Annual Progress Report (APR)

2025 Air Quality Annual Progress Report (APR) for Dundee City Council

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

October 2025

Information	**Dundee City Council**
Local Authority Officer	Jamie Landwehr
Department	Regulatory Services Planning & Economic Development City Development
Address	Dundee House, 50 North Lindsay Street, Dundee DD1 1QE
Telephone	01382 436280
E-mail	pollution.control@dundeecity.gov.uk
Report Reference Number	DCC_APR2025_OCT25
Date	October 2025

Executive Summary: Air Quality in Our Area

Air Quality in Dundee City Council

In 2006 Dundee City Council (DCC) declared the whole of the DCC local authority area as an Air Quality Management Area (AQMA) for the annual mean nitrogen dioxide (NO_2) Air Quality Objective (AQO). In 2010, DCC amended the initial AQMA to include the annual mean AQO for particulate matter (PM_{10}), and in 2013 DCC further amended the AQMA to include the 1-hour mean AQO for NO_2. Historically, the predominant source of pollution in Dundee has been from road transport.

DCC published its first 'Air Quality Action Plan' (AQAP) in January 2011. The 2011 AQAP includes a set of 32 measures aimed to work towards achievement of the AQOs in the AQMA. Over the 14-years since the AQAP was published, pollutant levels across the local authority have reduced, with the number of exceedance locations dropping significantly. An updated AQAP is due to be published in 2025 to build on and maintain these improvements.

Dundee City Council continues to monitor NO_2, PM_{10} and $PM_{2.5}$ levels across the city, with the latest results and trends discussed in Chapter 3. Additional analysis of our monitoring is also available on the Air Quality in Scotland website within the 2024 annual summary report prepared by Ricardo Energy & Environment - https://www.scottishairquality.scot/assets/reports/365/Dundee_City_annual_2024.html.

The 2024 monitoring results indicate compliance with the air quality objectives for these pollutants monitored across the city of Dundee.

No exceedance of the NO_2 annual mean objective was identified at any of the 83 passive diffusion tube (PDT) monitoring locations across the city for the 2024 calendar year.

As previously reported, lockdown measures imposed in response to the COVID19 pandemic during 2020 and 2021 resulted in a significant reduction in road traffic within Scotland's cities, including Dundee, which contributed to large decreases in measured NO_2 concentrations compared to the years prior to these. With the gradual return of traffic levels, NO_2 concentration levels increased slightly in 2021. Since then, however, the annual concentration levels have not returned to pre-pandemic levels and have decreased to even lower levels in many locations. These improvements are likely to be as a result of the introduction of cleaner vehicles to fleets in readiness for the Dundee Low Emission Zone (LEZ).

Enforcement of the LEZ commenced on 30th May 2024. It was therefore only in force for seven-months of the 2024 monitoring period so the full impact of the LEZ enforcement on annual mean

objectives are not yet clear. Full compliance with the air quality objectives were recorded at the two reference standard NO_2 monitoring locations within the Dundee Low Emission Zone scheme area (Seagate and Whitehall Street), and also at the 29 PDTs located within the LEZ boundary.

No exceedance of the NO_2 1-hour mean limit of 200ug/m^3 was observed at any of the monitoring sites across Dundee during 2024. This further supports the process of amending the wording of the current Dundee AQMA order to remove the 1-hour objective aspect.

No exceedance of the PM_{10} or $PM_{2.5}$ annual mean objectives were observed at any locations where these pollutants are monitored in Dundee during 2024. No exceedance of the 24-hour mean AQO for PM_{10} was recorded and any of the reference standard monitors, however at Stannergate, where an indicative monitor (OSIRIS) is in place, a higher number of daily exceedances (12) than allowed by this AQO (7) over the calendar year was recorded. These results though are to be treated with caution as OSIRIS units are indicative monitors which, while reasonable for annual mean data, are known to over-estimate the number of daily exceedances due to the correction methodology required to correct data prior to reporting.

Actions to Improve Air Quality

Dundee City Council has taken forward a number of measures linked to our AQAP during the current reporting year of 2024 in pursuit of improving local air quality.

- Enforcement of the Dundee Low Emission Zone scheme commenced on 30th May 2024. From this date onward, the owners of non-compliant vehicles that had been identified as being driven on a road within the LEZ area would be issued a Penalty Charge Notice (PCN).
- The Cyclehoop Bikehangar scheme continued to successfully run with online promotion being undertaken by Cyclehoop and DCC, including letter drops at locations with a lower uptake. Units were also moved from areas with no uptake to areas with demand to increase overall occupancy of the hangars from around 50% to nearly 80%. Locations for future Bikehangars have been identified and a funding application submitted to Cycling Scotland for 10 additional units, aiming to grow the scheme by 25%.
- School Streets zones continued to be supported by other behavioural change programmes such as ‘walking buses’, Dr. Bike sessions, banner competitions and school assemblies. Dundee Cycle Hub also began ‘cycling buses’ at schools. DCC officers worked on several joint operations with Police Scotland to raise awareness of and enforce the zones.
- Membership of the ECO Stars commercial fleet scheme increased by 3 to 279 members in 2024. This increased the number of vehicles included by 43, bring the total number of vehicles included to 10,129. Funding to support the Taxi / Private Hire scheme was not received for

2024/2025 so there was no increase in the number of members (20) or vehicles (576) during 2024.

- The Drive Dundee Electric campaign continued to successfully engage with current and potential electric vehicle (EV) owners (both in public and business) through the local media in the form of EV related articles encouraging people to make the switch to EV.

Local Priorities and Challenges

Air Quality Action Plan linked measures to be progressed over the course of the next reporting year include:

- Support for Active Travel related projects will continue, such as the School Active Travel Delivery programme, through joint working with the Dundee Cycle Hub and the Ancrum School Active Travel Team.
- Enforcement of the Dundee LEZ scheme will continue.

How to Get Involved

Further information on air quality in Dundee can be found on the website at the following location: www.dundeecity.gov.uk/service-area/city-development/planning-and-economic-development/air-quality-in-dundee

Further information on the Dundee LEZ scheme can be found at:www.dundeecity.gov.uk/LEZ .

"Dundee's Low Emission Zone (LEZ) fully commenced on 30th May 2024 after the scheme's two-year grace period drew to a close."

"In February 2024 St. Ninian's Primary became the latest school to join the list of School Streets exclusion zones. School Streets aims to create a safer, cleaner and more pleasant environment around the school, with the roads free of traffic at the times children are arriving in the morning and leaving in the afternoon."

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in Dundee City Council during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) summarises the work being undertaken by Dundee City Council to improve air quality and any progress that has been made.

Table 1-1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO_2)	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2021
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m^3	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Running 8-Hour mean	31.12.2003

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 must prepare publish and implement an Air Quality Action Plan (AQAP) within the shortest possible time and no later than 12 months of the date of AQMA Designation Order. The AQAP must set out measures the local authority intends to put in place in pursuit of the objectives within the shortest possible time Measures should be provided with milestones and a final date for completion. The action plan itself should have a timescale for completion and for revocation of the AQMA. Where measures to reduce air pollution may require a longer timescale an action plan shall be reviewed and republished within five years of initial publication and then five-yearly thereafter.

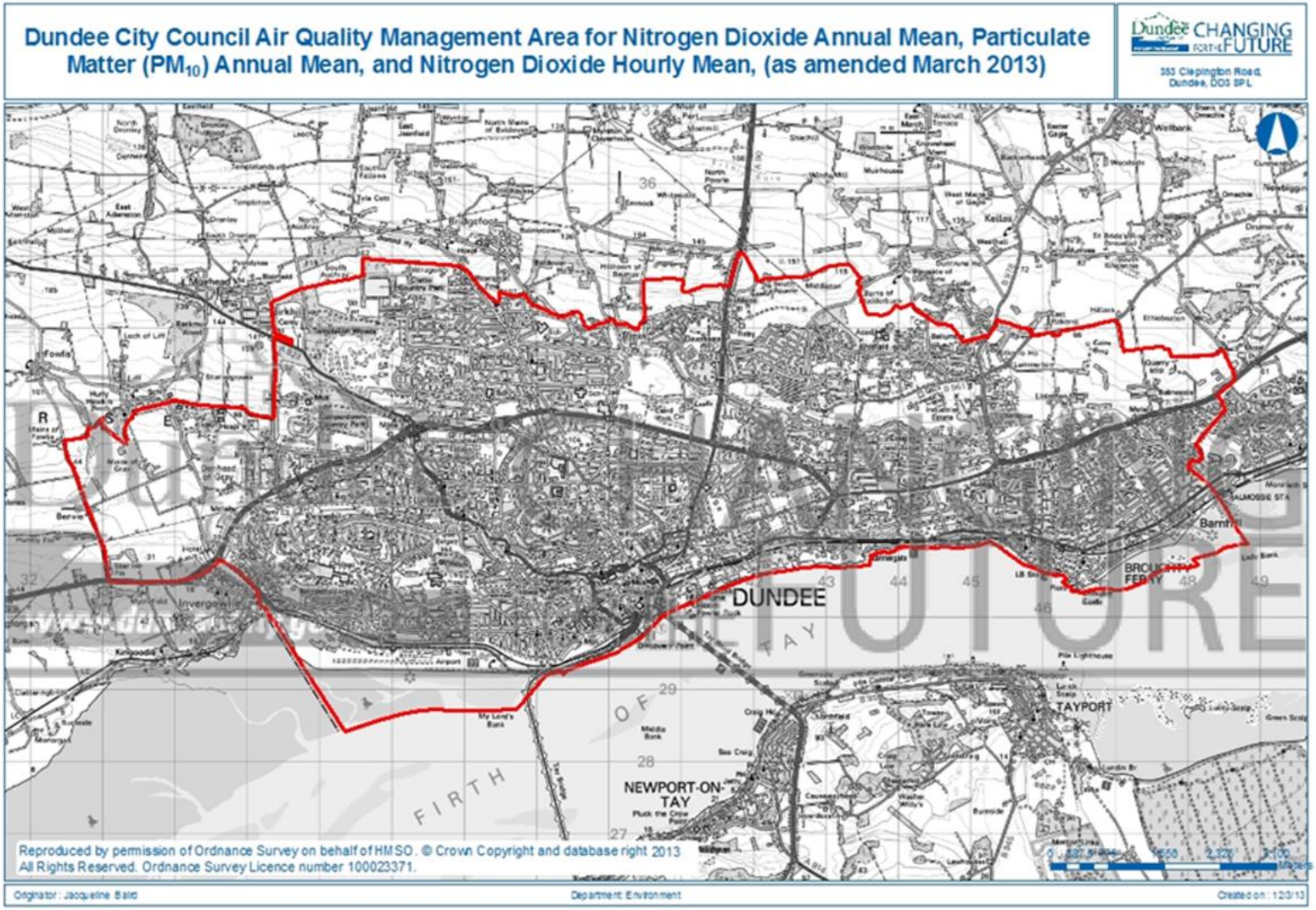
A summary of AQMAs declared by Dundee City Council can be found in Table 2-1 . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at the AQMA webpage:

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=476

Table 2-1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Dundee City Council AQMA	NO_2 annual mean PM_{10} annual mean NO_2 hourly mean	Dundee	The whole of the local government area of the City of Dundee was declared an AQMA in respect of the annual mean objective for NO_2 in July 2006. In October 2010 the AQMA Order was amended to include the annual mean objective for PM_{10}. The AQMA was further amended in March 2013 to include the hourly mean objective for NO_2. See Figure 1 for a map of the Dundee AQMA.	Air Quality Action Plan for Nitrogen Dioxide (NO_2) and Fine Particulate Matter (PM_{10}) - January 2011 www.dundeecity.gov.uk/service-area/neighbourhood-services/community-safety-and-protection/air-quality-in-dundee/air-quality-action-plan

Figure 1 Dundee Air Quality Management Area map



2.2 Cleaner Air for Scotland 2

Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2) is Scotland's second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities over the period 2021 – 2026. CAFS2 was published in July 2021 and replaces Cleaner Air for Scotland – The Road to a Healthier Future (CAFS), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe". A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government's website.

Progress by Dundee City Council against relevant actions for which local authorities are the lead delivery bodies within this strategy is demonstrated below.

2.2.1 Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

Dundee City Council has several plans and policies within which air quality considerations are contained, including (links to each plan provided where available):

- Staff Travel Plan 2023,
- the Climate Action Plan 2019,
- the 2019 Cycling Action Strategy,
- the Sustainable Transport Delivery Plan 2024 – 2034,
- the Dundee Local Development Plan 2019 and associated Supplementary Guidance Air Quality & Land Use Planning,
- the 2023 Net Zero Transition Plan (NZTP), and
- the City Centre – Strategic Investment Plan 2050.

In addition, both the Dundee LEZ Delivery Group and the Dundee Corporate Air Quality Steering Group contain members from a wide range of service areas within Dundee City Council. There has been good cross departmental working during the delivery of both the Dundee LEZ scheme and the updated Air Quality Action Plan due to be published in 2025.

2.2.2 Transport – Low Emission Zones

Local authorities working with Transport Scotland and SEPA will look at opportunities to promote zero-carbon city centres within the existing LEZs structure.

The Dundee Low Emission Zone Scheme received Scottish Ministerial approval in May 2022 and introduced soon after on 30th of May 2022. A two-year grace period followed with enforcement of the LEZ then beginning on 30th May 2024.

Further details on the Dundee LEZ scheme follows in section 2.2.3.

Opportunities to promote the LEZ within existing zero-carbon initiatives, such as the 'Drive Dundee Electric' campaign and 'Sustainable Dundee', have been carried out during 2024. The Council's 'Sustainable Transport Delivery Plan 2024 - 2034' was approved in 2023 with the delivery of projects within this commencing in 2024. The Delivery Plan showcases how infrastructure will be provided for a sustainable mobility future, outlining how Dundee's plan ties in with national and regional strategies, and details potential investment from external sources of approximately £245 million in several projects over the ten-year period. Approval to transform Dundee's Bell Street multi-storey car park into a green transport hub was given in March 2024 with work on this development carrying on through 2024. The project is due to be completed in the autumn of 2025.

2.2.3 Dundee Low Emission Zone Scheme

Details of the Dundee LEZ scheme can be found on the LEZ pages of the DCC website – http://www.dundeecity.gov.uk/lez. This webpage contains links to documents produced during the LEZ development process, such as National Low Emission Framework (NLEF) reports, the SEPA emissions analysis and air quality evidence reports, and the Integrated Impact Assessment (IIA). A map of the Dundee LEZ area within DCC is shown in Figure 2.

Final preparations for enforcement of the LEZ scheme commencing in May 2024 were undertaken through March and April 2024 and focussed on road signage installations, road markings, and the testing of automatic number plate recognition (ANPR) cameras installation the back-office enforcement systems.

An ongoing programme of communications to raise awareness of the Dundee LEZ scheme continued until June 2024, which included:

- A local television advert campaign which ran through the months of March to June 2024
- Continued updating of the Council's LEZ webpage to include information on support funding available to help motorists prepare for the LEZ

- Regular social media postings to regularly remind motorists of the forthcoming scheme and providing links to tools available to allow motorists to check compliance status of the vehicle and to register for Blue Badge exemptions.
- A ‘chatbot’ hosted on the ‘Hello Dundee’ platform was created for the LEZ which allows users to ask questions pertaining to LEZs in Scotland - https://www.dundeecity.gov.uk/lez-chat/?width=350&opacity=0.4&overlayClose=false

Details of the number of contraventions each month is listed on the LEZ pages of the DCC website. Across the 7-months of being in force until 31 December 2024, on average there were around 1,500 PCNs issued each month including first time and for repeat offenders. In line with legislation, an annual report on the performance of the LEZ is due to be prepared and published in the middle of 2025.

2.3 Implementation of Air Quality Action Plan(s) and/or measures to address air quality

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. Dundee City Council has taken forward a number of measures within the action plan during the current reporting year of 2024 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in Table 2-2. More detail on these measures can be found in the air quality Action Plan relating to the AQMA.

Key completed measures for this reporting year are:

- Enforcement of the Dundee Low Emission Zone scheme commenced on 30th May 2024. From this date onward, the owners of non-compliant vehicles that had been identified as being driven on a road within the LEZ area would be issued a Penalty Charge Notice (PCN).

- The Cyclehoop Bikehangar scheme continued to successfully run with online promotion being undertaken by Cyclehoop and DCC, including letter drops at locations with a lower uptake. Units were also moved from areas with no uptake to areas with demand to increase overall occupancy of the hangars from around 50% to nearly 80%. Locations for future Bikehangars have been identified and a funding application submitted to Cycling Scotland for 10 additional units, aiming to grow the scheme by 25%.

- School Streets zones continued to be supported by other behavioural change programmes such as ‘walking buses’, Dr. Bike sessions, banner competitions and school assemblies.

Dundee Cycle Hub also began ‘cycling buses’ at schools. DCC officers worked on several joint operations with Police Scotland to raise awareness of and enforce the zones.

- Membership of the ECO Stars commercial fleet scheme increased by 3 to 279 members in 2024. This increased the number of vehicles included by 43, bring the total number of vehicles included to 10,129. Funding to support the Taxi / Private Hire scheme was not received for 2024/2025 so there was no increase in the number of members (20) or vehicles (576) during 2024.

- The Drive Dundee Electric campaign continued to successfully engage with current and potential electric vehicle (EV) owners (both in public and business) through the local media in the form of EV related articles encouraging people to make the switch to EV.

Progress on the following measure has been slower than expected:

- Completion of the review and update of the current 2011 Air Quality Action Plan has been delayed. A draft of the updated AQAP was approved through Committee in June 2024 with with a six week period of stakeholder engagement and public consultation being carried out during the months of July and August 2024. It is proposed that the updated Air Quality Action Plan will be approved and published in the second half of 2025.

Dundee City Council expects the following measures to be progressed over the course of the next reporting year:

- Support for Active Travel related projects will continue, such as the School Active Travel Delivery programme, through joint working with the Dundee Cycle Hub and the Ancrum School Active Travel Team.
- Enforcement of the Dundee LEZ scheme will continue.
- The updated Air Quality Action Plan will be put forward for approved and publishing in the second half of 2025.
- Work on Low Carbon Hub at the Bell Street carpark will progress with the completion due late 2025.
- Subject to funding support, ECO Stars schemes for commercial fleet and taxi/private hire vehicles will continue through 2025.

Table 2-2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
13	**Measure M13:** DCC will promote the uptake and use of cleaner and/or alternative fuels where possible for transport	Promoting low emission transport	Ongoing		ongoing	Transport Scotland Local Authority LEZ Assistance Fund		Enforcement of the Dundee Low Emission Zone scheme commenced on 30th May 2024. From this date onward, the owners of non-compliant vehicles that had been identified as being driven on a road within the LEZ area would be issued a Penalty Charge Notice (PCN).	
3	**Measure M3:** DCC to identify partnership and funding to continue benefits of Smarter Choices / Smarter Places: Dundee Travel Active Programme	Promoting travel alternatives	ongoing		In progress	AQAP funding has been applied for on an annual basis to partially fund projects related to this action plan measure.		The Cyclehoop Bikehangar scheme continued to successfully run with online promotion being undertaken by Cyclehoop and DCC, including letter drops at locations with a lower uptake. Units were also moved from areas with no uptake to areas with demand to increase overall occupancy of the hangars from around 50% to nearly 80%. Locations for future Bikehangars have been identified and a funding application submitted to Cycling Scotland for 10 additional units, aiming to grow the scheme by 25%.	
3	Behavioural Change Primary School programme to promote sustainable travel options in all primary schools	Promoting travel alternatives	Ongoing		In progress	Joint funded, contribution for post applied for annually through Air Quality Action Plan support funding.		School Streets zones continued to be supported by other behavioural change programmes such as ‘walking buses’, Dr. Bike sessions, banner competitions and school assemblies. Dundee Cycle Hub also began ‘cycling buses’ at schools. DCC officers worked on several joint operations with Police Scotland to raise awareness of and enforce the zones.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1	**Measure M1:** Existing Road Infrastructure Improvements City Centre Improvements - **Union Street.**	Transport, planning and infrastructure	2011		Completed		The continuous automatic air monitoring station was removed from Union Street in 2016.	Union Street Road Infrastructure improvements were completed December 2011. Two-way traffic was maintained. Pavement widths were altered, and the bus stops were removed to reduce congestion and bus idling. Bus services redistributed to bus stops on Whitehall Street and Nethergate. Union Street, between the Nethergate and Whitehall Crescent, was pedestrianised from August 2020 through Sustrans Spaces for People, with this subsequently being made permanent.	Completed
	Northwest Arterial Route improvements – **Lochee Road**	Transport, planning and infrastructure	2012 / ongoing		Completed / in progress	Funding for modelling of the impact of infrastructure changes was obtained via the Scottish Air Quality Action Plan grant scheme in 2022/23.		Alterations carried out at Lochee Road/Rankine Street in February 2012 with the central reservation removed to free up road space and reduce congestion. Road infrastructure changes on Lochee Road at the Cleghorn Street / Rankine Street were implemented in early 2022 to benefit road safety and to help ease congestion caused by vehicles turning right into these streets from Lochee Road. This included the installation of a central island to prevent drivers from turning right from Cleghorn Street on to Lochee Road, from Lochee Road on to Cleghorn Street and from Rankine Street on to Lochee Road. Drivers are not able to cross Lochee Road from Rankine Street on to Cleghorn Street or vice-versa. There have also been pedestrian improvements to Lochee Road / Dudhope Terrace Junction. Air quality modelling to identify impacts of the preferred infrastructure changes option was completed by SEPA in	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								2022. However, owing to the larger 'Active Travel Freeways' project, these changes are no longer to be progressed.	
	Arterial Route Improvements - **Stannergate**	Transport planning and infrastructure	2016		Completed			Consultants engaged in 2013 to carry out traffic micro-simulation modelling and air dispersion modelling. Final draft of the AD Modelling was received in April 2016, with the summary of findings presented in the 2016 APR.	
	City Centre Improvements - **Meadowside**	Transport planning and infrastructure	2016 / 2021		Completed			Meadowside – in 2012 a trial lane closure at the north end of street to increase separation distance between traffic and receptors was put in place. A temporary paving surface was introduced in October 2013 to allow the impact on monitored concentrations to be studied for a 12-month period. Permanent street infrastructure changes were completed in Feb/March 2016. Bus priority measures were introduced on Meadowside in March 2021. The measures remove general traffic (cars etc) going north bound at the Meadowside signals near the Wellgate centre, with traffic diverted onto Bell Street from Meadowside to join at Victoria Street west of the Meadowside signals.	
	City Centre Improvements - **Upgrade 13 traffic signals with fibre optic connections**	Transport planning and infrastructure	2019		Completed			A Fibre network was implemented to improve Traffic Signals communication (and revenue saving) with the Control Room in Dundee House. This network improved reliability and efficiency of Urban Traffic Management and Control (UTMC).	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	City Centre Improvements – **Seagate / St. Andrews Street**	Transport planning and infrastructure	2017		Completed			In 2014, consultants were commissioned to undertake a review of transport activity on the Seagate with a specific focus on identifying actions that would address its poor air quality. The report concluded that there were no affordable actions that could ensure AQ thresholds were met but a range of actions could help reduce emissions. Air Dispersion Modelling demonstrated that if all buses and HDVs were Euro VI then **no** exceedances of the NO_2 or PM_{10} objectives would persist in the city centre. Traffic modelling undertaken by SYSTRA with 2016/17 funding showed that the proposed transport management options would be unacceptable on traffic congestion, access and air quality grounds.	
	City Centre Improvements – **Crichton Street / Whitehall Street / Nethergate**	Transport planning and Infrastructure	2017		Completed			Consultants were commissioned in March 2017 to examine the current bus movements through the city centre. The executive summary of this report is in **Appendix C.5** of the 2018 DCC APR.	
2	**Measure M2:** DCC will enhance the Urban Traffic Management and Control (UTMC) system to reduce congestion Real-time traffic monitoring. Improved control regime to smooth out peak traffic.	Traffic management	2013 – UTMC 2016 – Bluetooth Traffic Speed Monitoring System		Completed			UTMC scheme was implemented in March 2013 to expand UTMC to two congested junctions in Lochee Rd AQ hotspots. Seagate / Commercial Street traffic light refurbishment to improve bus and traffic flows completed Feb 2013. Coupled with increased enforcement of waiting restrictions to reduce congestion. TACTRAN funding provided in 2014/15 to expand Bluetooth	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								Traffic Speed Monitoring System to include the Lochee Road. The system was expanded along the eastern corridor on the A92 coming in from Arbroath and Broughty Ferry. Bluetooth journey time monitoring is now undertaken on all major arterial routes leading into the city centre area.	
	Paramics / AIRE modelling of key junctions – Kingsway / Forfar Rd & Lochee Rd corridor to test improvement options	Traffic management	2016		Completed			Consultants were engaged in 2013 to carry out traffic micro-simulation modelling and air dispersion modelling. A detailed summary of the options is contained in **Appendix C** of the 2016 APR.	
3	**Measure M3:** DCC to identify partnership and funding to continue benefits of Smarter Choices / Smarter Places: Dundee Travel Active Programme	Promoting travel alternatives	ongoing		In progress	AQAP funding has been applied for on an annual basis to partially fund projects related to this action plan measure.		The Dundee Cycle Hub (DCH) opened in September 2021. The team at the DCH have continued to strengthen their offerings during 2022 providing outreach services around the city and regular activity at the Waterfront hub location. AQAP funding was awarded in 2024/25 to help support initiatives undertaken by this active travel hub. DCC has successfully bid into the Transport Scotland funded Sustainable transport behaviour change programme “People and Place” which has replaced “Smarter Choices, Smarter Places”. This will fund a number of projects across Dundee which will support and encourage sustainable transport choices for everyday journeys. During 2024 the Cyclehoop Bikehangar scheme continued to successfully run with online promotion being undertaken by Cyclehoop and DCC, including letter drops at locations with a lower uptake.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								Units were also moved from areas with no uptake to areas with demand to increase overall occupancy of the hangars from around 50% to nearly 80%. Locations for future Bikehangars have been identified and a funding application submitted to Cycling Scotland for 10 additional units, aiming to grow the scheme by 25%.	
	Behavioural Change Primary School programme to promote sustainable travel options in all primary schools	Promoting travel alternatives	Ongoing		In progress	Joint funded, contribution for post applied for annually through Air Quality Action Plan support funding.		The Active Travel Schools team based at the Ancrum Centre have continued to deliver their Bikeability and cycling and walking initiatives working closely with schools around Dundee. AQAP funding has been awarded in 2024/25 to help cover the cost of this team enabling it to reach as many schools as possible in Dundee. A 'School Street' (vehicle exclusion zone) was launched at Fintry Primary School in September 2021. Since then, a further 12 have joined the scheme, the most recent being in February 2024. School Streets zones continued to be supported by other behavioural change programmes such as 'walking buses', Dr. Bike sessions, banner competitions and school assemblies. Dundee Cycle Hub also began 'cycling buses' at schools. DCC officers worked on several joint operations with Police Scotland to raise awareness of and enforce the zones. DCC officers worked with several schools to install much-needed cycle parking for staff, students and visitors to the schools.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
4	**Measure M4:** DCC will introduce measures to improve bus services and reduce emissions Statutory Bus Quality Partnership. Voluntary Bus Quality Partnership	Transport planning and infrastructure	Ongoing		In progress			The Tayside Bus Alliance was established in 2020 to develop a joint submission to the Scottish Government's Bus Partnership Fund. Dundee City Council is a member of this. The alliance has helped lay some foundations for a future Bus Service Improvement Partnership in Dundee. The Scottish Government announced in early 2024 that the Bus Partnership Fund was being suspended to allow for a review of activity and reprioritisation of funding.	
	Fleet Renewal – Emissions Improvements	Vehicle Fleet efficiency	Ongoing		In progress	Local bus operators have received funding through schemes such as the BEAR retrofit scheme to retrofit older models to bring them up to EUROVI equivalent emission standards.		Xplore Dundee launched 12 new Zero-Emission electric buses in December 2021, which began full service in January 2022 on the Service 28 route serving Lochee Road. 12 new zero-emission electric double-decker buses were programmed to be launched by Xplore Dundee in March 2025. Most Xplore Dundee vehicles based in Dundee are now LEZ compliant (Euro VI). A small number of Euro V buses remain within the Xplore Dundee fleet for operation as a school bus network. Stagecoach and Moffatt & Williamson now use Euro VI for their Dundee operations.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	ECO Stars Dundee Fleet Management Recognition Scheme introduced	Vehicle Fleet efficiency	Ongoing		In progress	Funding to continue the scheme will be applied for on an annual basis through the AQAP grant scheme.		See Measure 6	
5	**Measure M5**: DCC will explore provision of Park and Ride facilities that do not have adverse impact on air quality Provision of Park and Ride (P&R) facilities	Alternatives to private vehicle use	Ongoing		In progress	Further funding required for any progression of the Tay South Park & Ride, while potential funding opportunities for DCC Park & Rides to be investigated.		Dundee City Council supported a bid from Fife Council to secure Levelling Up funding for a new Park & Ride on the south side of the Tay Road Bridge. No further progress here due to funding being required. Other potential P&R sites were considered and included in the developing Bus Partnership Fund submission prepared by SYSTRA.	
6	**Measure M6:** DCC will introduce measures to reduce emissions from Heavy Goods Vehicles ECO Stars Dundee Fleet Management Recognition Scheme being introduced in 2013	Freight and delivery management	Ongoing		In progress	Funding to continue the scheme will be applied for on an annual basis through the AQAP grant scheme.	Member number 250 was achieved during 2022.	Dundee City Council received funding from the Scottish Government's Air Quality Support Funding to enable continuation of the ECO Stars scheme for larger commercial vehicles and the separate scheme for Taxis and Private Hire Vehicles during 2024. 3 new members, bringing 43 new vehicles, joined the Dundee commercial fleet scheme in 2024. This increased number of members to 279 (10,129 vehicles) by the end of 2024.	
7	**Measure M7**: DCC will seek improvements in emissions standards, including NO_2 and PM_{10} for the council fleet and public service vehicles Development of Green Procurement Strategy to set target	Promoting Low Emission Transport	Ongoing		In progress	Various funding streams utilised by corporate fleet to facilitate switch to EV		See also measure 14. In March 2023 Dundee City Council opened a new electric vehicle (EV) charging hub at Clepington Road in Dundee, Scotland. The 4th Hub, as it is called, is a ground-breaking development that aims to improve accessibility and equality in EV charging infrastructure. The hub comprises 4 x 50kW and 1 x	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	for Euro category/fuel type							150kW SWARCO charging units available for public use, with all the units being fully accessible bays. During 2024, Dundee City Council completed the installation of 18 on street chargers across the city. Dundee is now home to innovative pop-up chargers which blend seamlessly into the landscape. Urban Fox's UEone 7kW on-street charge point is the first of its kind on the market. These innovative dual-socket UEone charge points are the perfect solution for residents without access to a driveway. As these units are installed into the pavement, it allows them to extend from the ground up to hip height for easy access. After use, the charger will automatically retract itself back underground. They remain flush with the ground to eliminate the risk of vandalism as well as minimise street clutter and pavement obstruction to improve accessibility. There are 236 electric vehicles within the fleet which accounts for 31% of the overall fleet.	
	Participation in ECO Stars Dundee-Fleet Management Recognition Scheme	Vehicle Fleet Efficiency	Ongoing		In progress			DCC Fleet continues to work closely with the ECO Stars Recognition Scheme. The Fleet currently has a mix of 5- and 6-star rating.	
8	**Measure M8:** DCC in consultation with the Taxi Liaison Group will explore means of reducing emissions from taxis and private car hire vehicles in AQMA	Promoting low emission transport			In progress			At the end of 2024 there were 232 pure electric taxis operating in Dundee, representing 36 % of the taxis in Dundee.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	Enforce No idling for taxis. Increase cleaner taxis.								
	Explore the potential of introducing Licensing Conditions for minimum taxi Euro category for certain classes of vehicles;	Vehicle Fleet Efficiency	Ongoing		In progress			DCC continues to implement a policy first introduced in 2016 that any applications for new Taxi Licences & Private Hire Car would only be granted on the condition that only an electric vehicle from the approved list can be placed in service. The introduction of Dundee's LEZ is also helping to accelerate the taxi trade electric vehicle adoption.	
	Expansion of ECOSTARS to include taxi / private hire operators	Vehicle Fleet Efficiency	2015		Completed	Funding for this measure is applied for annually through the Scottish Governments AQ Action Plan support funding, with running of the scheme dependent on this.		Funding to expand ECO Stars in Dundee to include taxi and private hire vehicle operators was obtained in 2014/15, with the scheme formally launched on the 11th of March 2015. As no Scottish Government AQ Action Plan support funding was awarded to DCC in 2024/25 for the ECO Stars Taxi & Private Hire Vehicles scheme, there was no new recruitment during 2024. The number of members of this scheme remained as 20, with the 576 vehicles registered.	Recruitment of new taxi / private hire vehicle operators remains a challenge as most of the remaining are individual operators. Funding will be applied for in 2025.
9	**Measure M9:** DCC will investigate to initiate a Roadside Emission Testing (RET) scheme inside the AQMA and routes leading to AQMA To investigate into the establishment of a programme of RET in the AQMA.	Traffic Management	Not expected to be completed					Not progressed during 2024. This measure is unlikely to be progressed during the life of the Action Plan.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
10	**Measure M10:** DCC will ensure local air quality is fully integrated into the Local Development Plan (LDP) process and development scenarios are appropriately assessed with respect to the potential impacts on air quality Provide AQ policy within Local Development Plan with commitment to improve air quality. Produce air quality Supplementary Planning Guidance (SPG)	Policy Guidance And Development Control	2019		Completed		Supplementary Guidance and associated Technical Guidance documents for Air Quality and Planning were published in 2019.	The 2019 Local Development Plan (LDP) was adopted in February 2019. Along with this Plan, the Supplementary Guidance Air Quality & Land Use Planning document was also adopted with technical guidance which can be updated as necessary. The process of developing the next LDP included consultation on a series of topic papers during 2024, including one that contained references to air pollution. These consultations are crucial in identifying key issues and helps inform the strategic direction of the next LDP which is proposed to be adopted in Q4 of 2027/2028.	
11	**Measure M11:** DCC will ensure effective co-ordination between climate change and air quality strategies and action plan measures Strategy to be developed to improve co-ordination between climate change and air quality strategies and action plan measures	Policy Guidance And Development Control	Ongoing		In progress	Funding for projects undertaken within this measure have been applied for through the Scottish Governments AQ Action Plan support funding scheme. Various other Climate Change focussed funding streams have been utilised.		The Sustainability & Climate Change Manager is a member of the Corporate Air Quality Steering Group and the Dundee Low Emission Zone Delivery Group to ensure synergy between AQ and CC policy. Dundee City Council declared a climate emergency in June 2019 and has worked through the Dundee Partnership to develop and deliver a citywide Climate Action Plan in support of the transition to a net-zero and climate resilient future. In line with Scottish Government and Council objectives for CAFS, tackling air quality and decarbonising transport are key objectives of this plan. Of the 62 actions in the plan, 18 are related to air quality. AQAP funding was obtained for 2021/22 to help run projects under the Sustainable Dundee banner.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								The Net Zero Transition Plan was approved at committee in November 2022, with implementation to commence in February 2024. Governance, monitoring and reporting processes agreed with each service area and implementation initiated. Urban ReLeaf research officer in post, more stakeholders engaged, a perceptions app has been developed, and citizens will be asked to comment on various aspects of green spaces, including safety, access, active travel, biodiversity, interventions, equipment, facilities etc. This will be fed into the new open space strategy evidence report as qualitative data.	
12	**Measure M12:** DCC will continue its active involvement and support of TACTRAN	Policy Guidance And Development Control	Ongoing		In progress			This is on-going and TACTRAN were involved in the Dundee LEZ delivery group. Through the Sustainable Transport Delivery Plan, DCC supports the Regional Transport Strategy (RTS).	
13	**Measure M13:** DCC will promote the uptake and use of cleaner and/or alternative fuels where possible for transport DCC will explore the development of electric charging point infrastructure Determine strategy/advise note and annually review content	Promoting low emission transport	Ongoing		In progress	Transport Scotland Local Authority LEZ Assistance Funding, Other funding schemes include the Scottish Government AQAP grant scheme for which applications are made on an annual basis.		See also measures 7 and 14 Enforcement of the Dundee Low Emission Zone scheme commenced on 30th May 2024. From this date onward, the owners of non-compliant vehicles that had been identified as being driven on a road within the LEZ area would be issued a Penalty Charge Notice (PCN). The Drive Dundee Electric campaign continued to successfully engage with current and potential electric vehicle (EV) owners (both public and business) through the local media in the form of	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	Install Electric Charging Facilities in Car Parks							EV related articles encouraging people to make the switch to EV. In 2024, two large conferences were held in Dundee with support from DDC and Drive Dundee Electric. The "Charge UpConference" and "GreenFleet Scotland" were both very well attended and provided opportunities to share knowledge and engage with local businesses and industry sectors.	
14	**Measure M14:** DCC will establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles, which comply with the prevailing EURO standard. Development of Green Procurement Strategy.	Vehicle Fleet Efficiency	Ongoing		In progress			See also Measure 7. There are 236 electric vehicles within the fleet which accounts for 31% of the overall fleet.	
15	**Measure M15:** DCC will improve the Council's vehicle fuel consumption efficiency by better management of fleet activities. Develop fleet management plan to improve fuel efficiency.	Vehicle Fleet Efficiency	Ongoing		In progress			See also Measures 7, 13 and 14. Continuing on from previous years, the council have continued to increase the deployment of its GIS route optimisation system to further increase efficiency across the council corporate fleet.	
16	**Measure M16:** DCC will promote options for better travel planning amongst Dundee City Council employees.	Promoting Travel Alternatives	2023		In progress	Funding for the initial development of the Staff Travel Plan was obtained via the Scottish Government AQAP grant scheme.		See also Measures 3, 17 & 22. The Staff Travel Plan was launched March 2023. Due for review 2026.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	Review DCC Travel Plan. DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work							Hello Lamppost, QR marketing campaign messaging in partnership with AQ team was put in place around the city, including signage on air quality monitoring stations.	
17	**Measure M17:** DCC will continue to promote and encourage their employees to consider the use of bicycles in their daily duties by providing cycle usage mileage Continue to investigate and develop the use of various incentive schemes. Develop cycling strategies. DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work.	Promoting Travel Alternatives	Ongoing			AQAP funding to help part-fund an embedded Sustrans Cycling Officer has been applied for on an annual basis since 2018.		See also Measures 3, 16 & 22. An updated Dundee Cycling Strategy was launched in September 2019. This refresh of the 2016 strategy sets out how Dundee City Council will deliver its duties, powers and policies to enable and encourage more people to cycle more often. AQAP funding has been obtained in recent years to enable the continued employment of an embedded Sustrans officer. This 'Cycling Action Plan officer' takes a lead role in developing and delivering the policies of the Council in respect of Active Travel. Dundee City Council progressed actions contained within the 2019 Dundee Cycling Strategy to enable and encourage more people to cycle more often. Information on modes of transport to work are covered in the Dundee Walking & Cycling Index 2023. DCC staff are able to access the Cycle to Work scheme. DCC staff are also able to access a library of pool bikes, including electric bikes. DCC support Dundee Cycle Hub to deliver a number of cycling services, including access to the "Hub Club" incentive scheme which rewards participants with free	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								bike serving when they log their milage on Strava. This scheme has been promoted to DCC staff via internal comms. DCC published its Sustainable Transport Delivery Plan 2024-2034 in 2023, with the delivery of projects commencing in 2024. The plan showcases how infrastructure will be provided for a sustainable mobility future, outlining how Dundee's plan ties in with national and regional strategies, and details potential investment from external sources of approximately £230 million in a number of projects over the ten-year period.	
18	**Measure M18:** DCC will assess the Council's energy needs, make recommendations and implement reductions of carbon emissions which result in corresponding reductions of NO_2 and PM_{10}. DCC to implement annual energy reduction action plan.	Policy Guidance And Development Control	Ongoing		In progress			The Net Zero Transition plan was approved at committee in November 2022. Implementation commenced in February 2024. Governance, monitoring and reporting processes agreed with each service area and implementation initiated. Target for net zero emissions by 2038. Actions across emissions reduction, climate resilience, circular economy and Just Transition. LHEES (Local Heat and Energy Efficiency Strategy) and LAEP (Local Area Energy plan) development - decarbonization of buildings and infrastructure in the city. LHEES to be published March 2024, LAEP due August 2024.	
19	**Measure M19**: DCC to promote and support localised energy generation that doesn't compromise Air	Promoting Low Emission Plant	Ongoing		In progress			Heat decarbonisation plan for council buildings commissioned. Now prioritising buildings to develop an application for	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	Quality in private households. Determine strategy/advise note and annually review content							Scottish Government Heat Decarbonisation Fund.	
20	**Measure M20:** DCC will provide the public with relevant air quality information. Investigating the potential for uptake of an air pollution information system, such as Air Alert. Improvements to AQ website information. Make up to date air quality information available to the public through Councils digital website.	Public Information	Ongoing		In progress	Funding to improve the air quality pages on the DCC website was obtained via the Scottish Government AQAP scheme. Funding to assist with communications work for the introduction of the Dundee LEZ scheme has been obtained through the Transport Scotland LEZ Support fund for local authorities.		The 2024 APR was submitted to the statutory consultees and can be accessed via the Dundee City Council and Scottish Air Quality websites. Historical air quality monitoring data for the 2006 – 2015 period is also directly available through the DCC website. The DCC website also contains links to recent real-time and historical air pollutant data from Dundee's continuous automated monitors and passive diffusion tube network presented on the Scottish Air Quality (SAQ) website. The Dundee Low Emission Zone webpage (www.dundeecity.gov.uk/LEZ) contains detailed reports created during the process to identify the preferred scheme for Dundee's LEZ, including air quality evidence reports created by SEPA using outputs from the National Modelling Framework (NMF) AQ City Model and Paramics Traffic modelling. The 'Hello Dundee' project includes QR codes on signage that direct participants to conversations through text messaging relating to air quality. Signage has been placed on air quality monitoring stations across Dundee. This was expended during 2024 to include access to a 'chatbot' who can give	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								answers to questions relating to LEZs in Scotland.	
21	**Measure M21:** DCC will continue its work to increase uptake and implementation of School and Workplace Travel Plans, particularly where likely to impact on the AQMA. DCC to ensure all relevant commercial planning applications have travel plan conditions applied in accordance with current best practice.	Promoting Travel Alternatives	Ongoing		In progress			DCC Sustainable Transport project officers have supported schools with travel plans and information on safe routes to school in partnership with Leisure & Culture Dundee staff who deliver work with schools. DCC Sustainable Transport team comment on relevant planning applications to highlight opportunities and issues around sustainable and active travel.	
22	**Measure M22:** DCC will continue working in partnerships with TACTRAN and local active travel networks to ensure that walking and cycling initiatives are promoted and supported in Dundee. Identify walking & cycling schemes (such as Park & Cycle). Identify walking & cycling promotional opportunities around Dundee City	Promoting Travel Alternatives	Ongoing		In progress	Ongoing. Various funding streams including Transport Scotland Active Travel Infrastructure Fund,		See also Measures 3, 16 & 17. DCC continues to participate in all TACTRAN meetings focused on active and sustainable travel developments and works in partnership. Funding applications submitted to Transport Scotland Active Travel Infrastructure Fund to continue projects: • Western Gateway • St. Leonard • East End Campus • Ninewells • Meadowside Connections (formerly Bell Street) • Magdalen Green bridge • Union Street • Broughty Ferry Monifieth Active Travel	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								Bell Street Sustainable Transport Hub began construction during 2024 DCC and Tactran submitted a joint bid to progress the Lochee Road and Arbroath Road Sustainable Transport Corridors to integrate bus and active travel, and complete stages 0-2.	
23	**Measure M23:** DCC will continue to work with transport providers to support and promote increased uptake of public transport modes. Promote schemes such as the SQUID card including Dundee and surrounding towns. Introduce smart and integrated ticketing.	Transport planning and infrastructure	Ongoing		In progress			Bus service reliability and punctuality have improved significantly during 2023 allowing DCC to work with Xplore Dundee to develop new promotional material for publicising bus journeys. Xplore Dundee have initiated Project Boost to restore trust and greater community ownership of their services.	
24	**Measure M24:** DCC will continue to work in partnership with other organisations to promote and implement energy efficiency measures in Dundee. To implement an Annual Action Plan of energy efficiency measures.	Policy Guidance and Development Control	Ongoing		In progress			The Housing Department continues to maximise the impact of the Home Energy Efficiency Programme Scotland – Area Based Schemes (HEEPS:ABS now more commonly referred to as EES:ABS- Energy Efficient Scotland: Area Based Schemes)) funding by combining it with its own capital budget to provide external wall insulation (EWI) for mixed tenure blocks of flats in Council estates with high levels of fuel poverty that are either solid wall or non-traditional construction. This has resulted in more than £50m total investment in EWI in the city since the inception of the EWI Programme in 2013 with more than 5,000	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								residents in Dundee seeing their properties thermally upgraded. As this programme nears its end, attention turns to the stock that has cavity-walls. Most of this stock of just under 6,000 units had cavity-wall insulation installed 40 years ago and this now needs to be upgraded. Decisions are still to be made about the best solution to upgrade the energy efficiency of this stock, but it is likely to entail going beyond simply removing and replacing existing cavity wall insulation (CWI) and installing EWI too. A pilot project to identify the best methods of doing so will start on site in early 2024. By insulating stock in this way - the fabric-first approach - it is readied for the later installation of decarbonised heat such as heat pumps which operate most efficiently in well-insulated, air-tight properties.	
25	**Measure M25:** DCC Environment Department will comment upon planning applications to ensure that all relevant air quality issues are highlighted, and mitigation measures are considered wherever possible.	Policy Guidance and Development Control	Ongoing		In progress			Officers from the pollution team within Community Safety and Protection respond to consultations and check weekly planning lists and respond to the Planning Officers on all applications which may adversely impact on local air quality. 23 responses were made in the 2024 calendar year.	
26	**Measure M26:** DCC will enforce statutory legislation to control smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health.		Ongoing		In progress			For the period 1st January to 31st December 2024, officers investigated a total of 14 relevant complaints of which 11 (78%) had been resolved with 3 still being investigated.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	DCC will continue to monitor and enforce statutory legislation in this area.								
27	**Measure M27:** DCC will enforce relevant legislation to reduce the burning of commercial and domestic waste. DCC will continue to monitor and enforce legislation in this area.		Ongoing		In progress			During 2024, officers investigated 2 complaints of smoke from commercial waste burning and 19 complaints from domestic waste burning (bonfires). All 32 complaints were resolved.	
28	**Measure M28:** DCC will promote composting in a bid to reduce pollution from domestic bonfires. Reintroduce discount / promotion campaign for compost bins	Policy Guidance and Development Control	Ongoing		In progress			In March 2020 a charge was introduced for the collection of garden waste. Householders who decided not to sign up were provided with different options for disposal of garden waste and discouraged from using the general waste bin or burning waste. DCC continued to offer a home composting bin as an alternative to the annual garden waste collection permit.	
29	**Measure M29:** DCC will continue to monitor a range of air pollutants throughout Dundee and make the monitoring information freely available to the public in an easily understandable form. Continued support for Dundee Air Quality Monitoring Network	Public Information	Ongoing		In progress			See **Chapter 3** of this report for details of the automatic and non-automatic monitoring locations in Dundee. See **Measure 20** re availability of air quality monitoring data on both the Dundee City Council and Scottish Air Quality websites and the 2024 Annual Progress Report being available for viewing and download via both websites as well.	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
30	**Measure M30:** DCC will ensure that all air quality monitoring data reported to the public is both accurate and precise by implementing quality control measures Regular calibrations and filter changing of continuous monitoring equipment in DCC's air quality stations. At least annual audit of air quality stations' equipment. Appropriate use and care of NO_2 diffusion tubes regularly deployed around the City Council area.	Public Information	Ongoing		In progress			See **Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC** of main report for details of processes. All diffusion tube changeovers were in accordance with the 2024 diffusion tube calendar.	
31	**Measure M31:** DCC will establish additional monitoring sites across the City in locations where poor air quality is suspected. DCC will continue to carry out and report on their statutory duties under the Review & Assessment process for LAQM.	N/A	Ongoing		In progress			See Measure 29 regarding pollutant monitoring locations. Two new passive diffusion tube (PDT) monitoring locations were introduced during 2024. See **Chapter 3** of this report for further details.	
32	**Measure M32:** DCC will implement road traffic counts to inform the review and assessment process. Undertake classified traffic counts.	Traffic Management	Ongoing		In progress			Traffic counts of the Lochee Road corridor were undertaken in March 2022 to support the SEPA air quality model that was used to model air quality impacts of possible road infrastructure changes along this corridor. Further traffic counts to update the Dundee Traffic Model are	

