# Annual Progress Report (APR)

2025 Air Quality Annual Progress Report (APR) for Perth and Kinross Council

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

Local Air Quality Management

August 2025

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# Executive Summary: Air quality in our area

## Air quality in Perth and Kinross

This annual progress report covers the period from 1 January 2024 to 31 December 2024.

The air quality within Perth and Kinross is generally good; however, there are a few known hotspots within Perth city centre, and previously in Crieff. The main pollutants of concern are Nitrogen Dioxide ($NO_2$) and Particulate Matter ($PM_{10}$/$PM_{2.5}$) from vehicle emissions, which cannot escape due to the canyoning effect of high buildings within the effected streets.

Perth and Kinross Council (PKC) has one active air quality management area (AQMA) covering the whole of Perth City (declared in 2006), with monitoring locations at Atholl Street, Bridgend and Glasgow Road as well as a widespread diffusion tube network. PKC previously had an AQMA encompassing the high street corridor running through Crieff (declared in2014), however due to consistent low levels of air pollution within the Crieff in recent years the Crieff AQMA was revoked in December 2024.

Once again there were no exceedances of $NO_2$ identified within Perth and Kinross during the reporting year, making this the sixth year without an exceedance. Throughout the region the overall trend was a reduction in $NO_2$ levels compared to 2023, in some cases to below those measured during 2020 (the previous minimum recorded levels due to Covid-19 lockdowns). $NO_2$ levels at both the Atholl Street and Bridgend Real Time Monitors (RTMs) fell to their lowest ever recorded levels, though it should be noted in Atholl Street's case that data capture at this monitor was affected by electrical issues following the replacement of the RTM cabinet in 2024 and as such annualisation was required to attain these results. As the $NO_2$ analyser at the Glasgow Road RTM was only installed in September 2024 a full year's data is not yet available, however the first few months of data show concentrations are below objective levels at this site as well. $NO_2$ levels at the Crieff RTM saw a slight increase from 2023 but were still well below objective levels.

Across the region all areas also saw diffusion tube levels decreasing in general compared to those recorded in 2023, with 58 tubes decreasing, 3 remaining at the same levels as 2023 or it being their first year exposed, and 11 seeing an increase in $NO_2$. The majority of these increases were small (<0.5 $\mu g/m^3$), however there were a number of larger

increases which should be monitored in future years: P67 and P68 on Atholl Street, P40 in Bridgend, and P20 on Crieff Road, Perth. Maps showing the increases and decreases in diffusion tube levels are shown in 3.1.2, with graphs showing the trends in $NO_2$ in Figure A.1 - Figure A.4.

The bias adjustment factor for our 2024 diffusion tubes was slightly less than in 2023: 0.83 compared to the previous year's 0.8. It should be noted that due to poor data capture on three of the four co-located monitors in 2024 due to refurbishment works, only the data from Bridgend was used in the local bias adjustment factor calculations this year, rather than the usual four monitors.

No new sources of $NO_2$ emissions have been identified within Perth and Kinross.

In light of the continued compliance with $NO_2$ objectives and an observed downward trend in concentrations in recent years, PKC will seek to carry out a detailed assessment to determine the feasibility of revoking the Perth AQMA for $NO_2$ in the near future.

There were no exceedances of the annual mean $PM_{10}$ objective and no exceedance of the overall $PM_{10}$ 24-Hour Mean national objective during the reporting year. $PM_{10}$ levels remained reasonably steady at Crieff and Bridgend RTMs compared to previous years, and a slight increase was seen at Glasgow Road. However there was a sharp reduction seen at the Atholl Street RTM compared to 2023, with levels reducing from 23.4 $\mu g/m^3$ to 13 $\mu g/m^3$ (FIDAS adjusted values).

This is a marked difference from the previous year where PKC also recorded 15 exceedances of the 50 $\mu g/m^3$ 24-Hour Mean at Atholl Street, and is thought to be a direct result of building works previously carried out behind the Atholl Street monitor between 2021 and 2023. This confirms that the high $PM_{10}$ levels recorded at the site over the past three years were largely due to these building works rather than an increase from road traffic emissions, however it will take a number of years for the true trend of $PM_{10}$ emissions at this site to reemerge due to this long period of influenced results.

PKC also monitors for $PM_{2.5}$ at all RTMs. No exceedances of objective levels were observed in 2024, and levels have continued to remained fairly steady since monitoring began with no significant increasing or decreasing trend.

PKC closely monitors the air quality across the whole of Perth and Kinross, and works in close partnership with a number of agencies to manage and improve local air quality,

including TACTRAN (Tayside and Central Scotland Transport Partnership), SEPA, Transport Scotland (TS) and Bear Scotland.

## Actions to improve air quality

- **Cross Tay Link Road** – The Cross Tay Link Road, now named The New Kingsway and Destiny Bridge, opened on 31 of March 2025 after three years of construction. A key component of the Perth Travel Future Project, the road links the A9, the A93 and the A94 by providing a crossing over the River Tay and bypassing the city centre, with key project priorities being the reduction of congestion and improvement of air quality within Perth City. The new route also includes a 12km active travel path network, a new Park-and-Choose area and a green bridge to separate active travel users and wildlife from the road.
  As one of the main air quality improvement measures included in the original Perth Air Quality Action Plan, the completion of this project is anticipated to lead to significant improvements in air quality in city centre hotspots, particularly in areas like Atholl Street and Bridgend. Close monitoring of the effects of the new crossing will be carried out over the next few years to assess air quality improvement and will be reported on in subsequent Annual Progress Reports.

**Completed Destiny Bridge April 2025**

**Completed new Kingsway April 2025**

- **Perth AQAP** – Public consultation on the updated Perth Air Quality Action Plan (AQAP) was carried out in late 2024 between November and December. The feedback received was considered and the AQAP amended where required, with the final Perth AQAP awaiting committee approval in August 2025. Once published, PKC will begin delivering the new measures within the updated AQAP over the next five years.

- **Crieff AQMA revocation** – Following a detailed assessment of Crieff's current and future air quality in late 2023 which confirmed air quality objectives were not likely to be exceeded within Crieff, PKC formally revoked the Crieff AQMA in December 2024. Though the AQMA is revoked, monitoring within Crieff will be maintained and remaining measures within the Crieff AQAP will be progressed to ensure air quality continues to improve in the town.

- **Clean Air Day** – PKC once again took part in Clean Air Day in 2024. Alongside social media content, education activities were delivered at seven primary schools across Perth and Kinross, designed to help pupils understand key issues around air

pollution and climate change. As with last year, class activities focused on vehicle idling to tie in with PKC's ongoing anti-idling enforcement and promotional campaign "Ease Our Wheeze". Pupils made artwork with anti-idling messaging to be used in the future posters for display outside schools.

- **Anti-idling enforcement** – Enforcement continued in Perth and Kinross for its second year in 2024, with PKC parking attendants continuing to carry out enforcement on an intelligence-led basis following a '4 E's' approach – Engage, Explain, Encourage, Enforce. Following information gathered the previous year about idling hotspots, anti-idling messaging was displayed outside several schools in the form of lamppost wraps. Furthermore, new road signage was created and deployed at a known idling hotspot in Milnathort to discourage offenders. Encouragingly, once again no fixed penalty notices needed to be issued in 2024, and parking attendants continue to regularly ask motorists to switch off their engines while on patrol as well as identify hotspots for future focus. It should be noted that the first fixed penalty notice has been issued in July 2025, and will be reported on in the next APR.


**New anti-idling lamppost wraps installed at Craigie Primary School**

- **PKC Fleet HVO trial** – PKC Fleet carried out a three-month trial in May 2024 of moving six refuse collection vehicles (RCVs) from diesel to Hydrotreated Vegetable Oil (HVO) to reduce vehicle emissions. Though the cost of HVO is higher than diesel, the main focus of the move was for the benefits of $CO_2$ reduction. Switching from diesel to HVO fuel can also result in a 75% reduction in PM emissions and 10% reduction in NOx emissions, making it a positive move from both a climate change and air quality point of view.

  The result of this initial trial was a significant reduction in the council's in carbon emissions – namely saving 87 tonnes of carbon dioxide. The success of this trial has led to a further 18 bin lorries being swapped to HVO fuel from February 2025, with the changeover expected to achieve an estimated reduction in $CO_2$ of around 500 tonnes a year, alongside reductions in $NO_2$ and PM emissions.

- **Public Transport Transformation Project** – The PKC Public Transport Transformation Project was initiated in 2024, with the aim to develop an outline business case proposing the recommended PKC transport model to meet the needs of residents, visitors and to future proof transport provision in the Perth and Kinross area. This project will include widescale research and consultation to establish the current transport needs of the public as well as work to enhance awareness and promotion of public transport in Perth and Kinross. The overall aim of the project is to increase usage of public transport across the region, which will have a significant positive impact on reducing vehicle emissions and improving local air quality.

  As part of this project, PKC began providing free bus travel on the first Saturday of every month in 2024, in collaboration with local bus providers. This service was used by 38,042 people over the course of the year, saving almost £108,000 in fares to residents and encouraging people to get on board their local bus services, while promoting sustainable travel.

- **Mobility Strategy** – PKC's Mobility Strategy was approved by the Climate Change and Sustainability Committee on 23 October 2024, following substantial

consultation carried out throughout 2024. Setting out the Council's vision for managing and developing the area's transport network, this strategy has close ties with air quality improvement and will be key in delivering many of the measures within our air quality action plans. Air quality features prominently throughout the strategy, with improving air quality being one of the 11 key Transport Planning Objectives within the Strategy and several actions within the associated Mobility Strategy Action Plan relating to air quality. A Lead Officer was employed in June 2025 to take the strategy forward.

- **iBike** – PKC has continued to work with SUSTRANS to employ an iBike Officer to provide sessions at schools throughout Perth and Kinross. In 2024 these sessions included Bikeability cycle training, bike maintenance etc across a number of schools to encourage pupils and their parents to take up sustainable and active travel. 2702 pupils were engaged with, along with 209 staff and 19 parent attendees.

**PKC iBike officer leading a primary school bike ride**

- **Bus infrastructure** – PKC continues to upgrade the bus stop infrastructure throughout the region with new shelters and Real Time Passenger Information Displays (RTPI) to encourage the move to public transport. In 2024, 7 new RTPI displays were installed in Perth City with the majority being installed alongside refurbishment of existing bus shelters, along with a 65-inch double sided TFT display being installed at Kinross Park and Ride. Alongside their usual function of showing bus times, these RTPI displays have been utilised to advertise public transport related sites such as PK On The Go and Traveline Scotland. Furthermore, various improvements to Broxden Park and Ride were carried out to better cater for increased express coach and passenger usage at the site, including accessibility improvements and two more bus/coach bays.

- **EV infrastructure** – Perth and Kinross Council and Angus Council received £1.925 million from the EV Infrastructure Fund Grant in 2024 to enhance the charging network across the two areas, with PKC being the lead authority for delivery of the project. The project is expected to start in Autumn 2025 and will span 15-20 years, involving supply, installation, and maintenance of new and existing EV chargers across both areas. Alongside this work, as of the time of writing, all chargers across the PKC network are now contactless compliant.

- **Encouraging active travel** – PKC's Safer Communities Team continued to projects to encourage active travel in 2024. Bikeability training was delivered across the region, engaging with 2816 participants across 85 schools at all three skill levels of Bikeability. Other active travel projects delivered by the team include the Young Offenders Programme and working with HMP Perth to deliver Family Cycle Sessions in the future.
  Active travel infrastructure also continued to be rolled out across Perth and Kinross, with an additional 208 cycle parking spaces being installed across 27 new locations in 2024. The majority of these were installed at community facilities to further encourage cycle usage within Perth, a new shared use footway was installed in North Muirton, and feasibility design study for cycling infrastructure on Tay Street Perth was carried out. Ongoing installation of dropped kerbs and continuous footways throughout the region were also carried out in 2024 to improve accessibility.

**Cycle shelters installed at St Ninian's Cathedral and South Inch, Perth**

- **Staff travel** – Employee commuting and homeworking emissions were included within the Council's annual Public Bodies Climate Change Duties Reporting (PPCCDR) submission for the first time in 2023, calculated from staff travel survey data gathered in mid-2023. This survey was repeated in 2024, where we saw a travel breakdown of 74.9% by car, 13.7% by walking and cycling, 8.4% by bus and 2.7% by train. Though the surveys showed an increase in car usage from the previous year (60%), there was an increase in those using active travel methods. The survey also saw emissions associated with PKC employee commuting fall by 14% (752 $tCO_2e$) to an estimated 4,617 $tCO_2e$ annually. These surveys will help inform future measures to reduce staff travel emissions.

## Local priorities and challenges

- The updated Perth AQAP will be published in August 2025 following Committee approval. Following publication of the AQAP, work will begin planning the delivery of

the many new measures within the updated plan, alongside promotion of the plan both internally and externally.

- Following approval in 2024 and the appointment of a Lead Officer in June 2025, the PKC Mobility Strategy will now be progressed. The Mobility Strategy is intended to set the direction for the Council's approach on the movement of people and goods, helping coordinate the delivery of transport projects, whilst also providing support for external funding applications. Air quality features throughout various measures in the Strategy, and as such will be a key consideration in its delivery going forward.

- The Public Transport Transformation Project will continue to be delivered over the coming year, with work including assessing the feedback from communities gathered in 2024/25 to develop transport model options, submitting a revised Home to School Policy and examining areas where footways could be improved to improve safety for students walking to school.

- PKC will also continue to deliver the Perth Transport Futures Project in order to address key congestion points in the existing road network and provide linkages to growth areas set out in the Local Development Plan.

  This project is split into four phases and will be delivered over several years. Progress is as follows:

  - **Phase 1 A9/A85 Junction Improvement and Link Road to Bertha Park** – Completed in 2019

  - **Phase 2 Cross Tay Link Road (CTLR)** – Completed in March 2025

  - **Phase 3 Bertha Park North Link to A9** – Planning permission for the road to link Phase 1 and 2 was granted in February 2025 (Sweco UK Ltd, 24/01303/AMM). Construction is now underway on the road, which will run from Bertha Park High School to the new A9 West Roundabout, and will complete the Cross Tay Link Road.

- **Phase 4 Associated Perth City Centre Improvements** – Following completion of the Cross Tay Link Road, work is now underway to assess what improvements can now be made to Perth City Centre due to the reduction in traffic, such as a segregated cycle network, bus lanes, increased pedestrian areas etc.

More information on the Perth Transport Futures Project can be found at https://www.perthtransportfutures.co.uk/

## How to get involved

For further information on air quality within Perth and Kinross visit the PKC air quality website at: https://www.pkc.gov.uk/airquality

# Table of Contents

## List of Tables

## List of Figures

# 1 Local Air Quality Management

This report provides an overview of air quality in Perth and Kinross 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 Perth and Kinross 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 alongside regular annual reviews.

A summary of AQMAs declared by PKC can be found in Table 2.1 . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available in Figure 2.1 as well as online at PKC's Air Quality webpage.

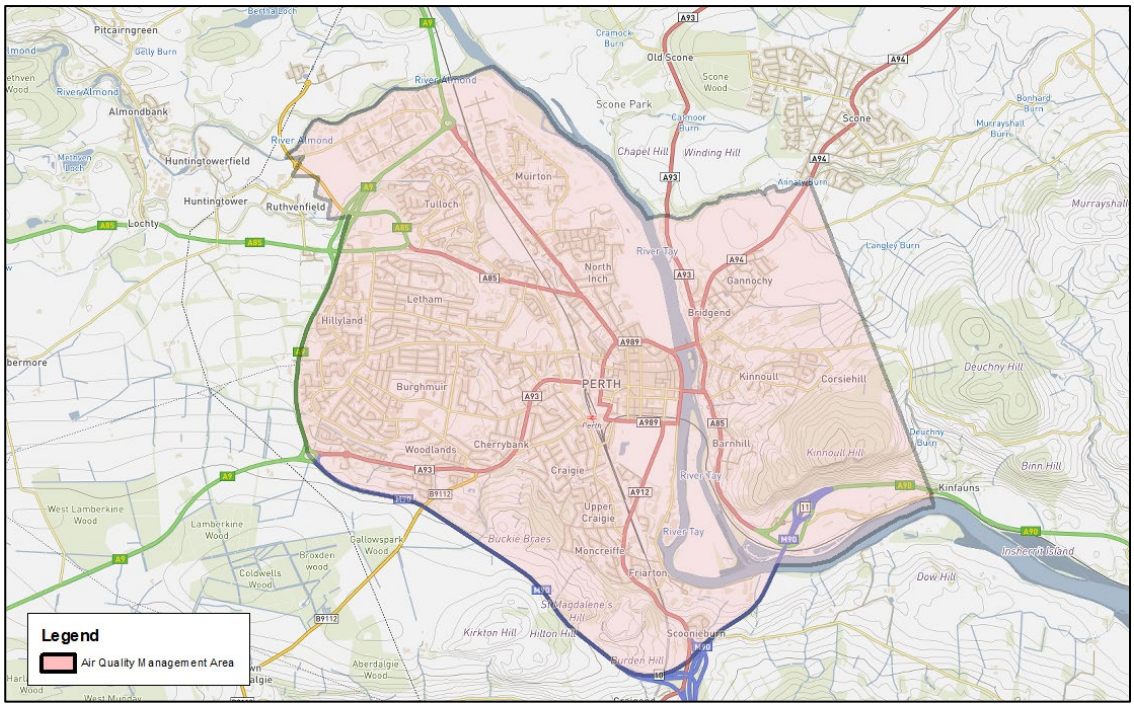


**Figure 2.1: Perth AQMA boundary**

**Table 2.1 – Declared air quality management areas**

| AQMA Name | Pollutants and Air Quality Objectives | City/ Town | Description | Action Plan |
|---|---|---|---|---|
| Perth AQMA | • $NO_2$ annual mean<br>• $PM_{10}$ 24-hour mean | Perth | The whole area of Perth City was designated an AQMA in 2006. | Perth and Kinross AQAP 2009 http://www.pkc.gov.uk/media/35448/2009-Air-Quality-Action-Plan/pdf/Perth_and_Kinross_Air_Quality_ |

## 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. Perth and Kinross 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 each AQMA.

Key completed measures for this reporting year are:

- The Cross Tay Link Road was completed in March 2025 after three years of construction. The road is expected to have a significant positive impact on Perth's air quality by reducing traffic traveling through the city centre, reducing congestion and vehicle emissions.

- The updated Perth AQAP has been completed following public consultation in late 2024, with the final version to be published in August 2025 following committee approval.

- The Crieff AQMA was revoked in December 2024 following a detailed assessment which concluded that future exceedances were not likely to occur.

- In 2024, PKC Fleet trialled 6 of its refuse vehicles on HVO fuel to reduce emissions. Following a successful trial, as part of a wider Fleet Decarbonisation Strategy a further 18 refuse vehicles will be moved to HVO in 2025

- The PKC Public Transport Transformation Project was initiated in 2024 to develop an outline business case proposing the recommended PKC transport model to meet the needs of residents, visitors and to future proof transport provision in the Perth and Kinross area. Widespread work was carried out in 2024, including mapping work to assess current transport provision, public consultation work, assessment of current home to school transport provision and more. Also as part of this work, three council minibuses were handed over to Community Transport Groups - Royal Voluntary Service, Perthshire Welfare Society, and Mantalk.

- As part of the above Transformation Project, free bus travel was provided across Perth and Kinross on the first Saturday of each month, with 38,042 people taking advantage of the offer over the course of the year, saving almost £108,000 in fares.

- The PKC Mobility Strategy was approved in October 2024, and a Lead Officer was employed in June 2025 to take the project forward. This project covers a wide range of transport remits and its delivery will have a positive impact on air quality across Perth and Kinross

- Anti-idling enforcement continued for a second year following the “4 E’s” approach (Engage, Explain, Encourage, Enforce). Anti-idling messaging was displayed around several schools in 2024 through the use of lamppost wraps, as well as through new road signs deployed at a known idling hotspot. At the time of writing, one fine has been issued.

- Clean Air Day event delivered with social media and school participation at seven primary schools across Perth and Kinross.

- The iBike Officer continued to provide cycle activities and training at schools across Perth and Kinross, with 2,702 participants in 2024.

- PKC's Safer Communities Team continued to deliver Bikeability training across the region, with 2816 participants across 85 schools at all three skill levels of Bikeability. Other active travel projects delivered by the team include PKC's Trail Therapy Sessions and the Young Offenders Programme.

- Cycle parking was installed at 27 locations across Perth and Kinross, totalling 208 new cycle parking spaces. Other active travel infrastructure works included a new shared used footway in North Muirton and feasibility design for future cycling infrastructure on Tay Street, Perth.

- PKC continued to improve bus infrastructure in 2024 with the installation of a further 7 Real Time Passenger Information boards within Perth City and a double-sided totem display at Kinross Park and Ride, along with various improvements to Broxden Perth and Kinross for improved capacity and accessibility for both buses/coaches and passengers.

- PKC and Angus Council received £1.925 million from the EV Infrastructure Fund Grant to enhance the EV Charging network across both regions. All existing chargers in PKC are also now contactless compliant.

- The PKC staff travel survey was carried out for a second year to calculate employee commuting and homeworking emissions for the Council's annual Public Bodies Climate Change Duties Reporting (PPCCDR) submission. Emissions fell by 14% (752 $tCO_2e$) compared to the previous year, with a larger proportion of staff using sustainable travel methods.

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

- Zephyr Monitor and Traffic Management Trial – The trial to link air quality sensors with the traffic signalling network was delayed due to ongoing communication issues with the signalling system across Perth, making overall operation unreliable and preventing the linking of the Zephyr monitors and traffic signalling. A permanent solution was put in place in Autumn 2024, however due to the Cross Tay Link Road opening in March 2025 the trial will be delayed until traffic levels have stabilised once more. Work will be expected to resume late 2025/early 2026

Perth and Kinross Council expects the following measures to be completed over the course of the next reporting year:

- The updated Perth AQAP will be completed and published in August 2025, and work will begin to deliver the new measures within the plan.

- Following the opening of the Cross Tay Link Road in March 2025, PKC will closely monitor the impact the new road has on Perth's air quality in its first year. Monitoring data, traffic data, traffic modelling and air quality modelling will be analysed to determine the impact the road is expected to have on local air quality in Perth.

- The Perth Circulation Plan is under consideration to reallocate the newly available road space within Perth City freed up by the Cross Tay Link Road for more sustainable travel (bus, walking, cycling). These works may have a significant impact on air quality, and as such we will be involved closely in the planning of this project.

- Anti-idling enforcement will continue within Perth and Kinross and may be further improved with the implementation of new parking systems, currently at the procurement stage.

- The 2025 PKC staff travel survey is underway with the results being used to inform future measures for reducing staff emissions.

- Following a successful trial of HVO in 2024 and as part of a wider Fleet Decarbonisation Strategy (2025-2030), a further 18 refuse vehicles will be moved to HVO in 2025. The decarbonisation strategy will also lead a further push for PKC petrol and diesel vehicles to be replaced with electric alternatives.

- Work on the Public Transport Transformation Project will continue in 2025, including assessing results from a mapping exercise and the feedback from communities, reviewing all existing contracts, and producing a revised Home to School policy.

- PKC will begin delivery of the joint EV infrastructure project with Angus Council utilising £1.925 million funding from EV Infrastructure Fund Grant in Autumn 2025, with contracts going out to tender in the summer.

- Funding has been granted to once again allow the iBike Officer to provide cycle activities and training at schools across Perth and Kinross.

- Active travel infrastructure will continue to be installed across Perth and Kinross, including new cycle parking, shared use footways and accessibility improvements

- PKC Safer Communities team will continue to deliver Bikeability training, with level one participation increasing in 2025. Other active travel work will include continuation of Trail Therapy sessions and the Young Offenders Programme, as well as working to deliver Family Cycle Sessions for HMP Perth and assisting in delivering Energy Fest 2025.

- PKC's Traffic and Network team will utilise new traffic detectors to identify vehicle types and use this information for phasing/timing changes, with this new method of control being trialled in Atholl Street/Bridgend initially.

- PKC Environmental Health will continue to regularly assess planning applications for to ensure that the air quality impact of future development across Perth and Kinross is kept to a minimum.

