EAST RIDING OF YORKSHIRE COUNCIL

2023 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 2023

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Executive Summary: Air Quality in Our Area

Air Quality in East Riding of Yorkshire Council

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Figure 1– Map of the East Riding of Yorkshire

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

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

[3] Defra. Air quality appraisal: damage cost guidance, January 2023

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

The East Riding of Yorkshire is located in the north of England on the East Coast approximately 200 miles from Edinburgh, London and Rotterdam.

The East Riding of Yorkshire comprises of 26 Wards, 168 Parishes, 210 Lower Super Output Areas (LSOAs) and 1,114 Output Areas (OAs), covering an area of approximately 240,768 hectares (or 930 square miles). The coastline stretches for 53 miles from Bempton to Spurn Point.

In 2019 the population was estimated at 342,000 (2021 ONS Statistics Mid-Year Estimates). In 2041 the population is predicted to reach 358,880 (2018 ONS Population Projections), which is a lower rate of growth than the national growth rate at 5.5% compared to 9.6%.

Based on 2019 mid-year population estimates from the Office of National Statistics (ONS), the largest town is Bridlington in the northeast of the district, with 35,441 residents (although this is swelled dramatically by the influx of tourists during the summer months), the other major settlements being Beverley (33,078– including Molescroft and Woodmansey); Goole (21,105) and Cottingham (17,066).

In total there are 333 settlements, ranging from large towns to small, isolated hamlets and farmsteads. In 2011, the ONS classified the East Riding as being approximately 93% rural by area and 44% rural by population. This results in a low population density of approximately 1.4 people per hectare

Traditionally the area has been associated with agriculture and 90% of the land is still in some form of agricultural use today. Tourism is of particular importance along the long coastal strip, whilst pockets of industry, including agricultural engineering, timber processing, caravan manufacturing, transport and distribution, glass manufacture, food and drinks manufacture and chemical production, are to be found inland in close proximity to the main conurbations. Natural gas refining is carried out in the far southeast of the area whilst the inland port of Goole, served by vessels operating along the rivers Humber and Ouse has long been associated with the handling of raw materials. Mineral production is still important to the region, with the chalk uplands of the Wolds having a long historical link with quarrying.

East Riding's rail network primarily comprises services along the Hull to Scarborough line (via Cottingham, Beverley, Driffield and Bridlington), Hull to Doncaster/Sheffield line (via Brough and Goole), Hull to Leeds line (via Brough and Selby) and Hull to London line. Major Road links include the eastern section of the M62/A63 to Hull, the A164 (Humber Bridge to Beverley), the A1079 (Hull to York), the A614 (Goole to Bridlington) and the A165 (Hull to Bridlington). There is a major port at Goole with shipping traffic using the Humber and Ouse rivers.

Industrial sources of air pollution external to, but capable of affecting air quality within the East Riding of Yorkshire, include the Trent valley power stations to the south, the Aire valley power stations to the west and the British Steel Ltd works at Scunthorpe to the south.

Due to the nature of its landscape and its proximity to the North Sea, the East Riding has seen an increase in demand for development in the energy sector. This includes onshore and offshore windfarms and other renewable energy such as biomass, as well as pipelines and storage facilities for natural gas.

The council engages with external partners, such as Health Professionals and the Environment Agency, when dealing with emissions from combustion plants and other industrial sources.

Monitoring is undertaken in support of the review and assessment process using a network of 92 diffusion tubes located along principal traffic routes across the county to quantify kerbside NO_2 concentrations in the vicinity of relevant receptors. Monitoring locations are reviewed periodically to ensure they continue to reflect public exposure and are targeting those areas most likely to experience elevated levels. In 2022, 14 new locations were identified, and the tubes were re-distributed within the area.

In April 2022 the council purchased an additional six Zephyr low-cost sensors to add to the one purchased in 2021. These are deployed across the county to monitor nitric oxide (NO), nitrogen dioxide (NO_2), ozone (O3), particulate matter in the form of PM_1, $PM_{2.5}$ and PM_{10}. Four of these additional six units were funded by the council's Public Health Team. This is an important partnership in the council's efforts to improve local air quality.

Air quality within the East Riding of Yorkshire is good. Monitoring results for 2022 reported in this latest review and assessment show that there are no exceedances of any of the air quality objectives. Although the downward trend in NO_2 was not as marked as in previous years, it is thought that is attributed to the country finding it's new normal again after the COVID-19 pandemic, rather than an indication that the long-term downward trend of NO_2.is levelling off. The findings of previous reviews and assessments of local air quality have not required the Council to declare any Air Quality Management Areas (AQMAs).

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[5] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce $PM_{2.5}$ in their areas. The Road to Zero[6] details the approach to reduce exhaust emissions from road transport through a number of mechanisms. This is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations that are heavily influenced by transport emissions.

The East Riding Local Plan seeks to focus new development in more sustainable (larger) settlements thereby reducing the need to travel. It contains a range of policies requiring new development to minimise impacts on the environment, including the impact on air quality. Given the largely rural nature of the Council's district, the local plan also highlights the importance of maintaining and improving public transport services across the area.

The Council, as a long-standing member of the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG), adopts best practice approaches emerging from this group

[5] Defra. Environmental Improvement Plan 2023, January 2023

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

and from the wider local air quality community, actively engaging with developers and the business community to promote the provision of charging infrastructure and to encourage the uptake of low emission vehicles (LEVs). The council continues to install charging infrastructure in its public and leisure centre car parks. There has been a steady increase in the number of electric vehicle chargers, including rapid chargers, being installed by private companies across the region, including at supermarkets and other leisure and retail car parks.

Conclusions and Priorities

The monitoring results obtained across the East Riding of Yorkshire show that there have been no exceedances of any air quality objectives in 2022. The council do not foresee the need to declare any air quality management areas.

Local Engagement and How to get Involved

The Council encourages active travel such as walking and cycling as an alternative to driving, to support healthier lifestyles. People can get involved through the Local Transport Plan (LTP) and public health campaigns.

Appendix E of the LTP contains the Council's Public Electric Vehicle Infrastructure Strategy and includes advice on switching to an electric vehicle, and where to find and how to access the Council's free to use electric vehicle charging points.

Further information on air quality and how we control industrial emissions, can be found by visiting the air pollution pages of the Council's website.

The council has developed an interactive map showing the locations of all current and historic nitrogen dioxide diffusion tubes in the East Riding of Yorkshire.

The council has a public web portal showing the location and recent measurements of pollution at the Zephyr monitors in the county and giving users the opportunity to access and download historical data. It also provides advice on actions people might take to reduce their exposure to poor air quality, along with explanations of what is air pollution, what the

air quality objectives are, what the associated health effects are, and what people can do to reduce their exposure to poor air quality.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Control department of East Riding of Yorkshire Council with the support and agreement of the following officers and departments:

Tina Holtby, Group Manager (Public Protection)

David Howliston, Environmental Control Manager

This ASR has been approved by:

Councillor Leo Hammond, Portfolio Holder for Planning, Communities and Public Protection

Angela Dearing, Director of Housing, Transportation and Public Protection

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

Andy Kingdom, Director of Public Health 

If you have any comments on this ASR please send them to Jon Tait, Principal Officer (Environmental Control) at:

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Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in East Riding of Yorkshire Council during 2022. 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 East Riding of Yorkshire Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

East Riding of Yorkshire Council currently does not have any declared AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in East Riding of Yorkshire

Defra's appraisal of last year's ASR concluded that 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, East Riding of Yorkshire Council should submit an Annual Status Report in 2023.

Defra noted that the 2022 Annual Status Report was well structured, detailed, and provides the information specified in the Guidance. The following comments on the 2022 ASR were designed to help inform future reports:

1. The Council have included responses to comments from the previous ASR appraisal, and it is evident that the comments have been noted. This should continue in future ASRs. – Included within the 2023 ASR.

2. The Council could include comments on the reasoning behind additional diffusion tube locations in future ASRs for completeness – This has been addressed and is included within section 3.1.2

3. A detailed discussion on measures to reduce PM2.5 emissions has been included, with health impacts of pollutants included also. The Council should continue their good work in reducing PM2.5 emissions/concentrations in future years – Noted.

4. QA/QC procedures were discussed in detail. An image of the national bias adjustment spreadsheet has been included. This aids the reader in understand where the chosen bias adjustment has come from and should be continued in future ASRs. However, it should be noted that this image has been included twice, and one should be removed before publication – The second image was removed. The bias adjustment spreadsheet has been included within this 2023 ASR.

5. Overall, this report is well detailed and concise. It is clear that the Council is committed to maintaining good air quality, with clear plans to extend number of Zephyr sensors within the network in 2022. Further comments on the progress of this should be included in the 2023 ASR – This has been included within this 2023 ASR.

East Riding of Yorkshire Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 25 measures are

included within Table 2.1, with the type of measure and the progress East Riding of Yorkshire Council has made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

East Riding of Yorkshire Council's priorities for the coming year are to increase the number of low-cost sensors deployed within the county and to share the data they collect with the public via the council's online web portal. With this increased monitoring capability publicly available it is hoped this will gather local insight and evidence of air quality impacts on the East Riding population. Additionally, the public portal will provide information for residents, particularly those with respiratory and cardiovascular vulnerabilities a real time picture of the air quality in their area before embarking on physical activity.

East Riding of Yorkshire Council worked to implement these measures in partnership with the following stakeholders during 2022:

- East Riding of Yorkshire Council Directorate of Public Health

The principal challenges and barriers to implementation that East Riding of Yorkshire Council anticipates facing are financial pressures due to the current national and international economic situation.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	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	Bridlington Integrated Transport Plan (Phase 2)	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2019	2021	Local Authority Environmental Health, Local Authority Transport	Local Authority, Funding: Defra Air Quality Grant	YES	Funded	> £10 million	Completed			Completed. Now open to traffic	
2	A1079 corridor improvement scheme	Traffic Management	UTC, Congestion management, traffic reduction	2017	2020	Local Authority Environmental Health, Local Authority Transport	Local Authority, Funding: Defra Air Quality Grant	YES	Funded	£1 million - £10 million	Completed			Completed. Now open to traffic	
3	Preparation of 14 individual Local Cycling and Walking Infrastructure Plans	Promoting Low Emission Transport	Other	2017	2021	Town and Parish Councils, DfT, Cycling groups, ward councillors	Integrated Transport Block Grant from DfT	NO	Funded		Implementation			Three year programme of minor schemes to support walking and cycling.	
4	Production of the Cycling Strategy	Transport Planning and Infrastructure	Cycle network	2017	2029	Town and Parish Councils, DfT, Cycling groups, ward councillors	Integrated Transport Block Grant from DfT	NO	Funded		Implementation			Improvements schemes completed on various routes in the cycle network. Improved cycle parking and hire facilities in place, with particular emphasis on provision at railway stations.	
5	The Bus Strategy	Transport Planning and Infrastructure	Bus route improvements	2017	2029	Elected Representatives, Bus Operators	Integrated Transport Block Grant from DfT	NO	Funded		Implementation				

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6	Driver Training Programme	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2019		ERYC		NO	Funded		Implementation			The implementation of a new tracker system to manage the specifics of speeding, harsh acceleration and excess idling, but also to enhance the monitoring of driver behaviour. This is achievable by the introduction of an 'individual driver scorecard' structure. A key element to accomplish these goals is driver training. Vocational drivers already complete 35 hours of periodic training every 5 years as part of Driver Professional Competence (DCPC), Drivers that do not hold a vocational licence will receive training delivered by specialist colleagues within the Road Safety team, with the 'Driving for Work' course covering driving behaviours and techniques.	

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7	Promoting low emission transport	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2019		Local Authority Environmental Health, Local Authority Transport		NO	Funded		Implementation			There has been an increase in the number of Battery Electric Vehicles on the fleet, the number now stands at 10. Additional electric vehicle chargers have been installed at the Beverley, Market Weighton and Willerby Depots. Beverley 2 doubles 7.4kW. Market Weighton 1 double 7.4kW. Willerby 2 doubles 7.4kW. Many departments now actively pursuing vehicle assessments. To assist this, Vehicle Services are working with suppliers to source vehicles to demonstrate and we are actively encouraging departments to consider fully electric replacements where suitable and economically viable.	

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8	Vehicle fleet efficiency	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2019		ERYC		NO	Funded		Completed			The council vehicle fleet currently totals just over 650 vehicles of all types. Through the continuation of the vehicle replacement plan, over 70 percent of the fleet now meets the Euro 6 standard (that qualifies for the Ultra Low Emission Zones). Furthermore, over 40 percent of the vehicles meet the highest tier of Euro 6 emission standard. There are a further 120 vehicles due for replacement in the current financial year that will move this figure closer to 90 percent.	
9	Promoting low emission transport	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019		Local Authority Environmental Health, Local Authority Transport, 'Pod Point' 'Hubsta' Highways England		NO	Funded		Implementation			Public Electric Vehicle Infrastructure Strategy (LTP Appendix E). Programme of installation of 7kW charging infrastructure in council owned public car parks and leisure centre car parks.	
10	Bridlington Land trains	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2019		ERYC		NO	Funded		Completed			Completed in 2018	
11	A164/Jock's Lodge Junction improvement scheme	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access	2018	2026	LEP, DfT, MPs and ward councillors	DfT and local contributions	NO	Funded		Planning			Successful bid in 2018. Planning application approved in July 2020. Work is expected to commence in 2023 with works	

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			management, Selective vehicle priority, bus priority, high vehicle occupancy lane											hoping to be complete in 2026	
12	School Streets	Promoting Travel Alternatives	Promotion of walking	2020		Partnership between ERYC, local primary schools and Humberside Police	DFT Active Travel Fund (trench 1)	NO	Funded	£10k - 50k	Implementation			Now have a total of four permanently adopted scheme in place, in Airmyn, Pocklington, Market Weighton and Hessle with a further two currently on trial in Bridlington and Bilton, which were launched in October 22	
13	Brough Relief Road Phase 2	Traffic Management	UTC, Congestion management, traffic reduction	2017	2018	Horncastle Developers/ERYC/Pell Frischmann (Principal Consultant)	Horncastle	NO	Funded	> £10 million	Completed			Completed. Now open to traffic	
14	Brough Relief Road Phase 3	Traffic Management	UTC, Congestion management, traffic reduction	2020	2022	Humber LEP/ERYC/Horncastle Developers/Sweco (Principal Consultants)	50% Humber LEP/25% ERYC/25% Horncastle Developers	NO	Funded	£1 million - £10 million	Completed			Completed. Now open to traffic	
15	Draft - Technical Planning Guidance for Air Quality	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance		2022	ERYC		NO	Funded	< £10k	Planning			Technical Planning guidance was produced by the Environmental Control Team and is currently with colleagues in Planning and Development Control for comments	
16	Licensing Policy to ensure minimum emission standards for licenced vehicles	Promoting Low Emission Transport	Taxi emission incentives	2019		ERYC, Licenced vehicle operators	ERYC	NO	Funded	< £10k	Implementation			Hackney Carriage and Private Hire Licensing policy came in to force in April 2022 and makes it a requirement that all new and replacement vehicles meet the Euro 6	

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														standard. The only exception being petrol hybrid vehicles which must be Euro 4 or above	
17	Declaration of a Climate Emergency	Other	Other	2020		ERYC	ERYC	NO	Funded		Implementation			Greater awareness of air pollution issues and the link with climate change. Greater scrutiny by Councillors of how the council and its operations might impact upon local air quality and climate change. Air Quality now included with Climate Change in terms of reporting to Overview & Scrutiny	
18	A164 Riplingham Road Roundabout	Traffic Management	UTC, Congestion management, traffic reduction	2019	2020	ERYC Client, NMCN Principal Contractor	£2,982,000 from DfT NPIF, remainder Local Contributions	NO	Funded	£1 million - £10 million	Completed			Completed. Now open to traffic	
19	Purchase of low emission buses	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2021		ERYC		NO	Funded		Implementation			Council purchased one zero emission minibus in 2021 with a view to testing its efficiency and appropriateness for some of the transport that we provide. We are still not convinced that a suitable ZEV vehicle with the necessary range exists on the market that meets the bulk of our daily operational	Range from the current offering of vehicles on the market not yet suitable to meet daily operational requirements due to the large geographic area they have to cover.

Measure No.	Measure	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
														requirements. We are going to look at a new market entrant next week and keep the matter under constant review.	
20	Charging facilities in public car parks	Promoting Low Emission Transport	Priority parking for LEV's	2019		ERYC		NO	Funded		Implementation			Charging on council installed 7kw units is free of charge and pay and display charges do not apply to vehicles whilst charging.	
21	A63 Junction Improvement at Brough	Transport Planning and Infrastructure	UTC, Congestion management, traffic reduction	2022		ERYC	Developer	NO	Funded	£1 million - £10 million	Planning			A63 Junction improvement Brough (provision of a 3 arm roundabout with signals) due to start end of July '23 to be funded by the developer. This is aimed at reducing congestion	
22	A164 Willerby roundabout	Transport Planning and Infrastructure	UTC, Congestion management, traffic reduction	2022		ERYC	Developer	NO	Funded	£1 million - £10 million	Planning			A164 Willerby Roundabout due to start late July '23. Enlarging the existing roundabout and providing traffic signals. This is aimed at reducing congestion.	
23	East Riding of Yorkshire Council Air Pollution Web Portal	Public Information	Other	2022	2022	ERYC / Directorate of Public Health	ERYC	NO	Funded	< £10k	Completed			Council web portal to display live air quality data and allow residents to make healthy choices to limit their exposure to poor air quality and also to assist the council in reducing air pollution by encouraging residents to take a less polluting method of transport	

Measure No.	Measure	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
24	Zero emissions Minibuses	Promoting Low Emission Transport	Public transport improvements-interchanges stations and services	2022	2023	ERYC	ERYC	NO	Funded	£10k - 50k	Planning			Following a cost benefit analysis, a further zero-emissions vehicle was ordered in 2022. This is a Mellor Sigma 7 fully accessible minibus, which is intended to test as proof of concept for future replacement of our larger coach-built diesel minibus fleet. Delivery is scheduled for July 2023. It's more than double the cost of a diesel but the council expect a 15-year lifespan as opposed to 7	Large upfront costs of the electric vehicles as opposed to their diesel equivalent, but ongoing costs and lifespan are expected to be favourable.
25	Zero emissions vehicle fleet	Vehicle Fleet Efficiency	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2022		ERYC	ERYC	NO	Funded	£100k - £500k	Implementation			Council is working towards introducing zero emission vehicles onto the fleet. Now have 16 EVs on the fleet and have a fully EV 'lot' on the newly awarded Refuse collection vehicle framework. Also mid way through tendering a new van framework with EV as well as diesel lots.	All vehicle replacements now include an EV feasibility check and challenge. Feasibility checks focus on the specification of the vehicle, such as its purpose, the distance the vehicle needs to travel and the weight it needs to carry or tow. If a suitable replacement electric vehicle is available, then this would be purchased. However, this is dependent on the electric charging infrastructure being in place. The charging infrastructure is

Measure No.	Measure	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
															the biggest barrier to building the EV fleet.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

East Riding of Yorkshire Council is taking the following measures to address $PM_{2.5}$:

Vehicle emissions remain the main source of particulate matter in the Council's area and implementation of the transport initiatives identified in section 2.2 will, therefore, contribute to a reduction in total $PM_{2.5}$ emissions and to public exposure across the East Riding of Yorkshire.

The School Streets scheme continues to grow with additional schools signed up in 2022 and further schools planned for the next phase of the scheme.

The council continues its plans to expand the number of charging points for electric vehicles within the East Riding of Yorkshire and has installed a significant number of chargers in principal towns across the county. The council is also continuing its programme of purchasing low emissions vehicles to clean up the council's fleet. This is combined with installing charging infrastructure at council depots to support this roll out. However, the availability of charging infrastructure in the county as a whole remains the most significant challenge to this expansion of ULEVs in the council fleet.

Further reduction in exposure can be achieved through the planning process, by ensuring new development is located and designed in a way that minimises further emissions of, or exposure to, air pollution. There continues to be a notable increase in the number of requests from consultants and developers asking the council for comment on the scope of proposed air quality assessments to accompany future planning applications. This is encouraging as it shows that the council's efforts, through planning, to raise the profile of air quality and the need for it to be assessed as part of planning applications has resulted in engagement from developers.

Construction Emissions Management Plans (CEMPs) address the impacts on air quality during the actual development of a site and have been used on major development sites

to require developers to control dust and set minimum emission standards for construction vehicles and delivery vehicles. For larger scale developments, conditions requiring transport plans have been used to limit private vehicle use or to encourage the uptake of ultra-low emission vehicles (ULEVs) and to support public transport provision, thus reducing longer term impacts on air quality from increased traffic generated by the operational phase of development.

Air quality assessments are commonly submitted with larger applications and where appropriate officers from the environmental control team recommend a Damage Cost assessment be undertaken to mitigate any increase in emissions.

The introduction of the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020 has led to colleagues in Trading Standards actively visiting premises to ensure that the Ready to Burn requirements are being followed. Given the rural nature of the East Riding of Yorkshire it is likely that a significant number of properties use wood burning on a semi-regular basis so it is hoped that the introduction of this scheme will assist in bringing down levels of $PM_{2.5}$. It is unlikely that any Smoke Control Areas will be considered for the East Riding given its rural nature, however this will be kept under review.

Poor air quality is a significant public health issue. The Public Health Outcomes Framework (PHOF) sets out a vision for public health, desired outcomes and the indicators that will help us understand how well public health is being improved and protected. The importance of the effects of air pollution on public health is reflected by the inclusion of an indicator of mortality associated with air pollution, specifically fine particulate matter ($PM_{2.5}$) which is acknowledged to impact on public health. The PHOF allows Directors of Public Health to prioritise appropriate action on air quality in their local area. More information on the role of Public Health is available on our website.

Air pollution is the largest environmental risk to the public's health, contributing to cardiovascular disease, lung cancer and respiratory diseases. It increases the chances of hospital admissions, visits to Emergency Departments and respiratory and cardiovascular symptoms which interfere with everyday life, especially for people who are already vulnerable. Poor air quality affects everyone but has a disproportionate impact on the young and old, the sick and the poor, often displaying a strong correlation with indices of deprivation, with areas experiencing poor air quality frequently being among the less affluent.

