Wellington Road
Air Quality Management Area
Revocation Report
July 2024

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1. Background

1.1 Introduction

Aberdeen City Council declared the Wellington Road Air Quality Management Area (AQMA) in 2008 due to exceedances of the annual mean nitrogen dioxide (NO_2) air quality objective and the particulate (PM_{10}) annual mean and 24-hour objectives. An Air Quality Action Plan (AQAP) was published 2011 describing measures that the Council would undertake to improve air quality in the City's 3 AQMAs: - the City Centre, Wellington Road and Anderson Drive corridor.

Air quality within the Wellington Road AQMA progressively improved from around 2016 and there has been no exceedance of the objectives since 2018. Aberdeen City Council is satisfied that the objectives will continue to be met at all locations in the future and consequently proposes to revoke the AQMA.

1.2 Legislation

Under section 83 of the Environmental Act 1995 (the 1995 Act) local authorities are required to regularly review and assess the current and future air quality within their geographical areas against the air quality objectives set out in the Air Quality (Scotland) Regulations 2000, as amended in 2002 and 2016. Where the levels are exceeded, or modelling suggests levels are likely to be exceeded at any location the authority must declare the affected area an Air Quality Management Area (AQMA). Local authorities must then develop and publish an Air Quality Action Plan (AQAP) detailing the actions the authority proposes to improve air quality in the designated area.

The Scottish Government Air Quality Policy Guidance PG(S) 24 provides guidance to local authorities on the steps that should be considered to manage air quality and report on in their areas. The Guidance describes the review and assessment process, the declaration and revocation of an AQMA and development of an AQAP.

Where air quality has improved, and the authority is satisfied that the objectives are being met within an AQMA and unlikely to be exceedance in any future occasion the authority is required to revoke the AQMA.

1.3 Summary of Proposal

The proposal is to revoke the Wellington Road AQMA for both NO_2 and PM_{10} due to compliance with the air quality objectives at all monitoring locations in the last 5 years and predicted compliance in future years.

2. Description of AQMA

The Wellington Drive AQMA was declared in 2008 due to exceedance of the annual mean objectives for NO_2 and PM_{10} and the PM_{10} 24-hour objective within the section of Wellington Road between Queen Elizabeth II Bridge and Balnagask Road where there is relevant population exposure. The relatively steep road incline at this location results in greater exhaust emissions as vehicles accelerate northwards from the roundabout at the river Dee. Historically the area was also significantly congested at peak hour periods further contributing to raised pollution levels.

Appendix 1 shows a map of the of the AQMA.

3. Description of Local Sources

3.1 Local Sources

Road traffic is the most significant local source of the raised NO_2 and PM_{10} concentrations. There is no industry or other point or local diffuse sources of emissions in the area. Table 1 shows the source apportionment information predicted by modelling undertaken in 2011. The same information is provided in graphical from in Figure 1.

There is a greater proportion of HGV vehicles than on other main roads in the city due to the close proximity of Aberdeen Harbour and vehicle weight restrictions at the A90 Bridge of Dee which force HGV vehicles in the city to use Wellington Road as a north/south corridor. The downturn in the oil industry around 2016 coupled with the opening of the Aberdeen Western Peripheral Route (AWPR) in 2019 providing an alternative north/south route around the city has resulted in a significant reduction in traffic flow, particularly HGV vehicles, in recent years. Traffic counts undertaken by SEPA and Transport Scotland in 2017 and 2023 as part of the City Centre Low

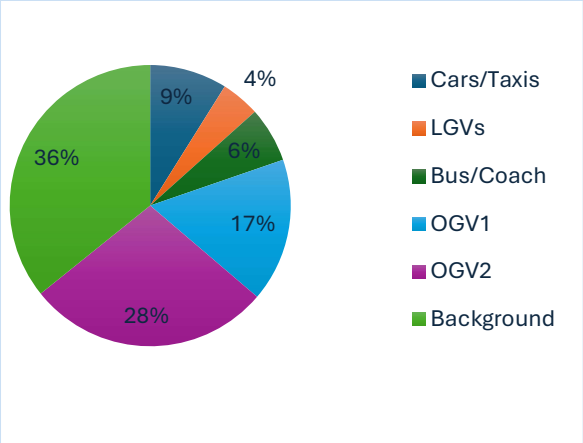
Emission Zone (LEZ) study showed traffic reduced by over 23% between 2017 and 2023.

