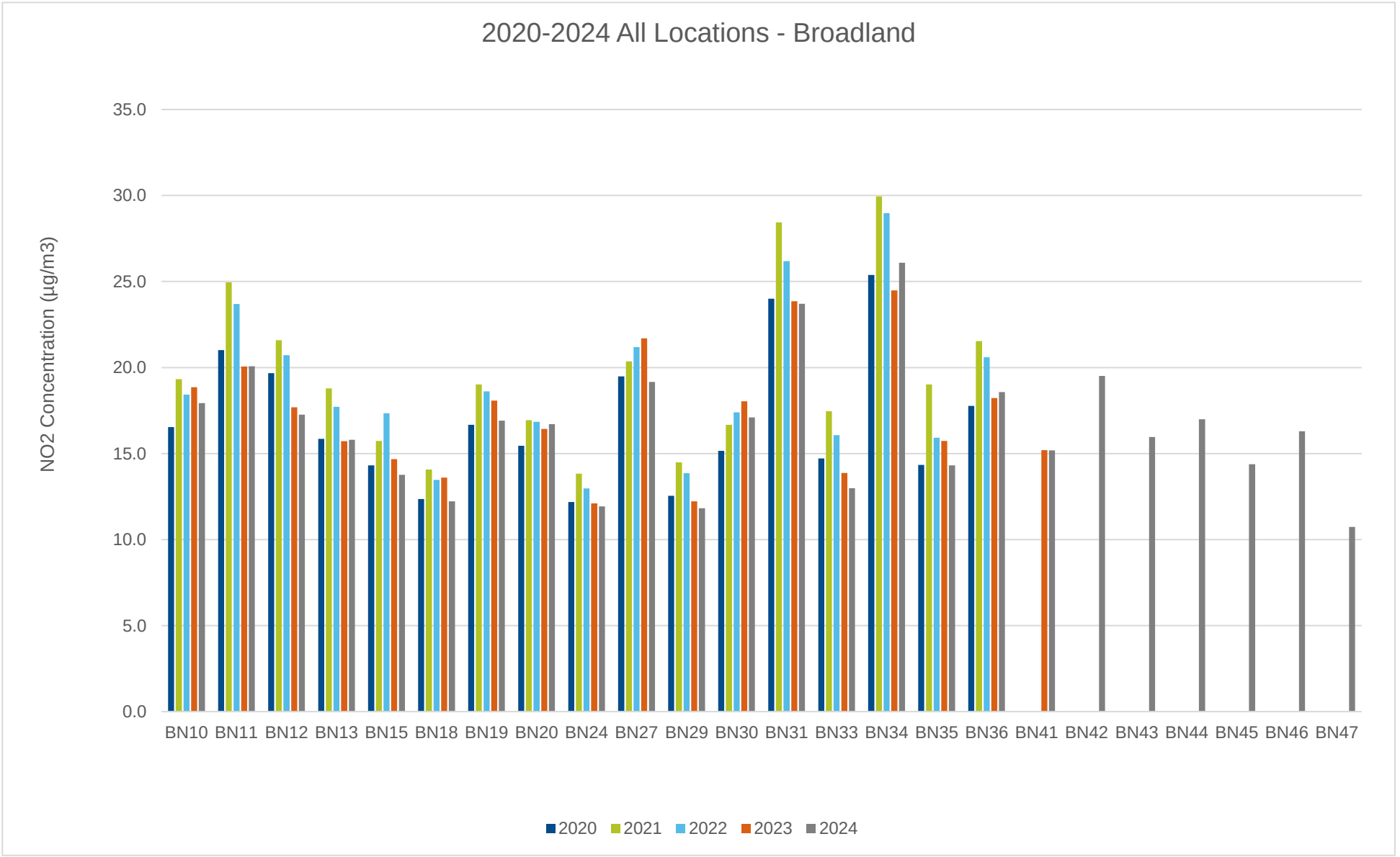

DT25 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
21.5
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
2020
2021
2022
2023
2024
DT25
19.8
21.2
21.1
19.8
19.0
Year/NO2 Annual Mean Concentration (µg/m3)

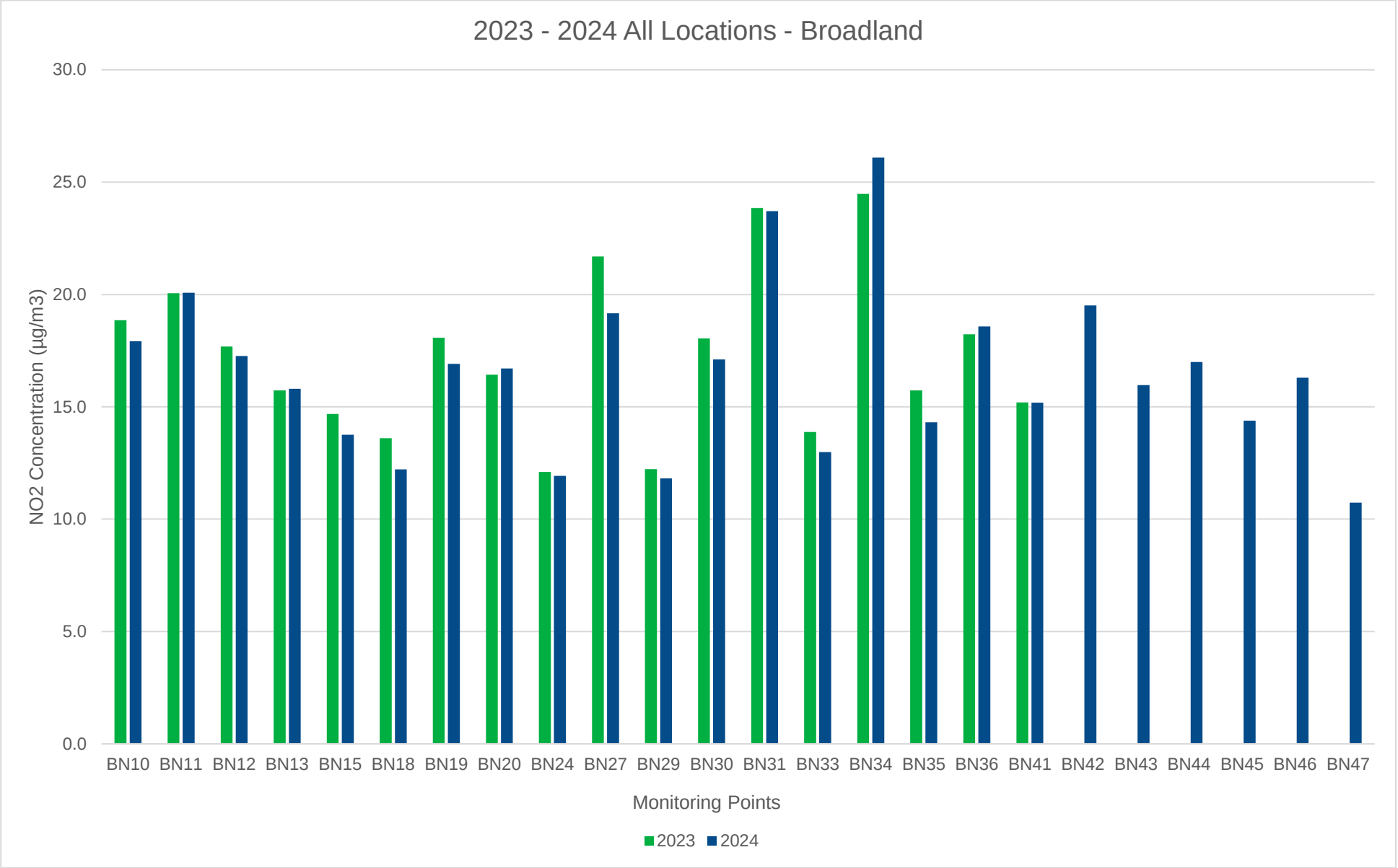

DT29 NO2 Mean Concentrations 2020 - 2024
30.0
25.0
20.0
15.0
10.0
5.0
0.0
NO2 Concentration (µg/m3)
2020
2021
2022
2023
2024
DT29
21.8
27.6
23.6
22.3
23.2
Year/NO2 Annual Mean Concentration (µg/m3)

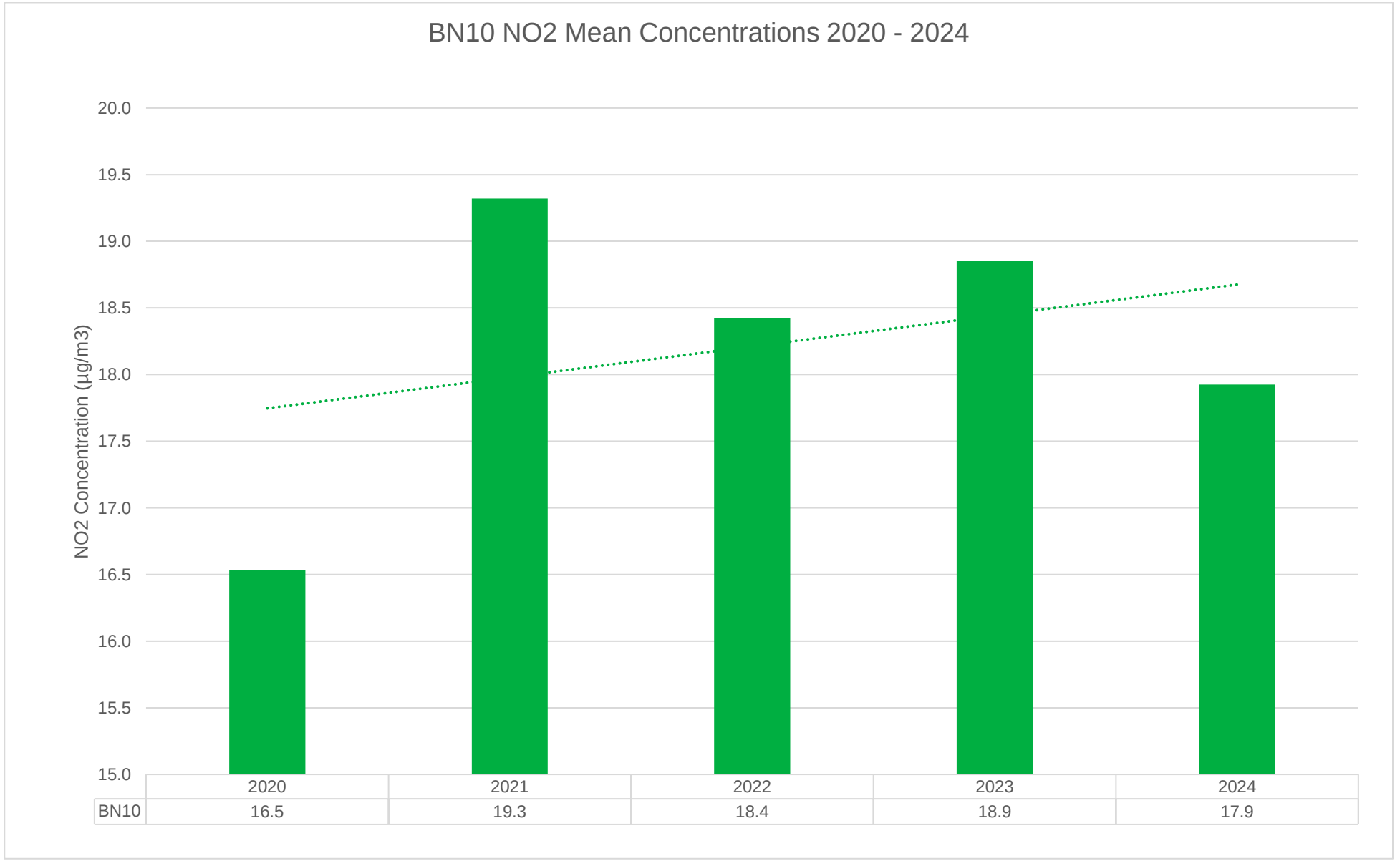


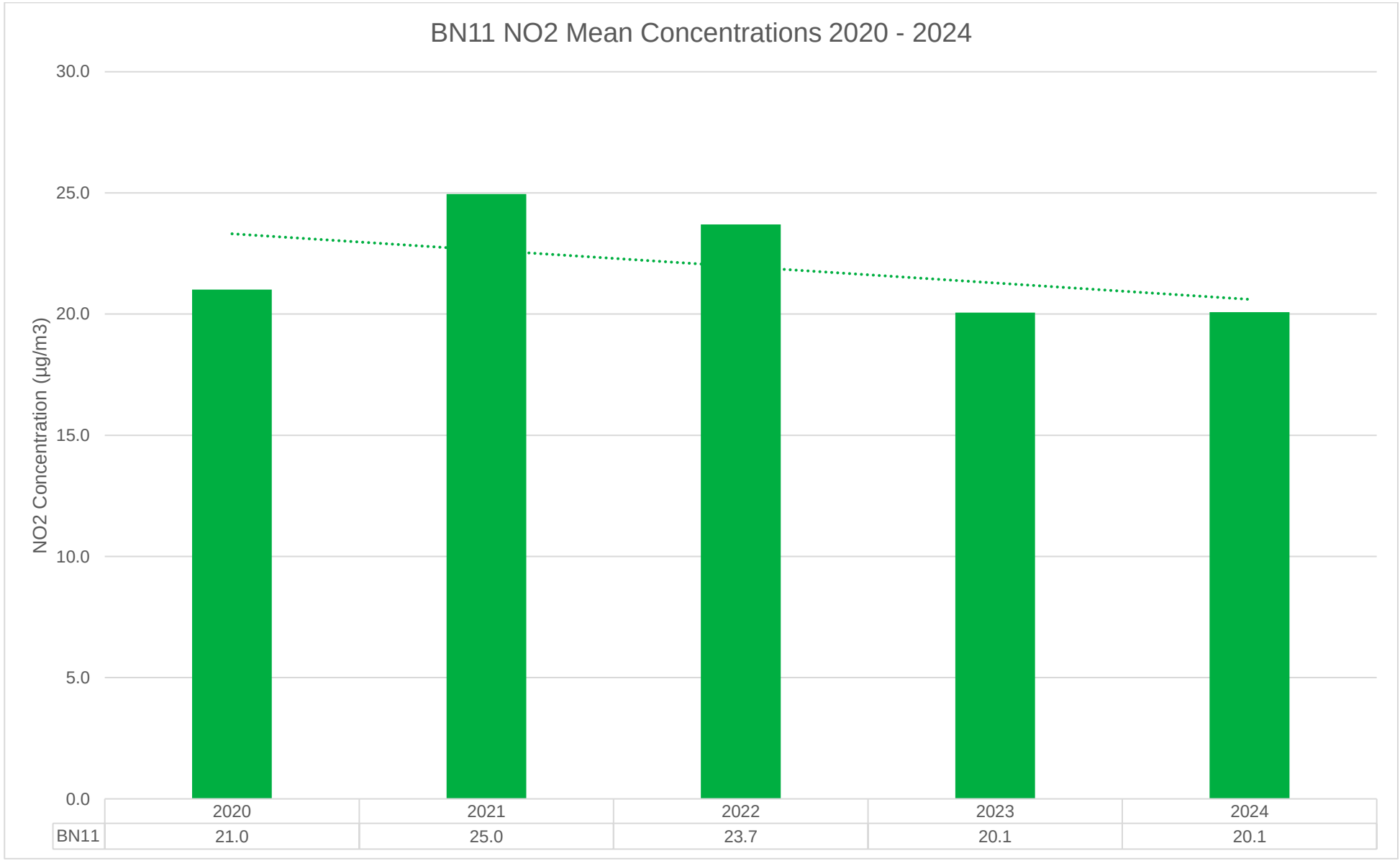
*Annual average comparison charts are not present for new locations DT32-38 due to only a single year of data collected.