Measure No.	Measure	Category	Expected / Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								due to be undertaken in 2025. These counts can also be used to update the City of Dundee AQ model used for LEZ assessment. Annual road count data (as Annual Average Daily Traffic (AADT)) from the council's long-term Road Traffic Reduction Act (RTRA) Sites from 2005-2024 is presented in **Appendix E** of the main report.	

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

Dundee City Council undertook automatic (continuous) monitoring at 10 sites during 2024. Table A.1 in Appendix A shows the details of the sites. Three different PM_{10} monitors (CM3, CM13, CM16) are co-located at the Broughty Ferry Road site to help improve data accuracy and validity. There were no changes from 2023 to the continuous monitoring sites in 2024.

The Serinus NOx analyser at the Meadowside site was removed at the start of October 2023 to protect the analyser from damage from temperature fluctuations due to the breakdown of the air-conditioning unit for the enclosure. The Serinus NO_X analyser at Meadowside was re-installed in late February 2024 which contributed to the 85.4% data collection percentage for the year.

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

National monitoring results are available at www.scottishairquality.scot/latest . Further analysis of the 2024 monitoring is also available on the Air Quality in Scotland website within an annual summary report prepared by Ricardo Energy & Environment. This can be accessed via: www.scottishairquality.scot/assets/reports/365/Dundee_City_annual_2024.html

3.1.2 Non-Automatic Monitoring Sites

Dundee City Council undertook non- automatic (passive) monitoring of NO_2 at 83 sites during 2024. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix A and Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

There were several amendments to the PDT monitoring network in preparation for and during the 2024 calendar year. Locations that had complied with the AQO for NO_2 annual mean, or were not

crucial to demonstrate trends, or had other PDT sites adjacent to them, were removed. These included DT180 (Albert St (15)(Roadside)), DT151 (South Road (Denbank)), DT161 (Whitehall Cr/Union St (50)), DT77 (Whitehall St (15)), and DT244 (Harefield Rd (14)). Monitoring at some locations could not continue due to the removal of infrastructure holding the PDT, such as DT31 (Lochee Rd (140)(traffic lights)), and DT247 (South Marketgait(streetsign)). A new PDT (DT250 (Lochee Rd (142A)) was able to be deployed close by to continue the monitoring in this area, while a previously used site (DT235 (South Marketgait/Nethergate)) was able to be re-instated for this location on the LEZ boundary. A new PDT was located at the corner of Trades Lane and Dock Street (DT249(Dock St/Trades Lane (west))) – this replaced DT233(Dock St/Trades Lane)) as it is a more appropriate location for receptors at a proposed development on the adjacent plot of land.

3.1.3 Other Monitoring Activities

No additional monitoring activities were undertaken by the local authority in 2024.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3 at automatic monitoring sites.

Table A.4 in Appendix A compares the adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3 at non automatic monitoring sites. Details of how the local bias correction factor of 0.82 applied to NO_2 passive diffusion tubes for 2024 was determined is contained within Appendix C.

For PDT's, the full 2024 dataset of monthly mean values is provided in Appendix B.

No automatic monitoring sites required annualisation to be carried out. The Serinus NOx analyser at Meadowside which had been removed in October 2023 was re-instated on 22 February 2024. Despite no NO_2 data being collected through most of the opening two-months of the calendar year, the overall data capture percentage was 85.4%. All other automatic monitoring sites for NO_2 had data collection percentages of 96.5% or above.

The highest NO_2 annual mean concentrations were predicted, via PDT results, at the Victoria Road / Hilltown (DT70) location with this site being the only one in Dundee that was above 36.0 µg/m^3 and therefore a potential exceedance location.

Potential exceedances (> 36 µg/m^3) of the NO_2 annual mean that were identified at monitoring locations are presented Table C.4 in Appendix C under the **NO_2 Fall-off with Distance from the Road** heading. This table also includes locations where the relevant receptor is closer to the road than the monitoring location is and therefore requires to be distance corrected. The Diffusion Tube Data Processing Tool was used to carry out these calculations. The annual mean background concentrations used in the calculations were 11.8 µg/m^3 (from DT185) for city centre sites, and 9.5 µg/m^3, the average of concentrations from six urban background locations (DT7, DT9, DT155, DT185, DT223 and DT82) for those outside of the city centre. Hilltown/Victoria Rd (DT70) was the only site > 36 µg/m^3 that required to have the fall-off with distance calculation applied due to being a potential exceedance location. This site is on the main bus corridor immediately adjacent to the north of the city centre however due to the 3.2m distance from the kerb to the relevant exposure, taking in to account the drop-off the concentration predicted at the receptor was 31.5 µg/m^3. Taking in to account the drop-off from the road, the predicted level at the relevant receptor for DT70 was 31.5 µg/m^3, and therefore below the AQO objective level. DT186 also had a fall-off with distance calculation applied, being due to the receptor being closer to the kerb that the monitoring location.

Long term trends in NO_2 concentrations at automatic monitors with at least 5 years data capture are shown in Figure 6 in Appendix A**.** Long term trends in NO_2 concentrations at PDT sites with at least 5 years data capture are shown in Figure 7 in Appendix A.

The improving trend in recent years is considered to be linked to the fleet improvements made by companies in preparation for the LEZ enforcement commencing in 2024. As enforcement of the Dundee LEZ scheme commenced on 30 May 2024, the full impact of the LEZ scheme on air quality cannot be quantified as yet and may take a few years for a true trend to be established. Air quality modelling of the impact of the proposed LEZ scheme on NO_2 concentrations within the LEZ undertaken by SEPA in 2021 suggested that annual mean concentrations would reduce following the commencement of enforcement in May 2024.

An overview of how NO_2 annual mean concentrations have improved in different areas across the city can be seen in maps and graphs shown in Appendix D. In addition, Figure 45 compares the ranked annual mean NO_2 concentrations measured at long-term monitoring sites for 2009, 2011 (the year of the action plan), 2019 (pre-lockdown), and 2024. This shows an overall reduction in the highest monitored concentration, the reduction of sites exceeding the annual mean objective (in particular since 2011 which is when the AQAP was published), and how all but one concentration level in 2024 was below 36.0ug/m^3.

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 200 µg/m^3, not to be exceeded more than 18 times per year. No exceedances of the hourly mean objective were

identified at automatic monitoring locations in 2024. No exceedances of the hourly mean objective were indicated by the diffusion tube annual mean concentrations in 2024 as none exceeded 60µg/m3. No automatic monitoring locations recorded occasions when the concentration was over 200µg/m^3 in 2024.

Figure 8 in Appendix A shows the number of exceedences of the 200ug/m^3 hourly level at monitoring locations since 2006. The Lochee Road automatic monitor is the only location in Dundee where the hourly mean AQO limit has previously been exceeded. There have been no exceedances of the 1-hour mean AQO at this automatic monitor since 2013, with no hourly mean concentrations above 200ug/m^3 being recorded at this location, or any other location in Dundee, since 2019. Figure 9 in Appendix A shows the long-term trend in the 99.8th percentile concentration of hourly means at Lochee Road. The trend line for the 19-year period that hourly levels have been monitored has been drawn using an Excel simple regression statistical program. In 2019 a negative value was identified for the first time since the AQMA for the hourly objective was declared in 2013.

In our 2024 APR we concluded that it was appropriate to progress with amending the current AQMA Order for the whole of Dundee City Council to remove the 1-hour mean AQO aspect of this Order, with this proposed to be completed by the end of 2025.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 18 µg/m^3. As per the Scottish Government Guidance note published on 17 May 2023[1], annual mean PM data collected using Palais Fidas 200 is to be corrected using factors (PM_{10} divided by 0.909 and $PM_{2.5}$ multiplied by 1.06) as identified by the "Scottish Government Equivalence Study to Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200"[2]. Local authorities are required to present both measured and corrected data for LAQM reporting. Table A.6 in Appendix A contains both measured and corrected data results. No exceedance of the Scottish AQO for PM_{10} annual mean was observed at any of the PM_{10} monitoring locations in Dundee in 2024.

[1] www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

[2] https://www.scottishairquality.scot/technical-reports/equivalence-study-investigate-particulate-matter-monitoring-scotland-using-fidas

Annual mean PM_{10} concentrations at monitoring sites with at least five years data are shown in Figure 11 and Figure 12. Figure 13 shows the improving trend across all current PM_{10} monitoring locations however the impact of the COVID-19 pandemic may have slightly accentuated the long-term trend downwards at some sites.

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 50 µg/m^3, not to be exceeded more than seven times per year.

Transboundary events are known to influence PM_{10} levels. In May 2024 a number of days of high PM_{10} levels of were observed across Dundee, with exceedances of the 50µg/m^3 daily level being observed at the Stannergate OSIRIS monitor during these periods. 11 of the 12 days where the 50 µg/m^3 limit was exceeded at this monitor occurred in May 2024, with easterly winds dominant through this time. OSIRIS analyser results for daily levels should be treated with caution as they are indicative monitors and are known to over-estimate the number of daily exceedences due to the correction methodology required to correct data prior to reporting.

Exceedances at this location in the past have been attritubed to fugitive emissions from activities at the neighbouring Port of Dundee, however no specific activity that may have contributed to higher PM_{10} levels were known to have occurred at this time. During 2024 the eastern end of the Port was utilised for the storage of wind turbine components and assembly of wind turbines which were then loaded on to specialist transportation vessels. This work included the use of heavy-lifting equipment for each aspect of the work. This was carried out on compacted gravel surfaces and as such during periods of dry weather some dust will have been produced, however this was not carried out during the month of May.

Figure 14 in Appendix A shows the number of the daily mean PM_{10} concentrations greater than 50µg/m^3 recorded at the PM_{10} monitors. It is hard however to draw conclusions on trend analysis of short-term PM_{10} exceedances because, apart from the influence of annual transboundary events (usually in March, April, May), most are caused by transient and sometimes unpredictable events such as road works, fires, road gritting and demolition / construction activities. It is therefore considered appropriate to continue monitoring for PM_{10} at the existing locations, however, should a location of concern be identified then consideration will be given to the relocation of one of the existing OSIRIS units.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A compares the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10 µg/m^3.

As per the Scottish Government Guidance note published on 17 May 2023[3], annual mean PM data collected using Palas Fidas 200 is to be corrected using factors (PM_{10} divided by 0.909 and $PM_{2.5}$ multiplied by 1.06) as identified by the "Scottish Government Equivalence Study to Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200"[4], with local authorities to present both measured and corrected data for LAQM reporting. Table A.8 contains both measured and corrected data.

Dundee City Council began monitoring for $PM_{2.5}$ using a Fidas 200 analyser at the background site at Mains Loan in October 2017. The Lochee Road Fidas 200 analyser was installed in March 2018. $PM_{2.5}$ monitoring at Whitehall Street, Seagate and Meadowside commenced in March 2019. The most recent installation is at the Urban Industrial site on Broughty Ferry Road, with the analyser installed in January 2020. All six of the $PM_{2.5}$ monitors are Palas Fidas analysers measuring both PM_{10} and $PM_{2.5}$.

No exceedances of the $PM_{2.5}$ annual mean Scottish AQO (10ug/m^3) were observed at any of the Palas Fidas monitoring locations in 2024 with or without the applied correction factor. Comparing 2024 levels with 2023 Palas Fidas monitoring data, slight increases observed at the Broughty Ferry Rd (+0.2 ug/m^3), Mains Loan (+1.7 ug/m^3), Meadowside (+0.5 ug/m^3) and Whitehall Street (+0.4 ug/m^3) monitors, and decreases at both the Lochee Road (-0.1 ug/m^3) and Seagate (-1.0 ug/m^3) monitors.

Four of the OSIRIS monitors are at roadside PM_{10} monitoring locations (Albert Street, Logie Street, Myrekirk Road, Stannergate) and therefore represent relevant locations for $PM_{2.5}$ calculations. The Broughty Ferry Road OSIRIS is considered an Urban Industrial monitoring location. The DEFRA Guidance does not recommend calculating $PM_{2.5}$ from PM_{10} at Industrial sites owing to their unique site-specific characteristics. Chapter 7 of LAQM.TG (22) provides methodology for estimating $PM_{2.5}$ concentrations from PM_{10} measurements, with options provided for when local sites measuring both PM_{10} and $PM_{2.5}$ are and are not available. Paragraph 7.119 of LAQM.TG (22) advises that when local sites measuring both PM_{10} and $PM_{2.5}$ are available, the 'PM_{course}' can be calculated for the site by subtracting the annual average $PM_{2.5}$ concentration from the annual average PM_{10} concentration. This PM_{course} can then be used at sites of the same classification to

[3] www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

[4] https://www.scottishairquality.scot/technical-reports/equivalence-study-investigate-particulate-matter-monitoring-scotland-using-fidas

estimate the $PM_{2.5}$ by subtracting the calculated PM_{course} split. Alternatively, Paragraph 7.120 provides a methodology of using a nationally derived factor for either background or roadside locations for when there are no local sites measuring both PM_{10} and $PM_{2.5}$. Prior to 2022, the prediction methodology used an assumed ratio of 0.7 (as described in LAQM.TG (16) (April 2021) (paragraph 7.111)) to estimate $PM_{2.5}$ levels. As there are four local roadside sites (Lochee Rd, Meadowside, Seagate, Whitehall Street) measuring both PM_{10} and $PM_{2.5}$ in Dundee, a local PM_{course} split has been identified for roadside locations. Through application of the LAQM.TG (22) methodology, the overall PM_{course} figure for Dundee in 2024 is 5.9.

Table A.9 in Appendix A shows estimated $PM_{2.5}$ annual mean levels using the 0.7 ratio prediction methodology for years prior to 2022, and PM_{course} prediction methodology from 2022 onwards. Locations where the $PM_{2.5}$ annual mean AQO (10ug/m^3) was estimated to be exceeded are highlighted in **bold**. No locations in 2024 were predicted to be above the AQO level.

3.2.4 Sulphur Dioxide (SO_2)

Dundee City Council does not currently monitor SO_2.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

Dundee City Council does not currently monitor any of these pollutants.

4 New Local Developments

4.1 Road Traffic Sources

Since the Annual Progress Report 2024 none of the following have been identified as being new:

- Narrow congested streets with residential properties close to the kerb;
- Busy streets where people may spend one hour or more close to traffic;
- Roads with a high flow of buses and/or HGVs;
- Junctions;
- New roads constructed or proposed;
- Bus or coach stations.

Enforcement of the Dundee Low Emission Zone scheme commenced on 30th May 2024, with vehicles not meeting the minimum criteria being driven on a road within the scheme area being issued with a Penalty Charge Notice (PCN) since that date. Traffic modelling and forecasting undertaken during the LEZ development process suggested that around 1500 non-compliant cars (approximately 12% of all trips in the LEZ area) could still be entering/exiting the inner ring road area on a daily basis in 2024. Details on the impact of the LEZ on traffic numbers and vehicle composition will be included in future APR's. The 2026 APR will provide feedback on the traffic count work undertaken in 2025 to provide data for the updated traffic and city air quality models.

Annual road count data (as Annual Average Daily Traffic (AADT)) from Dundee City Council's long-term Road Traffic Reduction Act (RTRA) Sites from 2005-2024 are presented in Table E.1 in Appendix E. Data for some previously reported RTRA sites remain unavailable however the table will be updated in future years APRs if this data is provided. Table E.1 shows that COVID-19 lockdown restrictions on travel and work in 2020 and 2021 reduced road traffic levels across the city. Traffic levels have not returned to pre-pandemic levels in all locations, with traffic flows across in some locations remaining around 10% lower than pre-pandemic 2019 levels.

Table E.2 in Appendix E shows the percentage growth at each of the RTRA sites since 2005. Only one site, Tay Bridge, had experienced a significant increase (>10%) in traffic flows over the period ending 2019. There is currently no relevant exposure within 10m of this location. Data for 2024 shows continued reduced traffic levels across the sites in Dundee compared to 2019 pre-pandemic levels. Consequently, updated assessments of NO_2 and PM_{10} are not required for those RTRA Sites where there is relevant exposure.

4.2 Other Transport Sources

None of the following transport sources have been identified as new since the 2024 Annual Progress Report:

- Airports;
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m;
- Locations with a large number of movements of diesel locomotives and potential long-term relevant exposure within 30m; and
- Ports for shipping.

4.3 Industrial Sources

Under this section the local authority is required to identify any of the following which are new:

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out;
- **Industrial installations:** existing installations where emissions have increased substantially, or new relevant exposure has been introduced;
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment;
- Major fuel storage depots storing petrol;
- Petrol stations; and
- Poultry farms.

Industrial sources are regulated by the Scottish Environment Protection Agency (SEPA) under the Pollution Prevention and Control Regulations (PPC). Local authorities also have controls over smaller industrial and commercial sources, largely through the Clean Air Act and its associated control of stack heights. As a result of these controls, there should be few sources that may be relevant to local authorities under the Local Air Quality Management (LAQM) regime. The majority of these sources will have been previously addressed and the focus is, therefore, on new installations and those with significantly changed emissions or new exposure.

A list of industrial processes in the city that are regulated by SEPA is provided in Appendix F**.**

- **New or Proposed Installations for which an Air Quality Assessment has been Carried Out**

See Appendix F for details of industrial installations present within Dundee. No new or proposed installations resulted in an air quality assessment being carried out during 2024.

- **Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced**

No existing installations have increased emissions significantly or had new relevant receptors introduced near to them during 2024.

- **New or Significantly Changed Installations with No Previous Air Quality Assessment**

No new or significantly changed installations with no previous Air Quality Assessment were identified during 2024.

- **Major Fuel (Petrol) Storage Depots**

The assessment considers benzene, with respect to the 2010 objective. There are no major fuel (petrol) storage depots within the Local Authority area.

- **Petrol Stations**

The assessment considers benzene with respect to the 2010 objective. Large petrol stations, where the annual throughput is more than 2000m^3 of petrol (2 million litres per annum) and with a busy road nearby (i.e. >30,000 annual average daily traffic flows) require consideration where there is relevant exposure (e.g. residential properties) within 10m of the pumps. All existing petrol stations have been assessed previously and there are no residences within 10m of the pumps.

Dundee City Council confirms that there are no new petrol stations meeting the specified criteria.

- **Poultry Farms**

Farms housing in excess of: 400,000 birds if mechanically ventilated; 200,000 birds if naturally ventilated; and 100,000 birds for any turkey unit, require consideration if there is residential exposure within 100m of the poultry units. The assessment needs to consider only PM_{10}.

Dundee City Council confirms that there are no poultry farms meeting the specified criteria in Dundee.

4.4 Commercial and Domestic Sources

Under this section the Council is required to identify any of the following which are new since the last Annual Progress Report:

- Biomass[5] combustion plant – individual installations (50kW to 20MW);
- Areas where the combined impact of several biomass combustion sources may be relevant;
- Areas where domestic solid fuel burning may be relevant; and
- Combined Heat and Power (CHP) Plant.

Since the 2024 Annual Progress Report there have been no new biomass combustion installations nor areas identified where the combined impact of several biomass sources may be relevant. Smoke Control Orders cover most of the local authority area and there are currently no areas identified with significant solid fuel use, though regular enquiries / complaints to the Council about domestic solid fuel burning and planning applications for the installation of wood/solid fuel burning stoves, are received.

The requirement to consider CHP Plant is a new requirement that local authorities have had to report since the APR 2016. No new CHP plants were identified during 2024.

4.5 New Developments with Fugitive or Uncontrolled Sources

Under this section the Council is required to identify any of the following potential sources of fugitive or uncontrolled particulate matter, which are new:

- Landfill sites;
- Quarries;
- Unmade haulage roads on industrial sites;
- Waste transfer stations etc.; and
- Other potential sources of fugitive particulate emissions.

The Port of Dundee is an ever-changing area of activity with many varying projects to improve the facilities and capabilities of the Port undertaken in recent years. This has included the addition of increased lifting capabilities and a new quayside at the eastern end of the Port to help bring forward opportunities for decommissioning and the offshore wind farm industry. The Port also provides accommodation for jack up drilling rigs for inspection, repair and maintenance of these

[5] Note (from Defra FAQ 2009): the term 'biomass' strictly applies to all solid fuels made from plants, i.e. coal, smokeless fuels, wood, straw etc... However, the term biomass is now frequently taken to be synonymous with renewable fuels such as wood and straw. For the purposes of air quality review and assessment the strict definition of biomass is applicable.

jack up rigs which may remain at the Port for many months at a time. The Port is a major grain handling port and has the largest grain drying facility in Scotland located within the Port boundary.

During 2024 the eastern end of the Port was utilised for the storage of wind turbine components and assembly of wind turbines which were then loaded on to specialist transportation vessels. This work included the use of heavy-lifting equipment for each aspect of the work. This was carried out on compacted gravel surfaces and as such during periods of dry weather some dust will have been produced. The access point to this area is approximately 200m south of the Stannergate PM_{10} OSIRIS unit.

The PM_{10} annual mean concentration at the Stannergate OSIRIS monitor indicated compliance with the AQO for 2024, however was slightly raised compared to the 2023 annual mean level. Data collection for the year though was slightly down (77.8%) due to some issues with the analyser, however sufficient data was collected to be able to report without needing to annualise the data. In May 2024 several days of high PM_{10} levels of were observed across Dundee, with exceedances of the 50µg/m^3 daily level being observed at the Stannergate OSIRIS monitor during this month. 11 of the 12 days where the 50 µg/m^3 limit was exceeded at this monitor occurred in May 2024, with easterly winds dominant during this month. OSIRIS analyser results for daily levels should be treated with caution as they are indicative monitors and are known to over-estimate the number of daily exceedances due to the correction methodology required to correct data prior to reporting.

As many of the activities carried out at the Port are potential sources of fugitive particulate emissions, pollutant monitoring will continue at locations adjacent to the port.

5 Planning Applications

This section identifies any major planning applications that were granted permission during 2024 that may, or at initial assessment of the proposal considered that it may, impact on air quality or introduce new relevant receptors to a location where air quality is potentially poor.

All planning applications referred to in Table 5.1 can be found on the Council's website (https://idoxwam.dundeecity.gov.uk/idoxpa-web/) using the application numbers detailed below.

Planning Application	Application Number	Air Quality Impacts
Demolition of existing buildings and structures, conversion of existing gas holder and buildings and proposed construction of major mixed use leisure development including education space, landscaped gathering space for different scale events including live performance, public realm, landscaping works, energy centre and related uses, associated car parking and access, infrastructure and engineering operations. Land To The East Of Peep'o Day Lane And West Of Melville Lane, East Dock Street, Dundee	23/00814/FULM	This application was approved, subject to conditions, by Committee in June 2024. The application is for a mixed-use leisure development, otherwise known as 'The Eden Project', which would be a cultural attraction showcasing cultivated landscapes, exhibits, art, performance and science across three main venues on the site. An Air Quality Assessment was submitted for review by Environmental Health which covered by the construction and operational phases of the development. With regard to construction phase impacts it is expected that a construction management plan would be required and the recommended and desirable measures to deal with dust as contained within the Air Quality Assessment should be provided. With regard to operational impacts additional traffic would be spread across the inner ring road and access/egress routes to Bell Street and Olympia car parks. The greatest change in concentrations of air quality pollutants as a result of the development is predicted to occur on North Marketgait, Dock Street and West Marketgait however the increases were negligible. Overall, the impact of the proposed development is not considered to be significant.

Erection of purpose built student accommodation, Willison House, 56 Barrack Street, Dundee.	24/00415/FULM	This application was approved, subject to conditions, by Committee in December 2024. The development would comprise of the erection of a block of purpose-built student accommodation (PBSA) together with associated access, amenity spaces and associated infrastructure. The proposal would provide 367 student beds comprising a mix of studio apartments and cluster apartments. As part of the development, internal amenity spaces will be provided including a gym and lounge areas for residents. External amenity space is provided to the rear (north) of the building. The proposed building, which would be up to nine-storeys in height has been designed to provide an active frontage, with the main entrance and reception on the southeast elevation onto Willison Street. An Air Quality Impact Assessment has been prepared due to the nature of the development proposed and its location within the city centre. The submitted assessment confirms the proposed development shall not have car parking facilities on site. With regard to heating, it is anticipated that demand will be primarily met by air source heat pumps. There may be a requirement for a backup heating system. To ensure that the system will not impact on air quality, full details of the system shall be required to demonstrate there will be no significant sources of air pollution. It is recommended a planning condition be attached to any permission granted which requires full details of the heating system to be submitted to the Council for prior approval.

		Subject to the primary heating systems being low or zero emissions systems, and details of any back-up generators being agreed, the proposed development would have no significant impact on air quality.
Change of use of Class 1A retail premises and associated warehouse to residential (converted), new build residential and associated rooftop amenity. 49 - 65 Trades Lane, Dundee, DD1 3EW	23/00703/FULL	This application was approved, subject to conditions, on the 4th of December 2024. The proposal would be a change of use of Class 1A retail premises and associated warehouse to residential (converted), new build residential and associated rooftop amenity area. It is proposed to convert the ground floor vacant retail showroom and to replace a single storey warehouse building at the rear with a five-storey residential block. Five flats would be accommodated within the showroom, and nine flats would be created within the new five storey block to the rear. An Air Quality Impact Assessment was prepared due to introducing new relevant receptors (residents) close to the dual carriageway and source of pollution which could have a detrimental effect upon the future residents. Following review of the submitted AQA, no concerns were raised and no conditions were requested for the development in respect to air quality.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Monitoring data for 2024 indicates that were no potential exceedances of the NO_2 annual mean objective (40µg/m^3) at receptor locations within the Dundee AQMA. The NO_2 annual means at real-time monitors were similar to, but lower than 2023 levels, in all locations. AADT traffic levels counted at the RTRA sites indicated that traffic levels remained lower than 2019 pre-pandemic levels, with traffic flows being around 10% lower than 2019 pre-pandemic levels across these monitoring locations.

No exceedances of the NO_2 hourly mean objective were identified by automatic monitors or indicated by diffusion tubes in 2024. Compliance with the NO_2 hourly mean AQO (18 exceedances of the hourly NO_2 level) are allowed) has been achieved for the past 10 years. Lochee Road is the only area of the city where the hourly AQO has been exceeded previously. The downward trend in the 99.8th percentile concentration at the Lochee Road monitor first reported in 2019 has continued and the decision to progress with amending the Dundee AQMA Order to remove the NO_2 hourly mean component remains valid.

No exceedances of the PM_{10} annual mean objective (18µg/m^3) were predicted during 2024, with levels across Dundee decreasing on those reported for 2022.

The PM_{10} daily mean objective (50µg/m^3, not to be exceeded more than 7 times per year) was met at all reference equivalent monitoring locations during 2024. The objective was exceeded at one location (Stannergate) where an indicative OSIRIS PM_{10} monitor is located. These results should be treated with caution due to OSIRIS units being known for over-estimating daily means due to the correction methodology utilised prior to reporting.

No monitored or calculated predicted exceedances of the $PM_{2.5}$ annual mean objective (10µg/m^3) were observed across the monitoring locations for 2024.

6.2 Conclusions relating to New Local Developments

No new major developments that are likely to impact on air quality were approved during 2024. An assessment of the impacts additional traffic relating a large scale mixed-use leisure development was undertaken with the outcome being that traffic impacts would be spread across the inner ring road and access/egress routes to Bell Street and Olympia car parks. Negligible increases in concentrations of air quality pollutants as a result of the development were predicted, with the overall impact of the proposed development not considered to be significant in terms of air quality.

Traffic flows from the council's Road Traffic Reduction Act Sites from 2024 were reviewed, with traffic flow levels at some sites remaining at around 90% of the 2019 pre-pandemic level. Enforcement of the Dundee LEZ scheme commenced on 30th May 2024 so was only in place for the last 7-months of the calendar year. No new areas requiring assessment were identified. There were no new 'other transport' sources identified in Section 4 during 2024.

No new industrial sources requiring air quality assessments to be carried out were identified in 2024

No new commercial or domestic sources which met the criteria outlined in Section 4 were identified during 2024.

6.3 Proposed Actions

The 2024 monitoring data did not identify the need to declare an AQMA for any additional pollutants or objectives. None of the 2024 NO_2 passive diffusion tubes identified any new areas of exceedance.