## Table 2.2 – PKC's three key actions, and progress on Perth AQAP 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 |
|---|---|---|---|---|---|---|---|---|---|
| 1. | **Assess air quality impact of the Cross Tay Link Road** –<br><br>PKC will investigate changes in Perth's air quality monitoring and traffic data, pre and post Cross Tay Link Road opening. | Transport planning and infrastructure | 2026 | PKC Environmental Health, Transport and Development | In Progress | **Fully Funded** (Annual funding source, SG AQ Grant) | 2024 – Monitoring increased in surrounding towns in advance of CTLR opening<br><br>2025 – CTRL opened in March 2025<br><br>2025 – Funding granted by SG to carry out modelling and monitoring work to assess impact of CTLR on local air quality | In advance of the CTLR opening in March 2025, PKC's Environmental Health team deployed additional diffusion tube monitoring in late 2024 to surrounding towns/villages likely to see changes in traffic when the road opened, to establish baseline air quality levels pre-CTLR.<br><br>Air quality monitoring data and traffic data will be gathered throughout 2025 and will be analysed in 2026 to assess the initial impact of the new road. | No barriers anticipated |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| 2 | **Public Transport Transformation Project** –<br><br>Review public transport delivery across Perth and Kinross as well as enhance awareness and promotion of public transport in the area | Alternatives to private vehicle use | 2027 | PKC Public Transport Unit | In Progress | **Fully Funded** (Staff Time and PTTP funding, £325,000 over three years) | 2024 - 38,042 used free bus travel days saving £108,000 in fares<br><br>2024 – Public Transport Transformation Project underway | The PTTP was initiated in 2024 and will be delivered over three years. Works includes widespread consultation to assess current real need for transport, as well as reviewing school transport, transport for those using Health and Social Care Partnership services and developing an effective communication and engagement strategy. The overall goal of this work is to develop an outline business case proposing the recommended PKC transport model to meet the needs of | Continued increasing costs of operating public transport services and bus driver shortages present challenges |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | residents, visitors and to future proof transport provision in the Perth and Kinross area<br><br>Part of this work also includes the continuation of the council's Free Bus Saturdays on the first Saturday of each month, with the aim of encouraging residents, shoppers and visitors to use their local bus. In 2024, 38042 people took advantage of the offer, saving over £108,000 in fares. | |
| 3 | **PKC Fleet transition to Hydrotreated Vegetable Oil (HVO) Fuel** – | Promoting Low Emission Transport | 2025/26 | PKC Fleet | In Progress | **Fully Funded** (PKC Fleet Revenue Budget) | 2024 – 6 refuse vehicles trialled on HVO fuel, $CO_2$ reduction of 87 tonnes | In 2024, PKC Fleet trialled 6 of its refuse vehicle on HVO fuel to reduce emissions. | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | Following a successful trial in 2024, PKC will transition 18 additional refuse vehicles to HVO fuel to reduce vehicle emissions | | | | | | | This trial resulted in a reduction of $CO_2$ emissions of 87 tonnes. As well as reducing $CO_2$, switching from diesel to HVO fuel can result in a 75% reduction in PM emissions and 10% reduction in NOx emissions, particularly in heavy vehicles.<br><br>In response to this success and as part of a wider Fleet Decarbonisation Strategy a further 18 refuse vehicles will be moved to HVO in 2025. | |
| A.1 | Improve links with Regional Transport Strategy | Policy guidance and development control | 2025 | TACTRAN<br><br>PKC<br><br>(Transportation | Complete | **Fully Funded** (Staff Time) | 2024 - Completion of RTS | The regional transport strategy was published in June 2024, | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | and Development and Environmental Health) | | | | with PKC being included in its development process. PKC will continue to work with TACTRAN to deliver the RTS with particular focus on areas improving air quality | |
| A.2 | Ensure Mobility Strategy created in line with CAFS2 | Policy guidance and development control | 2025 | PKC (Transport and Development) | Complete | **Fully Funded** (Staff Time) | 2024 - Completion of PKC's Mobility Strategy | PKCs Mobility Strategy was approved in October 2024 and a Lead Officer was employed in June 2025 to take the project forward. | No barriers predicted |
| A.3 | Ensure integration of air quality with other Council strategies and policies | Policy guidance and development control | Ongoing | PKC | In progress | **Fully Funded** (Staff Time) | 2024 – AQ close involvement in Climate Change, Mobility, LDP and Transport Planning projects | Alongside the above-mentioned Mobility Strategy, air quality is closely involved in various Council Strategies/Policies, including a presence on the Climate | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Change Working Group and close collaboration with the creation of the next Local Development Plan.<br><br>Following the completion of the Cross Tay Link Road, works are underway to reallocate the newly available road space within Perth City to more sustainable travel (bus, walking, cycling). These works may have a significant impact on air quality, and as such we will be involved closely in the planning of this project | |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| A.4 | Planning and AQ | Policy guidance and development control | Ongoing | PKC (Planning and Environmental Health | In Progress | **Fully Funded** (Staff Time) | 2020 - Statutory AQ Supplementary Planning Guidance adopted in March 2020 and is linked with the LDP | Environmental Health continue to check the weekly planning list and comment on applications which may adversely impact on local air quality. The AEA/EPUK screening tools are used to assess applications. The other new aspects of this measure will be progressed following publication of the Perth AQAP in August 2025 | Staff resource for assessing approach to development green travel plans and use of AQ supplementary guidance |
| B.1 | Cross Tay Link Road | Transport planning and infrastructure | 2025 | Transport Scotland<br><br>PKC (Traffic and Network and Transportation | In Progress | **Fully Funded** (PKC Capital Funding and SG Funding (£110.5M PKC + £40M SG)) | 2021 - Contract for the CTLR design and construction was awarded on 23 June 2021.<br><br>2022 – Groundworks | The Cross Tay Link Road opened in March 2025 after three years of construction. The change in traffic movements and the | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | and Development) | | | on CTLR began<br><br>2023 – Realigned A9 opened in August, part of link road opened in October, construction of the Destiny Bridge underway<br><br>2025 - Completion of the Cross Tay Link Road in March | impact the new road will have on air quality will now be assessed over the coming months and years, alongside work within Perth City Centre to improve active and sustainable travel following the expected reduction in city centre traffic as a result of the new road. | |
| B.2 | Incentivise parking out with City Centre hotspots | Transport planning and infrastructure | N/A | PKC (Parking) | Planned | **Not Funded** | 2024 - Completion of Perth Parking Survey to assess usage | Perth City parking survey carried out in 2024. Survey found overall maximum occupancy of 56%, a reduction from 2018. Short stays have also increased. This survey will be used to | -Staff resource and funding to investigate parking options<br><br>- Changes to parking will likely be received negatively by the public, significant public consultation will be required before any changes are implemented |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | inform changes to Perth City Parking and a planned Parking Strategy | |
| B.3 | Encourage low-car development | Alternatives to private vehicle use | N/A | PKC (Planning) | Planned | **Not Funded** | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | PKC's LDP3 will not be published until 2027 and will be subject to various public consultation exercises. Measure's inclusion in LDP3 will be dependent on public feedback. |
| C.1 | Continued improvement of UTMC system | Traffic management | Ongoing | PKC (Traffic and Network and Transportation and Development) | In Progress | **Fully Funded** (PKC UTC Revenue Budget) | 21/22 - Reviewed and Validated the traffic signal operation, phasing and timings of the Dunkeld Road/Atholl Street Corridor and Bridgend/Perth Bridge Corridor to try and improve traffic flow through the corridors.<br><br>2022 – Two new signal | At the time of writing, CTLR has now been completed (March 2025). Changes to traffic flows through the city centre will be assessed late 2025 once the new normal has been established, after which point any reviews of traffic management | Staff resource may limit progress – Traffic and Network team have a wide remit |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | sites installed to support school active travel<br><br>2023 – Traffic and Network Zephyr monitor trial began, but has been postponed until 2025 due to communication issues with traffic signals and the upcoming CTLR completion<br><br>2024 – New variable messaging signs installed as part of CTLR project | will be carried out.<br>The Zephyr trial was also postponed until CTLR was completed and will operate on a similar timescale to the above.<br><br>As part of the CTLR project, new variable messaging signs have been installed and will inform drivers of congested routes, redirecting them and allowing for a further reduction in city centre congestion | |
| C.2 | Anti-Idling Scheme | Traffic Management | Ongoing | PKC (Parking and Environmental Health) | In Progress | **Fully Funded** (Staff Time) | 2022 - Anti-Idling enforcement approved by Committee<br><br>2023 – Anti-idling | Anti-idling enforcement continued within PKC for second year, alongside deployment of anti-idling | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Enforcement Began<br><br>2024 – Anti-idling messaging installed outside schools and at an idling hotspot | messaging in the form of lamppost wraps around several schools and targeted road signs at a known idling hotspot. One idling fine has been issued at the time of writing | |
| C.3 | Traffic Monitoring | Traffic management | N/A | PKC (Transportation and Development) | Planned | **Not Funded** | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | Measure progress reliant on sourcing funding |
| D.1 | Encourage local fleet operators to pursue cleaner vehicles | Promoting low emission transport | N/A | ECO Stars<br>PKC<br>(Environmental Health) | Delayed | **Not Funded** | 2023 - 208 members recruited covering over 7,228 vehicles | No further progress due to SG funding reductions | Measure progress reliant on sourcing funding or SG choosing to run ECO Stars centrally in future |
| D.2 | Freight Improvements | Freight and delivery management | Ongoing | TACTRAN<br><br>PKC (Transportation | In Progress | **Part Funded** (Staff Time) | N/A | No progress as this is a new measure within the updated Perth | Staff and financial resource required to assess freight |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | and Development) | | | | AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | consolidation centre, renewable charging options etc |
| D.3 | Public transport improvements | Transport Planning and Infrastructure | Ongoing | PKC (Public Transport Unit and Environmental Health) | In Progress | **Fully Funded** (Staff Time and PTTP funding, £325,000 over three years) | 2024 - 38,042 used free bus travel days saving £108,000 in fares<br><br>2024 – Public Transport Transformation Project underway<br><br>2024 - Minibuses donated to three community groups, | PKC funded free bus travel on the first Saturday of every month in 2024. 38,042 people took advantage of the offer, saving almost £108,000 in fares.<br><br>Public Transport Transformation Project is now also underway, aiming to review public transport delivery and enhance awareness and promotion of public transport in Perth and Kinross | -Staff resource to progress BSIP development<br><br>-Bus operator buy-in and cooperation necessary for measure success |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | PKC Minibuses were donated to three community groups: Royal Voluntary Service, Perthshire Welfare Society, and Mantalk | |
| D.4 | Continue to evaluate the need for an LEZ in the AQMA | Promoting Low Emission Transport | Ongoing | PKC (Environmental Health) | In Progress | **Fully Funded** (Staff Time) | 2020 - NLEF Stage 1 Screening complete and LEZ found not necessary in Perth | NLEF Stage 1 Screening Appraisal was carried out by PKC for both the Perth and Crieff AQMAs as part of the 2020 APR. Screening assessment found that the measures within the Perth AQAP were sufficient to reduce air pollution within Perth AQMA without the need of an LEZ. | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| D.5 | PKC Fleet Improvement | Promoting Low Emission Transport | Ongoing | PKC (Fleet and Transportation and Development) | In Progress | **Fully Funded** (PKC Fleet Revenue Budget) | 2023 - 17 EVs in PKC Fleet, chargers at 15 locations available for Fleet use<br><br>2024 – 19 EVs in PKC Fleet, 25 chargers available for Fleet use at 12 sites<br><br>2024 – HVO trial for 6 PKC refuse vehicles | PKC continue to replace Euro Standard vehicles with newer Euro 6 vehicles or EVs where appropriate. Currently PKC has a total of 19 EVs in its fleet.<br><br>PKC continue to expand electric charging point network to accommodate a more electric fleet. PKC Fleet now have 25 EV charge points installed at 12 locations across Perth and Kinross<br><br>In 2024, PKC Fleet trialled 6 of its refuse vehicle on HVO fuel to reduce emissions. Following a successful | -PKC EV charging infrastructure key bottleneck for moving fleet to electric<br><br>-EV infrastructure reliant on sourcing funding and suppliers |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | trial, as part of a wider Fleet Decarbonisation Strategy a further 18 refuse vehicles will be moved to HVO in 2025 | |
| D.6 | PKC Fleet Management | Vehicle fleet efficiency | N/A | PKC (Fleet) | Planned | **Part Funded** (Staff Time) | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | Sourcing funding and supplier for staff driver training |
| D.7 | EV Charging Infrastructure | Promoting low emission transport | Ongoing | PKC (Transportation and Development) | In Progress | **Fully Funded** (EV Infrastructure Fund Grant Award of £1.925M for Angus and PKC) | 2024 - EV Infrastructure Fund Grant Award of £1.925M | PKC and Angus Council received £1.925 million from the EV Infrastructure Fund Grant in 2024 to enhance the charging network across the two areas, with PKC being the lead authority for | Significant funding required for rollout of EV infrastructure.<br><br>Chargepoint Scotland ceases in 2025, meaning a new back office solution will need to be procured for all PKC chargers. Significant procurement exercise, may |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | delivery of the project. The contract will span 15-20 years, involving supply, installation, and maintenance of new and existing EV chargers across the areas.<br><br>Alongside this work, as of the time of writing, all chargers across the PKC network are now contactless compliant. | delay expansion of the network |
| D.8 | School Travel Plans | Promoting Travel Alternatives | N/A | PKC (Public Transport Unit, Environmental Health and Traffic and Network) | Planned | **Not Funded** | 2023/24 – Funding applied for in partnership with Living Streets for the creation/update of school travel plans<br><br>2024/25 – Funding application with | Unfortunately, PKC's funding application in partnership with Living Streets to carry out the creation and/or update to Perth and Kinross school travel plans was | Staff resource required for reviewing and updating of travel plans<br><br>Sourcing funding for this resource proving difficult |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Living Streets was unsuccessful, as was SG AQ Grant application. Alternative funding sources being identified | unsuccessful, as was a subsequent application to Scottish Government for funding. PKC are currently seeking alternative forms of funding to take this project forward | |
| D.9 | Domestic Emissions | Domestic solid fuel burning | N/A | PKC | Planned | **Fully Funded** (Staff Time) | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | Staff resource required for assessing distribution of domestic burning sources |
| E.1 | Promotion and development of car clubs | Alternatives to private vehicle use | N/A | PKC | Planned | **Not Funded** | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following | Unknown, will be determined as the measure is progressed following AQAP publication |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | publication of the Perth AQAP in August 2025 | |
| E.2 | Park and Rides | Alternatives to private vehicle use | Ongoing | PKC (Public Transport Unit, Transportation and Development and Environmental Health) | In Progress | **Fully Funded**<br><br>Annual funding source, Smarter Choices Smarter Places (RTPI Boards)<br><br>Local Authority Investment Programme (Scone EV Charger)<br><br>Tay Cities Deal (Low Carbon Transport Hub) | 2022 – Fast EV Charger installed at Scone Park and Ride, additional RTPI board installed at Broxden Park and Ride<br><br>2023/24 – Various site improvements to Broxden Park and Ride including accessibility improvements and two more bus/coach bays<br><br>2024 – Double sided totem TFT display installed at Kinross Park and Ride | In 2023/24 various site improvements to the value of approximately £80k were carried out at Broxden Park and Ride to account for increased express coach and passenger usage. This included bus/coach and passenger accessibility improvements along with provision of 2x bus/coach bays.<br><br>A double-sided totem TFT display was also installed at Kinross Park and Ride.<br><br>No further progress | Walnut Grove Park and Ride progress reliant on developer collaboration.<br><br>Further Park and Ride improvement reliant on sourcing funding<br><br>Smarter Choices Smarter Places funding has ceased, meaning alternative funding methods will be required for work previously funded from this source |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
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| | | | | | | | | regarding the proposed Walnut Grove Park and Ride, discussion between PKC and the developer/landowner re the Section 75 legal agreement are ongoing | |
| F.1 | Promotion of active travel | Promoting low emission transport | Ongoing | TACTRAN<br>PKC | In Progress | **Fully Funded**<br><br>(Annual funding, 50% SG AQ Grant funding 50% Sustrans funding (iBike Officer))<br><br>(Annual funding, Bikeability Scotland Support Plus Fund (Bikeability))<br><br>(Annual funding, Cycling Scotland/Transport Scotland (Cycle Parking)) | 2023/24 – 2816 Bikeability participants across 85 primary schools<br><br>2023/24 – 2702 pupils, 209 staff and 19 parents attended iBike activities carried out in 23/24<br><br>2024/25 – Cycle parking installed at 27 new locations, totalling 208 new cycle parking spaces. New shared use | SG funding was attained again this year to match fund the iBike Officer. Various activities such as bikeability training, bike maintenance sessions etc. were carried out, with 2702 participants in 2024<br><br>PKC's Safer Communities Team continued to deliver Bikeability training across the region, with 2816 | Both Sustrans and SG AQ Grant funding has been cut from 2024 onwards, which may restrict future iBike project work |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (Annual funding, 70% Paths for All, 30% PKC internal funding (Shared use footway))<br><br>(Annual funding Transport Scotland (Tay Street Feasibility work)) | footway in North Muirton, feasibility study carried out for Tay Street cycle infrastructure | participants across 85 schools at all three skill levels of Bikeability.<br><br>Active travel infrastructure continued to be delivered across Perth and Kinross, with a further 208 cycle parking spaces installed across 27 new locations in 2024. Furthermore, a new shared use footway was installed in North Muirton, and feasibility design study for cycling infrastructure on Tay Street Perth was carried out. Ongoing installation of dropped kerbs and continuous footways were also | |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
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| | | | | | | | | carried out in 2024 to improve accessibility.<br><br>PKC collaborates with TACTRAN's Get On The Go, Perth and Kinross Countryside Trust, Liftshare and other partners to promote active travel across the region. | |
| F.2 | Provision of travel information | Public information | Ongoing | TACTRAN<br><br>PKC (Public Transport Unit) | In Progress | **Fully Funded**<br><br>(PKC PTU Revenue Budget (RTPI Displays)) | 2024 – Perth and Kinross On The Go website terminated due to funding cut<br><br>2024 – 7 new RTPI displays installed in Perth, as well as a double-sided display at Kinross Park and Ride | Due to the existing Smarter Choices Smarter Places coming to an end, the former Perth and Kinross On The Go website which advertised various travel information was terminated. Alternative funding will need to be | SCSP Funding has come to an end, affecting former ongoing projects |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sourced to continue this project or similar projects.<br><br>7 new real time passenger information (RTPI) displays were installed in Perth City, with the majority being installed alongside refurbishment of existing bus shelters. A further double-sided totem display was installed at Kinross Park and Ride | |
| F.3 | Awareness raising and education | Public information | Ongoing | PKC (Environmental Health) | In Progress | **Fully Funded** (Annual funding source, SG AQ Grant funding (Clean Air Day) | 2024 – Clean Air Day activities carried out at seven schools in Perth and Kinross | Alongside social media content, Clean Air Day activities were carried out at seven Perth and Kinross primary schools in 2024, promoting active and sustainable | SG Air Quality Grant reduced in recent years, alternative funding sources required to continue work |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | travel as well as informing the public on AQ issues. In 2024 educational activities once again had a focus on vehicle idling to coincide with ongoing anti-idling enforcement within Perth and Kinross. While social media work was carried out in time for Clean Air Day, school activities were carried out in late Autumn for better school participation | |
| F.4 | Encourage move to EV | Promoting low emission transport | N/A | PKC (Transportation and Development and Environmental Health) | Planned | **Not Funded** (will be staff led) | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth | Staff resource to progress measure |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | AQAP in August 2025 | |
| F.5 | Improve Council's provision of AQ information | Public information | Ongoing | PKC (Environmental Health) | In Progress | **Fully Funded** (Staff Time) | 2023 – PKC AQ Website updated | No further progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | No barriers predicted |
| G.1 | Increase AQ monitoring network | Other | N/A | PKC (Environmental Health) | Planned | **Not Funded** | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | Sourcing funding for expansion of monitoring network |
| G.2 | Increased AQ Modelling | Traffic Management | N/A | PKC (Environmental Health)<br><br>AQ consultant/ Systra | Planned | **Fully Funded** (SG AQ Grant) | N/A | Funding has been granted in 2025 to carry out air quality modelling of Perth City | Sourcing funding for increased traffic and AQ funding |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Centre to assess the impact of the Cross Tay Link Road opening on pollution hotspots | |
| G.3 | Scenario Modelling | Traffic Management | N/A | PKC (Transportation and Development and Environmental Health)<br><br>AQ consultant/ Systra | Planned | **Not Funded** | N/A | No progress as this is a new measure within the updated Perth AQAP. Measure will be progressed following publication of the Perth AQAP in August 2025 | Sourcing of funding for AQ modelling of future Perth road changes |

## Table 2.3 – Progress on Crieff AQAP 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 |
|---|---|---|---|---|---|---|---|---|---|
| A.1 | Liaise with the Scottish Government re. the consideration of national | Policy guidance and development control | N/A | Scottish Government and PKC | Delayed | N/A | N/A | Information awaited from SG to progress further | Awaiting direction from Scottish Government |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | measures to reduce background concentrations of PM | | | | | | | | |
| A.2 | Improving links with local transport policies | Policy guidance and development control | N/A | PKC Transport Planning | In Progress | N/A | 2023 – PKC Mobility Strategy drafted, Air Quality a key consideration<br><br>2024 – PKC Mobility Strategy published | PKCs Mobility Strategy was approved in October 2024. AQ is a key factor within the strategy, and EH were closely consulted during its development. A Lead Officer was employed in June 2025 to take the Mobility Strategy forward. | No barriers predicted |
| A.3 | Improve links with Regional Transport Strategy | Policy guidance and development control | N/A | PKC Transport Planning and TACTRAN | Complete | N/A | 2023 – Public consultation on the new TACTRAN RTS carried out between July and November 2023, and a final draft submitted to the Minister of Transport for approval | The regional transport strategy was published in June 2024, with PKC being included in its development process. PKC will continue to work with TACTRAN to deliver the RTS with | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2024 – New Regional Transport Strategy published in June 2024 | particular focus on areas improving air quality | |
| A.4 | Ensure integration of air quality with other Council strategies and policies | Policy guidance and development control | N/A | PKC Planning | In Progress | N/A | 2019 - LDP considered AQ within the plan for the whole region, not just AQMAs, and was in line with CAFS.<br><br>2021 - Air Quality a key consideration within the PKC Climate Action Plan<br><br>2023 – PKC Mobility Strategy drafted, Air Quality a key consideration<br><br>2024 -PKC Mobility Strategy Published | PKCs Mobility Strategy was approved in October 2024. AQ is a key factor within the strategy, and EH were closely consulted during its development. A Lead Officer was employed in June 2025 to take the Mobility Strategy forward.<br><br>EH is regularly consulted on upcoming Council plans and strategies regarding Air Quality integration | No barriers predicted |
| A.5 | LDP – assess merit of further development in Crieff | Policy guidance and development control | 2019 | PKC Planning | Completed | N/A | 2019 - Further development in Crieff considered in 2019 LDP, no | The Local Development Plan was reviewed and a new LDP | N/A |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | increases beyond existing proposals until 2024 | was adopted in 2019. During the review, the environmental impacts of directing future development towards or away from Crieff was assessed. The outcome was that the plan should not propose an increase in development – beyond existing proposals – in Crieff for the next five-year plan period (2019-24). | |
| B.1 | Redirect local road traffic movements away from A85 | Traffic management | N/A | PKC Traffic and Network and Transport Scotland | Delayed | **Not Funded** | N/A | Limited alternatives without significant investment | Lack of resource available to progress |
| B.2 | Incentivise parking out with AQMA | Transport planning and infrastructure | Unknown | PKC | Delayed | **Not Funded** | N/A | EH is working with PKCs Transport and Network team to remove 6 parking spaces on West High Street responsible | Lack of available Traffic and Network staff resource due to increased demand on the service |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | for significant narrowing of road space at this point, causing congesting and increased vehicle emissions.<br><br>Due to Traffic and Network's high workload across Perth and Kinross, there is currently no predicted timescale for this project | |
| C.1 | Possible provision of SMART parking in Crieff | Transport planning and infrastructure | Unknown | PKC Transport Planning | Delayed | **Not Funded** | N/A | No Progress | Reduced officer capacity and ongoing/annual projects |
| C.2 | Urban Traffic Control Systems congestion management | Traffic management | Unknown | Transport Scotland and PKC Traffic and Network | Delayed | **Not Funded** | N/A | No Progress | Reduced officer capacity and ongoing/annual projects |
| C.3 | Anti-Idling Enforcement | Policy guidance and development control | 2023 | PKC | Completed | **Fully Funded** (Staff Time) | 2022 - Anti-Idling enforcement approved by Committee<br><br>2023 – Anti-idling Enforcement Began | Anti-idling enforcement continued within PKC for second year, alongside deployment of anti-idling messaging in the form of lamppost | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2024 – Anti-idling messaging installed outside schools and at an idling hotspot | wraps around several schools and targeted road signs at a known idling hotspot. One idling fine has been issued at the time of writing | |
| C.4 | Undertake a review of the current locations of pedestrian crossings | Transport planning and infrastructure | Unknown | Transport Scotland and PKC Traffic and Network | Delayed | **Not Funded** | N/A | No Progress | Reduced officer capacity and ongoing/annual projects |
| C.5 | Limit or prioritise traffic turning right onto High Street | Traffic management | Unknown | Transport Scotland and PKC Traffic and Network | Delayed | **Not Funded** | N/A | No Progress | Reduced officer capacity and ongoing/annual projects |
| D.1 | Encourage private and public operators to pursue cleaner vehicles | Vehicle fleet efficiency | N/A | PKC | In Progress | **Not Funded** | 2019 – PKC ECO Stars Scheme launched<br><br>2022 – EV chargers now installed in all Crieff PKC car parks and Community Campus<br><br>2023 – PKC ECO Stars 208 members recruited covering over 7,228 vehicles | No further ECO Stars progress due to reduction in Scottish Government funding. | Measure progress reliant on sourcing funding or SG choosing to run ECO Stars centrally in future |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| D.2 | Maintenance of the Local/Voluntary Bus Quality Partnership - | Promoting travel alternatives | Unknown | PKC Public Transportation Unit | Delayed | N/A | N/A | No Progress | Lack of PKC Public Transport staff resource to pursue |
| D.3 | School Travel Plans | Promoting travel alternatives | N/A | PKC Traffic and Network and Public Transport Unit | In Progress | N/A | 2023/24 – Funding applied for in partnership with Living Streets for the creation/update of school travel plans<br><br>2024/25 – Funding application with Living Streets was unsuccessful, as was SG AQ Grant application. Alternative funding sources being identified | School exclusion zones are being considered for further schools, dependant on suitability of the school's adjacent street network.<br><br>A review of all school travel plans is a new measure included within the updated Perth AQAP.<br><br>Unfortunately, PKC's funding application in partnership with Living Streets to carry out the creation and/or update to Perth and Kinross school travel plans was | Staff resource required for reviewing and updating of travel plans<br><br>Sourcing funding for this resource proving difficult |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | unsuccessful, as was a subsequent application to Scottish Government for funding. PKC are currently seeking alternative forms of funding to take this project forward | |
| D.4 | Public transport improvements | Promoting travel alternatives | N/A | PKC Public Transport Unit | In Progress | **Fully Funded** (Staff Time and PTTP funding, £325,000 over three years) | 2021 - RTPI screens installed in two locations within Methven in 20/21, and power supply installed at a bus shelter in Comrie in preparation for a RTPI.<br><br>2022 - Two electronic ticket machines with contactless payment facilities installed at Sweeneys Garage in Muthill, who | PKC funded free bus travel on the first Saturday of every month in 2024. 38,042 people took advantage of the offer, saving almost £108,000 in fares.<br><br>Public Transport Transformation Project is now also underway, aiming to review public transport delivery and | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
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| | | | | | | | operate in the Crieff area<br><br>2024 – Public Transport Transformation Project underway<br><br>2024 - 38,042 used free bus travel saving £108,000 in fares | enhance awareness and promotion of public transport in Perth and Kinross | |
| D.5 | Restrict access for polluting vehicles within AQMA | Traffic management | 2020 | Transport Scotland and PKC | Completed | N/A | 2020 - NLEF Stage 1 Screening complete and LEZ found not necessary in Crieff | NLEF Stage 1 Screening Appraisal was carried out by PKC for both the Perth and Crieff AQMAs as part of the 2020 APR. Due to the Crieff AQMA covering essentially a single street, in line with the guidance provided for carrying out the NLEF assessment a low emission zone was not thought to be a proportionate | N/A |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | measure in this situation. | |
| D.6 | Implement ECO Stars scheme for HGV and bus operators | Vehicle fleet efficiency | 2019 | PKC | Completed | **Not Funded** | 2019 – PKC ECO Stars Scheme Launched<br><br>2023 - 208 members recruited covering over 7,228 vehicles | No further progress due to SG funding reductions. | Measure progress reliant on sourcing funding or SG choosing to run ECO Stars centrally in future |
| E.1 | Promotion of lift sharing and development of car clubs | Alternatives to private vehicle use | N/A | PKC and TACTRAN | In Progress | **Not Funded** | 2022 - PKCs Liftshare platform no longer has the engagement or membership to make the licence cost economically viable moving forward. PKC Liftshare members have been transferred to the Perth and Kinross regional Liftshare platform, which is paid for by TACTRAN. | Continued promotion of Lift share including PKC and PRI, SSE and Aviva with stalls within workplaces<br><br>New measure within the updated Perth AQAP focuses more on development of car share scheme than liftshare (this is PKC wide and will include Crieff) | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| E.2 | Travel plans for large institutions and businesses | Promoting travel alternatives | N/A | PKC Planning and TACTRAN | In Progress | N/A | N/A | TACTRAN utilises Transport Scotland funding to provide travel planning advice for businesses across Scotland under the guises of the TravelKnowHow programme. This is through both online tools and direct 1-1 support | No barriers predicted |
| E.3 | Create and implement PKC Corporate Travel Plan | Promoting travel alternatives | Unknown | PKC and TACTRAN | In Progress | N/A | 2019 - Base-line staff travel survey carried out.<br><br>2021 - Staff travel report went to Senior Management with recommendations of focus for the Corporate Travel plan. Travel Plan was to be integrated into Council Remobilisation | Employee commuting and homeworking emissions were included within the Council's annual Public Bodies Climate Change Duties Reporting (PPCCDR) submission for the first time in 2023, calculated from staff | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | strategy post Covid-19<br><br>2023 – Yearly staff travel surveys began as part of Climate Change yearly report<br><br>2024 – Second year of staff travel survey, increase in active travel and public transport usage, and decrease of 753 $tCO_2e$ | travel survey data gathered in mid-2023.<br><br>In 2024, the travel breakdown was 74.9% by car, 13.7% by walking/cycling and 8.4% by bus and 2.7% by train, producing an estimated 4617 tonnes $CO_2e$ annually. This is a reduction of 753 $tCO_2e$ from the previous year.<br><br>PKC currently promotes a car hire salary sacrifice scheme (Tusker) to staff which only provides LEV or ULEVs to encourage a reduction in staff vehicle emissions. | |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| E.4 | Promotion of active travel | Promoting travel alternatives | N/A | PKC and TACTRAN | In Progress | **Fully Funded**<br><br>(Annual funding, 50% SG AQ Grant funding 50% Sustrans funding (iBike Officer))<br><br>(Annual funding, Bikeability Scotland Support Plus Fund (Bikeability) | 2023/24 – 2702 pupils, 209 staff and 19 parents attended iBike activities carried out in 23/24<br><br>2023/23 – 2816 Bikeability participants across 85 primary schools | SG funding was attained again this year to match fund the iBike Officer. Various activities such as bikeability training, bike maintenance sessions etc. were carried out, with 2702 participants in 2024<br><br>PKC's Safer Communities Team continued to deliver Bikeability training across the region, with 2816 participants across 85 schools at all three skill levels of Bikeability<br><br>PKC collaborates with TACTRAN's Get On The Go, Perth and Kinross | Both Sustrans and SG AQ Grant funding has been cut from 2024 onwards, which may restrict future iBike project work |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Countryside Trust, Liftshare and other partners to promote active travel across the region. | |
| E.5 | Awareness raising and education, presentations at local schools/community meetings | Public information | N/A | PKC | In Progress | **Fully Funded**<br><br>Annual funding source, SG AQ Grant funding (Clean Air Day) | 2020 - A community event focussed on air quality and road safety was held in February 2020<br><br>2023- Clean Air Day 2023 activities carried out as six schools in Perth and Kinross including St Dominics RC Primary in Crieff<br><br>2024 – St Dominics in Crieff once again took part in Clean Air Day activities alongside six other schools | Alongside social media content, Clean Air Day activities were carried out at seven Perth and Kinross primary schools in 2024 including St Dominics RC Primary School, promoting active and sustainable travel as well as informing the public on AQ issues.<br><br>SG AQ Grant funding was utilised to procure consultant assistance with delivering school CAD activities | Reduced officer capacity and ongoing/annual projects |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| E.6 | Cycling and walking routes to be routed to link in with the campus for sport. | Promoting travel alternatives | N/A | PKC | In Progress | N/A | N/A | Planning proposals for upcoming major developments along south side of Broich Road, Crieff will be required to include a multi-user path to link the sites to the Strathearn Community Campus | No barriers predicted |
| E.7 | Provision of PKC “Champions” for transportation methods | Promoting travel alternatives | Unknown | PKC | Delayed | N/A | N/A | No Progress | Reduced officer capacity and ongoing/annual projects |
| F.1 | Biomass installations and other developments likely to cause pollution – review developments which may cause pollution | Policy guidance and development control | N/A | PKC Planning | In Progress | N/A | N/A | Environmental Health continue to check the weekly planning list and comment on applications which may adversely impact on local air quality. The AEA/EPUK screening tools are used to assess applications | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| G.1 | Increase AQ monitoring network | Policy guidance and development control | N/A | PKC | Completed | **Fully Funded** Annual Funding, SG AQ Grant | 2022/23 – Zephyr monitoring study carried out in West High Street | $NO_2$ tube network increased since AQAP was published to increase reliability of results.<br><br>A Zephyr monitor was installed in West High St in April 2022 for a 12-month study to assess whether RTM readings are representative of street canyon pollution levels, both for $NO_2$ and $PM_{10}$. Study results confirmed that the Crieff RTM is representative of High Street $NO_2$ and $PM_{10}$ concentrations and that levels are well below objectives, allowing PKC to progress with the | No barriers predicted |