Table 1: Predicted Source Apportionment 2011

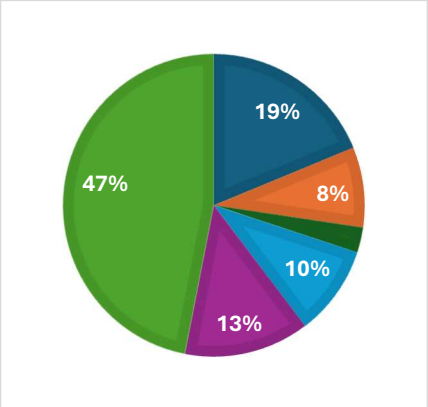
Source Contribution	NO_x	PM_{10}	Traffic Source Breakdown			
			Vehicle Type	NO_x	PM_{10}	$PM_{2.5}$
Background	36%	56%	Cars/Taxis	14%	35%	31%
Traffic	64%	44%	LGVs	7%	16%	17%
			Bus/Coach	10%	5%	6%
			OGV1	26%	18%	18%
			OGV2	44%	25%	27%

Figure 1: Predicted NO_x and PM_{10} Emissions by Source 2011

NOx Emissions



PM10 Emissions



OGV1s: Other goods vehicles: 2 or 3 axle rigid commercial vehicles
OGV2: Other goods vehicles 4 axles or greater (rigid or articulated) and 3 axle articulated commercial vehicles

3.2 Action Planning Measures Implemented

The Air Quality Acton Plan 2011 described a range of measures to improve air quality in the designated area. Action planning measures that have been implemented include:

- Opening of the Aberdeen Western Peripheral Route (AWPR) in 2019, contributing to reduced traffic flows and congestion throughout the city.

- Completion of the Roads Hierarchy review including a programme of city centre road reclassifications to reflect its status as a destination rather than a through-route for traffic.
- Ongoing improvements to strategic and local walking and cycling routes and the Core Path network.
- Launch of I Bike Schools and Communities projects to encourage more cycling, particularly amongst traditionally hard to reach groups.
- Launch of the Scottish Government's Bus Partnership Fund, with a number of corridor improvement strategies underway to identify opportunities for bus priority improvements.
- Commencement of Aberdeen Rapid Transit (ART) appraisal to assess options for a high-capacity rapid public transport system in Aberdeen.
- Continued expansion and promotion of the Grasshopper integrated and multi-operator bus ticket.
- Aberdeen to Inverness Rail Improvements, including dualling of the track between Aberdeen and Inverurie and the re-opening of Kintore Station.
- Ongoing improvement and expansion of the Aberdeen Car Club
- Ongoing expansion of the public Electric Vehicle (EV) charging network.
- Ongoing expansion of the local hydrogen fleet and hydrogen refuelling capabilities.
- Launch of the Eco Stars fleet recognition scheme to support and encourage bus, freight and van fleet operators to reduce emissions and running costs. and
- Ongoing programme of events and promotions.

The opening of the Aberdeen Western Peripheral Route (AWPR) in 2019 provided a direct route for traffic to pass round the city resulting in a significant reduction in road traffic on Wellington Road. The traffic reduction resulted in less direct emissions from vehicle exhausts while also significantly reducing congestion in the area further contributing to improved air quality.