The following actions are proposed following the review and assessment of monitoring data and new developments:

- Support for Active Travel related projects will continue, such as the School Active Travel Delivery programme, through joint working with the Dundee Cycle Hub and the Ancrum School Active Travel Team.
- Enforcement of the Dundee LEZ scheme will continue.
- Continue monitoring of fugitive PM_{10} sources around the port area;
- Report on any new or significantly changed SEPA prescribed process;
- Continue to monitor planning applications for new pollution sources, relevant exposure and creation of 'street canyons', while also reviewing additional information being provided for applications approved in and prior to 2025;
- Implement the AQAP measures being taken forward subject to grant funding in 2025/26;

- In line with LAQM PG(S)2023, complete the review and update of the current 2011 Air Quality Action Plan. The new 2025 Air Quality Action Plan update is proposed to be published following Committee approval and then submitted to the Scottish Ministers in the second half of 2025; and
- Submit the next Annual Air Quality Progress Report in 2026.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites 2024

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA(Y/N)	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM 3	Broughty Ferry Road Rollalong	Urban Industrial	341970	730977	PM_{10}	Y	TEOM	0	6.88	2.93
					NO_2		Chemiluminescent [g]		6.63	2.97
					PM_{10} & $PM_{2.5}$		Fidas [k]		6.63	2.86
CM 13	Broughty Ferry Road Partisol	Urban Industrial	341971	730978	PM_{10}	Y	Partisol	0	6.11	2.84
CM 4	Lochee Road Romon	Roadside	338861	730773	NO_2	Y	Chemiluminescent [b f]	2.15 (2.24)	1.00 (1.15)	1.95 (1.77)
					PM_{10}		Beta Attenuation (BAM) [f]	2.24	1.15	2.06
					PM_{10} & $PM_{2.5}$		Fidas [f]	1.98	1.36	2.21
CM 9	Logie Street Osiris	Kerbside	338176	731298	PM_{10}	Y	Osiris (nephthalometer)	1.65	0.57	3.31
CM 12	Mains Loan	Urban Background	340972	731893	NO_2	Y	Chemiluminescent [c]	0	N/A	1.80
					PM_{10} & $PM_{2.5}$		Fidas [e]			2.43

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQM A(Y/N)	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
CM 5	Seagate Romon	Roadside	340487	730446	NO_2	Y	Chemiluminescent [b]	2.00	1.10	1.70
					PM_{10}		Beta Attenuation (BAM)			2.06
					PM_{10} & $PM_{2.5}$		Fidas [h]	1.81	1.37	2.53
CM 2	Union Street Rollalong [j]	Roadside	340235	730091	NO_2	Y	Chemiluminescent [b]	3.55	1.64	2.92
					PM_{10}		Beta Attenuation (BAM)[a]		1.64	3.00
CM 6	Whitehall Street Romon	Roadside	340278	730156	NO_2	Y	Chemiluminescent [b]	1.86	3.26	1.80
					PM_{10}		Beta Attenuation (BAM)	1.79	3.33	2.06
					PM_{10} & $PM_{2.5}$		Fidas [h]	1.63	3.52	2.62
CM 14	Meadowside Romon	Roadside	340243	730653	NO_2	Y	Chemiluminescent [d]	0.42	3.59 (1.60)[i]	2.26
					PM_{10}		Beta Attenuation (BAM)		3.65 (1.63)[i]	2.17
					PM_{10} & $PM_{2.5}$		Fidas [h]	0.79	3.53	2.63
CM 15	Albert Street Osiris	Kerbside	341090	731105	PM_{10}	Y	Osiris (nephthalometer)	1.54	0.89	3.15
CM 16	Broughty Ferry Road Osiris	Urban Industrial	341970	730977	PM_{10}	Y	Osiris (nephthalometer)	0	7.15	3.00

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA(Y/N)	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM 17	Myrekirk Osiris	Roadside	335438	731740	PM_{10}	Y	Osiris (nephthalometer)	0.4	14.00	3.11
CM 18	Stannergate Osiris	Roadside	343322	731073	PM_{10}	Y	Osiris (nephthalometer)	1.93	1.16	3.11

Notes: (1) "0" if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property or representative of a residential area).

(2) 'Kerb' is taken as being the edge of the carriageway with flowing traffic.

(a) During 2013 equipment was updated from TEOM to BAM.

(b) During 2013 equipment was updated from model ML 9841A to model API T200.

(c) Equipment model up to 21 September 2022 was Thermo 42i. From 21 September 2022 it was a TAPI T200.

(d) Equipment model up to 1st March 2021 was ML 2041. From 1st March 2021 the equipment was Serinus S40 IZS configuration.

(e) During 2017 equipment was updated from TEOM to Palas Fidas.

(f) On 23rd March 2018 monitoring station upgraded with new enclosure and Palas Fidas replaced BAM. NOx inlet position changed slightly old measurements shown in brackets.

(g) API T200 NOx analyser relocated from closed Union Street Station in January 2016.

(h) During March 2019 equipment was updated from BAM to Palais Fidas.

(i) Measurements amended to reflect change in pavement width, see Erratum in Appendix C.5 APR2020, old measurements shown in brackets

(j) CM2 Union Street – was discontinued in January 2016.

(k) On 8th January 2020 equipment was updated from TEOM to Palas Fidas.

N/A if not applicable

Figure 2 Automatic Monitoring Sites 2024

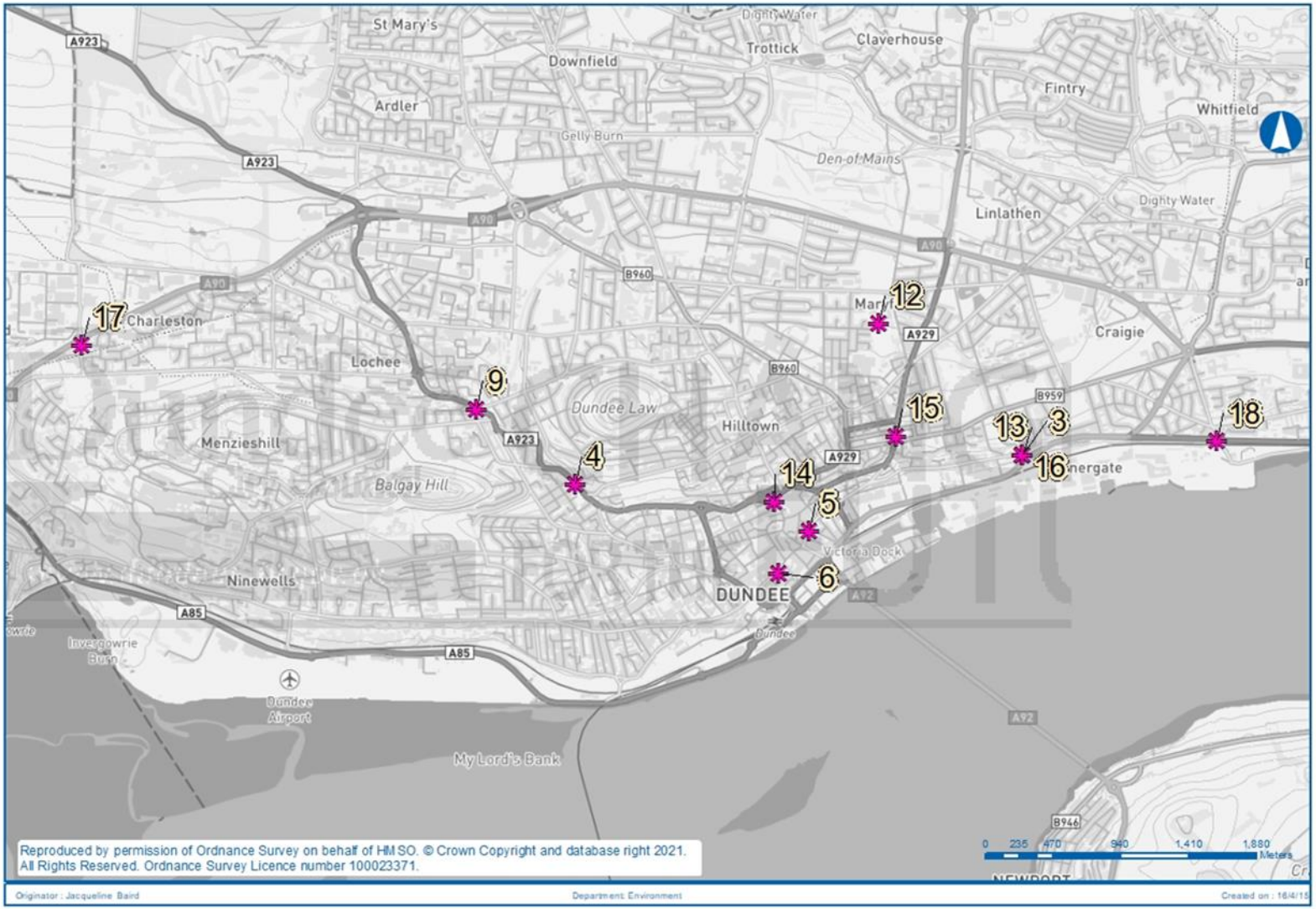


Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 92	Abertay 2	Roadside	340018.5473	730612.4218	NO_2	Dundee AQMA	2.0	2.0	NO	2.4
DT 179	Albert St (15)(Façade)	Roadside	341092.4237	731120.6783	NO_2	Dundee AQMA	0.3	2.0	NO	2.4
DT 167	Albert St (191)	Kerbside	341161.4264	731534.7429	NO_2	Dundee AQMA	2.7	0.6	NO	2.5
DT 5	Arbroath Rd (13)	Kerbside	341110.9866	731069.6793	NO_2	Dundee AQMA	2.5	0.7	NO	2.8
DT 223	B/ Ferry Rd Lower (Cyclesign)	Urban Background	343529.613	730937.3423	NO_2	Dundee AQMA	N/A	2.8	NO	2.5
DT 139	B/Ferry Rd (141) Downpipe	Roadside	343317.4851	731072.0073	NO_2	Dundee AQMA	0.2	4.3	NO	2.4
DT 7	Balgavies Pl	Urban Background	343082.2747	731465.3006	NO_2	Dundee AQMA	N/A	N/A	NO	2.4
DT 9	Birnam Pl	Urban Background	337531.2319	730914.2557	NO_2	Dundee AQMA	N/A	N/A	NO	2.6
DT 11	Broughty Ferry Rd (141)	Roadside	343321.9239	731073.2263	NO_2	Dundee AQMA	2.0	1.3	NO	2.7
DT 155	Carolina Court Lp6	Urban Background	342353.292	731058.094	NO_2	Dundee AQMA	N/A	N/A	NO	2.4
DT 186	Carolina Court 30mph sign	Roadside	342342.1514	731082.9253	NO_2	Dundee AQMA	-0.4	7.6	NO	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 171	Claypotts / Arbroath Rd (502)	Roadside	345346.8733	732080.2242	NO_2	Dundee AQMA	5.3	11.2	NO	2.5
DT 246	Clepington Rd/ Forfar Rd_2	Roadside	341387.3	732123.301	NO_2	Dundee AQMA	8.3	2.4	NO	2.5
DT 188	Commercial St (9)	Roadside	340544.2188	730290.5439	NO_2	Dundee AQMA	2.4	2.6	NO	2.3
DT 84	Commercial St /Dock St (40)	Roadside	340565	730263	NO_2	Dundee AQMA	0.2	2.8	NO	2.7
DT 85	Dock St (21)	Roadside	340523.6	730215.9	NO_2	Dundee AQMA	0.3	5.1	NO	2.4
DT 156	Dock St (57)	Roadside	340656.4944	730343.3923	NO_2	Dundee AQMA	3.3	2.5	NO	2.5
DT 241	Dock St (Customs House)	Roadside	340691.2965	730343.9471	NO_2	Dundee AQMA	1.4	3.2	NO	2.7
DT 240	Dock St/Gellatly St	Roadside	340637.5125	730328.1996	NO_2	Dundee AQMA	0.7	5.0	NO	2.8
DT 249	Dock St/Trades Lane West	Roadside	340681.28	730370.35	NO_2	Dundee AQMA	2.5	3.4	NO	2.6
DT 227	Dudhope Crescent Road (40)	Kerbside	339829.8758	730618.7713	NO_2	Dundee AQMA	2.0	0.8	NO	2.7
DT 20	Dura St (100)	Kerbside	341150.3635	731575.6125	NO_2	Dundee AQMA	1.7	0.6	NO	2.6
DT 214	East Dock St (26)	Roadside	340725	730417	NO_2	Dundee AQMA	0.2	3.7	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 22	Eastport Roundabout	Roadside	340651	730623	NO_2	Dundee AQMA	1.6	1.0	NO	2.7
DT 245	Forfar Rd (104)_2	Kerbside	341435.903	732360.19	NO_2	Dundee AQMA	7.7	0.7	NO	2.8
DT 26	Kingsway East Roundabout	Roadside	343107.3765	731739.678	NO_2	Dundee AQMA	14.3	2.9	NO	2.7
DT 27	Kingsway/ Mains Loan	Roadside	341123.6085	732468.2592	NO_2	Dundee AQMA	15.4	6.2	NO	2.6
DT 177	Kingsway/Strathmartine Rd (N)	Roadside	339179.113	732896.0877	NO_2	Dundee AQMA	3.6	3.1	NO	2.5
DT 30	Lochee Rd (138)	Kerbside	338935.7273	730680.429	NO_2	Dundee AQMA	2.1	0.4	NO	2.8
DT 250	Lochee Rd (142A)	Roadside	338928	730684	NO_2	Dundee AQMA	0.1	2.6	NO	2.4
DT 32	Lochee Rd (184)	Kerbside	338767	730856	NO_2	Dundee AQMA	3.2	0.7	NO	2.4
37, 38, 39	Lochee Rd (Romon 3)	Roadside	338860.6181	730773.4427	NO_2	Dundee AQMA	2.0	1.3	YES	2.0
DT 36	Lochee Rd/Polepark Rd	Kerbside	339016	730586	NO_2	Dundee AQMA	9.2	1.0	NO	2.7
DT 37	Logie St (114)	Roadside	338183.8374	731292.7572	NO_2	Dundee AQMA	0.5	1.7	NO	2.7
DT 38	Logie St (98)	Kerbside	338252.2046	731257.587	NO_2	Dundee AQMA	n/a	0.8	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 39	Loons Rd (1)	Roadside	338211.0935	731293.3741	NO_2	Dundee AQMA	0.5	1.9	NO	2.7
DT 237	Lower Princess St	Roadside	340964.11	730855.22	NO_2	Dundee AQMA	0.0	2.4	NO	2.5
DT 40	Marketgait (Palais Crt)	Roadside	339952.8515	730093.5454	NO_2	Dundee AQMA	3.5	1.3	NO	2.7
91, 92, 93	Meadowside (Romon 3)	Roadside	340243.2026	730652.7362	NO_2	Dundee AQMA	0.3	3.7	YES	2.1
DT 42	Muirton Rd (6)	Roadside	338156.3999	731294.2079	NO_2	Dundee AQMA	0.3	1.1	NO	2.5
DT 185	Murraygate (46)	Urban Background	340409.4354	730483.9398	NO_2	Dundee AQMA	N/A	N/A	NO	2.5
DT 189	Myrekirk Rd (29)	Roadside	335420.2401	731725.6942	NO_2	Dundee AQMA	5.2	2.0	NO	2.3
DT 48	Nethergate (132)/Marketgait	Roadside	340073.82	729983.84	NO_2	Dundee AQMA	3.6	1.3	NO	2.6
DT 47	Nethergate (40)	Roadside	340230.2583	730123.8366	NO_2	Dundee AQMA	2.7	1.3	NO	2.7
DT 45	Nethergate (6)	Roadside	340274	730171	NO_2	Dundee AQMA	2.5	1.3	NO	2.7
DT 213	Nethergate (64)	Roadside	340196	730089	NO_2	Dundee AQMA	2.4	4.2	NO	2.6
DT 44	Nethergate (88)	Kerbside	340163.1958	730060.9256	NO_2	Dundee AQMA	5.0	0.9	NO	2.1

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 46	Nethergate (95)	Kerbside	340032.502	729957.0337	NO_2	Dundee AQMA	1.8	0.9	NO	2.6
DT 239	Princes St (185)	Kerbside	341077.1707	731030.7122	NO_2	Dundee AQMA	2.4	0.6	NO	2.3
DT 49	Rankine St (2)	Roadside	338768.35	730900.23	NO_2	Dundee AQMA	0.4	1.8	NO	2.7
DT 228	Riverside Esplanade/S. Crichton St.	Roadside	340516.03	729990.96	NO_2	Dundee AQMA	1.2	2.7	NO	2.6
DT 224	Seagate (112)	Roadside	340528.065	730537.2449	NO_2	Dundee AQMA	0.0	2.6	NO	2.6
DT 236	Seagate (36-40)	Roadside	340463.2445	730420.3345	NO_2	Dundee AQMA	0.2	2.8	NO	2.5
DT 54	Seagate (9)	Roadside	340466.9999	730388.1178	NO_2	Dundee AQMA	0.9	1.7	NO	2.8
DT 190	Seagate (97)	Roadside	340515.9765	730499.1667	NO_2	Dundee AQMA	0.0	2.3	NO	2.3
DT 217	Seagate (99)	Roadside	340535.1598	730521.6779	NO_2	Dundee AQMA	0.0	2.4	NO	2.5
56, 57, 58	Seagate (Romon 3)	Roadside	340486.5819	730446.0412	NO_2	Dundee AQMA	1.8	1.3	YES	1.7
DT 55	Soapwork Lane	Roadside	340099.3457	730649.9545	NO_2	Dundee AQMA	0.0	3.5	NO	2.8
DT 218	South Marketgait (Lampost 18)	Roadside	340291.3722	729978.8577	NO_2	Dundee AQMA	N/A	2.6	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT235	South Marketgait/Nethergate	Roadside	340105.5885	729972.3975	NO_2	Dundee AQMA	0.5	2.8	NO	2.5
DT 162	St Andrews St/Seagate(116)	Roadside	340532.158	730548.3841	NO_2	Dundee AQMA	0.2	2.5	NO	2.5
DT 59	Strathmore Ave (353)	Kerbside	339608.7559	731871.0098	NO_2	Dundee AQMA	1.5	0.7	NO	2.7
DT 219	Thomson Avenue (Street Sign)	Roadside	340541.7744	730193.5939	NO_2	Dundee AQMA	1.8	2.2	NO	2.6
DT 229	Thomson Avenue/S.Crichton St	Kerbside	340420.6	730077.95	NO_2	Dundee AQMA	3.1	0.9	NO	2.7
DT 60	Trades Lane (31)	Kerbside	340574.5935	730499.7581	NO_2	Dundee AQMA	1.8	0.4	NO	2.7
DT 93	Victoria Rd (10)	Kerbside	340229.7177	730672.7587	NO_2	Dundee AQMA	2.7	0.3	NO	2.6
DT 184	Victoria Rd (104)/William St)	Roadside	340696.8958	730949.7502	NO_2	Dundee AQMA	1.5	1.4	NO	2.5
DT 191	Victoria Rd (4 India Buildings)	Roadside	340212.9721	730633.0717	NO_2	Dundee AQMA	0.0	2.8	NO	2.3
DT 68	Victoria Rd (60)	Roadside	340374.81	730778.68	NO_2	Dundee AQMA	0.6	2.2	NO	2.7
DT 70	Victoria Rd/Hilltown	Roadside	340274	730714	NO_2	Dundee AQMA	2.0	1.2	NO	2.8
DT 71	Victoria St / Albert St	Kerbside	341070.9744	731072.249	NO_2	Dundee AQMA	1.7	0.8	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT 205	West Marketgait/ Old Mill (23)	Roadside	339773.4489	730435.932	NO_2	Dundee AQMA	0.1	2.8	NO	2.7
DT 231	West Marketgait/ Ward Road	Roadside	339834.1588	730313.577	NO_2	Dundee AQMA	0.0	2.7	NO	2.7
DT 183	West Marketgait/Guthrie St	Roadside	339805.2336	730338.471	NO_2	Dundee AQMA	2.0	1.2	NO	2.4
DT 72	Westport (2)	Roadside	339842	730122	NO_2	Dundee AQMA	2.5	0.5	NO	2.6
DT 73	Whitehall Cr (4)	Kerbside	340376	730109	NO_2	Dundee AQMA	3.0	0.9	NO	2.6
DT 76	Whitehall St (1)	Kerbside	340264.8235	730153.1891	NO_2	Dundee AQMA	5.6	0.9	NO	2.7
DT 81	Whitehall St (12)	Roadside	340292.6578	730142.1103	NO_2	Dundee AQMA	2.7	3.0	NO	2.8
DT 74	Whitehall St (40)	Kerbside	340329.6	730105.6	NO_2	Dundee AQMA	3.6	0.8	NO	2.7
DT 75	Whitehall St (5)	Roadside	340289.1	730128.14	NO_2	Dundee AQMA	3.2	2.5	NO	2.8
82, 83, 84	Whitehall St (Romon 3)	Roadside	340278.1319	730156.2116	NO_2	Dundee AQMA	1.7	3.5	YES	1.8
DT 82	Woodside Ave	Urban Background	340776	732306.99	NO_2	Dundee AQMA	N/A	0.6	NO	2.6

Notes:
R = Roadside, K = Kerbside, UB = Urban Background, 'Kerb' is taken as being the edge of the carriageway with flowing traffic.
New sites first located in 2024 are highlighted in yellow.
(1) "0" if the monitoring site is at a location of exposure (e.g. installed on, adjacent to, or equivalent to the façade of a residential property, or is representative of a residential area).
(2) N/A if not applicable. (e.g. PDT at background or no relevant receptor at location).

Figure 3 NO_2 Diffusion Tube Locations (City Centre)

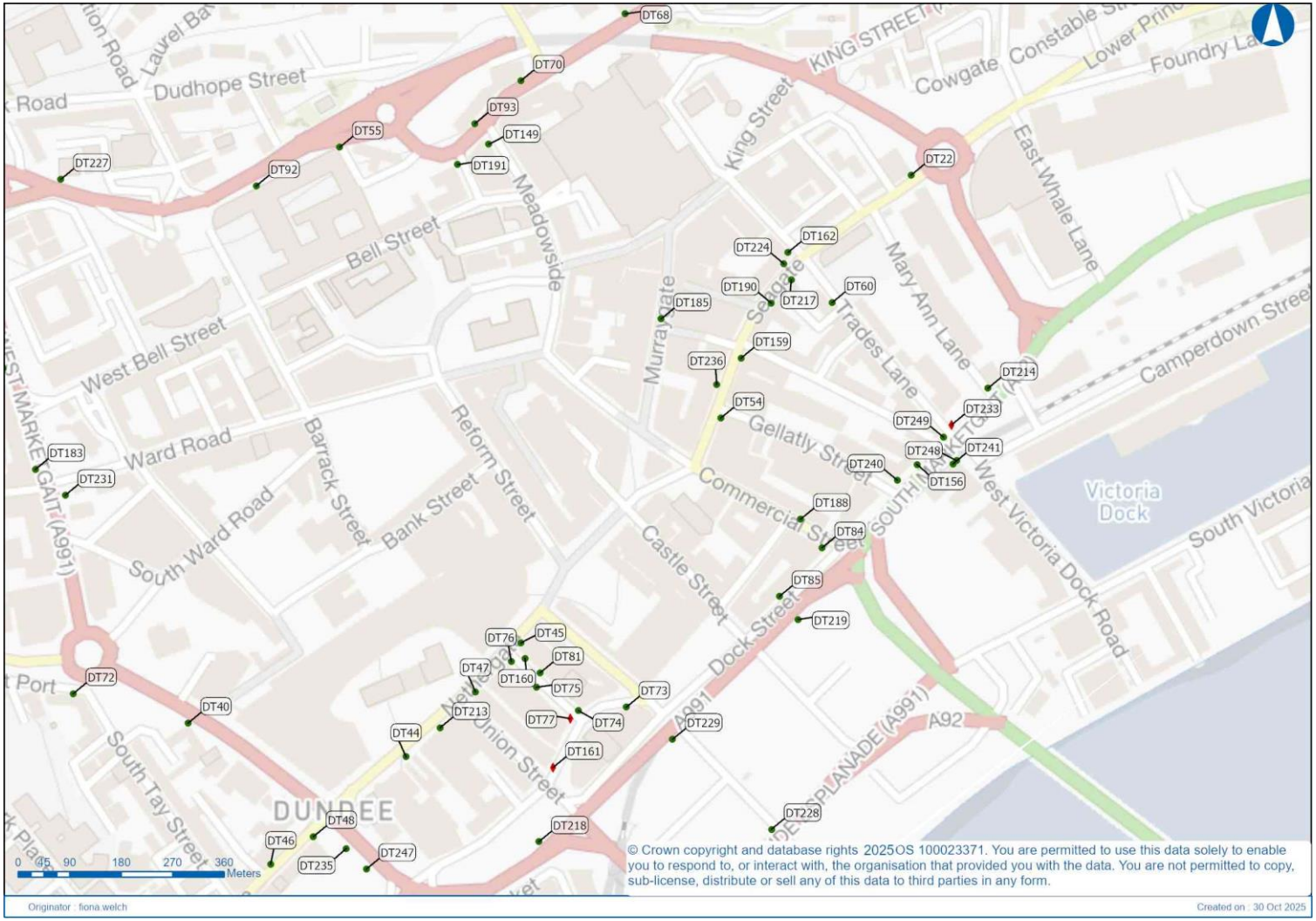


Figure 4 NO_2 Diffusion Tube Locations (East)

Figure 5 NO_2 Diffusion Tube Locations (West)

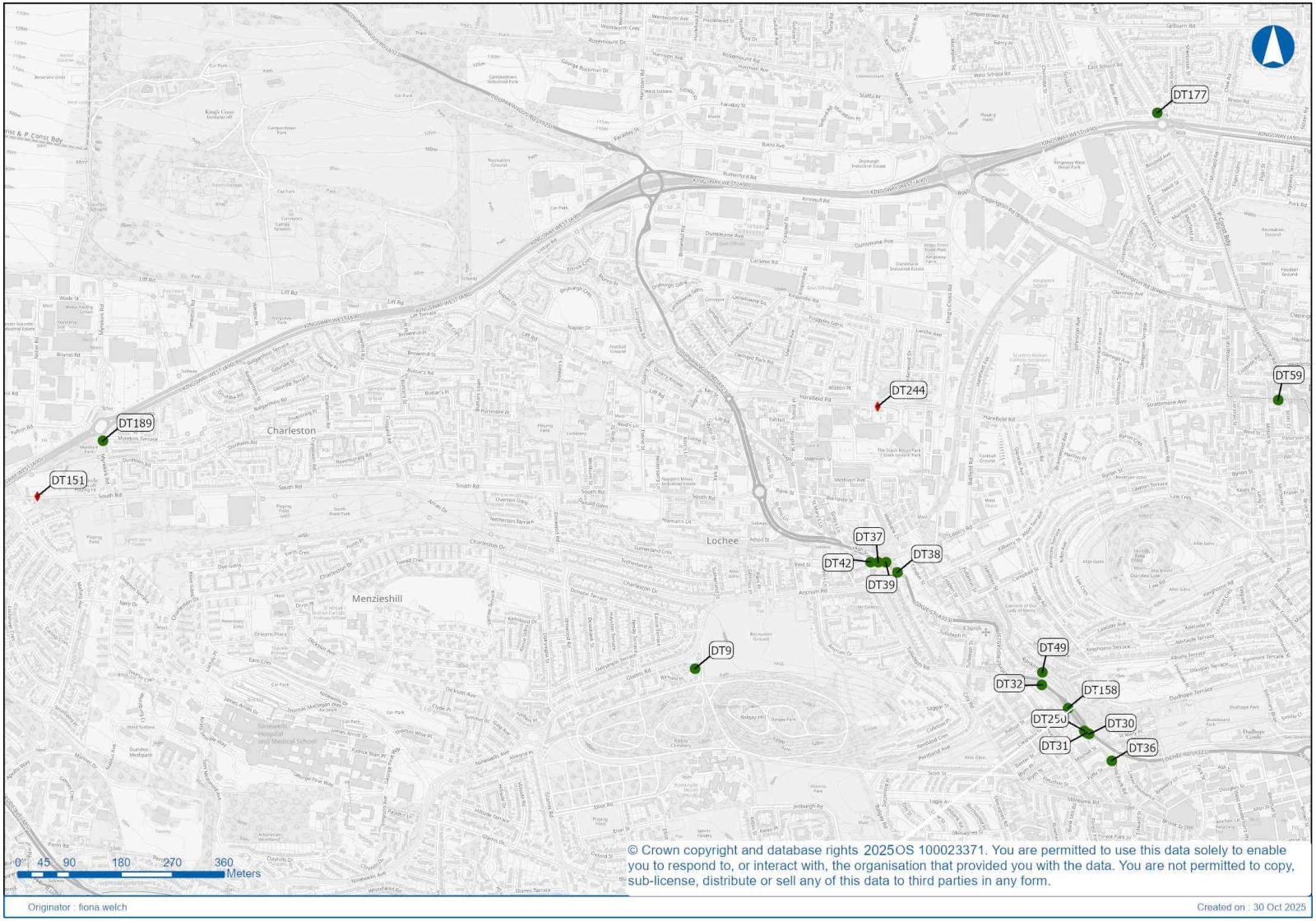


Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM 3	Broughty Ferry Road	341970	730977	UI	98.2	98.2	19.6	12.9	11.2	11.8	11.3
CM 4	Lochee Road	338861	730773	R	96.5	96.5	31.2	31.7	29.0	28.5	25.1
CM 12	Mains Loan	340972	731893	UB	99.4	99.4	8.5	8.4	9.1	7.3	6.8
CM 14	Meadowside	340243	730653	R	85.4	85.4	25.6	27.1	26.1	26.9	25.1
CM 5	Seagate	340487	730446	R	99.7	99.7	28.5	30.3	26.5	28.7	27.3
CM 6	Whitehall Street	340278	730156	R	98.1	98.1	24.0	27.5	20.1	21.3	20.8

Notes:

UI = Urban Industrial, R = Roadside, UB = Urban Background

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

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

All means have been "annualised" as per LAQM.TG(22) (TG(16) for 2018 – 2021 data) if valid data capture for the full calendar year is less than 75% (highlighted by shading). 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.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 92	Abertay 2	340018.5473	730612.4218	Roadside	100.0	100.0	26.2	29.8	26.6	27.9	25.3
DT 179	Albert Street (15) (Façade)	341092.4237	731120.6783	Roadside	100.0	100.0	24.5	24.1	19.9	22.7	20.4
DT 180	Albert Street (15) (Roadside)	341090.9354	731120.7113	Kerbside			25.2	24.9	22.0	24.3	
DT 167	Albert Street 191	341161.4264	731534.7429	Kerbside	100.0	100.0	20.8	23.6	20.7	23.9	24.3
DT 5	Arbroath Road (13)	341110.9866	731069.6793	Kerbside	100.0	100.0	27.2	23.5	21.2	21.4	20.6
DT 223	Broughty Ferry Road – Lower (Cycle sign)	343529.613	730937.3423	Urban Background	100.0	100.0	19.1	14.2	8.9	12.7	10.8
DT 204	Broughty Ferry Road (129)	342244	731066	Roadside			27.0	26.8	26.4		
DT 139	Broughty Ferry Road (141 Downpipe)	343317.4851	731072.0073	Roadside	100.0	100.0	24.4	24.1	21.5	23.2	20.5
DT 145	Broughty Ferry Road (Greendykes)	342662.2696	731111.7514	Roadside	100	100.0	24.7	25.4	19.6	19.9	
DT 7	Balgavies Place	343082.2747	731465.3006	Urban Background	100.0	100.0	12.6	10.6	9.8	10.5	9.1
DT 9	Birnam Place	337531.2319	730914.2557	Urban Background	100.0	100.0	6.5	6.7	5.8	7.6	5.6

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 11	Broughty Ferry Road (141)	343321.9239	731073.2263	Roadside	100.0	100.0	26.7	26.8	23.1	25.3	21.9
DT 155	Carolina Court LP6	342353.292	731058.094	Urban Background	100.0	100.0	15.7	14.6	12.5	13.6	12.1
DT 186	Carolina Court 30mph sign	342342.1514	731082.9253	Roadside	100.0	100.0				17.2	15.1
DT 171	Claypotts / Arbroath Rd (502)	345346.8733	732080.2242	Roadside	34.0	34.0	21.0	17.8	16.4	16.6	16.0
DT 13	Clepington Rd/ Forfar Rd	341385	732121	Kerbside			21.7	22.1			
DT 246	Clepington Rd/ Forfar Rd_2	341387.3	732123.301	Roadside	100.0	100.0			18.6	19.7	17.0
DT 188	Commercial St (9)	340544.2188	730290.5439	Roadside	100.0	100.0	25.7	27.5	21.2	24.1	22.8
DT 84	Commercial St/Dock St (40)	340565	730263	Roadside	100.0	100.0	24.7	25.8	21.2	22.5	22.2
DT 85	Dock St (21)	340523.6	730215.9	Roadside	100.0	100.0	25.7	27.0	22.3	23.9	23.6
DT 156	Dock St (57)	340656.4944	730343.3923	Roadside	100.0	100.0	32.6	34.8	31.1	31.9	30.0
DT 241	Dock St (Customs House)	340691.2965	730343.9471	Roadside	100.0	100.0	27.8	27.2	23.0	22.8	22.5

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 248	Dock St (Customs House)_2	342342	730347	Roadside	100	50.0				27.3	
DT 240	Dock St / Gellatly St	340637.5125	730328.1996	Roadside	90.6	90.6	28.5	28.8	25.9	29.2	27.1
DT 233	Dock St / Trades Lane	340689.8115	730381.5431	Roadside	100	100.0	27.8	27.0	23.0	24.1	
DT 249	Dock St / Trades Lane West			Roadside	100.0	100.0					29.1
DT 227	Dudhope Crescent Rd (40)	339829.8758	730618.7713	Kerbside	100.0	100.0	28.9	29.6	25.7	26.6	23.3
DT 20	Dura St (100)	341150.3635	731575.6125	Kerbside	100.0	100.0	24.7	24.6	22.0	23.6	23.0
DT 214	East Dock Street (26)	340725	730417	Roadside	100.0	100.0	27.1	27.8	22.8	24.9	22.4
DT 22	Eastport Roundabout	340651	730623	Roadside	100.0	100.0	21.7	22.6	19.6	21.0	21.3
DT 83	Forfar Rd (104)	341437	732360	Kerbside			28.5	27.9			
DT 245	Forfar Rd (104)_2	341435.903	732360.19	Kerbside	100.0	100.0			21.1	20.1	17.1
DT 244	Harefield Road (14)	338181.804	731848.272	Roadside	100	100.0			13.9	15.9	

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 26	Kingsway East Roundabout	343107.3765	731739.678	Roadside	100.0	100.0	27.6	27.4	24.8	24.4	22.0
DT 27	Kingsway/ Mains Loan	341123.6085	732468.2592	Roadside	100.0	100.0	20.5	21.3	18.2	19.2	16.3
DT 177	Kingsway / Strathmartine Rd (279)	339179.113	732896.0877	Roadside	100.0	100.0	23.2	22.8	22.1	20.9	19.1
DT 30	Lochee Rd (138)	338935.7273	730680.429	Kerbside	100.0	100.0	39.0	34.9	33.2	32.5	29.4
DT 31	Lochee Rd (140) Traffic Lts	338927.1945	730685.1518	Roadside	100	90.4	37.6	36.1	32.4	32.7	
DT 250	Lochee Rd (142A)	338928	730684	Roadside	75.5	75.5					27.2
DT 32	Lochee Rd (184)	338767	730856	Kerbside	75.0	75.0	29.2	24.8	25.5	24.0	21.2
37, 38, 39	Lochee Rd (Romon) Average	338860.6181	730773.4427	Roadside	100.0	100.0	32.4	32.0	30.4	29.3	26.2
DT 36	Lochee Rd/Polepark Rd	339016	730586	Kerbside	100.0	100.0	20.1	18.6	17.4	18.8	16.6
DT 37	Logie St (114)	338183.8374	731292.7572	Roadside	100.0	100.0	**40.9**	38.6	34.1	35.7	35.1
DT 38	Logie St (98)	338252.2046	731257.587	Kerbside	100.0	100.0	26.2	24.0	22.2	22.4	23.1

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 39	Loons Rd (1)	338211.0935	731293.3741	Roadside	100.0	100.0	28.9	29.8	25.3	27.5	25.0
DT 237	Lower Princess St	340964.11	730855.22	Roadside	100.0	100.0	21.2	21.8	19.4	20.3	18.4
DT 40	Marketgait (Palais Crt)	339952.8515	730093.5454	Roadside	100.0	100.0			16.6	17.3	15.3
91, 92, 93	Meadowside (Romon) Average	340243.2026	730652.7362	Roadside	100.0	100.0	27.9	28.1	25.8	25.7	26.2
DT 42	Muirton Rd (6)	338156.3999	731294.2079	Roadside	100.0	100.0	19.0	19.7	17.7	19.3	16.4
DT 185	Murraygate (46)	340409.4354	730483.9398	Urban Background	90.6	90.6	14.3	13.8	11.8	13.0	11.8
DT 189	Myrekirk Rd (29)	335420.2401	731725.6942	Roadside	100.0	100.0	21.4	21.7	19.3	19.4	17.7
DT 48	Nethergate(132) / Marketgait	340073.82	729983.84	Roadside	92.5	92.5	20.3	20.7	20.8	22.2	19.4
DT 47	Nethergate (40)	340230.2583	730123.8366	Roadside	100.0	100.0	22.0	25.0	19.5	20.4	19.5
DT 45	Nethergate (6)	340274	730171	Roadside	92.5	92.5	24.6	25.8	20.8	21.6	21.2
DT 213	Nethergate (64)	340196	730089	Roadside	100.0	100.0	25.9	28.3	22.4	22.9	23.6

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 44	Nethergate (88)	340163.1958	730060.9256	Kerbside	100.0	100.0	26.5	28.5	23.8	26.3	23.9
DT 46	Nethergate (95)	340032.502	729957.0337	Kerbside	100.0	100.0	19.0	20.4	19.2	21.0	18.5
DT 239	Princes St (185)	341077.1707	731030.7122	Kerbside	100.0	100.0	30.6	30.8	26.4	28.9	25.7
DT 49	Rankine St (2)	338768.35	730900.23	Roadside	100.0	100.0	28.6	25.9	24.8	24.0	21.2
DT 228	Riverside Esplanade / S. Crichton St.	340516.03	729990.96	Roadside	100.0	100.0	20.6	21.4	19.2	20.3	18.8
DT 224	Seagate (112)	340528.065	730537.2449	Roadside	100.0	100.0	29.1	27.9	25.4	27.4	24.9
DT 236	Seagate (36 - 40)	340463.2445	730420.3345	Roadside	100.0	100.0	26.6	26.2	20.5	23.1	21.8
DT 54	Seagate (9)	340466.9999	730388.1178	Roadside	100.0	100.0	21.3	22.4	17.7	20.8	19.2
DT 190	Seagate (97)	340515.9765	730499.1667	Roadside	100.0	100.0	29.0	29.9	25.6	26.8	25.3
DT 217	Seagate (99)	340535.1598	730521.6779	Roadside	100.0	100.0	28.3	29.3	23.9	25.3	23.7
56, 57, 58	Seagate(Romon) Average	340486.5819	730446.0412	Roadside	100.0	100.0	26.5	28.4	24.2	26.4	24.9

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 55	Soapwork Lane	340099.3457	730649.9545	Roadside	100.0	100.0	25.6	24.2	23.6	23.4	21.1
DT 218	South Marketgait (lamp post 18)	340291.3722	729978.8577	Roadside	100.0	100.0	20.6	21.5	19.4	20.8	19.0
DT 247	South Marketgait (street sign)	340124.806	729952.385	Roadside	100	100.0			24.9	25.3	
DT 151	South Rd (1 Denbank)	335187.5086	731527.8202	Roadside	100	100.0	23.2	23.3	20.9	21.2	
DT235	South Marketgait / Nethergate	340105.5885	729972.3975	Roadside	92.5	92.5	17.4	17.9			20.6
DT 162	St Andrews St PB (façade)	340532.158	730548.3841	Roadside	100.0	100.0	25.3	24.8	21.2	22.9	21.5
DT 59	Strathmore Avenue (353)	339608.7559	731871.0098	Kerbside	90.6	90.6	23.6	25.7	22.9	25.9	24.6
DT 219	Thomson Avenue (street sign)	340541.7744	730193.5939	Roadside	100.0	100.0	22.7	22.3	19.4	21.8	19.8
DT 229	Thomson Avenue / South Crichton St.	340420.6	730077.95	Kerbside	100.0	100.0	21.7	21.2	20.0	21.1	19.4
DT 60	Trades Lane (31)	340574.5935	730499.7581	Kerbside	100.0	100.0	18.3	17.6	15.7	16.9	15.3
DT 93	Victoria Rd (10b)	340229.7177	730672.7587	Kerbside	100.0	100.0	24.8	24.9	22.3	23.4	21.6

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
DT 184	Victoria Rd (104) / William St	340696.8958	730949.7502	Roadside	100.0	100.0	20.2	21.3	18.7	21.4	20.1
DT 191	Victoria Rd (4) - India Buildings	340212.9721	730633.0717	Roadside	100.0	100.0	21.9	22.9	20.2	21.9	20.0
DT 68	Victoria Rd (60)	340374.81	730778.68	Roadside	90.6	90.6	26.8	26.3	22.7	25.1	24.2
DT 70	Victoria Rd/Hilltown	340274	730714	Roadside	100.0	100.0	38.0	**40.6**	36.3	36.0	36.5
DT 71	Victoria St/Albert St	341070.9744	731072.249	Kerbside	100.0	100.0	21.8	20.6	17.5	19.5	16.6
DT 205	West Marketgait / Old Mill (23)	339773.4489	730435.932	Roadside	90.6	90.6	36.1	36.5	36.9	31.7	28.7
DT 231	West Marketgait / Ward Road	339834.1588	730313.577	Roadside	100.0	100.0	24.5	23.5	21.5	20.7	18.9
DT 183	West Marketgait / Guthrie St	339805.2336	730338.471	Roadside	100.0	100.0	34.0	32.7	29.3	28.5	24.7
DT 72	Westport (2)	339842	730122	Roadside	90.6	90.6	19.9	17.6	17.3	17.2	16.0
DT 73	Whitehall Cr (4)	340376	730109	Kerbside	100.0	100.0	23.6	23.4	18.9	19.9	19.9
DT 161	Whitehall Cr /Union St (50)	340305.1556	730050.6132	Kerbside	100	100.0	16.9	16.7	14.5	16.1	

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
DT 76	Whitehall St (1)	340264.8235	730153.1891	Kerbside	100.0	100.0	31.8	33.0	25.5	26.3	26.3
DT 81	Whitehall St (12)	340292.6578	730142.1103	Roadside	100.0	100.0	27.9	28.9	21.4	23.0	22.8
DT 77	Whitehall St (15)	340321.839	730097.9292	Kerbside	100	100.0	22.9	23.6	19.1	20.9	
DT 74	Whitehall St (40)	340329.6	730105.6	Kerbside	100.0	100.0	24.9	27.8	21.4	23.3	22.4
DT 75	Whitehall St (5)	340289.1	730128.14	Roadside	100.0	100.0	27.7	27.5	20.3	21.0	21.5
82, 83, 84	Whitehall St (Romon) Average	340278.1319	730156.2116	Roadside	100.0	100.0	23.8	27.2	20.1	22.2	21.7
DT 82	Woodside Ave	340776	732306.99	Urban Background	92.5	92.5	9.1	8.5	7.7	8.4	7.4

Notes:

Exceedances of the NO_2 annual mean objective of 40 µg/m^3 are shown in bold. (borderline values are orange).