| Measure No. | Measure | Category | Expected/Actual Completion year | Organisations Involved | Measure Status | Funding Status | Key Milestones | Progress | Barriers to implementation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | revocation of the Crieff AQMA | |
| G.2 | Regional AQ modelling study | Policy guidance and development control | 2020 | PKC and AQ Consultant | Completed | N/A | 2020 - Crieff baseline dispersion model completed | Crieff baseline dispersion model was completed in 2020 by Sweco UK Ltd | N/A |
| G.3 | Cycling and walking routes to be incorporated into transport model | Public information | Unknown | PKC | Delayed | N/A | N/A | No Progress | It is not possible to add cycling and walking routes to the current Microsimulation model |
| G.4 | Transport assessments for developments to be required as part of planning process | Policy guidance and development control | N/A | PKC Transport Planning | In Progress | N/A | N/A | This is a continual process through planning and is requested by Transport Planning Team who are internal consultees for planning. | No barriers predicted |

# 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.

Perth and Kinross Council undertook automatic (continuous) monitoring at 4 sites during 2024. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at https://www.scottishairquality.scot/latest.

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

### 3.1.2 Non-automatic monitoring sites

Perth and Kinross Council undertook non- automatic (passive) monitoring of $NO_2$ at 73 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 https://www.scottishairquality.scot/latest as well as in Figure 3.1, Figure 3.2, Figure 3.3, Figure 3.4 and Figure 3.5.

Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

**Note: In Figure 3.1, 3.2, 3.3 and 3.4 below, diffusion tubes which 2024 levels are lower than those in 2023 are shown in green, those with levels that have stayed the same as 2023 in orange and those with levels higher than 2023 are shown in red.**

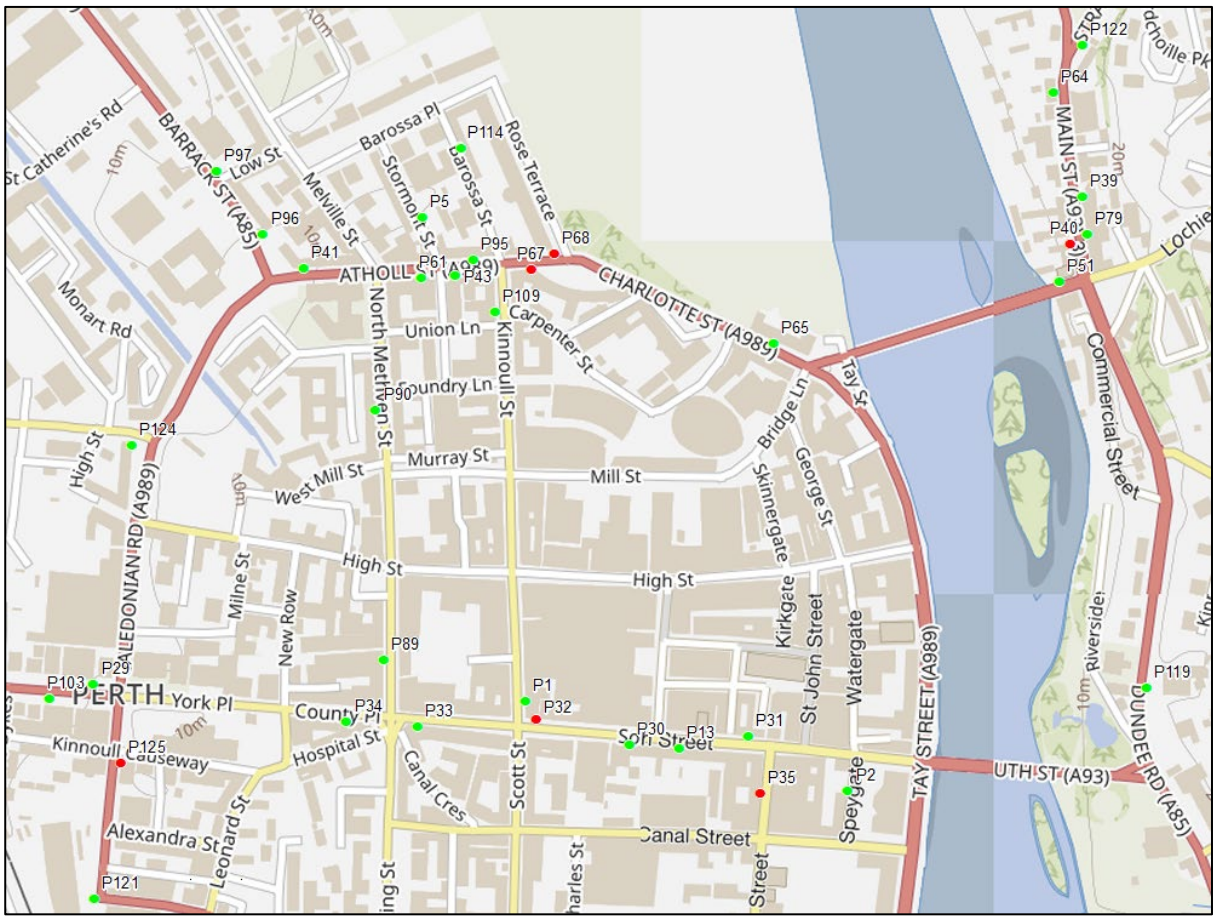



**Figure 3.1: Perth City Centre $NO_2$ diffusion tube locations**

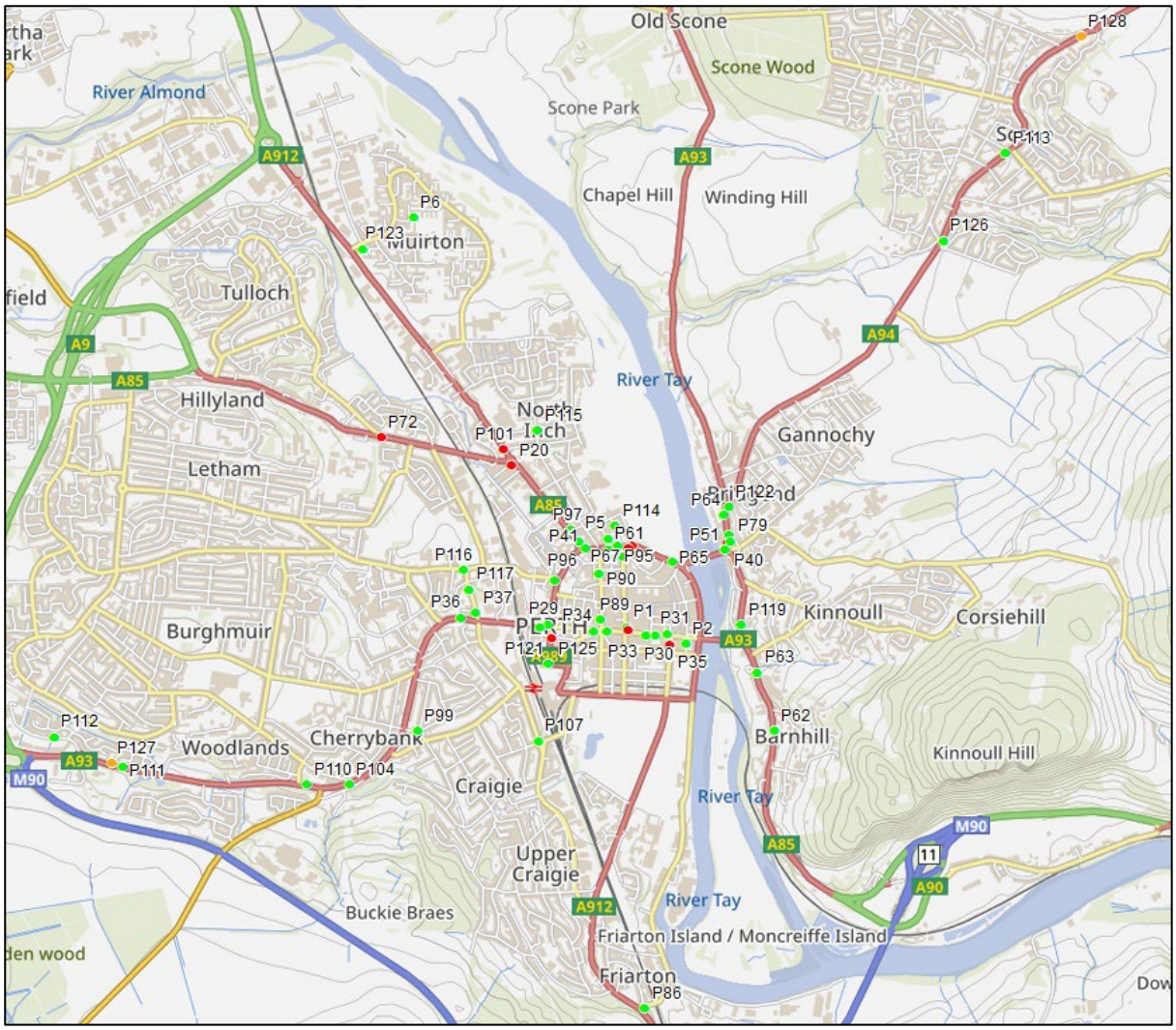



**Figure 3.2: Perth area $NO_2$ diffusion tube locations**

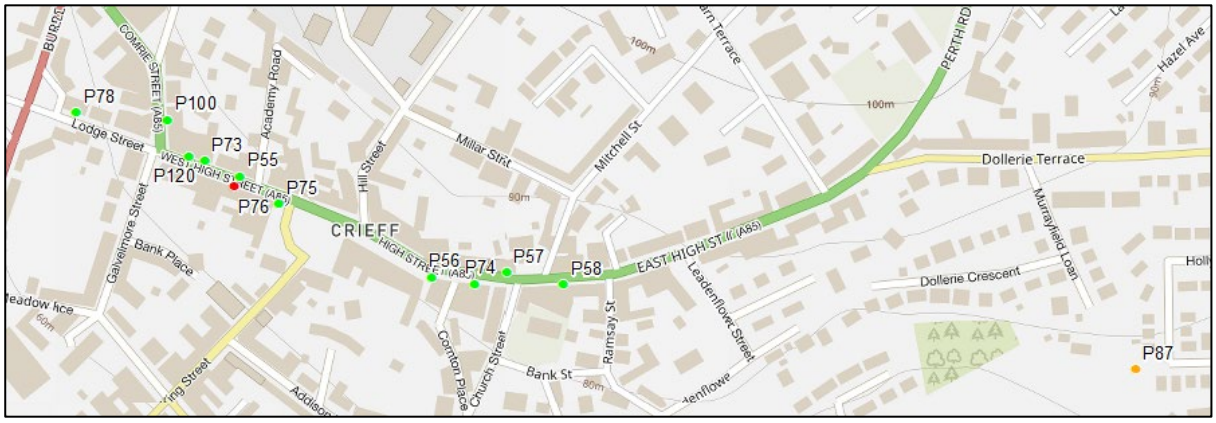



**Figure 3.3: Crieff $NO_2$ diffusion tube locations**

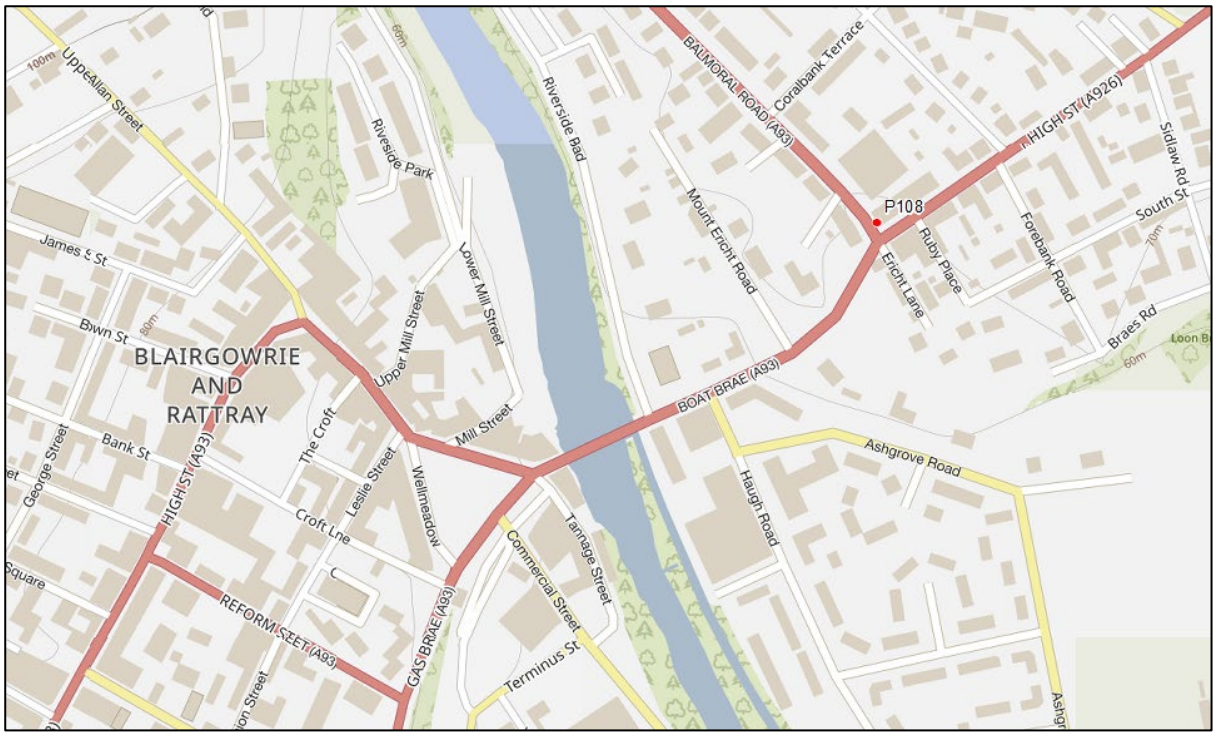



**Figure 3.4: Blairgowrie $NO_2$ diffusion tube location**

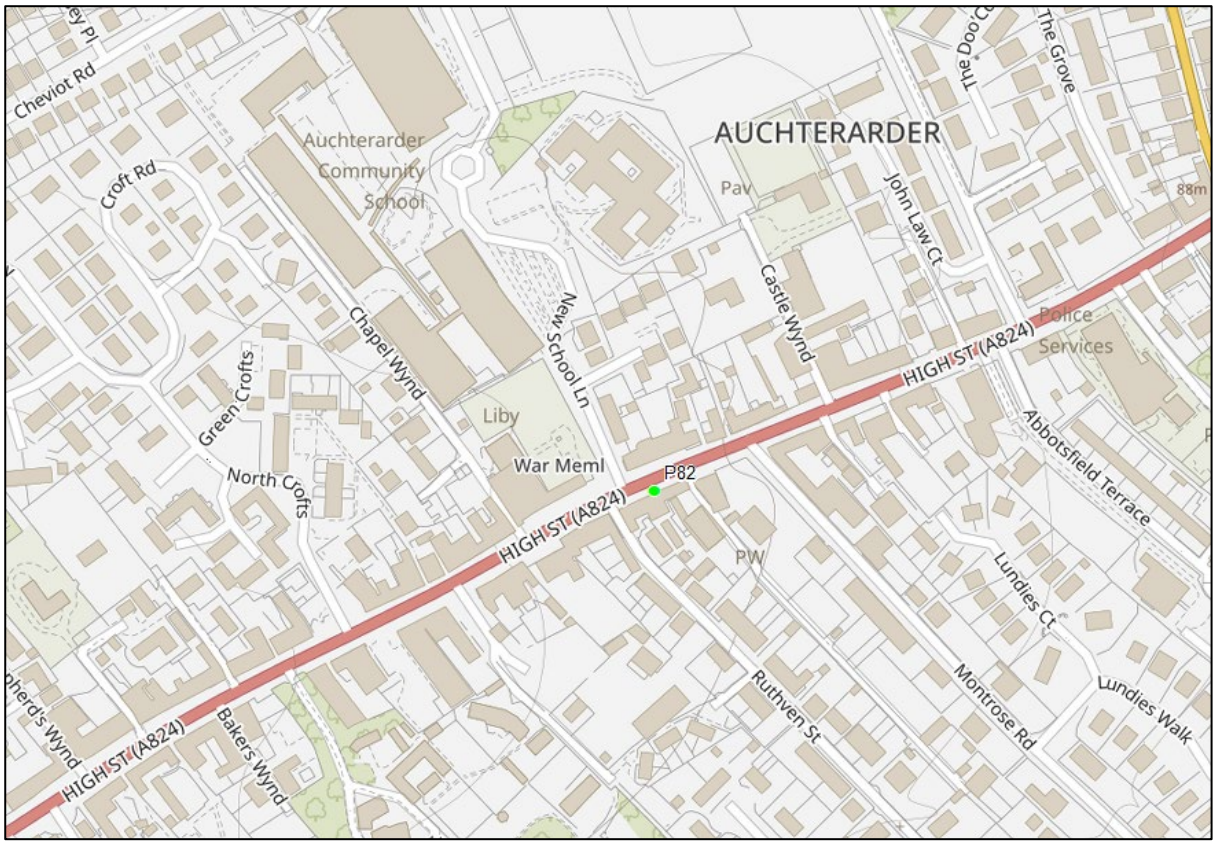



**Figure 3.5: Auchterarder $NO_2$ diffusion tube location**

## 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.

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B.

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 either the annual mean objective level or the hourly mean objective level were observed during 2024 at any of the four automatic monitoring sites where $NO_2$ levels are monitored. This follows on from no exceedances at these locations since 2017. $NO_2$ levels at both the Atholl Street and Bridgend Real Time Monitors (RTM) fell to their lowest ever recorded levels, however it should be noted in Atholl Streets case that data capture was 75% in 2024 and annualisation was required at this site. This low data capture was due to electrical issues following replacement on the RTM cabinets in 2024, and was experienced at Crieff and Glasgow Road RTMs as well to a lesser extent. Elsewhere in Perth and Kinross, levels at the Crieff RTM saw a slight increase from 2023 but were still well below objective levels. An $NO_2$ analyser was installed at the Glasgow Road RTM in September 2024 resulting in data capture of 27% and data therefore required annualisation, however the first few months of data show concentrations are below objective levels at this site as well. It should be noted that the Glasgow Road RTM is now also a part of the AURN network as of 2024. Graphs showing trends in $NO_2$ concentrations at the RTMs are shown in Figure A.2 - Figure A.4 in Appendix A.

Diffusion tube monitoring also indicated no exceedances of $NO_2$ at any locations across the monitoring network. Across the region all areas saw decreasing diffusion tube levels in general compared to those recorded in 2023, with 58 tubes decreasing, 3 remaining at the same levels as 2023 or it being their first year exposed, and 11 seeing an increase in $NO_2$. The majority of these increases were small (<0.5 µg/$m^3$), however there were a number of larger increases which should be monitored in future years: P67 and P68 on Atholl Street, P40 in Bridgend, and P20 on Crieff Road.

P67 and P68 are in close proximity to each other on either side of a traffic lighted junction. While these two tubes annual mean increased in 2024 (P67 from 18.9 to 20.6 and P68 from 16.6 to 17.1), all other tubes along Atholl Street decreased. This suggests the increase may have been due to an increase in queuing of westbound traffic on Atholl Street at the traffic lights near their location. Though the means of these tubes are higher than those of the previous year, they are below that of readings from 2022, 2021 and even 2020 when most diffusion tube levels were at their lowest recorded level. The completion of the Cross Tay Link Road is expected to have a positive impact on traffic and air quality along Atholl Street, and as such the $NO_2$ concentration at these tubes locations is likely to decrease once more in the coming years.

P40 is located within Bridgend, to the west of the previous tubes along the same busy street corridor running through Perth. The annual mean in 2024 increased to 24.3 from 21.2 the previous year, the highest since 2021. As with the previous discussed tubes, this area is expected to see a positive impact from the newly completed Cross Tay Link Road and as such levels are expected to reduce at this tube's location, however this should be monitored closely to watch for any continued increase in $NO_2$ concentrations.

P20 is located close to the main roundabout linking Dunkeld Road and Crieff Road, traveling north from central Perth. The annual mean at this location increased to 17.6 in 2024 from 16.8 in 2023, however is below the levels recorded in 2022 and 2021. A nearby tube at the other side of the roundabout (P101) also saw a slight increase, but both remain well below objectives.

The remainder of diffusion tubes across Perth and Kinross have seen gradual decreases over the past 5 years, in many cases reducing to levels below that of the previous minimums measured during 2020. These trends can be seen in the graphs in Figure A.1 in Appendix A. It should be noted that where two tubes had very similar results in within

these graphs, only one set of results was displayed within the graph to reduce overlap and improve readability. Full data can be found in Table A.4.