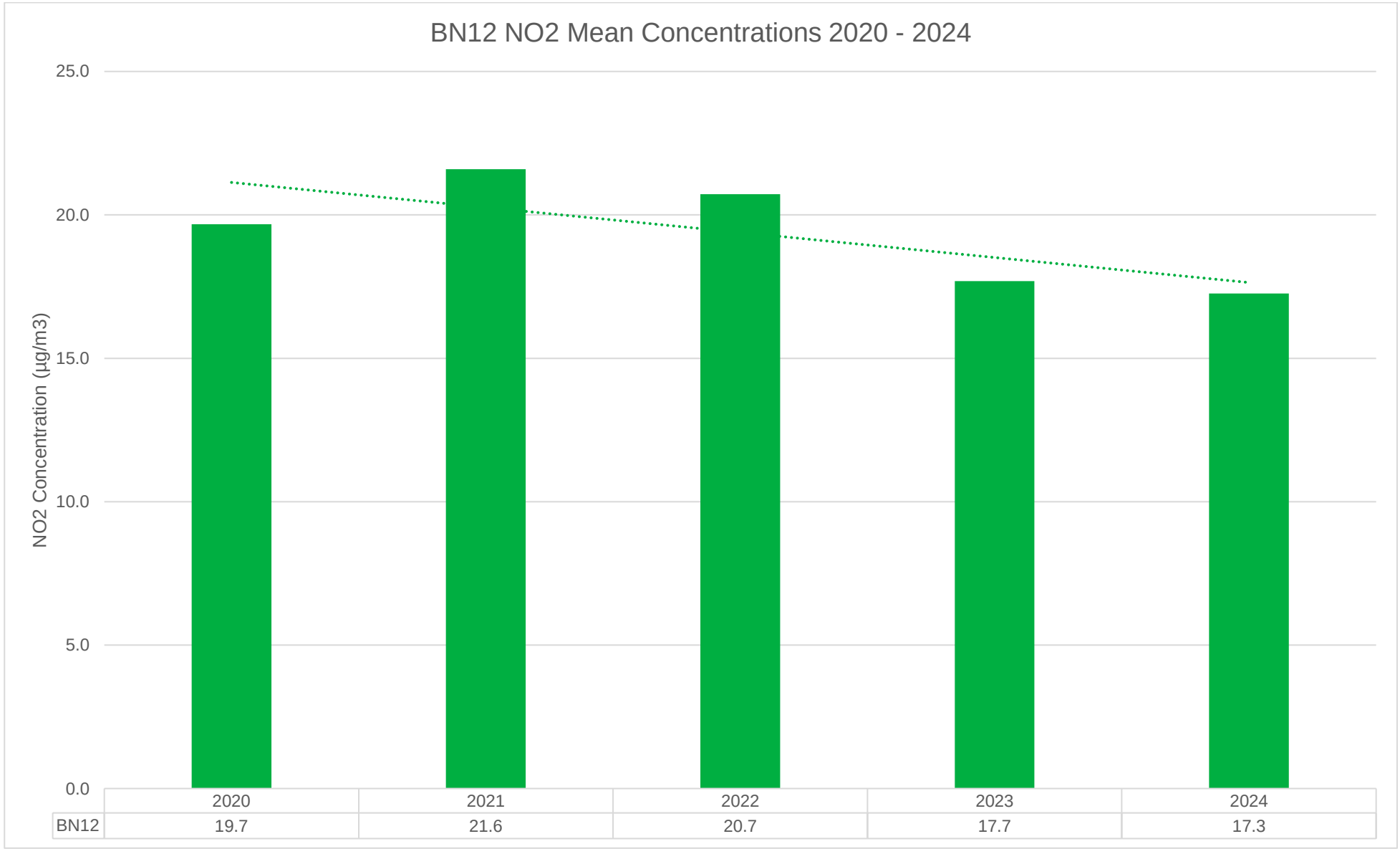
Figure A.2 – Trends in Annual Mean NO_2 Concentrations – Broadland

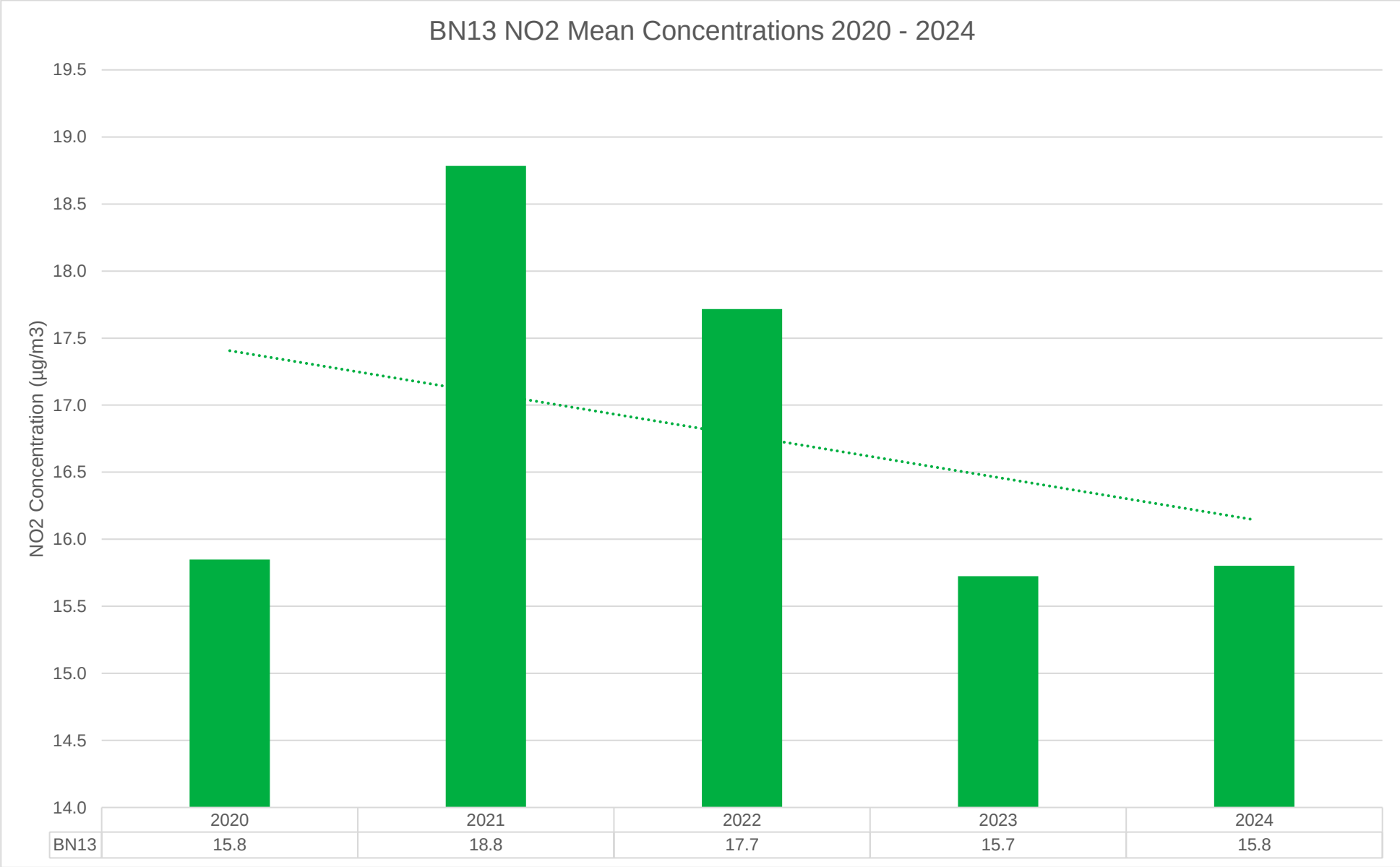


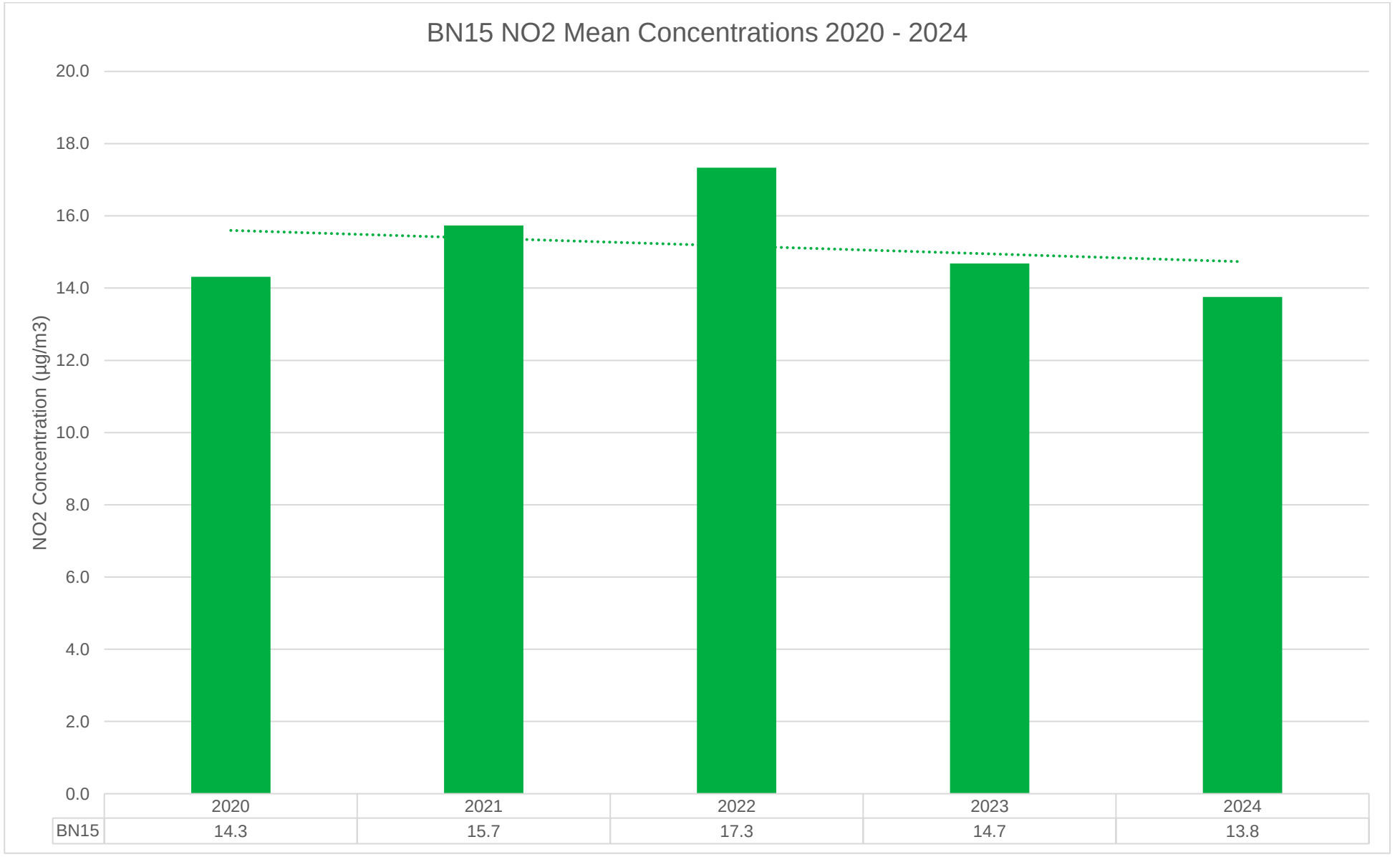

2023 - 2024 All Locations - Broadland
30.0
25.0
20.0
15.0
10.0
5.0
0.0
NO2 Concentration (µg/m3)
BN10 BN11 BN12 BN13 BN15 BN18 BN19 BN20 BN24 BN27 BN29 BN30 BN31 BN33 BN34 BN35 BN36 BN41 BN42 BN43 BN44 BN45 BN46 BN47
Monitoring Points
2023
2024

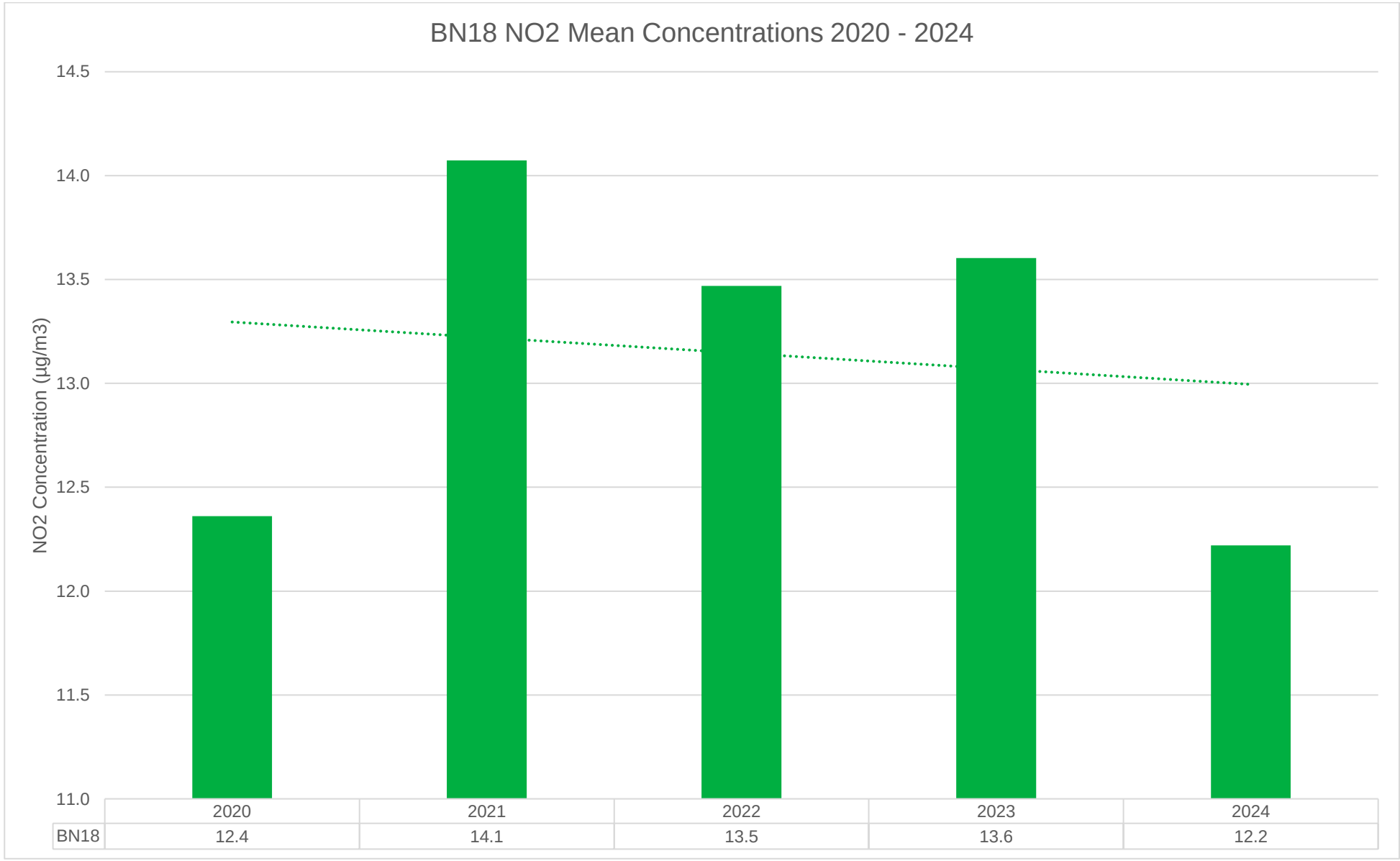

BN10 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
20.0
19.5
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
2020
2021
2022
2023
2024
BN10
16.5
19.3
18.4
18.9
17.9

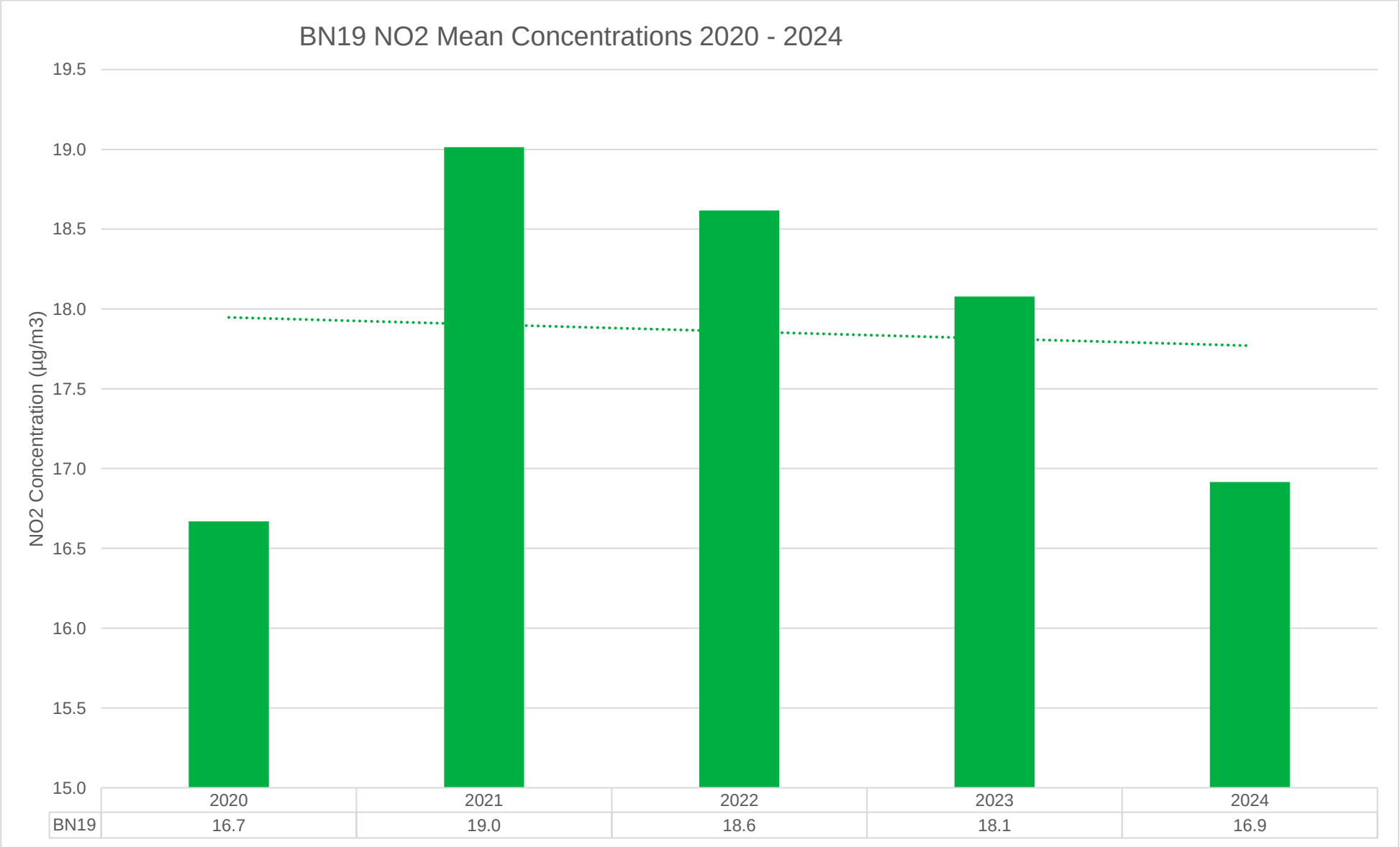

BN11 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2020
2021
2022
2023
2024
BN11
21.0
25.0
23.7
20.1
20.1

