Pembrokeshire Council 2025 Air Quality Progress Report

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

Local Air Quality Management

Date: September 2025

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Executive Summary: Air Quality in Our Area

Air Quality in Pembrokeshire

Pembrokeshire County Council's monitoring network in 2024 reports no exceedances of the NO_2 annual mean AQS (Air Quality Strategy) objective of 40 µg/m³ reported throughout Pembrokeshire. The maximum reported concentration was located at Site ID PCC45 of 35 µg/m³ Raw (29.4 µg/m³ Bias Adjusted) this monitoring station is situated along Main Street, located within the Pembroke Air Quality Management Area (AQMA). The remaining monitoring stations reported concentrations well below the AQS objective.

During 2024, 41 of 45 passive NO_2 monitoring locations recorded a decrease on annual mean concentrations from 2023, representing a decrease at 91% all monitoring sites with increases at the 4 sites being minimal.

Pembrokeshire County Council currently have two declared AQMA's (Haverfordwest and Pembroke). Details of these AQMA's can be found on the UKAir website and the Welsh Government Website. All AQMA's have been declared due to exceedances of the NO_2 annual mean AQS objective. All AQMA boundaries are either close to, or have busy roads within them, recognising the influence vehicle emissions have upon local air quality. Pembroke and Haverfordwest AQMA's have been compliant for three and four years respectively since the covid influenced years.

Monitoring data will continue to be reviewed at both AQMAs, and in light of the results, it is intended that the AQMA designation for both Haverfordwest and Pembroke this area will be revoked in 2025.

No diffusion tube monitoring sites reported an annual mean NO_2 concentration greater than 60 µg/m³, therefore in accordance with LAQM.TG(22) it is not believed that there have been any exceedances of the 1-hour NO_2 AQS objective in these areas. Additionally, the automatic monitoring station located in Narberth (PEMB) reported no 1-hour NO_2 concentrations greater than 200 µg/m³.

The Narberth automatic monitoring station reports PM_{10} and $PM_{2.5}$ compliance, with both the annual and 24-hour AQS objectives continuing to be maintained.

Actions to Improve Air Quality

Pembrokeshire County Council continue to have two AQMA's declared for exceedances of NO_2 annual mean AQS objective. An Action Plan has been developed to assist with the control and management of air quality, with the main focus on reducing annual mean NO_2 concentrations. Revocation of the Haverfordwest and Pembroke AQMAs is proposed for 2025 due to continued compliance with the NO_2 objective. The Council continues to review the monitoring network in order to deploy new monitoring sites where it is thought that the objective may be compromised to ensure compliance in areas where congestion occurs.

Local Priorities and Challenges

Pembrokeshire County Council continues to monitor NO_2 concentrations throughout the County, and in particular within the two AQMA's. The Council intends to revoke the AQMA's once annual mean NO_2 concentrations have remained below 36 μ/gm³ for three consecutive years in order to ensure that compliance is maintained as is the case for the Haverfordwest AQMA. The general trend for NO_2 concentrations for 2024 is downward and the Council intends to continue progressing with air quality measures stated in the action plan to improve air quality within the County and wider area.

How to Get Involved

Specific information on Air Quality in Pembrokeshire can be accessed via Pembrokeshire County Councils website. The Welsh Air Quality website details all Welsh automatic air quality monitoring data with information and links to other sources of air quality data, including educational resources for schools and uk-air.defra.gov.uk provides national information on the air quality in the UK.

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1 Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

The Air quality progress report is produced annually by Pembrokeshire County Council to summarise the results monitored for the particular previous year and are then made accessible on the council's website. Earlier historic reports can be provided upon request.

Annual Progress Report 2024 Summary

Pembrokeshire County Council's monitoring network in 2024 reports no exceedances of the NO_2 annual mean AQS (Air Quality Strategy) objective of 40 µg/m³ reported throughout Pembrokeshire. The maximum reported Bias adjusted concentration was located at Site ID PCC45 of 29.4 µg/m³ this monitoring station is situated along Main Street, located within the Pembroke Air Quality Management Area (AQMA). The remaining monitoring stations reported concentrations well below the AQS objective.

During 2024, 41 passive NO_2 monitoring locations recorded a decrease on annual mean concentrations from 2023, with the 4 increased sites having marginal increases the largest of which at PCC33 had an increase of 3 µg/m³ the other sites being fractional increases, <1 µg/m³ at each, all 45 locations are well below the relevant objectives.

The automatic monitoring station located in Narberth (PEMB) reported no 1-hour NO_2 concentrations greater than 200 µg/m³.

The Narberth automatic monitoring station reports PM_{10} and $PM_{2.5}$ compliance, with both the annual and 24-hour AQS objectives continuing to be maintained.

1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution, the air quality objective. Pembrokeshire declared two AQMA's in 2012, both having experienced elevated mean NO_2 concentrations associated with road traffic emissions. The ongoing air quality monitoring programmes implemented as per the authorities Action Planning management strategy has identified a continuing downwards trend for the mean NO_2 concentrations of concern. Compliance with the NO_2 objective is now taking place with the revocation of the Haverfordwest and Pembroke AQMAs to be implemented in 2025 due to sufficient compliant monitoring having taken place.

A summary of AQMAs declared by Pembrokeshire County Council can be found in Table 1.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at the council's website and UK-Air.

Table 1.1 – Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend	City / Town<Delete column if not relevant>	Description	Action Plan
Haverfordwest	NO_2 annual mean	Continued improvement in air quality in the AQMA for the last 4 years. Revocation proposed for 2025.	Haverfordwest	The main road network through town comprising mixed commercial & residential areas.	Action Plan 2014 Updated 2019
Pembroke	NO_2 annual mean	Continued improvement in air quality for the last 3 years. Revocation proposed for 2025.	Pembroke	Part of main road network through town, main shopping high street with mixed commercial and residential property.	Action Plan 2014 Updated 2019

AQMA boundary maps within Pembrokeshire County Councils areas can be viewed at Appendix D.

1.3 Implementation of Action Plans

Pembrokeshire County Council continues to take forward a number of measures during 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 1.2. More detail on these measures can be found in the Air Quality Action Plan relating to any designated AQMAs.

Air Quality Action Plans are continuously reviewed and updated whenever deemed necessary, but no less frequently than once every five years. Such updates are completed in close consultation with local communities.

Table 1.2 – Progress on Measures to Improve Air Quality

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
1	Air Quality Action Plan 2017	Parking Restrictions Pembroke AQMA	County Council	2014	Updated 2019	NO2 Levels	Compliance with NO2 objective in AQMA	Reduction of NO2 levels but cannot patrol 7 days a week	Compliance with NO2 objective achieved but <36µg/m³ required for 3 consecutive years	Ongoing	Reduction of NO2 with revocation of AQMA's to take place
2	LINC	Bwcabus	Partnership Carmarthenshire, Ceredigion, Pembrokeshire Authority's	Pre 2017	2017 to 2020 RDP	None	n/a	Used by public in other areas	n/a	Ongoing	Remove private vehicles from roads
3	Active Travel Consultation	Walking and cycling	County Council	2017 public consultation	2017	None	n/n	Ongoing	n/a	15 year programme	To ensure planners consider needs of walkers and cyclists and encourage active travel
4	Chimney Links, Fishguard	Alleviate traffic congestion, improve public transport in town centre	County Council	Pre 2017	2017	n/a	n/a	Completed	Traffic diverted from narrow streets reducing congestion	Completed	Alleviate congestion and emissions in town centre
5	Quality Partnership Scheme	Improve service provided by bus operators	Welsh Government	Pre 2017	2017	n/a	Contributes to reduced emissions	Funding received	n/a	Ongoing	Encourage use of public transport reducing private vehicle use

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
6	Review of Local Development Plan	Statutory requirement	County Council	2017	2019	n/a	Air quality considerations within planning consultation phase	Public consultation	Ongoing extended delivery agreement due to COVID-19	2022	Relevant departments can comment in relation to developments and air quality specifically
7	Enforcement Actions	Statutory Obligation	Local Authority	Statutory Obligation	Greater focus on last decade	Enforcement actions/Abatement Notices recorded	To mitigate emissions from burning trade waste	Ongoing priority action/considerations	High profile response to local businesses burning trade wastes. Advisory communications, enforcement actions, prosecutions	Permanent obligation	Protection of public health and the environment
8	Funding Boost	Transport Schemes	Welsh Government	Pre 2018	2018	n/a	n/a	n/a	n/a	Ongoing	Develop cycle/pedestrian routes, electric car charging facilities, transport data studies to deliver sustainable transport initiatives
9	Pedestrianisation Scheme Consultation	To remove annual variation to start finish dates in Tenby	Local Authority	Pre 2018	2018	n/a	n/a	Ongoing strategy	Ongoing annual scheme	Ongoing	Questionnaire to assess public interest in development and possible permanent pedestrianisation of Tenby Centre

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
10	Website Development	Maps and detailed information of cycle routes around county to website	Local Authority	Pre 2018	2018	n/a	n/a	Ongoing	Ongoing	Ongoing	Information source for cyclists includes traffic free sections of cycle path routes
11	Coastal Bus Service Provision	To provide access for tourists, walkers and residents in coastal communities	Local Authority & Pembrokeshire Coast National Park	Pre 2015	Pre 2015	Increase in passenger figures	n/a	Ongoing	n/a	Ongoing	Remove private vehicles from roads
12	Vehicle Idling Prevention	To prevent emissions to air from idling vehicles	Local Authority	Pre 2018	2018	Taxi rank in AQMA, enforcement actions to public complaint	Yes	Ongoing	Annual Mean NO2 Objective met	Ongoing	Communications with Taxi firms, business vehicle owners to educate re legislation, public health impacts
13	Greening Pembroke Town Centre	To mitigate air borne pollution and protect public health	Local Authority	2019	2020	n/a	Yes	In progress	Continuing	n/a	n/a
14	Greening Haverfordwest Town Centre	To mitigate air borne pollution and protect public health	Local Authority	2019	2020	n/a	Yes	In progress	Continuing	n/a	n/a

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
15	Carbon Neutral Pembrokeshire	Combat Climate Change	Local Authority	2019	Carbon Neutral by 2030 survey	Cardiff University and Coastal Communities Adapting Together charged with project	Possible	Questionnaire provided	Collation of responses has not yet taken place	n/a	Joint benefits of CO2 and NO2 reductions, focus on changing modes of transport

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2024

2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

Pembrokeshire County Council undertook automatic (continuous) monitoring at one site during 2024. Table 2.1 presents the details of the site. National monitoring results are available at both the Welsh Air Quality Forum https://www.airquality.gov.wales/ and UK-AIR https://uk-air.defra.gov.uk/

Maps showing the location of the monitoring sites are provided in Figure 2.1 and on the Welsh Air Quality Forum site. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C: Air Quality Monitoring Data QA/QC.