4. Local Monitoring Equipment

4.1 Automatic Monitoring

There is one automatic monitoring station within the AQMA located on Wellington Road adjacent to Grampian Place. Monitoring commenced in 2008. Details of the monitoring site and equipment are shown in Table 2. Appendix 2 shows the monitoring location.

Table 2: Details of Wellington Road Drive Automatic Monitoring Site

Site ID	Site Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	Monitoring Technique	Distance to Relevant Exposure (m)	Distance to kerb of nearest road (m)
CM4	Wellington Road	Roadside	X394395	Y804779	PM_{10}, $PM_{2.5}$, NO_2 (NO, NO_x)	Fidas 200* Chemiluminescence	5	4

***** The Fidas PM10 monitor was installed in 2016 replacing a TEOM.

4.2 Non-Automatic Monitoring

Non-automatic monitoring consists of diffusion tubes located within or just outwith the AQMA. Table 3 details the sites, distances to receptors and monitoring periods. All diffusion tubes are changed every 4 weeks. Appendix 2 shows the location of the diffusion tubes.

Table 3: Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Monitoring period
DT 7	Wellington Rd/Kerloch Pl	Roadside	394411	804407	NO_2	0	3	>10 years
DT36	115 Menzies Rd/Wellington Rd	Roadside	394403	804799	NO_2	14	4	>10 years
DT37	137 Wellington Road	Roadside	394697	803735	NO_2	17	14	>10 years (Removed 2023)

5. Local Monitoring Data

5.1 Automatic Monitoring Results and Interpretation

Table 4 shows the annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations and number of exceedances of the short term NO_2 and PM_{10} objectives at the Wellington Road automatic monitoring station over the period 2015-2023.

Table 4: Annual Mean NO_2 and PM_{10} Concentrations and Number of 1-hour NO_2 Means >200ugm^{-3} and 24-hour PM_{10} Means >50ugm^{-3} Wellington Road Automatic Monitoring Station

	2015	2016	2017	2018	2019	2020	2021	2022*[1]	2023*[1]
Annual mean NO_2 (ugm^{-3})	**40**	**46**	39	39	35	25	28	24.5	23.6
Annual mean PM_{10} (ugm^{-3})	**20**	16	13	17	14	14	12	10.6 (11.6)	12 (13.1)
Annual mean $PM_{2.5}$ (ugm^{-3})	**11**	8	6	8	7	6	6	5.2 (5.5)	5.6 (6.0)
***[2] No of NO_2 1-hour mean >200ugm^{-3}**	0	2	0	0	0	0	0	0	0
***[3] No of PM_{10} 24-hour mean >50ugm^{-3}**	0	2	0	3	4	0	0	0	0

Exceeedances of the objectives are shown in bold.
*[1] Corrected results as recommended by Ricardo for the Scottish Government report in brackets.
*[2] Exceedances of the NO_2 1-hour mean (200ugm^{-3}) not to be exceeded more than 18 times/year.
*[3] Exceedances of the PM_{10} 1-hour mean (50ugm^{-3}) not to be exceeded more than 7 times/year.

No exceedance of any of the air quality objectives have been recorded at the Wellington Road continuous air quality monitoring station since 2016. Annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ have progressively reduced over the last 6 years and have been substantially below the air quality objectives since 2020. The 1-hour NO_2 objective of 200ugm^{-3} (not to be exceeded more than 18 times per year) and the 24-hour PM_{10} objective of 50ugm^{-3} (not to be exceeded more than 7 times a year) have not been exceeded on any occasion during the period 2015-2023.

5.2 Non-Automatic Monitoring Results and Interpretation

Annual Mean NO concentrations from the diffusion tube monitoring are shown in Table 5.

Table 5: Annual Mean Diffusion Tube Concentrations Wellington Road AQMA

Site ID	2015	2016	2017	2018	2019	2020	2021	2022	2023
DT7	38	38	33	32	31	22	23	21	20.4
DT36	**47**	**46**	**41**	**43**	39	29	30	29	28.3
DT37	30	30	24	24	23	22	17	15	n/a

Exceedances of the annual mean objective for NO_2 of 40ugm^{-3} are shown in bold.