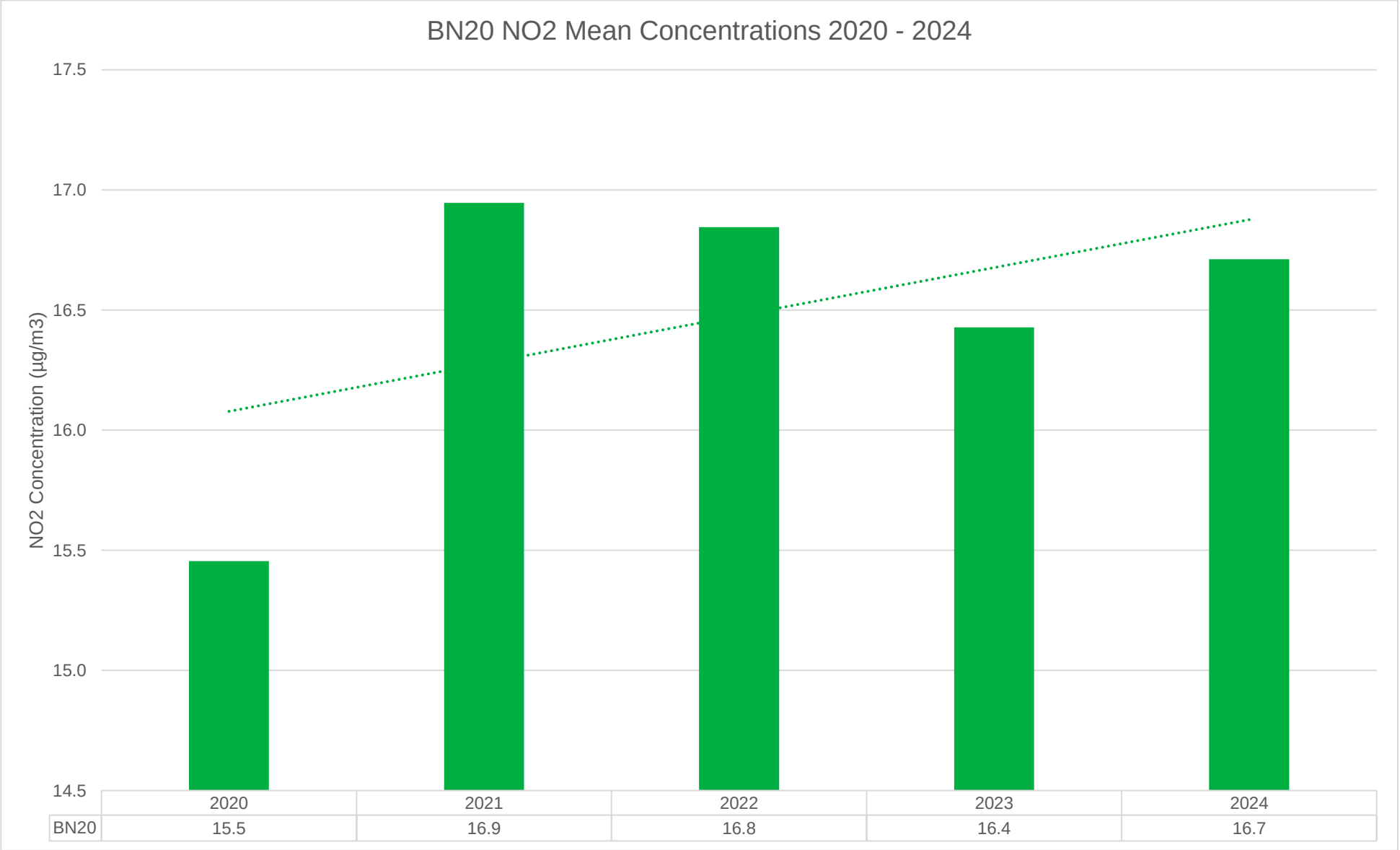

BN12 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
25.0
20.0
15.0
10.0
5.0
0.0
2020
2021
2022
2023
2024
BN12
19.7
21.6
20.7
17.7
17.3

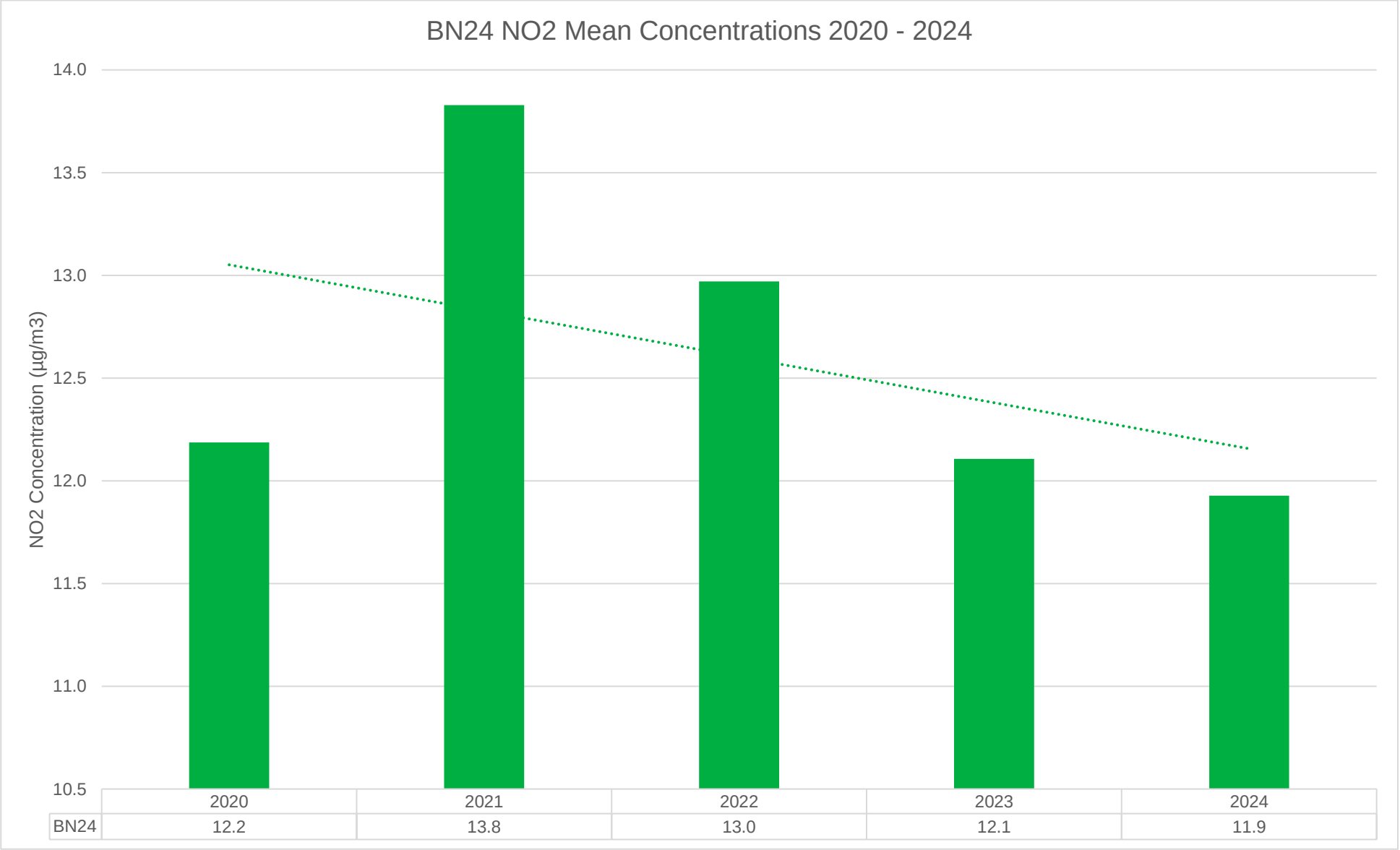

BN13 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
19.5
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
14.5
14.0
2020
2021
2022
2023
2024
BN13
15.8
18.8
17.7
15.7
15.8

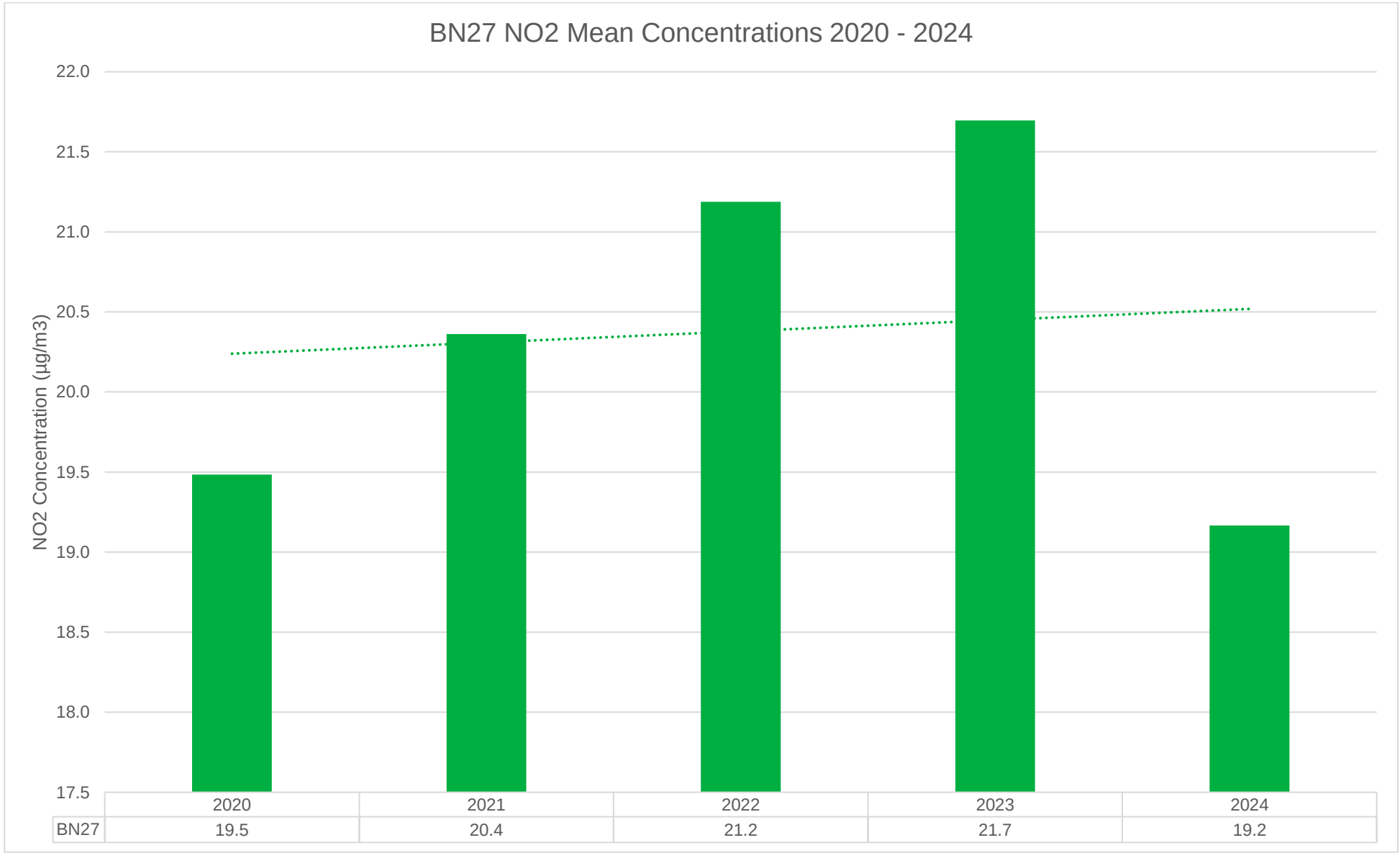

BN15 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2020
2021
2022
2023
2024
BN15
14.3
15.7
17.3
14.7
13.8

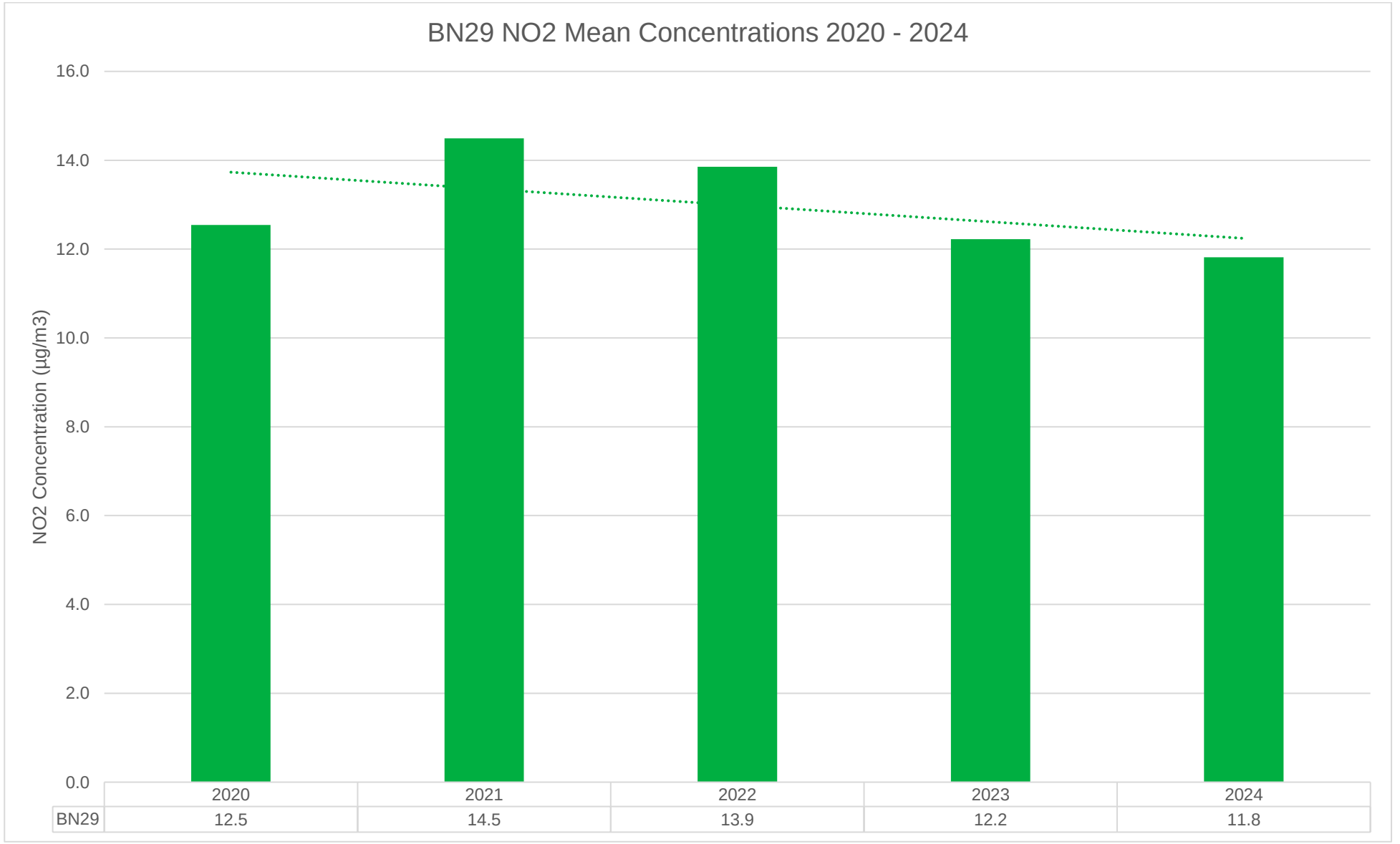

BN18 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
2020
2021
2022
2023
2024
BN18
12.4
14.1
13.5
13.6
12.2