Local actions to address the health impacts of air pollution on local populations can play a critical role in supporting other local priorities such as active travel, health inequalities, integrated care, sustainability, growth and regeneration, and localism and community engagement. Progress will be seen by designing and implementing the right policies and interventions and raising awareness of the issue. Taking action to improve air quality is central to improving population health. Evidence for the association between air pollution and a wide range of adverse health effects in the general population is now undeniable; Public Health England (PHE) estimates 5.3% of all mortalities may be linked to long-term exposure to air pollution and that there are 172 deaths each year attributable to air pollution in the East Riding of Yorkshire.

At the time of writing this report, no further updates to the previously reported local health statistics within the East Riding of Yorkshire were available.

The health statistics displayed in Tables 2.3 serve to demonstrate prevalence and recent trends in the relevant indicators to 2018-22 within the East Riding of Yorkshire:

Table 2.3 Local Authority Health Profile – East Riding of Yorkshire Council – All Indicators

Indicator	Period	East Riding			Region	England	England	
		Recent Trend	Count	Value	Value	Value	Worst	Range	Best
Life expectancy at birth (Male, 3 year range)	2018 - 20	–	-	80.1	78.4	79.4	74.1		84.7
Life expectancy at birth (Male, 1 year range)	2021	–	-	79.7	78.0	78.7	72.3		82.9
Life expectancy at birth (Female, 3 year range)	2018 - 20	–	-	83.5	82.2	83.1	79.0		87.9
Life expectancy at birth (Female, 1 year range)	2021	–	-	83.5	82.0	82.8	78.6		86.0
Under 75 mortality rate from all causes	2021	–	1,194	312.9	394.9	363.4	625.1		205.7
Under 75 mortality rate from all cardiovascular diseases	2021	–	-	67.5	86.8	76.0	133.9		29.6
Under 75 mortality rate from cancer	2021	–	441	112.1	131.0	121.5	189.8		75.8
Suicide rate	2019 - 21	–	115	13.0	12.5	10.4	19.8		4.8
Killed and seriously injured (KSI) casualties on England's roads	2021	→	190	89.3	110.8*	95.6*	469.8		31.2
Emergency Hospital Admissions for Intentional Self-Harm	2021/22	–	325	102.9	146.7	163.9	425.7		47.9
Hip fractures in people aged 65 and over	2021/22	–	525	573	546	551	741		351
Percentage of cancers diagnosed at stages 1 and 2	2020	→	768	49.4%	50.6%	52.3%	43.7%		60.2%
Estimated diabetes diagnosis rate	2018	–	-	82.8%	81.9%	78.0%	54.3%		97.5%
Estimated dementia diagnosis rate (aged 65 and over) > 66.7% (significantly) similar to 66.7% < 66.7% (significantly)	2022	→	-	55.4%	63.1%	62.0%	50.3%		82.4%
Admission episodes for alcohol-specific conditions - Under 18s	2018/19 - 20/21	–	35	18.5	27.2	29.3	83.8		7.7
Admission episodes for alcohol-related conditions (Narrow)	2021/22	–	1,809	466	533	494	840		251
Smoking Prevalence in adults (18+) - current smokers (APS)	2021	–	-	10.2%	14.1%	13.0%	22.0%		6.6%
Percentage of physically active adults	2021/22	–	-	68.1%	66.1%	67.3%	51.6%		77.3%
Percentage of adults (aged 18 plus) classified as overweight or obese	2021/22	–	-	69.4%	66.5%	63.8%	76.4%		44.2%
Under 18s conception rate / 1,000	2021	–	-	11.1	17.1	13.1	31.5		2.7
Smoking status at time of delivery	2021/22	↓	-	10.9%	12.0%	9.1%	21.1%		3.1%
Baby's first feed breastmilk (previous method)	2018/19	–	-	64.5%	56.4%	67.4%	43.6%		98.7%
Infant mortality rate	2019 - 21	–	29	3.7	4.4	3.9	7.5		1.2
Year 6: Prevalence of obesity (including severe obesity)	2021/22	↑	750	22.7%	24.9%	23.4%	34.0%		12.4%
Deprivation score (IMD 2019)	2019	–	-	15.6	26.0	21.7	45.0		5.8
Smoking prevalence in adults in routine and manual occupations (18-64) - current smokers (APS)	2020	–	-	17.2%	25.5%	24.5%	42.1%		6.3%
Inequality in life expectancy at birth (Male)	2018 - 20	–	-	6.8	10.7	9.7	17.0		2.6
Inequality in life expectancy at birth (Female)	2018 - 20	–	-	3.2	8.8	7.9	13.9		1.2
Children in relative low income families (under 16s)	2021/22	–	7,981	14.8%	22.7%	19.9%	41.7%		5.4%
Children in absolute low income families (under 16s)	2021/22	–	6,141	11.4%	17.7%	15.3%	35.3%		4.2%
Average Attainment 8 score	2021/22	–	153,239	47.6	46.9	48.7	39.2		61.3
Percentage of people in employment	2021/22	→	149,400	78.3%	74.3%	75.4%	62.9%		86.1%
Homelessness: households owed a duty under the Homelessness Reduction Act	2021/22	–	-	-	-	-	-	-	-
Violent crime - hospital admissions for violence (including sexual violence)	2018/19 - 20/21	–	240	28.4	47.3	41.9	116.8		12.0
Winter mortality index	Aug 2020 - Jul 2021	–	380	29.2%	21.3%	36.2%	104.8%		6.5%
New STI diagnoses (excluding chlamydia aged under 25) per 100,000 New data	2021	↓	552	161	287*	403	2,694		157
TB incidence (three year average)	2019 - 21	–	19	1.8	5.8	7.8	41.4		0.2

Source: Public Health England Fingerprints – Accessed 22nd June 2023

https://fingertips.phe.org.uk/profile/health-profiles/data#page/1/gid/1938132701/pat/6/par/E12000003/ati/502/are/E06000011/yrr/3/cid/4/tbm/1

The council's environmental control team works closely with colleagues in the Directorate of Public Health to help raise awareness of air pollution and what residents can do to either reduce their own exposure or take measures to tailor their own choices to reduce their own contribution to air pollution. Primarily this is achieved through the funding of the expansion of the council's network of Zephyr monitors and the web portal where residents can view live air quality data and see how it impacts on their life so that they, specifically those particularly susceptible to poor air quality, can make choices.

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

This section sets out the monitoring undertaken within 2022 by East Riding of Yorkshire Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

East Riding of Yorkshire Council undertook automatic (continuous) monitoring at 7 sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

The council air pollution monitoring page presents automatic monitoring results for East Riding of Yorkshire Council. The position of, and data from, the network of Zephyr monitors used by the East Riding of Yorkshire Council can be viewed at our web portal.

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

East Riding of Yorkshire Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 92 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

14 of the 92 diffusion tube monitoring locations were new for 2022. The East Riding of Yorkshire Council reviews the locations of diffusion tube monitoring on an annual basis. Locations where monitoring has been undertaken for a minimum of 2 years and results are shown to consistently be below 30µgm^3 are considered suitable to be relocated. There are some locations where this criterion has been met but monitoring continues for a number of years, this is typically due to them being located in an area with rapid expansion of development, new transport hubs, or industrial development. The results of these diffusion tubes are then used by developers to verify the results of their air quality

assessments. The 14 new locations chosen for 2022 were all placed in locations where either the council were receiving an increase in planning applications for large scale housing developments or industrial hubs, or where there had been an interest in local air quality by residents or elected members. Diffusion tubes are a cost-effective way of demonstrating that an area is not suffering from poor air quality, as may be feared by residents or elected members. The council will continue to review the location of diffusion tubes each year and ensure that they remain located in the most effective position.

Maps showing the location of the monitoring sites are provided at the interactive map of diffusion tubes and are also presented 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 (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 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.

Monitoring undertaken in 2022 does not give any cause for concern with regard to the air quality objectives.

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

3.2.2 Particulate Matter (PM_{10})

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

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

Monitoring undertaken in 2022 does not give any cause for concern with regard to the air quality objectives.

3.2.3 Particulate Matter ($PM_{2.5}$)

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

Monitoring undertaken in 2022 does not give any cause for concern with regard to the air quality objectives.

3.2.4 Sulphur Dioxide (SO_2)

East Riding of Yorkshire Council does not currently monitor Sulphur Dioxide (SO_2)

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
RCMelton_Zephyr	21, Reynolds Close Melton	Roadside	496909	426511	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	14.9	1.2	2.6
Brid_Zephyr	Bessingby Way, Bridlington	Roadside	517647	466713	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	7.8	8.1	2.75
NFerr_Zephyr	Melton Road, North Ferriby	Roadside	498036	426313	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	28.4	2.4	3.2
GooleNS_Zephyr	North Street, Goole	Roadside	474860	423508	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	11.8	1.9	2.7
Hess_Zephyr	Station Road, Hessle	Roadside	503048	425793	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	18.9	2	2.85
Pres_Zephyr	Station Road, Preston	Roadside	518847	430309	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	2.7	1.4	2.8
Bev_Zephyr	Swinemoor Lane, Beverley	Roadside	504859	439769	NO, NO2, O3, PM1, PM2.5, PM10	NO	Active indicative sampling	10.3	1.6	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.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)
S1	EA compound, Railway Cottage, Hessle	Suburban	503426	425868	NO2	No	1.0	30.0	No	2.5
S2	Kexby House, A1079 Eastbound, Kexby	Roadside	470730.7283	451338.0765	NO2	No	35.0	2.6	No	1.6
S3	51 Main Street, Market Weighton	Kerbside	487620.071	441789.4571	NO2	No	2.5	0.6	No	2.8
S4	7 Main Street, Sutton Upon Derwent	Roadside	470804	447111	NO2	No	3.8	1.1	No	2.7
S5	Boothferry Rd. / Airmyn Rd, Goole	Kerbside	473572.9992	424054.5242	NO2	No	7.0	0.7	No	2.2
S6	The George and Dragon PH, Aldbrough	Kerbside	524097.11	438566.67	NO2	No	0.0	0.9	No	2.3
S7	The Homestead, B1242, Atwick	Roadside	519063.77	450815.52	NO2	No	6.3	1.4	No	2.7
S8	Queensgate (No.1), Beverley	Roadside	503063.8867	439000.6398	NO2	No	0.0	1.7	No	2.6
S9	Keldgate (No. 163), Beverley	Roadside	503085.8628	439019.5221	NO2	No	0.0	1.0	No	2.4
S10	Queensgate (No. 16), Beverley	Kerbside	503012.5961	438913.2536	NO2	No	16.0	0.9	No	2.5

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)
S11	55 George Street, Pocklington	Kerbside	480061	449146	NO2	No	6.0	0.9	No	2.8
S12	Dunoon, Main Street, Skipsea	Roadside	516804.2	454969.6	NO2	No	0.0	1.6	No	2.6
S13	Wolfreton Drive, Anlaby	Roadside	505498.06	428880.59	NO2	No	1.7	2.7	No	2.7
S14	115 Marton Road, Bridlington	Roadside	518102	468387	NO2	No	20.0	1.1	No	2.7
S15	Exchange St, Driffield. Traffic lights by Market Place	Roadside	502268.6154	457754.0438	NO2	No	0.0	1.1	No	2.1
S16	182 Beverley Road, Hessle	Roadside	503301.71	427402.83	NO2	No	7.0	1.6	No	2.8
S17	130 Welton Road, Brough	Roadside	495260.81	426908.38	NO2	No	15.7	1.6	No	2.7
S18	Jasmine Cottage, Hatkill Lane, Full Sutton	Roadside	474542.4374	455384.1527	NO2	No	0.0	1.2	No	2.7
S19	22 Packman Lane, Kirk Ella	Roadside	501827.34	429826.05	NO2	No	11.6	1.4	No	2.7
S20	Front Street (No.45) Middleton on the Wolds	Roadside	494243.9385	449418.4151	NO2	No	1.0	1.3	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)
S21	Station House, Cliff Bridge, Hessle	Roadside	502581	425599	NO2	No	2.0	1.5	No	2.8
S22	Boothferry Rd (A614), Howden	Roadside	474900.431	427902.2273	NO2	No	18.0	2.4	No	2.6
S23	Holly Dene, A1079, Wilberfoss	Roadside	473124.5736	450659.1152	NO2	No	20.0	4.6	No	2.8
S24	38 Main Street, Bubwith	Roadside	471394.0027	436338.7872	NO2	No	1.5	2.9	No	2.2
S25	Argyle House, 270 Northgate, Cottingham	Roadside	504100.4587	433231.8053	NO2	No	6.3	1.5	No	2.7
S26	Albion Court/Grovehill Rd. Roundabout, Beverley	Roadside	504737.6003	439743.9426	NO2	No	0.0	3.3	No	2.5
S27	Hull Rd (No. 3), Saltend	Roadside	515780.8113	429027.1769	NO2	No	6.5	6.0	No	2.4
S28	A63/Gibson Lane North, Melton	Roadside	496997.1652	426489.734	NO2	No	24.0	4.3	No	2.7
S29	3 Beverley Road, Driffield	Roadside	502309.4856	457080.6388	NO2	No	3.6	1.2	No	2.3
S30	Swinemoor Lane / Barmston Road, Beverley	Roadside	504636.8833	440016.9693	NO2	No	12.0	2.3	No	2.8

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)
S31	Stonepit Lodge, Windmill Hill, Driffield	Kerbside	502214.724	458408.5201	NO2	No	4.7	0.7	No	2.6
S32	Melton Road, North Ferriby	Roadside	497943.4	426316.27	NO2	No	6.1	3.1	No	2.7
S33	Swinemoor Lane (No. 9), Beverley	Roadside	504697.4403	439881.6048	NO2	No	5.0	2.0	No	2.8
S34	Swinemoor Lane (No. 83), Beverley	Roadside	504504.7056	440305.4876	NO2	No	6.0	2.4	No	2.8
S35	A63 East (The Old Foundry), Welton	Roadside	495625.879	427059.9296	NO2	No	23.0	10.0	No	2.7
S36	18 Station Road, Pocklington	Roadside	480187.7068	448778.3854	NO2	No	1.0	2.4	No	2.6
S37	HSBC, A1033 (Queen Street), Withernsea	Roadside	534033.9485	428008.5654	NO2	No	1.0	2.1	No	2.1
S38	Bridge Lane, Rawcliffe Bridge	Roadside	468844.14	421735.15	NO2	No	8.5	2.0	No	2.6
S39	3 High Street, Airmyn	Kerbside	472611.82	425584.18	NO2	No	0.5	0.4	No	2.0
S40	School, Percy Drive, Airmyn	Roadside	472721.31	425421.89	NO2	No	7.3	1.6	No	2.7
S41	29 Railway Street, Beverley	Roadside	503753.78	439572.28	NO2	No	0.0	1.3	No	2.7

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)
S42	Hook School, Garth Lane, Hook	Roadside	476054.17	425330.38	NO2	No	4.0	1.9	No	2.7
S43	Church Street / Market Place, South Cave	Roadside	492328.45	431213.79	NO2	No	0.0	1.7	No	2.5
S44	Church Street (No.19), North Cave	Roadside	489433.6301	432676.0754	NO2	No	0.0	1.1	No	2.6
S45	A63 West (Pool Bank Farm), Welton	Roadside	495723.3046	426953.5045	NO2	No	10.0	9.0	No	2.0
S46	1 School Road, Preston	Roadside	518784	430418	NO2	No	1.8	1.8	No	2.5
S47	31 Main Street, Preston	Kerbside	518701.48	430576.71	NO2	No	1.3	0.3	No	2.6
S48	Hull Rd/Grovehill Rd. Roundabout, Beverley	Roadside	504774.7756	439693.3501	NO2	No	7.0	3.0	No	2.5
S49	73 Swinefleet Road, Old Goole	Roadside	474765.7347	422542.5044	NO2	No	7.5	1.6	No	2.6
S50	Parliament Street, Welton	Roadside	496005.76	427312.55	NO2	No	6.7	1.0	No	2.7
S51	Tower Hill (one way sign), Hessle	Roadside	505233.77	426460.01	NO2	No	0.1	1.6	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)
S52	12 Northolmby Street, Howden	Roadside	474615.5211	428347.2036	NO2	No	0.0	1.0	No	2.6
S53	Church Hill Rd. (No.5), Middleton on the Wolds	Kerbside	494542.6987	449616.4408	NO2	No	14.0	0.7	No	2.8
S54	Church Hill Rd. (No.14), Middleton on the Wolds	Roadside	494674.6969	449632.4016	NO2	No	1.0	1.3	No	2.6
S55	Reynolds Close (No. 17), Melton	Roadside	496871.5688	426518.4046	NO2	No	13.0	14.0	No	2.8
S56	A63 eastbound, opposite Shell Grand Dale	Roadside	496771.2818	426526.852	NO2	No	9.0	4.7	No	2.2
S57	102 High Street, Rawcliffe	Roadside	468164.5994	422932.4038	NO2	No	0.0	1.6	No	2.6
S58	2 Market Place, South Cave	Roadside	492243.9714	431032.1149	NO2	No	0.0	1.4	No	2.5
S59	69 Southgate, Hornsea	Roadside	519971.3857	447580.9242	NO2	No	0.0	2.2	No	2.5
S60	12 Dale Road, Brantingham	Roadside	494733	428221	NO2	No	1.0	1.5	No	2.8
S61	A63 Eastbound, cycle sign, Welton	Roadside	495732.2676	426996.6958	NO2	No	24.0	4.7	No	2.1
S62	White House Farm, Scorborough	Roadside	501315	445463	NO2	No	2.7	5.4	No	1.6

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)
S63	23 Brickyard Lane, Melton	Roadside	497423.35	426118.38	NO2	No	21.0	1.5	No	2.7
S64	Roundabout, 253 Beverley Road, Anlaby	Roadside	502950.8305	429192.1568	NO2	No	12.0	2.4	No	2.7
S65	34 Manor Drive, Elloughton	Roadside	494770	428016	NO2	No	5.5	1.5	No	2.7
S66	Market Place (No. 19), South Cave	Roadside	492243.1898	431116.3633	NO2	No	2.0	1.1	No	2.6
S67	Woodgates Lane (No. 35), North Ferriby	Roadside	498491.6749	426550.1979	NO2	No	15.0	6.0	No	2.6
S68	Aysgarth, Garth Lane, Hook	Roadside	476123.51	424941.86	NO2	No	12.0	2.0	No	2.8
S69	The Manor House Wansford	Roadside	506332	456175	NO2	No	8.8	1.3	No	2.8
S70	Southgate (No. 56), Hornsea	Roadside	520020.651	447520.0065	NO2	No	0.0	1.5	No	2.1
S71	100 Gibson Lane, Melton	Roadside	496859.5094	425815.3223	NO2	No	3.0	1.2	No	2.0
S72	A63 west (Melton Grange), Melton	Roadside	497222.1311	426411.5658	NO2	No	16.0	4.0	No	2.8
S73	7 Jenny Brough Lane, Hessle	Roadside	502100.5799	427374.9955	NO2	No	1.0	2.0	No	2.6
S74	50 Main Street, Stamford Bridge	Roadside	471538.95	455708.27	NO2	No	3.3	1.4	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)
S75	Tranby Lane / Beverley Road, Anlaby	Roadside	502951.0716	428699.6115	NO2	No	6.0	2.2	No	2.5
S76	Grays Farm, B1242, Mappleton	Roadside	522589	444098	NO2	No	0.0	1.4	No	2.6
S77	56 Skillings Lane, Brough	Roadside	494157.84	426490.43	NO2	No	7.6	3.8	No	2.7
S78	Beast Fair (No. 6), Snaith	Roadside	464192.1279	422111.8612	NO2	No	6.6	1.0	No	2.3
S79	46 St Marys Close, Hessle	Roadside	498622	426191	NO2	No	8.2	1.5	No	2.7
S80	Selby Road (No. 15), Snaith	Roadside	464162.9148	422150.6864	NO2	No	0.3	1.4	No	2.5
S81	The Limes, Staithes Road, Preston	Roadside	516823.9574	429457.2813	NO2	No	80.0	2.0	No	2.8
S82	Glencoe Villas (No. 6), Hull Road, Hedon	Kerbside	516957.2898	428795.3264	NO2	No	8.0	0.8	No	2.8
S83	26 High Street, North Ferriby	Roadside	498623	426192	NO2	No	9.3	1.5	No	2.7
S84	57 Flemingate, Beverley	Roadside	504062.7906	439233.2669	NO2	No	0.2	1.2	No	2.7
S85	149 Holme Church Lane, Beverley	Roadside	504487.7211	439562.1407	NO2	No	6.6	1.8	No	2.7
S86	Main Street, Cherry Burton	Roadside	499170.1107	442062.2603	NO2	No	8.5	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)
S87	41 Northside, Patrington	Kerbside	531349.2504	422778.8424	NO2	No	2.8	0.9	No	2.8
S88	7 North Street, Leven	Kerbside	510541.1239	445401.6134	NO2	No	0.0	0.9	No	2.8
S89	Main Street, Catwick	Roadside	512767.707	445478.8945	NO2	No	0.0	1.9	No	2.6
S90	1 Corner Farm, Main Street, Brandesburton	Roadside	511627.7473	447613.7572	NO2	No	0.0	1.3	No	2.3
S91	64 Scarborough Road, Bridlington	Roadside	517023.8059	468183.9652	NO2	No	2.6	1.3	No	2.6
S92	Rycote House, Routh	Roadside	508853	442647	NO2	No	0.5	3.1	No	1.2

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RCMelton_Zephyr	496909	426511	Roadside	98	98				18.3	16.3
Brid_Zephyr	517647	466713	Roadside	100	73					12.6
NFerr_Zephyr	498036	426313	Roadside	100	72					11.1
GooleNS_Zephyr	474860	423508	Roadside	96	71					11.2
Hess_Zephyr	503048	425793	Roadside	93	67					9.1
Pres_Zephyr	518847	430309	Roadside	100	73					8.4
Bev_Zephyr	504859	439769	Roadside	100	73					14.2

☒ **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**

Notes:

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

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

All means have been "annualised" as per LAQM.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)