2.1.2 Non-Automating Monitoring Sites

Pembrokeshire County Council undertook non- automatic (passive) monitoring of NO_2 at 45 sites during 2024. Table 2.2 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 2.2 – Figure 2.4. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with (Named) AQMA?	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	Monitoring Technique	Inlet Height (m)	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
PEMB	Narberth	Rural	No	214374	212774	$N0_2$, O_3, PM_{10}, $PM_{2.5}$, SO_2	API Analysers, Fidas, Echotech Serinus	2.5	n/a	n/a	n/a

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 2.1 – Map(s) of Automatic Monitoring Sites

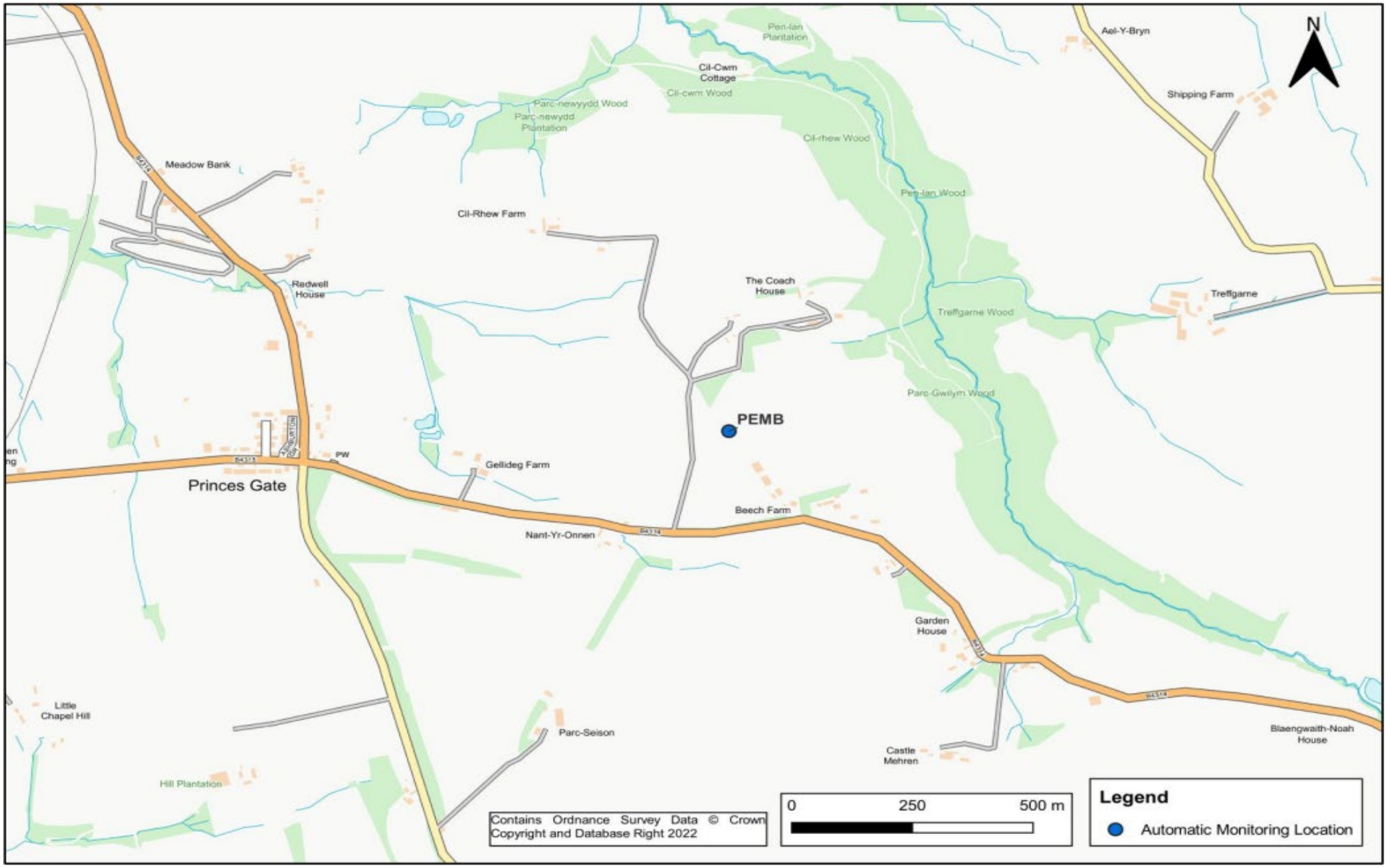


Table 2.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
PCC1	Salutation Square	Roadside	195629	215655	NO_2	N	N/A	N/A	N	2.0
PCC2	Picton Place	Roadside	195574	215704	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC3	Victoria Place	Roadside	195474	215661	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC4	High St	Roadside	195402	215634	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC5	High St	Roadside	195312	215605	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC6	High St	Roadside	195294	215591	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC7	High St	Roadside	195203	215544	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC8	High St	Roadside	195159	215494	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC9	Dark St	Roadside	195267	215603	NO_2	N	1.0	2.0	N	2.0
PCC10	Dark St	Roadside	195177	215616	NO_2	N	1.0	2.0	N	2.0
PCC11	Dew St	Roadside	195143	215464	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
PCC12	Dew St	Roadside	195110	215394	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC13	Dew St	Roadside	195101	215357	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC14	Dew St	Roadside	195028	215269	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC15	Dew St	Roadside	194998	215255	NO_2	Y - Haverfordwest AQMA	1.0	2.0	N	2.0
PCC16	Shipmans Lane	Roadside	195006	215208	NO_2	N	1.0	2.0	N	2.0
PCC17	Albert St	Roadside	194945	215259	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC18	Albert St	Roadside	194937	215254	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC19	Albert St	Roadside	194936	215268	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC20	Albert St	Roadside	194922	215263	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC21	Albert St	Roadside	194930	215276	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC22	Albert St	Roadside	194911	215268	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
PCC23	Albert St	Roadside	194911	215279	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC24	Albert St	Roadside	194893	215279	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC25	Albert St	Roadside	194905	215286	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC26	Albert St	Roadside	194886	215284	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC27	Albert St	Roadside	194879	215300	NO_2	Y - Haverfordwest AQMA	0.0	1.0	N	2.0
PCC28	Albert St	Roadside	194856	215299	NO_2	N	0.0	1.0	N	2.0
PCC29	Barn St	Roadside	194901	215345	NO_2	N	0.0	1.0	N	2.0
PCC30	Barn St	Roadside	194974	215448	NO_2	N	0.0	1.0	N	2.0
PCC31	Merlins Bridge	Roadside	194730	214554	NO_2	N	N/A	N/A	N	2.0
PCC32	Merlins Bridge	Roadside	194761	214610	NO_2	N	N/A	N/A	N	2.0
PCC33	Haroldston Terrace	Roadside	194774	214465	NO_2	N	N/A	N/A	N	2.0
PCC34	Quay St	Roadside	195453	215594	NO_2	N	1.0	2.0	N	2.0
PCC35	Quay St	Roadside	195642	215273	NO_2	N	1.0	2.0	N	2.0
PCC36	High St	Roadside	210901	214713	NO_2	N	1.0	2.0	N	2.0
PCC40	Main St	Roadside	198244	201554	NO_2	N	1.0	2.0	N	2.0
PCC41	Main St	Roadside	198274	201547	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC42	Main St	Roadside	198333	201549	NO_2	N	1.0	2.0	N	2.0

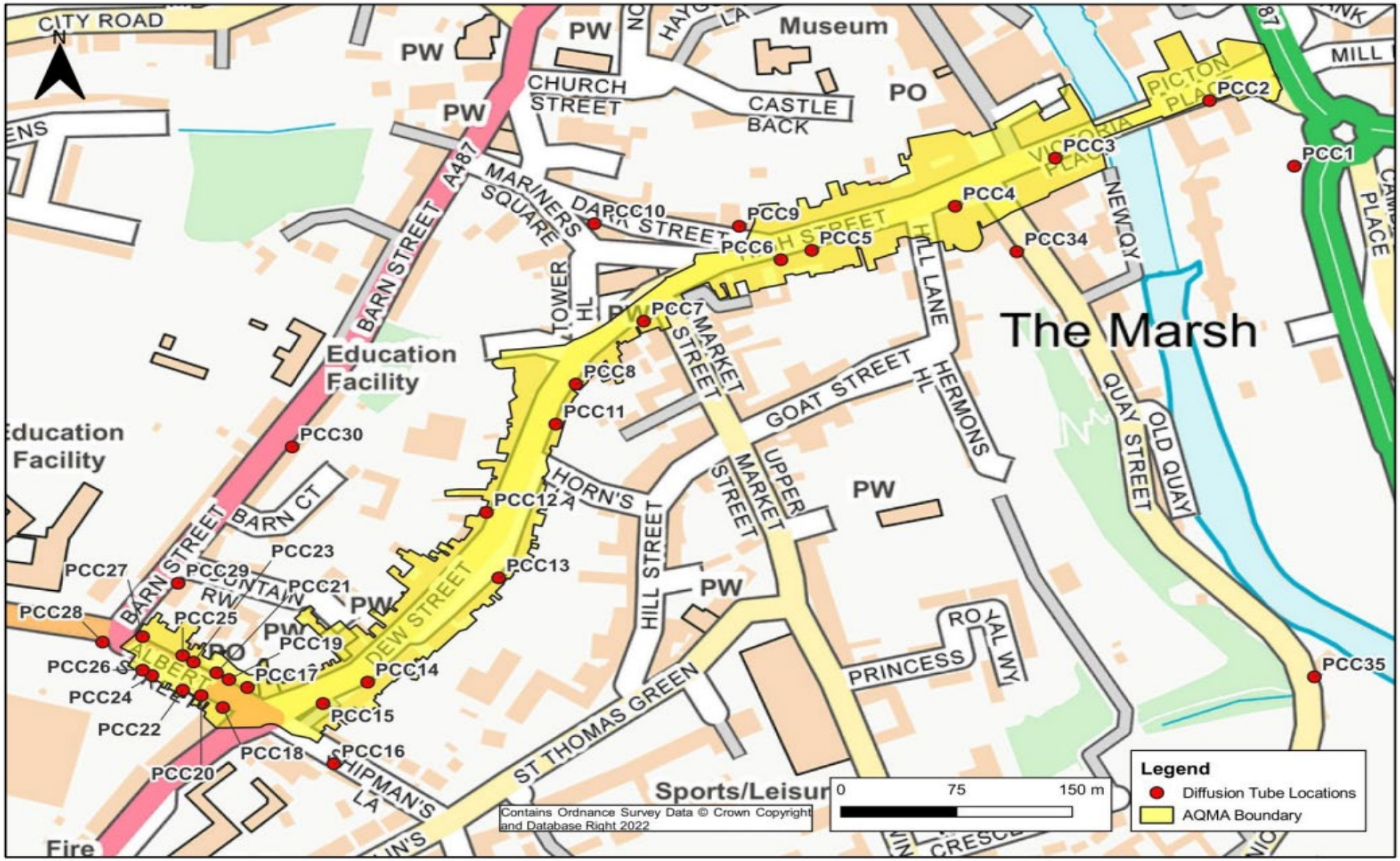
Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
PCC43	Main St	Roadside	198364	201502	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC44	Main St	Roadside	198396	201495	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC45	Main St	Roadside	198407	201489	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC46	Main St	Roadside	198460	201464	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC47	Main St	Roadside	198548	201419	NO_2	Y - Pembroke AQMA	1.0	2.0	N	2.0
PCC48	Main St	Roadside	198869	201299	NO_2	N	1.0	2.0	N	2.0