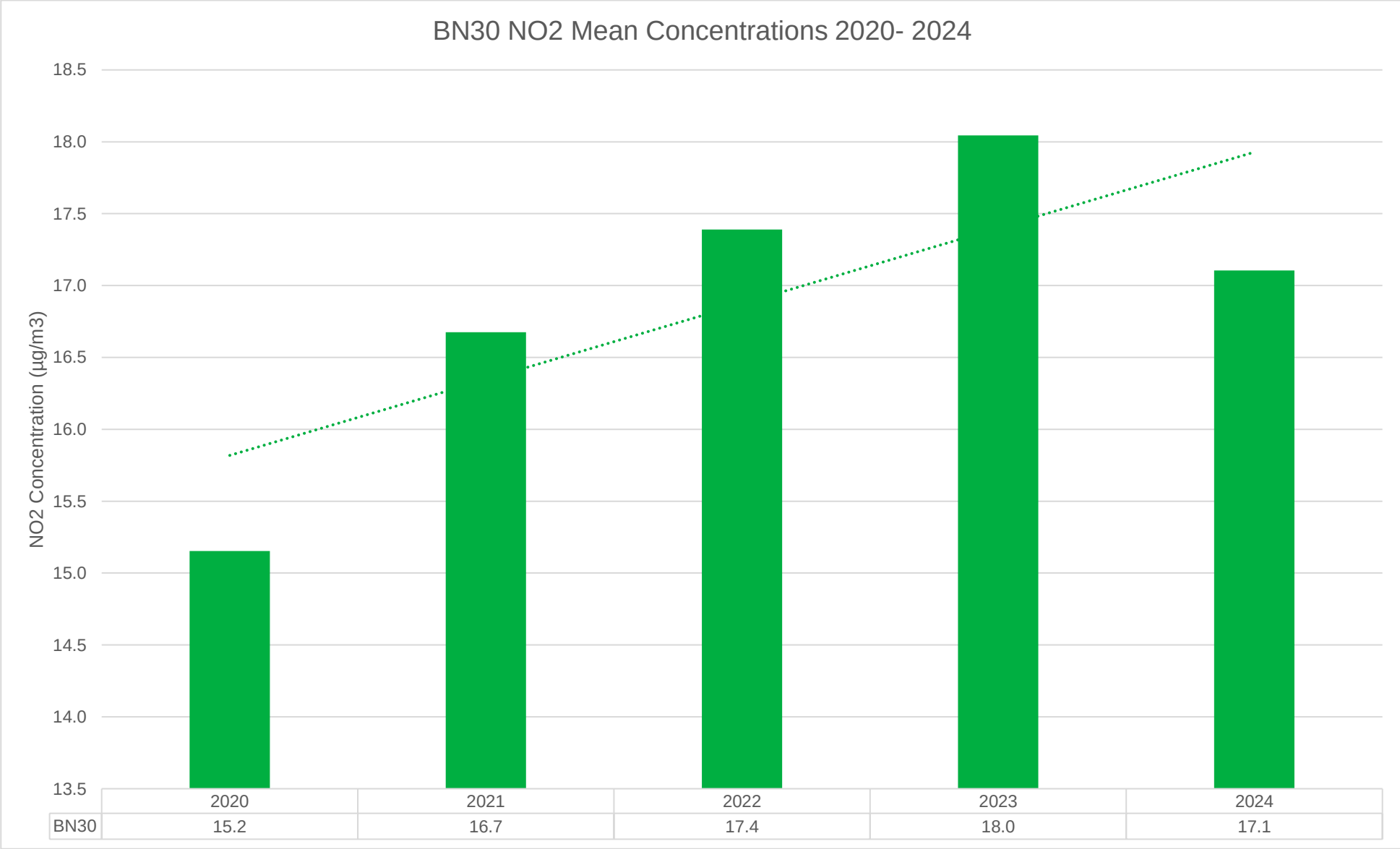

BN19 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
19.5
19.0
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
2020
2021
2022
2023
2024
BN19
16.7
19.0
18.6
18.1
16.9

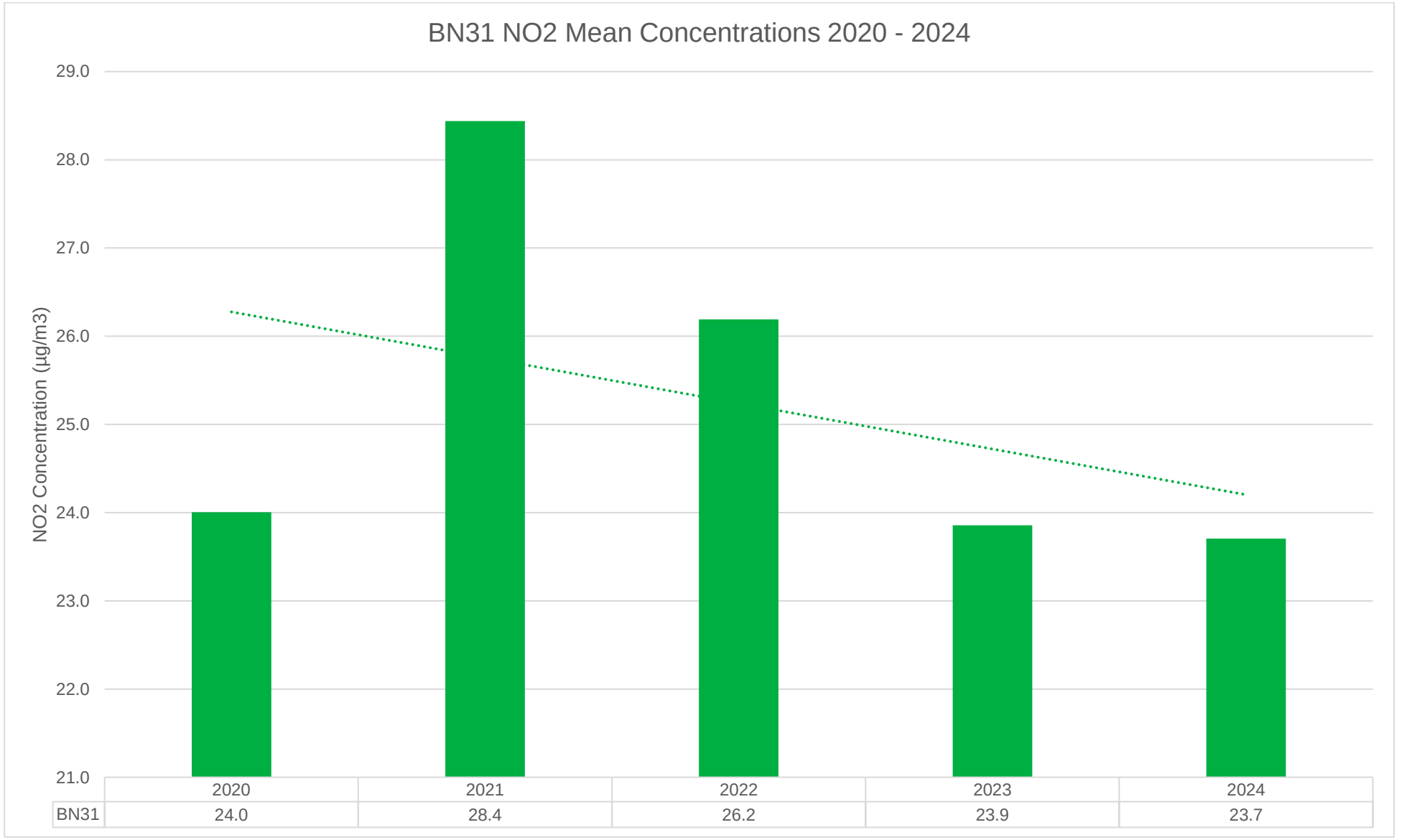

BN20 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
17.5
17.0
16.5
16.0
15.5
15.0
14.5
2020
2021
2022
2023
2024
BN20
15.5
16.9
16.8
16.4
16.7

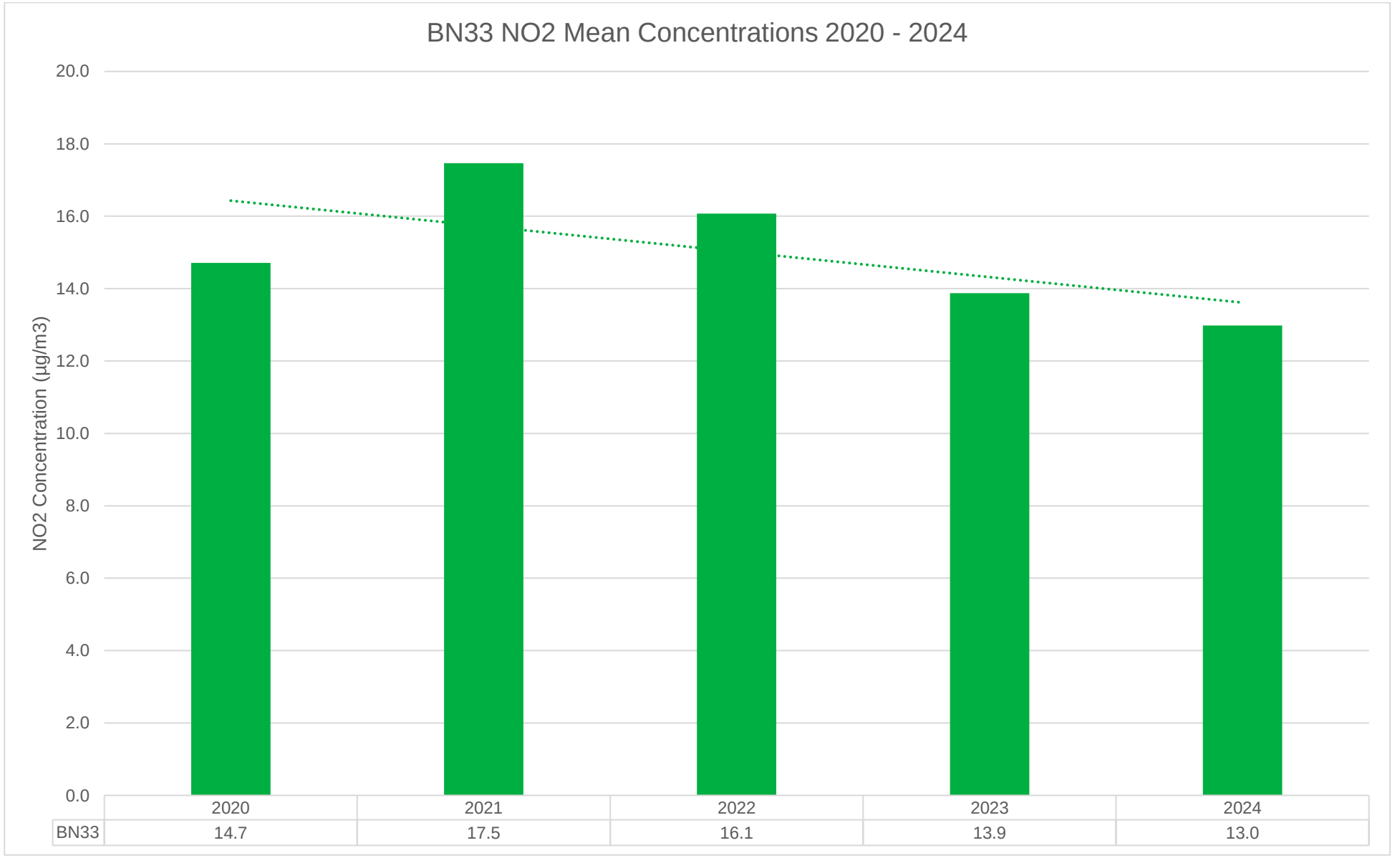

BN24 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
2020
2021
2022
2023
2024
BN24
12.2
13.8
13.0
12.1
11.9

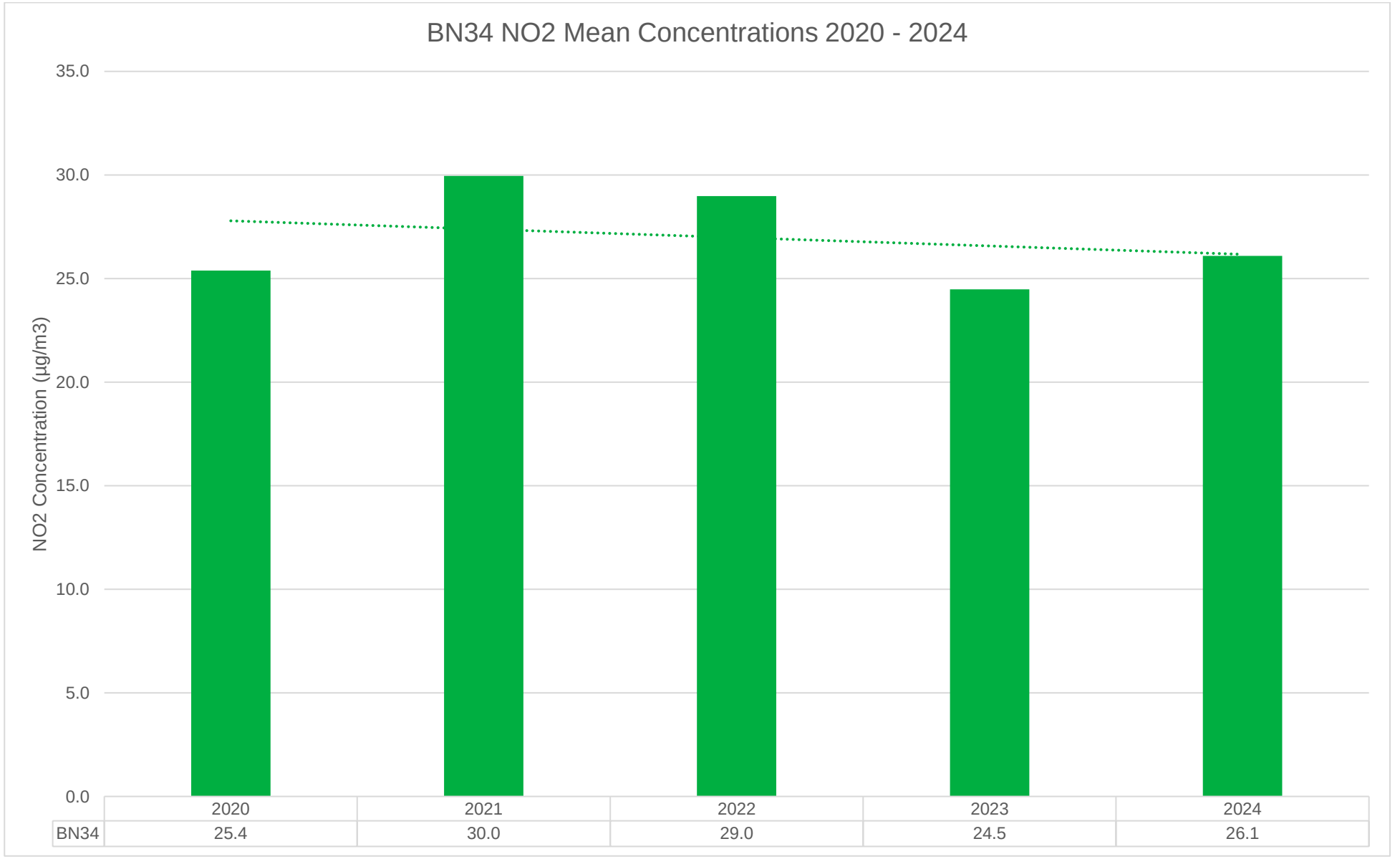

BN27 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
22.0
21.5
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
2020
2021
2022
2023
2024
BN27
19.5
20.4
21.2
21.7
19.2

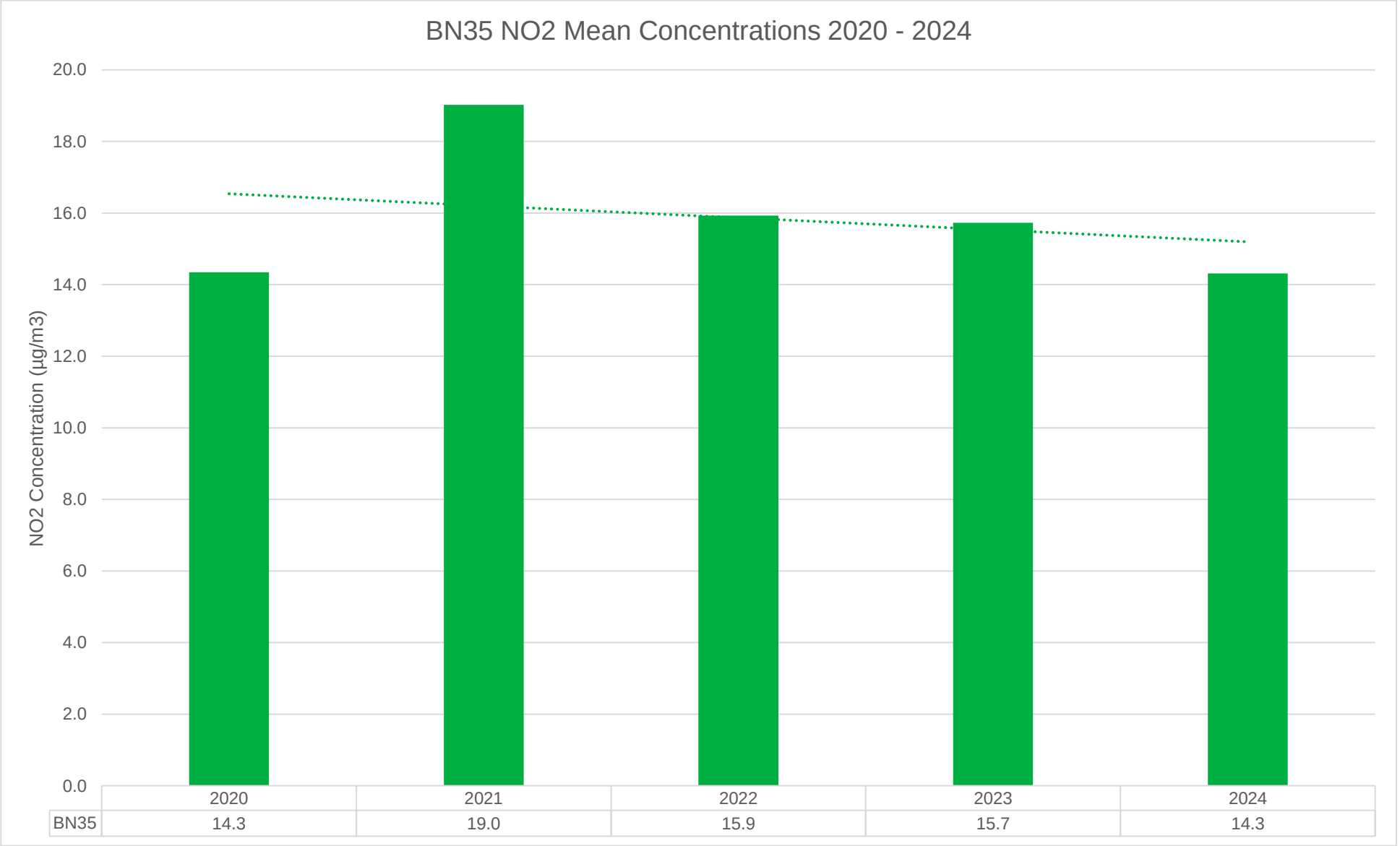

BN29 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2020
2021
2022
2023
2024
BN29
12.5
14.5
13.9
12.2
11.8