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 2022 (%) (2)	2018	2019	2020	2021	2022
S1	503426	425868	Suburban	100	100.0					14.9
S2	470730.7283	451338.0765	Roadside	100	100.0	31.0	29.0	21.4	21.2	21.2
S3	487620.071	441789.4571	Kerbside	100	100.0		22.0	18.7	20.3	18.6
S4	470804	447111	Roadside	100	100.0					11.0
S5	473572.9992	424054.5242	Kerbside	100	100.0	30.0	28.0	23.2	26.3	24.4
S6	524097.11	438566.67	Kerbside	100	100.0				14.7	13.4
S7	519063.77	450815.52	Roadside	100	100.0				12.7	12.6
S8	503063.8867	439000.6398	Roadside	92.3	92.3	27.0	27.0	21.1	23.7	20.9
S9	503085.8628	439019.5221	Roadside	100	100.0	29.0	29.0	21.2	24.8	22.5
S10	503012.5961	438913.2536	Kerbside	92.3	92.3	24.0	25.0	20.4	21.8	20.0
S11	480061	449146	Kerbside	100	100.0					21.8
S12	516804.2	454969.6	Roadside	100	100.0				10.0	10.1
S13	505498.06	428880.59	Roadside	100	100.0				17.0	15.2

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 2022 (%) (2)	2018	2019	2020	2021	2022
S14	518102	468387	Roadside	100	100.0					20.4
S15	502268.6154	457754.0438	Roadside	84.6	84.6		24.0	20.0	21.5	18.9
S16	503301.71	427402.83	Roadside	100	100.0				25.2	22.3
S17	495260.81	426908.38	Roadside	82.7	82.7				15.8	15.9
S18	474542.4374	455384.1527	Roadside	82.7	82.7	18.0	15.0	10.6	9.8	10.4
S19	501827.34	429826.05	Roadside	90.4	90.4				10.3	10.3
S20	494243.9385	449418.4151	Roadside	100	100.0	31.0	32.0	24.5	27.8	26.6
S21	502581	425599	Roadside	100	100.0					19.5
S22	474900.431	427902.2273	Roadside	90.4	90.4	32.0	30.0	25.1	26.4	24.2
S23	473124.5736	450659.1152	Roadside	100	100.0			15.3	15.1	15.8
S24	471394.0027	436338.7872	Roadside	100	100.0			14.7	15.6	14.4
S25	504100.4587	433231.8053	Roadside	100	100.0			20.0	22.0	20.2
S26	504737.6003	439743.9426	Roadside	100	100.0	21.0	19.0	16.6	17.9	16.7
S27	515780.8113	429027.1769	Roadside	100	100.0	27.0	27.0	22.6	23.5	22.9

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 2022 (%) [2]	2018	2019	2020	2021	2022
S28	496997.1652	426489.734	Roadside	100	100.0	**41.0**	**41.0**	31.5	33.1	32.9
S29	502309.4856	457080.6388	Roadside	100	100.0	28.0	27.0	22.2	21.4	22.7
S30	504636.8833	440016.9693	Roadside	100	100.0	26.0	23.0	19.9	22.1	21.5
S31	502214.724	458408.5201	Kerbside	100	100.0		20.0	17.4	16.6	16.2
S32	497943.4	426316.27	Roadside	100	100.0				23.3	22.4
S33	504697.4403	439881.6048	Roadside	100	100.0	34.0	29.0	23.7	26.6	22.8
S34	504504.7056	440305.4876	Roadside	100	100.0	18.0	17.0	13.4	14.6	14.0
S35	495625.879	427059.9296	Roadside	100	100.0	**42.0**	**40.0**	30.0	33.4	32.4
S36	480187.7068	448778.3854	Roadside	100	100.0		19.0	13.9	15.5	15.7
S37	534033.9485	428008.5654	Roadside	100	100.0	20.0	19.0	15.1	16.6	16.2
S38	468844.14	421735.15	Roadside	82.7	82.7				18.1	16.1
S39	472611.82	425584.18	Kerbside	100	100.0				15.1	14.7
S40	472721.31	425421.89	Roadside	92.3	92.3				10.6	9.3
S41	503753.78	439572.28	Roadside	90.4	90.4				20.1	19.2

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 2022 (%) [2]	2018	2019	2020	2021	2022
S42	476054.17	425330.38	Roadside	100	100.0				10.2	9.8
S43	492328.45	431213.79	Roadside	100	100.0				16.1	15.0
S44	489433.6301	432676.0754	Roadside	100	100.0			18.6	21.7	20.1
S45	495723.3046	426953.5045	Roadside	100	100.0	33.0	29.0	21.8	25.3	23.7
S46	518784	430418	Roadside	100	100.0					22.9
S47	518701.48	430576.71	Kerbside	92.3	92.3				23.1	22.6
S48	504774.7756	439693.3501	Roadside	100	100.0	21.0	20.0	15.8	17.6	15.9
S49	474765.7347	422542.5044	Roadside	100	100.0			14.3	15.3	13.0
S50	496005.76	427312.55	Roadside	100	100.0				13.4	12.3
S51	505233.77	426460.01	Roadside	100	100.0				14.7	14.7
S52	474615.5211	428347.2036	Roadside	100	100.0			13.7	15.2	14.5
S53	494542.6987	449616.4408	Kerbside	100	100.0	32.0	31.0	21.9	27.1	24.6
S54	494674.6969	449632.4016	Roadside	100	100.0	26.0	25.0	19.5	22.3	20.0
S55	496871.5688	426518.4046	Roadside	100	100.0	22.0	21.0	16.7	18.3	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 2022 (%) [2]	2018	2019	2020	2021	2022
S56	496771.2818	426526.852	Roadside	100	100.0	37.0	35.0	24.4	30.7	27.3
S57	468164.5994	422932.4038	Roadside	100	100.0			15.1	16.9	14.0
S58	492243.9714	431032.1149	Roadside	100	100.0	32.0	30.0	22.3	25.0	23.6
S59	519971.3857	447580.9242	Roadside	100	100.0	35.0	34.0	27.7	29.8	30.3
S60	494733	428221	Roadside	100	100.0					12.6
S61	495732.2676	426996.6958	Roadside	100	100.0	**41.0**	**40.0**	30.5	33.6	31.9
S62	501315	445463	Roadside	92.3	92.3					9.9
S63	497423.35	426118.38	Roadside	100	100.0				15.7	16.3
S64	502950.8305	429192.1568	Roadside	100	100.0		26.0	17.7	21.8	21.1
S65	494770	428016	Roadside	100	100.0					15.7
S66	492243.1898	431116.3633	Roadside	100	100.0	25.0	26.0	18.5	21.2	20.4
S67	498491.6749	426550.1979	Roadside	100	100.0	31.0	29.0	21.8	23.2	22.3
S68	476123.51	424941.86	Roadside	100	100.0				11.8	12.4
S69	506332	456175	Roadside	100	100.0					13.1

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 2022 (%) [2]	2018	2019	2020	2021	2022
S70	520020.651	447520.0065	Roadside	100	100.0	26.0	25.0	19.1	21.5	20.8
S71	496859.5094	425815.3223	Roadside	100	100.0	17.0	17.0	19.2	22.8	20.6
S72	497222.1311	426411.5658	Roadside	100	100.0	32.0	31.0	25.1	27.0	23.9
S73	502100.5799	427374.9955	Roadside	100	100.0			13.3	13.3	13.0
S74	471538.95	455708.27	Roadside	100	100.0				17.9	18.3
S75	502951.0716	428699.6115	Roadside	100	100.0			14.4	16.1	14.2
S76	522589	444098	Roadside	100	100.0					11.1
S77	494157.84	426490.43	Roadside	100	100.0				14.3	13.5
S78	464192.1279	422111.8612	Roadside	92.3	92.3	34.0	33.0	26.5	30.4	28.4
S79	498622	426191	Roadside	100	100.0					14.8
S80	464162.9148	422150.6864	Roadside	100	100.0	32.0	30.0	23.5	28.2	22.7
S81	516823.9574	429457.2813	Roadside	100	100.0	19.0	19.0	16.3	16.7	17.0
S82	516957.2898	428795.3264	Kerbside	100	100.0	22.0	23.0	19.5	20.1	19.9
S83	498623	426192	Roadside	100	100.0					14.8

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 2022 (%) [2]	2018	2019	2020	2021	2022
S84	504062.7906	439233.2669	Roadside	100	100.0			14.8	17.5	17.1
S85	504487.7211	439562.1407	Roadside	100	100.0			12.1	14.7	12.7
S86	499170.1107	442062.2603	Roadside	100	100.0			14.5	16.3	15.3
S87	531349.2504	422778.8424	Kerbside	100	100.0			13.2	13.4	13.1
S88	510541.1239	445401.6134	Kerbside	84.6	84.6			11.5	14.0	14.1
S89	512767.707	445478.8945	Roadside	100	100.0			14.2	16.0	14.0
S90	511627.7473	447613.7572	Roadside	100	100.0			11.9	13.6	13.2
S91	517023.8059	468183.9652	Roadside	100	100.0			16.9	18.4	18.2
S92	508853	442647	Roadside	84.6	84.6					20.8

☒ **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%).