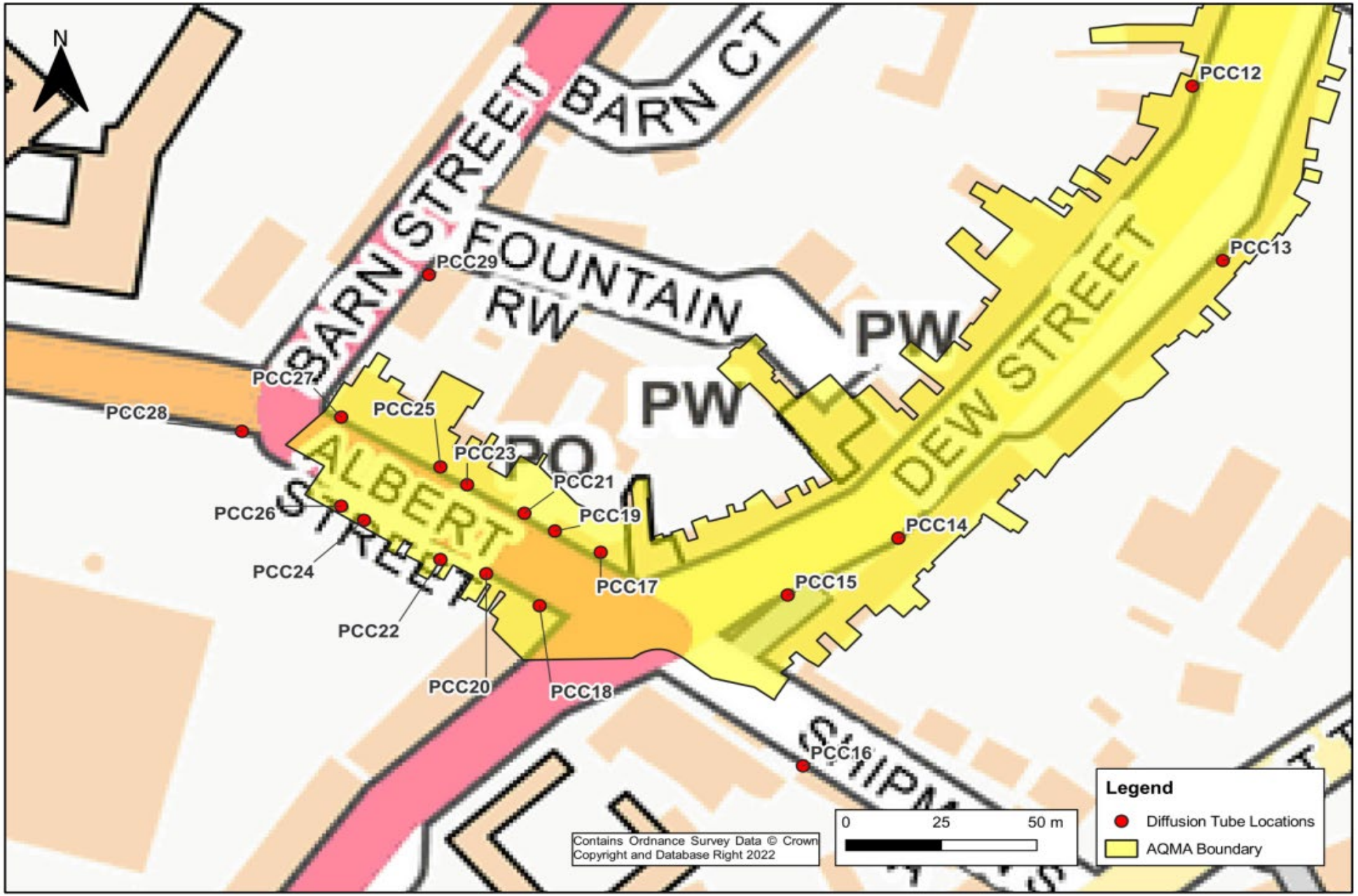
Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.2 – Map(s) of Non-Automatic Monitoring Sites Haverfordwest

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BARN STREET
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ALBERT
STREET
PCC12
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PCC27
PCC28
PCC25
PCC23
PCC21
PCC19
PCC26
PCC24
PCC22
PCC20
PCC18
PCC17
PCC15
PCC14
PCC16
Legend
Diffusion Tube Locations
AQMA Boundary
0
25
50 m
Contains Ordnance Survey Data © Crown Copyright and Database Right 2022


Facility
N
A4076
FREEMENS WAY
PCC32
PCC31
ROAD
PO
PW
PCC33
MILL LANE
MAGDALEN STREET
Contains Ordnance Survey Data © Crown Copyright and Database Right 2022
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25
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Legend
Diffusion Tube Locations

Figure 2.3 – Map of Non-Automatic Monitoring Sites Pembroke

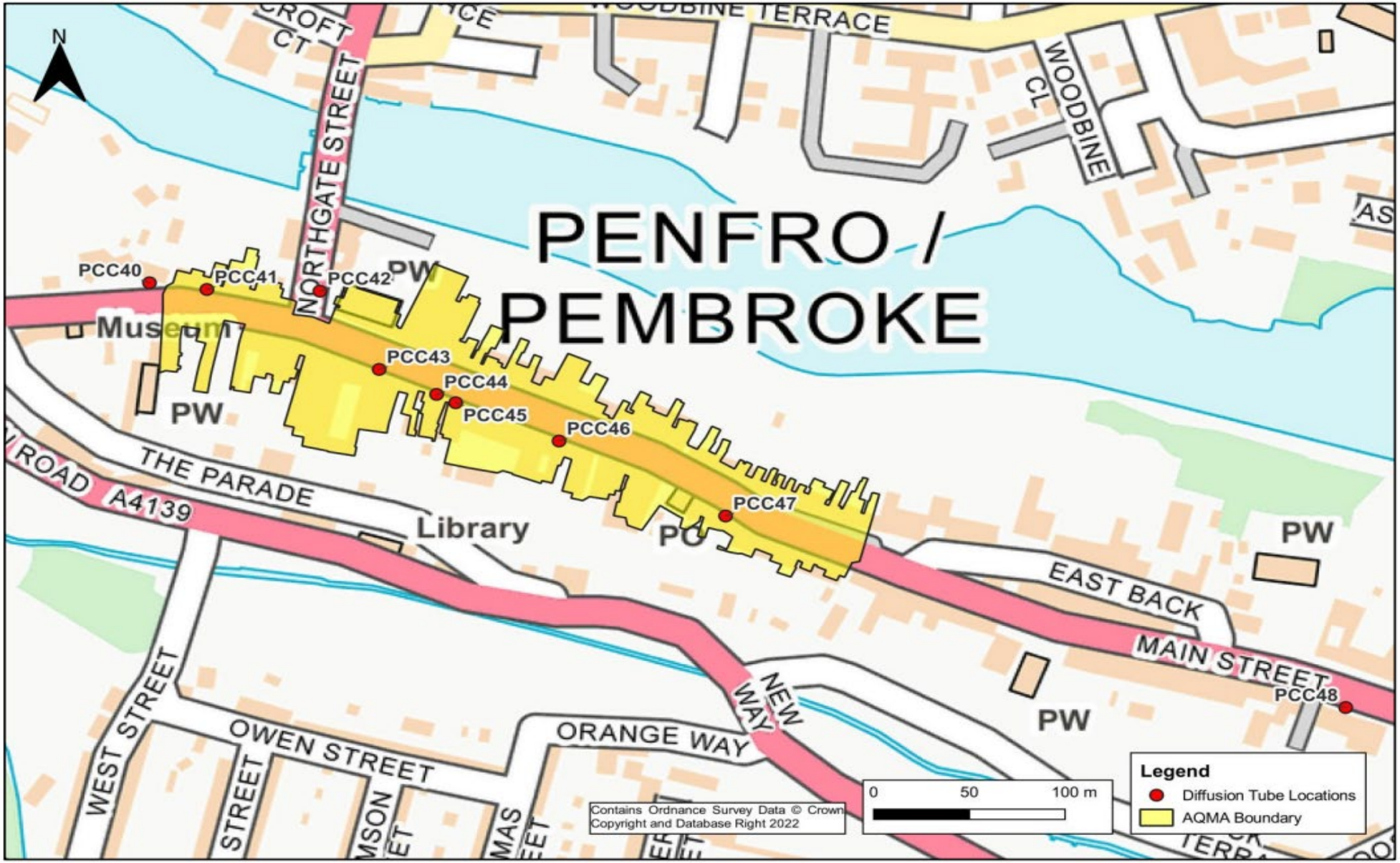


Figure 2.4 – Map of Non-Automatic Monitoring Sites Narberth

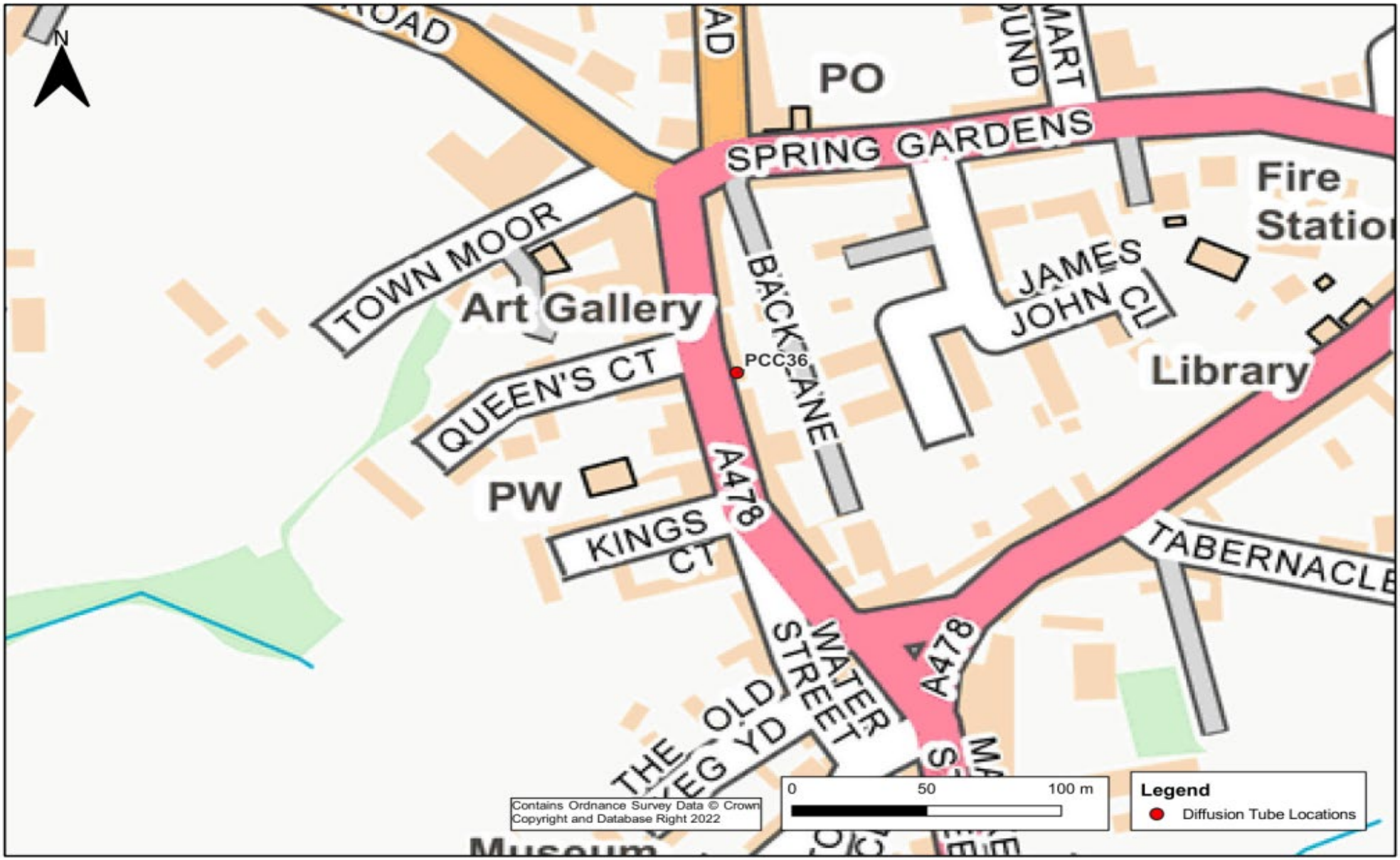
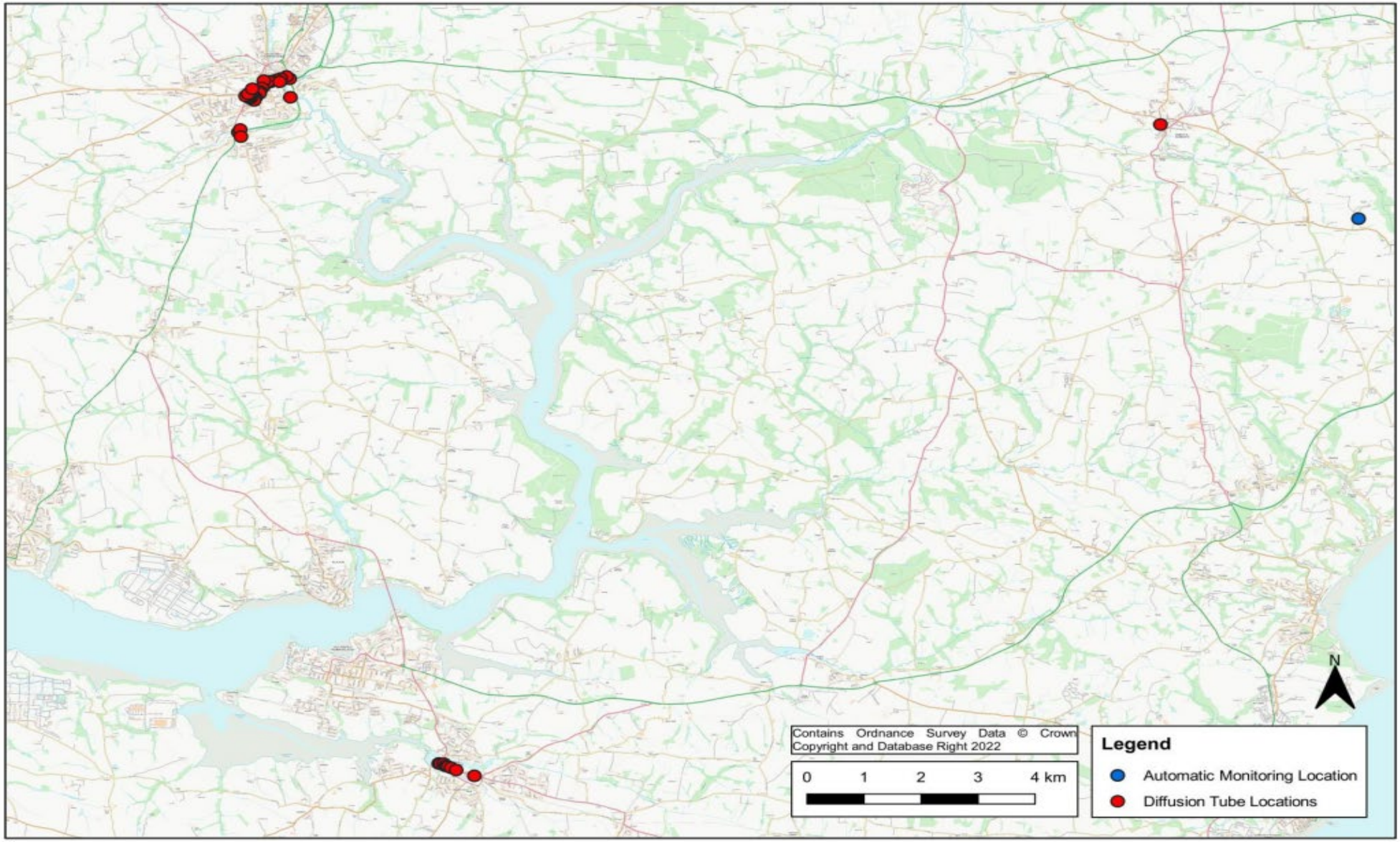