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

All means have been "annualised" as per LAQM.TG(22) (TG(16) for 2018 – 2021 data) if valid data capture for the full calendar year is less than 75% (highlighted by shading). See Appendix C for details.

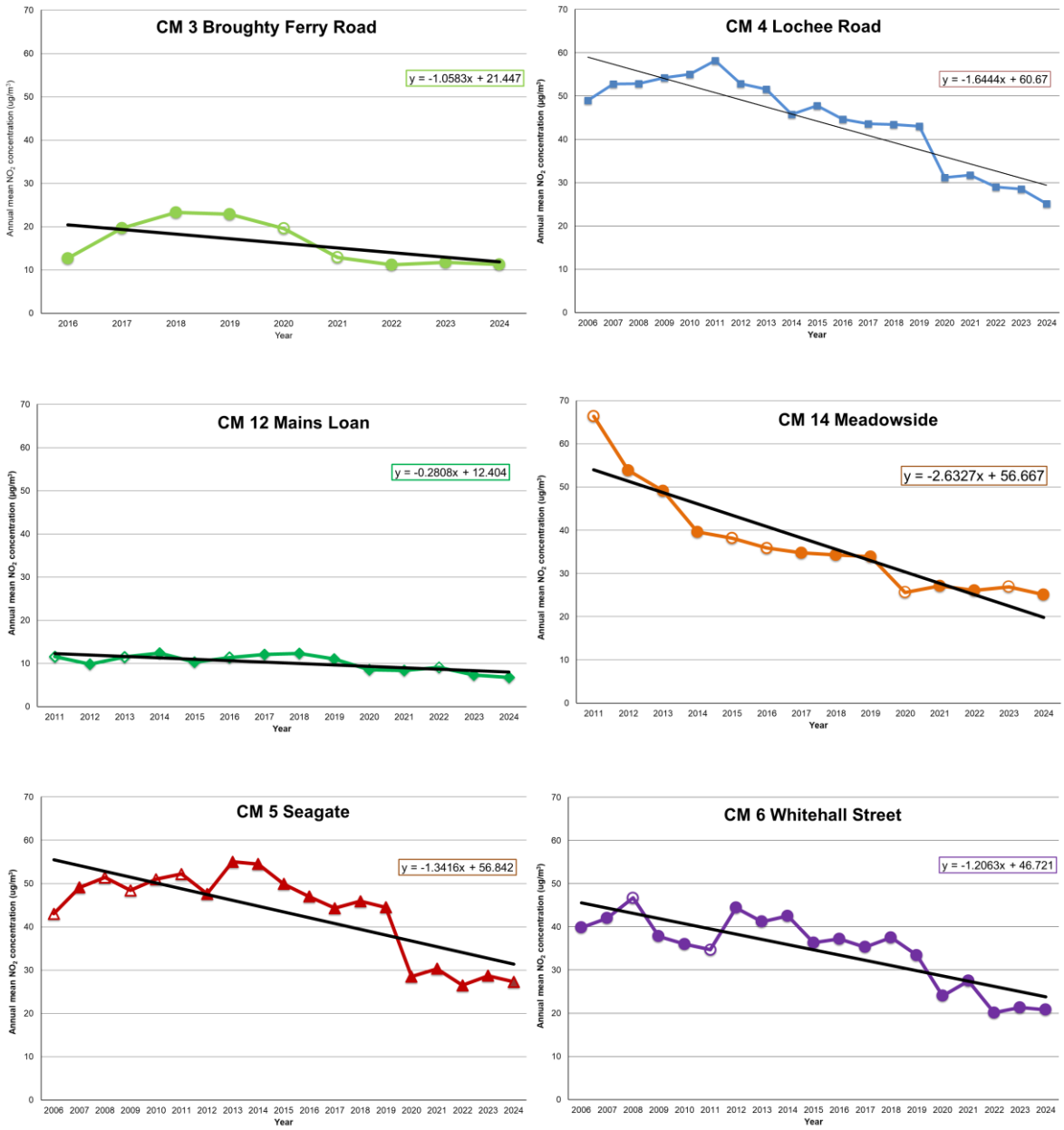
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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%).

(3) New sites first located in 2024 are highlighted in yellow

(4) Sites where monitoring removed in 2024 are highlighted in blue.

Figure 6 Trends in Annual Mean NO_2 at Automatic Monitors



Notes:

1) Graphs show the trends (**black** lines) in the NO_2 annual mean concentrations measured at the continuous analysers.
2) A minimum of five years data is required to show a valid trend. More years (data points) give greater certainty in the trend.
3) The trend line equation is shown. Decreasing trends have a negative "x" value, increasing trends a positive "x" value.
4) For strict comparison with the annual mean objective of 40µg/m^3 data capture should be greater than 85%. Annual means where data capture was below 85% are shown by a 'hollow' marker.
5) Means have been "annualised" as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See **Appendix C** for details.

Figure 7 Trend Analysis at Long-term NO_2 Monitoring Locations

Site Id.	Location	No. of years for trend	Trend
DT 217	Seagate (99)	8	-3.01
DT 205	West Marketgait/Old Mill (23)	10	-2.73
DT 190	Seagate (97)	12	-2.70
DT 227	Dudhope Crescent Road (40)	7	-2.70
CM 14	Meadowside	14	-2.63
DT 149	Meadowside (Romon) Average	14	-2.50
DT 236	Seagate (36-40)	6	-2.36
DT 231	West Marketgait/ Ward Road	7	-2.34
DT 183	West Marketgait / Guthrie St	12	-2.33
DT 239	Princes St (185)	6	-2.30
DT 213	Nethergate (64)	9	-2.18
DT 223	Broughty Ferry Road Lower (Cyclesign)	19	-2.11
DT 218	South Marketgait (Lampost 18)	8	-1.95
DT 219	Thomson Avenue (Street Sign)	8	-1.92
DT 177	Kingsway / Strathmartine Rd (279)	12	-1.91
DT 188	Commercial St (9)	12	-1.87
DT 156	Dock St (57)	14	-1.85
DT 224	Seagate (112)	8	-1.81
DT 237	Lower Princess St	6	-1.77
DT 171	Claypotts / Arbroath Rd (502)	9	-1.76
DT 189	Myrekirk Rd (29)	12	-1.67
CM 4	Lochee Road	19	-1.64
DT 179	Albert St (15) (Facade)	12	-1.64
DT 75	Whitehall St (5)	19	-1.62
DT 162	St Andrews St PB (façade)	13	-1.57
DT 229	Thomson Avenue/S.Crichton St	7	-1.57
DT 214	East Dock Street (26)	9	-1.54
DT 228	Riverside Esplanade / S. Crichton St.	7	-1.52
DT 241	Dock St (Customs House)	5	-1.50
DT 159	Seagate(Romon) Average	19	-1.47
DT 72	Westport (2)	19	-1.41
DT 167	Albert St (191)	12	-1.35
CM 5	Seagate	19	-1.34
DT 185	Murraygate (46)	12	-1.34
DT 44	Nethergate (88)	19	-1.34
DT 30	Lochee Rd (138)	19	-1.31
DT 92	Abertay 2	16	-1.30
DT 54	Seagate (9)	19	-1.27
DT 47	Nethergate (40)	19	-1.26
DT 139	Broughty Ferry Rd (141 Downpipe)	14	-1.24
DT 184	Victoria Rd (104) / William St	12	-1.24
DT 191	Victoria Rd (4) - India Buildings	12	-1.23
DT 70	Victoria Rd/Hilltown	19	-1.23
CM 6	Whitehall Street	19	-1.21
DT 46	Nethergate (95)	19	-1.16
DT 5	Arbroath Rd (13)	19	-1.15
DT 11	Broughty Ferry Rd (141)	19	-1.14
DT 84	Commercial St/Dock St (40)	19	-1.12
DT 45	Nethergate (6)	19	-1.12
DT 37	Logie St (114)	19	-1.09
DT 158	Lochee Rd (Romon) Average	19	-1.08
DT 68	Victoria Rd (60)	19	-1.08
DT 60	Trades Lane (31)	19	-1.08
DT 93	Victoria Rd (10b)	16	-1.06
CM 3	Broughty Ferry Rd	9	-1.06
DT 76	Whitehall St (1)	19	-1.05
DT 71	Victoria St/Albert St	19	-1.04
DT 20	Dura St (100)	19	-1.04
DT 49	Rankine St (2)	19	-1.02
DT 26	Kingsway East Roundabout	19	-0.99
DT 27	Kingsway/ Mains Loan	19	-0.98
DT 59	Strathmore Avenue (353)	19	-0.95
DT 39	Loons Rd (1)	19	-0.95
DT 81	Whitehall St (12)	19	-0.91
DT 85	Dock St (21)	19	-0.88
DT 48	Nethergate(132) / Marketgait	19	-0.87
DT 36	Lochee Rd/Polepark Rd	19	-0.86
DT 32	Lochee Rd (184)	19	-0.84
DT 22	Eastport Roundabout	19	-0.84
DT 155	Carolina Court LP6	13	-0.82
DT 74	Whitehall St (40)	19	-0.76
DT 38	Logie St (98)	19	-0.70
DT 42	Muirton Rd (6)	19	-0.69
DT 55	Soapwork Lane	19	-0.66
DT 82	Woodside Ave	19	-0.62
DT 73	Whitehall Cr (4)	19	-0.55
DT 7	Balgavies Place	19	-0.48
CM 12	Mains Loan	14	-0.33
DT 9	Birnam Place	19	-0.28
DT 240	Dock St / Gellatly St	5	-0.23

Note: Blue is an improving trend, red is a worsening trend. Trend value methodology explained after Figure 13.

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

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM 3	Broughty Ferry Road	341970	730977	UI	98.2	98.2	0 (61.1)	0 (61.9)	0	0	0
CM 4	Lochee Road	338861	730773	R	96.5	96.5	0	0	0	0	0
CM 12	Mains Loan	340972	731893	UB	99.4	99.4	0	0	0 (58.4)	0	0
CM 14	Meadowside	340243	730653	R	85.4	85.4	0 (95.1)	0 (107.2)	0	0 (99.2)	0
CM 5	Seagate	340487	730446	R	99.7	99.7	0	0	0	0	0
CM 6	Whitehall Street	340278	730156	R	98.1	98.1	0	0	0	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200 µg/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) R=Roadside, K=Kerbside, UB=Urban Background, UI=Urban Industrial

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

(3) 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 8 Number of 1-hour mean NO_2 levels > 200ug/m^3 each year (maximum 18 per year allowed)

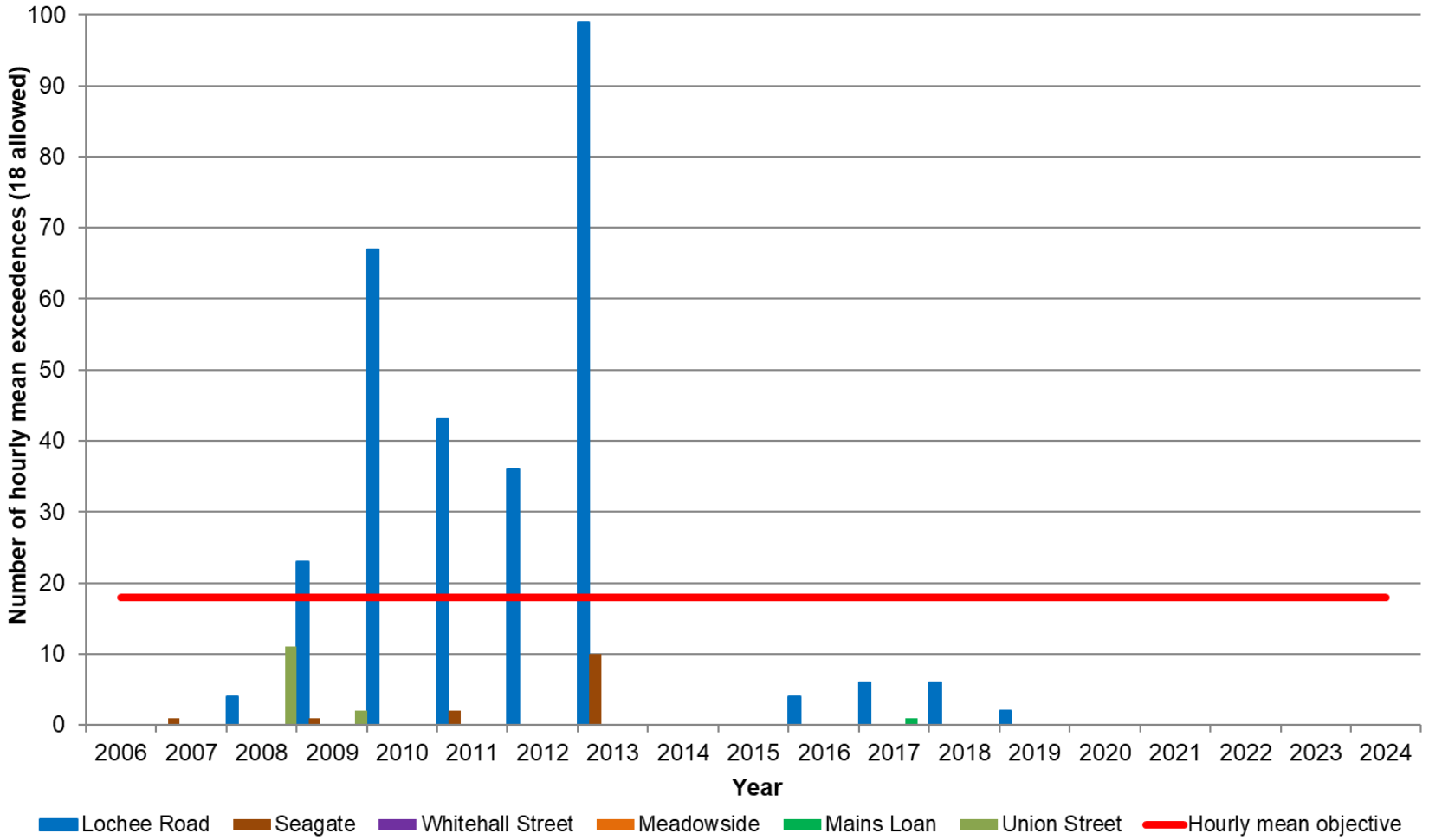


Figure 9 Trend in 99.8th percentile of hourly mean NO_2 concentrations at CM4 Lochee Road

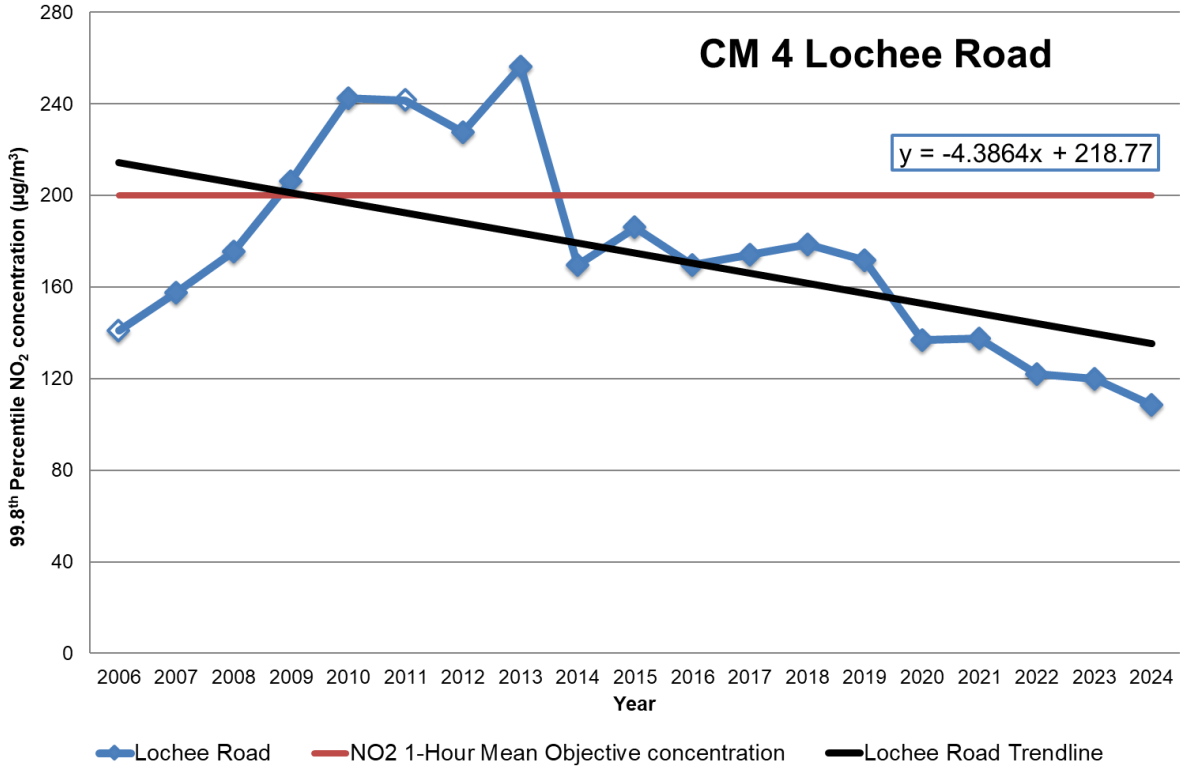


Figure 10 Trend in 99.8th percentile of NO_2 hourly mean concentrations at all continuous analysers

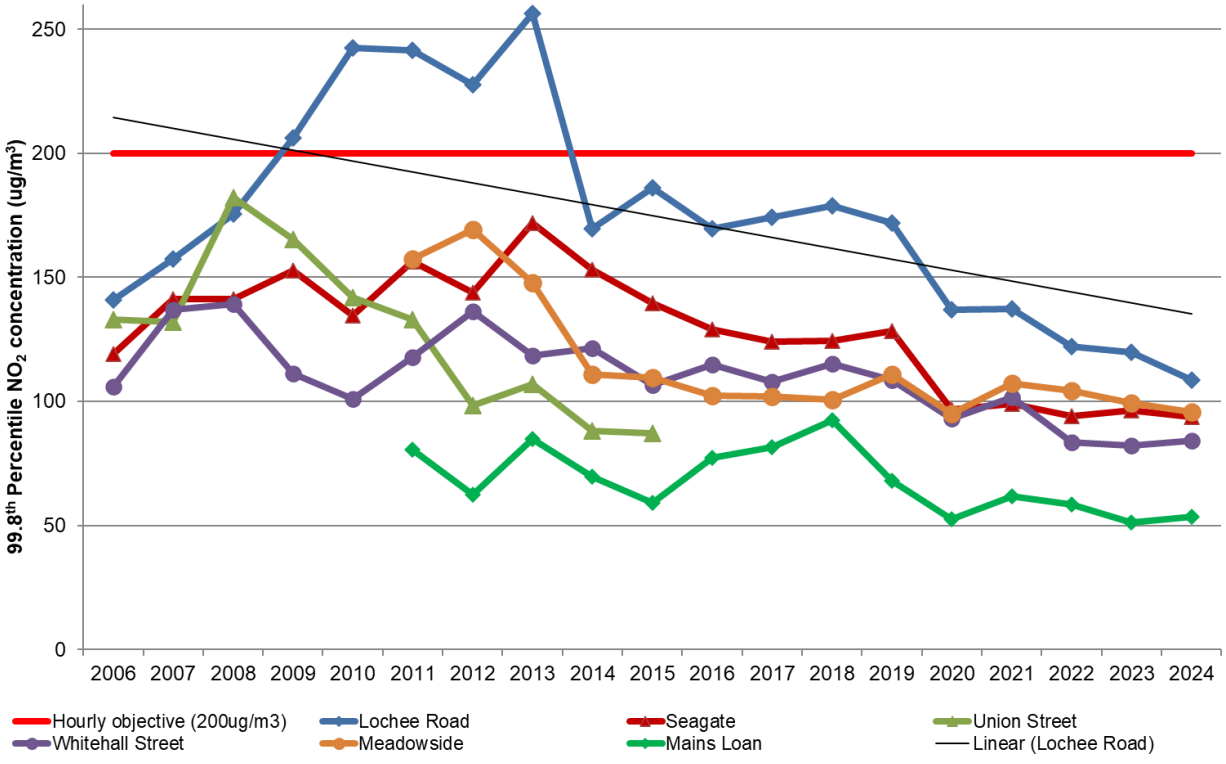


Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Name (analyser)	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022(3)	2023(3)	2024(3)
CM 3	Broughty Ferry Rd (TEOM / **FIDAS**)	341970	730977	UI	100	100	8.9	10.1	11.8 (13.0)	10.2 (11.2)	10.4 (11.4)
CM 4	Lochee Rd (BAM / **FIDAS**)	338861	730773	R	100	100	9.8	10.7	12.5 (13.8)	10.8 (11.9)	10.7 (11.7)
CM 12	Mains Loan (TEOM / **FIDAS**)	340972	731893	UB	94	94	7.0	7.5	8.9 (9.8)	7.6 (8.4)	9.3 (10.2)
CM 14	Meadowside (BAM / **FIDAS**)	340243	730653	R	99	99	9.1	10.1	12.0 (13.2)	10.7 (11.8)	11.2 (12.3)
CM 5	Seagate (BAM / **FIDAS**)	340487	730446	R	100	100	9.6	11.0	13.6 (15.0)	13.2 (14.5)	12.3 (13.5)
CM 6	Whitehall St (BAM / **FIDAS**)	340278	730156	R	100	100	7.9	8.3	10.2 (11.2)	9.8 (10.8)	10.3 (11.4)
CM 13	Broughty Ferry Rd (Partisol)	341971	730978	UI	99	99	10.0*	10.2*	11.5	10.4	10.8
CM 16	Broughty Ferry Rd (OSIRIS)	341970	730977	UI	93	93	9.7	9.9*	11.6	10.5	10.8
CM 9	Logie St (OSIRIS)	338176	731298	K	93	93	14.0*	11.4*	15.1	12.4	11.5
CM 17	Myrekirk Tce (OSIRIS)	335438	731740	R	93	93	11.0	12.8*	14.5	12.5	11.2
CM 15	Albert St (OSIRIS)	341090	731105	K	87	87	13.9*	11.1	17.9	13.0	10.7
CM 18	Stannergate (OSIRIS)	343322	731073	R	87	87	11.5	16.4*	16.8	14.1	15.4

Notes:

Exceedances of the PM_{10} annual mean objective of 18 µg/m^3 are shown in **bold** (borderline values are orange).

All means have been "annualised" as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75% (highlighted by shading). See Appendix C for details

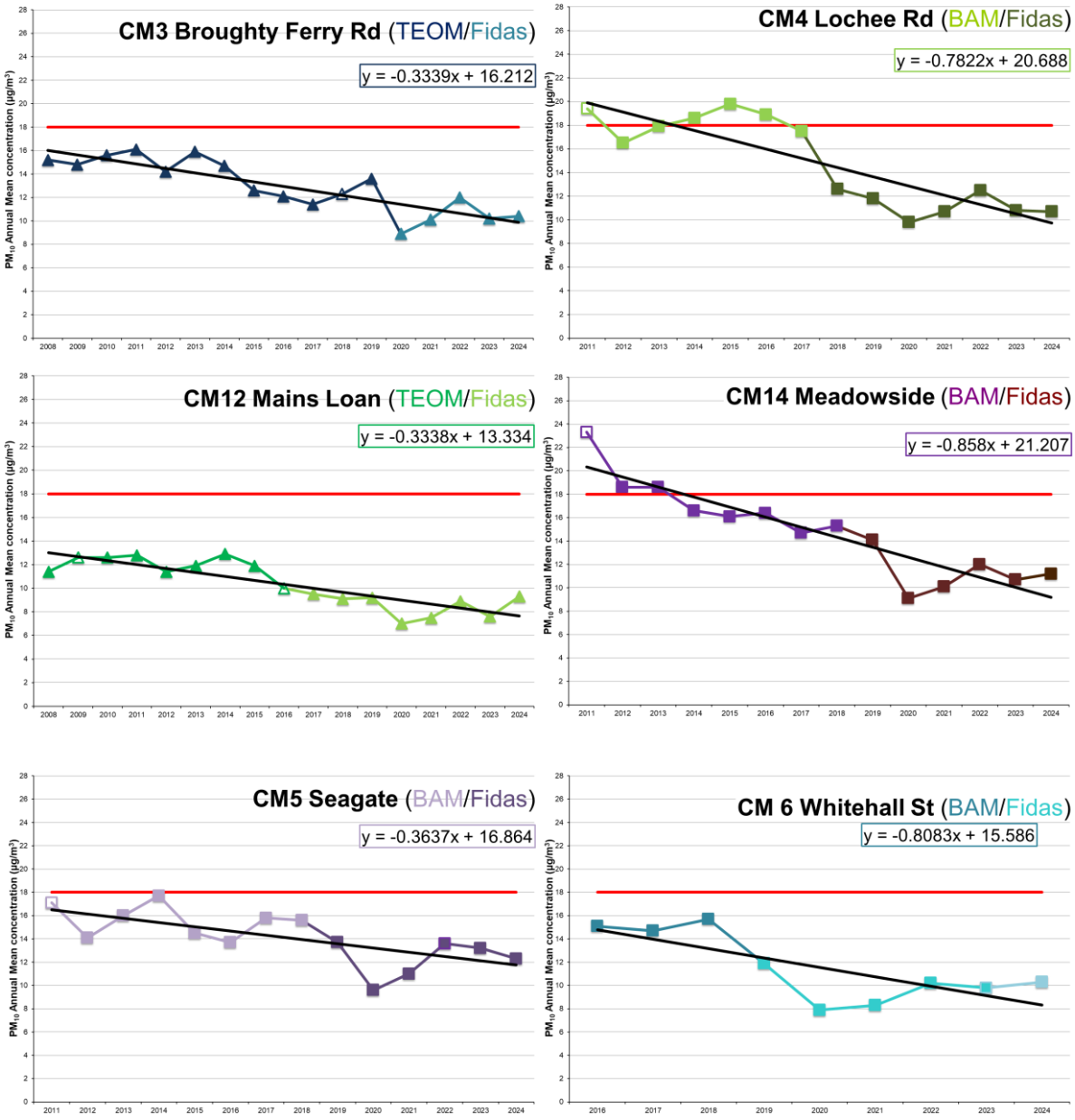
* indicates data capture less than 85%.

(1) R=Roadside, K=Kerbside, UB=Urban Background, UI=Urban Industrial

(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%).

(3) Corrected results as per the Scottish Government Guidance note published on 17 May 2023^ advising that annual mean PM data collected using **FIDAS** 200 is to be corrected using factors (PM_{10} divided by 0.909 and $PM_{2.5}$ multiplied by 1.06) identified by the "Scottish Government Equivalence Study to Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200". Local authorities are to present both measured and corrected data for LAQM reporting.
^ www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

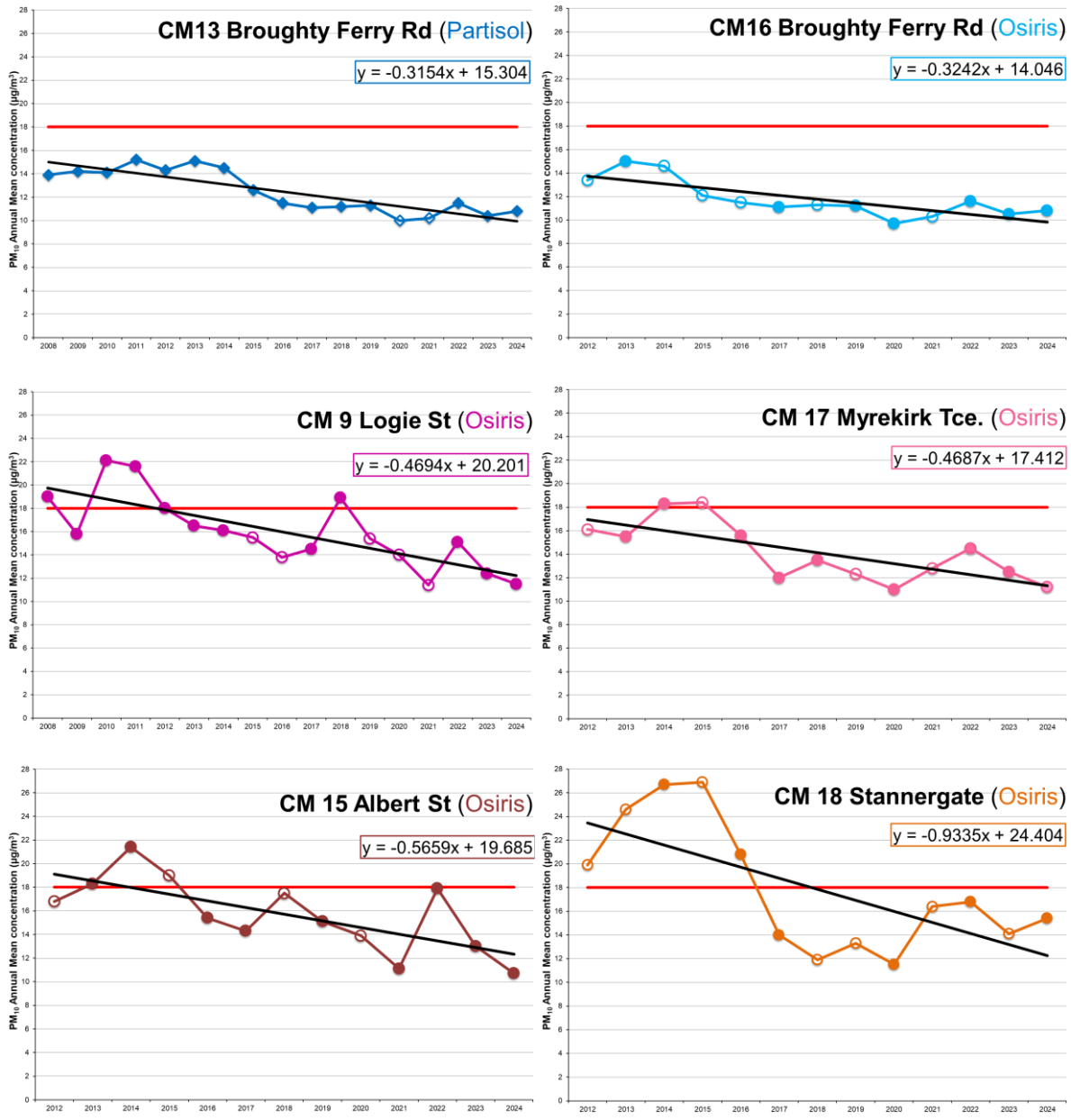
Figure 11 Trends in Annual Mean PM_{10} Concentrations at Automatic Monitors (Fidas)



Notes:

1) Graphs show the trends (**black** lines) in the PM_{10} annual mean concentrations measured at the continuous analysers.
2) A minimum of five years data is required to show a valid trend. More years (data points) give greater certainty in the trend.
3) The trend line equation is shown. Decreasing trends have a negative "x" value, increasing trends a positive "x" value.
4) For strict comparison with the annual mean objective of 18µg/m^3(shown by the **red** line), data capture should be greater than 85%. Annual means where data capture was below 85% are shown by a 'hollow' marker.
5) Means have been "annualised" as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See **Appendix C** for details.

Figure 12 Trends in Annual Mean PM_{10} Concentrations at Automatic Monitors (Partisol / Osiris)



Notes:

1) Graphs show the trends (**black** lines) in the PM_{10} annual mean concentrations measured at the continuous analysers.
2) A minimum of five years data is required to show a valid trend. More years (data points) give greater certainty in the trend.
3) The trend line equation is shown. Decreasing trends have a negative "x" value, increasing trends a positive "x" value.
4) For strict comparison with the annual mean objective of 18µg/m^3(shown by the **red** line), data capture should be greater than 85%. Annual means where data capture was below 85% are shown by a 'hollow' marker.
5) Means have been "annualised" as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See **Appendix C** for details.

Figure 13 Trend analysis of PM_{10} annual means at long term monitoring sites

Site Id.	Location	No. of years for trend	Trend[(1)]
CM18	Stannergate (Osiris)	13	-0.93
CM14	Meadowside (BAM/Fidas)	14	-0.86
CM6	Whitehall St (BAM/Fidas)	9	-0.81
CM4	Lochee Rd (BAM/Fidas)	14	-0.78
CM15	Albert St (Osiris)	13	-0.57
CM17	Myrekirk Tce (Osiris)	13	-0.47
CM9	Logie St (Osiris)	17	-0.47
CM3	Broughty Ferry Rd (TEOM/Fidas)	17	-0.38
CM5	Seagate (BAM/Fidas)	14	-0.36
CM12	Mains Loan (TEOM/Fidas)	17	-0.33
CM16	Broughty Ferry Rd (Osiris)	13	-0.32
CM13	Broughty Ferry Rd (Partisol)	17	-0.32

Notes: (1) Blue is an improving trend, red a worsening trend.

Explanation of Methodology for Figure 7 and Figure 13: The trend values have been generated using the LINEST function in Microsoft Excel. This function can be used to return a value that describes the slope of a best fit straight line for several points (in this case 5 or more values) i.e. simple linear regression. A negative value denotes a downwards slope hence an improving trend and, a positive value denotes an upwards slope or worsening trend. The magnitude of the number generated by the LINEST function can be used to compare the magnitude of the (improving or worsening) trend.