The bias adjustment factor for our 2024 diffusion tubes was slightly less than in 2023: 0.83 compared to the previous year's 0.8. The use of the local adjustment factor is consistent with our approach in previous years and is also more conservative than the relevant national adjustment factor (0.754, SOCOTEC Didcot, 20% TEA in water). However, due to poor data capture on three of the four co-located monitors in 2024 due to refurbishment works, only the data from Bridgend was used in the local bias adjustment factor calculations this year.

### 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$^3$.

Table A.8 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.

In 2024 there were no exceedances of the annual mean level and no exceedance of the overall $PM_{10}$ 24-Hour Mean national objective. There was one exceedance of the 50 µg/m$^3$ 24-Hour Mean at the Glasgow Road RTM in 2023 and none at any other monitoring station. Overall, $PM_{10}$ levels remained reasonably steady at Crieff and Bridgend RTMs compared to previous years, and a slight increase was seen at Glasgow Road. However there was a sharp reduction seen at the Atholl Street RTM compared to 2023, with levels reducing from 23.4 µg/m$^3$ to 13 µg/m$^3$ (FIDAS adjusted values).

This is a marked difference from the previous year where PKC also recorded 15 exceedances of the 50 µg/m$^3$ 24-Hour Mean at Atholl Street, and is thought to be a direct result of the conclusion of building works previously carried out behind the Atholl Street monitor between 2021 and 2023. This confirms that the high $PM_{10}$ levels recorded at the site over the past three years were largely due to these building works rather than an increase from road traffic emissions, however it will take a number of years for the true trend of $PM_{10}$ emissions at this site to reemerge due to this long period of influenced results.

$PM_{10}$ trends for Atholl Street, Bridgend and Crieff can be seen in Figure A.5 - Figure A.7 in Appendix A.

The Muirton RTM was relocated from North Muirton to Glasgow Road in late 2023, however a $PM_{10}$ trend has yet to be established at this location due to the short monitoring period so far.

**FIDAS 200 $PM_{10}$ Correction**

Following the Scottish Government Pilot Research Study to investigate Particulate Matter Monitoring Techniques in Scotland, Scottish Government recommended $PM_{10}$ and $PM_{2.5}$ data recorded on Fidas 200 analysers require a correction be applied. In the case of $PM_{10}$ data, all data should be divided by 0.909.

The results of this correction can be seen in Table A.7 and Table A.9. The correction factor caused an increase in recorded $PM_{10}$ levels, though not enough to result in an exceedance of the annual mean or 50 µg/m$^3$ 24-Hour Mean objective.

### 3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.10 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$^3$.

Monitoring of $PM_{2.5}$ began at three locations within Perth and Kinross in late 2017 – Atholl Street (Perth), Perth High Street and Crieff. Monitoring at the fourth continuous monitoring site at Muirton (Perth) began in late January 2019. Perth High Street RTM was moved to Bridgend in 2021, where $PM_{2.5}$ monitoring has continued. The Muirton RTM was moved to Glasgow Road (Perth) in 2023 where $PM_{2.5}$ monitoring has also continued.

There were once again no exceedances of the objectives at any of these locations during 2024, with levels remaining at similar levels to 2023 and well below the objective level. Concentrations at Crieff and Bridgend RTMs saw a slight increase compared to previous years, while Atholl Street saw a slight decrease. Glasgow Road also saw an increase in $PM_{2.5}$ from 2023 levels, however as the RTM was installed in late 2023 monitoring data from this year was incomplete and less reliable.

$PM_{2.5}$ trends for Atholl Street, Bridgend and Crieff can be seen in Figure A.8 - Figure A.10 in Appendix A. Levels have continued to remained fairly steady since monitoring began, with no significant increasing or decreasing trend.

**FIDAS 200 $PM_{2.5}$ Correction**

As set out above, Scottish Government recommended $PM_{2.5}$ data recorded on Fidas 200 analysers require a correction be applied. In the case of $PM_{2.5}$ data, all data should be multiplied by 1.06.

The results of this correction can be seen in Table A.11. The correction factor caused an increase in recorded $PM_{2.5}$ levels, though there is still no exceedance of the annual mean.

### 3.2.4 Sulphur Dioxide ($SO_2$)

PKC do not currently monitor $SO_2$ as there are no significant sources within Perth and Kinross

### 3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

PKC do not currently monitor carbon monoxide, lead or 1,3-butadiene as there are no significant sources within Perth and Kinross.

# 4 New local developments

## 4.1 Road traffic sources

**24/01303/AMM - Construction of bertha park link road between phase 1 at Bertha Park high school and phase 2 new A9 west roundabout and associated works (approval of matters specified in conditions of 18/01800/IPM) Land at Bertha Park Perth for Perth and Kinross Council. (Application Approved)**

This application relates to the construction of a link road connecting Phase 1: A9/A85 Junction Improvement and Link Road (B9993) to Bertha Park (completed) and Phase 2: Phase 2: Cross Tay Link Road (CTLR now operational 2025).

The Air Quality Impact Assessment undertaken at the 15/01109/FLM application stage considered the cumulative effects with the CTLR which saw a negligible increase for both $NO_2$ and Particulate Matter.

An Environmental Management Plan was submitted with the application which includes methods on how dust and noise will be controlled during the construction phase to ensure the residential amenity of existing properties is not adversely affected.

## 4.2 Other transport sources

No new sources within Perth and Kinross have been identified

## 4.3 Industrial sources

**Table 4.1 - Perth and Kinross industrial sites permitted by SEPA 2024**

| Authorisation Level | Authorisation No. | Application Type | Authorisation Activity | Auth Status Date | Site |
|---|---|---|---|---|---|
| WML | WML/E/0220286 | Operator Technical (Substantial) | Waste - Other Waste | 26/01/2024 | Binn Skips, Binn Eco Park, Binn |

| | | | | | |
|---|---|---|---|---|---|
| | | Variation to existing Authorisation | Management Activities | | Farm, Glenfarg, PH2 9PX |
| PPC/B | PPC/B/5005616 | New Licence | PPC(B) - Combustion of Fuels | 15/02/2024 | MCP Blair Athol Distillery, Perth Road, Pitlochry, PH16 5LY |
| PPC/B | PPC/B/1008969 | Operator Technical (Substantial) Variation to existing Authorisation | PPC(B) - Timber Activities | 15/02/2024 | Glenalmond Timber Company, Station Road, Methven, Perthshire, PH1 3QF |
| PPC/B | PPC/B/1004392 | Operator Technical (Substantial) Variation to existing Authorisation | PPC(B) - Mining and Quarrying | 03/04/2024 | Shierglas Quarry, killiecrankie, By Pitlochry, Perth and Kinross, PH16 5LL |
| PPC/A | PPC/A/5009290 | New Licence | PPC(A) - Disposal and Recovery or Mix Disposal and Recovery of Hazardous or Non Hazardous | 27/09/2024 | Binn Waste SRF Plant, Binn Farm, Glenfarg, Perth, PH2 9PX |

| | | | | | |
|---|---|---|---|---|---|
| | | | Waste Sections 5.3 and 5.4 | | |

## 4.4 Commercial and domestic sources

No CHP or Biomass combustion plant applications in 2024.

In 2024 PKC had 102 planning application for small domestic stoves throughout the Perth and Kinross area, with 4 within Perth's AQMA. Two applications were associated with commercial properties, one for a woodfired hot tub and one for a fire-pit building.

## 4.5 New developments with fugitive or uncontrolled sources

No new sources within Perth and Kinross have been identified

# 5 Planning applications

**24/00010/PREAPM - Demolition and rebuild of poultry units and associated infrastructure, Balado Bridge Poultry Farm, Balado.**

This pre-application was for the demolition and rebuild of poultry units. The existing poultry farm at Balado is regulated by a licence under the Pollution Prevention and Control (Scotland) Regulations 2012 which is permitted by SEPA as an existing installation of more than 40,000 birds.

The proposal is to redevelop the site which has at present a total of 20 buildings to 38 buildings with a total productive area of 1,033,600sqft (96,021sqm) with a total production capacity of around 1,600,000 bird places.

The applicant was advised to submit a detailed Air Quality Assessment with any future application for point and fugitive emissions on human health which should include $PM_{10}$ and $PM_{2.5}$.

**24/01330/FLL - Erection of 37 dwellinghouses and associated works (change of house type) (Allocated site H14), Land 150 metres Southwest of Kintillo Cemetery (H14), Bridge of Earn. (Application Refused)**

The site has planning approval for 110 dwellinghouse (planning application 22/00817/FLL). This application was for a change of house types for 37 of the 110 dwellinghouses and did not result in the change to overall unit numbers. Therefore, EH concluded that the conclusions of the Air Quality Assessment submitted for the 22/00817/FLL application were still valid for this application and reiterated their comments and conditions from previous memorandum dated 27 July 2022. Recommending a condition for a Construction Dust Management Plan as the AQIA has not assessed the impacts of dust from the groundworks and construction operations for the development. However, Appendix 3 of the report gave recommended mitigation measures to prevent or minimise the release of dust during the construction or groundwork phases of the development.

**24/00731/FLM - Change of use, alterations and extension to stables to form visitor centre comprising café, ticket office and shop, erection of office building and**

**installation of solar array, formation of outdoor play area, vehicular access, parking areas and associated works, Scone Palace Queen's Drive Old Scone Perth PH2 6BE. (Application Pending Consideration)**

An air quality screening assessment had been included with the application. It was noted that the biomass system which was initially included in the plans was removed from the development.

In relation to traffic flow on local roads, based on the transport report the consultant concluded that it is unlikely that the thresholds for LDV and HDV would be exceeded and as such an air quality assessment is not required. Due to the completion of the CTLR prior to this development being brought into use, it is expected that access to Scone Palace from the North will be via the CTLR, avoiding Perth and Bridgend and as such the development will not have an adverse impact on air quality.

**24/01421/IPM - Reconfiguration of existing golf course and club house from 18 holes to 9 holes, and a community hub building and associated sports courts and bike trails, walking and cycling paths and car parking area. Erection of up to 175 residential dwellings, open/amenity space, landscaping, drainage, upgraded site access and associated works, Craigie Hill Golf Course. (Application Pending Consideration)**

The development is within Perth's Air Quality Management (AQMA) area and the applicant had submitted an air quality screening assessment.

The assessment summary stated that "The proposed development has been assessed against the Stage 1 and 2 screening criteria set out within the Supplementary Guidance. The proposed development does not meet the requirements that would trigger the need for an Air Quality Impact Assessment set out in Stage 2."

The summary then stated that "It is therefore considered that an Air Quality Impact Assessment is not required for this proposed development."

This conclusion was based on the Stage 2 Criteria requirement of a change of Light Duty Vehicles (LVD) (cars and small vans <3.5 t gross weight) flows of: - More than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA/LEZ.

The assessment stated in the stage 2 criteria table “A Transport Assessment has been undertaken for the proposed development. This has assessed that the proposal will generate 86 daily vehicular trips (two-ways). As this is below the criteria threshold, an Air Quality Impact Assessment would not be required.”

On reviewing the Transport Statement dated September 2024 submitted with the application the 86 daily vehicular trips (two way) stated above which was found in section 7.3.1 and table 7.5 Estimation of people trips (using People Trip Rates) for weekday AM peak hour only. It went on to state the PM peak hour for weekday trips was a further 68 Vehicle trips.

Section 7.3.2 Estimation of Vehicle Trips (using Surveyed Vehicle Trip Rates) stated that “The predicted vehicle trips to the proposed residential development of the 175 residential homes during the weekday AM and PM peak hours, using the surveyed vehicle trip rates from Table 7.4 and are shown in Table 7.6 which indicates that 107 vehicular (car) trips (two-way) are predicted during the weekday AM peak hour and 105 vehicular trips during the weekday PM peak hour.

The above predictions were for the 175 residential properties only and the other vehicle movements associated with the community hub operations such as retail and preschool nursery had not been predicted.

Based on the information stated above from the Transport Assessment submitted with the application EH concluded that the Stage two criteria of a change of LDV flows > 100 AADT within an AQMA would be met and therefore, a detailed Air Quality Impact Assessment (AQIA) was required for this development.

**24/01023/AMM - Erection of 292 dwellinghouses, 48 flats, 28 detached garages, 3 retail units, a refuse/bike store and a sport changing pavilion, formation of leisure facilities, SUDS ponds, parking areas, landscaping and associated works, (Phase 1) (allocated site MU73) (approval of matters specified in conditions 21/00383/IPM), Land Adjacent to Huntingtowerfield and Ruthvenfield Huntingtowerfield. (Application Approved).**

Phase 1 is the first phasing of the Almond Valley Masterplan and previous Air Quality Assessment undertaken doc ref AIR6478042 dated June 2020 was undertaken by Bureau Veritas.

The AQA concluded that the impacts from traffic flow because of Phase 1 were found to be negligible at all receptors and impacts considered not significant and an AQA shall be submitted before the commencement of any future phase. It also stated that due to the existing elevated annual mean concentrations within Perth, operational mitigation measures should be implemented to ensure that the predicted insignificant impact from phase 1 development remains as such.

Condition 45 of 21/00383/IPM states:

> ‘A scheme of mitigation to minimise impact on air quality shall be submitted to the Planning Authority as part of any application for the Approval of Matters Specified in Conditions. The approved scheme shall be implemented before the occupation of that phase of the development all to the satisfaction of the Council as Planning Authority.’
>
> Reason: In the interests of public health and to prevent pollution.

No submission with this application, therefore EH was unable to complete appraisal with regards to air quality until provided by applicant.

**24/0123/CONDS2** - Further information was submitted with regards to meeting the requirement of the condition.

**24/01068/FLL - Demolition of building, erection of 12 flats, formation of communal courtyard and associated works, 15-17 Canal Street Perth. (Application Approved)**

The development site is within Perth’s Air Quality Management Area for the erection of 12 flats with no designated parking areas, therefore an AQIA was not required. However, EH advised that the applicant could install cycle shelter provisions to encourage active travel.

EH conditioned that prior to commencement of development a Construction Management Plan shall be submit which shall include monitoring and mitigation measures to control noise and dust for the further written agreement of the Council as Planning Authority. The plan as subsequently agreed shall be implemented throughout the demolition and construction stage of the devlopment.

**24/00562/FLL – Change of use from storage and distribution (Class 6) to general industrial (Class 5), 57-61 Crieff Road, Perth. (Application Approved)**

The application site is within Perth's Air Quality Management Area.

EH requested further information, an air quality screening assessment and details of any process that emits, fumes and/or dust/particulate matter that can affect air quality such as grinding, sanding, spray painting etc and what controls will be in place to mitigate/control any such emissions.

Information provided in an air quality screening assessment reference R24.12405/1JH dated 20 November 2024 which was undertaken by Vibrock.

The assessment was undertaken to assess the operational impacts at the site and determine the impacts on air quality in line with relevant air quality guidance, methodology and criteria.

The report states that there would be no requirement for demolition, earthworks or construction works related to this application site and has been scoped out of this assessment.

The report stated that there are two domestic wood burning stoves on site, a small diesel forklift and dust producing activities such as static timber cutting saws and CNC plasma cutter etc and that appropriate mitigation measures are in place such as local exhaust ventilation systems are installed on/at the relevant equipment and activities. The report concluded that due to the good practice measures being implemented that there is no significant impact.

An assessment of traffic change due to the application was undertaken and vehicle movements have been estimated based on discussions with the site occupiers; observation made on site and knowledge of similar operations at other locations. The daily traffic flow for the site was estimated as 12 Annual Average Daily Traffic (AADT) of which 2 Heavy-duty Vehicles (HDVs).
The report also stated that previous usage of the site the vehicle movements was greater with an estimated average daily flow of 25 AADT with half of this potentially being HDVs.

The AADT criteria to determine if a full detailed Air Quality Assessment is required within an Air Quality Management Area is 100 AADT given that the estimated increase in traffic because of the development is considerably less 12 ADDT on any given road.

Given the minimal traffic increase and potential decrease from previous site operations and, the low background annual mean for pollutant concentration within the area that the change in air quality because of traffic associated with the development would not be significant and the requirement for a detailed assessment was not considered necessary.

**24/00108/PREAPL - Adaptive reuse of building into a hotel, 3-5 High Street, Perth for Lock Terrace Ltd.**

The proposed hotel is within Perth's Air Quality Management Area. The applicant was advised that an Air Quality Screening Assessment would be required to determine if a full Air Quality Assessment was required as well as a Dust Management Plan for the control of dust during the construction/renovation stage of the development.

**24/00474/FLL - Change of use of flat to form extension to restaurant, 26 James Square Crieff for Leishman Catering Ltd. (Application Approved)**

The application is within Crieff's Air Quality Management Area and as the development is for staff break out area the impact on air quality is going to be negligible, as there will be no additional traffic generated, and no other emissions generated from wood burning stoves. EH had no adverse comment to make in relation to air quality.

**23/02122/FLL - Extension to industrial units, alterations to car parking provision and layout, landscaping, and associated works, Kanthal Ltd, Ruthvenfield Road, Inveralmond Industrial Estate, Perth for Alleima Ltd T/A Kanthal. (Application Approved)**

The application site is within Perth's Air Quality Management area. The parking provision saw an additional 9 car parking spaces at the site, therefore the increase in LDV and HDV vehicle movements due to the development would not cause any significant change to traffic flow on roads with relevant receptors. Therefore, EH had no adverse comments to make with regards to air quality.

**23/02134/IPM - Mixed use development comprising of the erection of a poultry processing facility and demolition of existing poultry processing facility for residential, commercial, industrial uses including parking areas, vehicular access, landscaping and associated works 2 Sisters Food Group George Street Coupar Angus Blairgowrie PH13 9LU for Amber (REI) Holdings Ltd. (Application Approved)**

AQA air quality has been assessed for traffic emissions associated with the development once operational. This has been assessed for $NO_2$, $PM_{10}$ and $PM_{2.5}$. Results are given in Appendix 12.1, Annex 6, Volume 4. For all pollutants at the worse affected receptor (R10 – Queen Street), it is concluded that all concentrations will be negligible, with these being 0.15 µg/m$^3$ (0.4% of the AQS), 0.04 µg/m$^3$ (0.3% of the AQS) and 0.03 µg/m$^3$ (0.3% of the AQS) respectively.

Construction Management Plan condition requested detailing environmental mitigation measures, including the control of dust and noise, shall be submitted for the further written agreement of the Council Planning Authority.

**24/00161/FLL - Erection of cinema, cafe and community radio hub and associated works, 47 - 49 East High Street, Crieff for Creative Crieff. (Application Approved)**

The application site is within Crieff's Air Quality Management Area. The development was not introducing any new parking spaces and patron visiting the cinema will utilise the existing parking at Leadenflower car park.

The Environmental Protection UK and Institute of Air Quality Management's current Guidance on Planning for Air Quality Development requiring assessment is defined in the Environmental Health consultation criteria and includes any large commercial proposal (with 50+ parking spaces) within, or up to 1km of, an AQMA. Therefore, EH no adverse comments to make with regards to air quality from the operational stage of the development.

Dust Management Plan conditioned for construction and demolition stage of development.

# 6 Conclusions and proposed actions

## 6.1 Conclusions from new monitoring data

No exceedances for $NO_2$ objectives were identified at any location across Perth and Kinross, and in general levels decreased in 2024, in many instances to the lowest recorded levels (e.g. Atholl Street and Bridgend RTMs). There were also no exceedances for $PM_{10}$ or $PM_{2.5}$ annual mean objectives identified in Perth and Kinross. When PM data from Fidas 200 Analysers were corrected as per Scottish Government guidelines, $PM_{10}$ and $PM_{2.5}$ levels were increased, however there remained no exceedances.

Following conclusion of the ongoing building works behind the Atholl Street RTM in 2024, a significant reduction in $PM_{10}$ concentrations was observed. This further proves that the high levels recorded at this site over the past three years were likely due to the building works rather than roadside traffic. Although all other sites within the Perth AQMA have $PM_{10}$ levels consistently below objectives, as there has been a significant period of uncertainty in the results at Atholl Street a number of years of monitoring data will be required to reestablish a $PM_{10}$ trend at this location. We would therefore not seek to revoke $PM_{10}$ within the Perth AQMA this year.

This is the sixth consecutive year without an $NO_2$ exceedance within the Perth AQMA, and the third year of data unaffected by Covid-19 restrictions, with traffic returning to a new normal. Though there has been fluctuations over recent years, we have observed a predominantly downward trend in $NO_2$ within the Perth, and this is likely to continue with the newly opened Cross Tay Link Road expected to reduce city centre traffic. In light of these factors, PKC will seek to carry out a detailed assessment to determine the feasibility of revoking the Perth AQMA for $NO_2$ in the near future.

## 6.2 Conclusions relating to new local developments

Twelve proposed new developments were consulted on for the potential impacts on air quality in 2024, with four of these being within the Perth AQMA. Of these four, one required a further detailed Air Quality Impact Assessment to be carried out and one was requested to carry out an Air Quality Screening assessment to determine whether a full

AQA was required as well as provide a Dust Management Plan. Environmental Health had no adverse comment to make in relation to air quality for the remaining two developments.

Two of the developments assessed for air quality were within Crieff. Environmental Health did not have any adverse comments to make with regards to air quality for these developments as they will not result in increasing in traffic or emissions generated from wood burning stoves.

The revocation of Crieff's AQMA was concluded in 2024, however PKC will continue to consult on planning applications for any new developments that have the potential to impact Crieff's air quality.

There were two Pre-Applications for proposed new developments which could impact upon air quality within the PKC area, one was within Perth's AQMA and the other out-with. PKC through consultee responses has advised that AQ Screening Assessments and/or AQIA are required for both applications at the full application stages.

In 2024, PKC had 102 planning application for small domestic stoves throughout the Perth and Kinross area, however only 4 were within Perth's AQMA.

## 6.3 Proposed actions

- Based on the monitoring data gathered in 2024, we do not intend to revoke the Perth AQMA for $PM_{10}$, due to the uncertainty around levels at Atholl Street following exceedances in recent years. PKC will however consider the revocation of the AQMA for $NO_2$ in the coming year and will seek to carry out a detailed assessment to determine the feasibility of this.

- The updated Perth AQAP will be published following Committee approval in August 2025, after which PKC will begin delivering the improvement measures within the new plan.

- Following the completion of the Cross Tay Link Road in March 2025, PKC will carry out a monitoring and modelling study to assess the initial impact the opening of the road has had on air quality within Perth City

# Appendix A: Monitoring results

### Table A.1 – Details of automatic monitoring sites

| Site ID | Site Name | Site Type | X OS Grid Ref | Y OS Grid Ref | Pollutants Monitored | In AQMA? | Which AQMA? | Monitoring Technique | Distance to Relevant Exposure (m) (1) | Distance to kerb of nearest road (m) (2) | Inlet Height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 | Bridgend | Roadside | 312254 | 724159 | $NO_2$; $PM_{10}$; $PM_{2.5}$; $PM_1$ | Yes | Perth AQMA | Chemiluminescent; FIDAS | 2.90 | 2.92 | 1.8 |
| Perth 2 | Atholl Street | Roadside | 311577 | 723931 | $NO_2$; $PM_{10}$; $PM_{2.5}$; $PM_1$ | Yes | Perth AQMA | Chemiluminescent; FIDAS | 22.3 | 2.3 | 1.5 |
| Perth 3 | Glasgow Road | Roadside | 308843 | 722754 | $NO_2$; $PM_{10}$; $PM_{2.5}$; $PM_1$ | Yes | Perth AQMA | Chemiluminescent; FIDAS | 26 | 4.4 | 1.5 |
| Crieff 1 | James Square | Roadside | 286363 | 721614 | $NO_2$; $PM_{10}$; $PM_{2.5}$; $PM_1$ | Yes | Crieff AQMA | Chemiluminescent FIDAS | 9.5 | 5.3 | 1.5 |

**Notes:**

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

(2) N/A if not applicable.