Figure 2.5 – Spatial Map of Pembrokeshire's Automatic and Non-Automatic Monitoring Network



2.2 2024 Air Quality Monitoring Results

Table 2.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PEMB	Rural	Automatic	97	97	3.1	3.1	2.9	2.4	2.3

Notes:

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

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

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 2.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3) (2024 Bias A 0.84 04/25)

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
PCC1	195629	215655	Roadside	100	100	13.7	17.3	16.2	14.4	14.6
PCC2	195574	215704	Roadside	92	92	16.2	19.3	20.6	19.8	18.3
PCC3	195474	215661	Roadside	75	75	15.8	18.9	16.4	18.5	16.4
PCC4	195402	215634	Roadside	83	83	24.8	26.9	22.9	22.2	22.2
PCC5	195312	215605	Roadside	92	92	28.9	29.1	26.8	26.4	24.9
PCC6	195294	215591	Roadside	83	83	24.2	27.9	25.9	24.7	23.9
PCC7	195203	215544	Roadside	83	83	25.2	29.6	27.5	26.2	25.5
PCC8	195159	215494	Roadside	92	92	19.9	22.4	22.0	21.8	20.2
PCC9	195267	215603	Roadside	92	92	16.3	18.5	18.9	17.3	13.4
PCC10	195177	215616	Roadside	100	100	13.4	12.1	13.4	12.9	10.2
PCC11	195143	215464	Roadside	92	92	20.3	23.0	22.3	20.4	19
PCC12	195110	215394	Roadside	67	67	20.0	24.0	21.1	21.3	15
PCC13	195101	215357	Roadside	92	92	18.5	22.1	20.7	19.8	18.4
PCC14	195028	215269	Roadside	92	92	16.5	19.4	20.3	17.8	16.6
PCC15	194998	215255	Roadside	100	100	19.2	21.6	22.9	20.6	20
PCC16	195006	215208	Roadside	100	100	12.6	13.7	15.2	13.7	12.3
PCC17	194945	215259	Roadside	100	100	20.5	23.6	23.3	20.7	20.2
PCC18	194937	215254	Roadside	100	100	24.3	28.4	26.3	26.5	22.9
PCC19	194936	215268	Roadside	92	92	16.7	20.3	19.2	17.5	17.6
PCC20	194922	215263	Roadside	100	100	26.1	30.4	26.7	25.3	23.7
PCC21	194930	215276	Roadside	100	100	11.6	14.6	13.7	11.9	12.7
PCC22	194911	215268	Roadside	92	92	24.7	29.2	26.7	25.6	22.1
PCC23	194911	215279	Roadside	100	100	18.5	21.9	19.9	18.4	17.5
PCC24	194893	215279	Roadside	100	100	23.3	28.1	25.8	24.7	22.3
PCC25	194905	215286	Roadside	92	92	16.1	20.0	18.7	16.7	17.1
PCC26	194886	215284	Roadside	100	100	22.6	27.7	25.6	24.0	21.5
PCC27	194879	215300	Roadside	92	92	16.3	18.8	19.1	17.9	16.1
PCC28	194856	215299	Roadside	100	100	13.8	16.4	14.4	13.9	13.9
PCC29	194901	215345	Roadside	83	83	15.5	19.8	18.2	16.8	16.2
PCC30	194974	215448	Roadside	100	100	10.3	11.8	11.6	10.8	11.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PCC31	197730	214554	Roadside	100	100	21.9	27.7	27.6	25.9	19.8
PCC32	194761	214610	Roadside	92	92	23.4	27.2	24.4	22.9	20.7
PCC33	194774	214465	Roadside	67	67	16.9	19.8	17.1	15.9	18.3
PCC34	195453	215594	Roadside	100	100	13.1	16.1	16.4	15.5	14.8
PCC35	195642	215273	Roadside	92	92	8.2	9.1	9.9	8.5	8.6
PCC36	210901	214713	Roadside	100	100	15.0	17.9	17.1	15.7	15.5
PCC40	198364	201502	Roadside	100	100	15.2	17.8	16.5	15.3	15.1
PCC41	198369	201495	Roadside	92	92	17.2	21.0	18.3	17.8	17.1
PCC42	194893	215279	Roadside	100	100	14.2	16.7	17.5	15.9	15
PCC43	194905	215286	Roadside	100	100	22.5	26.1	23.7	23.2	22.3
PCC44	194886	215284	Roadside	100	100	26.1	29.5	26.6	26.4	25
PCC45	198407	201489	Roadside	100	100	29.1	36.0	32.2	31.6	29.4
PCC46	198460	201464	Roadside	100	100	24.7	29.5	27.4	26.4	24.4
PCC47	198548	201419	Roadside	100	100	15.7	19.9	17.9	17.3	16
PCC48	198869	201299	Roadside	100	100	8.6	10.4	9.8	9.1	8.1

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

☒ **Diffusion tube data has been bias adjusted.** National Diffusion Tube Bias Adjustment Factor Spreadsheet 04/25.

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

Notes:

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

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

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

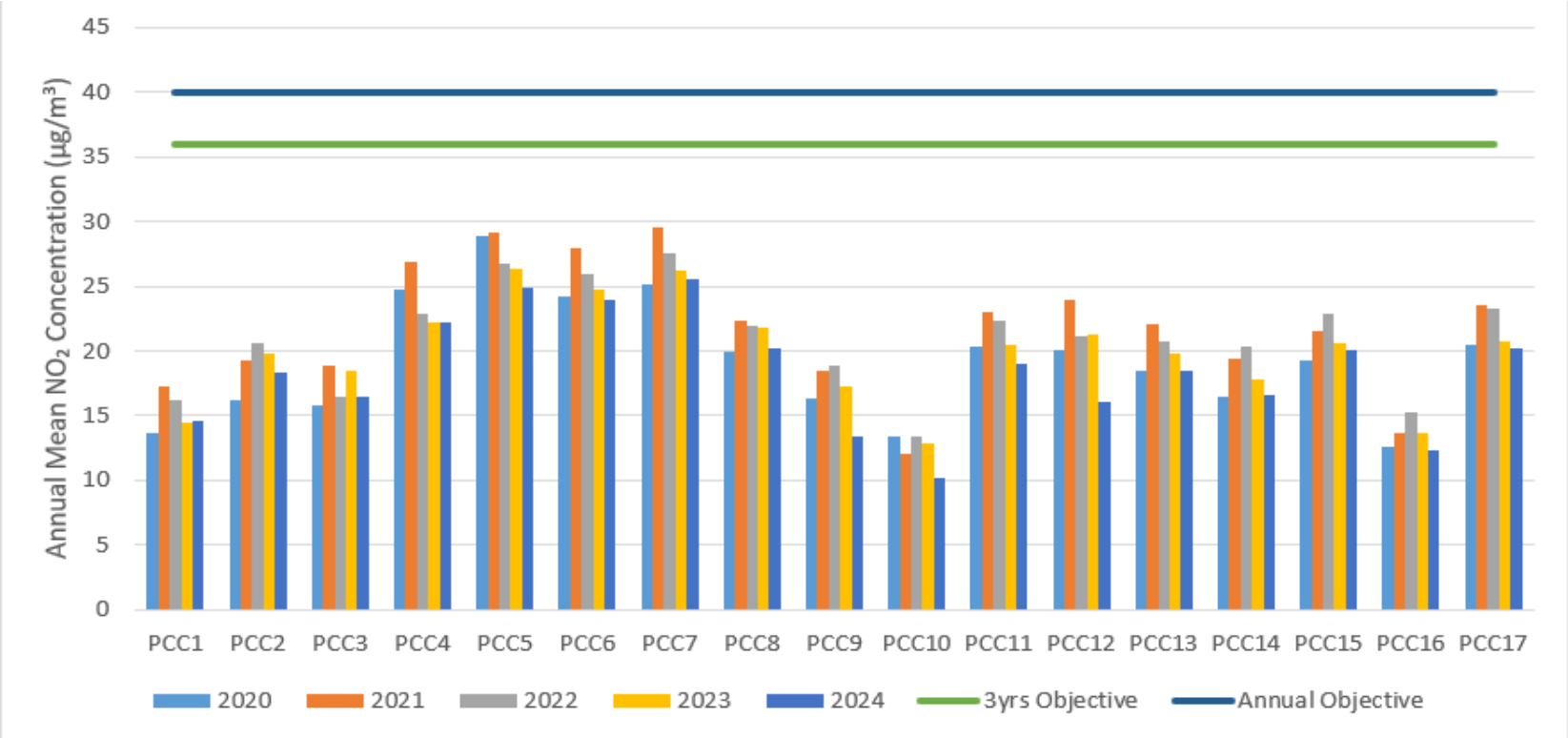
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