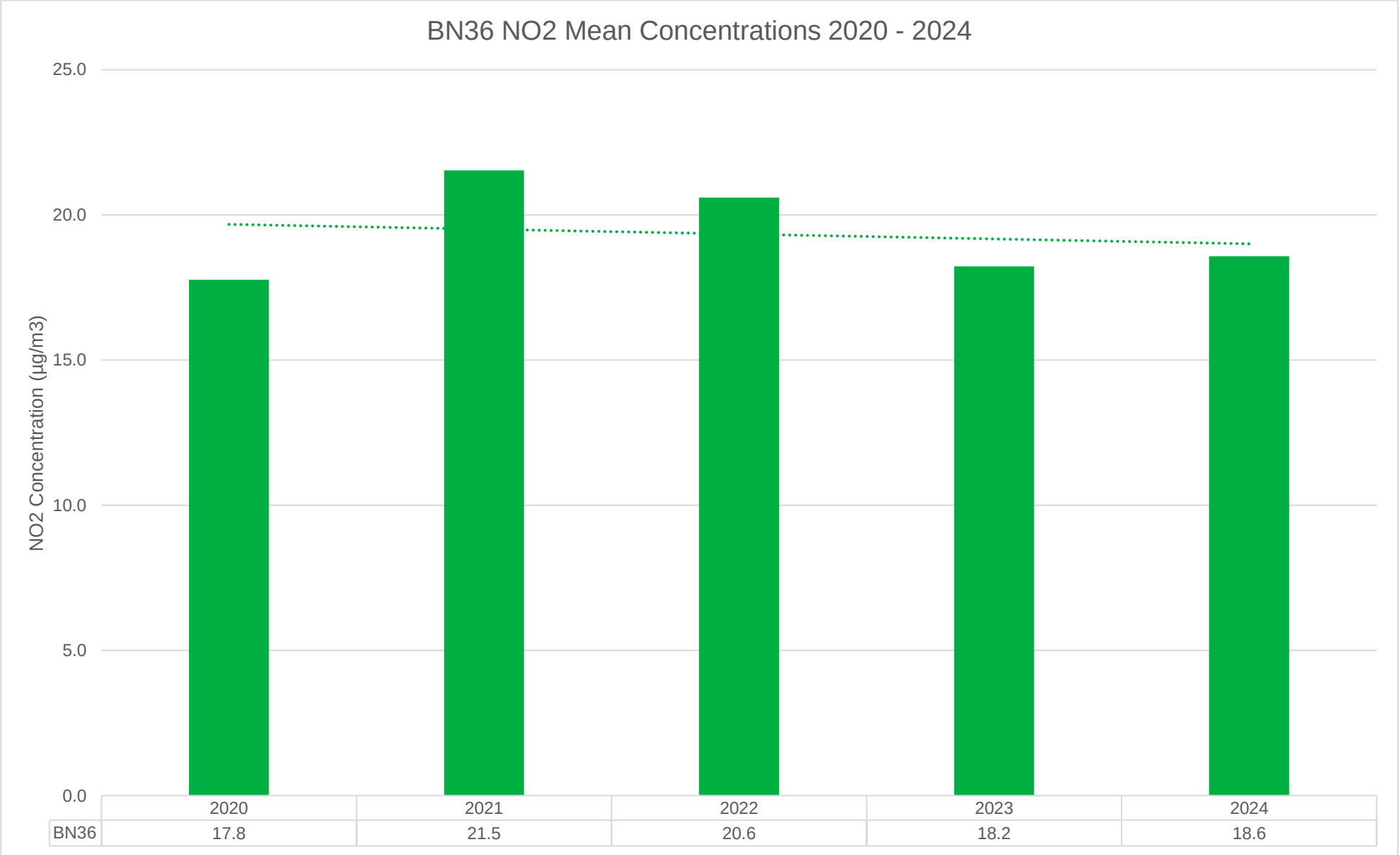

BN30 NO2 Mean Concentrations 2020- 2024
NO2 Concentration (µg/m3)
18.5
18.0
17.5
17.0
16.5
16.0
15.5
15.0
14.5
14.0
13.5
2020
2021
2022
2023
2024
BN30
15.2
16.7
17.4
18.0
17.1

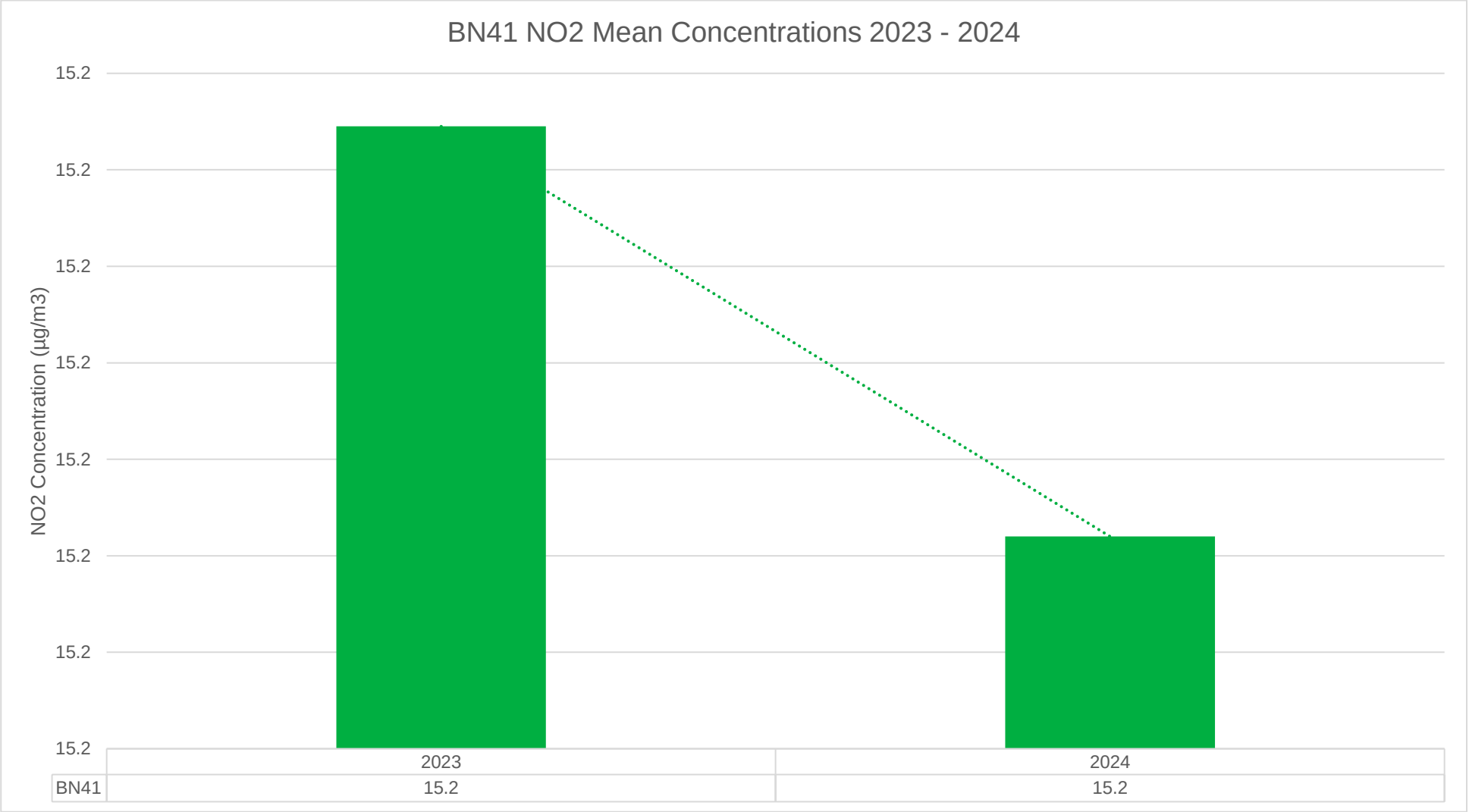

BN31 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
29.0
28.0
27.0
26.0
25.0
24.0
23.0
22.0
21.0
2020
2021
2022
2023
2024
BN31
24.0
28.4
26.2
23.9
23.7


BN33 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2020
2021
2022
2023
2024
BN33
14.7
17.5
16.1
13.9
13.0


BN34 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2020
2021
2022
2023
2024
BN34
25.4
30.0
29.0
24.5
26.1


BN35 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2020
2021
2022
2023
2024
BN35
14.3
19.0
15.9
15.7
14.3


BN36 NO2 Mean Concentrations 2020 - 2024
NO2 Concentration (µg/m3)
25.0
20.0
15.0
10.0
5.0
0.0
2020
2021
2022
2023
2024
BN36
17.8
21.5
20.6
18.2
18.6



**Annual average comparison charts are not present for new locations BN42-47 due to only a single year of data collected.

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Diffusion Tube Results (µg/m^3) – South Norfolk

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 <(0.84)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT3	626798	302091	16.6	16.2	15.0	12.0	11.6	11.8	11.3	12.3	12.6	15.4	17.4	13.0	13.8	11.6	-	
DT4	611212	279623	29.9	25.3	28.1	22.8	24.4	21.7	23.4	20.7	26.0	25.6	26.7	20.9	24.6	20.7	-	
DT5	611936	279576	25.1	26.3	25.6	18.9		20.1	22.5	22.8	22.0	24.0	24.6	19.3	22.8	19.2	-	
DT7	619725	292748	29.5	29.8	28.7	28.0	27.9	29.0	26.4	25.9	28.5	28.7	30.7	25.5	28.2	23.7	-	
DT8	611107	301436	16.5	18.1	17.3	13.6	15.6	13.7	13.9	13.5	17.5	21.1	17.8	14.5	16.1	13.5	-	
DT9	625451	306152	23.7	24.0	22.7	16.8	17.0	15.6	14.8	17.0	17.7	21.1	24.7	18.3	19.5	16.3	-	
DT11	618138	305619	11.4	13.2	13.1	7.2	10.5	8.2	10.0	10.0	11.9	16.1	12.7	8.1	11.0	9.3	-	
DT12	611533	300986	23.1	22.3	21.6	16.6	17.1	18.0	18.1	13.4	18.6	15.4	20.3	14.6	18.2	15.3	-	
DT15	624476	283267	24.9	24.7	29.2	17.1	23.7	19.3	22.1	21.6	20.6	26.2	20.7	18.9	22.4	18.8	-	
DT16	614893	278863	17.0	18.0	16.9	12.9	13.9	14.7	13.9	14.7	15.4	17.4	20.2	13.8	15.7	13.2	-	
DT17	616991	311546	24.4	27.3	27.4	22.9	21.5	21.8	20.0	22.1	20.8	21.1	24.1	16.8	22.5	18.9	-	
DT18	619714	292732	26.2	21.6	22.4	18.4	21.6	17.5	17.6	17.9	23.0	22.5	23.2	17.3	20.8	17.4	-	
DT19	619734	292751	28.9	26.7	27.9	23.0	25.4	23.9	24.4	24.7	26.4	26.2	28.2	21.3	25.6	21.5	-	
DT20	619643	292348	26.8	28.5	24.6	22.4	19.4	18.2	19.4	20.2	18.1	21.9	21.1	20.2	21.7	18.2	-	
DT21	619696	292656	27.2	23.6	21.5	20.4	21.3	19.4	17.8	21.7	24.6	22.6	26.0	19.4	22.1	18.6	-	
DT22	619711	292720	20.5	20.1	19.7	14.6	14.6	13.7	14.7	15.8	18.6	19.4	18.8	15.1	17.1	14.4	-	
DT24	611325	301191	18.5	14.9	14.6	10.7	9.9	10.6	11.5	10.4	15.1	15.4	15.3	11.4	13.2	11.1	-	

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 <(0.84)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT25	619824	293031	26.8	26.5	26.4	21.9	20.9	20.1	19.1	20.3	21.9	24.3	25.1	18.3	22.6	19.0	-	
DT29	624625	283496	32.2	29.6	31.3	24.0	28.1	23.9	26.1	26.4	26.9	28.7	29.8	24.2	27.6	23.2	-	
DT30	611785	279593	22.4	22.1	22.4	15.6	19.6	3.4	17.5	16.7	17.4	20.3	3.1	16.0	16.4	13.8	-	
DT32	636167	298802	15.4	17.4	17.7	12.2	13.6	12.2	13.4	13.5	12.6	17.2	19.8	11.7	14.7	12.4	-	
DT33	612543	302678	25.8	26.2	26.2	16.0	20.6	17.6	20.3	17.5	21.9	28.8		19.6	21.9	18.4	-	
DT34	619278	305655	17.6	20.1	18.3	11.8	13.6	13.4	13.7	14.1	14.2	19.9	18.0	13.8	15.7	13.2	-	
DT35	619730	305855	21.5	18.6	18.0	14.0	13.0	12.7	11.4		15.5	18.9	18.4	0.2	14.7	12.4	-	
DT36	616842	310368	27.1	22.4	23.4	21.5	24.9	23.7	21.0	21.7	27.3	24.9	31.1	19.4	24.0	20.2	-	
DT37	616813	310415	18.2	19.0	17.9	12.7	15.4	13.9	15.9	15.0	17.5	21.7	19.4	14.4	16.7	14.1	-	
DT38	617193	311669	17.6	15.0	15.3	12.2	10.8	11.7	10.9	11.6	14.1	16.6	19.3	13.1	14.0	11.8	-	

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

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

☒ **South Norfolk and Broadland Councils confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table B.2 – NO_2 2024 Diffusion Tube Results (µg/m^3) – South Norfolk

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 <(0.84)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BN10	625369	308437	27.0	23.3	21.6	23.0	16.3	18.7	18.2	18.6	20.8	22.9	24.4	21.3	21.3	17.9	-	
BN11	621649	311632	25.0	30.3	28.4	19.3	20.2	21.3	21.6	22.5	23.9	27.7	25.7	21.0	23.9	20.1	-	
BN12	621697	311569	21.9	26.4	22.6	18.3	17.8	16.2	18.0	17.9	22.0	27.0	20.3	18.4	20.6	17.3	-	
BN13	621814	311640	21.0	24.0	22.4	15.2	15.6	15.1	16.2	17.8	17.1	25.1	22.1	14.1	18.8	15.8	-	
BN15	630113	318014	15.4	18.3	18.5	13.5	14.5	15.1	14.4	17.1	17.1	19.8	18.7	14.2	16.4	13.8	-	
BN18	620186	311833	14.4	18.6	16.5	11.7	12.4	12.0	11.5	12.2	13.9	17.0	19.0	15.4	14.5	12.2	-	
BN19	627492	308775	24.7	21.1	16.2	20.6	21.0	17.9	16.6	15.5	22.4	22.0	24.0	19.6	20.1	16.9	-	
BN20	640165	310353	21.0	21.4	20.2	17.2	19.8	18.7	20.5	18.6	18.9	24.6	18.1	19.8	19.9	16.7	-	
BN24	621466	312666	18.3	17.8	14.9	13.0	11.5	9.7	11.1	10.8	14.1	17.3	17.2	14.8	14.2	11.9	-	
BN27	625505	312473	28.7	25.5	22.4	23.3			20.2	21.4	17.4	24.4	22.7	22.1	22.8	19.2	-	
BN29	613458	323917	15.9	15.1	14.7	11.2	13.8	13.1	12.7	12.1	14.0	17.3	15.8	13.1	14.1	11.8	-	
BN30	626169	311059	25.6	23.1	20.2		15.5	18.3	16.3	16.7	19.0	22.0	24.2	23.1	20.4	17.1	-	
BN31	623259	311310	29.3	32.2	28.9	24.4	24.2	24.4	25.3	21.9	29.1	36.2	36.0	26.8	28.2	23.7	-	
BN33	637750	309866	20.1	17.7	17.2	14.9	12.0	10.6	12.2	13.3	16.6	17.5	19.5	14.0	15.5	13.0	-	
BN34	621712	311698	30.6	34.3	36.2	26.8	29.0	27.4	30.5	28.1	31.8	36.5	36.1	25.6	31.1	26.1	-	
BN35	620206	311723	20.9	19.3	16.5	16.0	16.4	15.1	13.4	13.7	18.7	20.3	17.9	16.5	17.0	14.3	-	
BN36	629892	317484	24.3	23.9	22.0	21.2	21.0	19.2	19.3	20.7	22.1	24.4	27.1	20.2	22.1	18.6	-	
BN41	626804	319855	20.4	17.5	17.1	17.1	16.5	17.1	17.0	16.6	18.9	20.0	21.6	17.2	18.1	15.2	-	
BN42	621244	312899	26.4	25.7	26.5	19.9	22.4	18.7	19.5	21.9	27.0	27.6	24.2	19.1	23.2	19.5	-	
BN43	619440	315682	23.4	23.5	23.4	19.0	17.5	16.7	17.6	16.7	20.4		11.8		19.0	16.0	-	