## Table A.2 – Details of non-automatic monitoring sites

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P1C, P1L, P1R | 42 Scott Street Perth | Roadside | 311674 | 723501 | $NO_2$ | Yes, Perth City | 0.6 | 2.3 | No | 2.7 |
| P2 | 17 Speygate Perth | Roadside | 312018 | 723411 | $NO_2$ | Yes, Perth City | 3.8 | 1.2 | No | 2.3 |
| P5 | 8 Stormont Street | Urban Centre | 311584 | 723993 | $NO_2$ | Yes, Perth City | 13.6 | 1.3 | No | 2.5 |
| P6 | 41 Mull Place | Urban Background | 310501 | 725764 | $NO_2$ | Yes, Perth City | 6.6 | 1.6 | No | 2.4 |
| P13 | 86 South Street | Roadside | 311846 | 723454 | $NO_2$ | Yes, Perth City | 0.0 | 2.6 | No | 2.9 |
| P20 | 2 Crieff Road | Roadside | 311058 | 724395 | $NO_2$ | Yes, Perth City | 0.3 | 4.4 | No | 2.3 |
| P29 | 37 York Place | Roadside | 311252 | 723518 | $NO_2$ | Yes, Perth City | 2.8 | 4.9 | No | 2.8 |
| P30C, P30L, P30R | 114 South Street | Roadside | 311797 | 723457 | $NO_2$ | Yes, Perth City | 0.0 | 2.5 | No | 2.9 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P31 | 45-47 South Street | Roadside | 311925 | 723465 | $NO_2$ | Yes, Perth City | 0.0 | 3.6 | No | 2.8 |
| P32 | 135 South Street | Roadside | 311704 | 723483 | $NO_2$ | Yes, Perth City | 0.0 | 5.3 | No | 2.7 |
| P33 | 216 South Street | Roadside | 311587 | 723475 | $NO_2$ | Yes, Perth City | 0.0 | 2.2 | No | 3.0 |
| P34 | 10 County Place | Roadside | 311503 | 723480 | $NO_2$ | Yes, Perth City | 0.0 | 2.1 | No | 2.9 |
| P35 | 17 Princes Street | Roadside | 311930 | 723416 | $NO_2$ | Yes, Perth City | 7.2 | 1.5 | No | 2.7 |
| P36 | 51 Glasgow Road | Roadside | 310773 | 723557 | $NO_2$ | Yes, Perth City | 12.4 | 1.6 | No | 2.4 |
| P37 | Riggs Road | Roadside | 310857 | 723577 | $NO_2$ | Yes, Perth City | 0.0 | 7.6 | No | 2.7 |
| P39 | 39 Main Street | Roadside | 312257 | 724013 | $NO_2$ | Yes, Perth City | 2.0 | 2.6 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P40 | 18 Main Street | Roadside | 312245 | 723965 | $NO_2$ | Yes, Perth City | 0.1 | 2.2 | No | 2.6 |
| P41 | 76 Atholl Street | Roadside | 311462 | 723941 | $NO_2$ | Yes, Perth City | 0.5 | 2.2 | No | 2.9 |
| P43C, P43L, P43R | 17 Atholl Street | Roadside | 311619 | 723933 | $NO_2$ | Yes, Perth City | 0.0 | 2.3 | No | 2.9 |
| P51 | 2 West Bridge Street | Roadside | 312233 | 723921 | $NO_2$ | Yes, Perth City | 2.5 | 1.9 | No | 2.5 |
| P55 | 7 West High Street, Crieff, | Roadside | 286334 | 721640 | $NO_2$ | Yes, Crieff | 1.8 | 0.4 | No | 2.4 |
| P56 | 39 High Street, Crieff, | Urban Centre | 286541 | 721559 | $NO_2$ | Yes, Crieff | 0.0 | 1.3 | No | 2.4 |
| P57 | 62 High Street, Crieff, | Urban Centre | 286541 | 721563 | $NO_2$ | Yes, Crieff | 0.6 | 1.6 | No | 2.5 |
| P58 | 9 East High Street, Crieff, | Urban Centre | 286582 | 721553 | $NO_2$ | Yes, Crieff | 0.5 | 1.2 | No | 2.5 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P61C, P61L, P61R | RTM, Atholl Street | Roadside | 311584 | 723931 | $NO_2$ | Yes, Perth City | 0.6 | 2.2 | Yes | 1.8 |
| P62 | 84 Dundee Road | Roadside | 312503 | 722930 | $NO_2$ | Yes, Perth City | 0.8 | 1.6 | No | 2.6 |
| P63 | 30 Dundee Road | Roadside | 312413 | 723252 | $NO_2$ | Yes, Perth City | 1.2 | 1.2 | No | 2.6 |
| P64 | Isla Road | Roadside | 312228 | 724120 | $NO_2$ | Yes, Perth City | 0.2 | 2.6 | No | 2.6 |
| P65 | 5 Charlotte Street | Roadside | 311943 | 723864 | $NO_2$ | Yes, Perth City | 2.4 | 2.0 | No | 2.5 |
| P67 | 1 Atholl Street | Roadside | 311697 | 723939 | $NO_2$ | Yes, Perth City | 0.3 | 2.4 | No | 2.5 |
| P68 | 2 Atholl Street | Roadside | 311720 | 723955 | $NO_2$ | Yes, Perth City | 6.6 | 1.3 | No | 2.1 |
| P72 | 82 Crieff Road | Roadside | 310335 | 724550 | $NO_2$ | Yes, Perth City | 11.1 | 2.4 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P73 | 19 West High Street, Crieff | Urban Centre | 286302 | 721651 | $NO_2$ | Yes, Crieff | 0.0 | 1.6 | No | 2.4 |
| P74 | 43 High Street, Crieff | Urban Centre | 286517 | 721559 | $NO_2$ | Yes, Crieff | 2.4 | 1.5 | No | 2.4 |
| P75C, P75L, P75R | RTM, Crieff | Roadside | 286360 | 721617 | $NO_2$ | Yes, Crieff | 5.1 | 3.7 | Yes | 1.6 |
| P76 | 10/12 West High Street, Crieff | Urban Centre | 286324 | 721632 | $NO_2$ | Yes, Crieff | 0.0 | 1.4 | No | 3.2 |
| P78 | 1 Lodge Street, Crieff | Urban Centre | 286194 | 721692 | $NO_2$ | Yes, Crieff | 0.0 | 1.7 | No | 3.1 |
| P79C, P79R, P79L | 17 Main Street | Roadside | 312262 | 723976 | $NO_2$ | Yes, Perth City | 0.0 | 3.0 | No | 2.5 |
| P82 | 66 High Street, Auchterarder | Roadside | 294569 | 712888 | $NO_2$ | No | 1.7 | 0.5 | No | 3.1 |
| P86 | 2 Friarton Road | Roadside | 311788 | 721397 | $NO_2$ | Yes, Perth City | 3.7 | 1.2 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P87 | Hollybush Road | Suburban | 287043 | 721486 | $NO_2$ | No | 17.0 | 7.0 | No | 2.6 |
| P89 | 59 South Methven St | Roadside | 311546 | 723544 | $NO_2$ | Yes, Perth City | 0.0 | 3.0 | No | 2.2 |
| P90 | 22 North Methven St | Roadside | 311539 | 723798 | $NO_2$ | Yes, Perth City | 0.0 | 3.0 | No | 2.6 |
| P95 | 26-28 Atholl Street | Kerbside | 311636 | 723950 | $NO_2$ | Yes, Perth City | 1.7 | 0.9 | No | 2.4 |
| P96 | 22 Barrack Street | Kerbside | 311424 | 723976 | $NO_2$ | Yes, Perth City | 3.0 | 0.5 | No | 2.6 |
| P97 | St Ninians School, | Roadside | 311370 | 724040 | $NO_2$ | Yes, Perth City | 7.0 | 1.9 | No | 2.4 |
| P99 | 15 Murray Crescent, Perth | Roadside | 310536 | 722928 | $NO_2$ | Yes, Perth City | 6.8 | 1.6 | No | 2.3 |
| P100 | 9 Comrie Street, Crieff | Urban Centre | 286271 | 721684 | $NO_2$ | Yes, Crieff | 0.0 | 2.0 | No | 2.3 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P101 | 28 Dunkeld Road | Roadside | 311012 | 724483 | $NO_2$ | Yes, Perth City | 4.1 | 3.1 | No | 2.4 |
| P103 | 28 York Place | Roadside | 311207 | 723504 | $NO_2$ | Yes, Perth City | 8.0 | 2.1 | No | 2.6 |
| P104 | 202 Glasgow Road | Roadside | 310157 | 722634 | $NO_2$ | Yes, Perth City | 5.6 | 1.5 | No | 2.4 |
| P107 | 1 Glover Street Perth | Roadside | 311201 | 722871 | $NO_2$ | Yes, Perth City | 3.5 | 1.0 | No | 2.6 |
| P108 | Balmoral Road, Blairgowrie | Roadside | 318293 | 745415 | $NO_2$ | No | 0.2 | 1.8 | No | 2.3 |
| P109 | 44 Kinnoull Street, Perth | Roadside | 311660 | 723897 | $NO_2$ | Yes, Perth City | 2.8 | 2.4 | No | 2.4 |
| P110 | 231 Glasgow Road, Perth | Roadside | 309922 | 722633 | $NO_2$ | Yes, Perth City | 2.8 | 2.4 | No | 2.3 |
| P111 | Glasgow Road near Lamberkine Road, Perth | Roadside | 308904 | 722731 | $NO_2$ | Yes, Perth City | 0.9 | 1.0 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P112 | Lamberkine Drive, Perth | Roadside | 308528 | 722895 | $NO_2$ | Yes, Perth City | 20.3 | 1.8 | No | 2.9 |
| P113 | 38 Perth Road, Scone | Roadside | 313781 | 726119 | $NO_2$ | No | 4.7 | 1.8 | No | 2.5 |
| P114 | Barossa Street, Perth | Roadside | 311625 | 724063 | $NO_2$ | Yes, Perth City | 0.0 | 1.3 | No | 2.6 |
| P115 | Balhousie Street, Perth | Roadside | 311197 | 724857 | $NO_2$ | Yes, Perth City | 5.0 | 3.2 | No | 2.4 |
| P116 | Jeanfield Road, Perth | Roadside | 310791 | 723817 | $NO_2$ | Yes, Perth City | 8.0 | 1.6 | No | 2.6 |
| P117 | 19 Riggs Rd, Perth | Roadside | 310791 | 723817 | $NO_2$ | Yes, Perth City | 6.0 | 1.7 | No | 2.6 |
| P119 | Kinnoull PS, Dundee Rd | Roadside | 312322 | 723515 | $NO_2$ | Yes, Perth City | 18.0 | 2.3 | No | 2.5 |
| P120 | 25 West High Street, Crieff | Roadside | 286286 | 721656 | $NO_2$ | Yes, Crieff | 4.0 | 1.8 | No | 2.5 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| P121 | Railway Sidings, Caledonia Road | Roadside | 311252 | 723301 | $NO_2$ | Yes, Perth City | 16.0 | 2.2 | No | 2.6 |
| P122C, P122L, P122R | Bridgend RTM | Roadside | 312260 | 724170 | $NO_2$ | Yes, Perth City | 5.0 | 2.5 | Yes | 1.8 |
| P123 | 9 Lismore Court, Perth | Roadside | 310231 | 725590 | $NO_2$ | Yes, Perth City | 5.5 | 24.0 | No | 2.4 |
| P124 | 12 St Catherine's Road | Roadside | 311290 | 723761 | $NO_2$ | Yes, Perth City | 0.0 | 5.1 | No | 2.4 |
| P125 | Andrew Heiton Court, Perth | Roadside | 311279 | 723437 | $NO_2$ | Yes, Perth City | 0.0 | 2.9 | No | 2.9 |
| P126 | 131 Perth Road, Scone | Roadside | 313438 | 725637 | $NO_2$ | No | 2.9 | 1.8 | No | 2.4 |
| P127C, P127L, P127R | Glasgow Road RTM | Roadside | 308847 | 722750 | $NO_2$ | Yes, Perth City | 26.0 | 4.4 | Yes | 1.5 |
| P128 | 188 Angus Road, Scone | Roadside | 314200 | 726765 | $NO_2$ | No | 9.8 | 2.6 | No | 2.4 |

**Notes:**

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

(2) N/A if not applicable.

**Table A.3 – Annual mean $NO_2$ monitoring results: automatic monitoring (µg/m$^3$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 19.0 | 18.2 | 17.8 | 16.2 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 27.6 | 31.1 | 30.0 | 32.9 | 25.6 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 27 | N/A | N/A | N/A | N/A | 13.5 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 98 | 82 | 12.8 | 13.2 | 12.4 | 11.3 | 12.7 |

**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**.

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

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

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

**Table A.4 – Annual mean $NO_2$ monitoring results: non-automatic monitoring (µg/m$^3$)**

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P1C, P1L, P1R | 311674 | 723501 | Roadside | 100.0 | 100.0 | 26.0 | 28.6 | 23.3 | 22.9 | 21.0 |
| P2 | 312018 | 723411 | Roadside | 100.0 | 100.0 | 13.0 | 12.8 | 13.0 | 12.3 | 12.2 |
| P5 | 311584 | 723993 | Urban Centre | 100.0 | 100.0 | 13.0 | 13.6 | 12.8 | 11.3 | 11.2 |
| P6 | 310501 | 725764 | Urban Background | 100.0 | 100.0 | 8.0 | 8.6 | 7.2 | 7.0 | 6.9 |
| P13 | 311846 | 723454 | Roadside | 84.9 | 84.9 | 22.0 | 22.3 | 17.5 | 18.2 | 17.0 |
| P20 | 311058 | 724395 | Roadside | 90.6 | 90.6 | 16.0 | 19.7 | 17.8 | 16.8 | 17.6 |
| P29 | 311252 | 723518 | Roadside | 100.0 | 100.0 | 19.0 | 25.9 | 19.5 | 19.2 | 18.4 |
| P30C, P30L, P30R | 311797 | 723457 | Roadside | 100.0 | 100.0 | 24.0 | 23.6 | 20.8 | 18.8 | 18.1 |
| P31 | 311925 | 723465 | Roadside | 100.0 | 100.0 | 18.0 | 19.1 | 17.9 | 17.3 | 15.7 |
| P32 | 311704 | 723483 | Roadside | 100.0 | 100.0 | 22.0 | 24.7 | 19.9 | 18.8 | 18.9 |
| P33 | 311587 | 723475 | Roadside | 100.0 | 100.0 | 23.0 | 26.7 | 23.2 | 23.0 | 20.2 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P34 | 311503 | 723480 | Roadside | 100.0 | 100.0 | 30.0 | 32.3 | 27.0 | 24.7 | 23.9 |
| P35 | 311930 | 723416 | Roadside | 100.0 | 100.0 | 16.0 | 16.5 | 14.1 | 14.8 | 16.2 |
| P36 | 310773 | 723557 | Roadside | 100.0 | 100.0 | 18.0 | 21.7 | 18.2 | 17.1 | 16.0 |
| P37 | 310857 | 723577 | Roadside | 100.0 | 100.0 | 16.0 | 18.5 | 16.0 | 15.5 | 14.8 |
| P39 | 312257 | 724013 | Roadside | 100.0 | 100.0 | 25.0 | 28.0 | 23.2 | 22.8 | 22.4 |
| P40 | 312245 | 723965 | Roadside | 100.0 | 100.0 | 27.0 | 27.1 | 24.0 | 21.2 | 24.3 |
| P41 | 311462 | 723941 | Roadside | 100.0 | 100.0 | 24.0 | 28.4 | 22.8 | 22.8 | 21.8 |
| P43C, P43L, P43R | 311619 | 723933 | Roadside | 100.0 | 100.0 | 32.0 | 34.9 | 32.7 | 31.4 | 30.2 |
| P51 | 312233 | 723921 | Roadside | 100.0 | 100.0 | 18.0 | 19.0 | 15.7 | 15.5 | 14.4 |
| P55 | 286334 | 721640 | Roadside | 90.6 | 90.6 | 23.0 | 28.3 | 23.8 | 23.5 | 22.4 |
| P56 | 286541 | 721559 | Urban Centre | 100.0 | 100.0 | 16.0 | 18.0 | 14.3 | 14.1 | 14.0 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P57 | 286541 | 721563 | Urban Centre | 100.0 | 100.0 | 18.0 | 18.8 | 16.9 | 15.8 | 14.9 |
| P58 | 286582 | 721553 | Urban Centre | 100.0 | 100.0 | 23.0 | 27.1 | 22.4 | 21.8 | 20.9 |
| P61C, P61L, P61R | 311584 | 723931 | Roadside | 100.0 | 100.0 | 28.0 | 31.4 | 30.1 | 31.7 | 27.0 |
| P62 | 312503 | 722930 | Roadside | 100.0 | 100.0 | 16.0 | 19.0 | 16.1 | 17.6 | 17.3 |
| P63 | 312413 | 723252 | Roadside | 100.0 | 100.0 | 22.0 | 25.3 | 22.0 | 21.0 | 20.2 |
| P64 | 312228 | 724120 | Roadside | 100.0 | 100.0 | 28.0 | 31.7 | 28.0 | 27.3 | 26.8 |
| P65 | 311943 | 723864 | Roadside | 92.5 | 92.5 | 18.0 | 18.2 | 15.5 | 15.3 | 15.1 |
| P67 | 311697 | 723939 | Roadside | 100.0 | 100.0 | 23.0 | 24.3 | 22.3 | 18.9 | 20.6 |
| P68 | 311720 | 723955 | Roadside | 100.0 | 100.0 | 23.0 | 20.9 | 19.9 | 16.6 | 17.1 |
| P72 | 310335 | 724550 | Roadside | 100.0 | 100.0 | 24.0 | 25.6 | 22.5 | 21.3 | 21.5 |
| P73 | 286302 | 721651 | Urban Centre | 100.0 | 100.0 | 24.0 | 28.8 | 24.0 | 23.5 | 21.9 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P74 | 286517 | 721559 | Urban Centre | 100.0 | 100.0 | 15.0 | 20.4 | 16.4 | 16.8 | 16.5 |
| P75C, P75L, P75R | 286360 | 721617 | Roadside | 100.0 | 100.0 | 14.0 | 13.7 | 12.4 | 11.4 | 11.3 |
| P76 | 286324 | 721632 | Urban Centre | 100.0 | 100.0 | 21.0 | 24.4 | 21.6 | 18.8 | 19.1 |
| P78 | 286194 | 721692 | Urban Centre | 100.0 | 100.0 | 16.0 | 17.7 | 12.9 | 14.5 | 12.4 |
| P79C, P79R, P79L | 312262 | 723976 | Roadside | 100.0 | 100.0 | 24.0 | 26.4 | 22.6 | 22.9 | 21.1 |
| P82 | 294569 | 712888 | Roadside | 100.0 | 100.0 | 17.0 | 16.4 | 14.9 | 15.5 | 13.0 |
| P86 | 311788 | 721397 | Roadside | 100.0 | 100.0 | 15.0 | 16.9 | 15.3 | 16.9 | 16.5 |
| P87 | 287043 | 721486 | Suburban | 100.0 | 100.0 | 4.0 | 5.2 | 3.8 | 4.2 | 4.2 |
| P89 | 311546 | 723544 | Roadside | 100.0 | 100.0 | 23.0 | 24.9 | 21.6 | 19.6 | 17.8 |
| P90 | 311539 | 723798 | Roadside | 100.0 | 100.0 | 21.0 | 20.6 | 17.6 | 16.2 | 15.0 |
| P95 | 311636 | 723950 | Kerbside | 100.0 | 100.0 | 26.0 | 31.6 | 26.7 | 29.5 | 25.0 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P96 | 311424 | 723976 | Kerbside | 100.0 | 100.0 | 24.0 | 27.7 | 22.6 | 22.8 | 19.6 |
| P97 | 311370 | 724040 | Roadside | 100.0 | 100.0 | 24.0 | 26.4 | 19.9 | 19.1 | 18.2 |
| P99 | 310536 | 722928 | Roadside | 92.5 | 92.5 | 11.0 | 11.8 | 9.4 | 11.1 | 8.8 |
| P100 | 286271 | 721684 | Urban Centre | 100.0 | 75.0 | 11.0 | 14.3 | 10.9 | 10.9 | 10.6 |
| P101 | 311012 | 724483 | Roadside | 84.9 | 84.9 | 22.0 | 22.6 | 19.8 | 17.3 | 17.6 |
| P103 | 311207 | 723504 | Roadside | 100.0 | 100.0 | 22.0 | 29.5 | 25.8 | 23.9 | 22.3 |
| P104 | 310157 | 722634 | Roadside | 90.6 | 90.6 | 18.0 | 19.0 | 15.4 | 16.5 | 14.6 |
| P107 | 311201 | 722871 | Roadside | 100.0 | 100.0 | 21.0 | 23.5 | 19.8 | 20.0 | 19.7 |
| P108 | 318293 | 745415 | Roadside | 100.0 | 100.0 | 17.0 | 18.8 | 17.3 | 16.8 | 17.1 |
| P109 | 311660 | 723897 | Roadside | 100.0 | 75.0 | 20.0 | 20.6 | 18.5 | 17.1 | 16.5 |
| P110 | 309922 | 722633 | Roadside | 100.0 | 100.0 | 16.0 | 17.4 | 13.8 | 13.5 | 13.2 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) [1] | Valid Data Capture 2024 (%) [2] | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P111 | 308904 | 722731 | Roadside | 100.0 | 100.0 | 19.0 | 21.2 | 17.8 | 16.1 | 15.1 |
| P112 | 308528 | 722895 | Roadside | 100.0 | 100.0 | 13.0 | 15.6 | 13.9 | 13.2 | 12.5 |
| P113 | 313781 | 726119 | Roadside | 90.6 | 90.6 | 17.0 | 17.8 | 15.1 | 15.1 | 13.5 |
| P114 | 311625 | 724063 | Roadside | 100.0 | 100.0 | 13.0 | 10.8 | 10.1 | 9.7 | 9.6 |
| P115 | 311197 | 724857 | Roadside | 100.0 | 100.0 | 14.0 | 13.6 | 11.1 | 10.7 | 10.6 |
| P116 | 310791 | 723817 | Roadside | 100.0 | 100.0 | 22.0 | 21.3 | 16.3 | 17.9 | 17.3 |
| P117 | 310791 | 723817 | Roadside | 100.0 | 100.0 | 16.0 | 16.0 | 13.5 | 14.4 | 14.2 |
| P119 | 312322 | 723515 | Roadside | 84.9 | 84.9 | 13.0 | 19.0 | 16.6 | 14.2 | 13.7 |
| P120 | 286286 | 721656 | Roadside | 100.0 | 100.0 | 20.0 | 23.7 | 18.9 | 19.2 | 18.7 |
| P121 | 311252 | 723301 | Roadside | 100.0 | 100.0 | 25.0 | 29.8 | 23.8 | 22.7 | 21.7 |
| P122C, P122L, P122R | 312260 | 724170 | Roadside | 100.0 | 100.0 | N/A | 19.4 | 18.5 | 17.1 | 16.2 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| P123 | 310231 | 725590 | Roadside | 100.0 | 100.0 | N/A | 12.7 | 11.8 | 12.0 | 11.2 |
| P124 | 311290 | 723761 | Roadside | 100.0 | 100.0 | N/A | N/A | 18.5 | 17.3 | 17.1 |
| P125 | 311279 | 723437 | Roadside | 100.0 | 100.0 | N/A | N/A | 20.9 | 19.1 | 19.4 |
| P126 | 313438 | 725637 | Roadside | 84.9 | 84.9 | N/A | N/A | 10.5 | 12.6 | 12.3 |
| P127C, P127L, P127R | 308847 | 722750 | Roadside | 100.0 | 100.0 | N/A | N/A | N/A | N/A | 13.4 |
| P128 | 314200 | 726765 | Roadside | 100.0 | 25.0 | N/A | N/A | N/A | N/A | 10.0 |

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

☒ **Diffusion tube data has been bias adjusted.**

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

**Notes:**

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

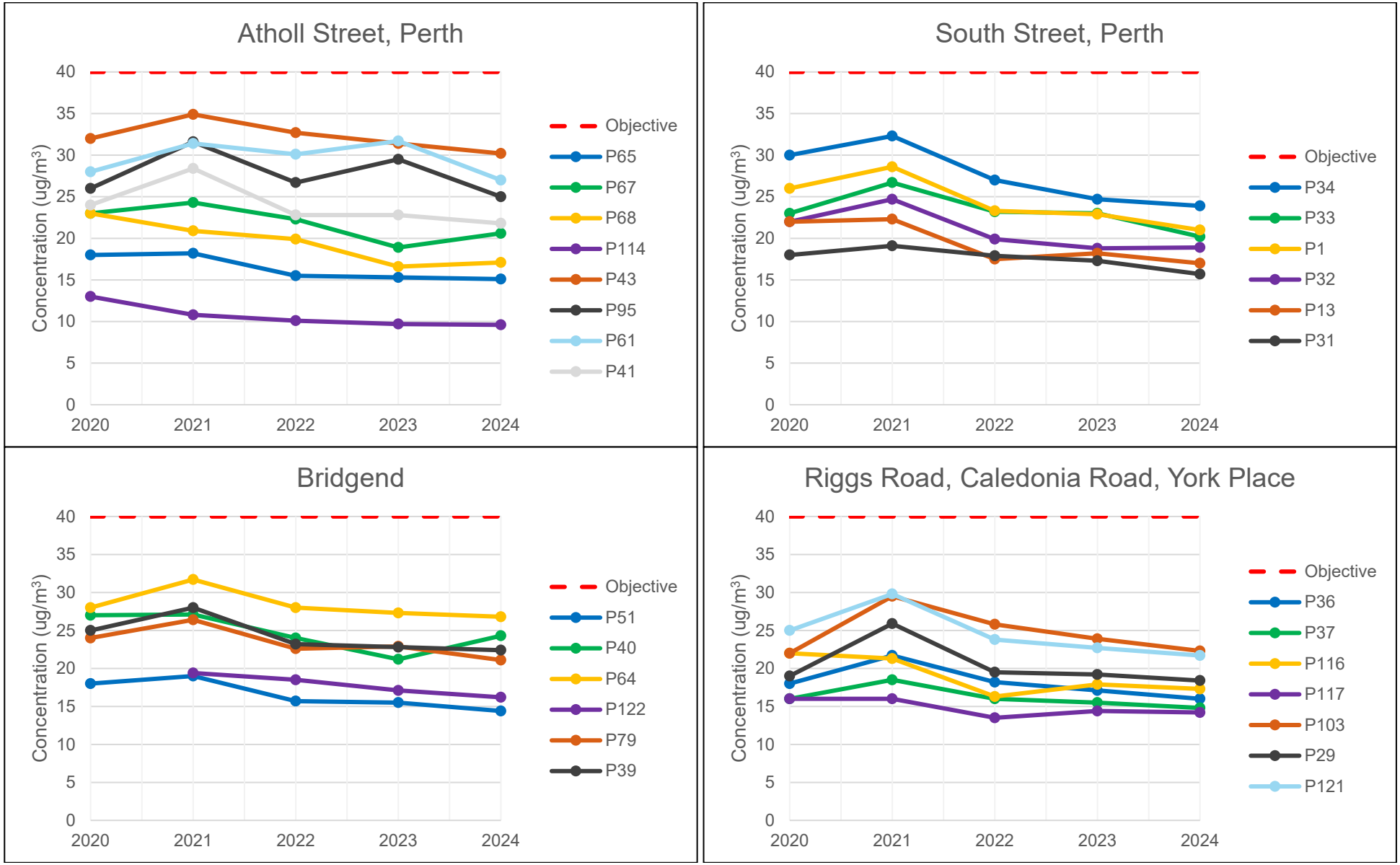
$NO_2$ annual means exceeding 60 µg/m$^3$, indicating a potential exceedance of the $NO_2$ 1-hour mean objective are shown in **bold and underlined**.