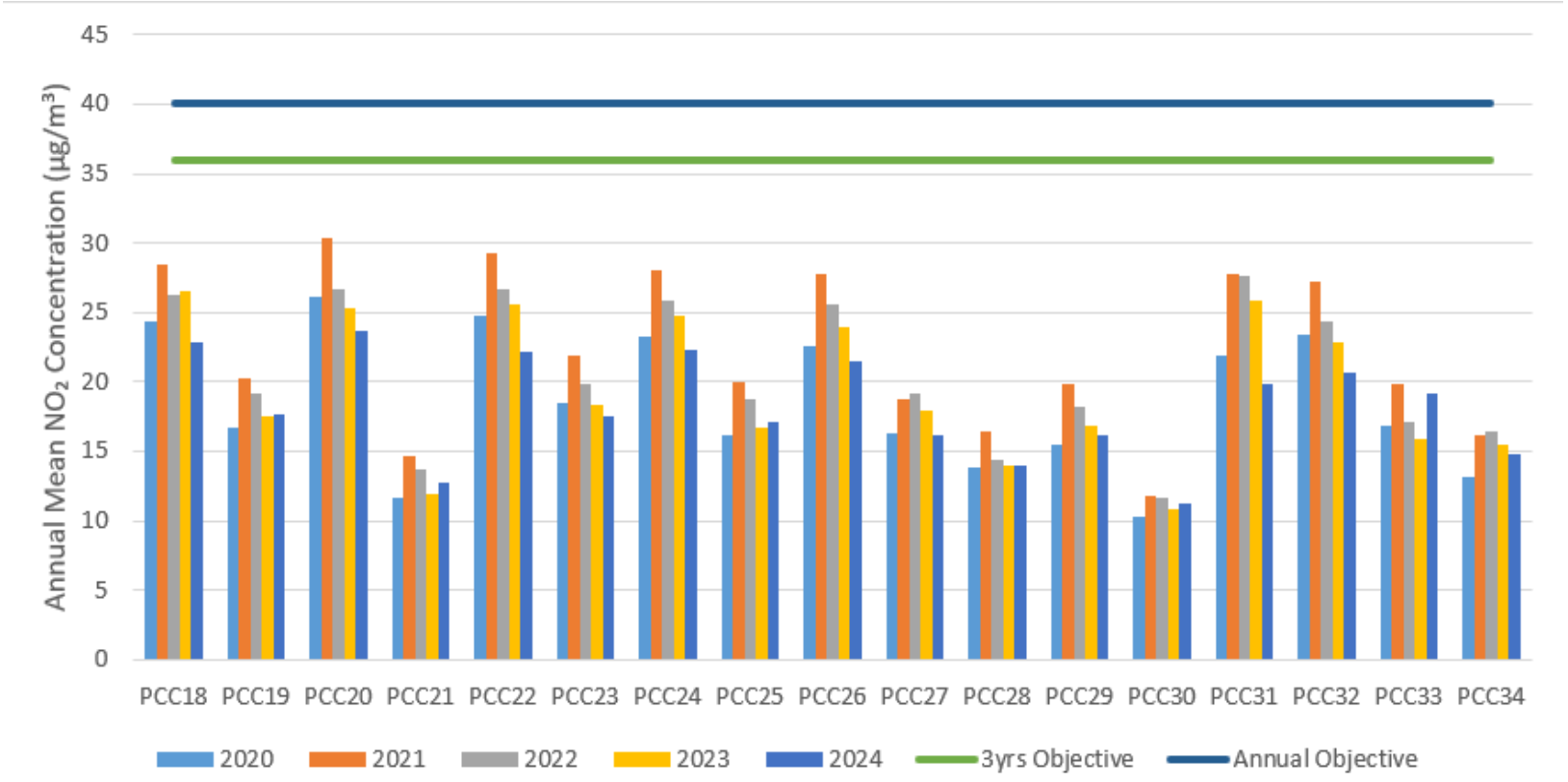
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

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

Figure 2.3 – Trends in Annual Mean NO_2 Concentrations




45
40
35
30
25
20
15
10
5
0
Annual Mean NO2 Concentration (µg/m3)
PCC18
PCC19
PCC20
PCC21
PCC22
PCC23
PCC24
PCC25
PCC26
PCC27
PCC28
PCC29
PCC30
PCC31
PCC32
PCC33
PCC34
2020
2021
2022
2023
2024
3yrs Objective
Annual Objective

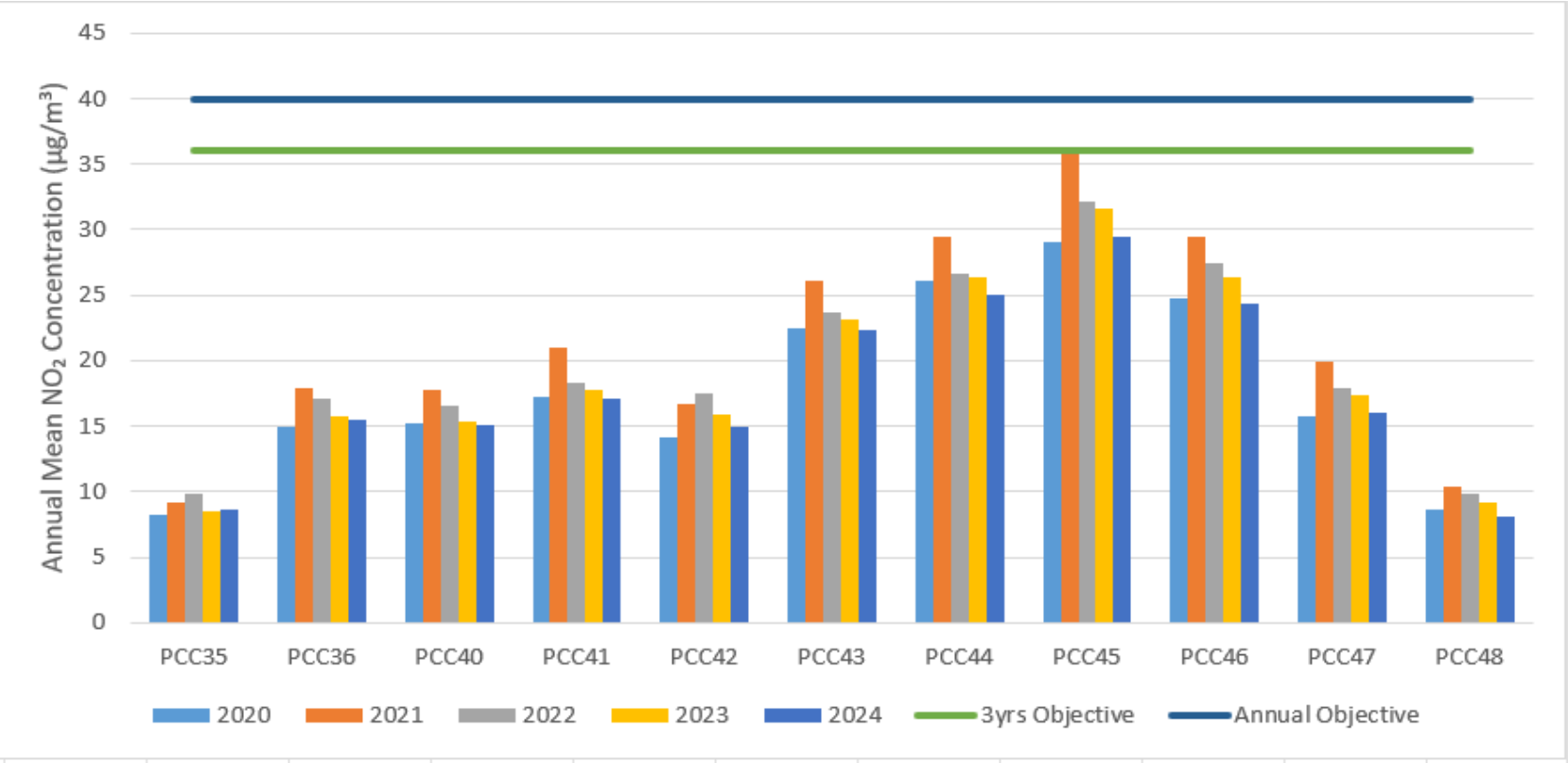

45
40
35
30
25
20
15
10
5
0
Annual Mean NO2 Concentration (µg/m3)
PCC35
PCC36
PCC40
PCC41
PCC42
PCC43
PCC44
PCC45
PCC46
PCC47
PCC48
2020
2021
2022
2023
2024
3yrs Objective
Annual Objective

Table 2.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PEMB	Rural	Automatic	97	97	0	0	0	0	0

Notes:

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

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

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

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

Table 2.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PEMB	Rural	100	100	10.5	10.1	11.3	10.0	10.0

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

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

(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 2.4 – Trends in Annual Mean PM_{10} Concentrations

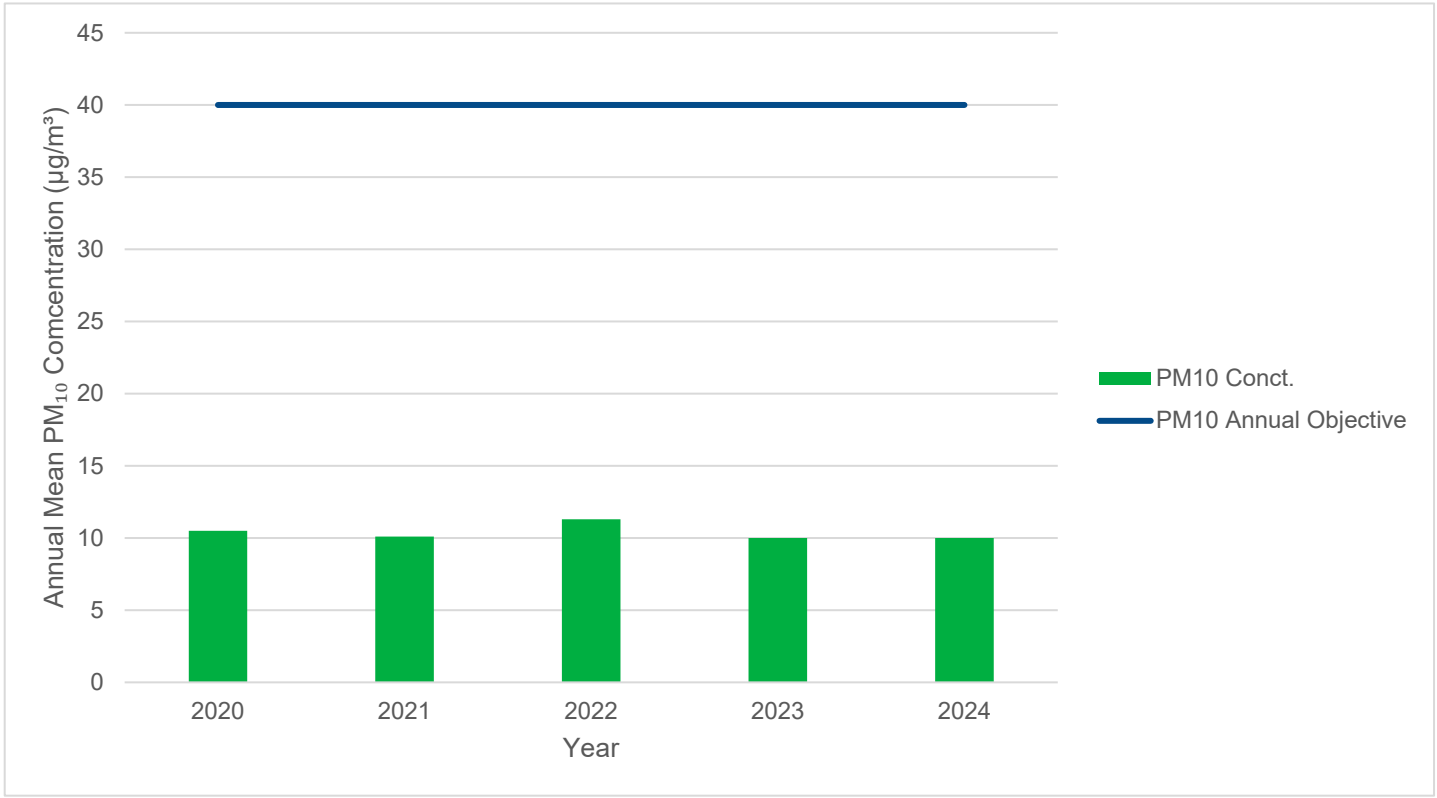


Table 2.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PEMB	Rural	100	100	1	0	2	0	0