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 <(0.84)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BN44	609926	322883	23.9	20.7	19.4	19.9	19.4	19.9	19.1	17.0	19.6	22.7	25.0	16.3	20.2	17.0	-	
BN45	619349	326966	20.4	19.9	19.0	15.0	15.4	14.9	14.9	14.1		17.8	20.7	16.5	17.1	14.4	-	
BN46	626776	319797	23.2	16.4	20.0	15.7	15.5	19.2	19.5	18.9	18.1	22.9	23.2	20.3	19.4	16.3	-	
BN47	626204	310046	14.7	14.5	11.4	10.2	11.1	10.4	9.2	10.4	13.5	17.4	17.8	13.0	12.8	10.7	-	

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

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

☒ **South Norfolk and Broadland Councils confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within South Norfolk and Broadland During 2024

South Norfolk and Broadland Councils have not identified any new sources relating to air quality within the reporting year of 2024

Additional Air Quality Works Undertaken by South Norfolk and Broadland Councils During 2024

South Norfolk and Broadland has not completed any additional works within the reporting year of 2024.

QA/QC of Diffusion Tube Monitoring

The supplier used for diffusion tube preparation and analysis within 2023 was Gradko International Ltd and the method of preparation was 20% TEA in water. Monitoring was undertaken in accordance with the 2024 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

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

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2025 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2

continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

South Norfolk and Broadland Councils have applied a national bias adjustment factor of 0.84 to the 2024 monitoring data. A summary of bias adjustment factors used by South Norfolk and Broadland Councils over the past five years is presented in 1.

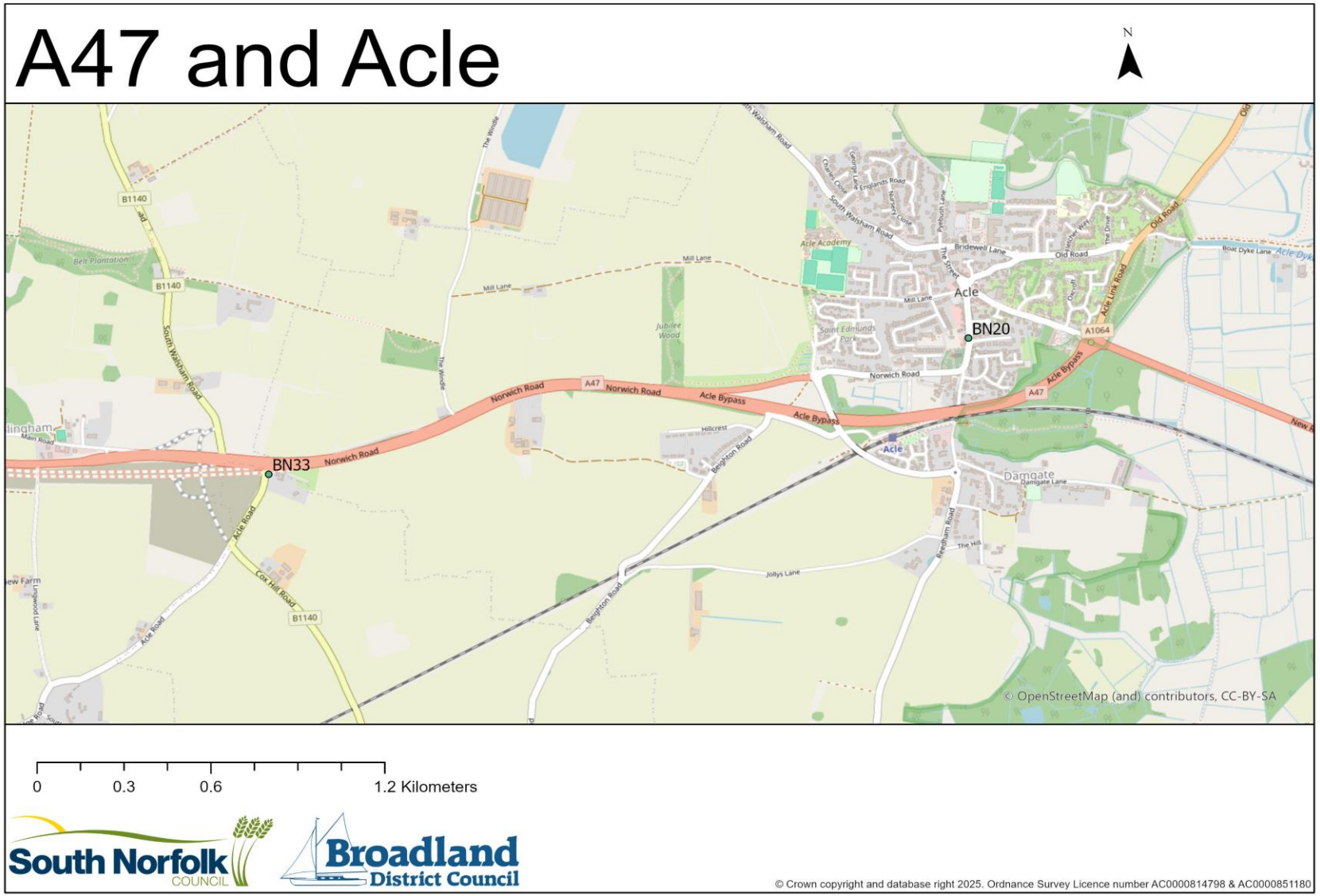
Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	03/25	0.84
2023	National	03/24	0.81
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	03/21	0.81

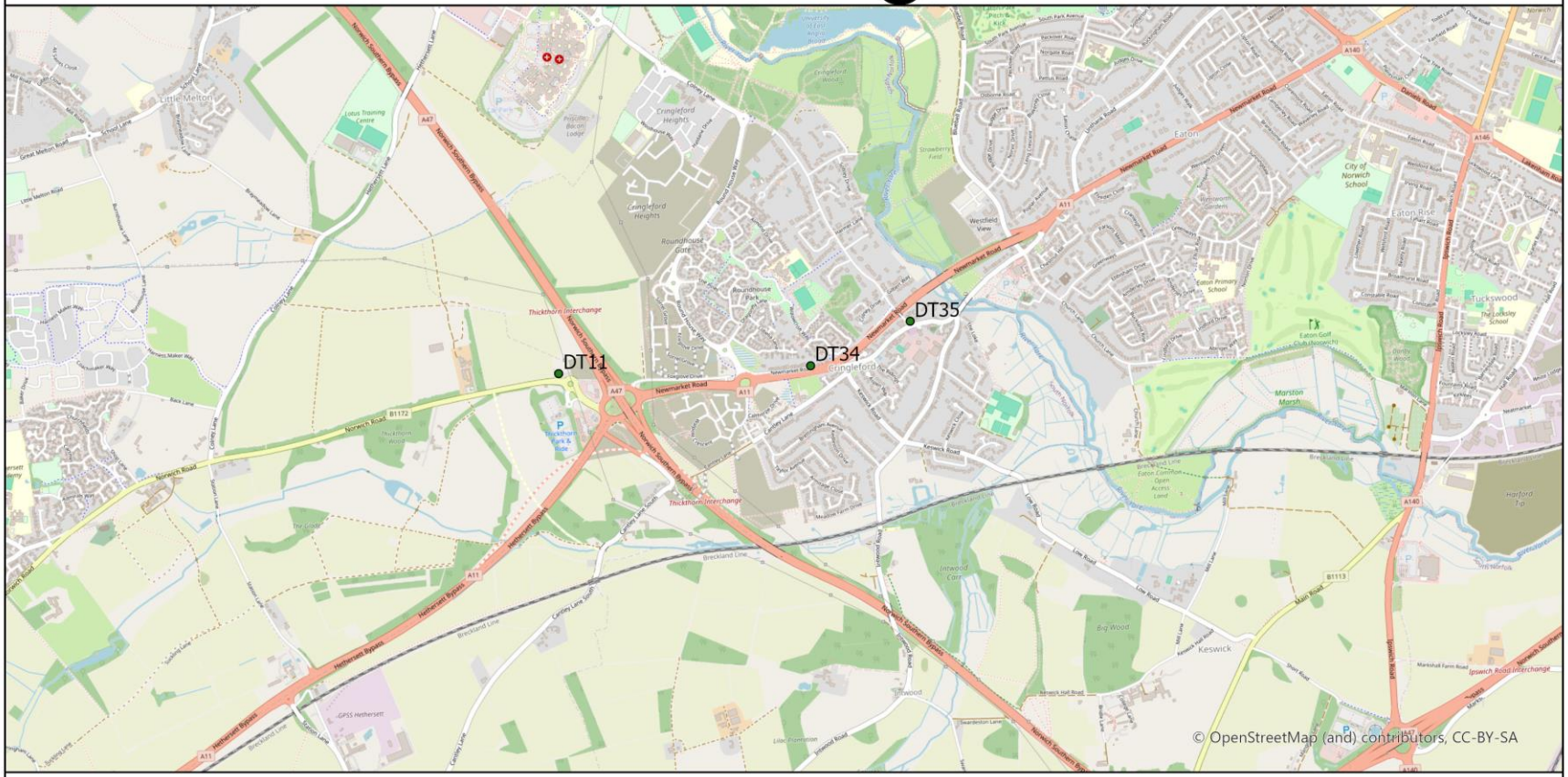
NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within South Norfolk and Broadland Council's required distance correction during 2024.

Appendix D: Map(s) of Monitoring Locations (NO_2 Diffusion Tubes)



Thickthorn and Cringleford



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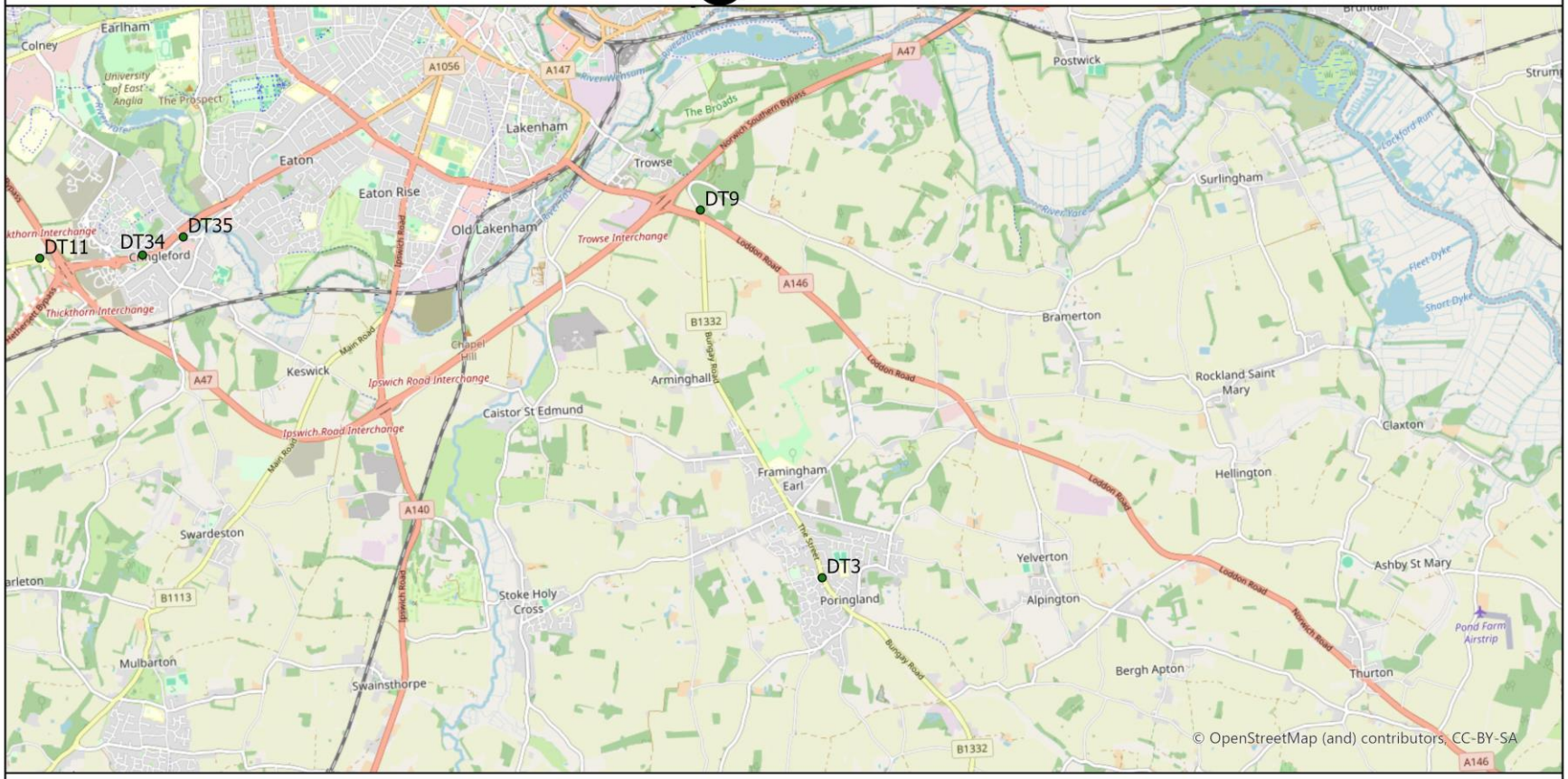
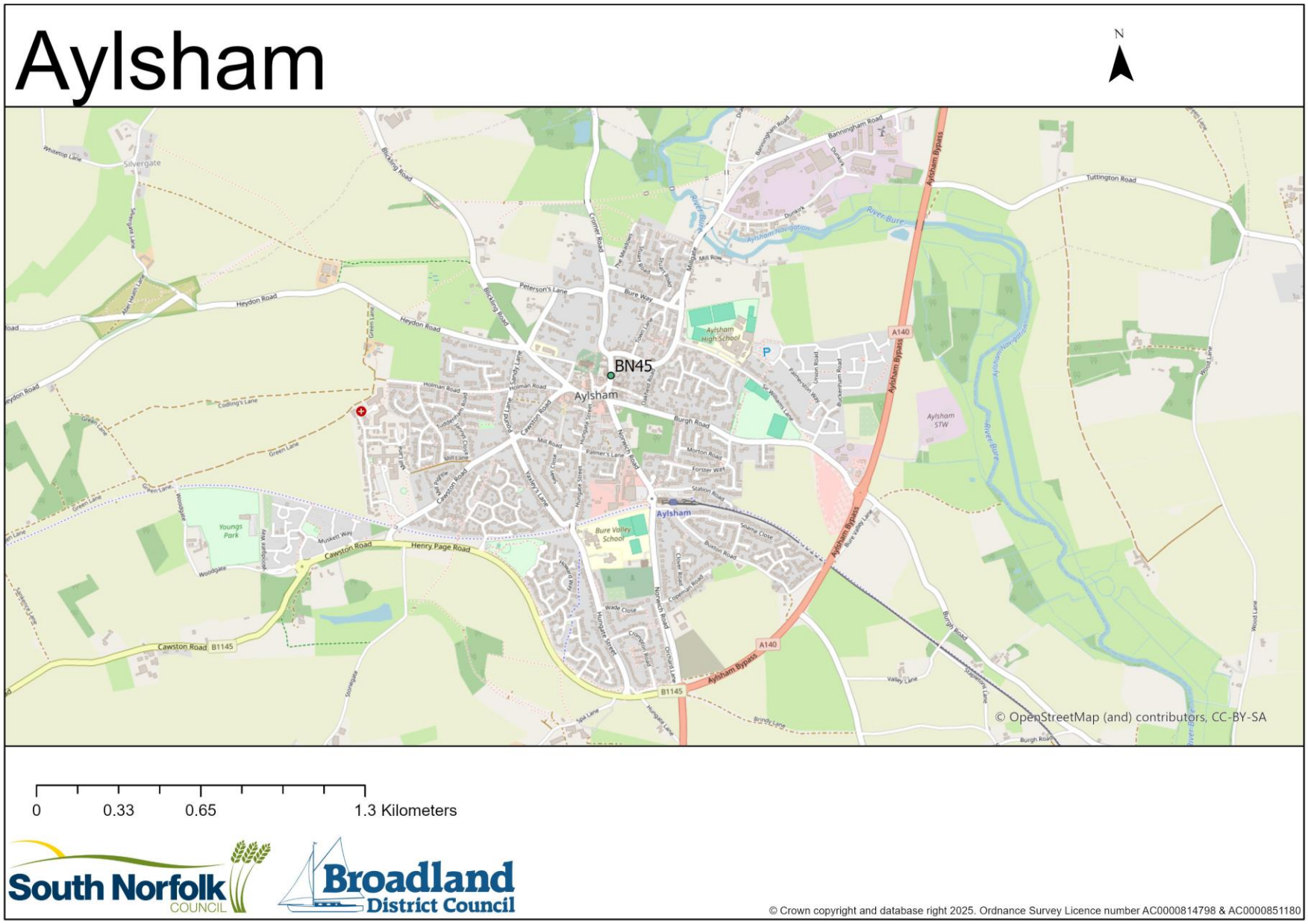
A146 and Poringland