Figure A.1 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 1-4

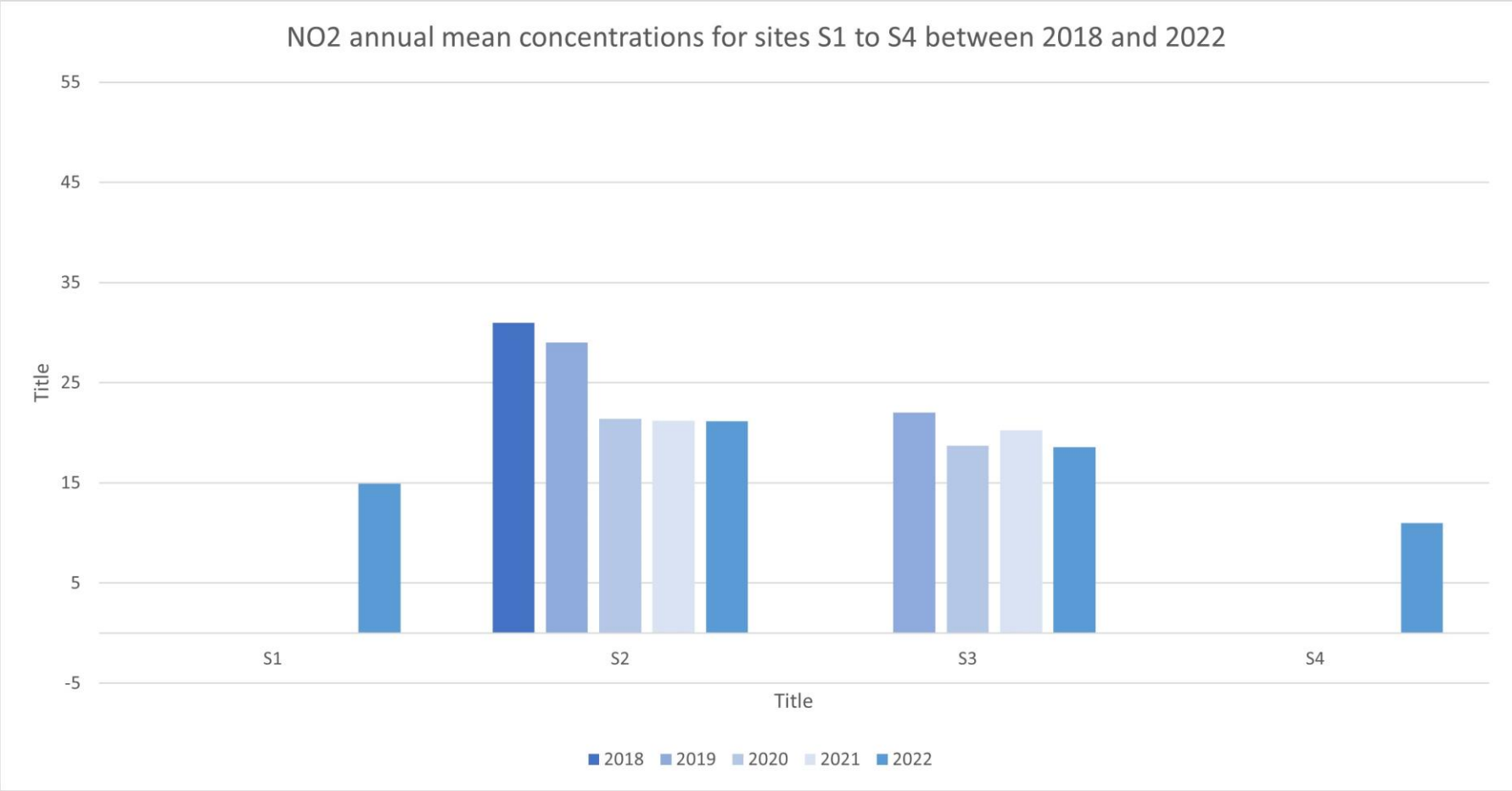

Figure A.2 – Trends in Annual Mean NO_2 Concentrations for diffusion tubes 5-8

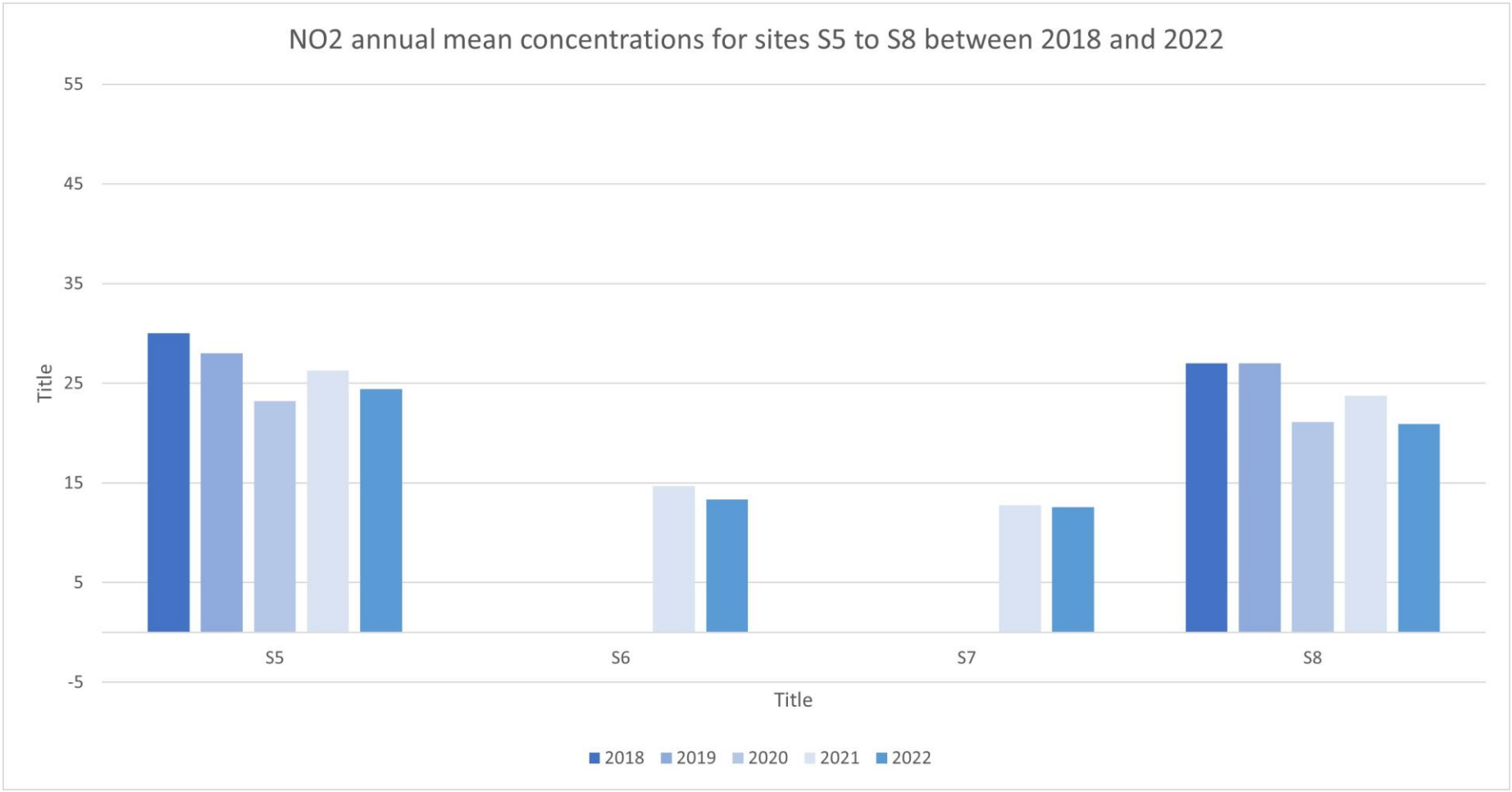

Figure A.3 – Trends in Annual Mean NO_2 Concentrations for diffusion tubes 9-12

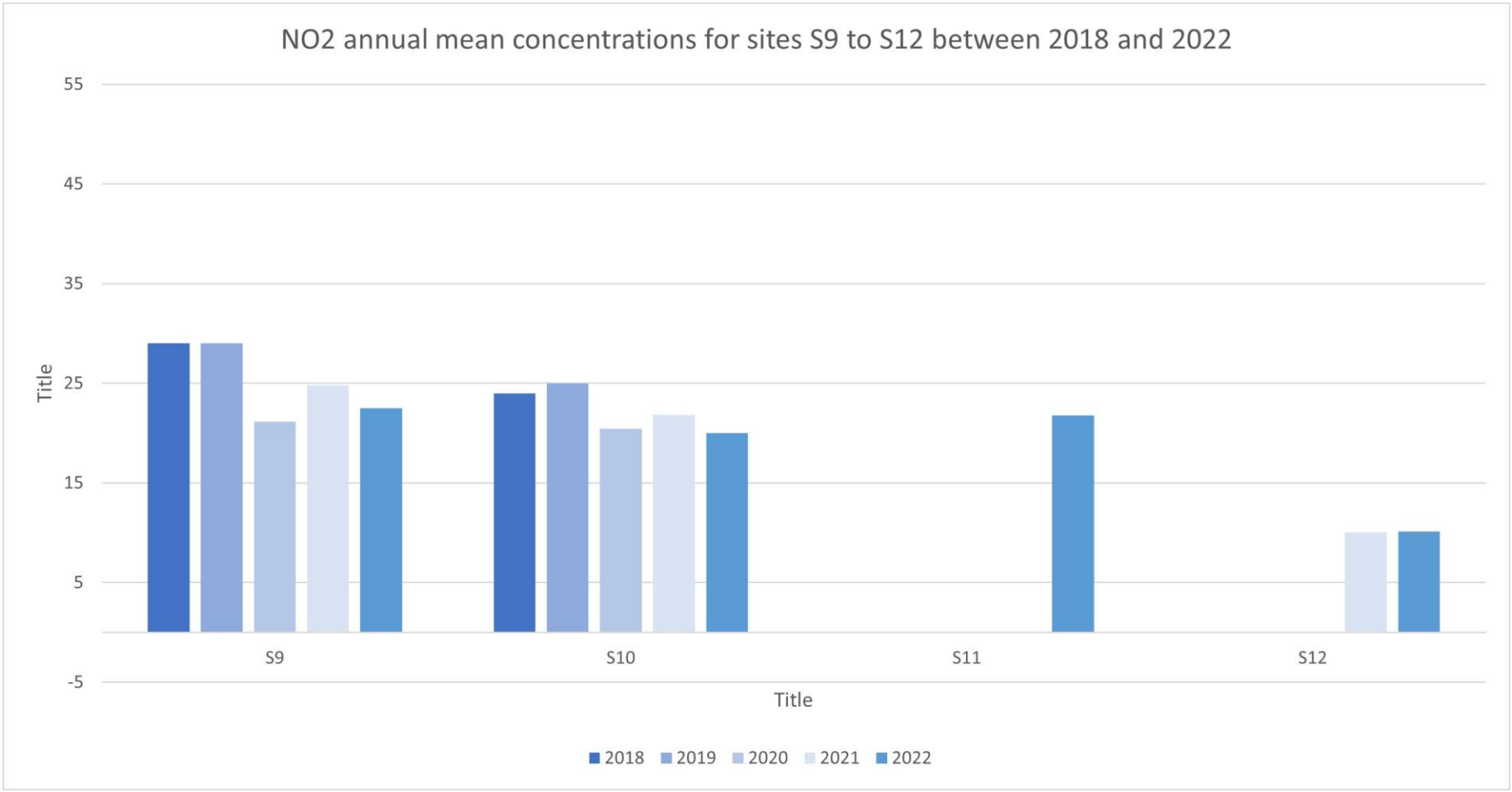

Figure A.4 – Trends in Annual Mean NO_2 Concentrations for diffusion tubes 13-16

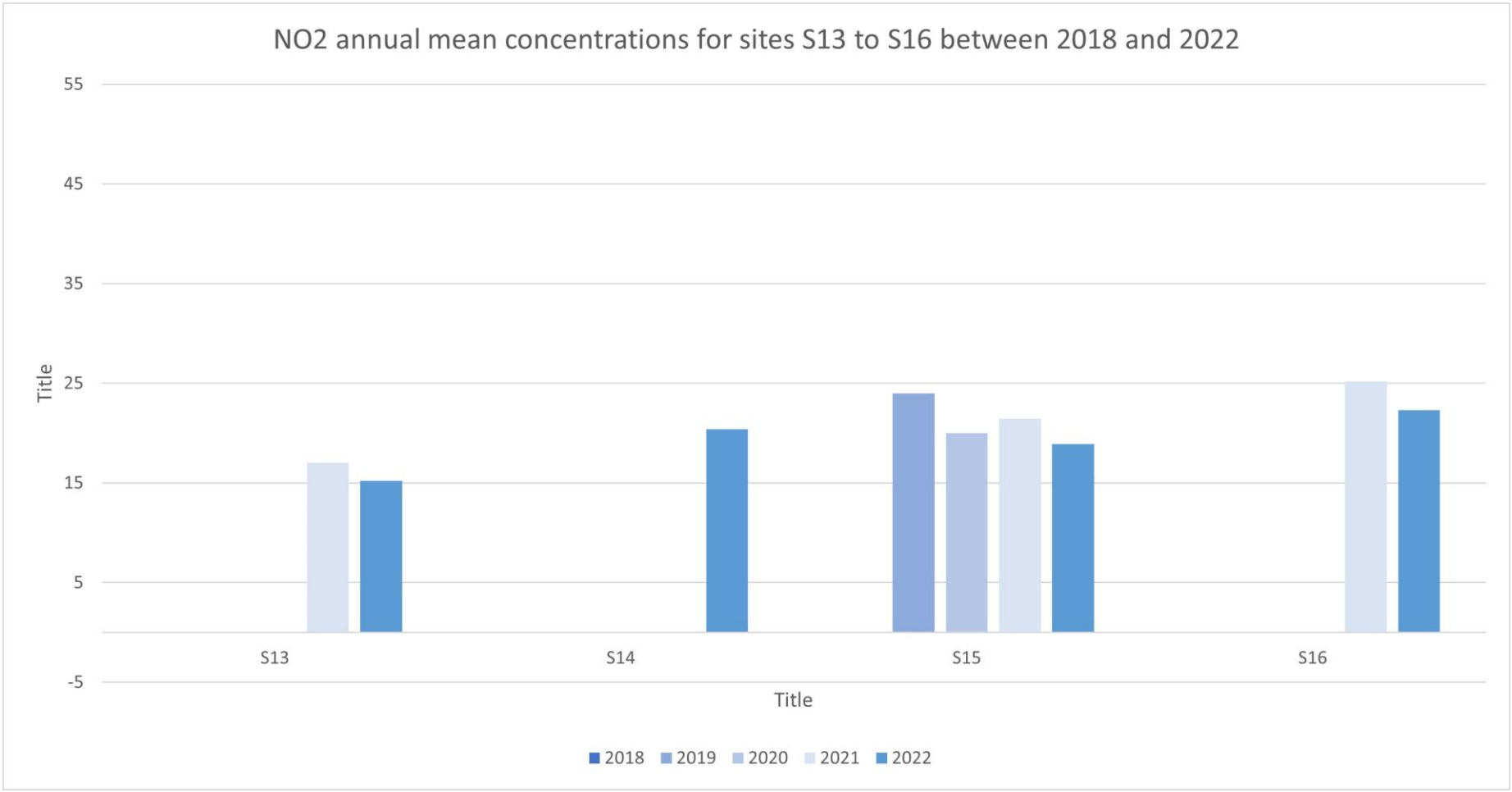

Figure A.5 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 17-20

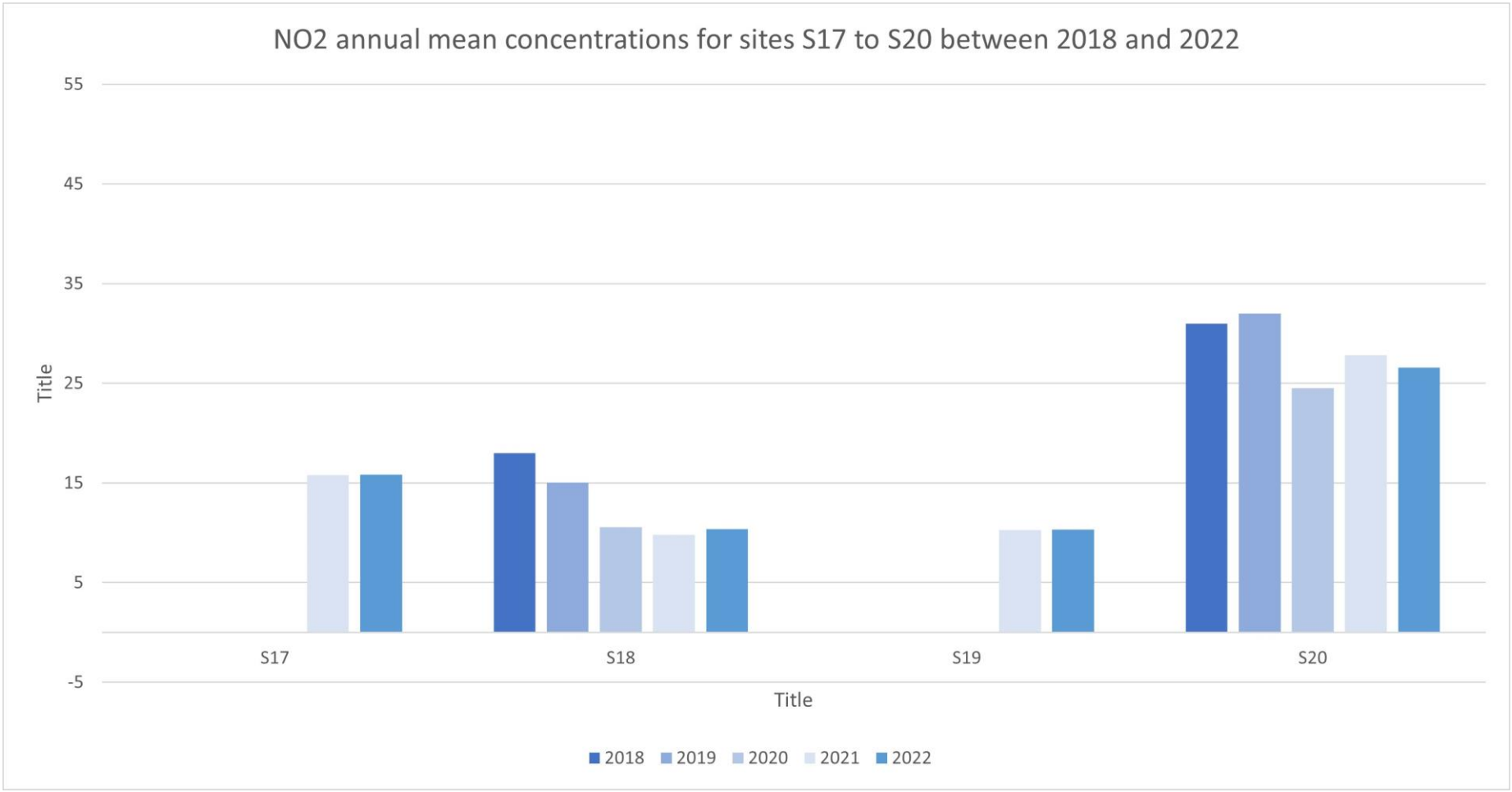

Figure A.6 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 21-24

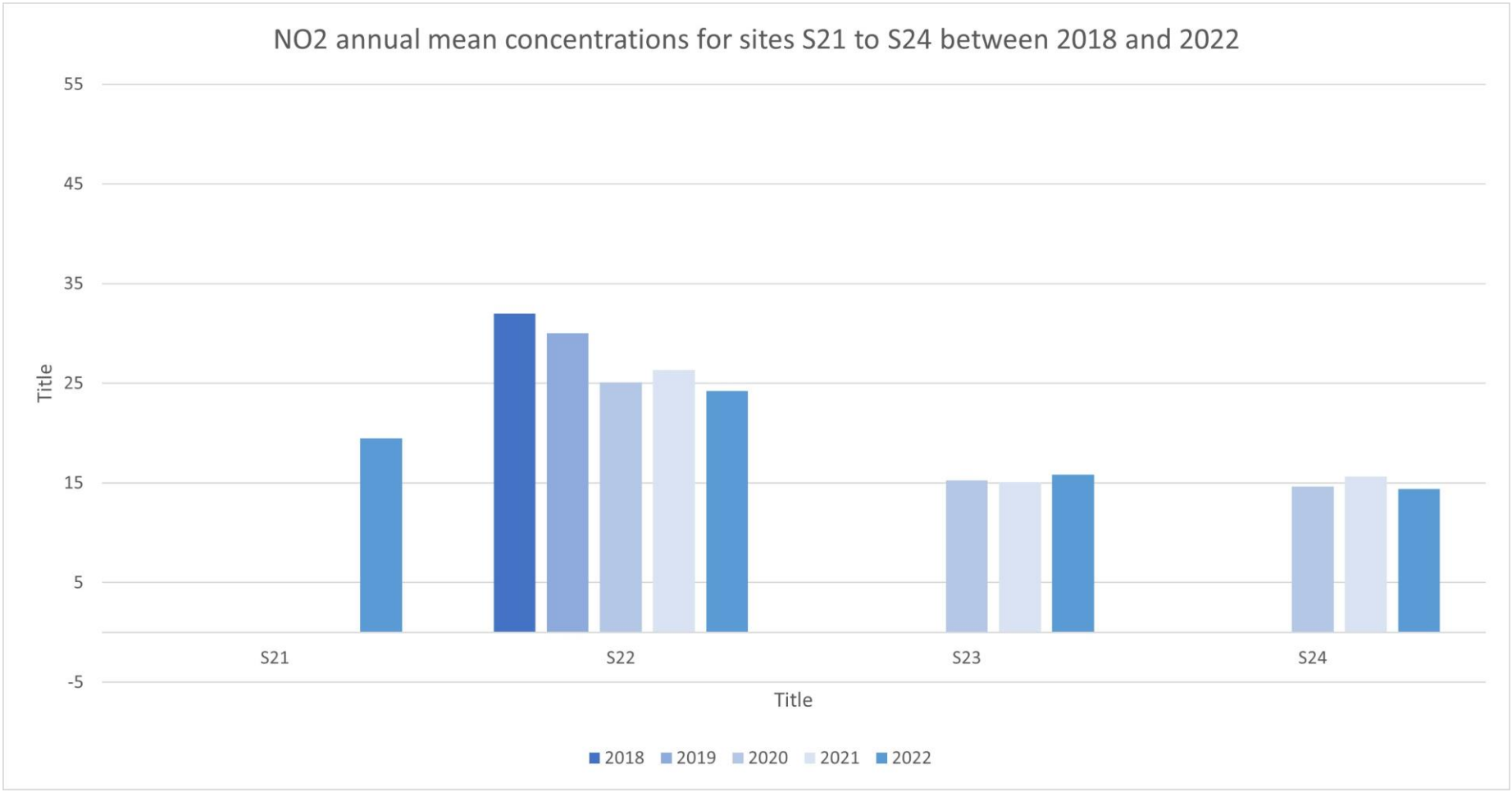

Figure A.7 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 25-28

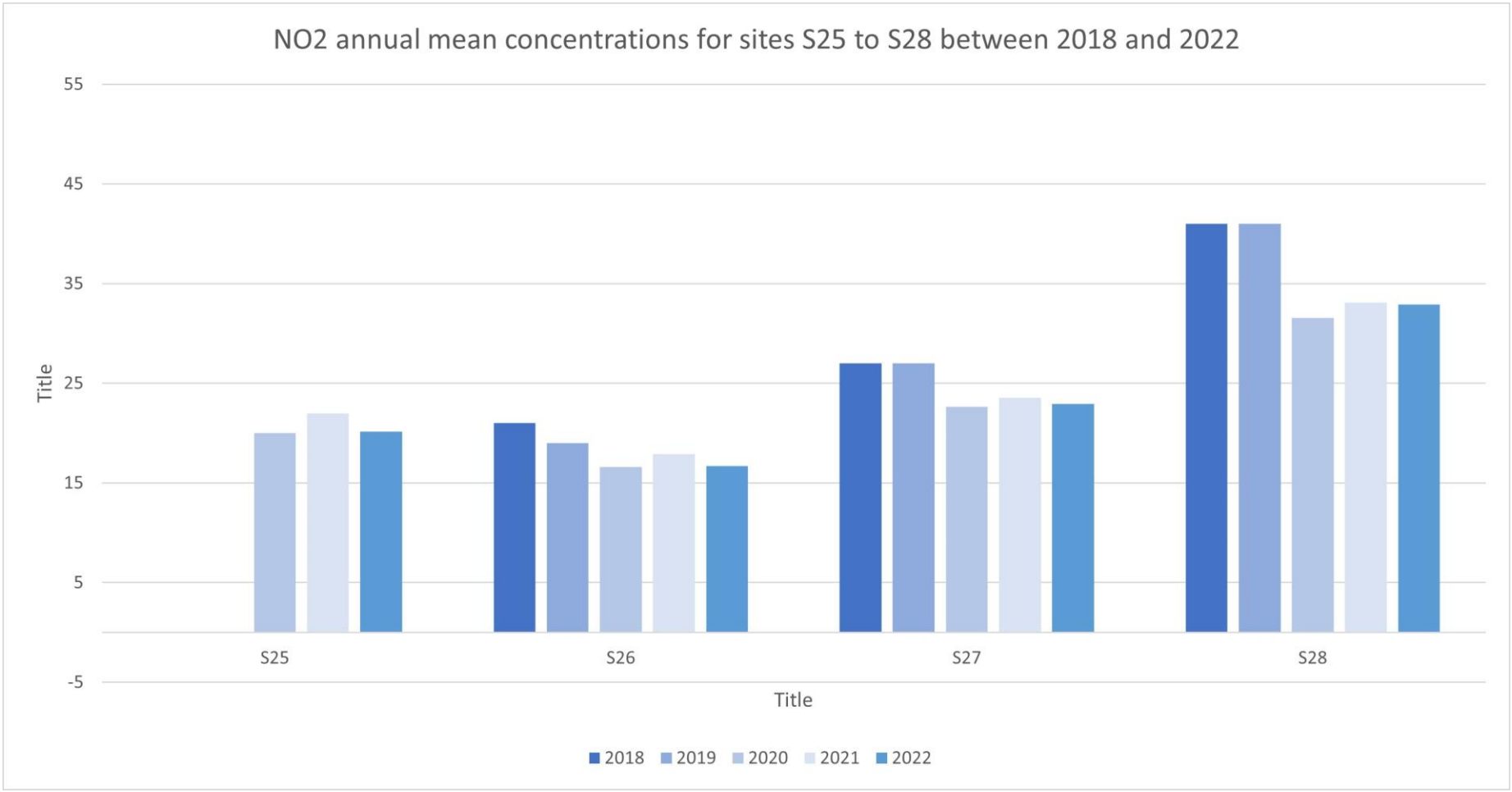

Figure A.8 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 29-32

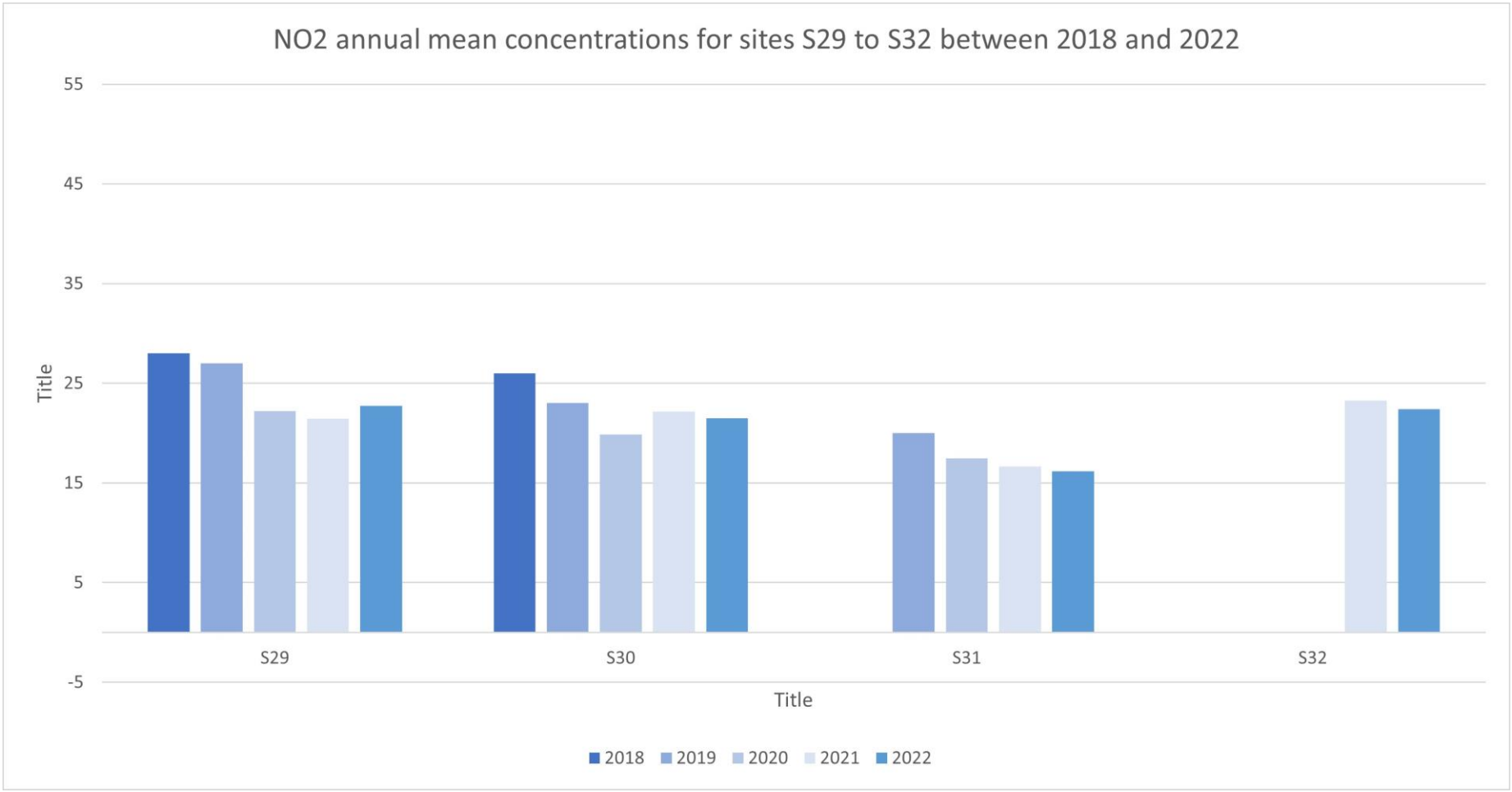

Figure A.9 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 33-36

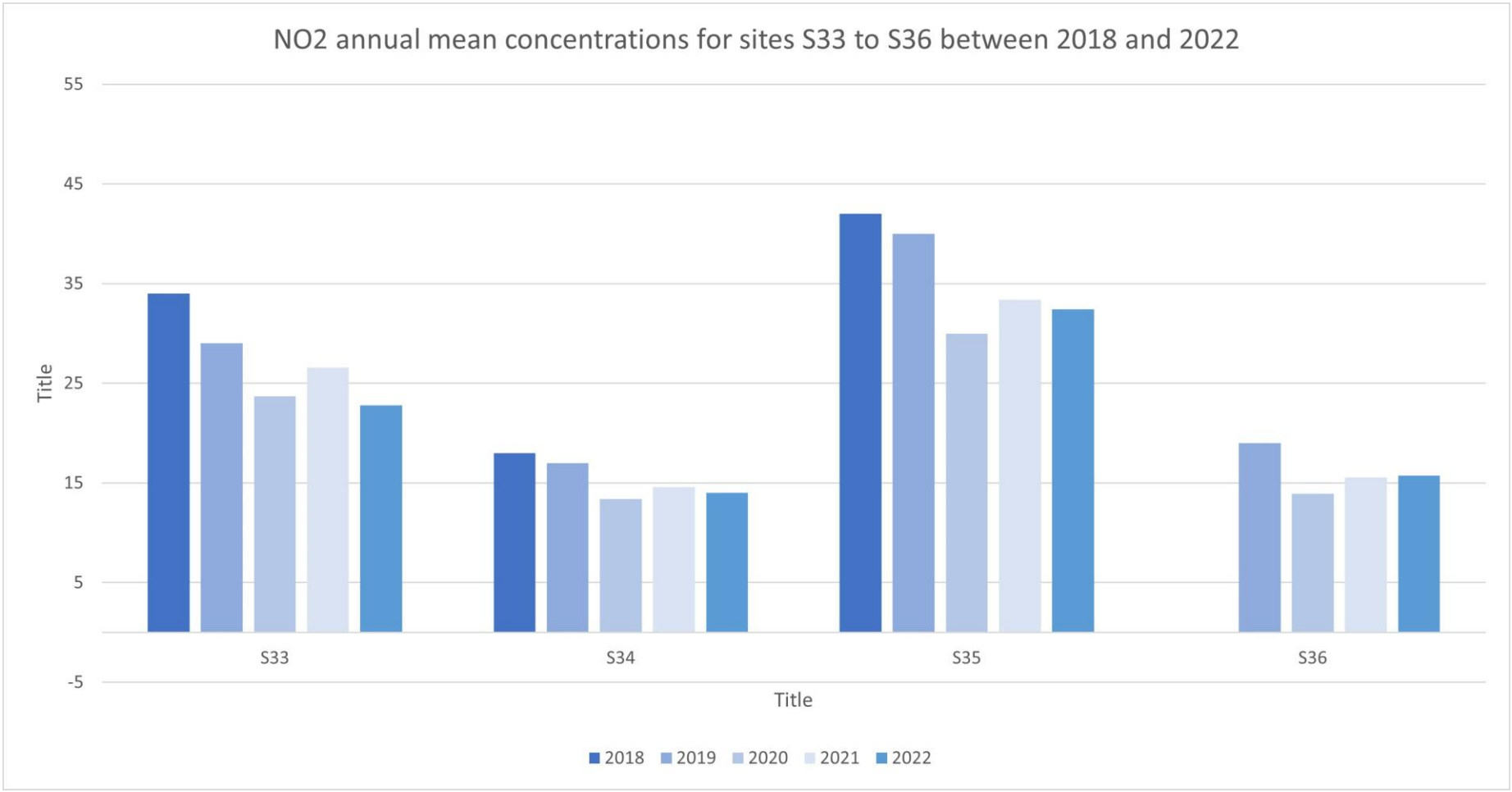

Figure A.10 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 37-40

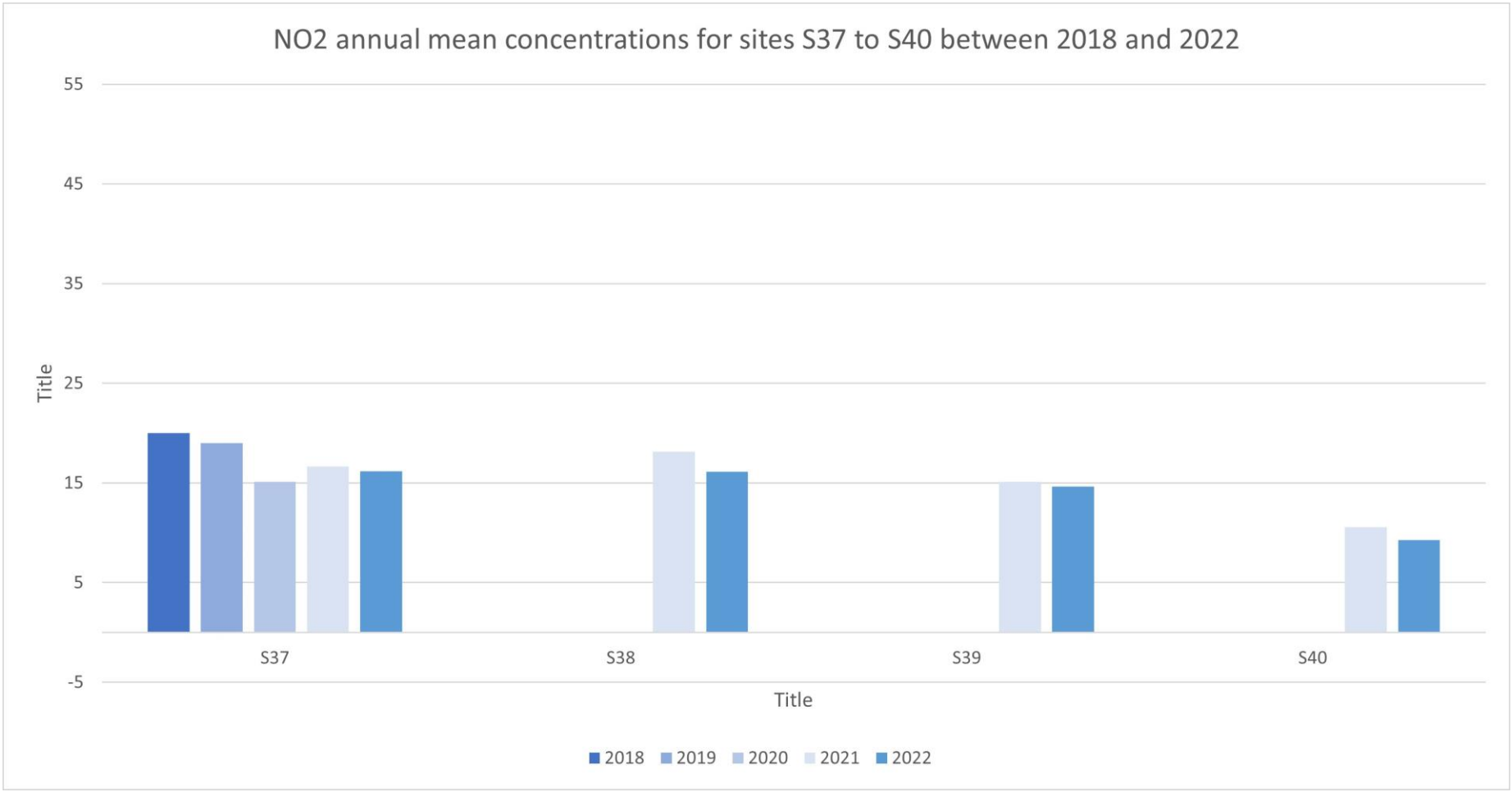

Figure A.11 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 41-44

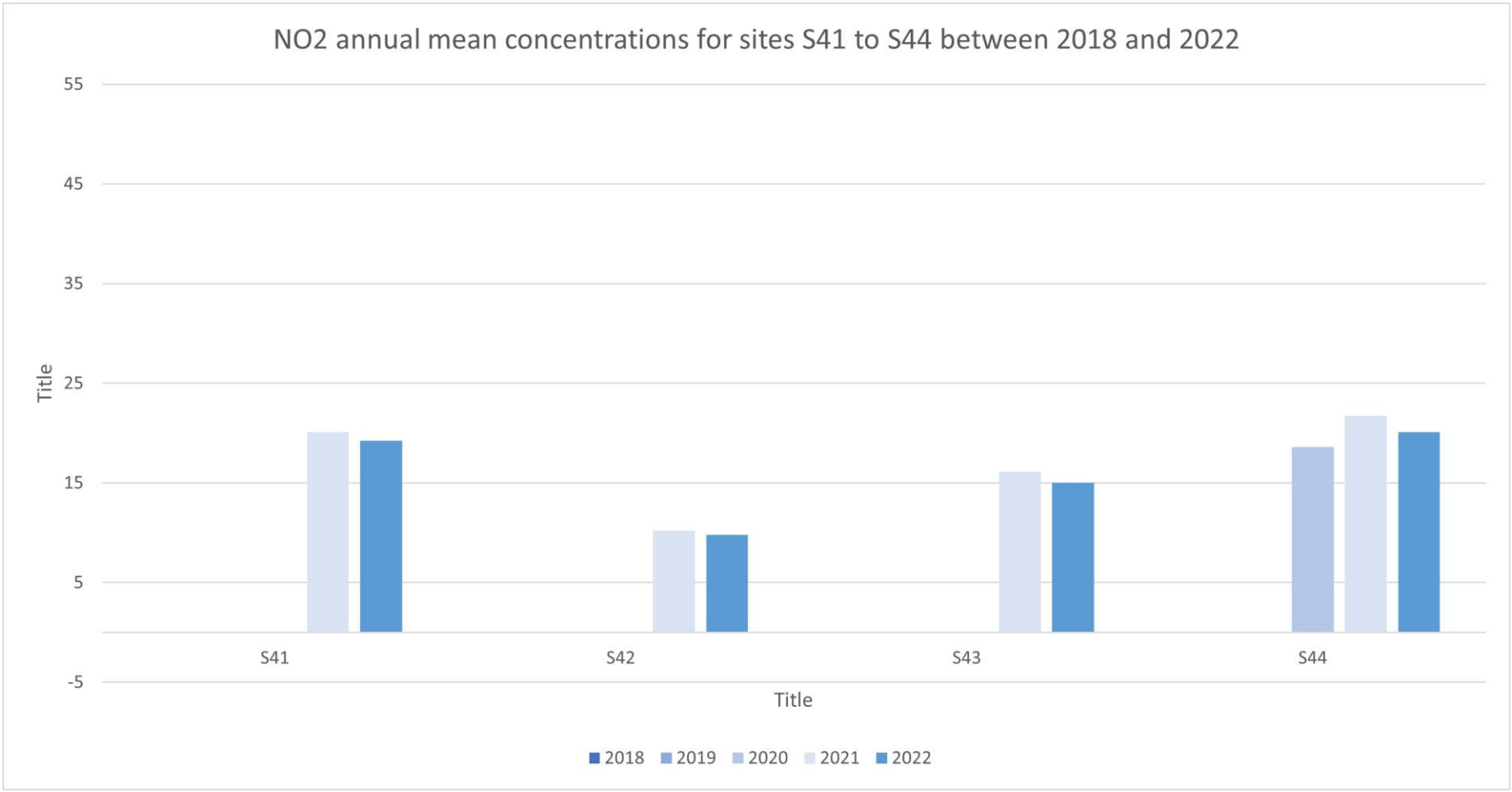

Figure A.12 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 45-48

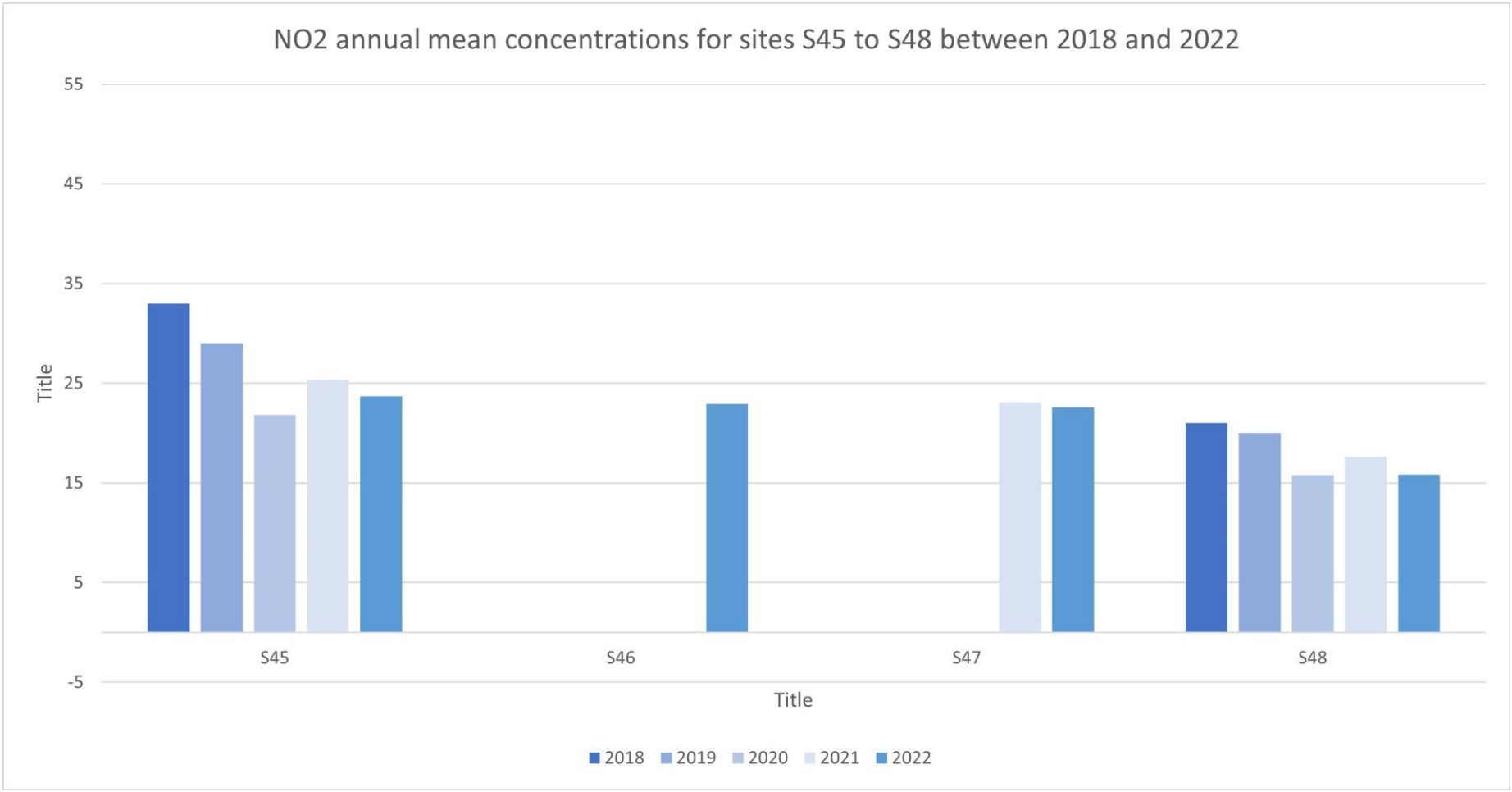

Figure A.13 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 49-52

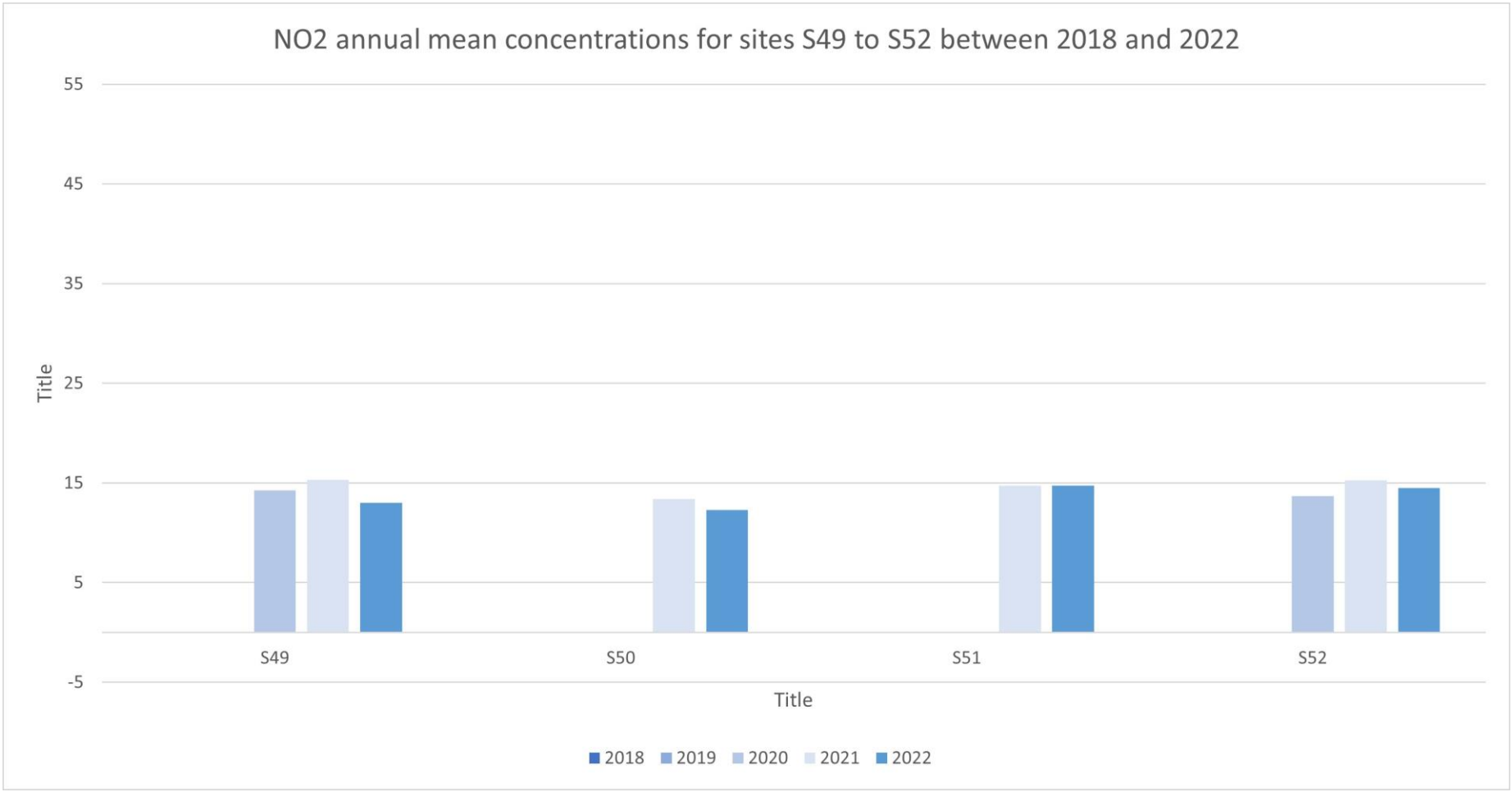

Figure A.14 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 53-56

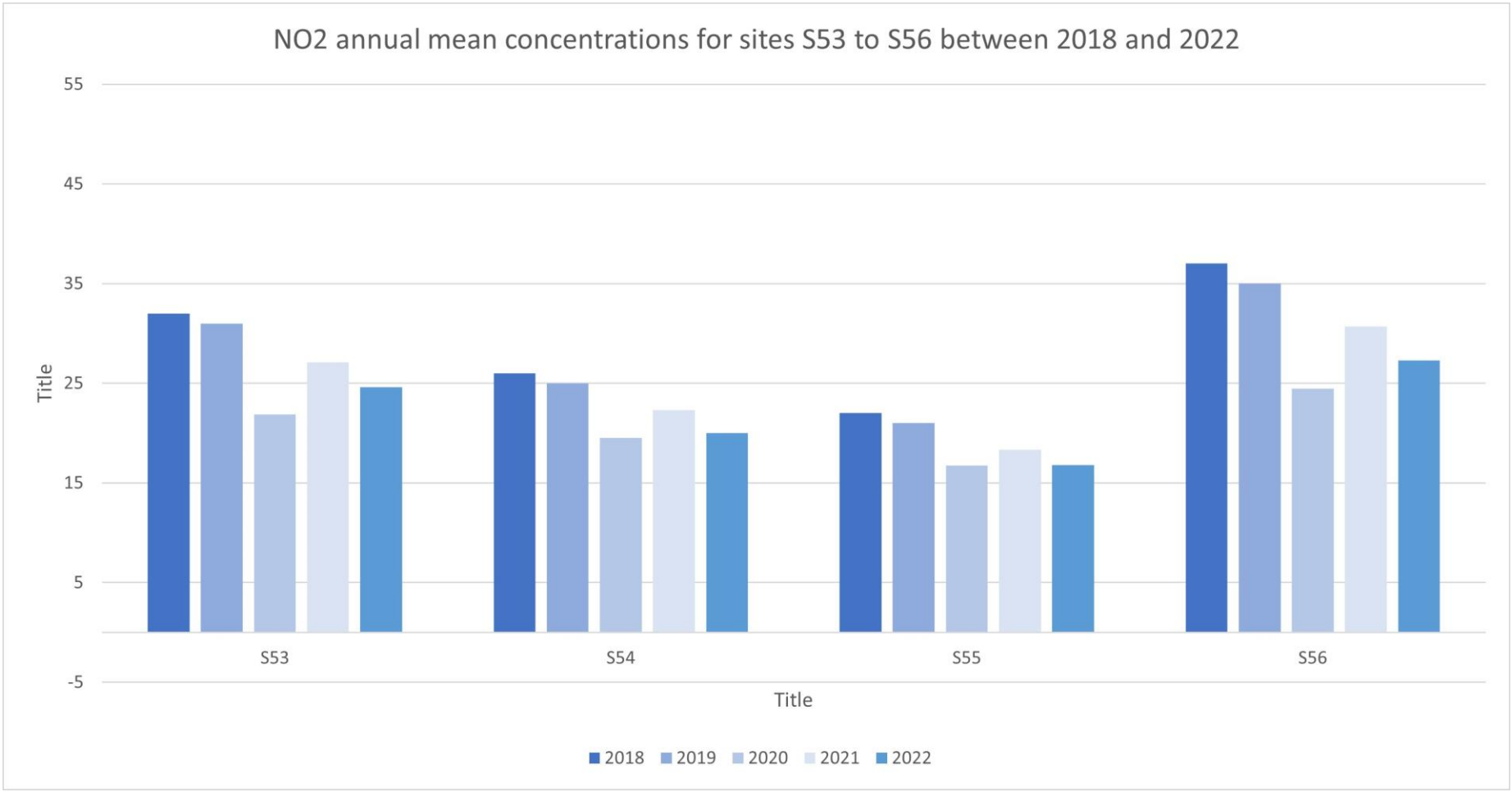

Figure A.15 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 57-60

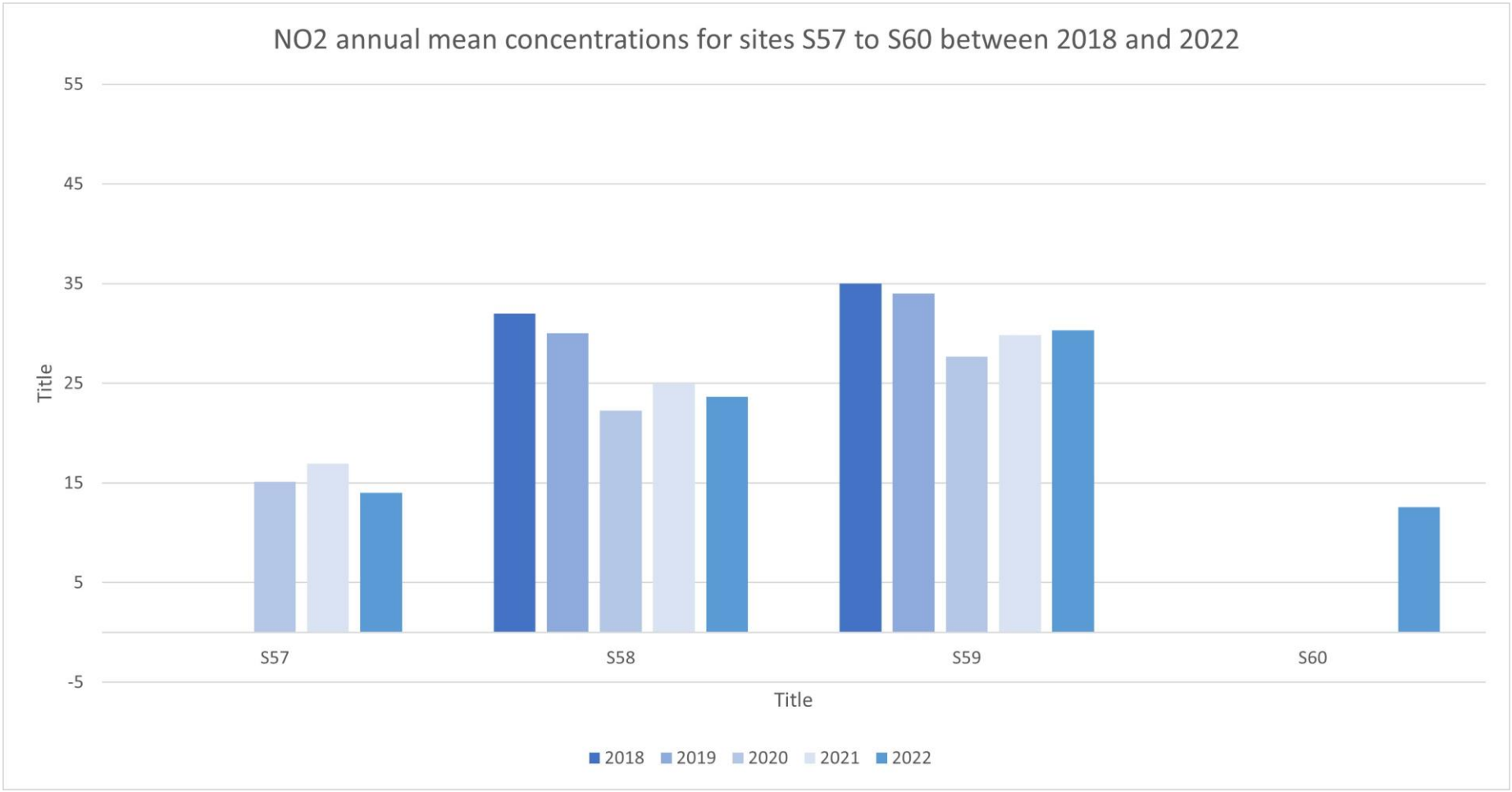

Figure A.16 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 61-64

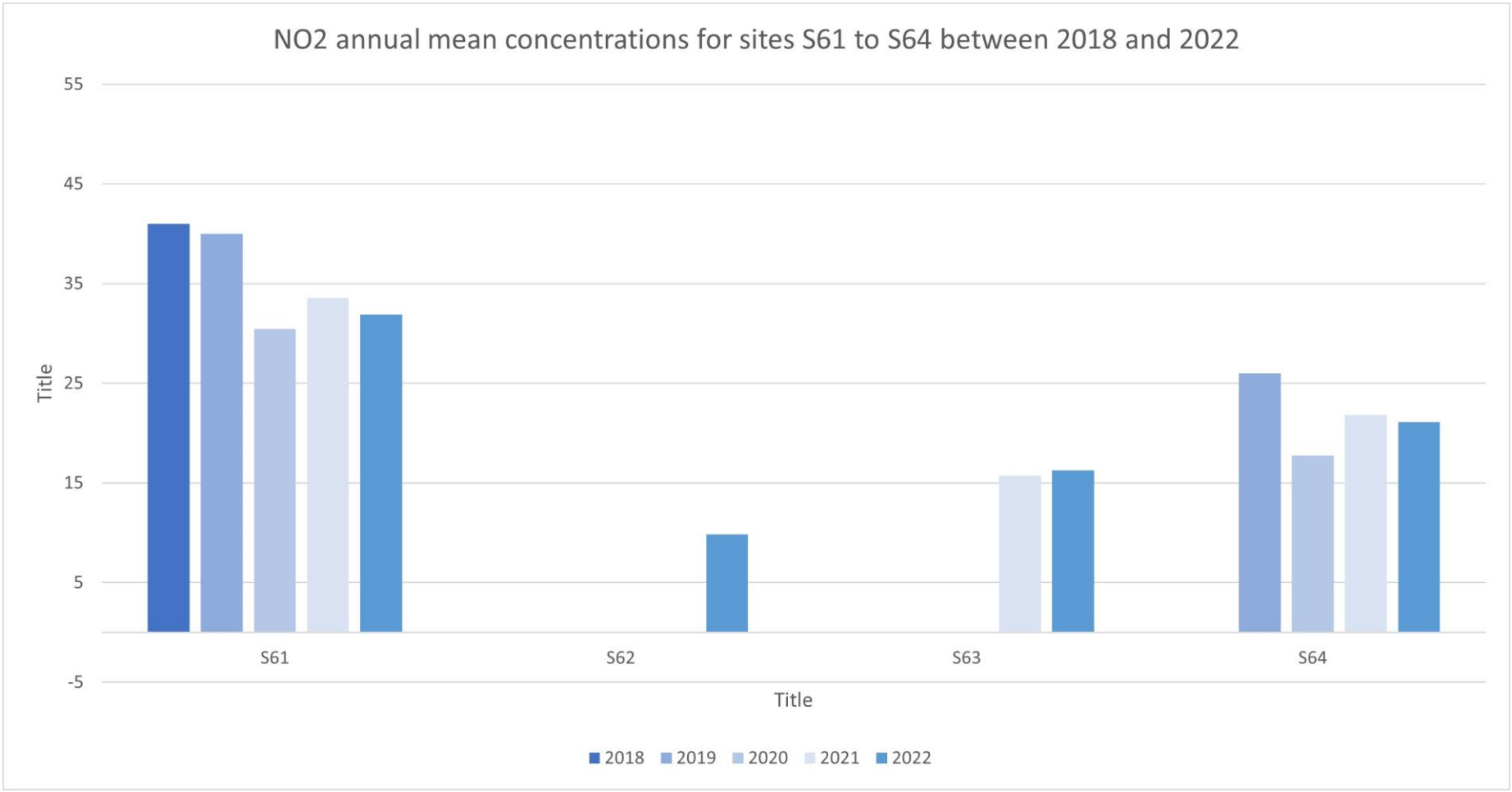

Figure A.17 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 65-68

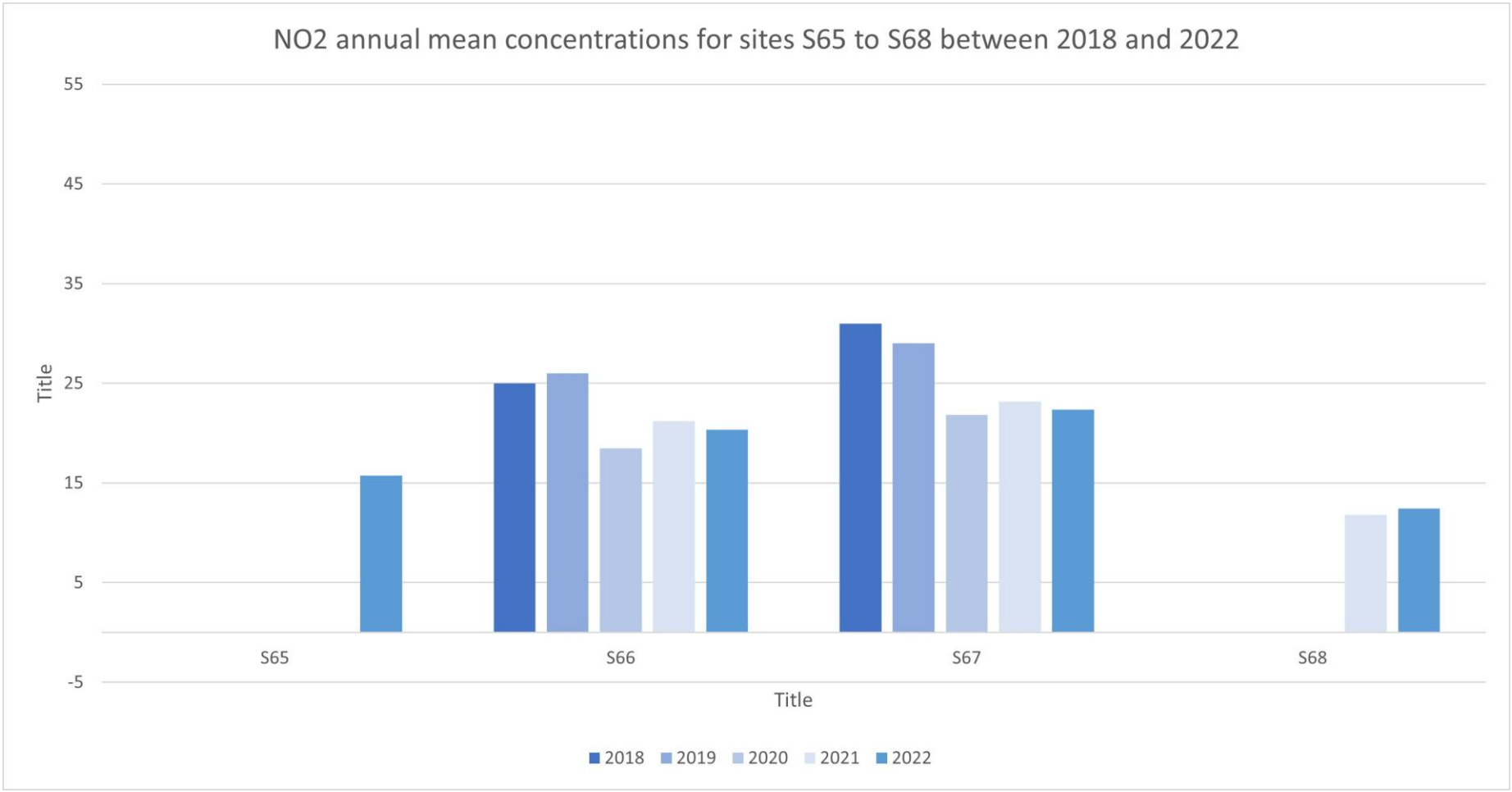

Figure A.18 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 69-72

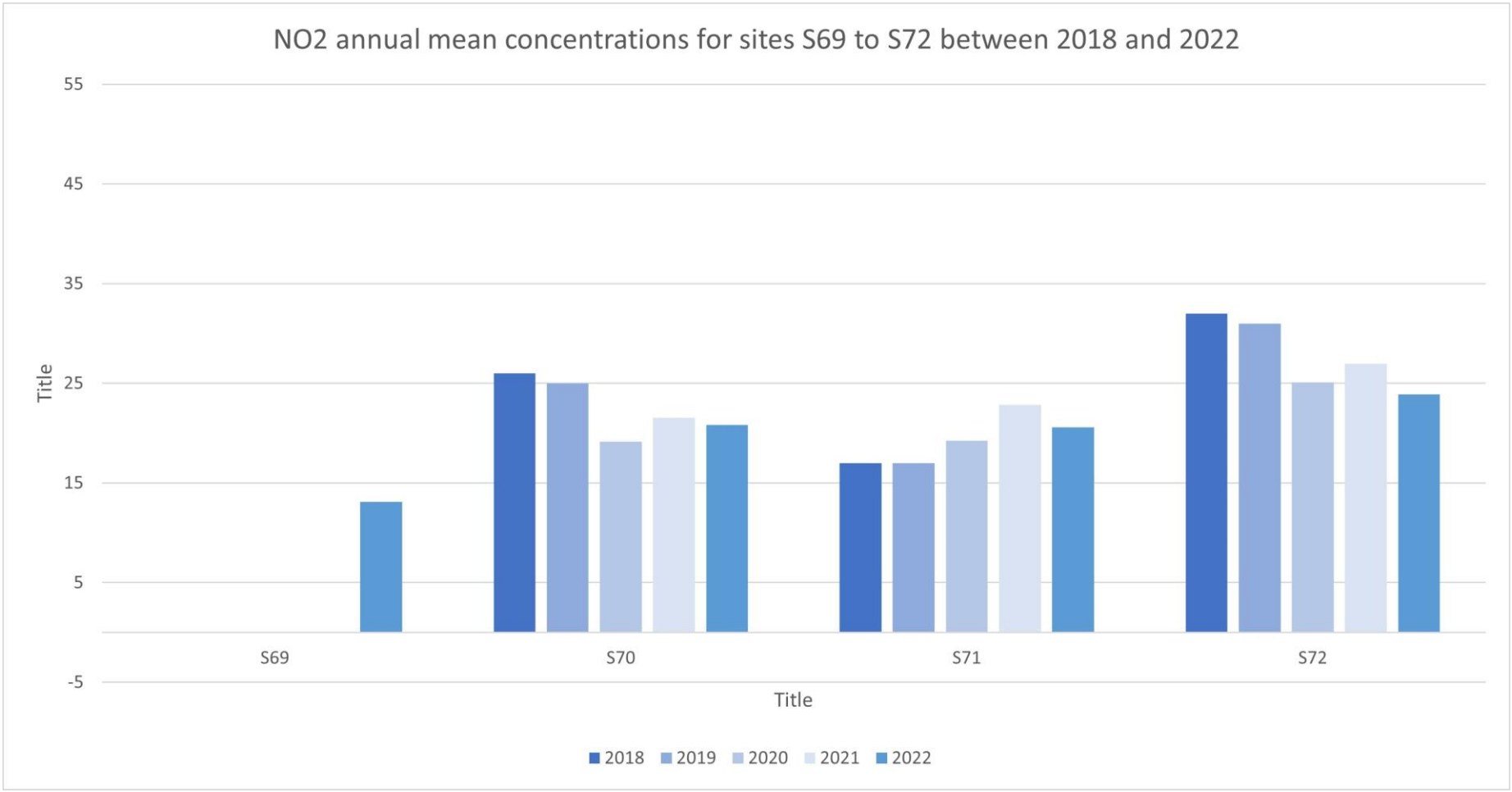

Figure A.19 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 73-76

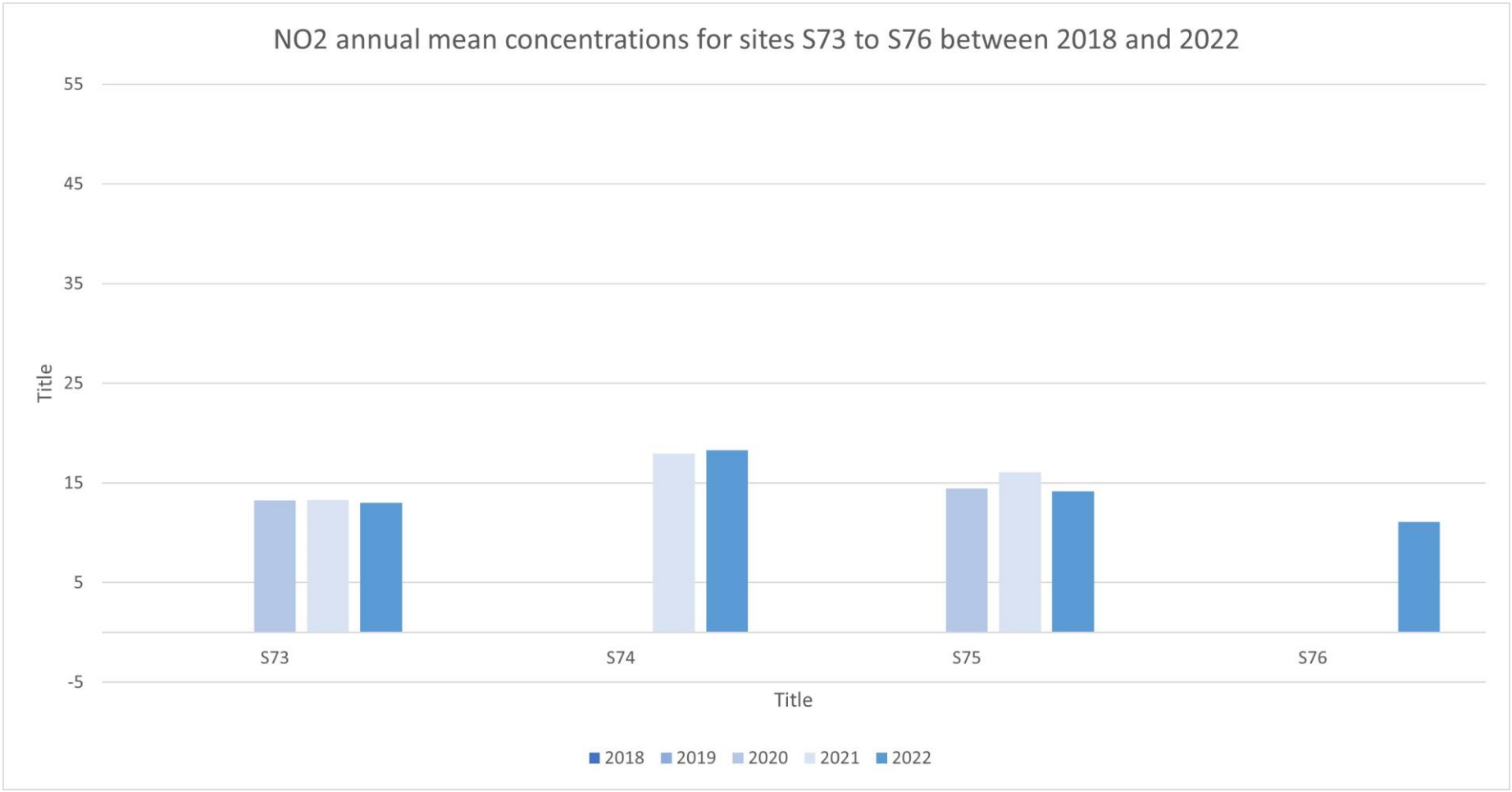

Figure A.20 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 77-80

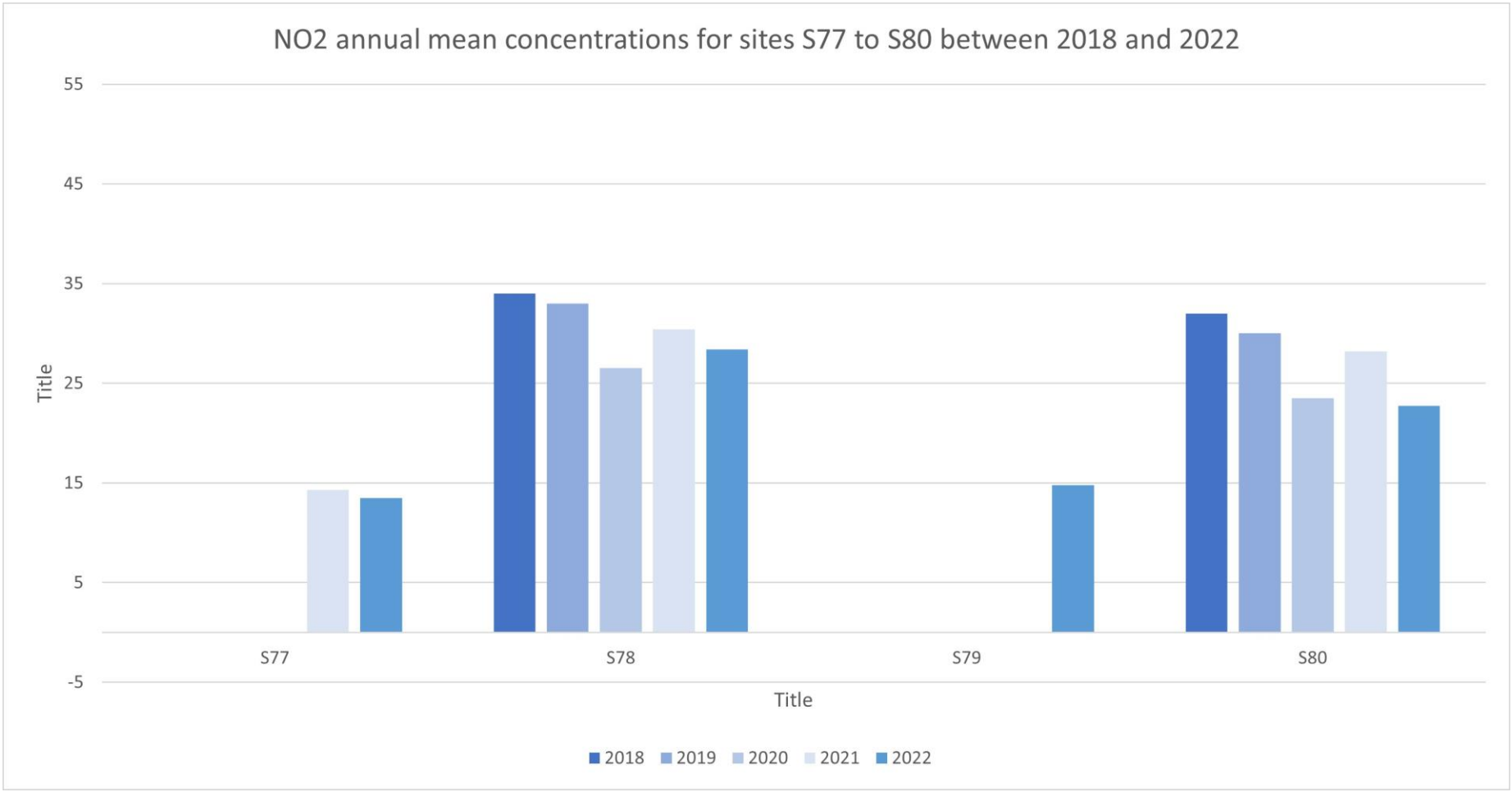

Figure A.21 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 81-84

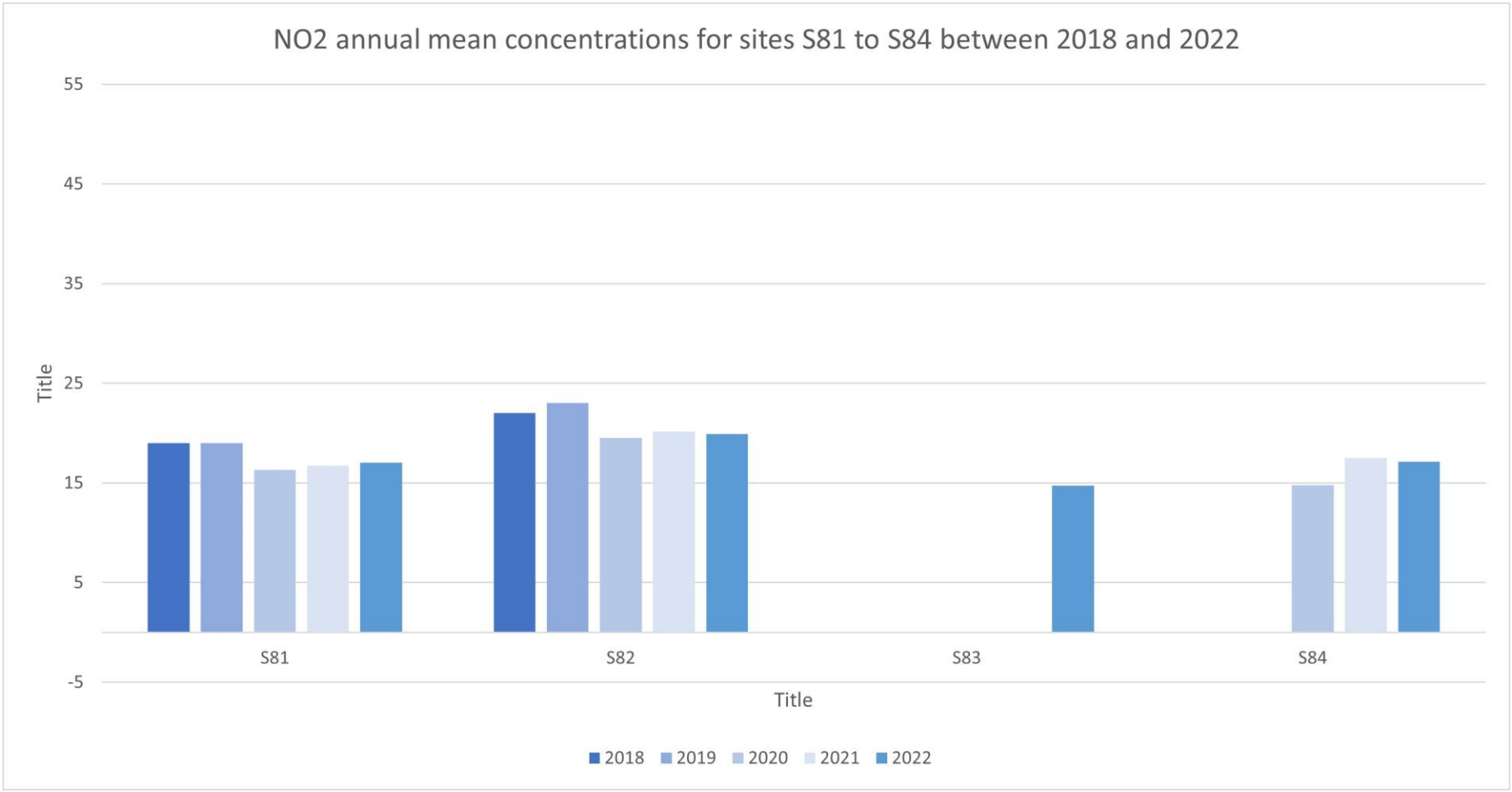

Figure A.22 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 85-88

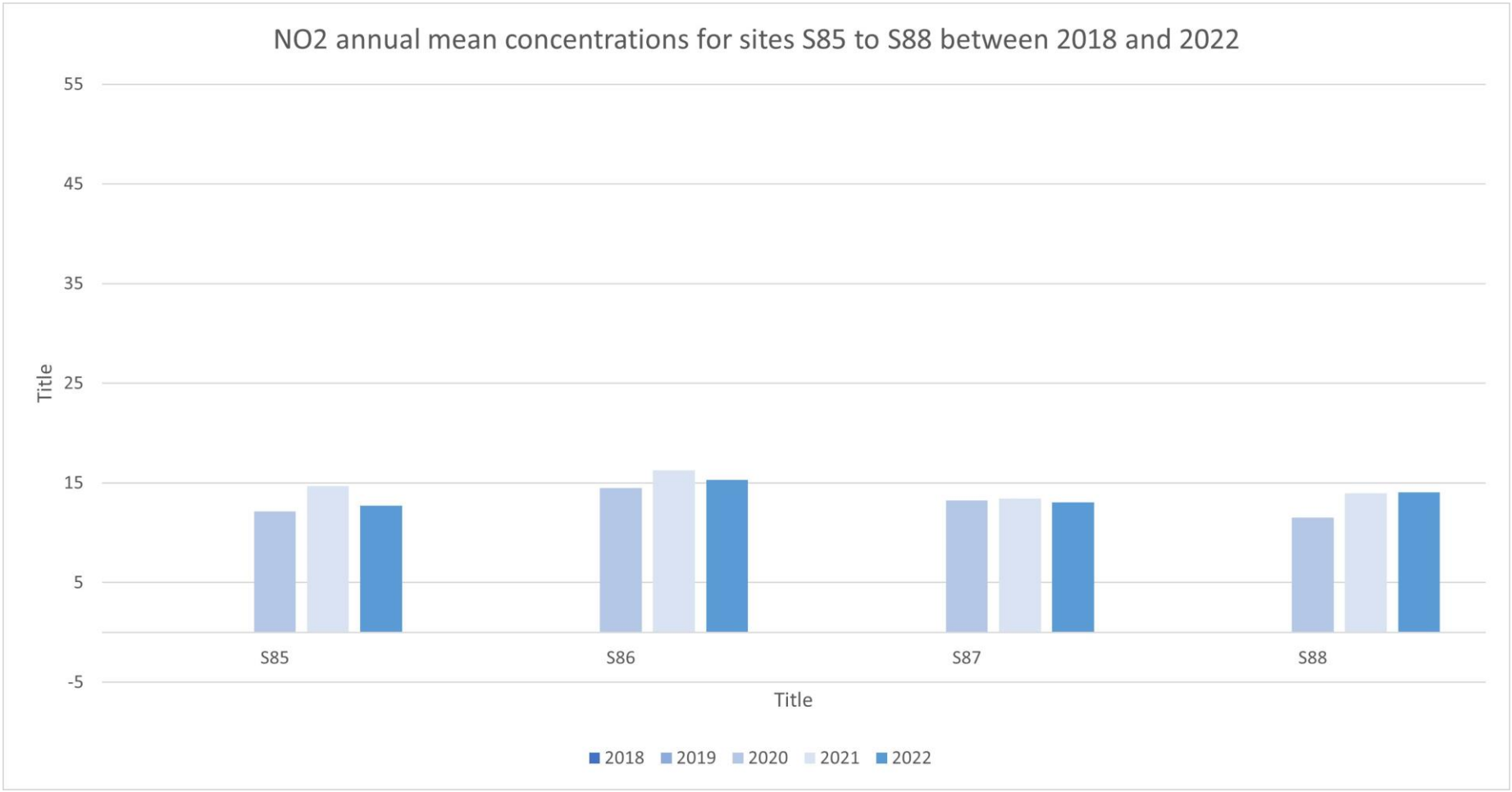

Figure A.23 – Trends in Annual Mean NO2 Concentrations for diffusion tubes 89-92

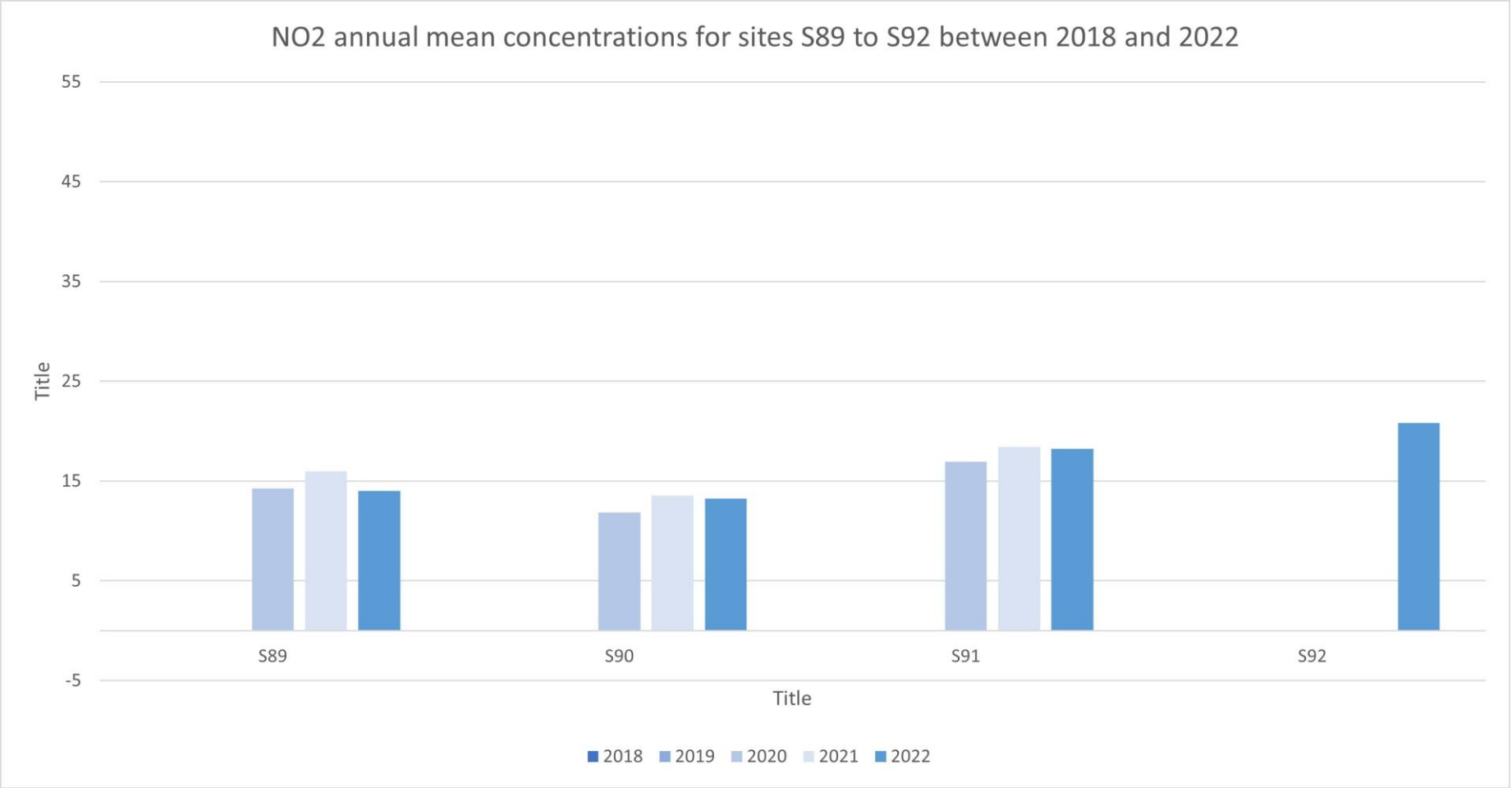

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RCMelton_ Zephyr	496909	426511	Roadside	98	98				0	0
Brid_Zephyr	517647	466713	Roadside	100	73					0
NFerr_ Zephyr	498036	426313	Roadside	100	72					0
GooleNS_ Zephyr	474860	423508	Roadside	96	71					0
Hess_ Zephyr	503048	425793	Roadside	93	67					2
Pres_ Zephyr	518847	430309	Roadside	100	73					0
Bev_Zephyr	504859	439769	Roadside	100	73					0