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

Site ID	Site name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022(3)	2023(3)	2024(3)
CM 3	Broughty Ferry Rd (TEOM / **FIDAS**)	341970	730977	UI	100	100	0	0	5 *(6)*	0	0
CM 4	Lochee Rd (BAM / **FIDAS**)	338861	730773	R	100	100	0	0	4 *(4)*	1 *(2)*	0
CM 12	Mains Loan (TEOM / **FIDAS**)	340972	731893	UB	94	94	0	0	2 *(2)*	0	0
CM 14	Meadowside (BAM / **FIDAS**)	340243	730653	R	99	99	0	0	5 *(6)*	0	0
CM 5	Seagate (BAM / **FIDAS**)	340487	730446	R	100	100	0	0	4 *(4)*	0	0
CM 6	Whitehall St (BAM / **FIDAS**)	340278	730156	R	100	100	0	0	2 *(2)*	0	0
CM 13	Broughty Ferry Rd (Partisol)	341971	730978	UI	99	99	0 (24.5)	0 (21.8)	4	0	0
CM 16	Broughty Ferry Rd (OSIRIS)	341970	730977	UI	93	93	0	0 (22.8)	1	0	0
CM 9	Logie St (OSIRIS)	338176	731298	K	93	93	0 (30.3)	1 (25.7)	5 (46.0)	0	0
CM 17	Myrekirk Tce (OSIRIS)	335438	731740	R	93	93	0	0 (27.0)	2	0	0
CM 15	Albert St (OSIRIS)	341090	731105	K	87	87	0 (38.5)	0	**12**	0	0
CM 18	Stannergate (OSIRIS)	343322	731073	R	87	87	0	3 (43.9)	4	0 (35.9)	**12**

Notes:

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

If the period of valid data is less than 85%, the 98.1st percentile of 24-hour means is provided in brackets (and shaded grey).

(1) R=Roadside, K=Kerbside, UB=Urban Background, UI= Urban Industrial

(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%).

(3) Corrected results for FIDAS 200 analysers as per the Scottish Government Guidance note published on 17 May 2023^ are indicated in *italics*. Local authorities are to present both measured and corrected data for LAQM reporting.

^ www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

Figure 14 24-hour mean PM_{10} concentrations greater than 50ug/m^3

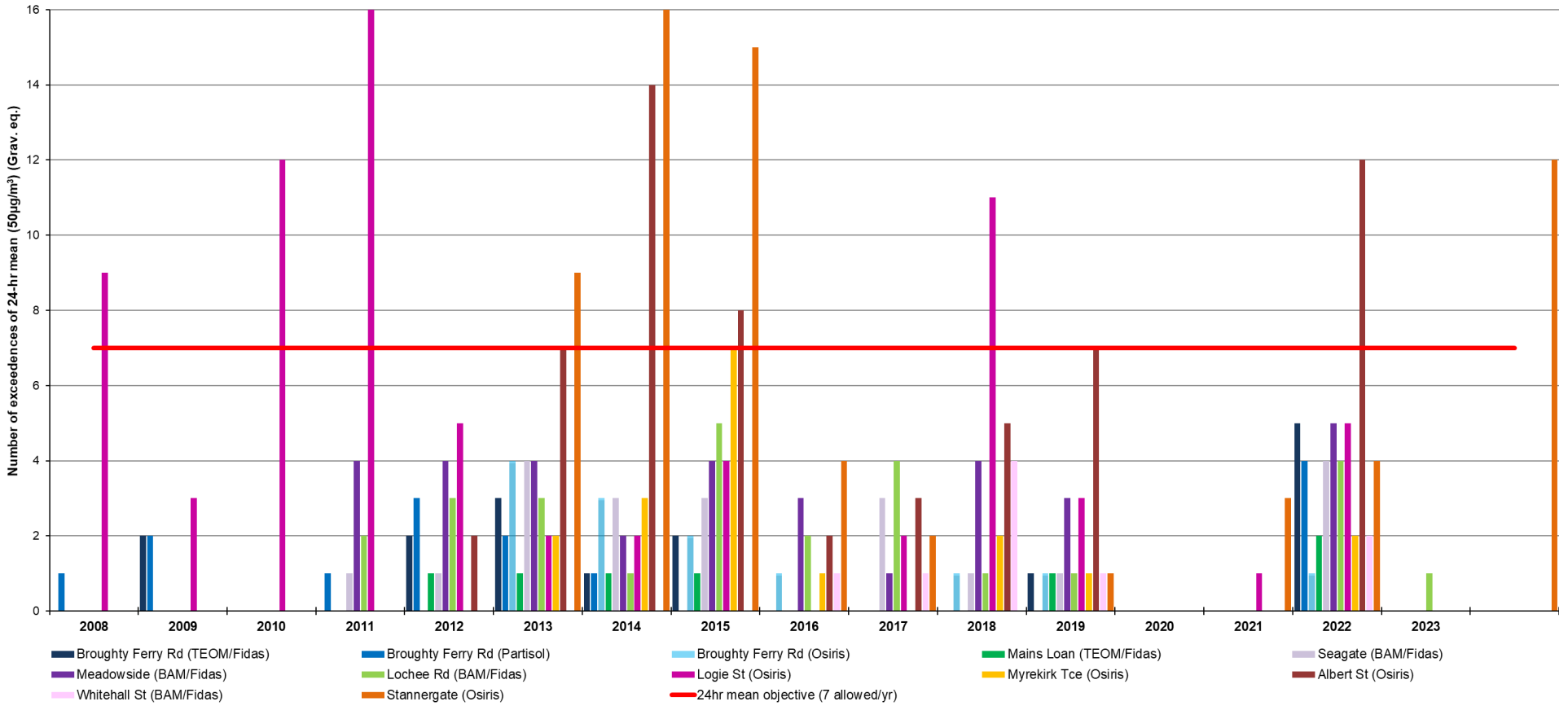


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022(3)	2023(3)	2024(3)
CM 3	Broughty Ferry Rd (TEOM / **FIDAS**)	341970	730977	UI	100	100	4.4	4.9	6.0 (6.3)	5.0 (5.3)	5.3 (5.7)
CM 4	Lochee Rd (BAM / **FIDAS**)	338861	730773	R	100	100	5.2	5.7	6.5 (6.9)	5.4 (5.7)	5.8 (6.2)
CM 12	Mains Loan (TEOM / **FIDAS**)	340972	731893	UB	94	94	4.1	4.4	5.2 (5.5)	4.3 (4.6)	5.4 (5.7)
CM 14	Meadowside (BAM / **FIDAS**)	340243	730653	R	99	99	4.6	5.3	5.8 (6.1)	5.2 (5.6)	5.8 (6.2)
CM 5	Seagate (BAM / **FIDAS**)	340487	730446	R	100	100	5.0	5.7	6.7 (7.1)	6.2 (6.5)	6.4 (6.8)
CM 6	Whitehall St (BAM / **FIDAS**)	340278	730156	R	100	100	4.3	4.7	5.7 (6.1)	5.3 (5.6)	5.8 (6.1)

Notes:

All means have been "annualised" as per LAQM.TG(22),if valid data capture for the full calendar year is less than 75% (highlighted by shading). See Appendix C for details.

* indicates data capture less than 85%.

(1) R=Roadside, K=Kerbside, UB=Urban Background, UI= Urban Industrial

(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%).

(3) Corrected results (shown in brackets) as per the Scottish Government Guidance note published on 17 May 2023^ advising that annual mean PM data collected using FIDAS 200 is to be corrected using factors (PM10 divided by 0.909 and PM2.5 multiplied by 1.06) identified by the "Scottish Government Equivalence Study to Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200". Local authorities are to present both measured and corrected data for LAQM reporting.

^ www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

Table A.9 – Estimated $PM_{2.5}$ Annual Mean Concentrations 2020 to 2024*(µg/m³)

Site name	2020	2021	2022 [a]	2023 [b]	2024 [c]
Scottish Annual Mean Objective (ug/m³)	*10*	*10*	*10*	*10*	*10*
Logie St (OSIRIS)	9.8	8.0	9.2	6.0	5.6
Myrekirk Tce (OSIRIS)	7.7	8.9	8.6	6.1	5.3
Albert St (OSIRIS)	9.7	7.8	**11.1**	6.6	4.8
Stannergate (OSIRIS)	8.1	**11.5**	10.0	7.7	9.5

Estimated exceedances of the $PM_{2.5}$ annual mean objective of 10µg/m³ are shown in **bold.**

* Until 2022 estimated $PM_{2.5}$ levels were obtained using an assumed ratio of 0.7. Estimated $PM_{2.5}$ levels from 2022 onwards were obtained using the PM_{course} split methodology as outlined paragraph 7.119 of LAQM.TG (22) as outlined in Section 3.2.3 of the 2025 APR.

(a) 2022 PM_{course} split = 6.8

(b) 2023 PM_{course} split = 6.4

(c) 2024 PM_{course} split = 5.9

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Monthly 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 (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT 92	340019	730612	39.0	35.9	38.6	28.3	37.9	23.8	25.0	21.9	28.7	33.5	34.3	23.9	30.9	25.3	-	
DT 179	341092	731121	30.1	24.8	23.7	22.8	27.7	14.8	21.2	19.0	26.0	32.0	35.1	22.6	25.0	20.4	-	
DT 167	341161	731535	35.7	29.6	33.6	26.9	35.7	17.8	25.1	23.1	32.4	36.0	37.3	23.4	29.7	24.3	-	
DT 5	341111	731070	35.5	31.7	24.2	21.5	21.7	21.5	19.9	21.4	20.7	28.2	30.1	26.7	25.3	20.6	-	
DT 223	343530	730937	33.3	33.3	12.2	7.3	5.8	5.6	3.5	6.8	7.6	11.5	19.2	12.8	13.2	10.8	-	
DT 139	343317	731072	41.1	38.2	22.5	20.4	19.2	20.9	17.2	21.1	19.3	24.5	30.0	26.5	25.1	20.5	-	
DT 7	343082	731465	23.3	16.8	10.6	8.0	6.7	6.4	4.8	7.2	7.3	11.2	17.9	13.3	11.1	9.1	-	
DT 9	337531	730914	12.6	9.8	7.4	5.7	5.9	4.0	2.8	2.6	3.9	8.3	10.5	9.0	6.9	5.6	-	
DT 11	343322	731073	42.3	39.8	26.8	22.3	24.0	22.8	17.0	22.0	22.0	22.1	32.3	28.2	26.8	21.9	-	
DT 155	342353	731058	28.3	21.8	15.0	11.5	10.7	9.2	8.2	10.6	8.5	15.7	21.9	16.1	14.8	12.1	-	
DT 186	342342	731083	31.4	25.4	20.7	15.7	16.6	12.5	11.3	11.6	14.4	18.8	24.5	18.2	18.4	15.1	15.2	
DT 171	345347	732080	M	27.4	M	M	M	M	M	14.3	12.1	M	28.3	M	20.5	16.0	-	
DT 246	341387	732123	30.6	25.5	20.0	18.7	16.8	13.0	15.7	14.7	18.5	22.5	31.4	21.8	20.8	17.0	-	
DT 188	340544	730291	36.5	32.3	34.7	28.1	28.9	20.4	21.4	16.5	26.4	28.5	34.8	26.8	27.9	22.8	-	
DT 84	340565	730263	39.4	34.6	30.2	24.1	23.1	21.1	20.6	21.2	22.5	30.3	33.3	24.8	27.1	22.2	-	
DT 85	340524	730216	42.6	34.3	32.3	26.8	23.9	23.7	21.1	20.6	28.0	29.5	36.2	27.7	28.9	23.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT 156	340656	730343	53.2	47.5	40.3	33.4	29.7	27.7	28.3	27.3	29.6	38.6	43.7	40.5	36.7	30.0	-	
DT 241	340691	730344	36.7	32.0	32.6	25.9	26.3	19.9	22.4	19.5	24.1	30.4	34.2	26.4	27.5	22.5	-	
DT 240	340638	730328	46.9	38.9	32.3	32.5	27.6	28.5	23.4	M	27.5	32.6	39.7	34.5	33.1	27.1	-	
DT 249	340681	730370	51.3	46.2	39.9	31.7	32.0	27.0	27.3	29.9	26.3	33.7	40.7	41.0	35.6	29.1	-	
DT 227	339830	730619	38.6	38.2	30.3	25.9	21.7	25.6	18.0	20.0	25.1	30.7	38.6	29.3	28.5	23.3	-	
DT 20	341150	731576	38.1	31.5	27.2	25.7	29.8	26.3	21.1	20.8	25.1	28.4	35.6	27.9	28.1	23.0	-	
DT 214	340725	730417	37.8	33.7	34.8	25.9	25.4	20.8	18.5	17.7	24.7	29.4	33.7	26.2	27.4	22.4	-	
DT 22	340651	730623	36.5	30.3	29.4	25.9	29.5	18.0	18.7	17.0	25.7	25.7	31.4	24.7	26.1	21.3	-	
DT 245	341436	732360	30.7	24.2	18.8	18.7	18.8	16.1	16.1	17.0	18.6	24.3	25.3	21.8	20.9	17.1	-	
DT 26	343107	731740	40.3	28.0	21.9	23.1	28.8	23.6	21.3	24.1	22.0	28.8	34.7	26.4	26.9	22.0	-	
DT 27	341124	732468	27.4	23.4	24.0	19.9	24.6	12.4	11.3	12.0	22.8	21.0	24.7	16.3	20.0	16.3	-	
DT 177	339179	732896	35.3	32.4	20.0	18.6	17.4	19.5	16.0	21.7	16.8	25.4	30.9	25.8	23.3	19.1	-	
DT 30	338936	730680	49.7	39.1	29.8	27.3	35.9	32.6	30.9	30.8	32.7	38.4	46.4	38.7	36.0	29.4	-	
DT 250	338928	730684	M	M	M	28.9	33.3	31.6	28.5	28.5	32.2	36.0	42.8	38.2	33.3	27.2	-	
DT 32	338767	730856	40.3	35.2	23.4	19.9	20.8	18.4	19.8	23.1	19.2	28.2	34.1	28.5	25.9	21.2	-	
37	338861	730773	46.1	41.0	28.3	25.3	28.1	26.7	24.8	24.4	26.0	32.6	43.5	33.4	-	-	-	Triplicate Site (37 / 38 / 39) Annual data provided for 39 only
38	338861	730773	47.7	40.4	27.6	25.7	26.6	27.0	25.9	26.8	26.7	34.5	43.2	30.2	-	-	-	Triplicate Site (37 / 38 / 39) Annual data provided for 39 only
39	338861	730773	48.7	40.9	26.8	27.9	28.3	26.8	26.2	27.3	26.5	34.6	40.5	36.7	32.0	26.2	-	Triplicate Site (37 / 38 / 39) Annual data provided for 39 only
DT 36	339016	730586	31.4	28.4	18.9	16.5	19.0	12.6	11.7	13.8	18.2	21.0	31.1	21.6	20.4	16.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT 37	338184	731293	56.1	48.7	39.2	32.5	40.1	36.8	37.0	38.6	40.6	48.1	54.4	43.2	42.9	35.1	-	
DT 38	338252	731258	40.2	35.9	25.9	21.8	22.2	24.1	20.5	23.2	23.9	31.7	37.5	32.0	28.2	23.1	-	
DT 39	338211	731293	41.7	35.8	38.7	28.0	32.6	23.2	20.0	19.2	31.8	33.8	35.1	27.0	30.6	25.0	-	
DT 237	340964	730855	32.7	27.7	25.0	20.8	23.8	15.2	17.3	18.0	20.0	19.7	29.3	20.4	22.5	18.4	-	
DT 40	339953	730094	28.1	22.2	21.4	15.4	19.9	13.9	13.4	11.5	17.0	20.0	25.4	16.5	18.7	15.3	-	
91	340243	730653	42.0	38.0	34.5	30.1	28.7	27.1	25.5	25.7	27.0	33.1	38.0	32.1	-	-	-	Triplicate Site (91 / 92 / 93) Annual data provided for 93 only
92	340243	730653	37.4	38.0	34.5	30.0	29.4	27.4	25.6	26.0	26.7	35.5	43.0	31.0	-	-	-	Triplicate Site (91 / 92 / 93) Annual data provided for 93 only
93	340243	730653	42.8	36.8	34.4	31.0	30.2	27.5	25.1	26.1	27.2	34.8	39.5	32.1	32.1	26.2	-	Triplicate Site (91 / 92 / 93) Annual data provided for 93 only
DT 42	338156	731294	25.5	24.0	27.2	19.3	23.2	12.6	15.9	12.4	16.1	22.6	24.3	17.4	20.0	16.4	-	
DT 185	340409	730484	22.6	19.0	18.5	12.3	14.4	8.8	8.5	8.5	11.2	M	20.1	14.3	14.4	11.8	-	
DT 189	335420	731726	35.3	27.2	19.4	19.9	19.1	18.7	16.6	13.9	21.5	23.7	29.7	14.3	21.6	17.7	-	
DT 48	340074	729984	32.3	28.2	26.4	22.6	21.6	18.3	M	16.8	19.2	25.6	28.4	22.2	23.8	19.4	-	
DT 47	340230	730124	30.4	27.7	30.4	20.4	27.6	18.0	17.7	15.9	23.7	24.5	26.2	23.7	23.9	19.5	-	
DT 45	340274	730171	35.4	32.2	29.6	22.7	23.6	21.8	21.0	23.5	20.3	28.5	M	26.1	25.9	21.2	-	
DT 213	340196	730089	37.8	32.8	30.3	24.8	25.8	25.1	26.8	25.5	23.2	32.3	36.3	25.7	28.9	23.6	-	
DT 44	340163	730061	36.9	34.0	39.6	27.5	34.4	20.7	23.0	20.2	28.0	31.4	32.3	22.8	29.2	23.9	-	
DT 46	340033	729957	31.5	27.9	28.4	22.6	23.1	17.0	15.1	14.0	22.0	23.5	26.5	19.9	22.6	18.5	-	
DT 239	341077	731031	37.6	32.7	38.0	28.9	41.0	21.9	26.8	21.0	33.1	36.5	37.2	23.0	31.5	25.7	-	
DT 49	338768	730900	41.7	34.3	25.2	22.5	20.7	21.1	17.6	17.0	19.4	24.0	37.1	31.0	26.0	21.2	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT 228	340516	729991	33.4	31.3	27.2	20.4	22.1	17.4	15.0	17.2	18.5	25.3	29.1	19.5	23.0	18.8	-	
DT 224	340528	730537	44.8	40.4	36.8	28.7	30.2	24.5	22.7	20.8	22.4	30.6	35.7	28.6	30.5	24.9	-	
DT 236	340463	730420	37.7	33.6	29.2	25.4	21.1	20.5	18.7	20.1	21.9	28.4	34.4	28.5	26.6	21.8	-	
DT 54	340467	730388	33.5	28.6	27.8	22.2	22.0	16.9	15.0	16.0	20.2	23.5	29.6	26.3	23.5	19.2	-	
DT 190	340516	730499	39.8	37.7	37.3	28.8	38.4	22.3	23.6	23.1	27.4	32.2	33.4	27.1	30.9	25.3	-	
DT 217	340535	730522	37.2	33.2	33.7	23.7	30.4	22.2	26.2	24.9	24.2	33.2	33.3	26.3	29.0	23.7	-	
56	340487	730446	40.5	36.9	37.8	29.6	34.0	22.2	23.0	22.6	27.2	30.4	33.9	27.6	-	-	-	Triplicate Site (56 / 57 / 58) Annual data provided for 58 only
57	340487	730446	41.5	36.7	39.8	28.8	34.4	21.8	23.5	22.2	27.5	30.7	33.4	25.8	-	-	-	Triplicate Site (56 / 57 / 58) Annual data provided for 58 only
58	340487	730446	41.2	37.0	37.0	28.7	33.1	21.4	22.2	22.2	27.4	31.4	33.6	28.9	30.4	24.9	-	Triplicate Site (56 / 57 / 58) Annual data provided for 58 only
DT 55	340099	730650	38.8	35.0	29.4	23.9	21.9	20.5	17.6	17.3	22.0	27.3	27.8	27.7	25.8	21.1	-	
DT 218	340291	729979	30.9	28.6	33.1	21.6	26.4	15.0	15.3	14.3	23.7	24.7	26.1	18.9	23.2	19.0	-	
DT235	340106	729972	M	29.6	26.3	22.7	20.9	22.1	18.7	20.9	20.8	27.7	37.7	29.8	25.2	20.6	-	
DT 162	340532	730548	35.0	33.8	32.1	25.5	25.8	18.4	22.5	18.3	22.1	28.6	30.3	22.8	26.3	21.5	-	
DT 59	339609	731871	44.5	M	33.9	26.6	37.0	23.2	23.2	21.3	29.9	33.8	29.1	28.0	30.0	24.6	-	
DT 219	340542	730194	33.6	29.6	29.6	22.0	22.2	19.5	17.4	18.5	22.5	24.3	27.2	24.4	24.2	19.8	-	
DT 229	340421	730078	35.5	29.3	25.9	21.0	18.8	18.7	15.6	19.3	21.8	27.2	28.8	22.5	23.7	19.4	-	
DT 60	340575	730500	29.8	25.7	24.8	18.9	18.1	12.2	9.9	9.0	15.4	20.0	23.1	17.5	18.7	15.3	-	
DT 93	340230	730673	39.6	28.3	30.5	24.9	27.8	17.2	17.8	17.4	27.8	26.4	35.4	24.0	26.4	21.6	-	
DT 184	340697	730950	32.3	31.6	31.6	25.1	28.3	15.9	15.6	15.5	22.6	24.4	28.4	23.6	24.6	20.1	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT 191	340213	730633	35.8	30.5	31.4	23.0	25.9	15.4	14.2	13.8	22.2	25.7	31.7	23.3	24.4	20.0	-	
DT 68	340375	730779	40.6	M	36.0	26.5	35.3	20.9	23.5	21.5	29.6	32.4	34.7	25.2	29.7	24.2	-	
DT 70	340274	730714	61.5	46.8	38.4	33.9	40.2	43.4	37.1	37.2	40.1	45.4	59.6	52.9	44.7	36.5	31.5	
DT 71	341071	731072	31.4	22.9	21.6	19.5	20.2	13.5	12.4	12.5	19.8	23.2	26.2	19.8	20.3	16.6	-	
DT 205	339773	730436	47.2	46.5	33.2	29.9	28.9	31.6	28.1	30.0	28.8	37.9	44.6	M	35.2	28.7	-	
DT 231	339834	730314	33.9	29.2	26.6	22.4	19.9	15.9	15.4	16.0	19.6	25.8	28.4	24.0	23.1	18.9	-	
DT 183	339805	730338	43.7	36.7	31.0	30.2	25.6	26.8	22.2	21.7	25.5	30.1	37.2	32.3	30.3	24.7	-	
DT 72	339842	730122	29.7	26.1	21.5	17.5	14.7	14.2	12.5	M	13.8	21.7	24.0	19.8	19.6	16.0	-	
DT 73	340376	730109	35.1	29.6	27.7	22.6	19.7	19.5	18.6	19.9	18.6	27.0	28.9	24.4	24.3	19.9	-	
DT 76	340265	730153	38.0	38.7	36.7	28.5	32.6	27.4	27.4	27.6	28.9	35.0	32.7	32.8	32.2	26.3	-	
DT 81	340293	730142	35.3	31.3	37.6	25.8	32.8	19.0	22.3	18.8	27.2	30.2	32.3	22.8	28.0	22.8	-	
DT 74	340330	730106	36.7	32.7	32.9	27.6	28.1	22.3	21.0	16.2	28.0	28.2	31.1	24.1	27.4	22.4	-	
DT 75	340289	730128	36.6	30.6	27.4	21.9	23.9	23.2	23.0	20.9	22.2	27.9	32.0	25.3	26.2	21.5	-	
82	340278	730156	34.8	31.1	32.6	23.7	28.5	20.6	21.7	21.0	26.0	29.3	30.1	21.0	-	-	-	Triplicate Site (82 / 83 / 84) Annual data provided for 84 only
83	340278	730156	32.8	30.4	33.3	24.0	29.1	20.6	20.8	18.0	25.5	27.3	29.4	22.6	-	-	-	Triplicate Site (82 / 83 / 84) Annual data provided for 84 only
84	340278	730156	34.1	31.0	32.8	23.9	29.6	20.6	21.4	19.1	24.8	28.7	32.6	22.7	26.5	21.7	-	Triplicate Site (82 / 83 / 84) Annual data provided for 84 only
DT 82	340776	732307	16.7	11.5	10.1	6.6	7.5	4.5	4.5	4.7		11.2	12.1	10.6	9.1	7.4	-	

Notes:

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

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

'M' means that the diffusion tube was either missing or else interference meant that the results were considered invalid.

'NT' means that there was NO diffusion tube deployed at this location during that monitoring period.

Sites shaded yellow were monitoring locations installed in 2024.

See Appendix C for details on bias adjustment, annualisation and distance correction.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data Quality Assurance / Quality Control

New or Changed Sources Identified Within Dundee City Council During 2024

Dundee City Council has not identified any new sources relating to air quality within the reporting year of 2024.

Additional Air Quality Works Undertaken by Dundee City Council During 2024

Dundee City Council has not completed any additional works within the reporting year of 2024.

Quality Assurance / Quality Control of Diffusion Tube Monitoring

The diffusion tubes used by Dundee City Council are supplied by Gradko and analysed by Tayside Scientific Services utilising the 20% Triethanolamine (TEA) in water preparation method. Diffusion tubes are exposed for 4 to 5 weeks in accordance with the recommended dates supplied by Defra. The method for preparing and analysing tubes has remained unchanged since 2001. Two diffusion tubes from each monthly batch are used as blanks. These tubes are not exposed but are taken round during the monthly deployment and collection and stored in the refrigerator during the exposure period. They are analysed along with the appropriate batch of exposed tubes. The purpose of the blanks is to determine whether contamination occurred during the preparation or deployment.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR Proficiency Testing (PT) scheme. Laboratory performance in AIR PT is also assessed by the National Physical Laboratory (NPL) alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London.

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Executive (HSE). AIR PT started in April 2014 and combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme. AIR NO_2 PT forms an integral part of the UK NO_2 Network's QA/QC and is a useful tool in

assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). With consent from the participating laboratories, LGC Standards provides summary proficiency testing data to the LAQM Helpdesk for hosting on the webpages at http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html . This information is updated on a quarterly basis following completion of each AIR PT round.

Tayside Scientific Services demonstrated satisfactory performance in the most recent round participated in during 2024. (AIR PT AR065 July - August 2024)

All diffusion tube changeovers during 2024 were in accordance with the diffusion tube calendar.

Diffusion Tube Annualisation

Annualisation of data was required for one diffusion tube site (DT 171) with data capture less than 75% but greater than 25% in 2024. The LAQM Diffusion Tube Data Processing Tool was used to complete annualisation of the monitoring data from this location. Table C.2 includes details of the background monitoring data sites used in the annualisation process.

Diffusion Tube Bias Adjustment Factors

Dundee City Council have applied a local bias adjustment factor of 0.82 to the 2024 monitoring data. A summary of bias adjustment factors used by Dundee City Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	**Adjustment Factor**
2024	Local	-	0.82
2023	Local	-	0.78
2022	Local	-	0.80
2021	Local	-	0.85
2020	Local	-	0.85

The diffusion tubes are supplied by Gradko and analysed by Tayside Scientific Services utilising the 20% Triethanolamine (TEA) in water preparation method. The bias adjustment factor available

on the LAQM Support Website for Tayside Scientific Services is 0.76[6] (Spreadsheet Version Number: 09/25). This is based on the kerbside National inter-comparison site at Marylebone Road (0.76).

Factor from Local Co-location Studies

Dundee City Council co-locates three NO_2 diffusion tubes with each of the roadside automatic NO_2 analysers. Co-location studies were carried out at 4 automatic monitoring locations in 2024. A minimum of 9 months is required to make a valid bias calculation and three of the four Dundee City Council co-location studies met the criteria in 2024. The factor for each study is shown in Table C.3. The QA/QC procedures for all the Dundee City Council automatic analysers used in the bias-calculation is equivalent to the Automatic Urban and Rural Network (AURN), which is run by the national government. Tayside Scientific Services have demonstrated satisfactory performance for the analysis of diffusion tubes over quarterly AIR-PT/WASP rounds in 2024. The automatic analyser period means are calculated from mid-day on tube changeover days.

The majority of NO_2 diffusion tubes operated by Dundee City Council are located at roadside or kerbside locations. In view of this it is normally considered appropriate to use an overall factor derived from roadside and kerbside sites. The LAQM Diffusion Tube Data Processing Tool was used to obtain the local bias adjustment factor. The factor obtained using only local roadside sites with sufficient data was 0.82. The Marylebone Road national inter-comparison site factor was 0.76. The 0.82 bias correction factor represents a more conservative approach and has been used to bias correct the diffusion tube data presented in this report.

NO_2 Fall-off with Distance from the Road

Table B.1 and Table C.4 includes details of NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3) for the PDTs located at Carolina Court (30mph sign)(DT 186) and Hilltown / Victoria Road (DT 70). Calculations were required due to DT 186 being further from the kerb than the façade of the nearest receptor, while DT70 was assessed due to the annual mean concentration being greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure. The LAQM Diffusion Tube Data Processing Tool was used to obtain these results.

[6] https://laqm.defra.gov.uk/wp-content/uploads/2025/09/Database_Diffusion_Tube_Bias_Factors_v09_25-FINAL.xlsx

QA/QC of Automatic Monitoring

All automatic analysers (excluding Osiris units) are audited twice yearly by an external consultant, Ricardo AEA, as a part of their contracted Local Site Operator (LSO) duties for Dundee City Council. The gas analysers do not have on-site gases and are manually calibrated every 3 weeks by the LSO using National Physical Laboratory (NPL) traceable gas.

All instruments (excluding OSIRIS units) are serviced and calibrated every 6 months by the equipment supplier. OSIRIS units undergo quarterly flow checks and filter changes as well as annual service and calibration by the manufacturer (Turnkey Instruments).

The Partisol is a semi-automatic reference equivalent PM_{10} analyser. It contains 16 'Emfab' filters, each is exposed for 24 hours allowing for 2 weeks continuous operation (usually with two blanks). The filters used during 2024 were supplied by the equipment manufacturer and conditioned and weighed before and after the sampling period by Tayside Scientific Services using in-house procedures.

The Fidas 200 is a nephalometer, which is calibrated using a HEPA filter and 'CalDust' by our LSO, Ricardo AEA, during the twice-yearly service and audits.

Ricardo have ratified all the real-time monitoring data reported on the Scottish Air Quality Website from 2006 onwards under contract from the Scottish Government.
http://www.scottishairquality.scot/latest/summary?view=la

Data presented in the APR is ratified data unless otherwise noted.

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

Dundee has used several methods for monitoring particulate matter (PM_{10}) within the city, with the type of analyser used at all the main monitoring stations changing to Fidas analysers in recent years.

Prior to 2022, data from the Fidas was not required to be adjusted, however as a result of the "Scottish Government Equivalence Study to Investigate Particulate Matter Monitoring In Scotland

Using The Fidas 200"[7], the Scottish Government advised in May 2023 that Fidas PM_{10} monitoring data requires correction by dividing by 0.909, while $PM_{2.5}$ monitoring data is to be corrected by multiplying by 1.06.

Both TEOM and OSIRIS monitors have heated inlets. These tend to drive off volatile organic particulate matter and in consequence the measured concentrations tend be lower than those measured by gravimetric reference standard monitors. The historic TEOM PM_{10} data presented in this report was corrected using the Volatile Correction Methodology (VCM). (The Partisol is a reference equivalent method and had been used historically to determine a local correction factor for the TEOMs, which were designated as non-equivalent in 2006.)

DCC has five OSIRIS analysers which have been in their current locations since at least 2012. These are also non-equivalent but their measurements are considered indicative of particulate concentrations. The "master" OSIRIS unit has been co-located with the Partisol at the urban industrial site at Broughty Ferry Road since September 2012, thus allowing the OSIRIS results presented in this report to be gravimetrically corrected prior to reporting. The gravimetric factor applied to **2024 data was 1.110653**. Annually, post service, all 5 OSIRIS monitors are co-located in-house and their data is compared with that of a designated "master" to derive, if necessary, individual adjustment factors. The factors used to adjust the 2024 data can be made available on request. This methodology, although reasonable for annual mean data, tends to over-estimate the number of daily mean exceedances. Consequently, these results should be treated with some caution.

For comparison with the NAQS objectives annual mean concentrations are calculated from an hourly time base**.**

Automatic Monitoring Annualisation

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

[7] https://www.scottishairquality.scot/technical-reports/equivalence-study-investigate-particulate-matter-monitoring-scotland-using-fidas

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Dundee City Council required distance correction during 2024.

Table C.2 – Diffusion Tube Annualisation Summary (concentrations presented in µg/m³)

Diffusion Tube ID	Annualisation Factor Aberdeen Errol	Annualisation Factor Edinburgh St Leonards	Annualisation Factor Dundee Mains Loan	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m³)	Annualised Data Simple Annual Mean (µg/m3)	**Comments**
DT 171	0.9149	0.9978	0.9460	-	0.9529	20.5	19.6	

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1	**Local Bias Adjustment Input 2**	**Local Bias Adjustment Input 3**	**Local Bias Adjustment Input 4**	**Local Bias Adjustment Input 5**
Periods used to calculate bias	11	12	12	-	-
Bias Factor A	0.78 (0.74 - 0.83)	0.89 (0.86 - 0.93)	0.79 (0.74 - 0.83)		
Bias Factor B	28% (21% - 35%)	12% (7% - 16%)	27% (20% - 34%)		
Diffusion Tube Mean (µg/m³)	30.6	30.4	26.5		
Mean CV (Precision)	3.6%	2.0%	2.8%		
Automatic Mean (µg/m³)	24.0	27.2	20.9		
Data Capture	100%	100%	98%		
Adjusted Tube Mean (µg/m³)	24 (23 - 25)	27 (26 - 28)	21 (20 - 22)		

Notes: A combined local bias adjustment factor of **0.82** has been used to bias adjust the 2024 diffusion tube results.

Table C.4 – NO_2 Fall off With Distance Calculations (concentrations presented in µg/m³)

Site ID	**Distance (m): Monitoring Site to Kerb**	**Distance (m): Receptor to Kerb**	**Monitored Concentration (Annualised and Bias Adjusted)**	**Background Concentration**	**Concentration Predicted at Receptor**	**Comments**
DT 186	7.6	7.2	15.1	9.5	15.2	
DT 70	1.2	3.2	36.5	11.8	31.5	

Appendix D: Overview of NO_2 Annual Mean Concentrations across the City

Notes:

1) Graphs show the NO_2 annual mean concentrations measured at the passive diffusion tube locations and continuous monitoring stations that are highlighted in the accompanying map.

2) 'Hollow' markers for the graphs denote for that year there was <85% data capture at continuous monitor (CM) locations or <75% data capture for passive diffusion tube (DT) locations

6.1.1 Union Street and Whitehall Street

Figure 15 NO_2 Monitoring Locations in Union St and Whitehall St.