Notes:

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

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

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

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

Table 2.8 – $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
PEMB	Rural	100	100	5.9	6.0	6.4	5.6	6

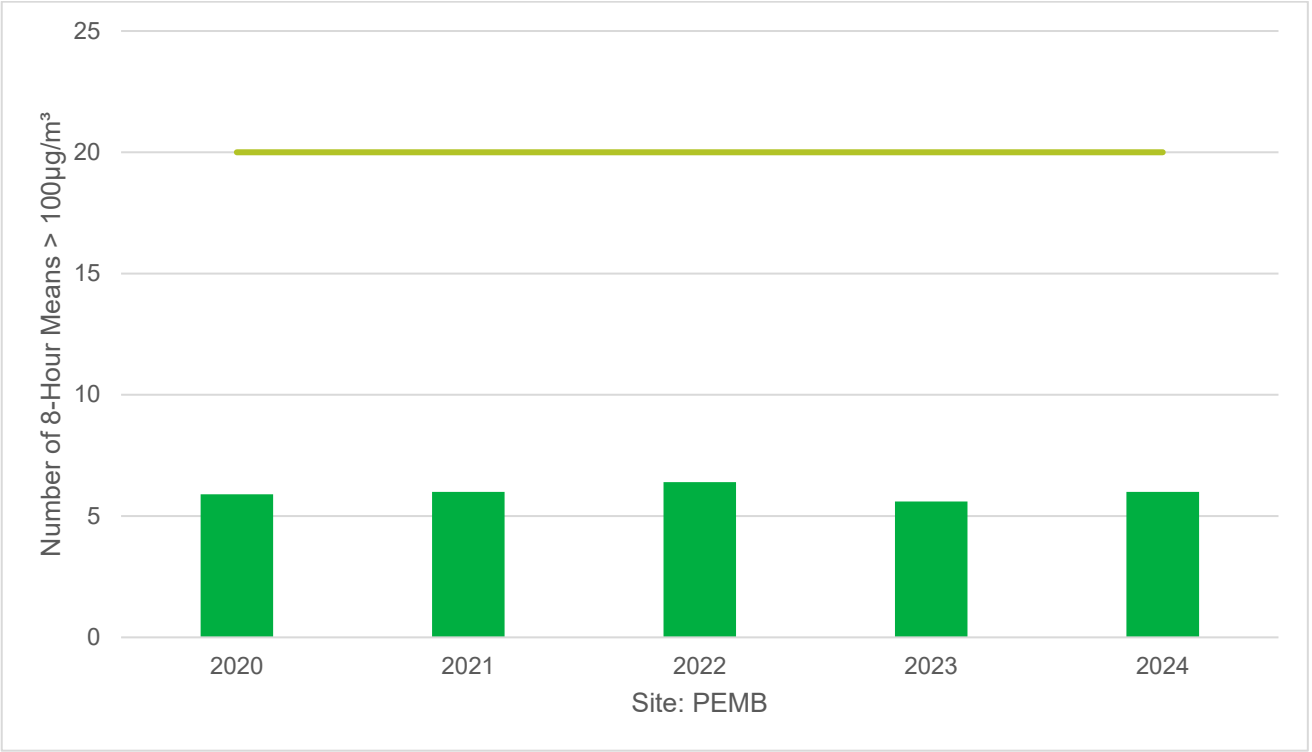
Notes:

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%).

Figure 2.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations



2.3 Comparison of 2024 Monitoring Results with Previous Years and the Air Quality Objectives

2.3.1 Nitrogen Dioxide (NO_2)

The automatic monitoring station located in Narberth continues to report compliance with the annual mean NO_2 AQS objective, with stable monitoring concentrations as would be expected for this parameter within a rural monitoring location.

During 2024, there were no exceedances of the NO_2 AQS objective, with all of the passive monitoring sites recording concentrations well under the objective. From 2023 to 2024 41 sites reported decreases in NO_2. The maximum NO_2 annual mean concentration in 2024 was 29.4 µg/m³, reported at PCC45 which is located along Main St within the Pembroke AQMA.

Both Haverfordwest and Pembroke AQMAs continue to report compliance, with Haverfordwest reporting five years full compliance and Pembroke reporting three years of compliance. Pembrokeshire County Council intends to instigate the revocation process for the Haverfordwest and Pembroke AQMAs.

There are no passive monitoring sites where NO_2 annual mean is greater than 60 µg/m³, therefore in accordance with Defra LAQM.TG(22) there are no sites likely to be at risk of exceeding the 1-hour AQS objective.

As all annual mean NO_2 concentrations reported below 36 µg/m³, fall-off with distance correction calculations have not been carried out.

2.3.2 Particulate Matter (PM_{10})

During 2024, the Narberth automatic monitoring site recoded PM_{10} concentrations well below the 40 µg/m³ PM_{10} AQS objective at an annual hourly mean of 10 µg/m³ recorded.

There was no exceedance of the 24-hour mean concentrations in excess of 50 µg/m³ in 2024, therefore compliance with the 24-hour AQS objective has taken place. Data capture at Narberth automatic monitoring station for 2024 was greater than 75%, therefore annualisation was not required as per the recommendations within LAQM.TG(22).

2.3.3 Particulate Matter ($PM_{2.5}$)

During 2024 the Narberth automatic monitoring site recorded $PM_{2.5}$ concentrations well below the $PM_{2.5}$ AQS target of 20 µg/m³. The annual mean concentrations remain stable and consistent over the last five years. There is no LAQM air quality objective for $PM_{2.5}$ concentrations but monitoring results continue to be consistently low.

2.3.4 Ozone (O_3)

The number of 8-hour mean O_3 concentrations greater than 100 µg/m³ reported at the Narberth automatic monitoring location in 2024 was 37. There is no LAQM air quality objective for O_3 concentrations, however this does exceed the UK National air quality objective of 100 µg/m³ not to be exceeded more than 10 times a year.

2.3.5 Sulphur Dioxide (SO_2)

In relation to SO_2 and associated LAQM air quality objectives the Narberth automatic monitoring station has reported for 2024 a 96% data capture for SO_2 with its Air Pollution Band category detailed as being Low, no exceedances of any of the relevant objectives having taken place.

2.4 Summary of Compliance with AQS Objectives as of 2024

Pembrokeshire County Council has examined the results from monitoring in the County. Concentrations are all well below the Objectives, therefore no further action is required.

Pembrokeshire County Council intends to implement the revocation process of the Haverfordwest and Pembroke AQMAs due to consistence with compliance with the required ≤36 µg/m³ level of NO_2 for the AQMA.

Pembrokeshire County Council maintain a number of “floating” diffusion tubes, numbers PCC 37, 38 and 39, for the random monitoring of NO_2 that is to say with no specific monitoring location but as and when an area of concern is identified by local residents and or this authority the tubes can be introduced to the area of concern to instigate an initial assessment to discover whether further measures for monitoring are required. To date where this strategy has been employed areas identified have found to not be exposed to exceedances of the relevant AQM objective and confirmation of this can then be provided to concerned parties.

3 New Local Developments

Pembrokeshire County Council confirms that there are no new or newly identified local developments which may have an adverse impact on air quality within the Local Authority area within 2024.

Pembrokeshire County Council confirms that all the following have been considered:

- Road traffic sources
- Other transport sources
- Industrial sources
- Commercial and domestic sources
- New developments with fugitive or uncontrolled sources

3.1 Road Traffic Sources (and Other Transport)

There has been no identification of any new road traffic and other transport sources of concern since the last APR.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

There has been no identification of any new industrial, fugitive or uncontrolled sources and/or commercial sources of concern since the last APR. Having said that the Commercial Pollution Control Team within Pembrokeshire County Councils Public Protection Division do operate a zero-tolerance policy for incidents where commercial business activity utilise fire as a method for waste disposal. Enforcement actions have been and will continue to be utilised where incidents of such activity are found to be taking place as well as conditioning of any planning applications consulted upon where such activity may be able to take place e.g. building developments and associated construction sites etc.to ensure public health, local amenity and the environment are protected from the adverse impacts from emissions associated with burning of waste materials.

3.3 Other Sources

Pembrokeshire County Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Pembrokeshire County Council confirms that all the following have been considered:

- Road traffic sources
- Other transport sources
- Industrial sources
- Commercial and domestic sources
- New developments with fugitive or uncontrolled sources.

4 Policies and Strategies Affecting Airborne Pollution

4.1 Local / Regional Air Quality Strategy

Pembrokeshire County Council provide annual reports to the Wales Climate Change Strategy to assist in assessing sector specific emission reduction targets specifically energy and/or green-house gas emissions from the public sector in Wales in relation to the Authority's.

- Housing stock
- Non-domestic buildings
- Fleet vehicles and transport provisions

Encompassing emissions from energy use in buildings, community wide emissions from private sector housing, fleet transport and business travel. The data is compiled and returned as;

- Utility supplier information
- Annual Welsh Assembly Government Returns
- Carbon Reduction Commitment Energy Efficiency Scheme returns
- Annual surveys
- Internal Business Plan reporting
- Returns from site managers

Other reporting indicators to assist strategy development are;

- Welsh Assembly Government National Strategic Indicator EEF/002a (NS18a) (NSPI19) for percentage reduction in carbon emissions in the council's non-domestic public stock
- Internal local indicator HC HC2 for percentage reduction in carbon emissions in the council's non-domestic public stock since 2003
- Welsh Assembly Government National Strategic Indicator EEF/002bi (NS18bi) for percentage reduction in energy use in the housing stock
- Transport emissions reporting

In 2014, local authorities were advised by the Welsh Assembly Government that the European Commission had formally launched infraction proceedings against the UK for breaching nitrogen dioxide limit values under the EU Air Quality Directive 2008/50.

Pembrokeshire County Council along with all local authorities, completed a log sheet as requested to assist with the development of a National Air Quality Plan to resolve the nitrogen dioxide exceedance.

In July 2017, the UK Government announced that new petrol and diesel cars and vans will be phased out by 2040 in a bid to tackle air pollution with £255m fund to help councils tackle emissions from diesel vehicles as part of a £3bn package of spending on air quality. The Party of Wales aim to phase out the sale of new petrol and diesel cars and vans in Wales by 2027.

4.2 Air Quality Planning Policies

Pembrokeshire County Council, Carmarthenshire County Council, Ceredigion County Council and Powys County Council have developed and published the “Mid and West Wales Air Quality: A Guide for Developers” document in 2012. This is a reference document intended for use by developers and advisers who may be involved in the assessment of air quality at proposed developments. This document details the information required by the Local Planning Authority in order to accurately assess the impact of a planning application on air quality. This document was last updated in 2012.

The guidance focuses on:

- Pollutants regulated under the LAQM regime, as well as $PM_{2.5}$
- Impacts of traffic emissions
- Impacts of emissions from biomass boilers
- The assessment and control of dust impacts during construction

Where a proposed development is likely to have a significant negative air quality impact on the surrounding areas or is in an area of existing poor air quality, the planning process requires an air quality assessment to be carried out. Additionally, measures to reduce and minimise any adverse impacts are also to be required.