Notes:

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

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RCMelton_ Zephyr	496909	426511	Roadside	98	98				11.6	14.9
Brid_Zephyr	517647	466713	Roadside	100	73					13.5
NFerr_ Zephyr	498036	426313	Roadside	100	72					12.5
GooleNS_ Zephyr	474860	423508	Roadside	96	71					13.1
Hess_Zephyr	503048	425793	Roadside	93	67					12.6
Pres_Zephyr	518847	430309	Roadside	100	73					12.4
Bev_Zephyr	504859	439769	Roadside	100	73					13.8

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of $40\mu g/m^3$ 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.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RCMelton_ Zephyr	496909	426511	Roadside	98	98				0	4
Brid_Zephyr	517647	466713	Roadside	100	73					0
NFerr _Zephyr	498036	426313	Roadside	100	72					0
GooleNS_ Zephyr	474860	423508	Roadside	96	71					3
Hess_ Zephyr	503048	425793	Roadside	93	67					0
Pres_ Zephyr	518847	430309	Roadside	100	73					0
Bev_Zephyr	504859	439769	Roadside	100	73					0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
RCMelton_ Zephyr	496909	426511	Roadside	98	98				8	11.7
Brid_Zephyr	517647	466713	Roadside	100	73					12.4
NFerr_ Zephyr	498036	426313	Roadside	100	72					11.6
GooleNS_ Zephyr	474860	423508	Roadside	96	71					12.2
Hess_Zephyr	503048	425793	Roadside	93	67					11.7
Pres_Zephyr	518847	430309	Roadside	100	73					11.4
Bev_Zephyr	504859	439769	Roadside	100	73					12.8

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

Notes:

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

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.

(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 2022

Table B.1 – NO_2 2022 Diffusion Tube Results (µg/m^3)

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S1	503426	425868	30.6	19.6	27.9	14.2	17.4	18.5	18.1	16.4	15.1	21.5	18.7	17.4	19.6	14.9	-	
S2	470731	451338	40.1	29.3	34.9	26.4	25.7	25.3	24.7	26.1	23.2	25.8	30.5	22.2	27.9	21.2	-	
S3	487620	441789	16.9	26.9	27.2	23.2	21.6	24.2	24.7	21.8	22.3	25.5	27.8	31.2	24.4	18.6	-	
S4	470804	447111	16.3	11.5	19.5	8.3	11.7	10.9	12.5	12.0	12.9	17.5	19.7	20.6	14.5	11.0	-	
S5	473573	424055	38.4	30.6	38.7	29.1	27.3	27.3	30.2	27.6	30.6	30.8	36.2	39.0	32.2	24.4	-	
S6	524097	438567	24.9	14.8	19.5	16.5	14.7	13.8	14.4	15.8	16.4	16.8	20.8	22.5	17.6	13.4	-	
S7	519064	450816	22.6	14.2	20.2	14.9	14.6	13.2	14.2	14.4	13.9	17.2	18.8	20.2	16.5	12.6	-	
S8	503064	439001		28.2	31.6	21.4	23.3	26.5	23.4	20.6	23.0	31.5	36.2	37.3	27.5	20.9	-	
S9	503086	439020	39.5	30.8	39.9	23.3	3.3	32.0	29.0	25.1	25.4	31.1	39.8	35.7	29.6	22.5	-	
S10	503013	438913	35.8	25.6		26.8	22.1	22.4	22.6	22.1	24.8	24.0	30.2	33.2	26.3	20.0	-	
S11	480061	449146	30.2	31.2	34.2	24.4	23.7	25.5	27.4	23.7	24.0	26.3	40.8	32.8	28.7	21.8	-	
S12	516804	454970	19.5	12.1	17.2	10.3	11.3	10.5	10.6	11.4	10.8	13.8	16.3	15.8	13.3	10.1	-	
S13	505498	428881	34.2	19.9	15.8	18.8	16.7	14.4	16.1	14.7	15.6	20.8	25.6	27.2	20.0	15.2	-	
S14	518102	468387	33.6	26.0	31.8	21.4	24.5	25.6	29.4	23.4	19.0	30.8	29.3	27.4	26.9	20.4	-	