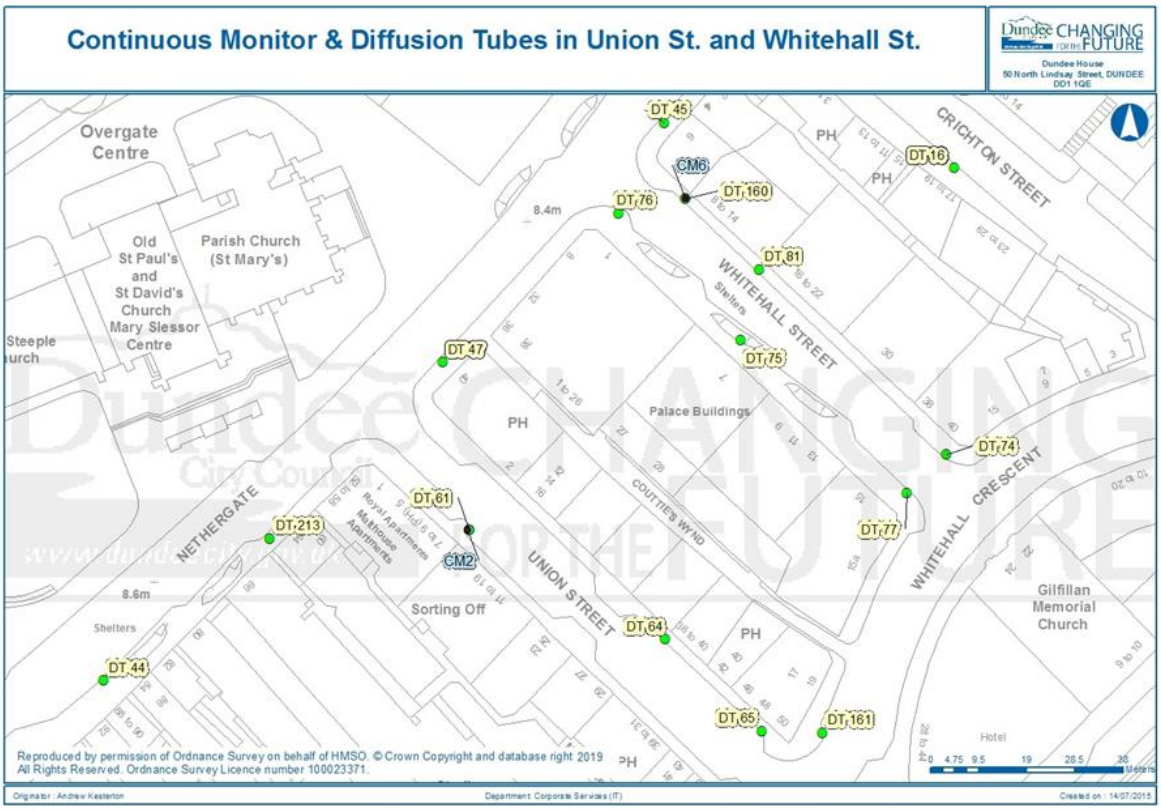


Figure 16 Overview of NO_2 concentrations in Union St and Nethergate (east of Marketgait)

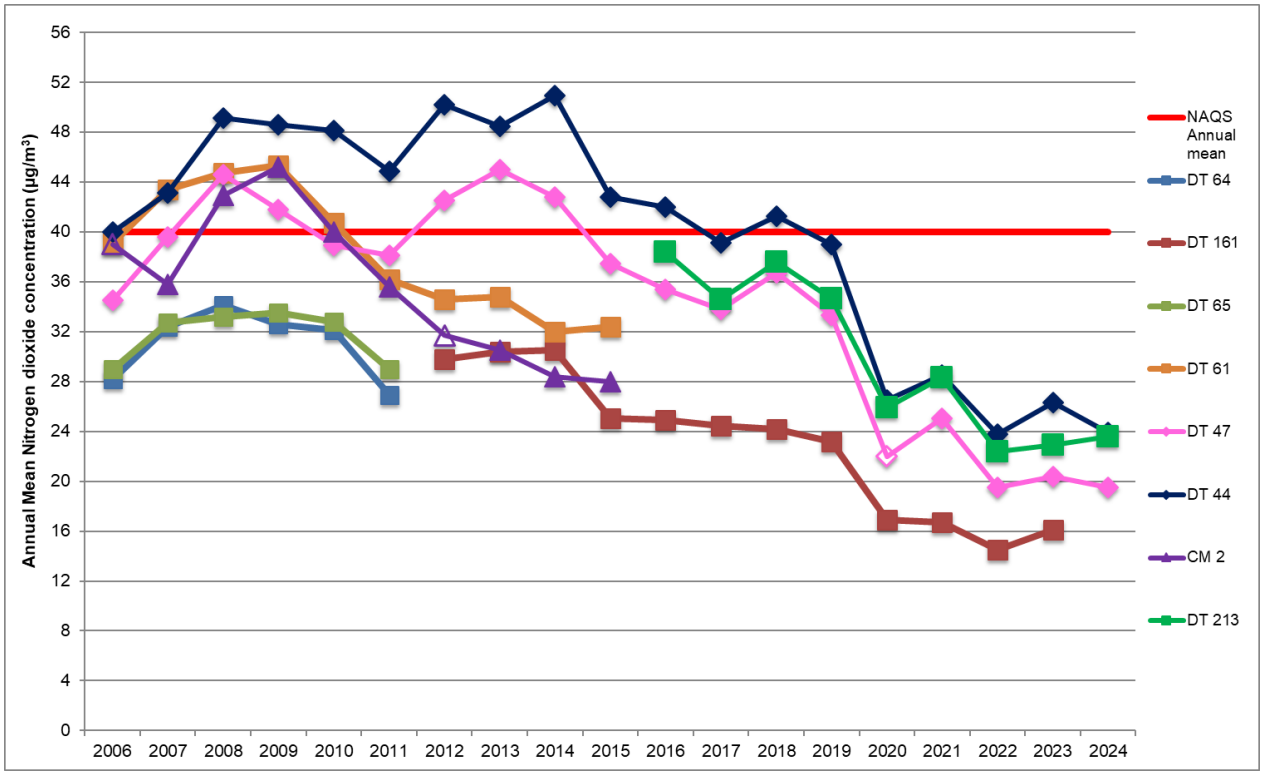
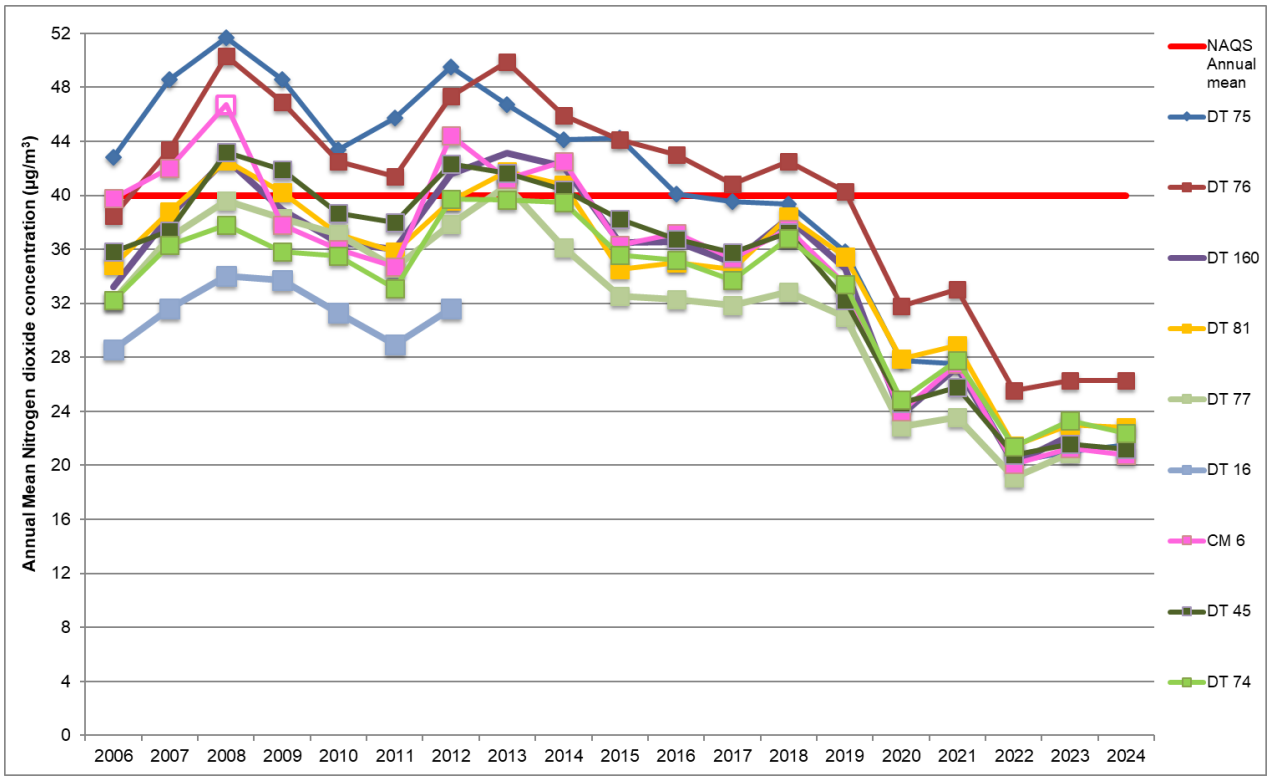


Figure 17 Overview of NO_2 concentrations in Whitehall St and Crichton St.



6.1.2 Nethergate

Figure 18 NO_2 Monitoring Locations in Nethergate

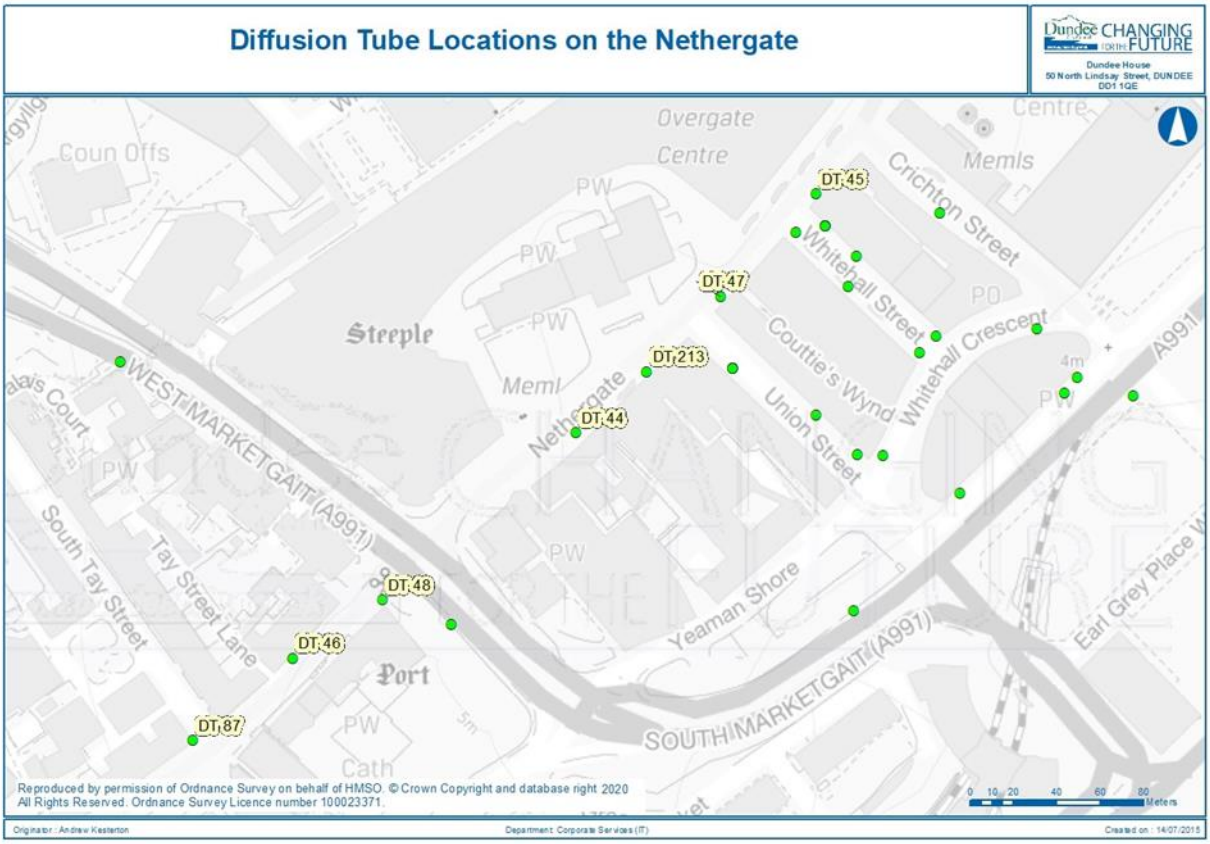
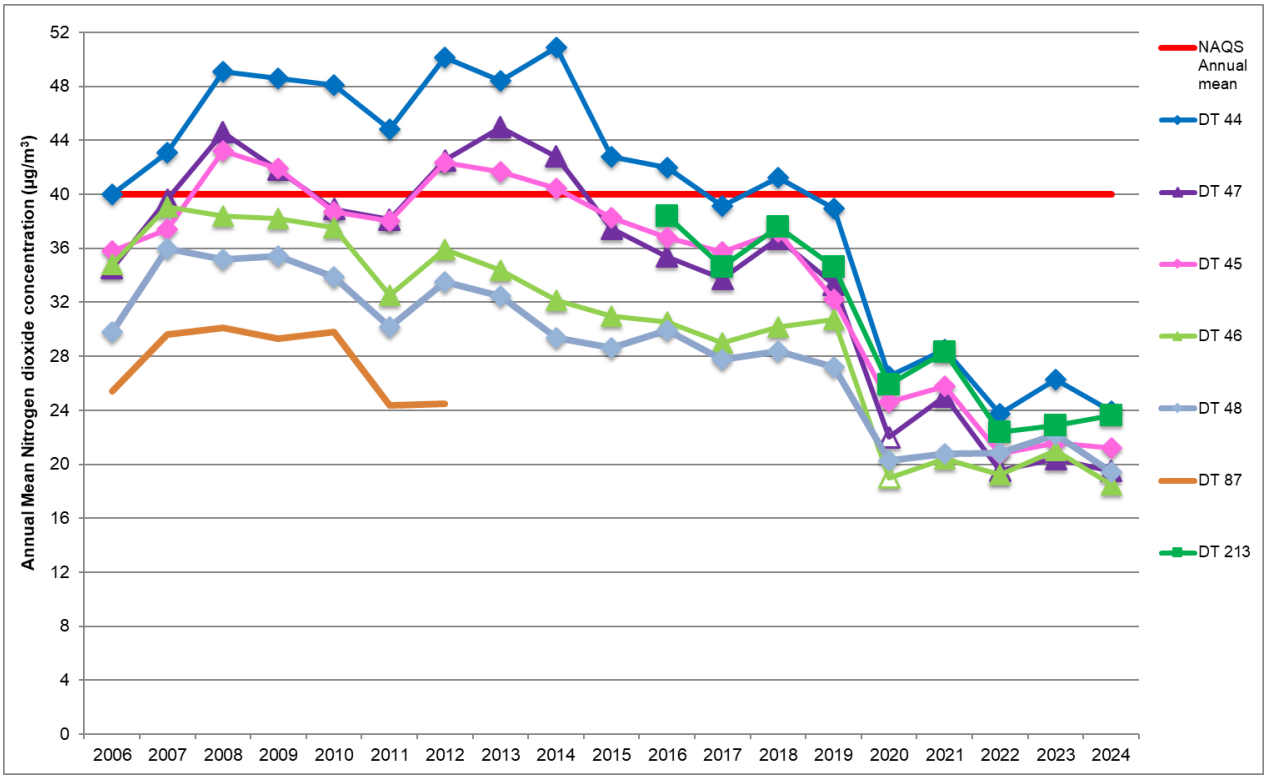


Figure 19 Overview of NO_2 concentrations in Nethergate



6.1.3 Seagate

Figure 20 NO_2 Diffusion Tube Locations in Seagate

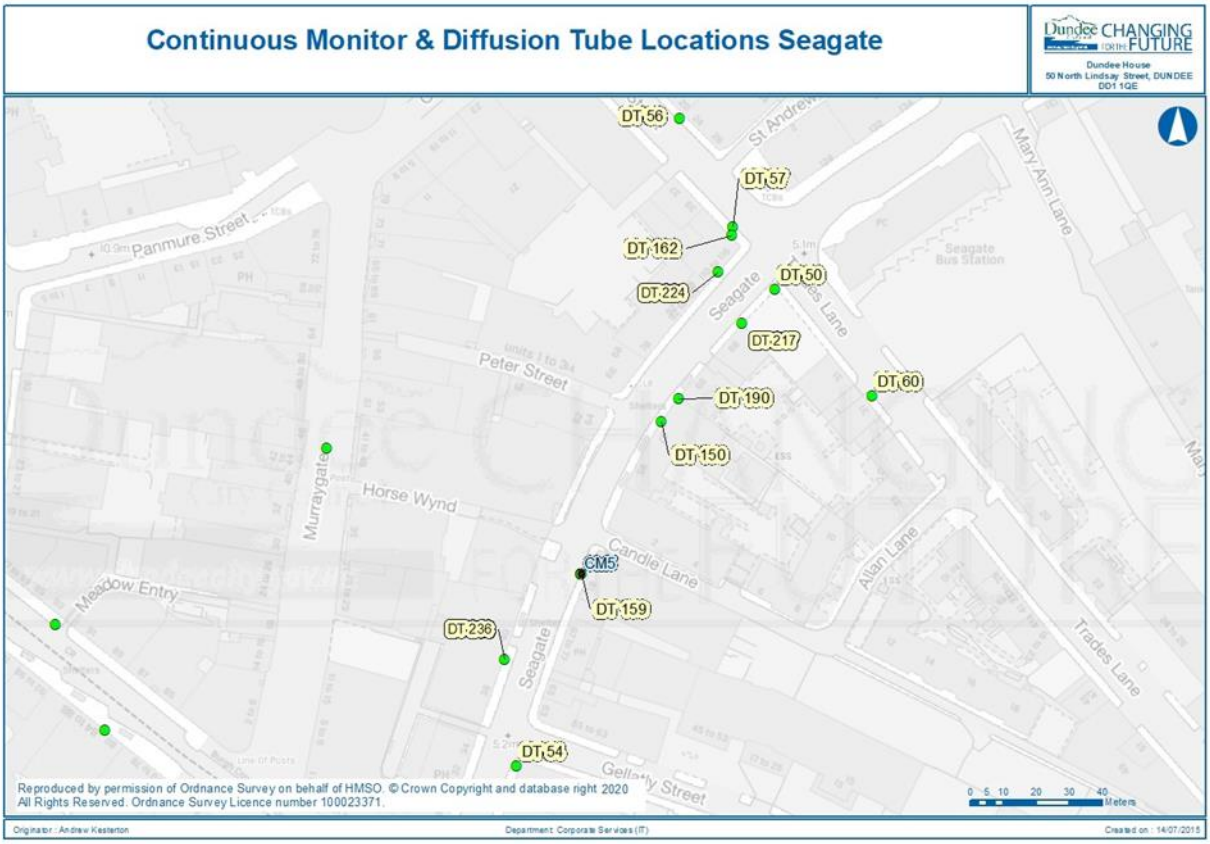
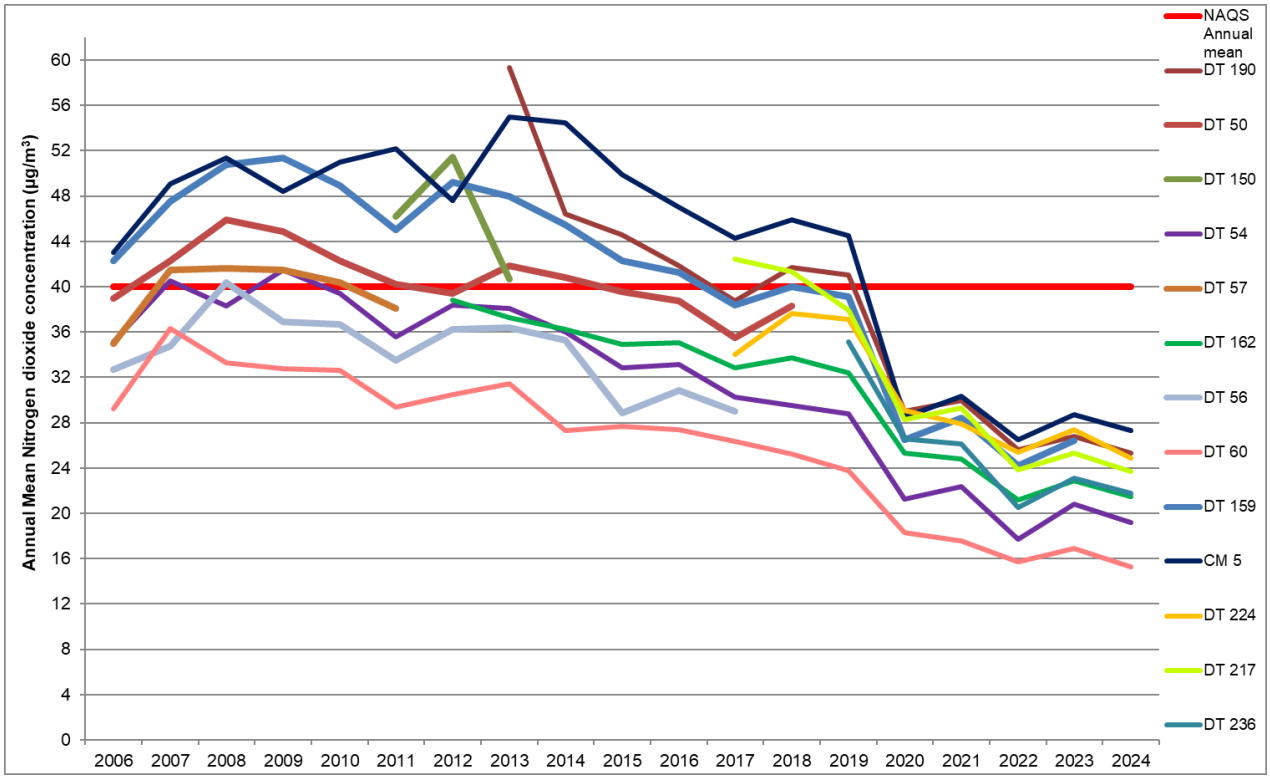


Figure 21 Overview of NO_2 diffusion tube concentrations in Seagate



6.1.4 Victoria Road / Meadowside

Figure 22 NO_2 Diffusion Tube Locations in Victoria Road / Meadowside

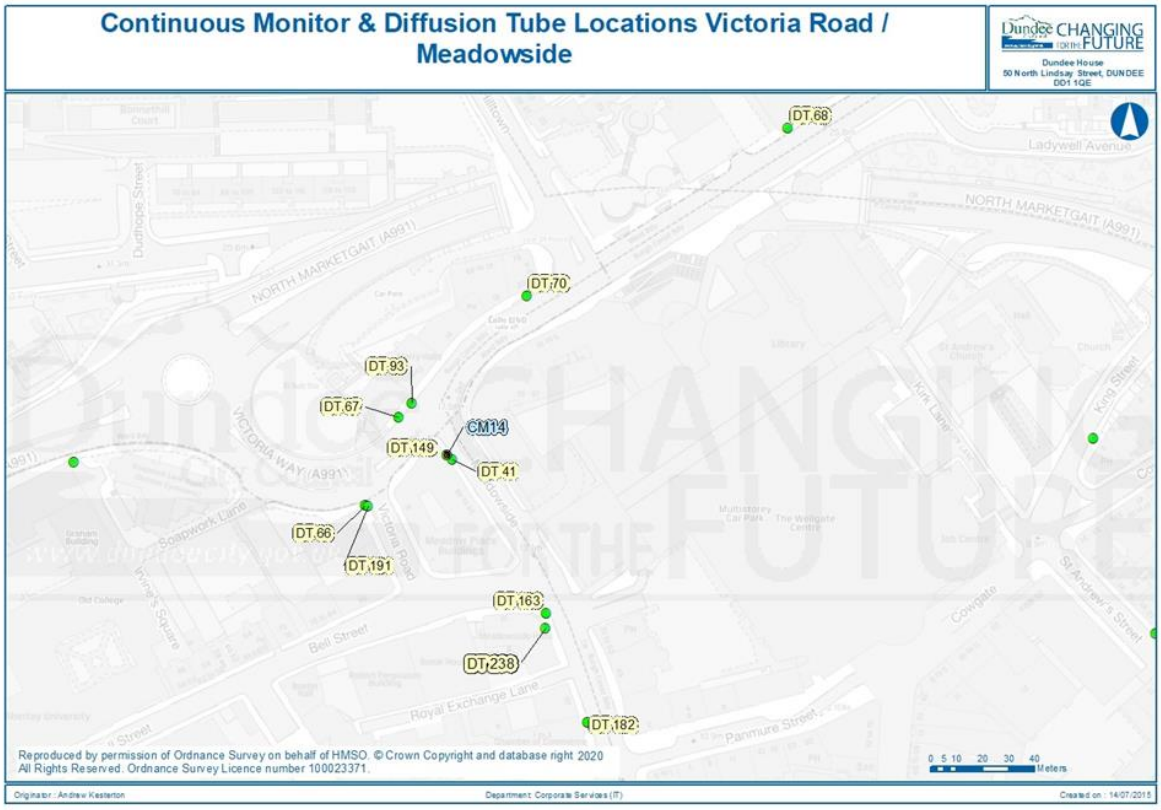
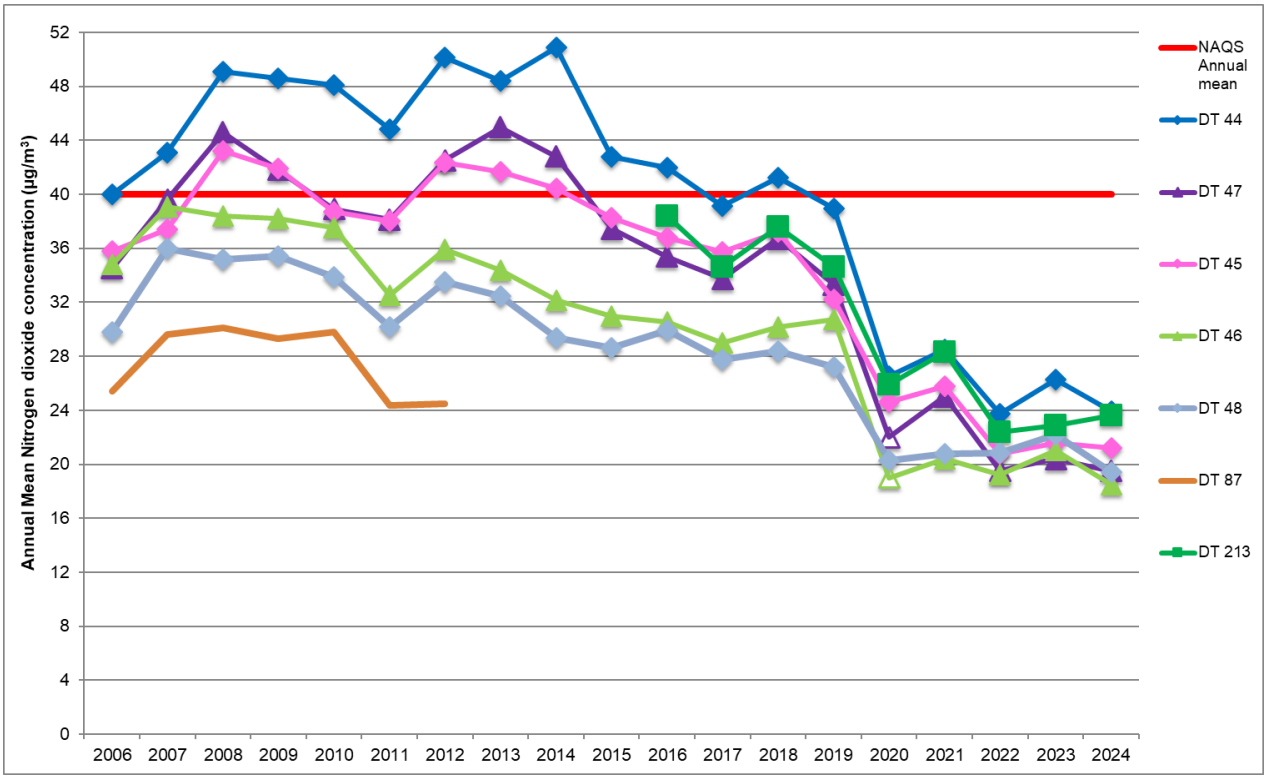


Figure 23 Overview of NO_2 concentrations in Victoria Road / Meadowside



6.1.5 Albert Street / Dura Street

Figure 24 NO_2 Diffusion Tube Locations in Albert Street / Dura Street

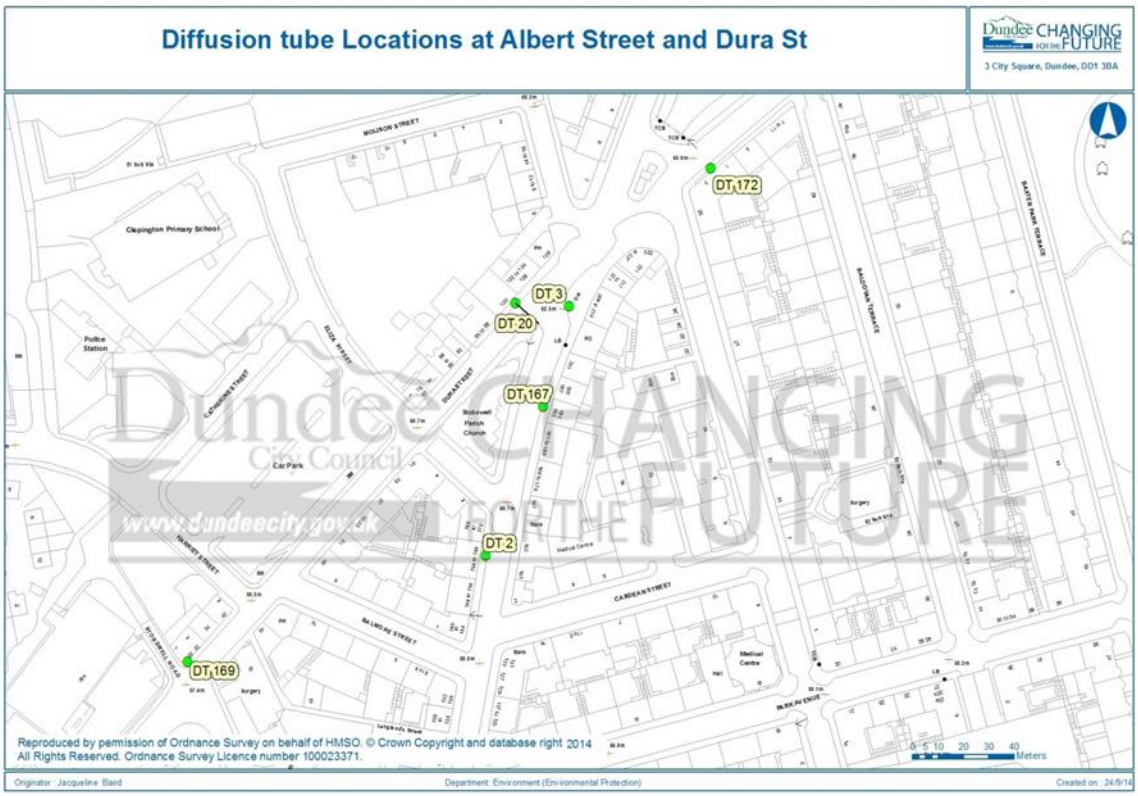
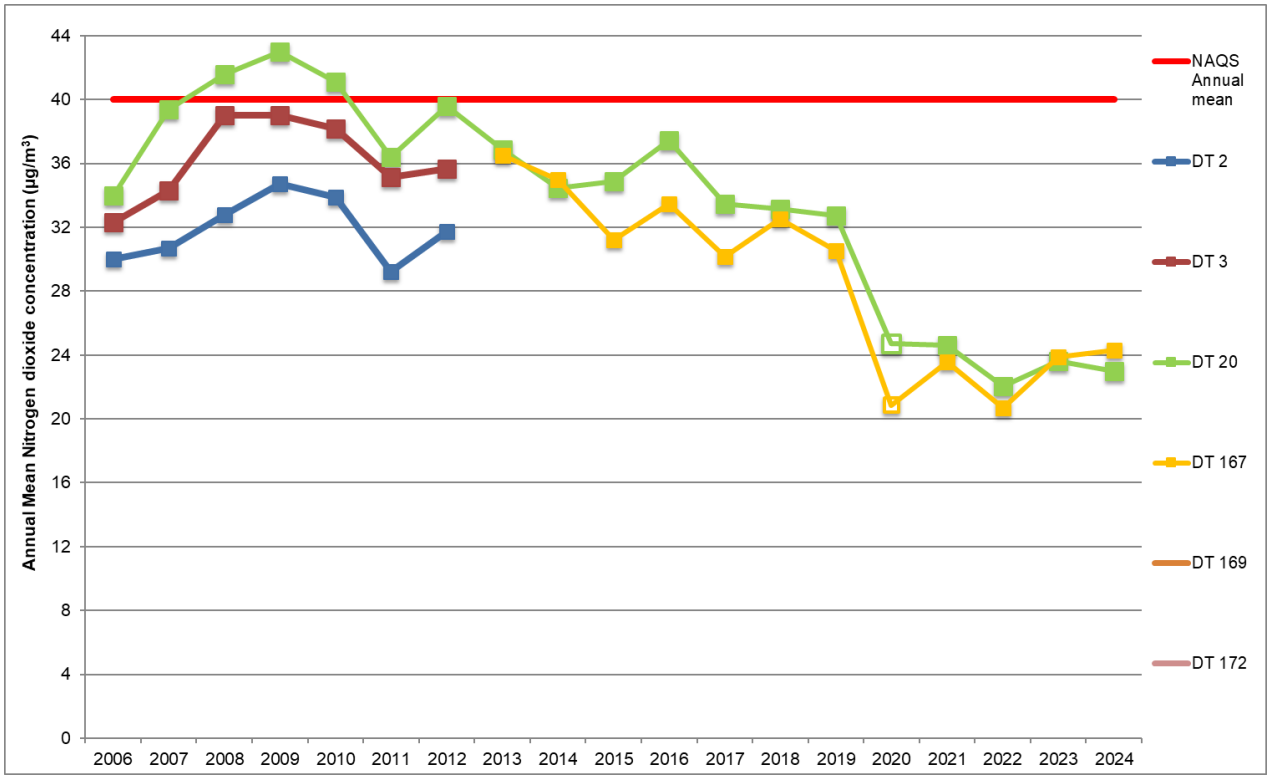


Figure 25 Overview of NO_2 diffusion tube conc. in Albert Street / Dura Street



6.1.6 Lochee Road

Figure 26 NO_2 Monitoring Locations in Lochee Road

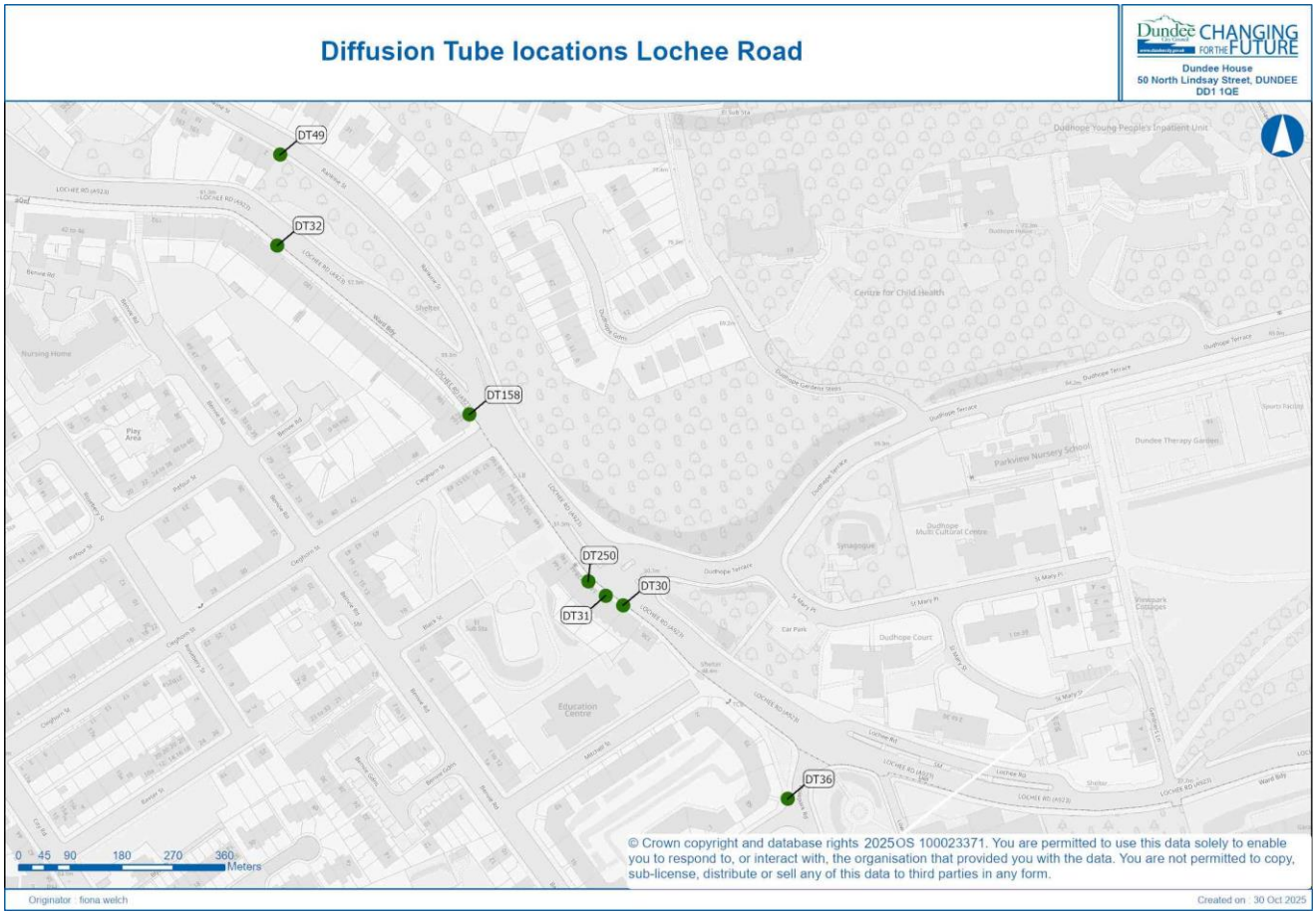
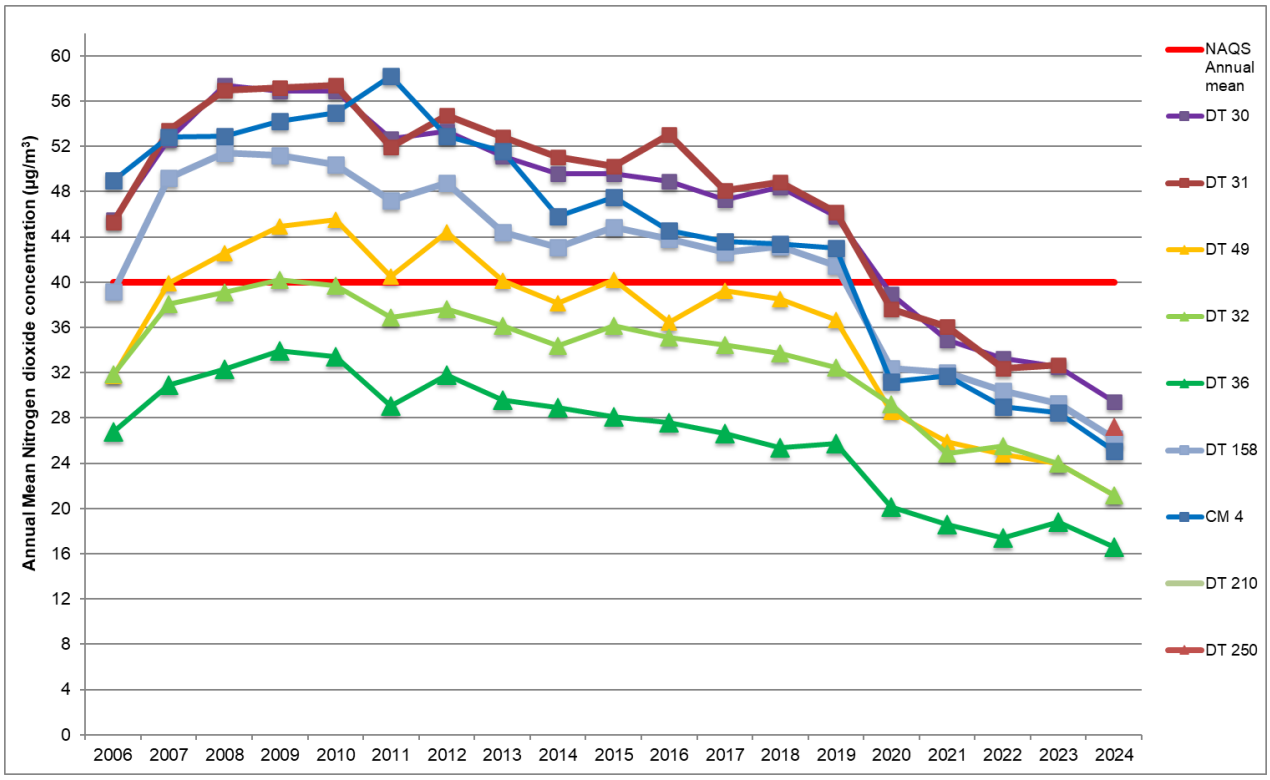