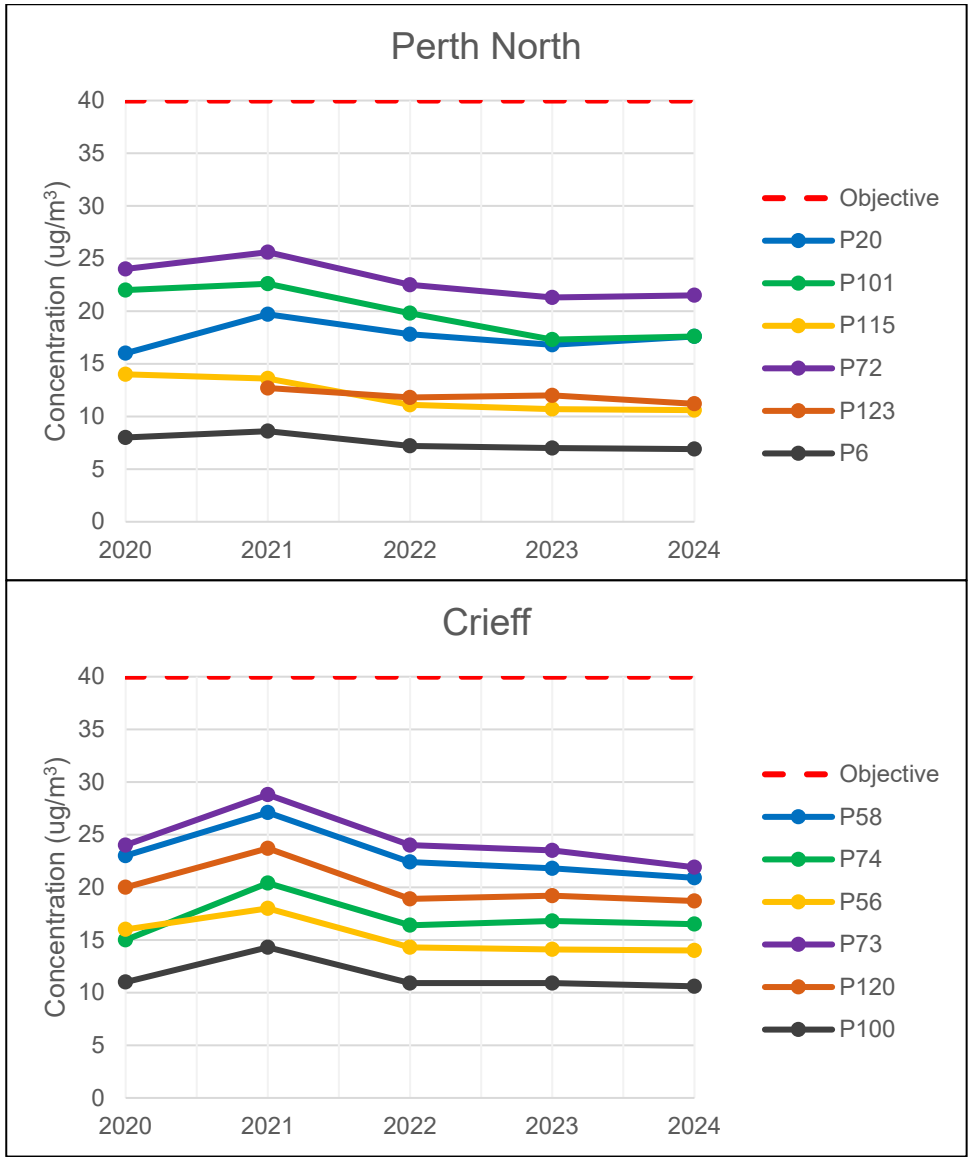
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

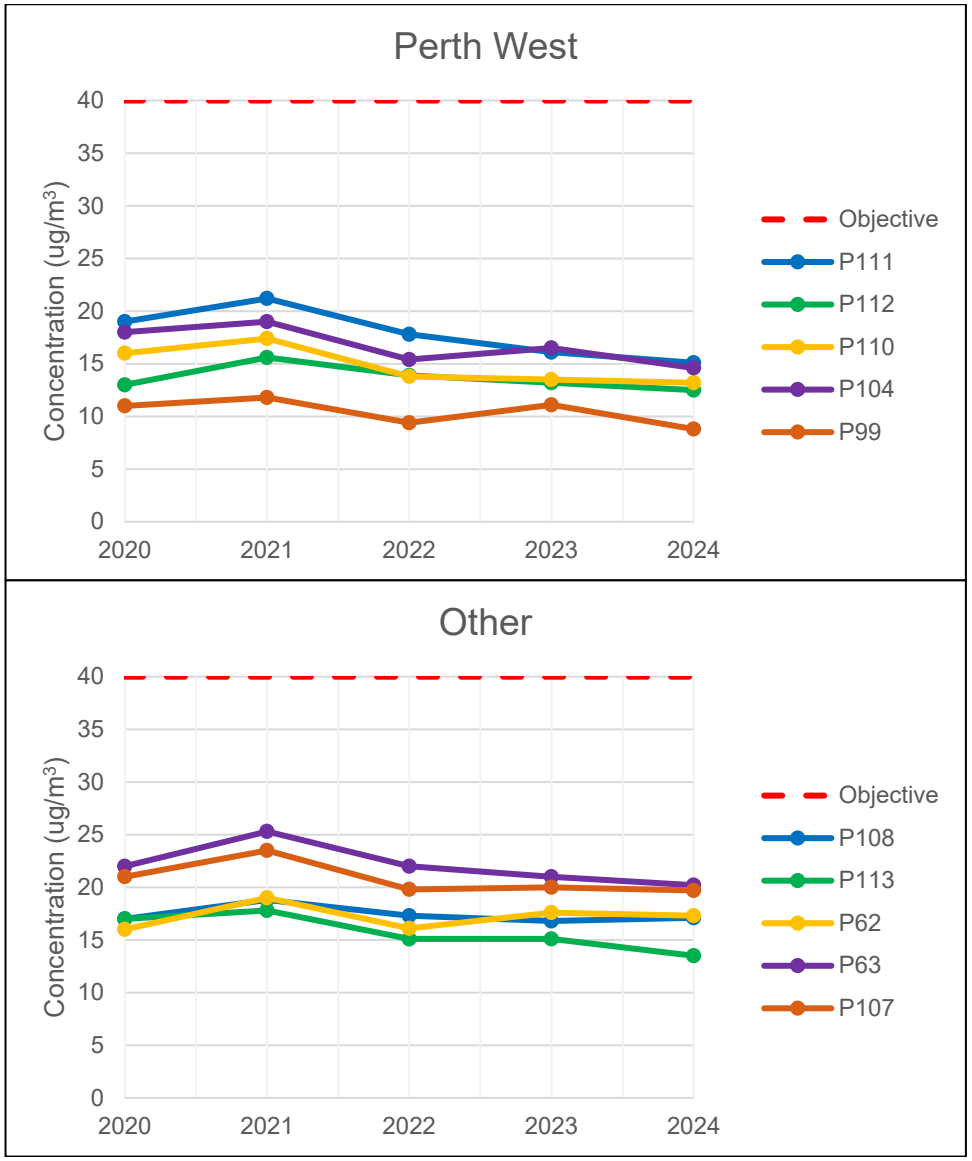
(3) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

**Figure A.1 – $NO_2$ diffusion tube annual mean trends across Perth and Kinross (2020-2024)**




Perth North
Concentration (ug/m3)
0
5
10
15
20
25
30
35
40
2020
2021
2022
2023
2024
Objective
P20
P101
P115
P72
P123
P6


Perth West
Concentration (ug/m3)
0
5
10
15
20
25
30
35
40
2020
2021
2022
2023
2024
Objective
P111
P112
P110
P104
P99


Crieff
Concentration (ug/m3)
0
5
10
15
20
25
30
35
40
2020
2021
2022
2023
2024
Objective
P58
P74
P56
P73
P120
P100


Other
Concentration (ug/m3)
0
5
10
15
20
25
30
35
40
2020
2021
2022
2023
2024
Objective
P108
P113
P62
P63
P107

**Table A.5 – 1-hour mean $NO_2$ monitoring results, number of 1-hour means > 200 µg/m$^3$**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 0 | 0 | 0 | 0 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 0 | 0 | 0 | 0 | 0 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 27 | N/A | N/A | N/A | N/A | 0 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 98 | 82 | 0 | 0 | 0 | 0 | 1 |

**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 99.8$^{th}$ percentile of 1-hour means is provided in brackets.

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

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

**Figure A.2 – Annual mean trend for $NO_2$ at Atholl Street**

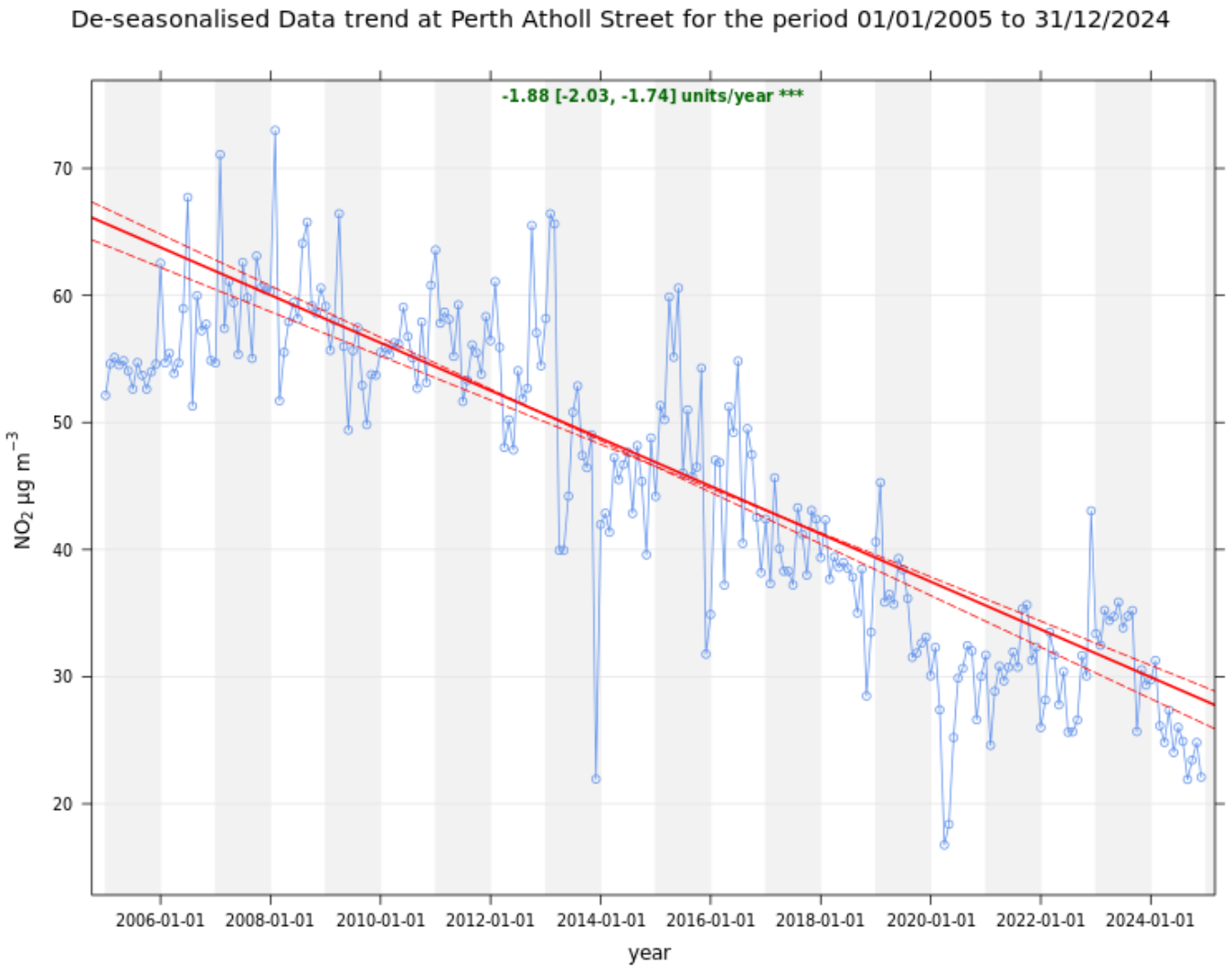


**Figure A.3 – Annual mean trend for $NO_2$ at Crieff**

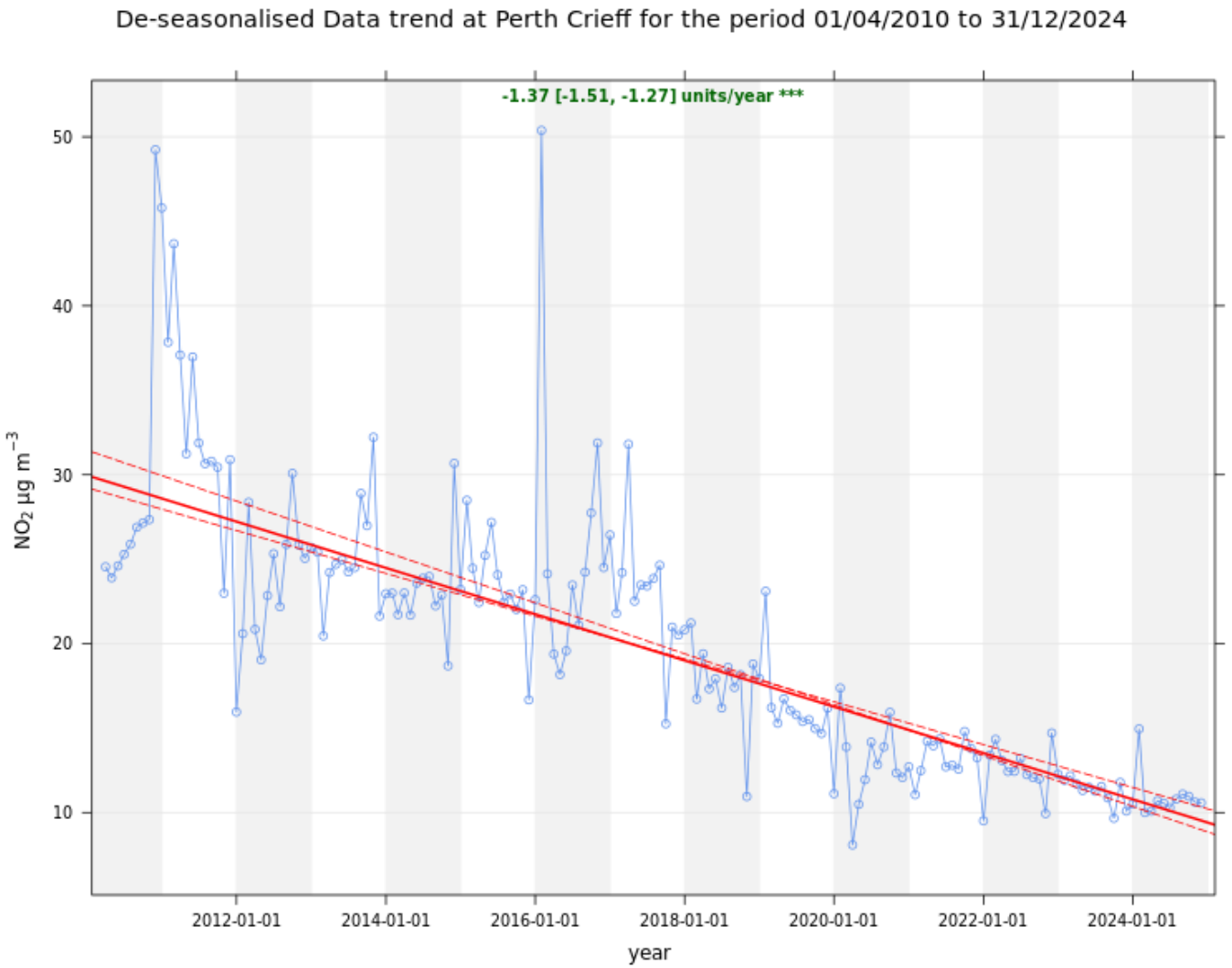


**Figure A.4 – Annual mean trend for $NO_2$ at Bridgend**

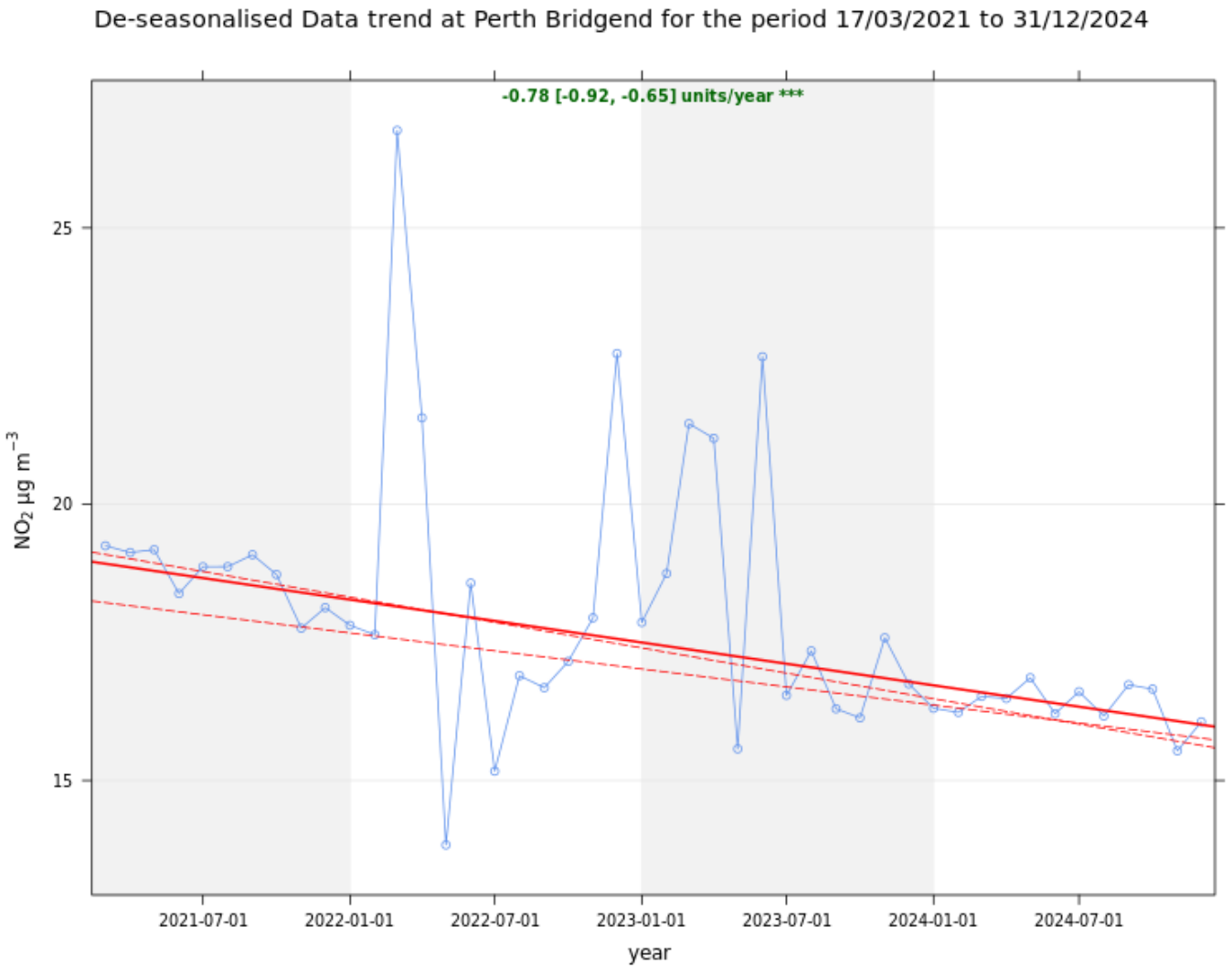


**Table A.6 – Annual mean $PM_{10}$ monitoring results (µg/m$^3$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 9.6 | 9.7 | 9.7 | 9.7 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 10.2 | 14.0 | 15.9 | 21.3 | 11.8 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 83 | N/A | N/A | N/A | (8.6)(3) | 12.5 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 80 | 67 | 7.1 | 8.8 | 9.6 | 9.7 | 10.0 |

**Notes:**

Exceedances of the $PM_{10}$ annual mean objective of 18 µg/m$^3$ are shown in bold.

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

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

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

(3) Data capture period for Glasgow Road was >25%, in line with LAQM.TG22 annualisation could not be carried out for 2023.

**Table A.7 – Annual mean $PM_{10}$ monitoring results (µg/m$^3$) - corrected FIDAS 200 data**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 10.6 | 10.7 | 10.6 | 10.7 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 11.2 | 15.4 | 17.5 | 23.4 | 13.0 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 83 | N/A | N/A | N/A | (8.6)(3) | 12.5 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 80 | 67 | 7.9 | 9.8 | 10.6 | 10.8 | 11.1 |

**Notes:**

Exceedances of the $PM_{10}$ annual mean objective of 18 µg/m$^3$ are shown in bold.

The above data has also been corrected as per Scottish Government Guidance following the Scottish Government Pilot Research Study to investigate Particulate Matter Monitoring Techniques in Scotland.

(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) Data capture period for Glasgow Road was >25%, in line with LAQM.TG22 annualisation could not be carried out for 2023

**Table A.8 – 24-hour mean $PM_{10}$ monitoring results, number of $PM_{10}$ 24-hour means > 50 µg/m$^3$**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 0 | 2 | 0 | 0 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 0 | **7** | **7** | **15** | 0 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 80 | 67 | N/A | N/A | N/A | (0) | 1 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 100 | 100 | 0 | 0 | 0 | 1 | 0 |

**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.

(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.9 – 24-hour mean $PM_{10}$ monitoring results, number of $PM_{10}$ 24-hour means > 50µg/m$^3$ - corrected FIDAS 200 data**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 100 | 100 | N/A | 0 | 2 | 0 | 0 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 0 | 8 | 11 | 25 | 0 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 80 | 67 | N/A | N/A | N/A | (0) | 1 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 100 | 100 | 0 | 0 | 1 | 1 | 0 |

**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. The above data has also been corrected as per Scottish Government Guidance following the Scottish Government Pilot Research Study to investigate Particulate Matter Monitoring Techniques in Scotland.