S15	502269	457754	20.9	24.9		23.9	21.4		26.3	24.5	22.0	28.0	25.6	31.5	24.9	18.9	-	
S16	503302	427403	41.7	34.2	38.1	25.4	26.0	26.7	24.8	24.0	23.9	32.7	36.8	17.7	29.3	22.3	-	
S17	495261	426908	34.1	22.5	24.9	18.1			16.6	13.5	14.5	18.1	21.0	25.3	20.9	15.9	-	
S18	474542	455384	20.1	16.0	18.6	10.8	10.4		10.2	4.7	10.1		15.6	20.0	13.7	10.4	-	

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S19	501827	429826	25.1	12.8	18.4	10.5	10.3	10.7	11.5	9.5	9.5	14.2	17.1		13.6	10.3	-	
S20	494244	449418	34.4	19.1	43.0	35.0	33.2	31.9	40.8	44.0	31.5	37.5	35.1	34.2	35.0	26.6	-	
S21	502581	425599	30.0	28.2	26.1	20.4	24.1	24.0	23.8	22.0	21.3	26.1	30.1	31.2	25.6	19.5	-	
S22	474900	427902	33.7	30.9	40.4	30.1	28.8	31.1	33.7	34.6	30.2		22.7	34.5	31.9	24.2	-	
S23	473125	450659	30.1	21.4	30.4	10.0	18.1	17.6	18.1	16.5	17.9	22.8	25.7	21.1	20.8	15.8	-	
S24	471394	436339	27.3	19.5	24.9	15.2	14.2	15.8	17.2	15.3	14.3	20.2	20.1	23.0	18.9	14.4	-	
S25	504100	433232	35.6	27.0	34.2	28.6	23.4	21.7	23.3	23.7	24.7	23.9	19.5	32.6	26.5	20.2	-	
S26	504738	439744	30.9	20.8	25.3	24.3	17.9	17.0	20.4	21.3	20.0	16.6	21.7	27.5	22.0	16.7	-	
S27	515781	429027	45.3	37.4	39.7	26.8	29.2	27.3	29.8	21.7	22.7	29.8	24.9	27.7	30.2	22.9	-	
S28	496997	426490	69.4	40.1	52.0	31.2	36.5	41.7	41.9	39.8	36.8	44.0	49.8	36.6	43.3	32.9	-	
S29	502309	457081	39.3	29.8	36.3	26.7	27.1	26.4	28.6	28.2	23.6	27.4	33.6	32.1	29.9	22.7	-	
S30	504637	440017	35.5	23.2	37.4	26.5	22.1	24.6	24.7	22.8	25.3	29.4	32.3	35.8	28.3	21.5	-	
S31	502215	458409	35.4	23.5	26.0	15.9	16.8	15.3	15.6	15.6	17.0	21.8	26.6	26.1	21.3	16.2	-	
S32	497943	426316	50.4	32.8	31.5	29.3	26.6	23.5	24.4	26.8	27.4	29.1	28.3	23.4	29.5	22.4	-	
S33	504697	439882	10.1	31.2	42.4	28.4	29.4	31.1	31.7	26.1	29.4	32.6	31.7	35.9	30.0	22.8	-	
S34	504505	440305	22.1	16.3	28.1	17.5	14.3	17.1	16.9	15.3	17.4	18.9	12.8	24.8	18.5	14.0	-	
S35	495626	427060	59.5	47.6	44.8	33.9	38.5	46.8	46.1	39.7	35.2	44.0	40.4	35.6	42.7	32.4	-	
S36	480188	448778	33.7	18.3	26.8	15.9	16.3	14.9	16.4	15.7	18.7	21.1	22.4	28.1	20.7	15.7	-	
S37	534034	428009	28.0	20.8	27.7	23.1	19.6	18.1	22.0	20.0	17.7	17.2	17.7	23.5	21.3	16.2	-	
S38	468844	421735	33.2	23.2	24.4	19.1	17.4	17.4	18.4	17.9	19.1			22.2	21.2	16.1	-	
S39	472612	425584	24.5	15.4	24.1	15.2	14.2	17.8	16.9	17.6	18.2	20.1	22.6	24.8	19.3	14.7	-	

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S40	472721	425422		14.2	14.6	10.5	8.4	9.1	10.0	8.9	9.0	12.7	17.1	19.8	12.2	9.3	-	
S41	503754	439572	37.5	23.8	33.3		22.0	20.9	22.5	22.5	23.7	21.6	24.3	26.5	25.3	19.2	-	
S42	476054	425330	22.5	13.7	18.9	10.5	8.4	9.0	9.6	9.5	8.7	13.7	11.3	19.0	12.9	9.8	-	
S43	492328	431214	34.1	18.6	22.6	17.4	16.9	15.8	16.3	14.2	15.2	19.0	22.3	24.9	19.8	15.0	-	
S44	489434	432676	35.0	28.3	28.5	23.3	23.7	23.4	25.4	24.5	21.9	28.1	29.5	25.8	26.5	20.1	-	
S45	495723	426954	45.8	25.7	41.2	32.3	24.5	24.8	28.9	27.0	31.7	27.7	28.5	36.0	31.2	23.7	-	
S46	518784	430418	45.4	32.1	33.4	23.8	25.8	28.3	27.5	24.8	26.5	32.6	29.0	32.6	30.2	22.9	-	
S47	518701	430577	55.7		21.8	24.8	24.7	26.5	25.6	20.9	27.4	35.5	31.0	32.9	29.7	22.6	-	
S48	504775	439693	6.7	16.4	34.2	23.1	16.7	16.8	21.8	20.7	21.0	21.6	24.7	26.6	20.9	15.9	-	