Figure 27 Overview of NO_2 concentrations in Lochee Road



6.1.7 Logie Street

Figure 28 NO_2 Diffusion Tube Locations in Logie Street

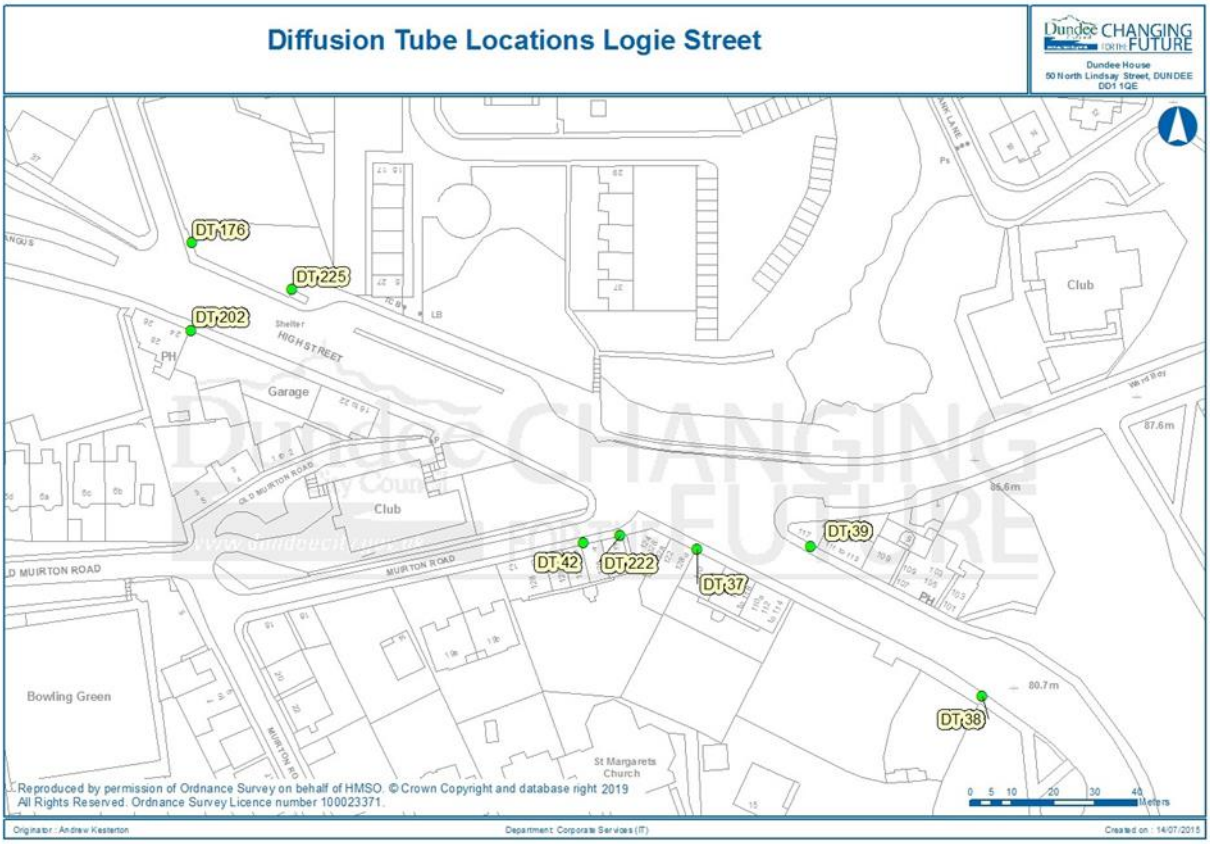
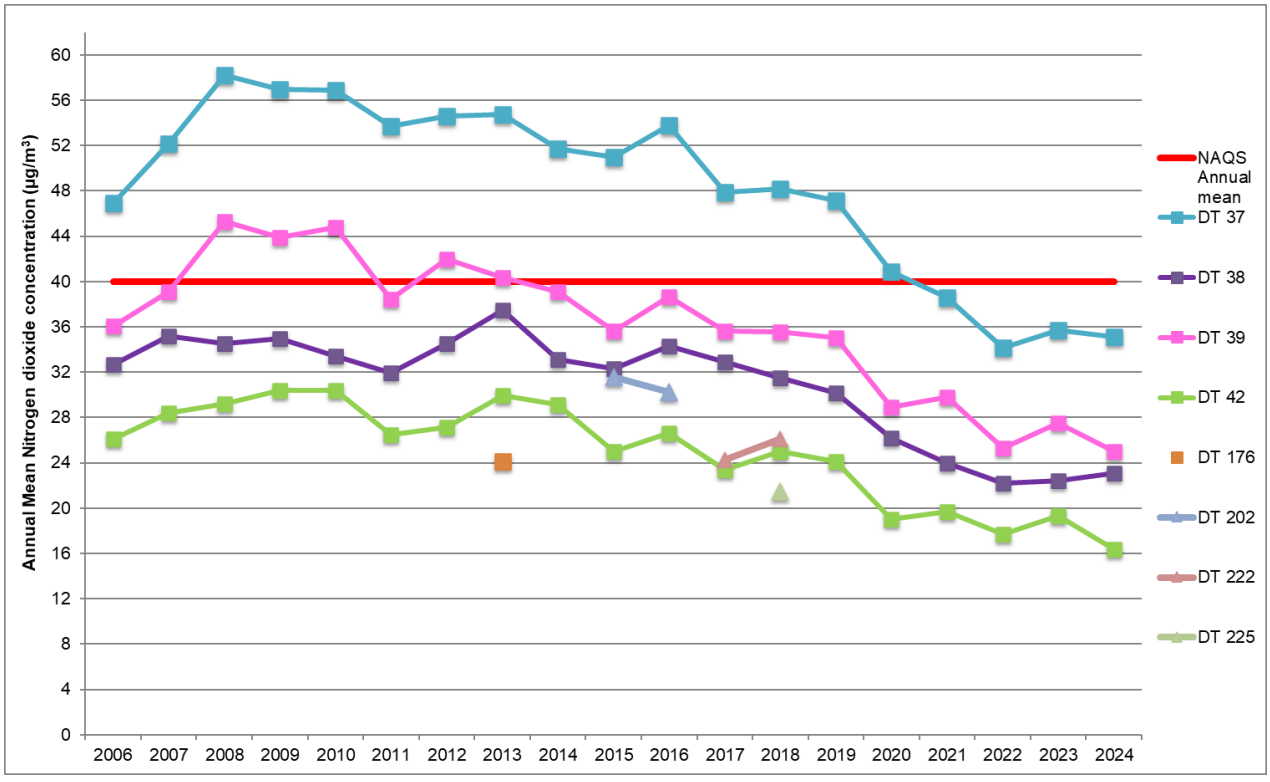


Figure 29 Overview of NO_2 diffusion tube concentrations in Logie Street



6.1.8 Albert Street / Arbroath Road

Figure 30 NO_2 Diffusion Tube Locations in Albert Street / Arbroath Road

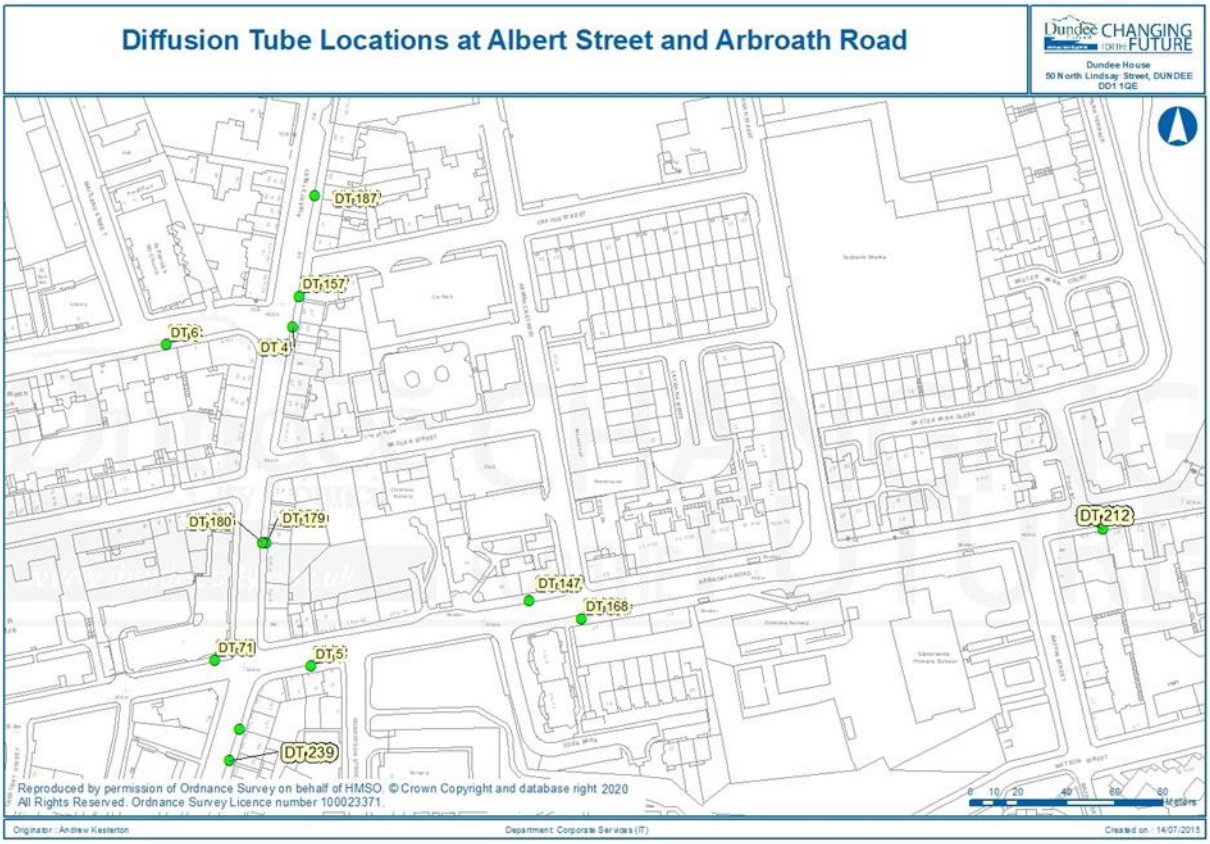
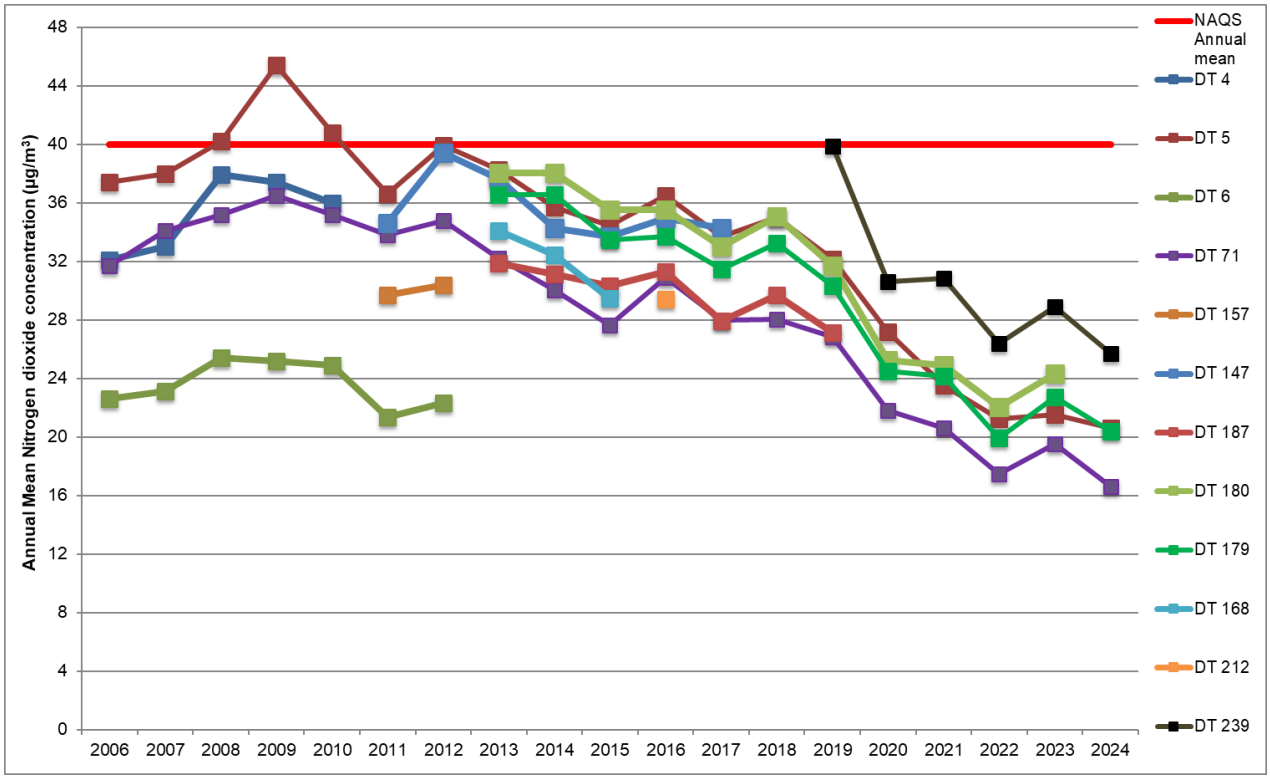


Figure 31 Overview of NO_2 diffusion tube conc. in Albert Street / Arbroath Road



6.1.9 Kingsway / Forfar Road

Figure 32 NO_2 Diffusion Tube Locations on / near Kingsway / Forfar Road

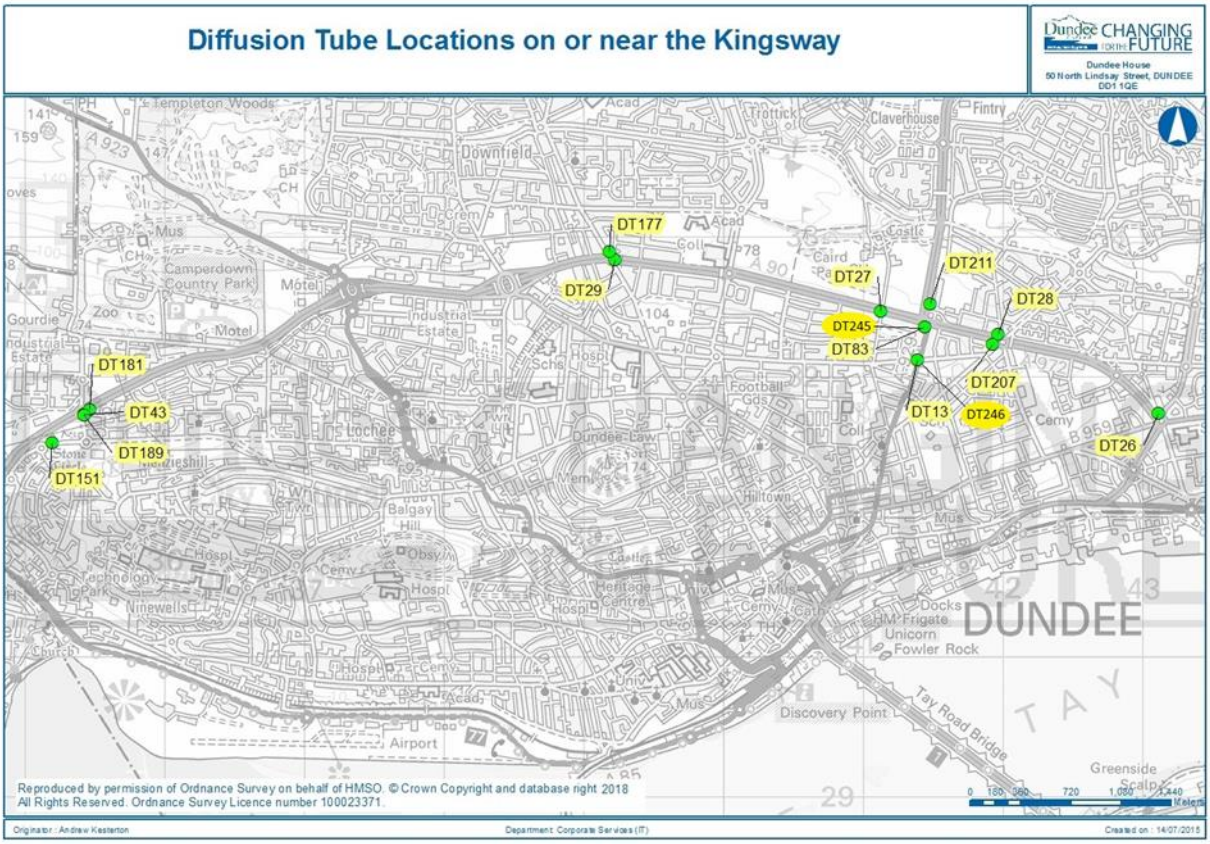
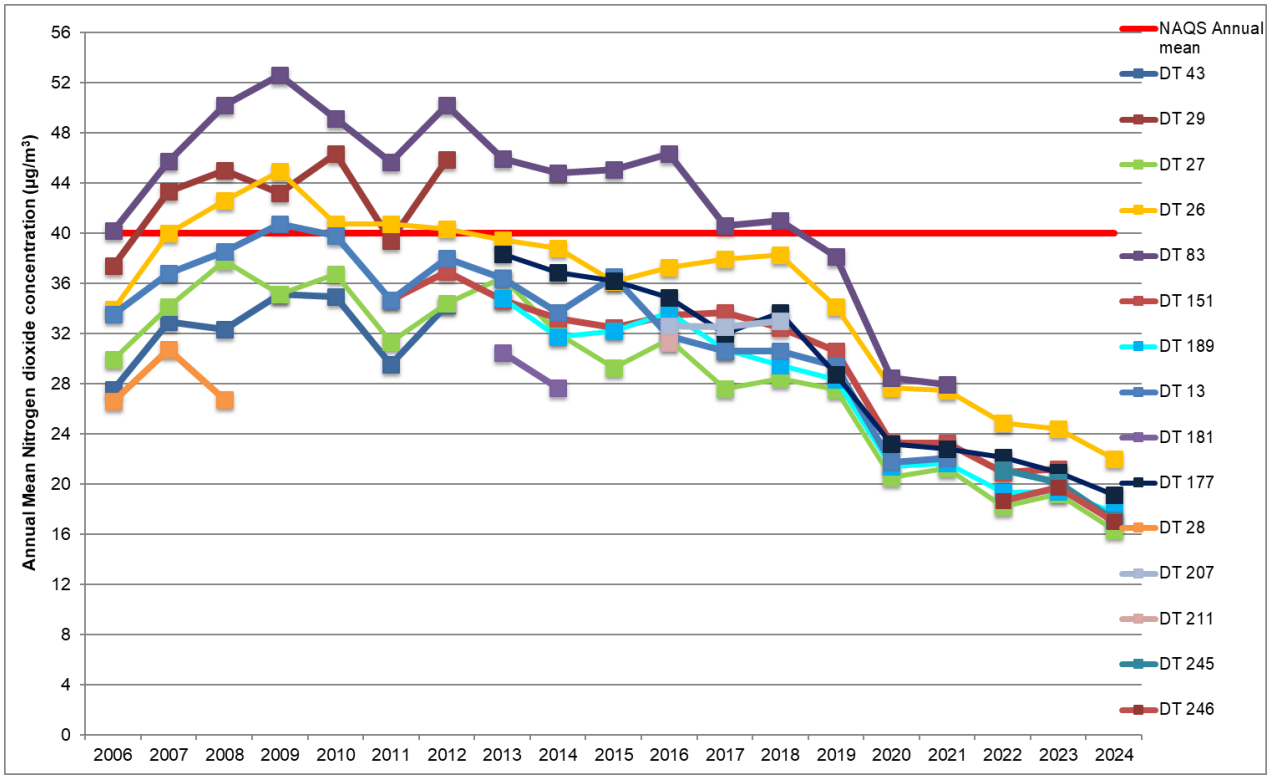


Figure 33 Overview of NO_2 diffusion tube conc. on / near the Kingsway / Forfar Road



6.1.10 Bus corridor

Figure 34 Other NO_2 Diffusion Tube Locations on bus corridor

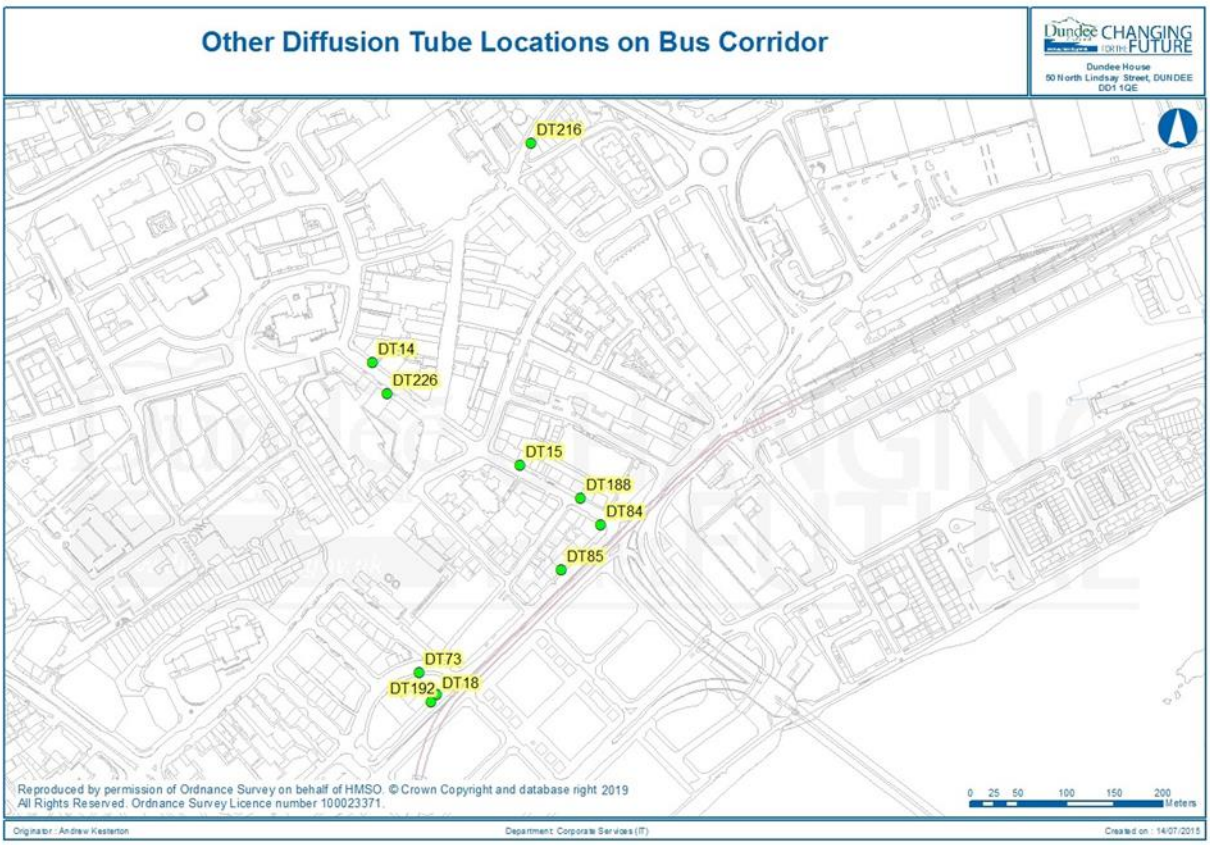
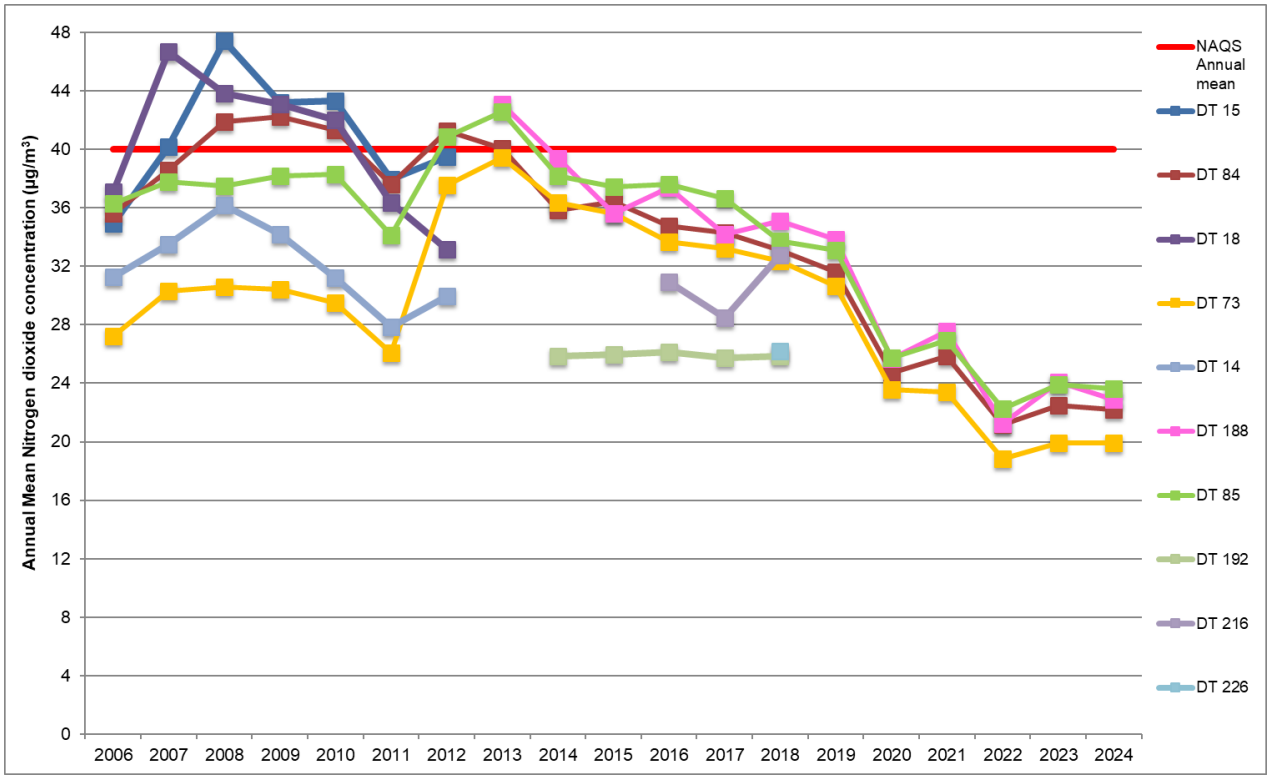


Figure 35 Overview of NO_2 diffusion tube concentrations on bus corridor



6.1.11 Inner ring road

Figure 36 NO_2 Diffusion Tube Locations on the Inner Ring Road

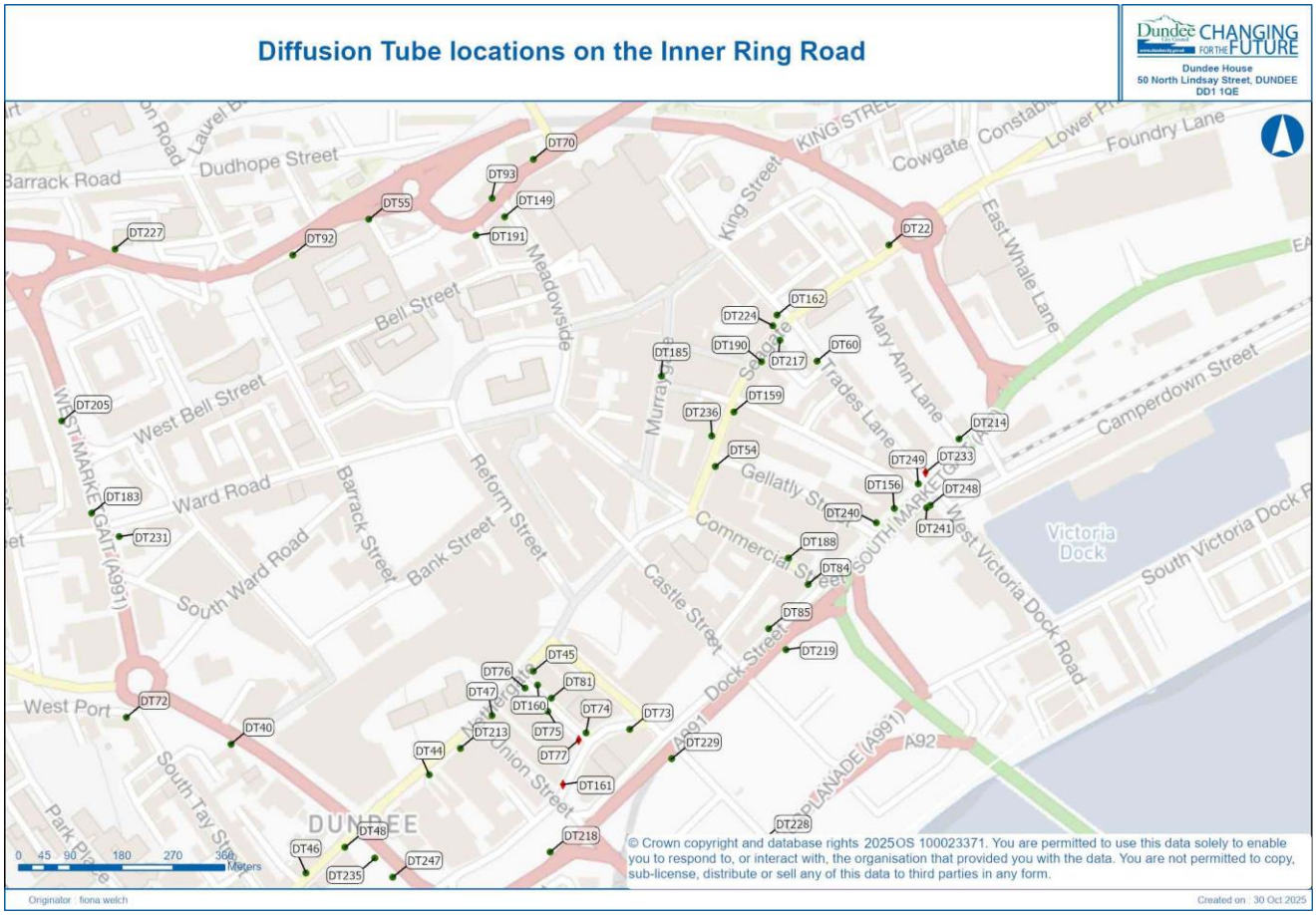


Figure 37 Overview of NO_2 DT conc. on Inner Ring Road (West & North Marketgait)

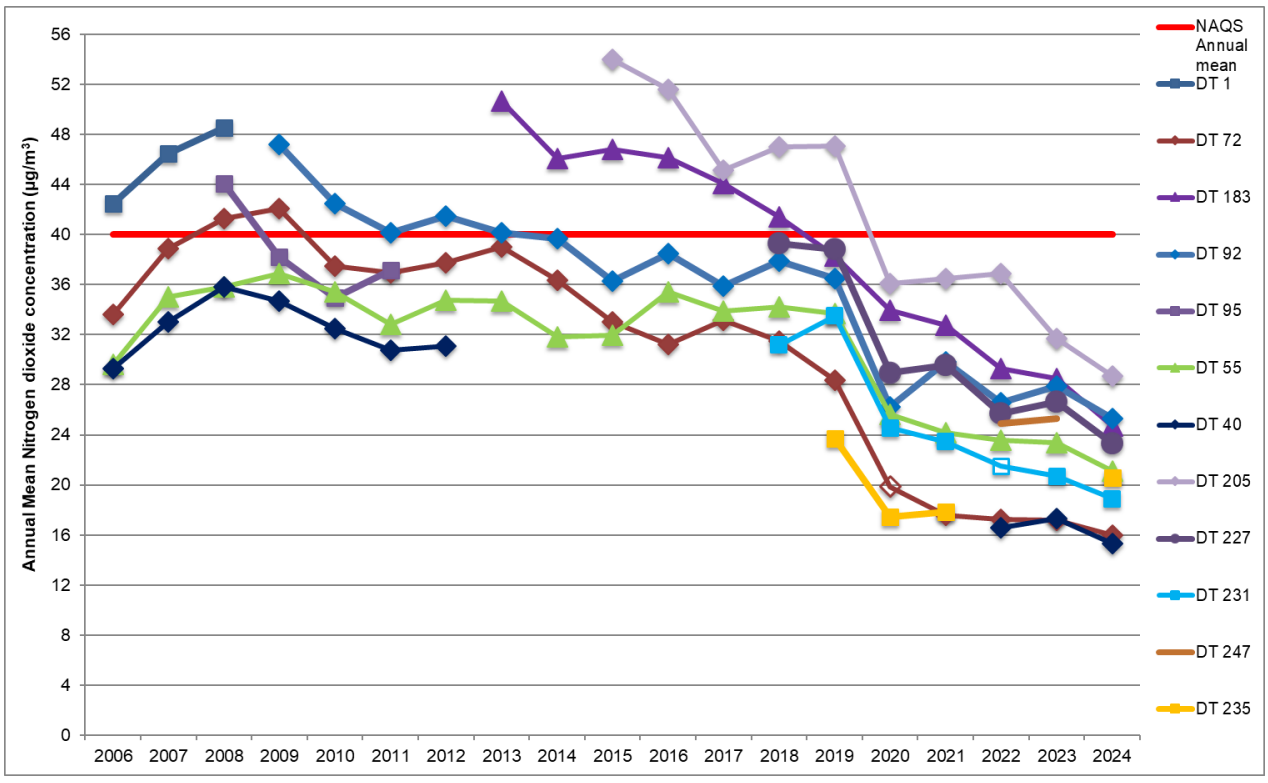
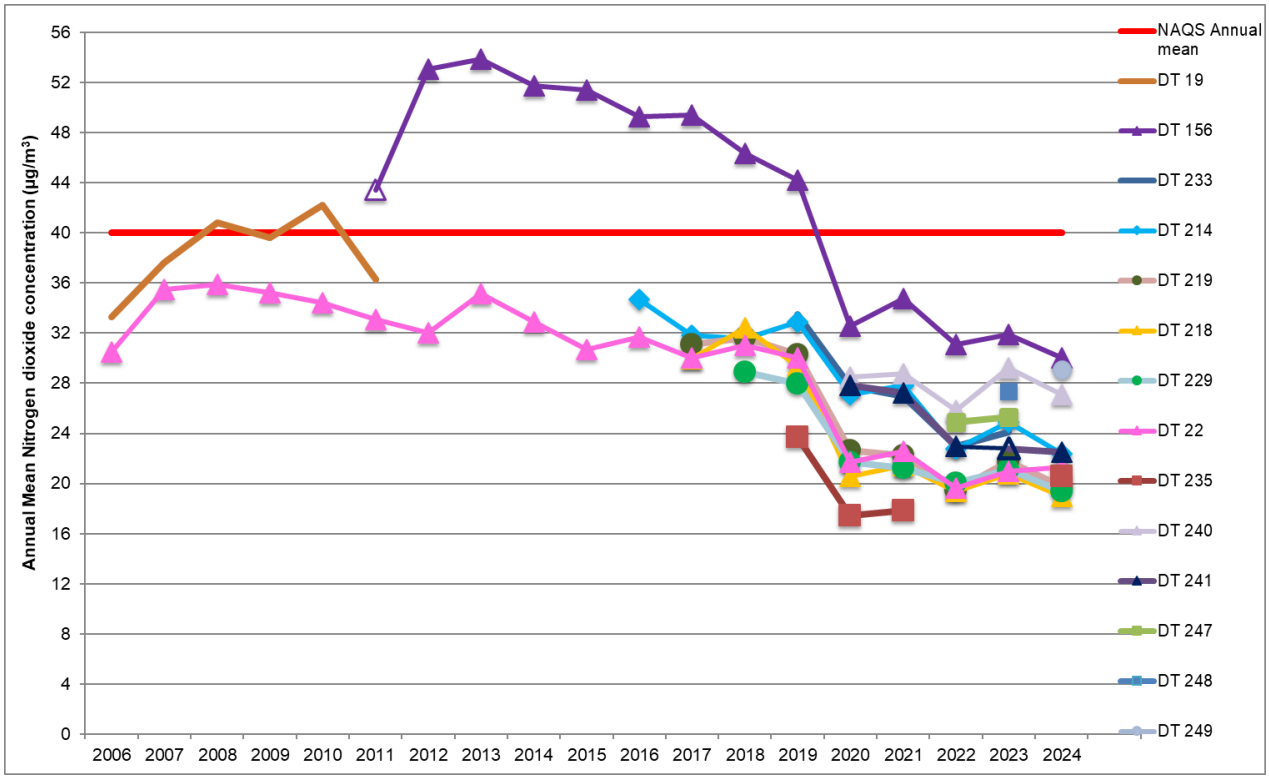


Figure 38 Overview of NO_2 DT conc. on Inner Ring Road (East & South Marketgait)