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

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

**Figure A.5 – Annual mean trend for $PM_{10}$ at Atholl Street**

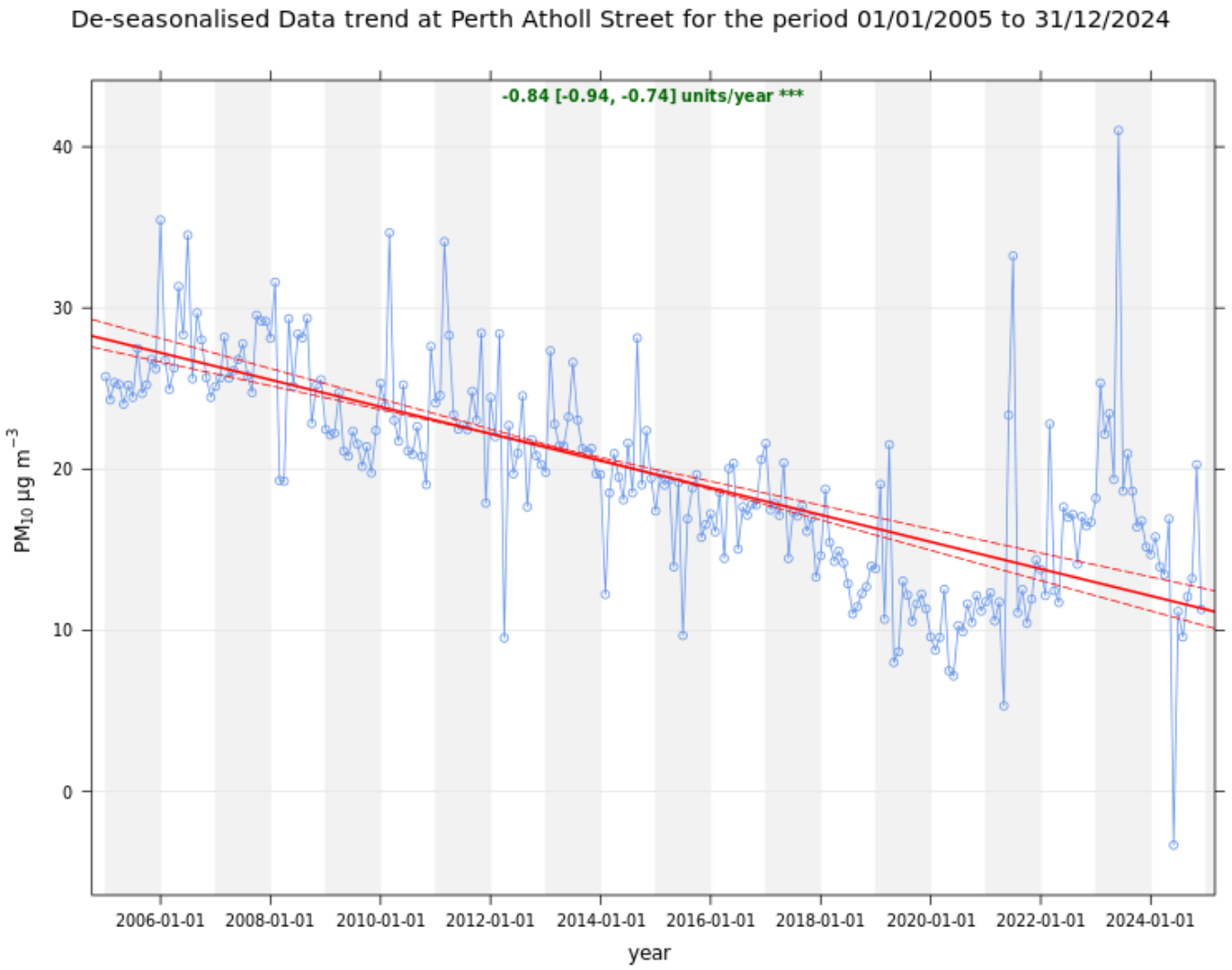


**Figure A.6 – Annual mean trend for $PM_{10}$ at Crieff**

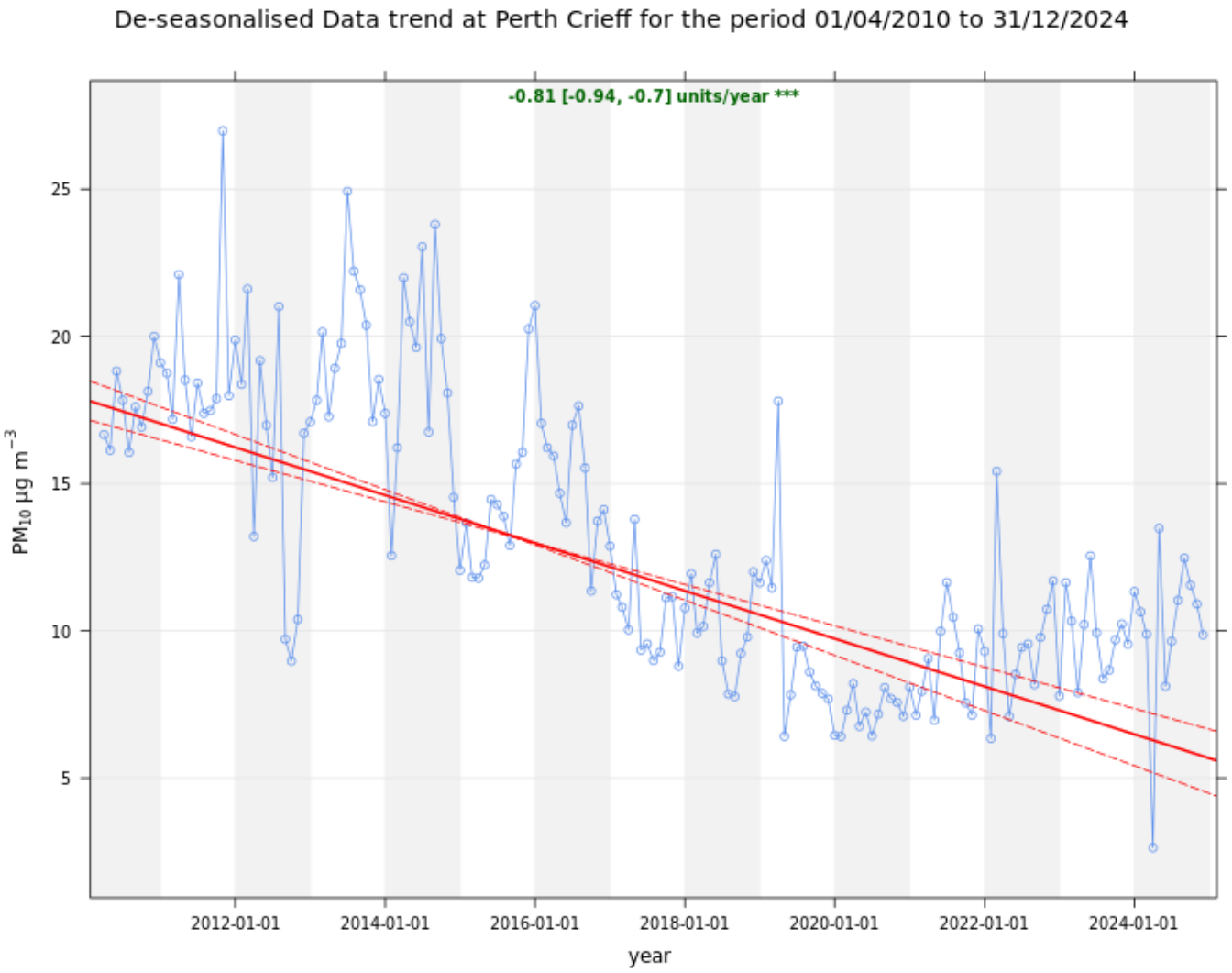


**Figure A.7 – Annual mean trend for $PM_{10}$ at Bridgend**

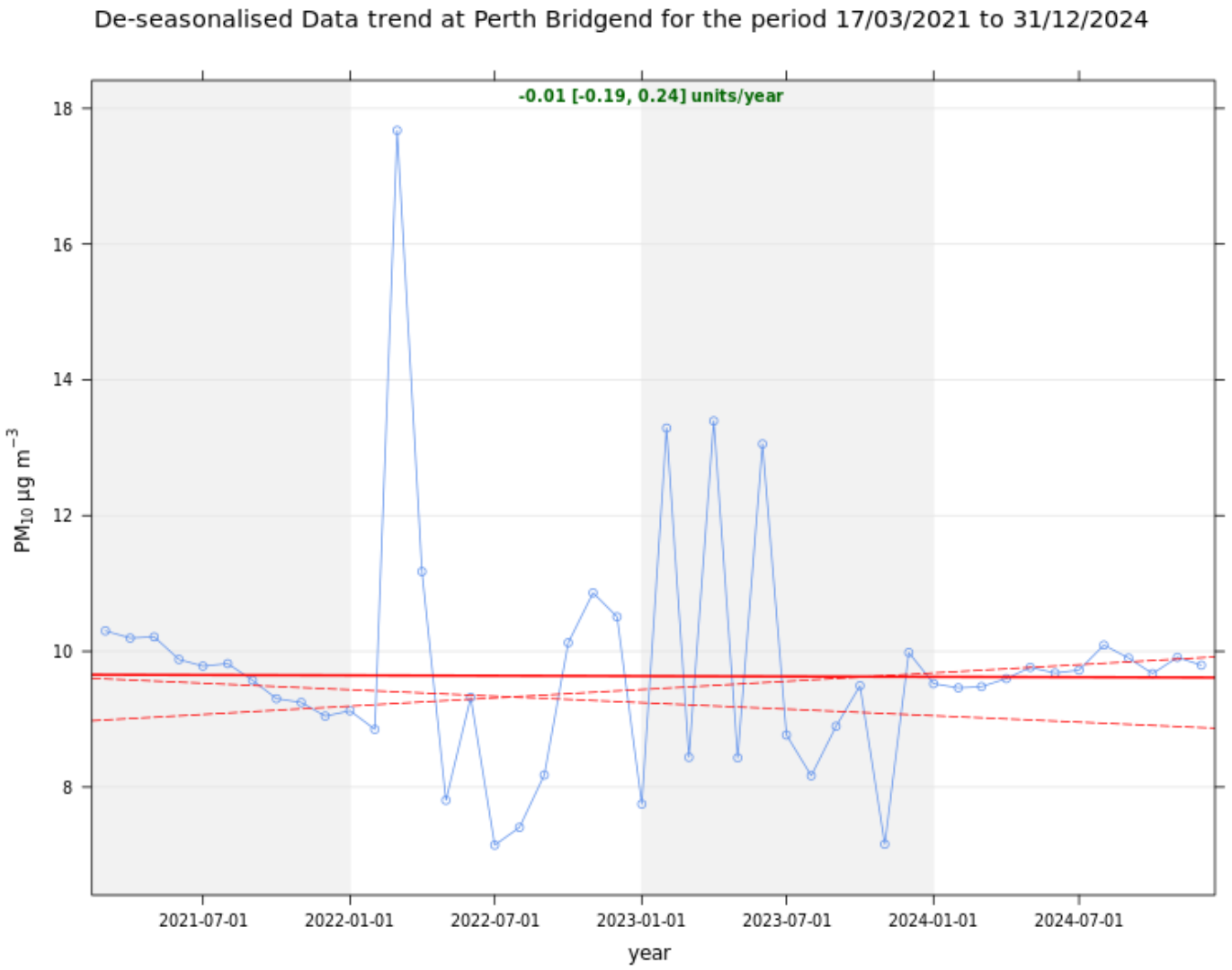


**Table A.10 – Annual mean $PM_{2.5}$ monitoring results (µg/m$^3$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 98 | 98 | N/A | 4.9 | 5.7 | 5.0 | 5.4 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 5.6 | 6.4 | 6.9 | 6.9 | 6.0 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 83 | N/A | N/A | N/A | (4.5)(3) | 6.0 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 80 | 66 | 3.9 | 4.8 | 5.2 | 5.1 | 5.7 |

**Notes:**

Exceedances of the $PM_{2.5}$ annual mean objective of 10 µg/m$^3$ are shown in bold.

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

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

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

(3) Data capture period for Glasgow Road was >25%, in line with LAQM.TG22 annualisation could not be carried out for 2023.

**Table A.11 – Annual mean $PM_{2.5}$ monitoring results (µg/m$^3$) - corrected FIDAS 200 data**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Perth 1 (Bridgend) | 312254 | 724159 | Roadside | 98 | 98 | N/A | 5.2 | 5.7 | 5.3 | 5.7 |
| Perth 2 (Atholl Street) | 311577 | 723931 | Roadside | 90 | 75 | 6 | 6.8 | 7.4 | 7.3 | 6.3 |
| Perth 3 (Glasgow Road) | 308843 | 722754 | Roadside | 100 | 83 | N/A | N/A | N/A | (4.5) | 6.0 |
| Crieff (James Square) | 286363 | 721614 | Roadside | 80 | 66 | 4.2 | 5.1 | 5.5 | 5.4 | 5.8 |

**Notes:**

Exceedances of the $PM_{2.5}$ annual mean objective of 10 µg/m$^3$ are shown in bold.

The above data has also been corrected as per Scottish Government Guidance following the Scottish Government Pilot Research Study to investigate Particulate Matter Monitoring Techniques in Scotland. See Appendix C for details.

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

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

**Figure A.8 – Annual mean trend for $PM_{2.5}$ at Atholl Street**

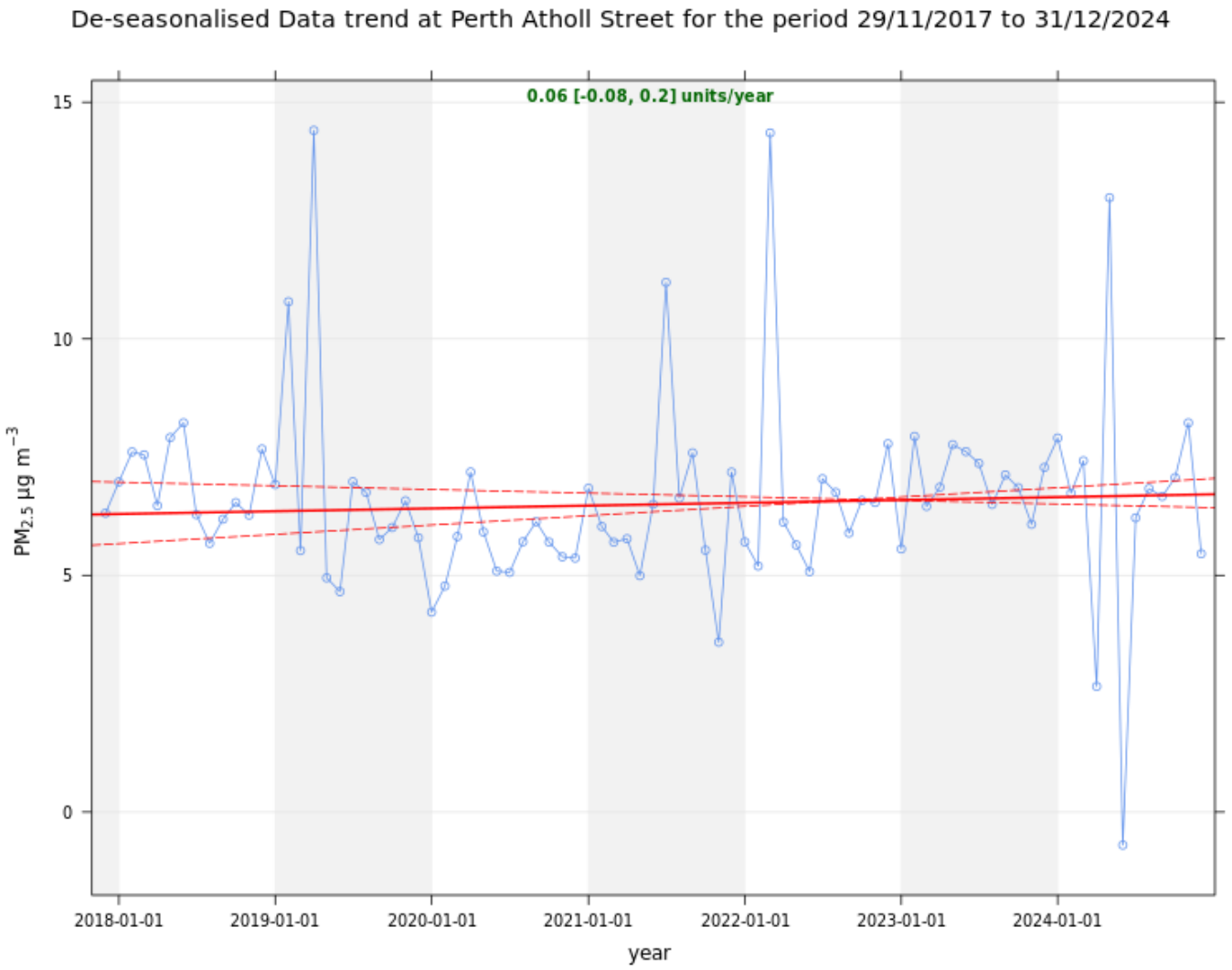


**Figure A.9 – Annual mean trend for $PM_{2.5}$ at Crieff**

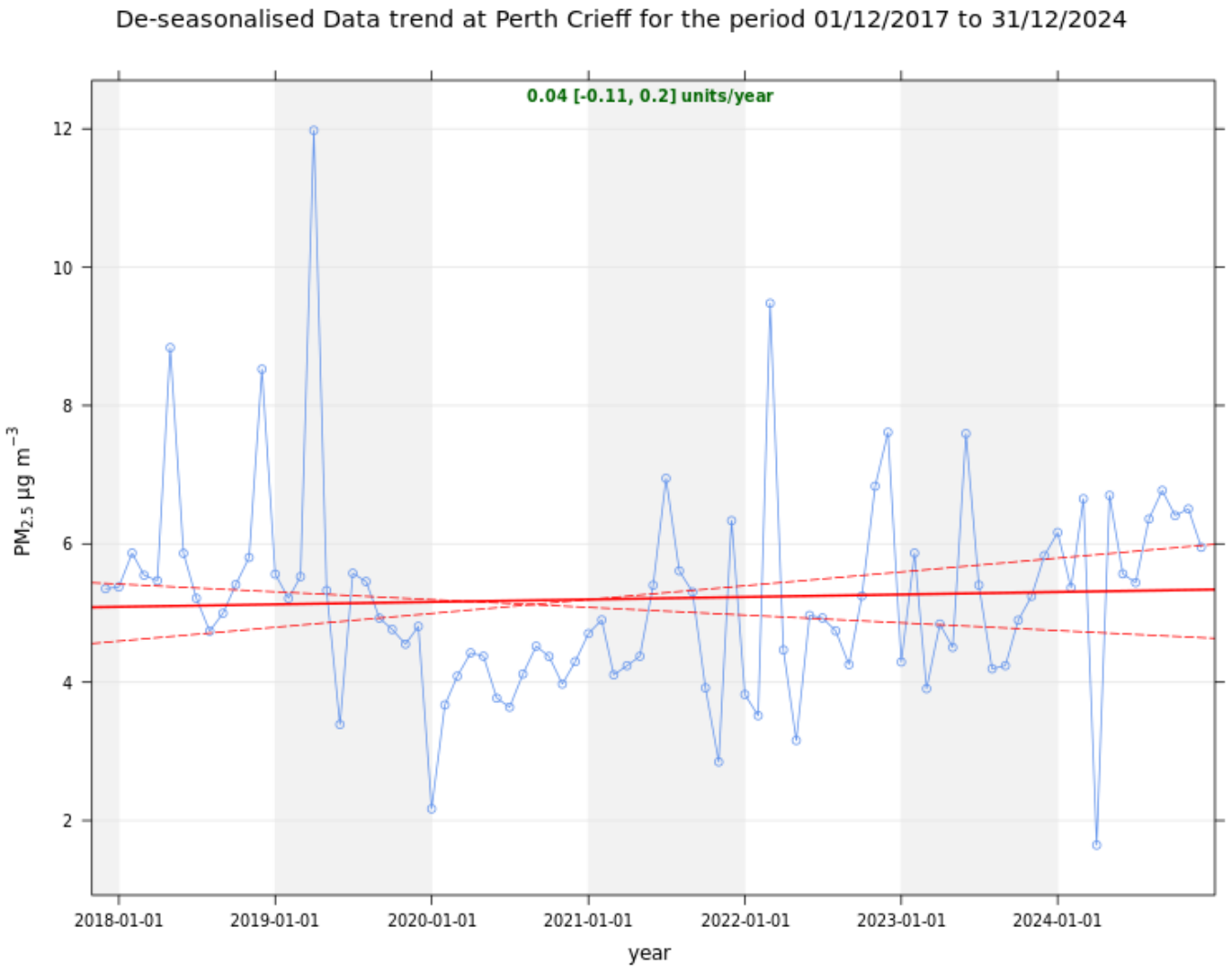
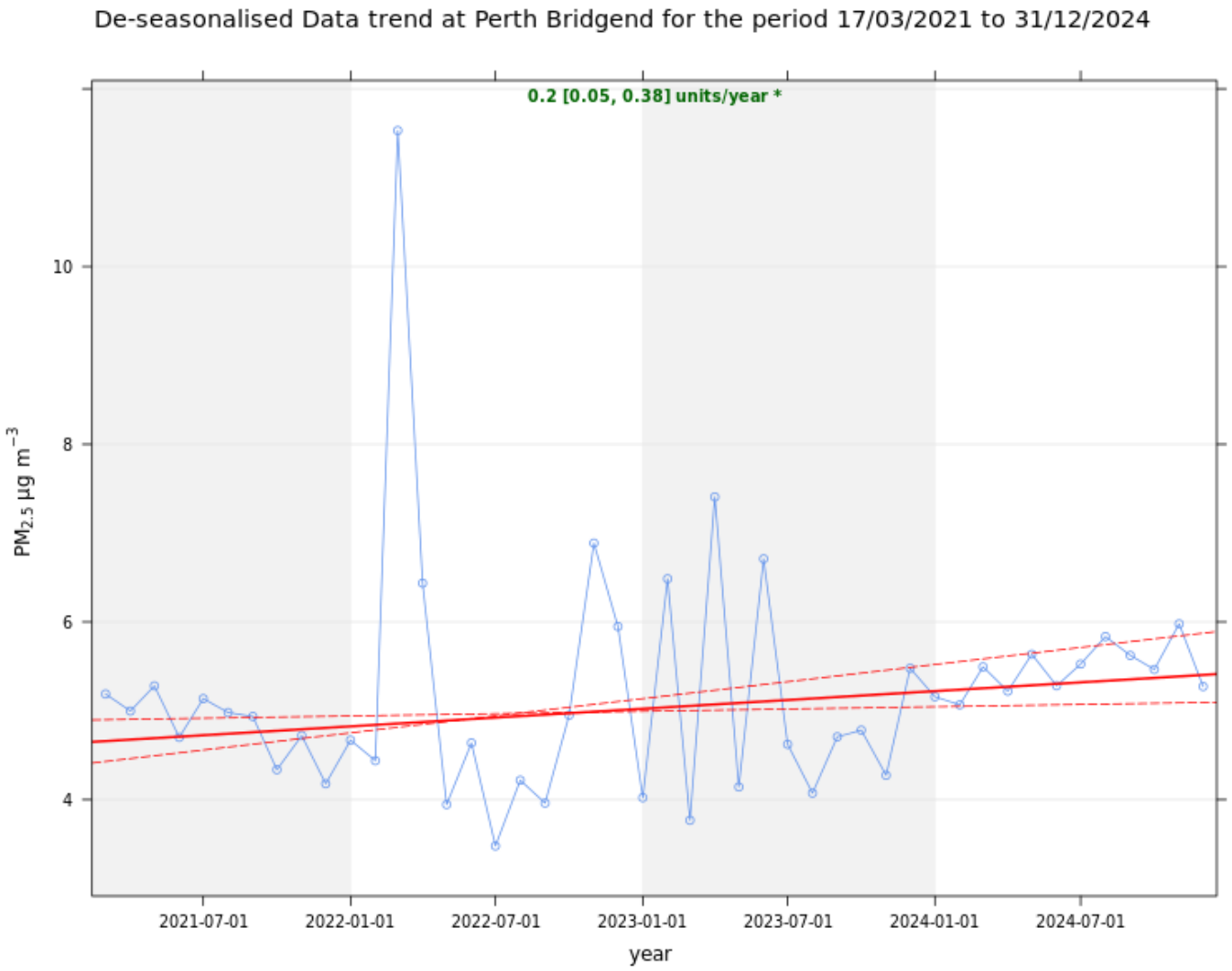


**Figure A.10 – Annual mean trend for $PM_{2.5}$ at Bridgend**



# 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 (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1C | 311674 | 723501 | 34.1 | 27.2 | 31.8 | | 30.4 | 16.8 | 16.7 | 16.9 | 19.9 | 26.7 | 31.1 | 23.8 | - | - | | Triplicate Site with P1C, P1L and P1R - Annual data provided for P1R only |
| P1L | 311674 | 723501 | 33.0 | 30.9 | 30.9 | 27.1 | 23.9 | 17.5 | 17.6 | 18.7 | 27.5 | 19.7 | 34.0 | 24.0 | - | - | | Triplicate Site with P1C, P1L and P1R - Annual data provided for P1R only |
| P1R | 311674 | 723501 | 31.2 | 29.1 | 30.7 | 25.5 | 26.6 | 17.1 | 18.1 | 19.1 | 22.6 | 26.3 | 31.4 | 23.3 | 25.2 | 21.0 | | Triplicate Site with P1C, P1L and P1R - Annual data provided for P1R only |
| P2 | 312018 | 723411 | 23.0 | 19.4 | 13.9 | 12.9 | 11.0 | 11.1 | 3.4 | 10.8 | 12.4 | 17.2 | 22.8 | 18.3 | 14.7 | 12.2 | | |
| P5 | 311584 | 723993 | 22.4 | 17.6 | 13.4 | 10.1 | 10.2 | 8.9 | 8.8 | 9.8 | 7.9 | 14.7 | 20.2 | 17.0 | 13.4 | 11.2 | | |
| P6 | 310501 | 725764 | 13.7 | 9.6 | 7.8 | 6.0 | 5.0 | 4.6 | 3.4 | 4.6 | 4.6 | 9.6 | 18.7 | 11.1 | 8.2 | 6.9 | | |
| P13 | 311846 | 723454 | 31.6 | 26.2 | 20.8 | 19.8 | 15.8 | 16.8 | | 16.1 | 14.9 | 21.0 | | 20.6 | 20.4 | 17.0 | | |
| P20 | 311058 | 724395 | 32.4 | 25.3 | 21.6 | 18.9 | 18.6 | 13.3 | 13.7 | 14.2 | 16.3 | 28.1 | 29.9 | | 21.1 | 17.6 | | |
| P29 | 311252 | 723518 | 33.3 | 24.8 | 26.7 | 20.8 | 19.4 | 13.6 | 9.2 | 14.9 | 20.6 | 23.6 | 32.7 | 26.0 | 22.1 | 18.4 | | |

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P31C | 311797 | 723457 | 30.8 | 27.1 | 22.4 | 21.4 | 17.4 | 16.2 | 15.0 | 16.2 | 16.1 | 21.3 | 28.6 | 24.1 | - | - | | Triplicate Site with P30C, P30L and P30R - Annual data provided for P30R only |
| P30L | 311797 | 723457 | 31.5 | 23.3 | 22.6 | 24.0 | 17.6 | 17.2 | 14.7 | 16.2 | 16.3 | 22.3 | 27.5 | 25.2 | - | - | | Triplicate Site with P30C, P30L and P30R - Annual data provided for P30R only |
| P30R | 311797 | 723457 | 32.9 | 28.4 | 24.6 | 22.3 | 18.5 | 17.2 | 14.5 | 16.4 | 15.8 | 21.5 | 29.7 | 24.1 | 21.7 | 18.1 | | Triplicate Site with P30C, P30L and P30R - Annual data provided for P30R only |
| P31 | 311925 | 723465 | 28.3 | 23.6 | 22.4 | 18.9 | 14.8 | 12.1 | 11.2 | 11.6 | 17.6 | 19.4 | 26.3 | 20.4 | 18.9 | 15.7 | | |
| P32 | 311704 | 723483 | 27.7 | 26.9 | 27.9 | 24.7 | 19.4 | 16.8 | 15.7 | 15.5 | 19.8 | 23.7 | 30.4 | 23.9 | 22.7 | 18.9 | | |
| P33 | 311587 | 723475 | 30.5 | 29.1 | 26.4 | 24.9 | 26.9 | 16.9 | 14.6 | 17.4 | 19.1 | 25.3 | 31.9 | 27.3 | 24.2 | 20.2 | | |
| P34 | 311503 | 723480 | 37.4 | 37.6 | 30.6 | 28.6 | 27.1 | 23.5 | 22.1 | 23.7 | 22.0 | 28.2 | 35.2 | 28.4 | 28.7 | 23.9 | | |
| P35 | 311930 | 723416 | 26.9 | 22.5 | 19.8 | 19.3 | 15.3 | 12.6 | 13.1 | 13.7 | 18.2 | 19.4 | 29.3 | 22.7 | 19.4 | 16.2 | | |
| P36 | 310773 | 723557 | 22.1 | 25.0 | 22.2 | 14.3 | 18.3 | 12.4 | 13.6 | 14.2 | 13.3 | 23.3 | 29.1 | 22.2 | 19.2 | 16.0 | | |
| P37 | 310857 | 723577 | 23.1 | 19.9 | 22.3 | 16.4 | 17.5 | 11.3 | 10.8 | 12.1 | 17.1 | 18.1 | 26.1 | 18.3 | 17.8 | 14.8 | | |
| P39 | 312257 | 724013 | 26.8 | 28.0 | 37.4 | 30.6 | 31.8 | 19.9 | 21.7 | 20.0 | 24.4 | 25.5 | 32.6 | 23.7 | 26.9 | 22.4 | | |