S49	474766	422543	10.0	18.0	26.2	16.2	13.5	13.8	14.7	14.7	15.6	17.1	21.4	23.8	17.1	13.0	-	
S50	496006	427313	28.5	16.2	23.0	12.5	11.9	12.8	13.2	10.5	11.7	15.4	20.3	17.9	16.2	12.3	-	
S51	505234	426460	23.4	17.5	31.4	17.5	14.4	16.6	18.4	16.3	14.9	19.7	22.4	20.3	19.4	14.7	-	
S52	474616	428347	29.0	17.6	26.0	16.2	14.6	14.7	15.8	16.1	15.4	16.8	25.5	21.1	19.1	14.5	-	
S53	494543	449616	34.7	26.8	34.9	35.6	31.0	27.7	33.5	41.9	29.0	28.2	35.1	30.3	32.4	24.6	-	
S54	494675	449632	29.1	22.2	26.0	26.1	25.7	22.6	28.9	31.3	25.7	25.7	25.7	27.0	26.3	20.0	-	
S55	496872	426518	34.6	25.3	28.8	16.9	18.7	20.7	19.8	17.1	17.4	25.0	13.1	27.6	22.1	16.8	-	
S56	496771	426527	52.0	31.6	43.0	30.5	34.5	38.8	35.8	31.7	34.5	34.7	41.1	23.0	35.9	27.3	-	
S57	468165	422932	26.4	17.9	27.7	18.6	15.9	16.6	15.9	15.3	16.4	17.4	14.3	18.5	18.4	14.0	-	
S58	492244	431032	39.5	25.9	43.6	27.1	27.1	27.3	29.8	28.4	30.2	30.0	26.8	37.3	31.1	23.6	-	
S59	519971	447581	49.5	34.2	47.3	37.8	37.9	37.9	36.6	39.9	36.6	33.7	43.2	43.8	39.9	30.3	-	
S60	494733	428221	25.9	18.1	20.2	11.9	10.9	12.3	11.6	10.5	11.5	14.2	29.4	22.1	16.6	12.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S61	495732	426997	62.3	43.0	32.2	33.7	38.8	42.7	45.6	37.4	40.8	43.4	47.7	36.1	42.0	31.9	-	
S62	501315	445463		12.5	16.8	10.6	11.3	10.3	10.9	11.0	10.8	15.2	15.9	17.4	13.0	9.9	-	
S63	497423	426118	35.4	27.4	22.2	15.6	16.3	16.5	16.2	14.7	14.9	25.6	28.8	23.2	21.4	16.3	-	
S64	502951	429192	41.8	23.8	31.5	23.3	21.7	25.9	24.0	21.5	26.1	27.4	30.2	36.2	27.8	21.1	-	
S65	494770	428016	28.9	16.1	29.6	22.5	14.3	14.7	17.9	17.8	19.7	21.4	19.9	25.4	20.7	15.7	-	
S66	492243	431116	44.5	28.8	29.0	21.3	24.3	24.8	23.6	23.8	20.1	26.6	27.5	27.2	26.8	20.4	-	
S67	498492	426550	48.1	35.6	31.8	29.5	27.5	24.8	21.4	25.0	25.7	23.9	25.4	34.0	29.4	22.3	-	
S68	476124	424942	28.9	19.6	20.5	12.2	12.1	11.8	10.6	10.7	10.7	16.6	19.7	22.9	16.4	12.4	-	
S69	506332	456175	23.9	15.0	22.8	13.8	16.4	15.9	16.6	19.5	15.4	17.7	12.5	17.1	17.2	13.1	-	
S70	520021	447520	40.5	27.4	30.0	22.1	20.3	25.2	22.2	23.3	23.4	29.1	35.2	30.1	27.4	20.8	-	
S71	496860	425815	27.9	26.3	33.9	22.6	22.7	24.8	24.5	24.8	25.5	29.2	32.7	29.8	27.1	20.6	-	
S72	497222	426412	45.4	33.9	40.8	35.8	30.7	26.7	28.3	26.9	27.7	20.7	26.4	34.1	31.5	23.9	-	
S73	502101	427375	31.0	16.0	20.3	13.1	14.8	14.5	12.4	12.3	12.5	15.8	20.2	22.5	17.1	13.0	-	
S74	471539	455708	33.6	23.9	24.3	19.5	19.9	23.3	23.7	23.4	19.4	25.0	26.1	26.6	24.1	18.3	-	
S75	502951	428700	29.2	16.4	22.2	17.6	14.0	17.3	17.7	16.1	17.1	15.5	13.8	26.7	18.6	14.2	-	
S76	522589	444098	22.9	11.6	19.6	11.2	11.5	12.1	12.4	12.7	10.7	14.6	20.0	15.7	14.6	11.1	-	
S77	494158	426490	29.8	19.5	22.9	14.5	15.3	15.5	15.4	13.5	14.0	19.1	13.1	20.1	17.7	13.5	-	
S78	464192	422112	47.6	33.3		35.6	32.1	37.6	38.4	34.4	35.3	41.7	47.1	28.1	37.4	28.4	-	
S79	498622	426191	34.1	16.5	24.4	18.8	15.5	15.1	15.6	15.8	18.9	18.4	15.2	25.4	19.5	14.8	-	
S80	464163	422151	36.6	26.0	42.7	33.4	23.3	28.0	28.4	30.2	31.0	27.2	30.5	21.6	29.9	22.7	-	
S81	516824	429457	32.6	28.2	20.6	14.7	13.4	22.3	19.9	18.0	18.2	27.3	28.0	26.0	22.4	17.0	-	