6.1.12 Stannergate

Figure 39 NO_2 Diffusion Tube Locations at Stannergate

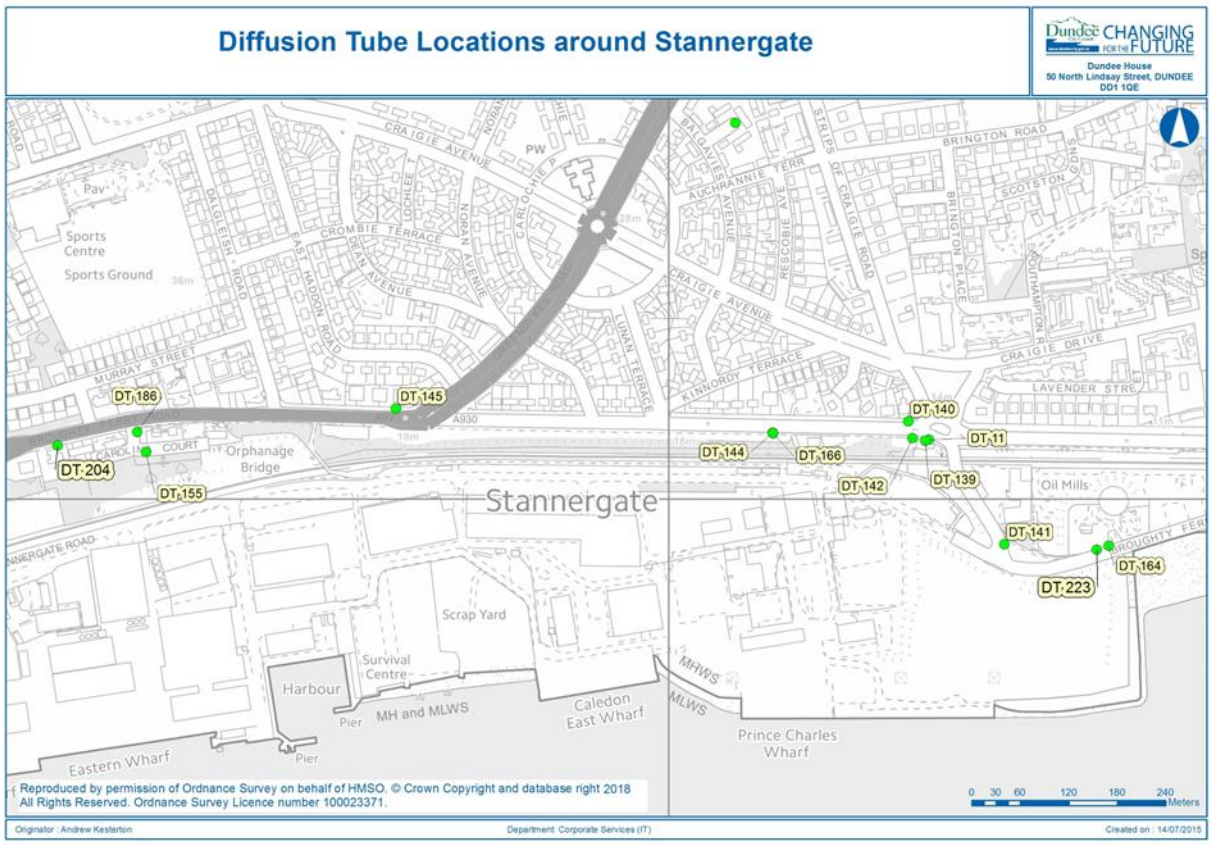
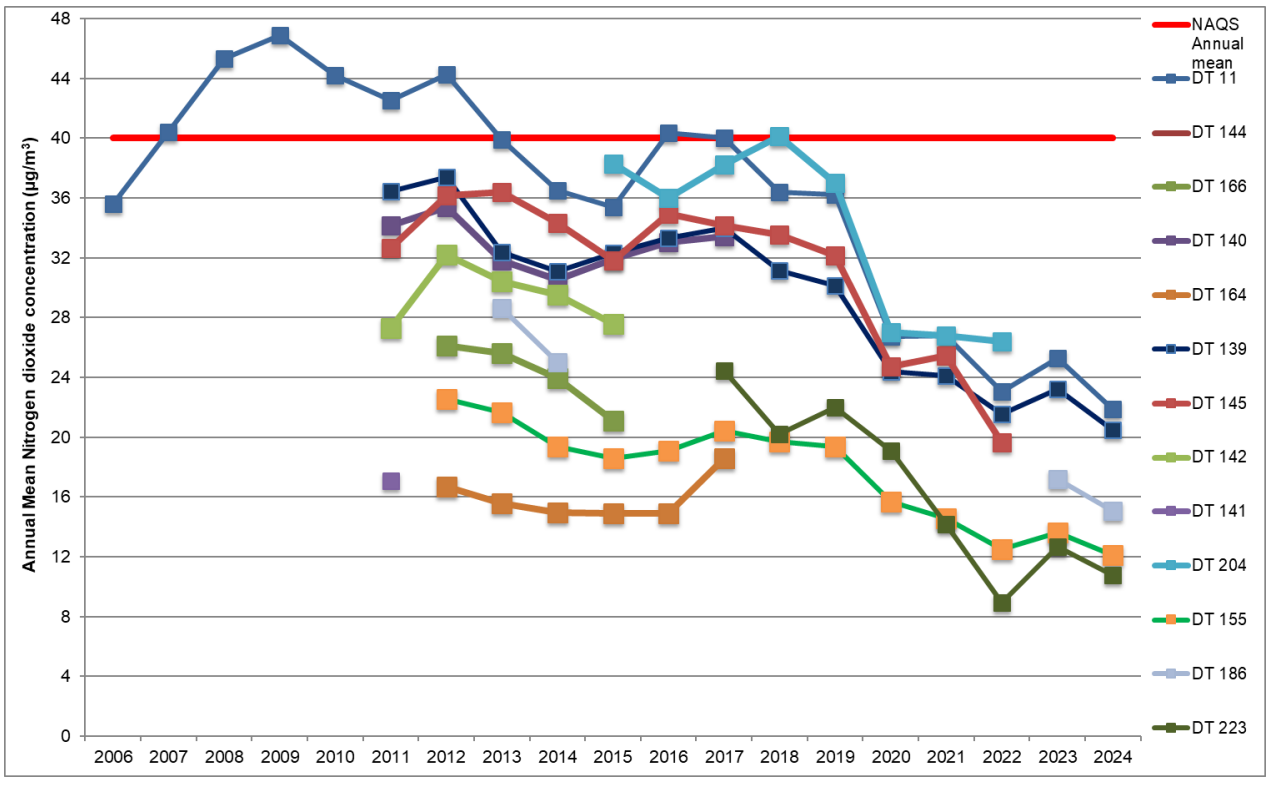


Figure 40 Overview of NO_2 diffusion tube concentrations at Stannergate



6.1.13 Strathmore Avenue

Figure 41 NO_2 Diffusion Tube Locations at Strathmore Avenue

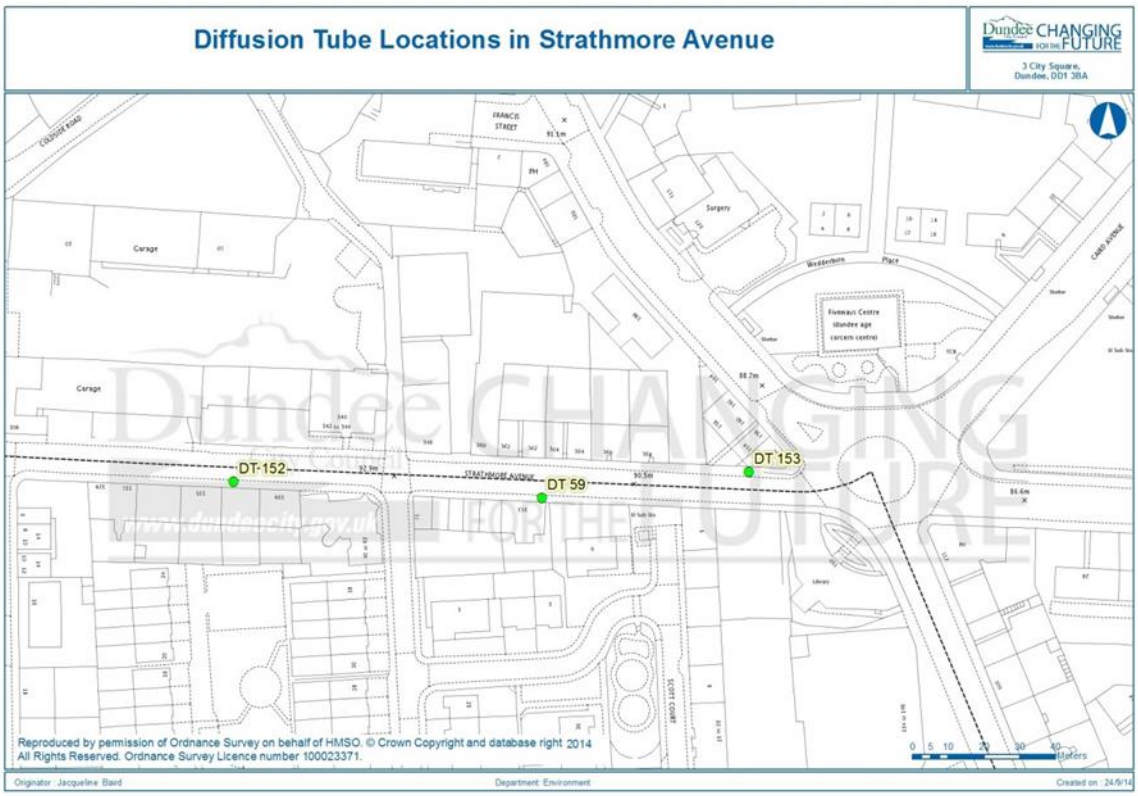
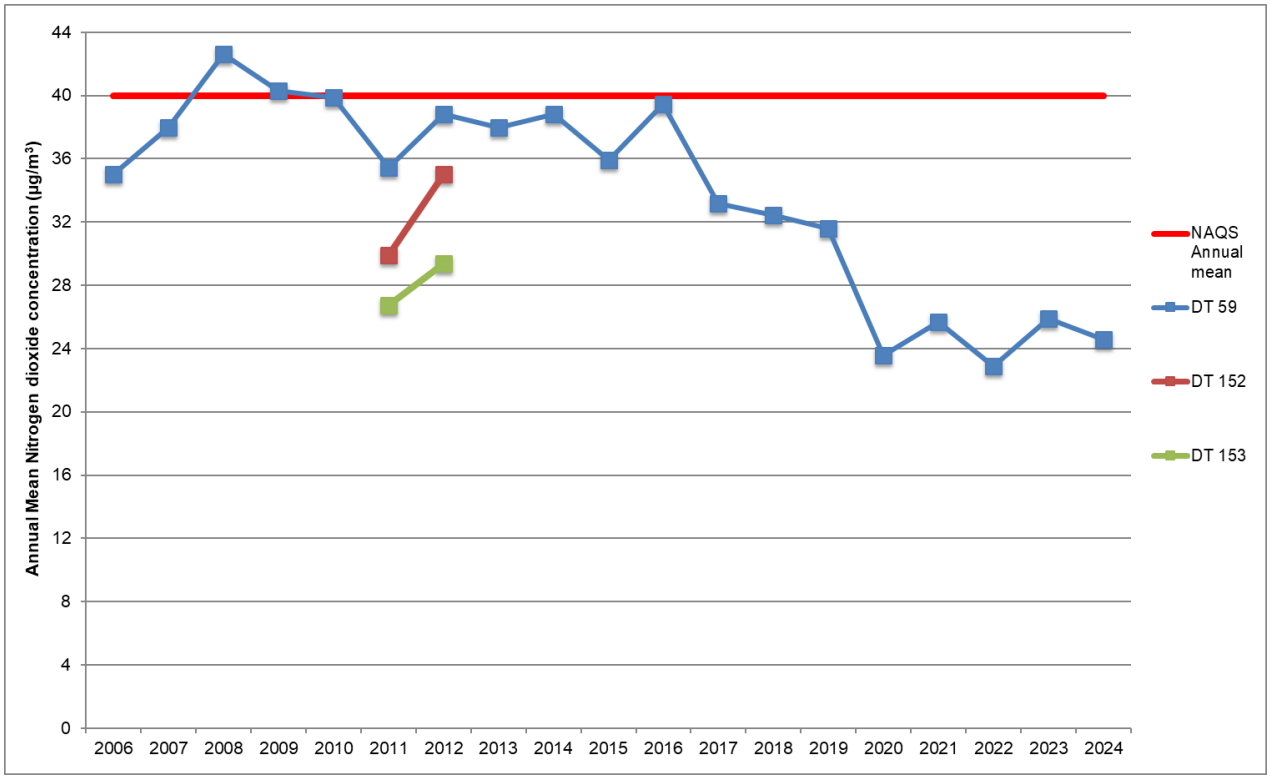


Figure 42 Overview of NO_2 diffusion tube concentrations in Strathmore Avenue



6.1.14 Urban background locations

Figure 43 Urban Background NO_2 Monitoring Locations

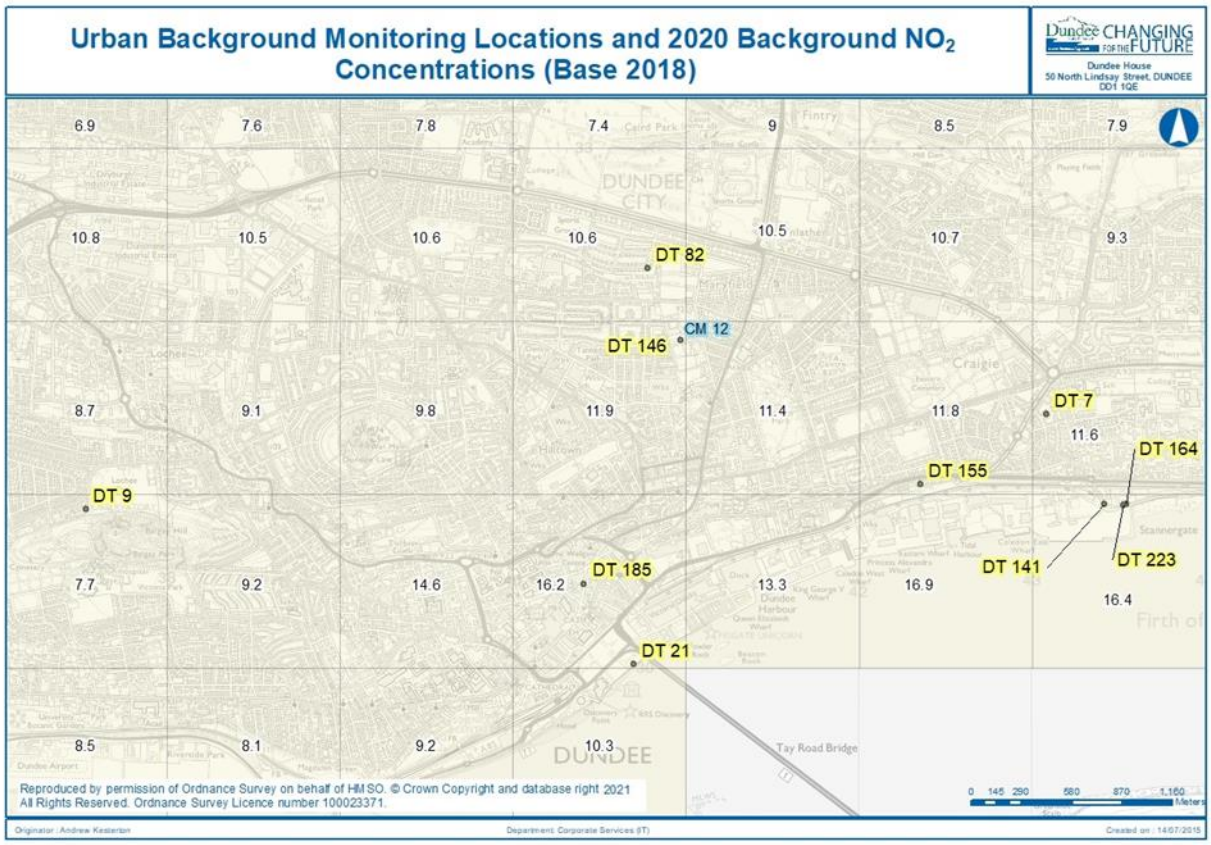
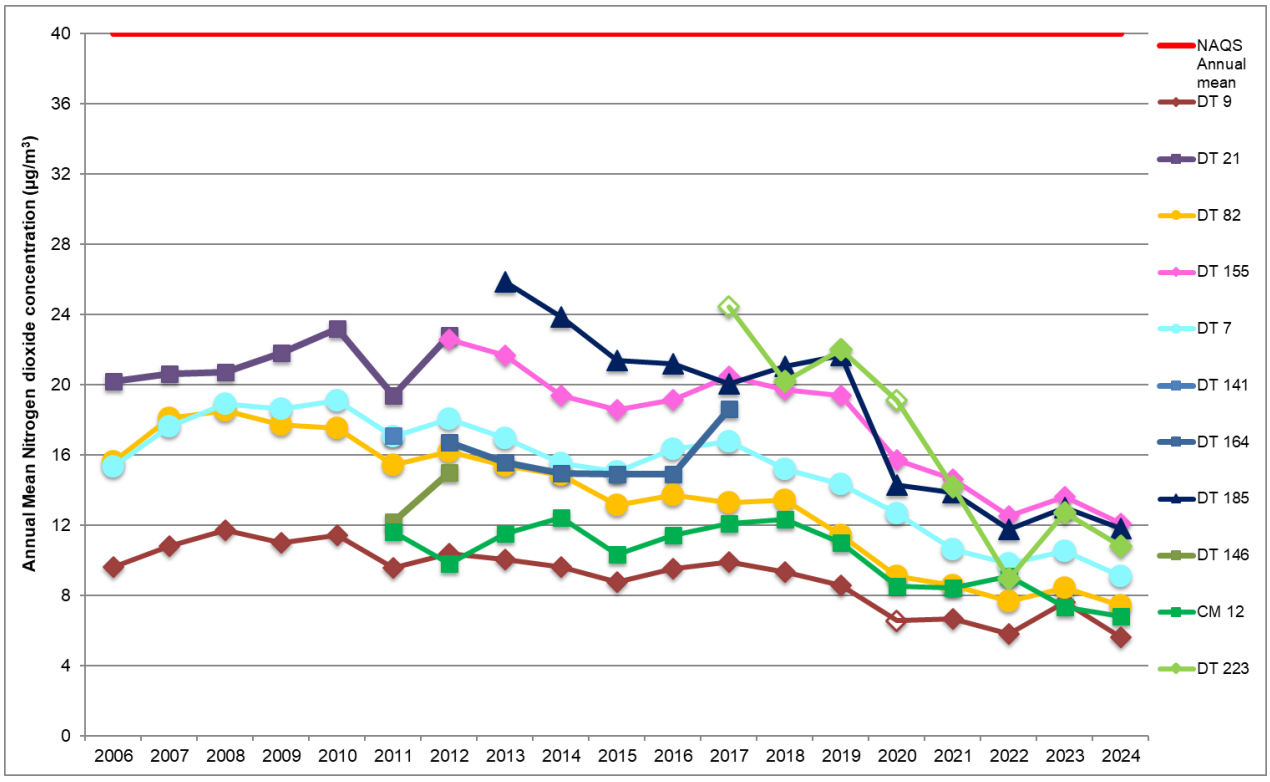
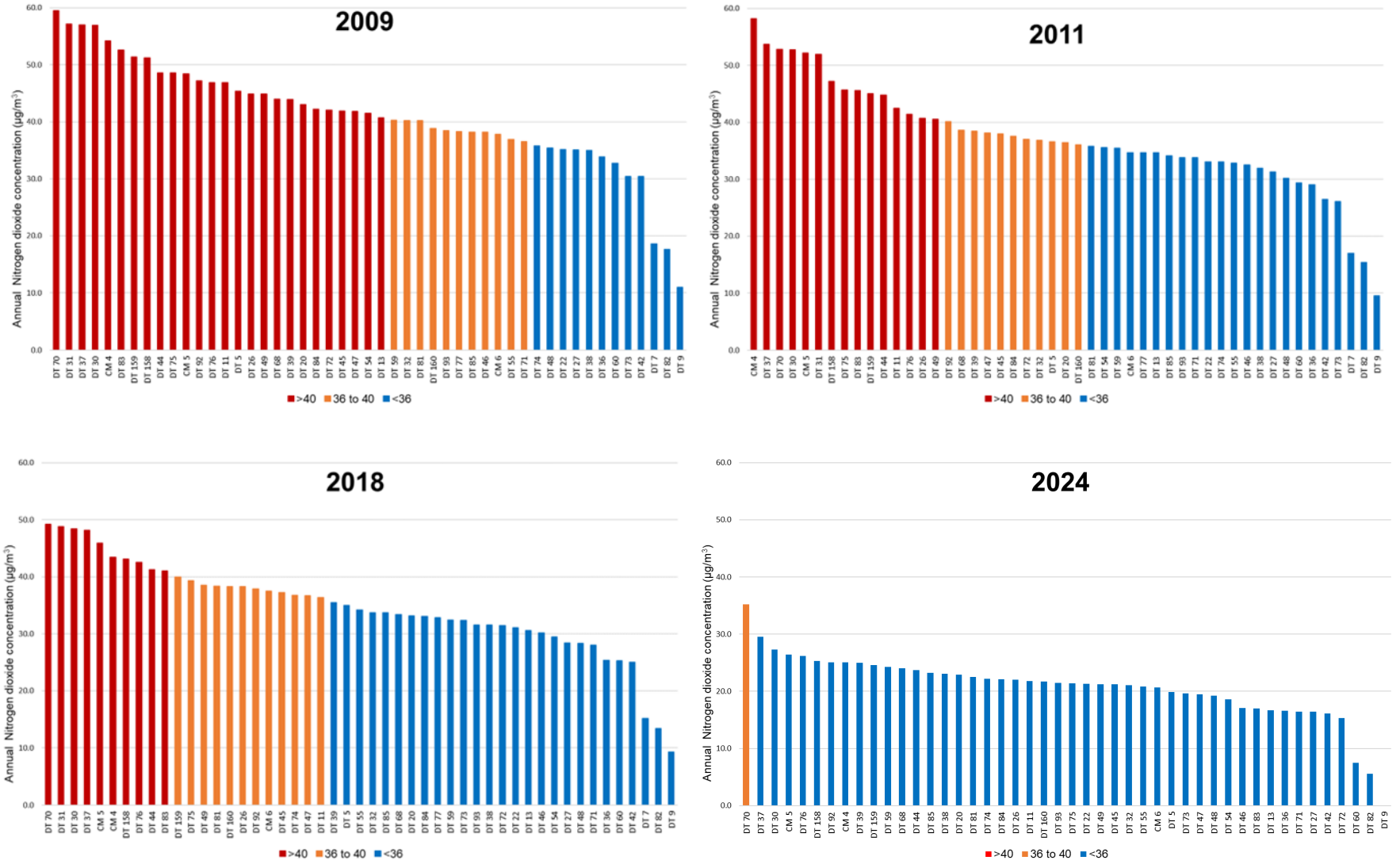


Figure 44 Overview of NO_2 concentrations at urban background locations



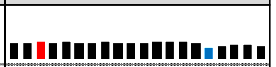
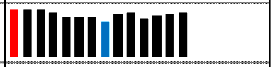
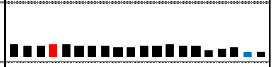
6.1.15 Long-term NO_2 annual mean sites comparison

Figure 45 Ranked Annual Mean NO_2 Concentrations at Long-term Sites in 2009, 2011, 2018 and 2024



7 Appendix E: Road Traffic data

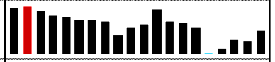
Table 7-1 Road Traffic Reduction Act Sites - Annual Average Daily Traffic (AADT)

RTRA count location	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Bar Chart
Arbroath Rd (E of Kenilworth Ave)	13186	13335	14054	13153	13846	12869	13283	13697	13142	13174	13287	13642	13784	13526	13030	10194	11207	11754	11720	11549	
Blackness Rd (W of Marchfield)	6574	6675	6435	6195	6145	5938	5911	5844	5102	5509	5676	6487	5819	5810	5540	4115	4419	4884	4824	5391	
Broughty Ferry Rd (E of Dalgleish Rd)	31956	31802	31535	30098	27640	27756	27315	24741	29322	30272	26809	28161	29190	29832							
Dens Rd (S of Hillbank Rd)	10852	10664	10672	11023	10833	10083	10062	10178	9744	9707	10315	10322	10756	10409	9961	7900	8723	8934	6711	6880	
Forfar Rd (N of Janefield Pl)	9278	9640	9880	8222	9224	9213	8861	9053	8768	9063	9209	8876	8991	9283	9055	6869	7437	7228	8189	7578	
Hilltown (N of Stirling St)	6024	5710	5895	5701	5753	5656	5416	5492	5608	4268	5782	5828	5491	4601	4392	4491	4668	5118	5108	4817	
Lochee Rd (N of Rankine St)	13477	13681	13438	13286	13296	12983	12684	11603	11285	11880	11821	11770	12453	12928	13135	9943	9080	11783	12515	11433	
Perth Rd (E of Windsor St)	8341	7434	7583	7531	7695	7352	7053	7184	7180	7214	7328	6650	7316	7912	7495	5101	6009	6686	6656	6876	
Pitkerro Rd (S of Baxter Park)	10107	9522	9975	9950	9789	9359	8623	8608	8827	8899	9085	9126	9584	8710	8774	7295	7908	8346	8780	8354	
Rankine St (N of Lochee Rd)	8098	7294	8069	7927	7605	7121	7115	6862	7188	6939	7118	7035	7043	7484	7282						
Riverside Dr (nr Airport)	18875	19056	18918	19045	17907	17654	17024	15900	16213	15932	15923	17343	17503	15791	17315	12794	14985	16218	16105	16093	
Rosebank St (N of Kinloch St)	4821	4867	4722	4623	4528	4603	4426	4489	4621	4587	4655	4615	4183	4015	4070	3326	3604	3901	3901	4174	
Tay Bridge	24475	24686	24748	25045	25406	25235	25484	24753	24770	24925	21762	25993	26631	26633	27250	18312	22048	25407	25479	25812	

Note: 1) Heights of the bars in the charts are relative to the range of values across all sites.

2) The red and blue bars are the highest and lowest count, respectively, at that count location.

Table 7-2 Road Traffic Reduction Act Sites - Percentage Growth

RTRA count location	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Bar Chart
Arbroath Rd (E of Kenilworth Ave)	100	101	107	100	105	98	101	104	100	100	101	104	105	103	99	77	85	89	89	88	
Blackness Rd (W of Marchfield)	100	102	98	94	93	90	90	89	78	84	86	99	89	88	84	63	67	74	73	82	
Broughty Ferry Rd (E of Dalgleish Rd)	100	100	99	94	86	87	85	77	92	95	84	88	91	93							
Dens Rd (S of Hillbank Rd)	100	98	98	102	100	93	93	94	90	89	95	95	99	96	92	73	80	82	62	63	
Forfar Rd (N of Janefield Pl)	100	104	106	89	99	99	96	98	95	98	99	96	97	100	98	74	80	78	88	82	
Hilltown (N of Stirling St)	100	95	98	95	96	94	90	91	93	71	96	97	91	76	73	75	77	85	85	80	
Lochee Rd (N of Rankine St)	100	102	100	99	99	96	94	86	84	88	88	87	92	96	97	74	67	87	93	85	
Perth Rd (E of Windsor St)	100	89	91	90	92	88	85	86	86	86	88	80	88	95	90	61	72	80	80	82	
Pitkerro Rd (S of Baxter Park)	100	94	99	98	97	93	85	85	87	88	90	90	95	86	87	72	78	83	87	83	
Rankine St (N of Lochee Rd)	100	90	100	98	94	88	88	85	89	86	88	87	87	92	90				0	0	
Riverside Dr (nr Airport)	100	101	100	101	95	94	90	84	86	84	84	92	93	84	92	68	79	86	85	85	
Rosebank St (N of Kinloch St)	100	101	98	96	94	95	92	93	96	95	97	96	87	83	84	69	75	81	81	87	
Tay Bridge	100	101	101	102	104	103	104	101	101	102	89	106	109	109	111	75	90	104	104	105	

Note: 1) Heights of the bars in the charts are relative to the range for that location.

2) The red and blue bars are the highest and lowest percentage growth, respectively, for that site.

8 Appendix F: List of industrial processes

Table 8-1 List of industrial processes

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
SAPPI Rockwell Solutions, Wester Gourdie, Dundee	Chapter 6: Other Activities Surface treating with organic solvents - Also Chapter 7 SED	6.4.b	No	No	No	No	No	No	No change
MVV Environmental (Baldovie) Ltd) Baldovie, Dundee	Chapter 5: Waste Management	Sector 5.1a and 5.1b under PPC 12	No	No	No	No, previously assessed	No	No	Granted Substantial Variation for replacement plant issued in February 2019. Planning Application submitted late 2019 to continue use of old incinerator alongside the new one.
Nynas UK AB, East Camperdown Street, Dundee DD1 3LG	Chapter 1: Energy Industries	Section 1.2 Part A Paragraph (f) (i)	No	No	No	No, previously assessed	No	No	Granted. Site is now effectively a Part B process, but a formal surrender of the Part A has not yet been submitted. Site is now solely burning natural gas, with a much-reduced inventory of bitumen and oil products.

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Nationwide Crash Repair Centres Ltd, Liff Road, Dundee	Chapter 6: Other Activities vehicle respraying	6.4.b	No	No	No	No	No	No	No Change
Discovery Filling Station	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Brochtay Filling Station	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Asda Stores Filling Station Kirkton	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
BP Kingsway West Filling Station	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Shell Caird Park	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Asda Stores Ltd, Milton of Craigie, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Tesco Stores Ltd, Riverside Drive, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Tapedrive Ltd, Marketgait F/S, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Sainsburys Supermarket Ltd, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Jet Petrol Station, Forfar Road, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No, previously assessed	No	No	No Change
Breedon Aggregates Ltd, Longtown Street, Dundee	Chapter 3: Mineral Industries Cement Batching	3.1.a.(ii)	No	No	No	No, previously assessed	No	No	No Change
Lochee Dry cleaning Centre Dundee	Chapter 7: SED Activities	Chapter 7: SED Activities	No	No	No	No	No	No	No Change
Ferry Laundrette Broughty Ferry	Chapter 7: SED Activities	Chapter 7: SED Activities	No	No	No	No	No	No	No change
Care Clean, Dundee	Chapter 7: SED Activities	Chapter 7: SED Activities	No	No	No	No	No	No	No Change
Dignity Ltd, Dundee Crematorium, Dundee	Chapter 5: Waste Management	5.1c	No	No	No	No	No	No	No change
Wm Morrison Supermarkets Plc, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No	No	No	No Change
Wm Morrison Supermarkets plc, I Afton Way	Chapter 7: SED Activities	Chapter 7: SED Activities	No	No	No	No	No	No	No Change
Tesco Filling Station, South Road, Dundee	Chapter 1: Energy Industries-Petrol Station	1.2.c.(ii)	No	No	No	No	No	No	No Change

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Halley Stevensons (Dyers & Finishers) Limited, Baltic Works, Annfield Road, Dundee DD1 5JH	Chapter 6: Other Activities	Section 6.4 Part A Paragraph (a)	No	No	No	No	No	No	No Change
Discovery Flexibles, Kemback St Dundee	Chapter 6: Other Activities surface treatment using organic solvents also Chapter 7 SED coating flexible packaging	6.4.b	No	No	No	No	No	No	No Change
Michelin Tyre Plant, Dundee	Chapter 6: Other Activities surface treatment of rubber with organic solvents also Chapter 7	6.4.b	No	No	No	No, previously assessed	No	No	Ceased trading as Michelin. Now MSIP.
Michelin Tyre Plant, Dundee	Chapter 1: Energy Industries, Combustion	1.1.a	No	No	No	No, previously assessed	No	No	Ceased trading as Michelin. Now MSIP.
D C Thomson Printers, Dundee	Chapter 6: Other Activities printing process	6.4.b	No	No	No	No	No	No	Not operating but still permitted.
Day International Ltd, Balgray St, Dundee	Chapter 6: Other Activities surface treatment of rubber with organic solvents	6.4.b	No	No	No	No, previously assessed	No	No	Premises demolished.
RMC Readymix Ltd, Dundee	Chapter 3: Mineral Industries, Cement Batching	3.1.a.(ii)	No	No	No	No	No	No	No change

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Brown & Tawse Steelstock Ltd, Fowler RD West Pitkerro - Dundee	Chapter 6: Other Activities, paint spraying	6.4.a	No	No	No	No	No	No	No Change
Tesco Stores Ltd, Kingsway Retail Park Dundee	Chapter 1: Energy Industries, Petrol Station	1.2.c.(ii)	No	No	No	No	No	No	No Change
Joinery and Timber Creations (65) Ltd,	Chapter 6: Other Activities, Timber Process	6.6.(i)	No	No	No	No, previously assessed	No	No	Waste wood boiler-permitted but not operating.
Ethiebeaton Quarry	Chapter 3 Mineral Activities - cement batching process 3.1a(ii), roadstone coating 3.5e, crushing and grinding 3.5c	3.1a(ii), 3.5e, 3.5c	No	No	No	No, previously assessed	No	No	No change
Health Care Environmental Services, Nobel Road, Wester Gourdie Ind. Estate	Chapter 5 Waste Management Part A Treatment of Clinical waste	5.3a	No	No	No	No, previously assessed	No	No	Site still permitted but facility closed.
Petrol Filling Station, Asda, Myrekirk Road	Chapter 1: Energy Industries, Petrol Station	1.2.c.(ii)	No	No	No	Yes, but no relevant receptors	No	No	No change
Tillicoultry Quarries Ltd, Dundee Cement Terminal, Fish Dock Road, Eastern Wharf, Dundee, DD1 3LZ	Chapter 3, Part B, section 3.1 (a)(i) Bulk Storage of Cement	PG 3/01(12)	No	No	No	Yes (possible fugitive emissions of particulates)	No	No	PPC/B/1142921 Operator Technical (Substantial) Variation to existing Authorisation
Crown Timber King George V Wharf Road,	Section 6.6 Part A	Sector Guidance Note SG11 (draft	No	No	No	No (No LAQM pollutants or fugitive emissions)	No	No	Existing process has come into the PPC regime (SEPA reference

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Dundee Harbour, Dundee, DD1 3LU	Wood Products Preservation with. Chemicals	status at issue)							PPC/A/1132892) as part of the Industrial Emissions Directive. No change
Vericore Ltd, Kinnoull Road, Kingsway West, Dundee, DD2 3XR	Schedule 2 (PPC 2012) SED Part B Production of Veterinary Pharmaceuticals		No	No	No	Yes (possible fugitive emissions of particulates)	No	No	Site permitted 2016 and operating – PPC/B/1141206 No change
Augean North Sea Services, Riverside Works, Princess Alexandra Wharf, Stannergate Road, Dundee, DD1 3LU	Chapter 5.3 Part A (b) (ii), (iii), (iv), (vi), (x)		No	No	No	Yes (possible fugitive emissions of particulates)	No	No	PPC/A/1151594 status "Granted" date May 2022 as "Full transfer". Site permitted 2017– started operating May 2018 PPC/A/1151594 substantial variation received Dec 2018 has since been withdrawn at request of applicant.
Scotscreed Limited, Fishdock Road, Stannergate, Dundee, DD1 3LU	Chapter 3; Section 3.1 Part B (a) (ii)		No	No	No	Yes (possible fugitive emissions of particulates)	No	No	Site permitted 2017 and operating PPC/B/1155960 No change
Dover Fuelling Solutions, West Pitkerro Industrial Estate, 3, Baker Rd, Dundee DD5 3RT	Chapter 6; Section 6.4 Part B (a) coating and paint process		No	No	No	No	No	No	Existing process has come into PPC regime due to threshold change. Emissions contained. PPC/B/1180866 (2)

Process Name/Address	Process Type	PPC Sector	New source since APR 2024?	Existing process with new exposure?	Is change substantial (>30%)?	Process Potentially Requiring Review & Assessment~	Nomogram screening assessment required?	Detailed assessment Required?	SEPA Comments
Vitali Energi Solutions Ltd, Ninewells Hospital Energy Centre, Ninewells Hospital, Dundee, DD1 9SY	PPC(B) - Combustion of Fuels – Medium Combustion Plant	Schedule 1, Part 1, Chapter 1, Section 1.1, Part B (d)	No	No	No	No	No	No	PPC/B/5005657 MCP that was put into operation before 20/12/2018 with rated thermal inputs of greater than 5MW up to and including 20MW.
MCP University of Dundee, 149 Nethergate, Dundee, DD1 4HN	PPC(B) - Combustion of Fuels	No	No	No	No	No	No	No	PPC/B/5007598 MCP that was put into operation before 20/12/2018 with rated thermal inputs of greater than 5MW up to and including 20MW.

Glossary of Terms

Abbreviation	Description
AADT	Annual Average Daily Traffic flow
ADMS	An atmospheric air pollution dispersion model
AEA	AEA Energy & Environment
Annualise	the means of estimating an annual mean from a shorter study period mean by comparison with full datasets from background AURN sites
AQ Archive	UK Air Quality Archive
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA 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
APR	Annual Progress Report
AQO	Air Quality Objective
AQS	Air Quality Strategy
ATC	Automatic Traffic Count
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Borderline	A concentration that is a potential exceedance (e.g. sites above 36µg/m^3 for NO_2 or 16.2µg/m^3 for PM_{10} annual mean)
CAFS	'Cleaner Air for Scotland - The Road to a Healthier Future', was Scotland's first air quality strategy, published in 2015
CAFS2	'Cleaner Air for Scotland 2 - Towards a Better Place for Everyone', is Scotland's second air quality strategy, published in 2021
CHP	Combined Heat and Power
CO	Carbon Monoxide
DCC	Dundee City Council
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EC	European Community
EPA	The Environmental Protection Act 1990
EPAQS	Expert Panel on Air Quality Standards
EU	European Union
FDMS	Filter Dynamics Measurement System

GF	Ground floor
GIS	Geographical Information System
HDV	Heavy goods vehicles and buses
HFO	Heavy Fuel Oil
HGV	Heavy Goods Vehicle
HSL	Health & Safety Laboratory
IPC	Integrated Pollution Control
kerbside	0 to 1 metre from the kerb
LAQM	Local Air Quality Management
LAQM, PG(S)(23)	Local Air Quality Management: Policy Guidance (Scotland) (2023)
LAQM.TG(03)	Local Air Quality Management: Technical Guidance (2003)
LAQM.TG(09)	Local Air Quality Management: Technical Guidance (2009)
LAQM.TG(16)	Local Air Quality Management: Technical Guidance (2016) updated February 2018
LAQM.TG(22)	Local Air Quality Management: Technical Guidance (2022) updated August 2022
LDP	Local Development Plan
LEZ	Low Emission Zone
Limit Value	An EU definition for a mandatory air quality standard of a pollutant listed in the air quality directives
MW	Mega Watts
mg/kg	Milligrams per Kilogram
mg/m^3	Milligrams per cubic metre
NAEI	National Atmospheric Emission Inventory
NAQS	National Air Quality Standard
NLEF	National Low Emission Framework (part of CAFS)
NMF	National Modelling Framework (part of CAFS)
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
ng/m^3	Nanograms per cubic metre
NPL	National Physical Laboratory
NRS	National Registers of Scotland
NRTF	National Road Traffic Forecast
OLEV	Office of Low Emission Vehicles
OSIRIS	the brand name given by Turnkey Instruments Ltd. to their particle measuring nephelometer
PDT	Passive Diffusion Tube
PHV	Private Hire Vehicles

PPC	Pollution Prevention and Control Regulations
P&T	Planning and Transportation
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
Pb	Lead
percentile	The percentage of results below a given value
ppb	Parts per billion
ppm	Parts per million
QA/QC	Quality Assurance and Quality Control
REAE	Ricardo Energy and Environment
receptor	In this study, the relevant location where air quality is assessed or predicted (for example, houses, hospitals and schools)
roadside	1 to 5 m from the kerb
SCA	Smoke Control Area
SED	Solvent Emissions Directive
SEPA	Scottish Environment Protection Agency
SO_2	Sulphur Dioxide
SPG	Supplementary Planning Guidance
Street Canyon	A relatively narrow street with buildings on both sides, where the height of the buildings is generally greater than the width of the road
SULP	Sustainable Urban Logistics Plan
TACTRAN	Tayside and Central Scotland Transport Partnership
TEA	Triethanolamine
TEOM	Tapered Element Oscillating Microbalance
UKAS	United Kingdom Accreditation Service
ULEV	Ultra-Low Emission Vehicle
USA	Updating and Screening Assessment
mg/m^3	Micrograms per cubic metre
VCM	Volatile Correction Method
VOC	Volatile Organic Compound
vpd	Vehicles per day
WASP	Workplace Analysis Scheme for Proficiency

References

This report includes references where appropriate throughout the text as footnotes.