The guidance also aims to provide advice on describing air quality impacts and assessing their significance.

It is highly recommended that dialogue between the developers, planners and pollution control officers begin as early as possible. Failure to provide adequate supporting information with the planning application may result in significant delays in the planning process, or planning permission may be refused by the Local Planning Authority.

4.3 Local Transport Plans and Strategies

The Joint Transport Plan for South Wales 2015 - 2020 https://www.carmarthenshire.gov.wales/media/4797/joint-transport-plan-300115.pdf is in effect as the Local Transport Plan initiative. This also details medium and long-term projects and aspirations spanning to 2030.

The Local Transport Plan is intended to “improve transport and access within and beyond the region to facilitate economic regeneration, reduce deprivation and support the development and use of sustainable and healthier modes of transport”. The primary objectives are as follows:

1. To improve the efficiency and reliability of the movement of people and freight within and beyond Southwest Wales to support economic growth in the Swansea Bay City Region.
2. To improve access for all to a wide range of services and facilities including employment and business, education and training, health care, tourism and leisure activities.
3. To improve the sustainability of transport by improving the range and quality of and awareness about, transport options, including those which improve health and wellbeing.
4. To improve integration between policies, service provision and modes of transport in Southwest Wales.
5. To implement measures which will protect and enhance the natural and built environment and reduce the adverse impact of transport on health and climate change.
6. To improve road safety and personal security in Southwest Wales.

The Corporate Joint Committee (CJC) for South West Wales has been mandated to produce a Regional Transport Plan (RTP) for the region by Welsh Government, in conformity with the Transport (Wales) Act (2006) and to complement Llwybr Newydd: Wales Transport Strategy (2021).

The new RTP will replace the Joint Local Transport Plan which was written in 2015, and demonstrate how Llwybr Newydd will be delivered in the region. The new plan will focus on the period 2025-30, the plan is currently in draft and has completed its consultation phase. Delivery of the Final Regional Transport Plan is programmed for late 2025.

4.4 Active Travel Plans and Strategies

Pembrokeshire County Council details information on Active Travel Plans currently in place on their website. These are important for joint wins in promoting healthier lifestyles alongside reducing the negative impacts of traffic upon neighbourhoods and communities.

Pembrokeshire County Council take part in Clean Air Day initiatives consisting of no idling actions for local schools including the provision of banners to display outside of schools to advise and educate drivers taking children to school. Details are provided via the authority's website. Pupils lead project to get parents to switch off car engines at the school locations.

4.5 Local Authorities Well-being Objectives

Information on Pembrokeshire County Councils Well-Being Plan and objectives are available on their website; Well-being Plan - Pembrokeshire County Council This sets out how the Public Services Board will work together to improve well-being of people and communities in Pembrokeshire both now and in the future.

4.6 Green Infrastructure Plans and Strategies

Pembrokeshire County Councils Green Infrastructure Plans are available on their website; Green Infrastructure - Pembrokeshire County Council They are intended to guide Green Infrastructure improvements within settlements, to be used by public, private and voluntary sector bodies.

4.7 Climate Change Strategies

Pembrokeshire County Councils Climate Change Strategies are available on their website; Project Plan: Climate adaptation - Pembrokeshire County Council The plan is designed to outline the work Pembrokeshire County Council has currently undertaken to steer Pembrokeshire County Council towards becoming net zero-carbon by 2030.

5 Conclusion and Proposed Actions

5.1 Conclusions from New Monitoring Data

The passive NO_2 monitoring data from 2024 details 41 out of the 45 monitoring locations reported a decrease in concentrations from 2023, with an average decrease of 1.4µg/m³. All annual mean NO_2 concentrations have complied with the NO_2 annual mean AQS objective and remain below the AQS objective.

Monitoring NO_2, PM_{10} and $PM_{2.5}$ concentrations at the Narberth automatic monitoring station continue to report annual means well below the AQS annual mean objectives for NO_2, PM_{10} and $PM_{2.5}$ concentrations (2 µg/m³, 10 µg/m³ and 6 µg/m³ respectively), and short term SO_2 AQS objectives. With regard to the short term AQS objective for NO_2, where the 200 µg/m³ must not be exceeded more than 18 times/year, and the PM_{10} AQS objective where there should be no more than 35 34-hour mean concentrations greater than 50 µg/m³ there were no exceedances reported for both pollutants in 2024. The Narberth automatic monitoring station is a rural background site which reports low concentrations amongst all pollutants and is expected to meet AQS objectives on yearly reporting.

5.2 Conclusions relating to New Local Developments

Ongoing implementation and development of local strategies, as detailed in Table 1.2, will continue to assist in reducing pollutant concentrations and emissions. The Council also continues to request air quality assessments for new planning applications where relevant, to ensure that there is no significant degradation of air quality or that no new sensitive receptors are being introduced to areas of existing poor air quality.

5.3 Other Conclusions

The existing diffusion tube network within Pembrokeshire allows the Council to closely monitor hotspot areas and help highlight areas of concern, the monitoring network in 2024 has shown compliance across all monitoring locations. In relation to both designated AQMA's post covid 2020 and 2021 years, where traffic levels were affected, Haverfordwest has reported four years of compliance, and Pembroke AQMA has reported three years of compliance with the 36 µg/m³ confidence threshold. The Council, therefore, intends to revoke the AQMA's for both the Haverfordwest and Pembroke AQMAs.

5.4 Proposed Actions

Pembrokeshire County Council will continue to actively monitor nitrogen dioxide (NO_2) concentrations across the County, reviewing and updating the diffusion tube monitoring network as necessary to ensure robust data collection. On the basis of sustained improvements in local air quality and with high confidence in continued future compliance with the annual mean NO_2 objective, the Council intends to revoke both the Haverfordwest and Pembroke Air Quality Management Areas (AQMAs).

References

- Pembrokeshire County Council's Progress Report 2024
- Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance LAQM.TG(22) 2022
- Welsh Air Quality Forum data downloads
- Mid and West Wales Air Quality: A Guide for Developers (2012)
- Joint Transport Plan for South West Wales 2015 – 2020
- Local Air Quality Management in Wales. Policy Guidance June 2017

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Table A.1 – Full Monthly Diffusion Tube Results for 2024 (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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
PCC1	195629	215655	24.7	16	16.2	15.9	15.5	13.9	14.8	11.3	19.4	21.7	23.3	16.3	17.4	14.6		
PCC2	195574	215704	27.1	24.1	23.1	20.2	19.5	17.6	18.9	20.1	22.2		27.3	20.1	21.8	18.3		
PCC3	195474	215661	26.2	22.1	20.4	17.5	15.6	14.9	15.6			22.1		20.6	19.5	16.4		
PCC4	195402	215634	29.5	30.9	22.4	25.5	25.5	26.5	25.8	24.1			26.5	27.2	26.4	22.2		
PCC5	195312	215605	31.8	33.3	30.5	28.7	30.5		29.1	25.4	28.6	29.3	31	28.2	29.7	24.9		
PCC6	195294	215591	33	33.3	30.7	26.1	26.3	23.3	25.4			29.6	30.4	26.8	28.5	23.9		
PCC7	195203	215544	31.1	32.8		28.8	31.9		28.5	25.7	29.6	35	33.1	27.6	30.4	25.5		
PCC8	195159	215494	29.7	24.6	27.9	22.7	22.7	16.4	19.8	15.9	25	28.7	30.8		24	20.2		
PCC9	195267	215603	25.3	22.4	19.6	16.4	15.6	14.2		10	15.4	13.8	10.8	12.6	16	13.4		
PCC10	195177	215606	18.4	16.2	16.2	12.3	10.7	9.5	10.7	7	9.2	12.2	14.3	9.6	12.2	10.2		
PCC11	195143	215464	28.6	22.2	26.8	20.7	20.5	15.8		15.5	22.4	25.6	29.2	21.1	22.6	19		
PCC12	195110	215394				19.4	17.3	17.7	18	17.2	18.7		25.7	17.6	19	15		Annualisation; Appendix C
PCC13	195101	215357	30.4	22.7	22.7		19.3	15	17.3	14.7	23.4	25.6	27.8	21.8	21.9	18.4		
PCC14	195028	215269	28.6	21.4	20.9	17.5		13.9	16.1	14.2	19	22	23.9	20.7	19.8	16.6		
PCC15	194998	215255	33.1	25.3	24.1	20	20.1	17.4	20.1	18.7	21.2	25.5	34	26.4	23.8	20		
PCC16	195006	215208	21.2	16.2	15.1	13.4	12.7	11	12.4	11.2	12.5	15.6	19.6	14.9	14.7	12.3		
PCC17	194945	215259	31.7	23.1	22.6	21.4	24.3	12.5	20.6	17.6	27.1	29.1	29.5	30.1	24.1	20.2		
PCC18	194937	215254	35.5	29.9	26.2	24.9	27	27.5	27.4	29.1	23.7	22.6	35.1	18.4	27.3	22.9		
PCC19	194936	215268	28.8	18.5	20.3	19.2	19.6	14.9	16.9	14.2	24	29.1	26.1		21	17.6		
PCC20	194922	215263	31.5	33.1	30.2	26.1	26.7	25.7	27.8	25.9	24.2	34.7	32.8	19.4	28.2	23.7		
PCC21	194930	215267	19.6	16.8	13	12.2	11.3	10	11.4	11.1	12.2	14.1	24.3	25.2	15.1	12.7		

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
PCC22	194911	215268	30.7	31.3	30.6	26.9	26.1	25	26	25.2	22.1		30.1	15.8	26.3	22.1		
PCC23	194911	215279	27.1	18.7	19.4	19.7	19.7	16.6	18.5	14.6	20.2	32.1	19.3	23.4	20.8	17.5		
PCC24	194893	215279	30.7	29.2	28.5	23.8	26.5	24	26.5	22.8	25.7	28.2	32.5	19.4	26.5	22.3		
PCC25	194905	215286	26.5	17.1	17.9	18.6	18.1	15.8	17.1	12.8	21.8	33.7		24.4	20.4	17.1		
PCC26	194886	215284	30.9	27.4	27.4	22.1	26.3	24	26.4	23.9	24.5	21.4	34.9	18.6	25.6	21.5		
PCC27	194879	215300	26.9	18.4	18.9	16.7		15.6	17.3	15	20.9	14.6	31.1	16.2	19.2	16.1		
PCC28	194856	215299	21.7	15.1	14.8	14.4	13.9	12.4	14.3	10.8	15.9	22.6	21.5	20.1	16.5	13.9		
PCC29	194901	215345	25.8	20	19.7	17.2		14.7	16		18.2	21.3	23.4	16.4	19.3	16.2		
PCC30	194974	215448	18.2	13.4	12.5	29.1	8.5	7.8	9.3	8.6	10.2	14.2	16.8	11.2	13.3	11.2		
PCC31	194730	214554	32.1	29.4	26.5	9	30.7	30.6	26.3	12.6	18	29.1	22.9	16.4	23.6	19.8		
PCC32	194761	214610	30.7	29.3	24.1	25.2	25.7	23.8	22.3	21.3		19.8	25.4	24.4	24.7	20.7		
PCC33	194774	214465	27.1		20.2	19		14	14.5		31		30.2	25.5	22.7	18.3		Annualisation; Appendix C
PCC34	195453	215594	24.2	20.6	16.6	16.6	13.7	14.7	15.2	13.8	18.3	16.7	21.6	19.8	17.6	14.8		
PCC35	195642	215273	15.7	11.2	10.1	7.6	7.9	6.7	7.2		9.9	12.5	13.5	10.1	10.2	8.6		
PCC36	210901	214713	25.5	16.7	19	17.9	20.9	14.5	15.9	12.3	18.6	23.4	18.8	17.5	18.4	15.5		
PCC40	198244	201554	21.5	16.5	14.4	17.7	19.1	19	18.7	16	19.1	17.2	18.6	17.8	18	15.1		
PCC41	198274	201547	24.9	20.2	16	17.7	21.2	19.7	19.8	17.8	20.6		24.7	21.7	20.4	17.1		
PCC42	198333	201549	23	17.6	24.2		22	15	17.2	15.7	18.6	24.1	17	19.3	17.8	15		
PCC43	198364	201502	26.5	27.7	29.1	24.1	26.4	27.1	24.9	27.8	21.9	33.1	26.4	22.9	26.5	22.3		
PCC44	198396	201495	31.4	31.5	35	27.2	29	27.7	28.7	30.8	28.5	31.9	29.8	26.3	29.8	25		
PCC45	198407	201489	39.4	36.8	37.9	33.9	34.9	33.3	34.6	33.7	33	40	31.8	30.5	35	29.4		
PCC46	198460	201464	31.3	35	29.6	27	27.9	29.6	28.1	30	25.6	27.7	29.3	27.2	29	24.4		
PPC47	198548	201419	20.9	19.8	19.1	17.5	21	19.2	18.9	19.1	16.2	19.3	19.5	19.1	19.1	16		
PPC48	198869	201299	13.5	10.3	10.4	7.7	9.1	7	7.9	7.8	9.6	11.6	10.2	9.6	9.6	8.1		