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P40 | 312245 | 723965 | 57.2 | 29.5 | 26.6 | 23.7 | 24.2 | 24.4 | 22.5 | 20.3 | 23.8 | 25.1 | 33.5 | 38.7 | 29.1 | 24.3 | | |
| P41 | 311462 | 723941 | 30.4 | 29.6 | 34.6 | 26.6 | 28.6 | 17.0 | 19.2 | 19.5 | 27.2 | 23.0 | 32.7 | 25.1 | 26.1 | 21.8 | | |
| P43C | 311619 | 723933 | 41.8 | 35.8 | 37.1 | 37.3 | 36.8 | 28.9 | 26.6 | 30.8 | 34.1 | 34.2 | 39.3 | 34.1 | - | - | | Triplicate Site with P43C, P43L and P43R - Annual data provided for P43R only |
| P43L | 311619 | 723933 | 46.6 | 42.0 | 35.1 | 35.6 | 37.8 | 28.8 | 25.6 | 29.7 | 32.1 | 58.1 | | 42.1 | - | - | | Triplicate Site with P43C, P43L and P43R - Annual data provided for P43R only |
| P43R | 311619 | 723933 | 43.6 | 41.3 | 36.0 | 34.6 | 37.3 | 28.7 | 28.1 | 27.8 | 33.3 | 36.1 | 50.1 | 34.1 | 36.3 | 30.2 | | Triplicate Site with P43C, P43L and P43R - Annual data provided for P43R only |
| P51 | 312233 | 723921 | 21.7 | 17.4 | 19.1 | 19.8 | 16.9 | 14.1 | 12.1 | 11.1 | 16.9 | 15.2 | 24.0 | 18.5 | 17.2 | 14.4 | | |
| P55 | 286334 | 721640 | 32.0 | 29.5 | 38.3 | 25.5 | | 22.1 | 20.7 | 20.9 | 28.3 | 26.2 | 33.5 | 18.3 | 26.8 | 22.4 | | |
| P56 | 286541 | 721559 | 22.0 | 19.3 | 21.8 | 14.8 | 18.9 | 11.7 | 7.8 | 11.0 | 16.3 | 15.2 | 22.8 | 19.4 | 16.8 | 14.0 | | |
| P57 | 286541 | 721563 | 26.2 | 20.5 | 23.7 | 20.3 | 20.2 | 13.2 | 8.2 | 11.7 | 16.0 | 13.7 | 22.6 | 17.7 | 17.8 | 14.9 | | |
| P58 | 286582 | 721553 | 34.5 | 23.6 | 28.4 | 26.2 | 26.3 | 20.3 | 13.5 | 17.8 | 23.6 | 28.0 | 32.4 | 26.9 | 25.1 | 20.9 | | |
| P61C | 311584 | 723931 | 47.3 | 43.5 | 44.2 | 32.1 | 34.5 | 27.7 | 20.6 | 28.4 | 22.3 | 30.0 | 34.5 | 31.3 | - | - | | Triplicate Site with P61C, P61L and P61R - Annual data provided for P61R only |

| 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 (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P61L | 311584 | 723931 | 44.8 | 40.2 | 39.3 | 32.3 | 31.8 | 26.3 | 20.0 | 27.2 | 24.8 | 30.3 | 36.8 | 27.0 | - | - | | Triplicate Site with P61C, P61L and P61R - Annual data provided for P61R only |
| P61R | 311584 | 723931 | 46.3 | 49.0 | 37.4 | 34.2 | 32.3 | 25.8 | 17.4 | 27.1 | 25.0 | 26.7 | 36.4 | 31.8 | 32.4 | 27.0 | | Triplicate Site with P61C, P61L and P61R - Annual data provided for P61R only |
| P62 | 312503 | 722930 | 23.5 | 21.9 | 33.1 | 23.4 | 21.6 | 16.0 | 10.9 | 15.2 | 19.1 | 19.2 | 27.7 | 17.9 | 20.8 | 17.3 | | |
| P63 | 312413 | 723252 | 26.7 | 26.4 | 28.9 | 24.9 | 29.0 | 20.4 | 15.0 | 19.5 | 25.0 | 23.1 | 30.8 | 21.1 | 24.2 | 20.2 | | |
| P64 | 312228 | 724120 | 38.5 | 35.0 | 34.2 | 33.2 | 30.4 | 27.8 | 27.7 | 26.3 | 32.2 | 29.9 | 37.7 | 32.7 | 32.1 | 26.8 | | |
| P65 | 311943 | 723864 | 22.4 | 18.7 | 21.5 | 19.9 | 21.5 | 12.5 | 10.9 | 12.2 | | 16.8 | 24.7 | 18.7 | 18.2 | 15.1 | | |
| P67 | 311697 | 723939 | 35.6 | 30.5 | 21.4 | 22.4 | 18.9 | 21.9 | 17.0 | 21.1 | 17.1 | 23.8 | 38.4 | 28.5 | 24.7 | 20.6 | | |
| P68 | 311720 | 723955 | 35.4 | 23.5 | 19.3 | 18.0 | 16.4 | 17.0 | 12.4 | 14.7 | 18.8 | 17.4 | 27.8 | 25.4 | 20.5 | 17.1 | | |
| P72 | 310335 | 724550 | 34.4 | 28.4 | 27.6 | 25.2 | 23.8 | 21.6 | 17.8 | 22.4 | 21.9 | 26.6 | 32.8 | 27.6 | 25.8 | 21.5 | | |
| P73 | 286302 | 721651 | 26.8 | 28.9 | 37.6 | 23.8 | 33.5 | 19.9 | 18.7 | 20.3 | 23.9 | 28.7 | 30.2 | 23.4 | 26.3 | 21.9 | | |
| P74 | 286517 | 721559 | 24.4 | 23.5 | 28.3 | 10.9 | 21.9 | 16.0 | 12.9 | 17.3 | 15.2 | 19.7 | 24.2 | 22.8 | 19.8 | 16.5 | | |

| 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 (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P75C | 286360 | 721617 | 21.0 | 17.0 | 15.6 | 10.1 | 11.5 | 11.1 | 8.2 | 7.8 | 9.9 | 13.1 | 19.2 | 19.8 | - | - | | Triplicate Site with P75C, P75L and P75R - Annual data provided for P75R only |
| P75L | 286360 | 721617 | 19.7 | 16.2 | 15.2 | 11.0 | 11.2 | 11.2 | 9.0 | 8.2 | 10.3 | 14.1 | 19.9 | 17.0 | - | - | | Triplicate Site with P75C, P75L and P75R - Annual data provided for P75R only |
| P75R | 286360 | 721617 | 22.5 | 17.3 | 15.9 | 7.0 | 10.4 | 11.0 | 10.2 | 8.1 | 10.2 | 13.3 | 18.7 | 16.8 | 13.6 | 11.3 | | Triplicate Site with P75C, P75L and P75R - Annual data provided for P75R only |
| P76 | 286324 | 721632 | 25.8 | 28.0 | 20.4 | 21.2 | 26.7 | 20.4 | 19.4 | 19.3 | 20.8 | 23.1 | 28.1 | 21.5 | 22.9 | 19.1 | | |
| P78 | 286194 | 721692 | 19.3 | 17.4 | 22.9 | 9.1 | 20.4 | 11.1 | 8.8 | 11.3 | 17.0 | 16.2 | 16.6 | 8.2 | 14.9 | 12.4 | | |
| P79C | 312262 | 723976 | 28.0 | 29.5 | 32.8 | 24.7 | 34.0 | 18.4 | 19.1 | 19.4 | 19.5 | 24.5 | 31.1 | 24.2 | - | - | | Triplicate Site with P79C, P79R and P79L - Annual data provided for P79L only |
| P79R | 312262 | 723976 | 25.9 | 28.6 | 36.7 | 21.9 | 31.3 | 19.5 | 19.5 | 18.8 | 23.0 | 22.0 | 34.1 | 23.5 | - | - | | Triplicate Site with P79C, P79R and P79L - Annual data provided for P79L only |
| P79L | 312262 | 723976 | 28.7 | 30.2 | 36.0 | 23.2 | 26.8 | 19.3 | 17.8 | 20.6 | 24.7 | 23.1 | 29.0 | 22.5 | 25.3 | 21.1 | | Triplicate Site with P79C, P79R and P79L - Annual data provided for P79L only |
| P82 | 294569 | 712888 | 19.5 | 18.8 | 16.1 | 14.8 | 15.4 | 14.8 | 10.1 | 12.2 | 14.5 | 13.2 | 22.3 | 15.6 | 15.6 | 13.0 | | |
| P86 | 311788 | 721397 | 25.9 | 24.5 | 23.1 | 14.5 | 22.8 | 13.9 | 13.5 | 15.0 | 14.9 | 22.3 | 27.3 | 19.6 | 19.8 | 16.5 | | |

| 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 (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P87 | 287043 | 721486 | 8.9 | 6.4 | 6.4 | 4.3 | 3.8 | 3.2 | 2.3 | 2.6 | 2.1 | 4.0 | 9.4 | 6.5 | 5.0 | 4.2 | | |
| P89 | 311546 | 723544 | 28.6 | 28.5 | 20.9 | 16.4 | 18.6 | 16.5 | 11.9 | 17.7 | 16.5 | 23.8 | 30.5 | 26.7 | 21.4 | 17.8 | | |
| P90 | 311539 | 723798 | 25.8 | 23.2 | 20.4 | 10.8 | 15.1 | 14.8 | 11.0 | 12.8 | 13.8 | 19.3 | 26.5 | 23.1 | 18.1 | 15.0 | | |
| P95 | 311636 | 723950 | 37.4 | 35.9 | 36.9 | 27.4 | 34.0 | 25.4 | 16.0 | 20.8 | 31.2 | 26.0 | 37.7 | 31.3 | 30.0 | 25.0 | | |
| P96 | 311424 | 723976 | 31.4 | 28.7 | 25.0 | 19.0 | 21.3 | 16.4 | 12.9 | 17.8 | 25.8 | 27.5 | 29.9 | 26.8 | 23.5 | 19.6 | | |
| P97 | 311370 | 724040 | 35.1 | 26.5 | 22.0 | 14.9 | 19.4 | 18.5 | 8.0 | 16.6 | 17.3 | 27.3 | 30.2 | 26.8 | 21.9 | 18.2 | | |
| P99 | 310536 | 722928 | 15.5 | 14.1 | | 3.3 | 9.4 | 6.3 | 6.2 | 6.6 | 8.4 | 11.3 | 21.4 | 13.7 | 10.6 | 8.8 | | |
| P100 | 286271 | 721684 | 19.9 | 13.2 | 18.8 | 12.1 | 15.4 | 8.6 | 8.4 | 8.9 | 9.0 | | | | 12.7 | 10.6 | | |
| P101 | 311012 | 724483 | | 29.6 | 24.1 | 15.7 | 20.7 | 18.6 | 15.0 | 16.0 | | 22.9 | 25.5 | 23.6 | 21.2 | 17.6 | | |
| P103 | 311207 | 723504 | 37.0 | 30.6 | 29.8 | 21.7 | 27.7 | 19.8 | 20.2 | 21.4 | 23.1 | 26.7 | 33.3 | 30.3 | 26.8 | 22.3 | | |
| P104 | 310157 | 722634 | 28.7 | 22.9 | 22.8 | 10.7 | 16.7 | 11.2 | 11.3 | 11.6 | 11.0 | 17.8 | 28.0 | | 17.5 | 14.6 | | |
| P107 | 311201 | 722871 | 32.7 | 26.7 | 30.0 | 19.4 | 22.9 | 15.2 | 16.4 | 18.2 | 23.0 | 25.2 | 29.9 | 23.5 | 23.6 | 19.7 | | |

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P108 | 318293 | 745415 | 24.7 | 24.2 | 25.6 | 16.9 | 24.6 | 15.8 | 16.6 | 17.4 | 19.3 | 22.2 | 22.4 | 16.3 | 20.5 | 17.1 | | |
| P109 | 311660 | 723897 | | | | 16.0 | 17.0 | 17.6 | 14.9 | 14.7 | 21.2 | 20.7 | 30.3 | 25.3 | 19.7 | 16.5 | | |
| P110 | 309922 | 722633 | 22.2 | 19.5 | 19.7 | 9.5 | 13.5 | 9.2 | 10.1 | 9.0 | 15.0 | 14.0 | 27.6 | 20.6 | 15.8 | 13.2 | | |
| P111 | 308904 | 722731 | 26.6 | 21.5 | 16.8 | 10.2 | 17.4 | 15.0 | 13.5 | 11.6 | 16.2 | 17.4 | 29.5 | 21.1 | 18.1 | 15.1 | | |
| P112 | 308528 | 722895 | 18.1 | 20.0 | 16.0 | 8.6 | 15.8 | 11.3 | 11.6 | 10.1 | 11.6 | 17.9 | 22.4 | 16.6 | 15.0 | 12.5 | | |
| P113 | 313781 | 726119 | 24.1 | | 16.5 | 10.7 | 15.6 | 11.7 | 10.7 | 12.9 | 13.8 | 14.8 | 26.2 | 20.9 | 16.2 | 13.5 | | |
| P114 | 311625 | 724063 | 18.4 | 14.6 | 12.0 | 9.1 | 8.6 | 7.3 | 6.7 | 7.9 | 6.8 | 13.1 | 19.7 | 14.4 | 11.6 | 9.6 | | |
| P115 | 311197 | 724857 | 19.2 | 16.2 | 13.1 | 10.2 | 13.3 | 8.1 | 7.5 | 8.1 | 7.2 | 13.1 | 21.5 | 14.7 | 12.7 | 10.6 | | |
| P116 | 310791 | 723817 | 23.5 | 24.8 | 26.1 | 14.3 | 20.4 | 14.5 | 15.3 | 14.8 | 19.4 | 23.9 | 30.1 | 22.2 | 20.8 | 17.3 | | |
| P117 | 310791 | 723817 | 21.5 | 21.6 | 19.4 | 14.4 | 16.1 | 10.2 | 12.3 | 13.2 | 11.9 | 20.5 | 25.5 | 18.0 | 17.1 | 14.2 | | |
| P119 | 312322 | 723515 | 22.0 | 20.1 | 18.7 | 10.4 | 16.0 | | | 12.7 | 8.2 | 15.5 | 21.4 | 19.5 | 16.5 | 13.7 | | |
| P120 | 286286 | 721656 | 24.7 | 24.6 | 32.3 | 16.4 | 30.9 | 16.5 | 14.4 | 15.0 | 23.2 | 22.0 | 26.7 | 21.9 | 22.4 | 18.7 | | |

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P121 | 311252 | 723301 | 39.1 | 33.3 | 31.1 | 26.0 | 21.9 | 21.3 | 18.1 | 20.1 | 20.1 | 18.7 | 34.5 | 28.7 | 26.1 | 21.7 | | |
| P122C | 312260 | 724170 | 21.4 | 23.1 | 23.3 | 20.5 | 19.8 | 14.2 | 15.4 | 14.9 | 17.5 | 16.1 | 23.3 | 17.8 | - | - | | Triplicate Site with P122C, P122L and P122R - Annual data provided for P122R only |
| P122L | 312260 | 724170 | 20.4 | 23.0 | 24.7 | 22.9 | 23.5 | 13.8 | 15.7 | 14.6 | 18.7 | 19.3 | 23.6 | 17.1 | - | - | | Triplicate Site with P122C, P122L and P122R - Annual data provided for P122R only |
| P122R | 312260 | 724170 | 22.4 | 22.1 | 24.2 | 21.3 | 21.7 | 13.3 | 15.8 | 16.1 | 18.0 | 18.6 | 22.9 | 18.6 | 19.4 | 16.2 | | Triplicate Site with P122C, P122L and P122R - Annual data provided for P122R only |
| P123 | 310231 | 725590 | 19.9 | 15.4 | 13.3 | 12.3 | 10.6 | 10.2 | 8.4 | 9.5 | 11.8 | 15.1 | 23.0 | 12.4 | 13.5 | 11.2 | | |
| P124 | 311290 | 723761 | 31.5 | 25.6 | 21.3 | 10.9 | 17.2 | 15.9 | 14.0 | 16.0 | 19.5 | 21.9 | 29.2 | 23.4 | 20.5 | 17.1 | | |
| P125 | 311279 | 723437 | 33.4 | 28.5 | 31.4 | 28.0 | 23.8 | 15.8 | 7.2 | 16.0 | 17.4 | 22.9 | 31.2 | 23.1 | 23.2 | 19.4 | | |
| P126 | 313438 | 725637 | 21.9 | 16.6 | | | 13.2 | 10.3 | 9.5 | 9.0 | 14.5 | 13.8 | 22.5 | 15.8 | 14.7 | 12.3 | | |
| P127C | 308847 | 722750 | 25.3 | 19.9 | 16.2 | 13.9 | 13.4 | 11.3 | 10.5 | 11.2 | 13.8 | 16.6 | 23.2 | 18.5 | - | - | | Triplicate Site with P127C, P127L and P127R - Annual data provided for P127R only |
| P127L | 308847 | 722750 | 23.4 | 17.7 | 15.5 | 12.8 | 13.5 | 13.0 | 9.7 | 11.1 | 13.0 | 16.2 | 26.6 | 18.3 | - | - | | Triplicate Site with P127C, P127L and P127R - Annual data provided for P127R only |

| 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 (0.83) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P127R | 308847 | 722750 | 25.0 | 20.2 | 16.7 | 12.8 | 12.1 | 12.2 | 10.2 | 11.2 | 13.3 | 16.7 | 27.3 | 17.9 | 16.1 | 13.4 | | Triplicate Site with P127C, P127L and P127R - Annual data provided for P127R only |
| P128 | 314200 | 726765 | | | | | | | | | | 12.4 | 18.7 | 14.2 | 15.1 | 10.0 | | |

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

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

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

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

☒ **PKC confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**.

**Notes:**

Exceedances of the $NO_2$ annual mean objective of 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**.

See Appendix C for details on bias adjustment and annualisation.

# Appendix C: Supporting technical information / air quality monitoring data QA/QC

## New or changed sources identified within PKC during 2024

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

## Additional air quality works undertaken by PKC during 2024

Perth and Kinross Council has not completed any additional works within the reporting year of 2024.

## QA/QC of diffusion tube monitoring

Analysis of diffusion tubes in 2024 was carried out by SOCOTEC at the Didcot lab. The method of preparation used was 20% TEA in water.

The analysis carried out by SOCOTEC on the diffusion tubes is covered within their UKAS schedule. SOCOTEC participate in the AIR-PT scheme in which they are rated a satisfactory laboratory.

Monitoring was carried out in line with the 2024 Diffusion Tube Monitoring calendar.

### Diffusion tube annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. As such, one site within Perth and Kinross required annualisation in 2024. This was conducted using the latest version of the Diffusion Tube Data Processing Tool (v4.0) utilising data from two automatic monitoring sites. These sites, alongside the details of the calculation method undertaken, are provided in Table C.2.

### Diffusion tube bias adjustment factors

Perth and Kinross Council have applied a local bias adjustment factor of 0.83 to the 2024 monitoring data. A summary of bias adjustment factors used by Perth and Kinross Council over the past five years is presented in Table C.1.

Due to poor data capture on three of the four co-located monitors, only the data from Local Bias Adjustment Perth 1 (Bridgend) was used in the local bias adjustment factor calculations. Despite this, PKC chose to continue using the local bias adjustment factor to remain consistent with our approach in previous years, and as it is more conservative than the relevant national adjustment factor.

**Table C.1 – bias adjustment factor**

| Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|---|---|---|---|
| 2024 | Local | - | 0.83 |
| 2023 | Local | - | 0.8 |
| 2022 | Local | - | 0.79 |
| 2021 | Local | - | 0.88 |
| 2020 | Local | - | 0.8 |

### $NO_2$ fall-off with distance from the road

No diffusion tube $NO_2$ monitoring locations within Perth and Kinross required distance correction during 2024.

## QA/QC of automatic monitoring

Ricardo E&E Ltd carries out the data management and Local Site Operator (LSO) duties for the automatic monitors in Perth and Kinross.

The monitors are serviced on a six-monthly basis in coordination with Ricardo's QA/QC audits (i.e., service is carried out following the audit). During each site audit the performance of the analysers is checked, in addition to a traceable calibration to UK and international metrology standards for the on-site calibration gases. Site calibrations are also carried out on a three weekly basis using a traceable gas standard. Data is ratified on

a 3-monthly basis, the process for which consists of detailed review of calibrations, diagnostics, faults and engineer visits.

All data used within this report has been ratified. Live and historic data for the RTMs is available from https://www.scottishairquality.scot/latest

### $PM_{10}$ and $PM_{2.5}$ monitoring adjustment

Perth and Kinross Council uses Fidas 200 monitors to measure $PM_{10}$ and $PM_{2.5}$ within our Local Authority area. Following the completion of the Scottish Government Pilot Research Study to investigate Particulate Matter Monitoring Techniques in Scotland, Scottish Government issued the following guidance for local authorities on the reporting and use of PM data from Fidas 200 instruments within the SAQD network:

- Fidas 200 $PM_{10}$ data collected within the SAQD should be corrected by **dividing** ratified data by **0.909**
- Fidas 200 $PM_{2.5}$ data collected within the SAQD should be corrected by **multiplying** ratified data by **1.06**

- For completeness, it is recommended that authorities report both the corrected and uncorrected ratified data statistics.

Following Scottish Government guidance, PKC has therefore reported both corrected and uncorrected ratified data statistics for $PM_{10}$ and $PM_{2.5}$ in Table A.6 - Table A.11.

### Automatic monitoring annualisation

Three of the automatic monitoring locations within Perth and Kinross recorded data capture below 75%: Atholl Street (Perth 2) and Glasgow Road (Perth 3) for $NO_2$ and James Square (Crieff 1) for $PM_{10}$ and $PM_{2.5}$.

Annualisation was carried out as per the guidance in LAQM TG.22 and the resultant data is provided in Table C.2, Table C.3 and Table C.4.

### $NO_2$ fall-off with distance from the road

No automatic $NO_2$ monitoring locations within Perth and Kinross required distance correction during 2024.

**Table C.2 – $NO_2$ annualisation summary (concentrations presented in µg/m$^3$)**

| Site ID | Annualisation Factor Perth 1 (Bridgend) | Annualisation Factor Dundee, Mains Loan | Annualisation Factor Site 3 | Annualisation Factor Site 4 | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean | Comments |
|---|---|---|---|---|---|---|---|---|
| P128 | 0.8980 | 0.6934 | - | - | 0.7957 | 15.1 | 12.0 | |
| Perth 2 (Atholl St) | 0.940 | 0.891 | - | - | 0.916 | 27.9 | 25.6 | |
| Perth 3 (Glasgow Rd) | 0.911 | 0.729 | - | - | 0.820 | 16.5 | 13.5 | |

**Table C.3 – $PM_{10}$ annualisation summary (concentrations presented in µg/m$^3$)**

| Site ID | Annualisation Factor Perth 1 (Bridgend) | Annualisation Factor Dundee, Mains Loan | Annualisation Factor Site 3 | Annualisation Factor Site 4 | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean | Comments |
|---|---|---|---|---|---|---|---|---|
| Crieff 1 (James Square) | 0.986 | 0.998 | - | - | 0.992 | 10.1 | 10.0 | |

**Table C.4 – $PM_{2.5}$ annualisation summary (concentrations presented in µg/m$^3$)**

| Site ID | Annualisation Factor Perth 1 (Bridgend) | Annualisation Factor Dundee, Mains Loan | Annualisation Factor Site 3 | Annualisation Factor Site 4 | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean | Comments |
|---|---|---|---|---|---|---|---|---|
| Crieff 1 (James Square) | 0.983 | 1.001 | - | - | 0.992 | 5.8 | 5.7 | |

## Table C.5 – Local bias adjustment calculations

| | Local Bias Adjustment Perth 1 (Bridgend) | Local Bias Adjustment Perth 2 (Atholl St) | Local Bias Adjustment Perth 3 (Glasgow Rd) | Local Bias Adjustment Crieff 1 (James Sq) | Local Bias Adjustment Input 5 |
|---|---|---|---|---|---|
| **Periods used to calculate bias** | 12 | 8 | 8 | 3 | - |
| **Bias Factor A** | 0.83 (0.77 - 0.91) | 0.89 (0.74 - 1.14) | 0.82 (0.75 - 0.91) | 0.86 (0.67 - 1.17) | - |
| **Bias Factor B** | 20% (10% - 30%) | 12% (-12% - 36%) | 22% (10% - 34%) | 17% (-14% - 48%) | - |
| **Diffusion Tube Mean (µg/m$^3$)** | 19.4 | 15.8 | 35.6 | 20.1 | - |
| **Mean CV (Precision)** | 4.4% | 4.3% | 6.0% | 3.9% | - |
| **Automatic Mean (µg/m$^3$)** | 16.2 | 14.1 | 29.3 | 17.2 | - |
| **Data Capture** | 98% | 80% | 73% | 26% | - |
| **Adjusted Tube Mean (µg/m$^3$)** | 16 (15 - 18) | 14 (12 - 18) | 29 (27 - 32) | 17 (13 - 24) | - |
| **Overall Diffusion Tube Precision** | **Good Overall Precision** | **Good Overall Precision** | **Good Overall Precision** | **Good Overall Precision** | - |
| **Overall Continuous Monitor Data Capture** | **Good Overall Data Capture** | **Poor Overall Data Capture** | **Poor Overall Data Capture** | **Poor Overall Data Capture** | - |

Notes:

Due to poor data capture on three of the four co-located monitors, only the data from Local Bias Adjustment Perth 1 (Bridgend) was used in the local bias adjustment factor calculations. Therefore, a single local bias adjustment factor of **0.83** has been used to bias adjust the 2024 diffusion tube results.

# Glossary of Terms

| Abbreviation | Description |
|---|---|
| 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 |
| AURN | Automatic Urban and Rural Network (UK air quality monitoring network) |
| Defra | Department for Environment, Food and Rural Affairs |
| DMRB | Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England |
| DT | Diffusion Tube |
| EH | Environmental Health |
| FDMS | Filter Dynamics Measurement System |
| LAQM | Local Air Quality Management |
| $NO_2$ | Nitrogen Dioxide |
| $NO_X$ | Nitrogen Oxides |
| PKC | Perth and Kinross Council |
| $PM_{10}$ | 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 |
| QA/QC | Quality Assurance and Quality Control |
| $SO_2$ | Sulphur Dioxide |

# References

Perth Air Quality Action Plan https://www.pkc.gov.uk/media/35448/2009-Air-Quality-Action-Plan/pdf/Perth_and_Kinross_Air_Quality_Action_Plan.pdf?m=636104961720700000

Crieff Air Quality Action Plan https://www.pkc.gov.uk/media/44879/2019-Crieff-Air-Quality-Action-Plan/pdf/2_2019_Perth___Kinross_Council_Crieff_Air_Quality_Action_Plan.pdf?m=637080263860030000

Perth Transport Futures https://www.perthtransportfutures.co.uk/

PKC Mobility Strategy https://www.pkc.gov.uk/media/53565/Mobility-Strategy/pdf/1._Mobility_Strategy.pdf?m=1734339585530

Regional Transport Strategy https://tactran.gov.uk/projects/regional-transport-strategy/

Perth and Kinross Council Local Development Plan adopted 2014 http://www.pkc.gov.uk/media/23633/Local-Development-Plan/pdf/Adopted_LDP_Web_Version.pdf?m=636099646768900000

Perth and Kinross Council Local Development Plan Review (2018 -2023) http://www.pkc.gov.uk/article/15042/Local-Development-Plan-Review-2018-2023-

Perth and Kinross Council's Climate Change Strategy and Action Plan https://www.pkclimateaction.co.uk/climate-change-strategy-and-action-plan

Perth and Kinross Council Placemaking Guide 2020

https://www.pkc.gov.uk/media/45775/Adopted-SG-2020/pdf/Adopted_Placemaking_Guide.pdf?m=637195225081600000