Aylsham
N
BN45
Aylsham
Heydon Road
Peterson's Lane
Burgh Road
Cawston Road
Henry Page Road
Cawston Road B1145
Aylsham Bypass
A140
B1145
Tuttington Road
River Bure
Aylsham High School
Bure Valley School
Youngs Park
Aylsham STW
© OpenStreetMap (and) contributors, CC-BY-SA
0
0.33
0.65
1.3 Kilometers
South Norfolk COUNCIL
Broadland District Council
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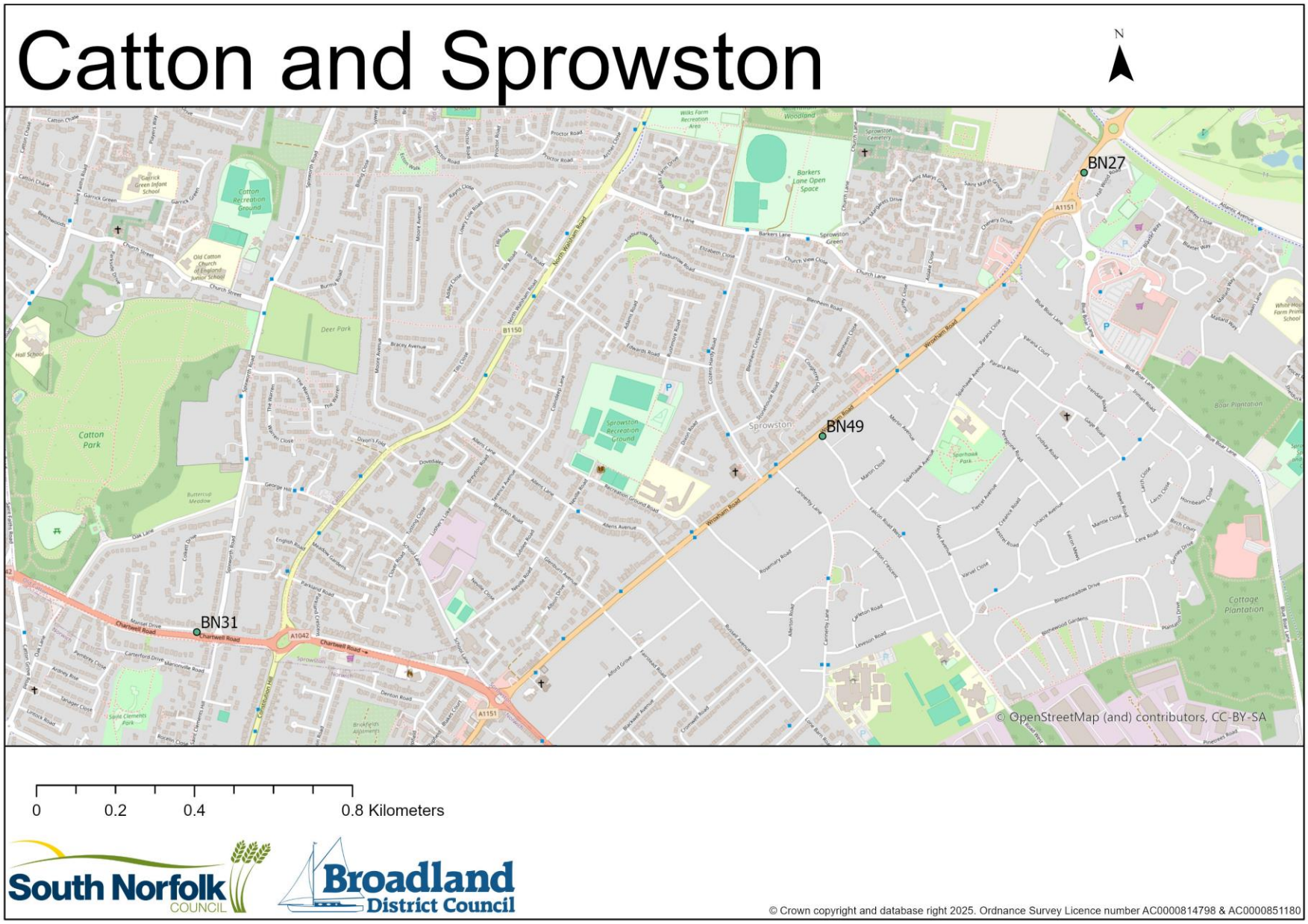
Catton and Sprowston
N
BN27
BN49
BN31
Wroxham Road
Chartwell Road
A1151
A1042
B1150
Sprowston
Catton Park
Deer Park
Barkers Lane Open Space
Sprowston Recreation Ground
Cottage Plantation
Boar Plantation
0
0.2
0.4
0.8 Kilometers
South Norfolk COUNCIL
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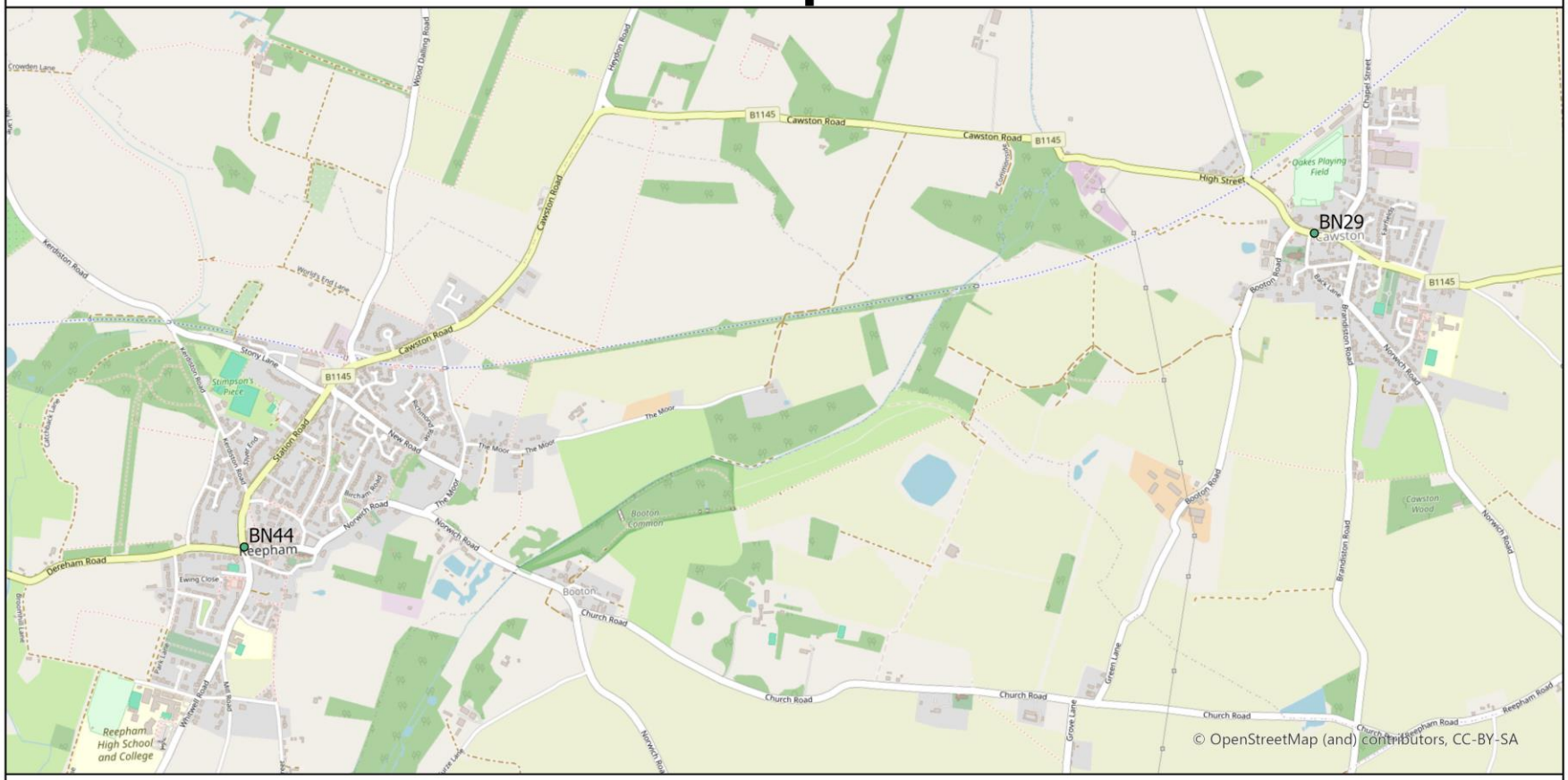
Cawston and Reepham



Coltishall

0 0.13 0.25 0.5 Kilometers

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Costessey
N
DT38
DT17
DT37
DT36
Longwater Lane Recreation Ground
Costessey Park Golf Course
Ormiston Victory Academy
Dereham Road
A1074
Townhouse Road
Longwater Lane
Hall Drive
Ernest Gage Avenue
Green Hills
Carr's Hills
East Hills
Turnpike Belts
Roundwell Park
The Hampdens
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0
0.2
0.4
0.8 Kilometers
South Norfolk COUNCIL
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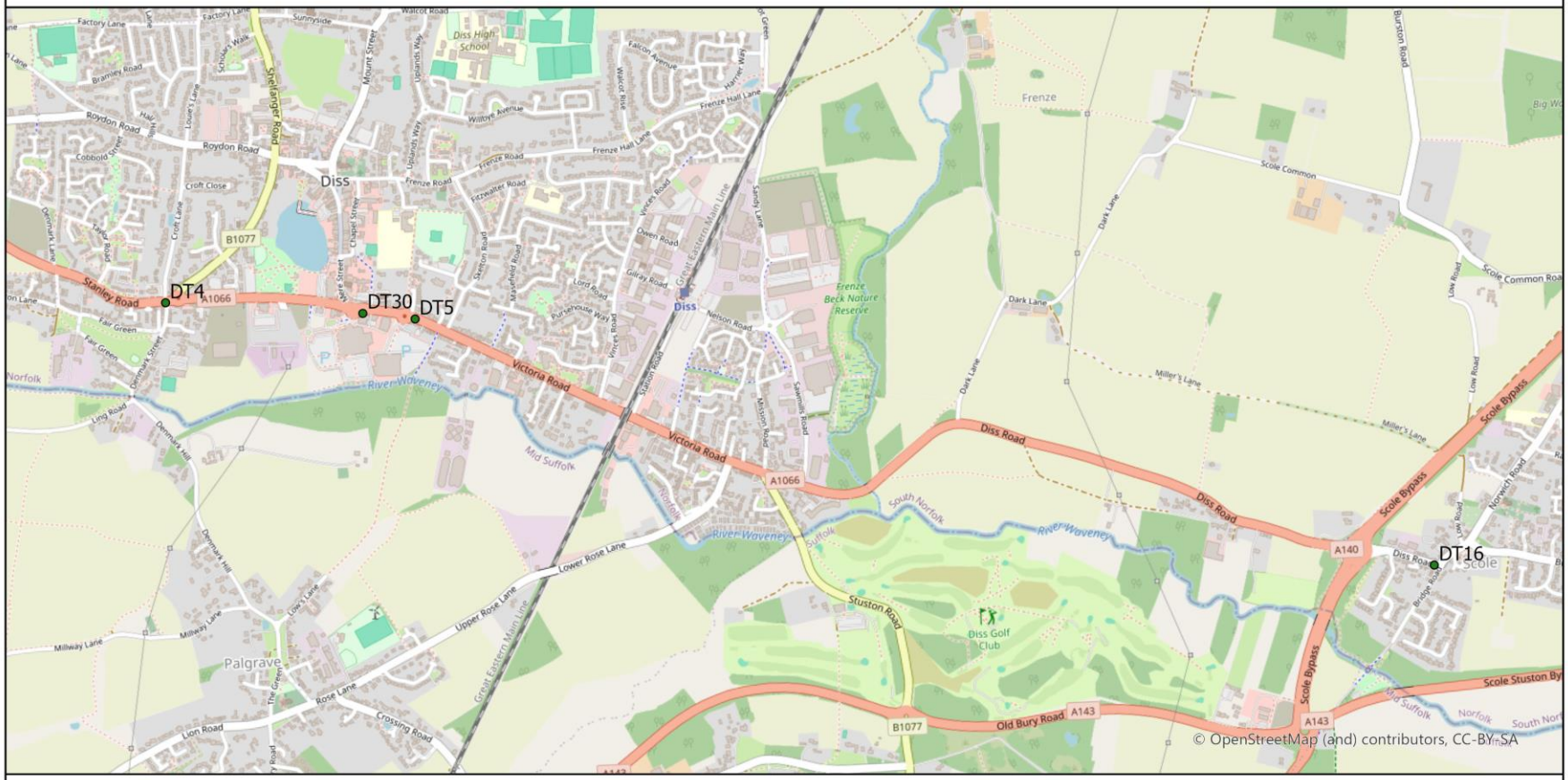
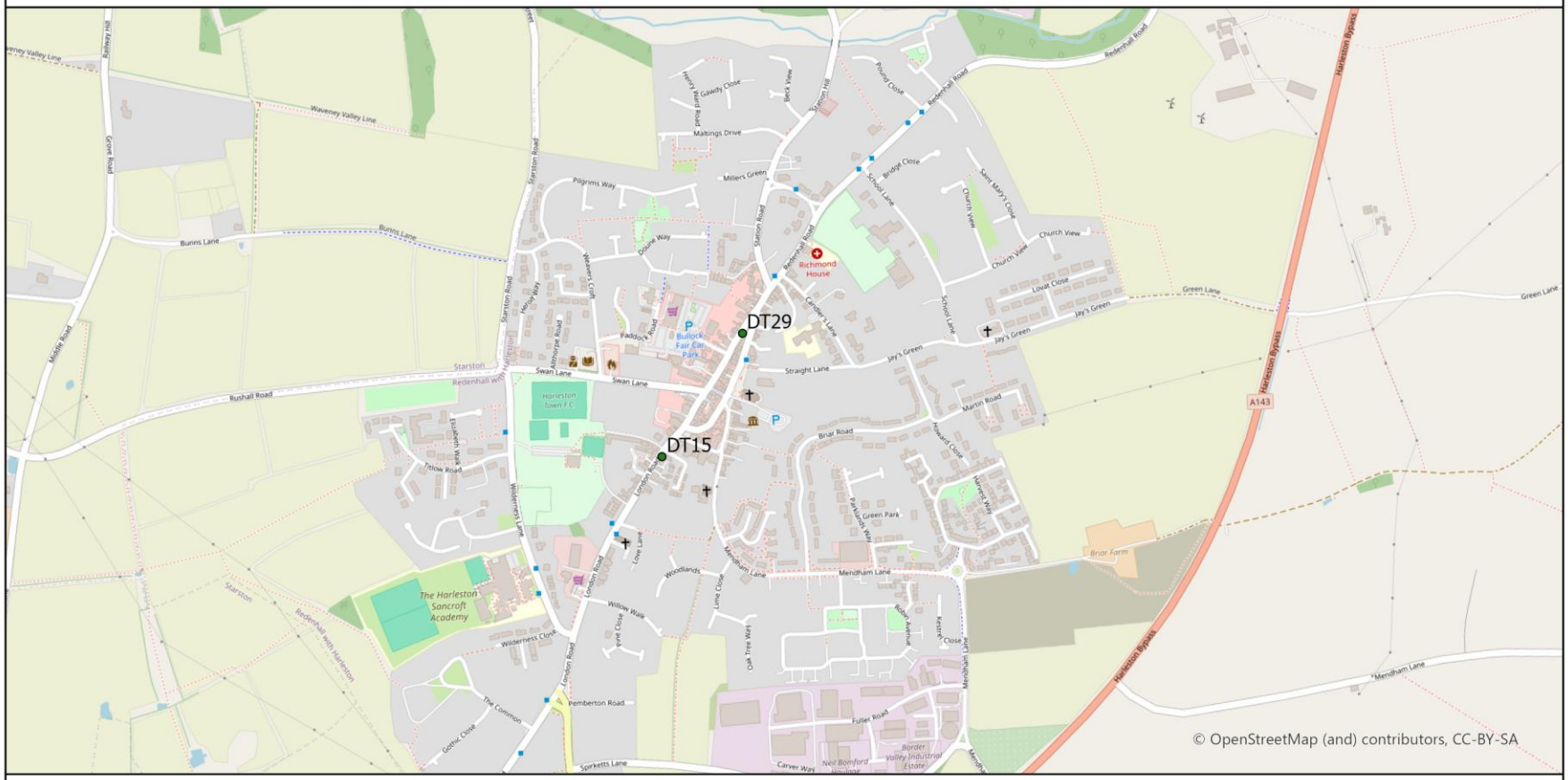
Diss and Scole