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S82	516957	428795	46.6	29.4	21.2	19.0	27.3	22.0	22.5	19.9	19.3	27.7	29.3	29.8	26.2	19.9	-	
S83	498623	426192	31.9	20.9	24.8	18.3	13.5	13.8	15.3	14.9	15.7	18.3	20.6	24.9	19.4	14.8	-	
S84	504063	439233	34.0	19.3	29.1	20.0	19.0	16.3	17.8	20.5	17.1	23.8	27.2	26.5	22.6	17.1	-	
S85	504488	439562	26.8	18.5	26.6	13.8	12.9	13.2	12.3	11.8	12.1	17.6	11.2	23.7	16.7	12.7	-	
S86	499170	442062	22.9	14.6	31.1	21.8	14.3	17.8	17.4	17.6	18.1	17.7	23.1	25.0	20.1	15.3	-	
S87	531349	422779	29.9	20.0	21.5	12.2	13.9	13.6	13.2	11.9	11.0	17.6	21.3	20.3	17.2	13.1	-	
S88	510541	445402	34.2			16.7	19.3	13.8	14.4	12.5	12.7	16.7	22.3	22.6	18.5	14.1	-	
S89	512768	445479	24.3	16.7	21.1	16.6	14.9	15.7	16.6	18.1	13.9	18.9	23.6	20.7	18.4	14.0	-	
S90	511628	447614	24.6	13.5	25.3	14.6	14.2	13.7	15.8	14.3	13.2	17.9	22.1	19.9	17.4	13.2	-	
S91	517024	468184	27.8	22.9	32.8	18.3	19.5	22.7	24.0	23.4	19.3	27.5	29.5	20.1	24.0	18.2	-	
S92	508853	442647			33.5	25.8	23.1	25.2	25.5	25.9	21.5	30.6	29.3	33.8	27.4	20.8	-	

☒ **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.**

☒ **East Riding of Yorkshire Council confirm that all 2022 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 East Riding of Yorkshire Council During 2022

The environmental control team of East Riding of Yorkshire Council were consulted on a range of planning applications during 2022. Where air quality assessments were either received as part of the application or were requested as part of our consultation response these are listed in Table C.1. Details of any pre-planning enquiries have been excluded from this data. The details of each application can be found by visiting the East Riding of Yorkshire Council Planning Portal and searching by the planning reference number provided.

Table C.1 – Relevant planning applications received during 2022

Planning Reference	Proposal	AQA Submitted	AQA Details	Comments	Date Consulted	Status (as of 06/06/23)
21/04625/CM	Extension to existing well-site	Yes	Air Quality Assessment by Socotec (Dec 2021)	West Newton Site A - EA permitted site	04/01/2022	Approved
21/04629/CM	Variation of condition, West Newton B Wellsite, Crook Lane, Burton Constable	Yes	Air quality assessment by Socotec (Dec 2020)	EA permitted site	05/01/2022	Approved
21/04475/STPLF	Erection of Supermarket (use class E) with associated access, parking, landscaping and infrastructure following demolition of existing dwelling	Yes	Air Quality Screening Assessment by Wardell Armstrong (dated November 2021, report ref: GM12058.001.V0.2.FINAL)	Construction phase mitigation measures from the AQSA	07/01/2022	Approved
21/04160/STPLF	Erection of 66 dwellings and associated infrastructure, access, open space and landscaping	Yes	Air Quality Impact Assessment by Professional Consult (dated 24th November 2021, report ref: 21.167.1.R1)	Construction phase mitigation and low emission vehicle charge points condition.	14/01/2022	Approved
21/04544/STPLFE	Extension to Tansterne Biomass Power Plant	Yes	AQA as part of Environmental Statement by Northern Planners (Nov 2021)	EA permitted site. CEMP condition recommended	14/01/2022	Pending
21/04438/STPLF	Erection of 206 dwellings and associated car parking, garages, landscaping, open space, pedestrian circulation and links, pumping station, infrastructure works and access from, and widening of Hornsea Burton Road	Yes	Air Quality Assessment by SLR (dated November 2021, report ref: 402.03044.00244 v1.0)	Construction phase mitigation measures from AQA. low emission vehicle charge points.	18/01/2022	Approved
21/04695/CM	Erection of a processing facility producing 4500 tonnes of Rare Earth Oxides, Land East of Saltend Chemicals Park, Saltend (21/04695/CM)	Yes	Air Quality Statement by SLR Consulting Limited (Rev 2, January 2022)	Subject to Env Permitting Regulation	18/01/2022	Approved
21/02227/PLF	Erection of building with flue to house biomass boiler (retrospective)	No		Biomass boiler information provided	27/01/2022	Approved
22/00037/STOUT	Phase 2 expansion of Ozone Park, Howden	Yes	Air Quality Assessment by BWB Consulting Limited (Sept 2021)	No objections. Recommended mitigation measures for construction emissions	27/01/2022	Approved
22/00566/STPLF	Erection of an Ethylene Vinyl Alcohol manufacturing and storage facility	Yes	Air Quality Assessment by SLR Consulting Ltd dated June 2021 (ref. 410.11841.00001 Rev2)	Regulated by the EA under EPR (A1 site). No objections	28/02/2022	Approved
22/00301/STREME	Erection of an Energy Centre, a Data Centre and associated infrastructure following Outline Permission 17/01673/STOUTE (Appearance, Landscaping, Layout and Scale to be considered)	Yes	Air Quality Assessment by Air Quality Consultants Ltd (dated April 2022, report ref: J10/12816/10/4/F1)	No mitigation necessary	16/03/2022	Approved

Planning Reference	Proposal	AQA Submitted	AQA Details	Comments	Date Consulted	Status (as of 06/06/23)
22/00687/STPLF	Erection of 201 dwellings and associated infrastructure, landscaping and open space	Yes	Air Quality Assessment by SLR (dated January 2022, report ref: SLR Ref No: 402.03044.00241)	Construction phase mitigation from the AQA. low emission vehicle charge points	28/03/2022	Approved
21/02283/CM	Construction of an asphalt plant	Yes	Air Quality Assessment by SLR Consulting Ltd dated Sept 2021 (ref. 416.12417.00001, v1.0)	No objections, recommend dust mitigation measures during construction. Site will be subject to Part B Env Permit	05/04/2022	Refused
22/01032/STPLF	Construction of 4 silage clamps	Yes	Air Quality Assessment by Redmore Environmental dated March 2022 (ref. 5193-1r3)	No objections. Part of EA permitted site	19/04/2022	Approved
21/02354/CM	Erection of boiler house extension to existing Waste Processing Building (Sheds 4 and 5)	Yes	Detailed Air Quality Assessment dated Jan 2021 (report issue No.2) and Addendum report dated April 2022 by Environmental Visage	No objections (retrospective application for 3 No. WID compliant biomass boilers). Site is permitted by EA	20/04/2022	Approved
22/00624/CM	Erection of soil/aggregate wash plant at existing concrete mixing plant	Yes	Screening assessment	No objections. CEMP condition recommended.	25/04/2022	Approved
21/04559/PLF	Erection of building for biomass boiler	No		Biomass information form provided. No objections, commented on flue height	25/04/2022	Approved
22/01242/STOUT	Outline - Mixed use development comprising residential development (Use Class C3a) with employment, commercial and other community floorspace (Use Class B2, B8, E(a), E(b), E(d), E(e), E(f), E(g), (F2(d)) with associated landscaping, etc	Yes	Air Quality Assessment by BWB (dated March 2022, report ref: LYR-BWB-ZZ-ZZ-RP-LA-0001_AQA / BMW3194-AQA-0001)	Proceed in accordance with construction phase mitigation measures in report	27/04/2022	Pending
22/01241/STPLF	Erection of a Foodstore (Use Class E) with associated access, spine road, pumping station, car parking, servicing, landscaping and other infrastructure	Yes	Air Quality Assessment by BWB (dated March 2022, report ref: LYR-BWB-ZZ-ZZ-RP-LA-0001_AQA / BMW3194-AQA-0001	Proceed in accordance with mitigation measures for construction phase. low emission vehicle charge points	11/05/2022	Pending
22/00649/PLF	Siting of a biomass boiler	No		Biomass boiler information sheet, specification and emissions details provided. No objections	11/05/2022	Approved
22/01483/PLF	Installation of a biomass boiler and flue	No		Biomass boiler and emissions details provided. No objections	16/05/2022	Approved
22/00980/STPLF	Erection of 151 dwellings and associated infrastructure, drainage and open space	Yes	Air Quality Assessment by SLR (dated February 2022, report ref: 402.03044.00242 v1.0)	Proceed in accordance with construction mitigation measures. low emission vehicle charge points	18/05/2022	Pending
22/01490/PLF	Installation of a biomass boiler to replace two combined heat and power units (retrospective)	No		Biomass boiler specification and emissions details provided. No objections, comments on Mcharge points D and RHI.	18/05/2022	Approved
22/01746/PLF	Installation of 2 flues to serve 2 biomass boilers	No		Biomass boiler information form and emissions certificate. No objections, comments on Mcharge points D.	25/05/2022	Approved
22/01546/STPLF	Erection of a vertical farm, business units, energy centre etc	Yes	Air Quality Assessment by Surface Property (dated March 2022).	Construction phase mitigation measures. low emission vehicle Charge points	30/05/2022	Approved

Planning Reference	Proposal	AQA Submitted	AQA Details	Comments	Date Consulted	Status (as of 06/06/23)
22/02336/VAR	Variation to approved plans (20/04304/REG3) to allow design changes incl relocation of CHP flues	Yes	Flue Dispersion Modelling by AECOM (dated 6th July 2022, report ref: 60652362)	Design changes acceptable in terms of AQ. No additional mitigation required	13/07/2022	Withdrawn
22/02118/STPLFE	Hybrid. FULL for factory. OUTLINE for large residential, schools, commercial, sports, business units etc	Yes	Environmental Statement by DPP UK Ltd (dated June 2022, report ref: 4331LE/ES/R004)	Construction phase mitigation measures from ES. low emission vehicle charge points	27/07/2022	Pending
21/01913/OUT	Outline - Residential Development following demolition of 3 office buildings (access to be considered)	Yes	Air Quality Assessment by Noise Air Acoustics & Air Quality (dated 27th May 2022, report ref: P5165-R1-V1)	Assessed Operational phase only. No issues. Still needs a CEMP for construction phase	28/07/2022	Approved
22/02012/STPLF	Hybrid Planning Application comprising of: a) Full Planning Permission for the Erection of a Day Surgery Unit with associated parking, erection of a waste compound and excavation of land to create a lagoon; and b) OUTLINE for the car park	Yes	Air Quality Assessment by BWB (dated April 2022, report ref: 220365)	Construction phase mitigation measures. low emission vehicle Charge points	03/08/2022	Pending
22/00831/CM	Replacement concrete batching plant	No		Air quality qualitative (screening) assessment. Site emissions regulated by Environmental Permit permitted	01/09/2022	Approved
22/02912/STPLF	Erection of a foodstore (Class E) with solar panels to roof, car parking, landscaping and associated works following demolition of former public toilet block	Yes	Air Quality Assessment by NJD Environmental Associates (dated August 2022, report ref: NJD22-0107-001R)	Construction phase mitigation measures from the AQA	14/09/2022	Approved
22/02745/PLF	Erection of boiler house housing 5MW straw boiler with flue and erection of heat store, Yorkshire Botanicals Ltd, Staddlethorpe Broad Lane, Blacktoft	No	Only brief AQ details provided, along with biomass information form and emissions certificate	Will likely need an Mcharge points permit from the EA. May need to provide more detailed AQ report for permit application	26/09/2022	Approved
22/03052/PLF	Demolition of 12 Exchange Street, construction of new vehicular and pedestrian access and construction of new public car park	Yes	Air Quality Assessment by NJD Environmental Associates (dated August 2022, report ref: NJD22-0107-002R)	Construction phase mitigation measures identified	27/09/2022	Approved
22/01388/CM	Concrete batching plant and pre-cast concrete products manufacturing, W Clifford Watts Ltd, Carnaby Industrial Estate	No	Some AQ information provided in supporting statement.	Site will be subject to Part B Environmental Permit.	28/09/2022	Approved
22/03183/PLF	Installation of an additional biomass boiler, Yorkshire Grown Produce Ltd, Main Road, Newport	No		Emissions certificate provided. Requested biomass information form	03/10/2022	Approved
22/03044/PLF	Installation of biomass boiler and chimney in existing building	Yes		Not clear if AQA submitted (dated Jan 2019) relates to current proposal or previously approved CHP units/boilers on different part of site. Biomass information form and boiler specification details provided	11/10/2022	Approved
22/30344/PLF	Combined heat and power (biomass)	Yes	Air Quality Assessment incl. dispersion modelling by Syntegra Consulting dated Jan 2019	Although the current application is only for one additional 375kW biomass boiler and chimney, the AQA relates to emissions from 2x gas-fired CHP units, 2 x gas-fired Boilers, a standby boiler and a	11/10/2022	Approved

Planning Reference	Proposal	AQA Submitted	AQA Details	Comments	Date Consulted	Status (as of 06/06/23)
				straw fired biomass boiler housed within 3 buildings		
22/03299/STOUT	Outline - Erection of up to 126 dwellings (access to be considered)	YES	Air Quality Assessment by Wardell Armstrong (dated August 2022, report ref: LD10466)	CEMP. low emission vehicle charge points.	12/10/2022	Pending
22/03331/CM	New Household Waste Recycling Site (to replace Weel tip)	Yes	Screening assessment. Further monitoring proposed.	No objections	24/10/2022	Pending
22/02744/STPLF	Erection of an extension (Unit 19A) to existing manufacturing facility, construction of a new 540 space car park to service Unit 19A, and associated highway improvement works	Yes	Air Quality Assessment by SLR (dated October 2022, report ref: 410.064811.00001 V2.0)	Construction phase mitigation from AQA. low emission vehicle charge points	07/11/2022	Approved
22/03465/STOUT	Outline - Erection of up to 120 dwellings with landscaping, access and associated works following demolition and clearance of existing structures and ground remodelling (access to be considered)	Yes	Air Quality Assessment by BWB (dated October 2022, report ref: 220596)	Construction phase mitigation from the AQA. Electric vehicle charge points	09/11/2022	Pending
22/03606/CM	Additional biogas boiler and other equipment/storage tanks on existing anaerobic digestion plant	No		Site operates under an environmental permit from the EA. No objections	25/11/2022	Pending
22/03550/STPLF	Erection of a building for Use Class E (Research and Development and Light Industrial) and/or Class B2 (General Industrial) purposes with ancillary office accommodation, erection of two ancillary buildings (gatehouse and lakehouse) etc	Yes	Air Quality Assessment by Tetra Tech (dated 28th October 2022, report ref: 784-B040376) and the Air Quality Assessment Addendum also by Tetra Tech (dated 13th December 2022, report ref: 784-B040376)	Mitigation measures for construction phase from the AQA. low emission vehicle charge points already provided	25/11/2022	Approved

Additional Air Quality Works Undertaken by East Riding of Yorkshire Council During 2022

QA/QC of Diffusion Tube Monitoring

A network of nitrogen dioxide diffusion tubes is deployed at roadside and kerbside locations across the Council's area (see Appendix D). Tubes supplied and analysed under contract by Socotec (Didcot) are prepared using the 50% TEA in Acetone method, in accordance with procedures set out in the Harmonisation Practical Guidance. Socotec are a UKAS accredited laboratory. The bias adjustment factor (0.76) derived from the National Diffusion Tube Bias Adjustment Factor Spreadsheet is applied to all annual mean diffusion tube data presented in this report.

Diffusion tubes are delivered by Royal Mail to an officer's home address. These are then stored in a refrigerator until they are needed. Due to the size of the East Riding of Yorkshire, diffusion tubes are split between two officers on a geographic basis. As a result of other workloads it is not always possible to change the diffusion tubes on the allocated date, typically a Wednesday, the majority of tubes are changed over between the Tuesday and Thursday of that week. Once changed they are posted via Royal Mail back to Socotec and the exposure spreadsheet is emailed direct to Socotec.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within East Riding of Yorkshire Council recorded data capture of 75% therefore it was not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 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.

East Riding of Yorkshire Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. The adjustment factor was calculated using Version 03/23 of the National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Figure C.1 - National Diffusion Tube Bias Adjustment Factor Spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/23

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

This spreadsheet will be updated at the end of June 2023
LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2]

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

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

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2022	UB	Torfaen County Borough Council	13	13	10	33.4%	G	**0.75**
Socotec Didcot	50% TEA in acetone	2022	R	Bridgend Council	12	37	27	40.6%	G	**0.71**
Socotec Didcot	50% TEA in Acetone	2022	R	Cardiff Council / Shared Regulatory Services	11	42	33	27.3%	G	**0.79**
Socotec Didcot	50% TEA in Acetone	2022	R	Dacorum Borough Council	12	24	18	30.8%	G	**0.76**
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	22	18	19.6%	G	**0.84**
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	26	22	17.0%	G	**0.85**
Socotec Didcot	50% TEA in acetone	2022	R	Kingston Upon Hull City Council	12	30	23	27.9%	G	**0.78**
Socotec Didcot	50% TEA in acetone	2022	UB	Kingston Upon Hull City Council	12	24	18	35.0%	G	**0.74**
SOCOTEC Didcot	50% TEA in acetone	2022	UB	City Of York Council	12	16	13	31.6%	G	**0.76**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	12	25	19	28.7%	G	**0.78**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	23	17	37.2%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	37	27	37.6%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	R	East Suffolk Council	11	32	23	38.6%	G	**0.72**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Ipswich Borough Council	11	42	28	50.4%	G	**0.66**
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	60	42	40.7%	G	**0.71**
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	46	31	49.4%	G	**0.67**
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	28	27	3.7%	G	**0.96**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Wrexham County Borough Council	12	16	14	15.5%	G	**0.87**
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Horsham District Council	11	25	22	14.4%	G	**0.87**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	40	29	37.8%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Leeds City Council	11	33	23	44.6%	G	**0.69**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	43	34	26.0%	G	**0.79**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	11	41	30	34.2%	G	**0.75**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	30	22	36.9%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	UC	Leeds City Council	12	30	22	34.1%	G	**0.75**
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Thanet District Council	12	23	17	29.1%	G	**0.77**
SOCOTEC Didcot	50% TEA in acetone	2022		**Overall Factor[3] (26 studies)**				**Use**		**0.76**

A summary of bias adjustment factors used by East Riding of Yorkshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with

distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO2 monitoring locations within East Riding of Yorkshire required distance correction during 2022.

QA/QC of Automatic Monitoring

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

The type of PM10/PM2.5 monitor(s) utilised within East Riding of Yorkshire Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

Annualisation was required for the six of the seven Zephyr monitors as they had less than 75% annual data capture for 2022. Data was used from three AURN sites; Hull Holderness Road, Hull Freetown and York Fishergate for the annualisation. The process was carried out in accordance with Box 7.9 of TG 22. The annualisation results are shown in Table C.3 below.

Table C.3 Automatic Monitoring Annualisation

AURN Background Site	NO2 Annual Mean	NO2 Period Mean	NO2 Ratio	PM10 Annual Mean	PM10 Period Mean	PM10 Ratio	PM2.5 Annual mean	PM2.5 Period Mean	PM2.5 Ratio
Hull Holderness Road	21.7	20.7	1.048	18.5	17.4	1.063	-	-	-
Hull Freetown	18.1	16.5	1.097	15.2	13.7	1.109	9.1	7.8	1.167
York Fishergate	19.2	18.1	1.061	16.8	15.5	1.084	8.8	8.4	1.048
Average			1.069			1.086			1.107

These average annualisation ratios were applied to the annual means from the Zephyr network.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No automatic NO2 monitoring locations within East Riding of Yorkshire Council required distance correction during 2022.

Appendix D: Map(s) of Monitoring Locations

Maps showing the location of the monitoring sites can be accessed via our interactive map. The network of Zephyr monitors can be viewed on our Public Air Quality Portal

Appendix E: Summary of Air Quality Objectives in England

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

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

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

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
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
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- East Riding of Yorkshire Council 2017 Air Quality Annual Status Report
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- East Riding of Yorkshire Council 2015 Updating and Screening Assessment.
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- Public Health England Fingerprints