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

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

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Appendix B: A Summary of Local Air Quality Management

5.5 Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995, as amended by the Environment Act 2021, and associated government guidance. 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 being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

5.6 Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

The table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
Benzene	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

5.7 QA/QC of Diffusion Tube Monitoring

Pembrokeshire County Councils diffusion tubes in 2024 were supplied and analysed by Gradko International Ltd, using the 20% Triethanolamine (TEA) in water preparation method. Gradko's laboratory is UKAS accredited, participating in the AIR-PT Scheme for NO2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonised Practical Guidance.

All local authority co-located studies which use tubes supplied by Gradko with the 20% TEA in water preparation method in 2024 were rated as "good", as shown by the precision summary results. This precision reflects the laboratory's performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Tubes are considered to have "good" precision" where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more monitoring periods during a year is less than 20%.

Monitoring in 2024 was completed in adherence with the 2024 Diffusion Tube Monitoring Calendar, whereby most changeovers were completed within ±2 days of the specified date.

Diffusion Tube Annualisation

LAQM.TG(22) states that annualization is required for any site which has data capture of less than 75%, but greater than 25%. Passive monitoring sites PCC12 and PCC33 recorded data capture of less than 75% with 8 months monitoring having taken place for both sites through 2024, therefore annualisation was required. The assessment was completed using the methodology detailed as per Box 7.9 within LAQM.TG(22). Two continuous background monitoring locations were used:

- Cardiff; and
- Narberth

Two continuous background monitoring sites were applicable as they both had >85% data capture and therefore could be used for annualization. Table C.1 presents the results obtained.

Diffusion Tube Bias Adjustment Factors

Pembrokeshire County Council have applied a national bias adjustment factor of 0.84 to the 2024 monitoring data. A summary of bias adjustment factors used by Pembrokeshire County Council over the past five years is presented in Table C.2.

No co-location studies are carried out by Pembrokeshire County Council therefore only the national factor could be applied. The national factor for Gradko 20% TEA in water, as presented in the Diffusion Tube Bias Factors Spreadsheet Version Number 04/25 (Figure C.1), is 0.84 based on 27 studies.

Figure C.1 – Diffusion Tube Bias Adjustment Factors Spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 04/25

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

This spreadsheet will be updated at the end of June 2025

LAQM Helpdesk Website

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

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

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

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

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

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

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

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Aberdeen Scientific Services	20% TEA in water	2024		Overall Factor[3] (6 studies)				Use		0.76
Edinburgh Scientific Services	50% TEA in acetone	2024		Overall Factor[3] (2 studies)				Use		0.83
Glasgow Scientific Services	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.82
Gradko	20% TEA in water	2024		Overall Factor[3] (27 studies)				Use		0.84
Gradko	50% TEA in acetone	2024		Overall Factor[3] (12 studies)				Use		0.88
Lambeth Scientific Services	50% TEA in acetone	2024		Overall Factor[3] (2 studies)				Use		0.81
Milton Keynes Council	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.75
SOCOTEC Didcot	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.75
SOCOTEC Didcot	50% TEA in acetone	2024		Overall Factor[3] (33 studies)				Use		0.78
SOCOTEC Glasgow	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.77
SOCOTEC Glasgow	50% TEA in acetone	2024		Overall Factor[3] (1 study)				Use		0.79
Somerset County Council	20% TEA in water	2024		Overall Factor[3] (4 studies)				Use		0.81
Staffordshire County Council	20% TEA in water	2024		Overall Factor[3] (16 studies)				Use		0.82
Tayside Scientific Services	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.76

Table C.2 – Diffusion Tube Bias Adjustment Factors

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.84
2023	National	06/24	0.81
2022	National	03/23	0.83
2021	National	06/22	0.84
2020	National	06/21	0.81

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Pembrokeshire County Council required distance correction during 2024.

5.8 QA/QC of Automatic Monitoring

The Narberth automatic monitoring location is part of the Automatic Urban and Rural Network (AURN). Calibrations are carried out in accordance with the AURN standards and site audits and maintenance are provided by Ricardo E&E.

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

The type of PM_{10} monitor utilised within Pembrokeshire County Council does not require the application of a correction factor.

Automatic Monitoring Annualisation

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

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Pembrokeshire County Council required distance correction during 2024.

Table C.3 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Narberth	Annualisation Factor Cardiff	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
PCC12	0.769	1.118	0.943	19	17.9	As per Box 7.9 LAQM TG22 May25
PCC33	0.800	1.118	0.959	22.7	21.8	

Appendix D: AQMA Boundary Maps

Figure D.1 – Map of the Haverfordwest AQMA Boundary

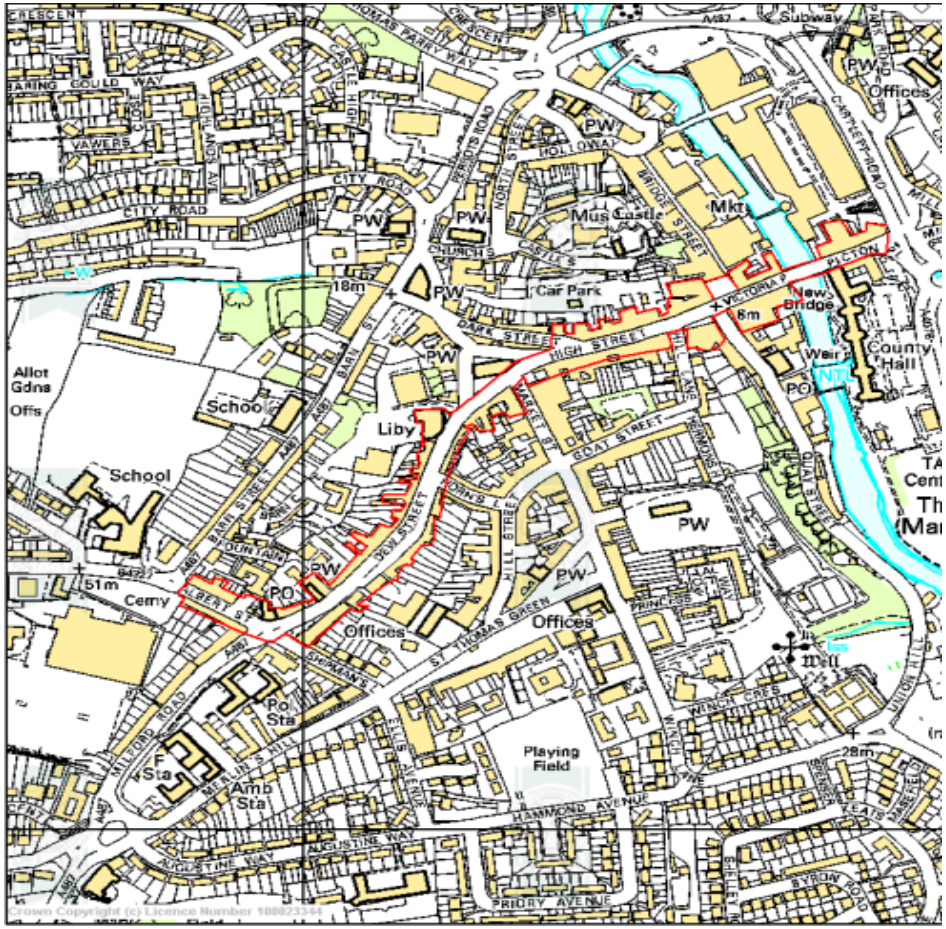
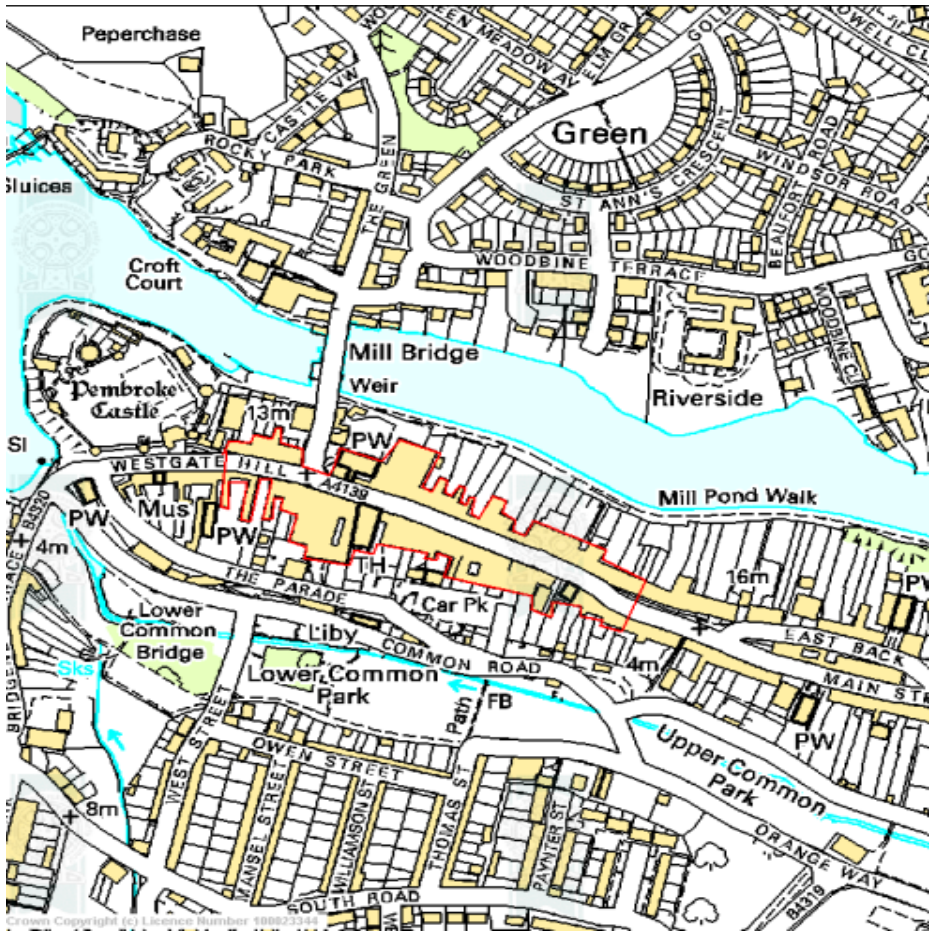


Figure D.2 – Map of the Pembroke AQMA Boundary



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	Air quality 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
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (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