Harleston



0 0.17 0.35 0.7 Kilometers

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Heartsese and Thorpe St Andrew

0 0.47 0.95 1.9 Kilometers

N

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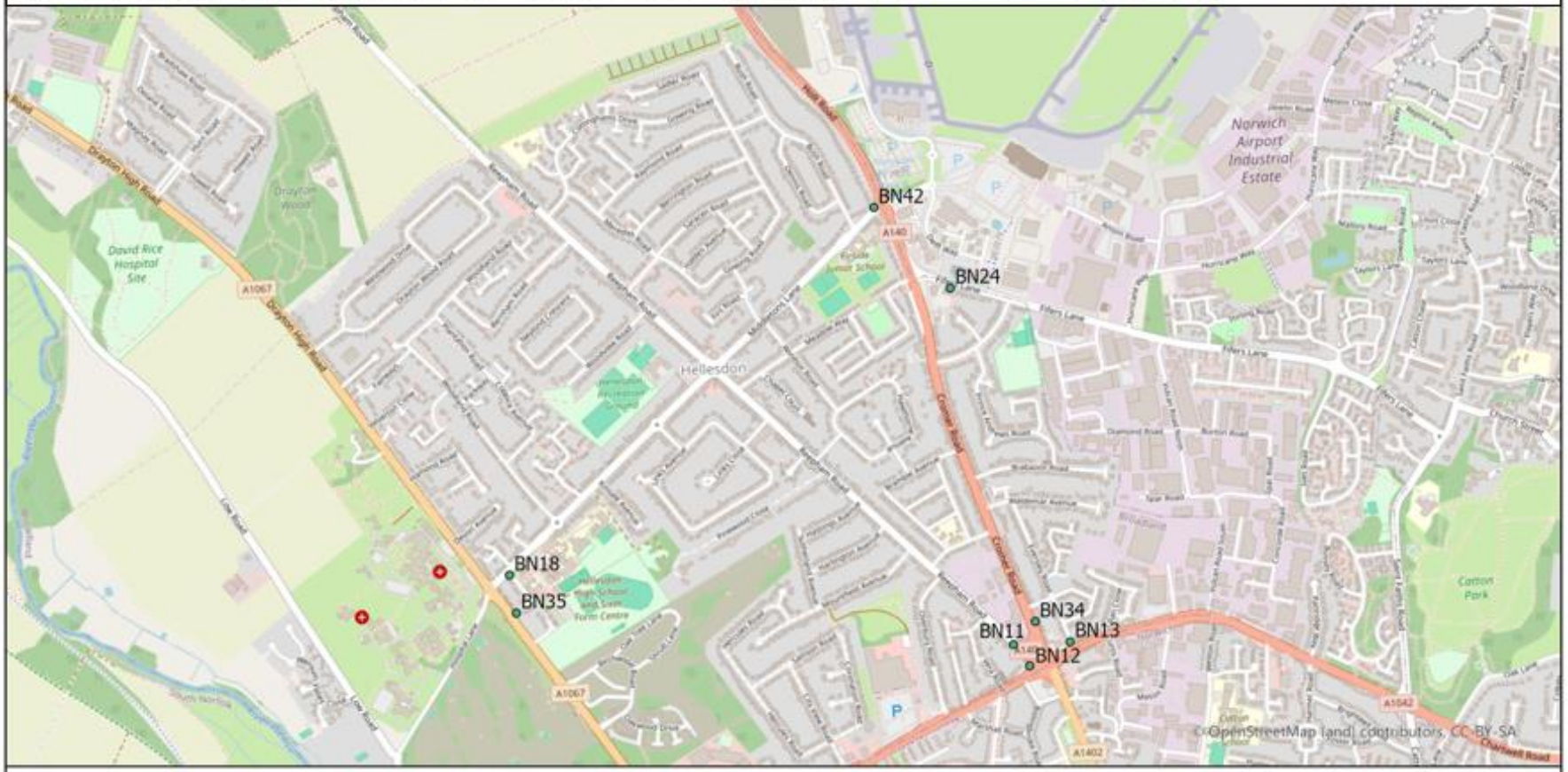
Hellesdon and Mile Cross



0 0.3 0.6 1.2 Kilometers

N

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Horsford

0 0.17 0.35 0.7 Kilometers

N

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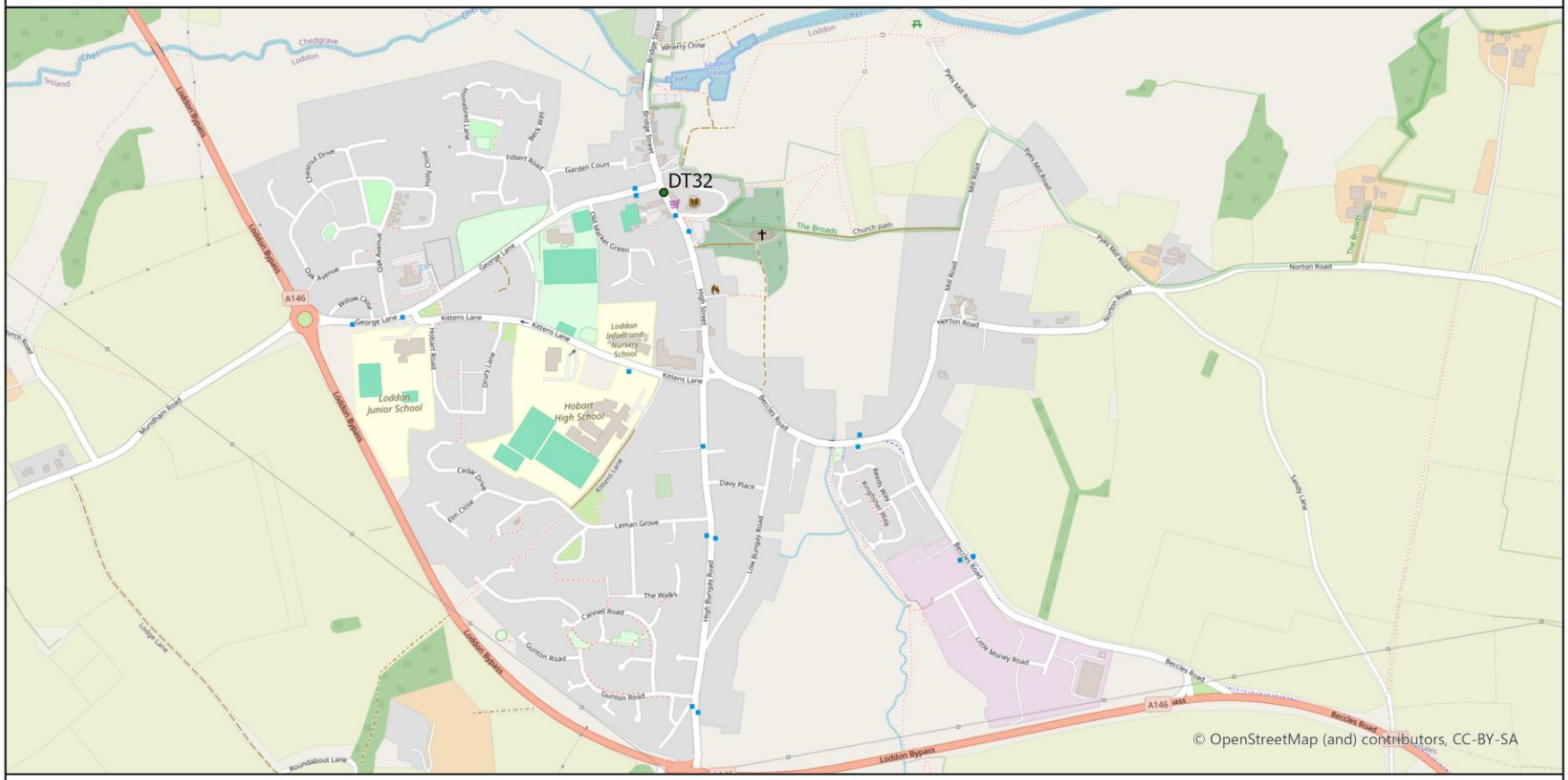
Loddon



0 0.17 0.35 0.7 Kilometers

N

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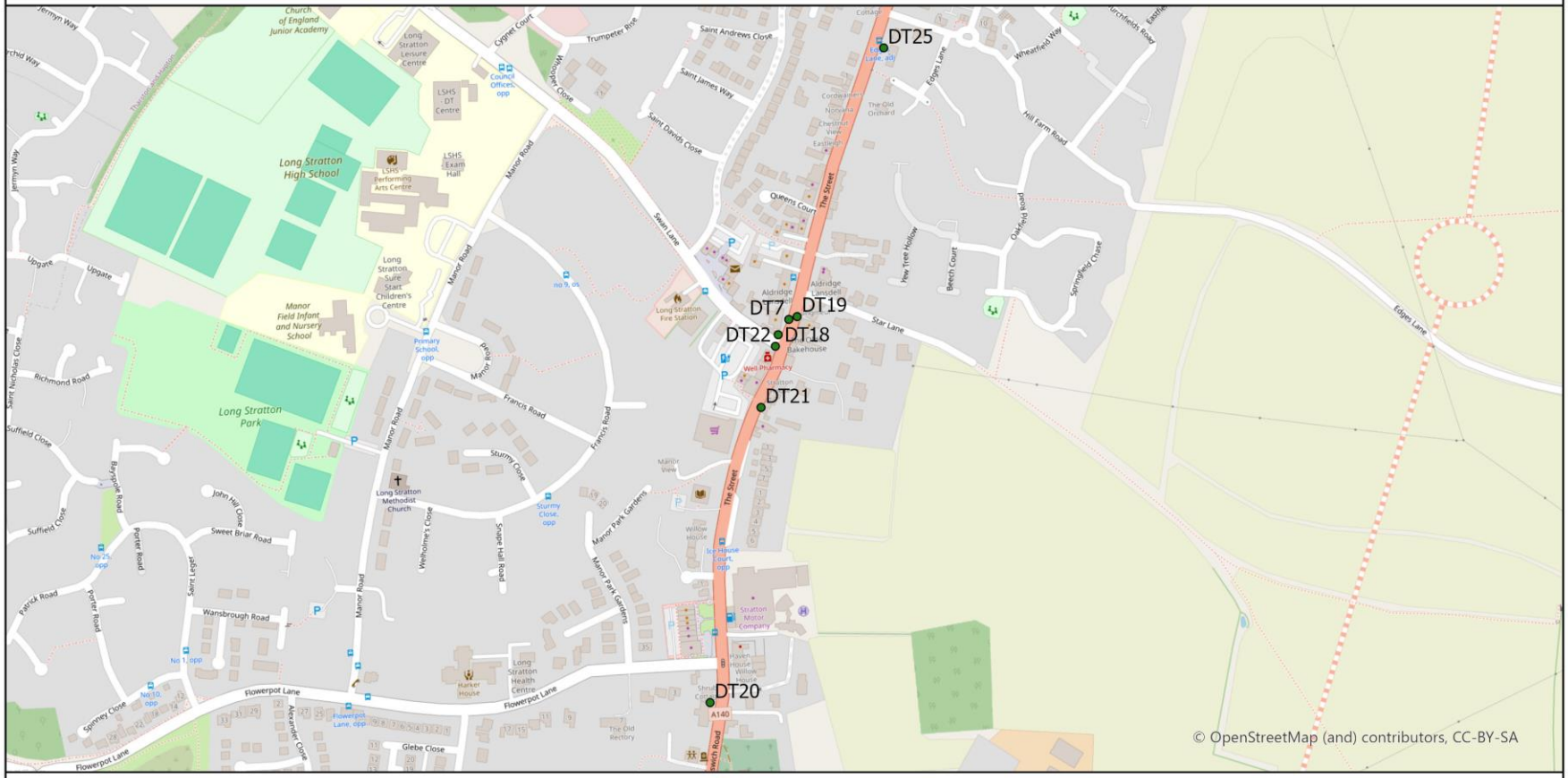
Long Stratton



Wroxham

0 0.17 0.35 0.7 Kilometers

N

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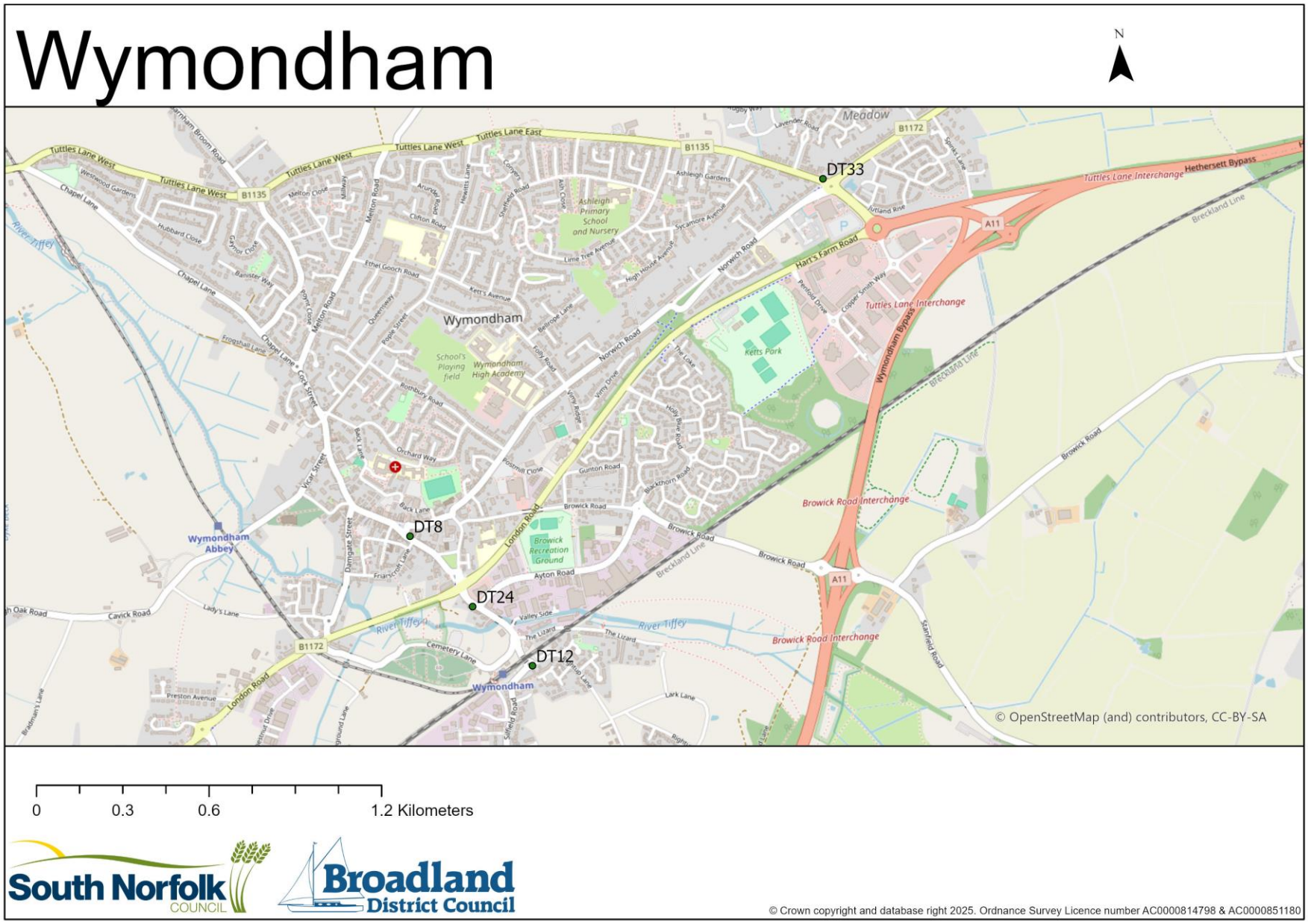
Wymondham
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DT33
DT8
DT24
DT12
Wymondham
Wymondham Abbey
Tuttles Lane West
Tuttles Lane East
Tuttles Lane Interchange
Hethersett Bypass
Browick Road Interchange
Browick Road
Ketts Park
Wymondham Bypass
Breckland Line
River Tiffey
Ashleigh Primary School and Nursery
School's Playing field
Wymondham High Academy
Browick Recreation Ground
A11
B1135
B1172
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0
0.3
0.6
1.2 Kilometers
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Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[4]

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

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