No exceedances of the annual mean NO_2 objective at any of the diffusion tubes sites has been recorded since 2018. Concentrations of NO_2 have steadily reduced and have been lower than 30ugm^{-3} at all monitoring sites since 2020.

5.3 Trends in Monitoring Data

Trends in annual mean NO_2 concentrations at the Wellington Road continuation monitoring station and diffusion tube locations are shown in are shown in Figure.3. Trends in the annual mean PM_{10} and $PM_{2.5}$ concentrations are shown in Figure 4.

Figure 2: Annual mean NO_2 concentration Wellington Road Monitoring Station and Diffusion Tubes

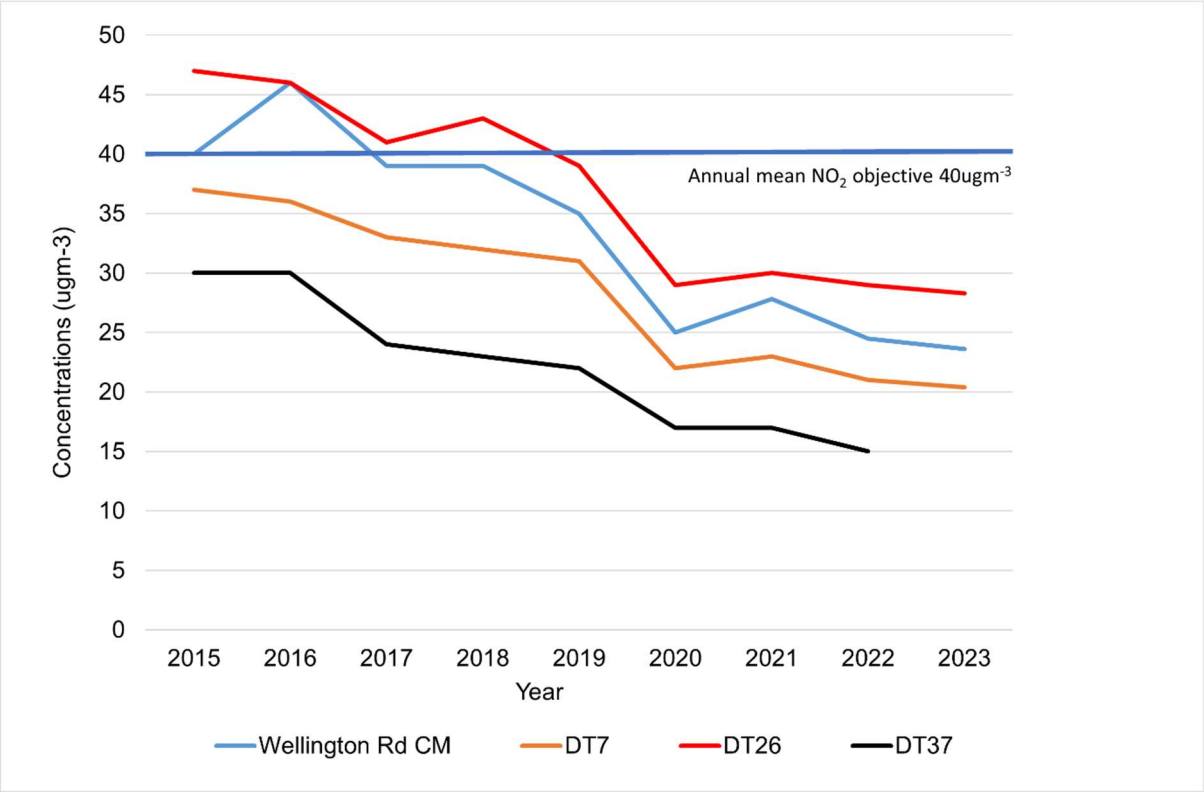
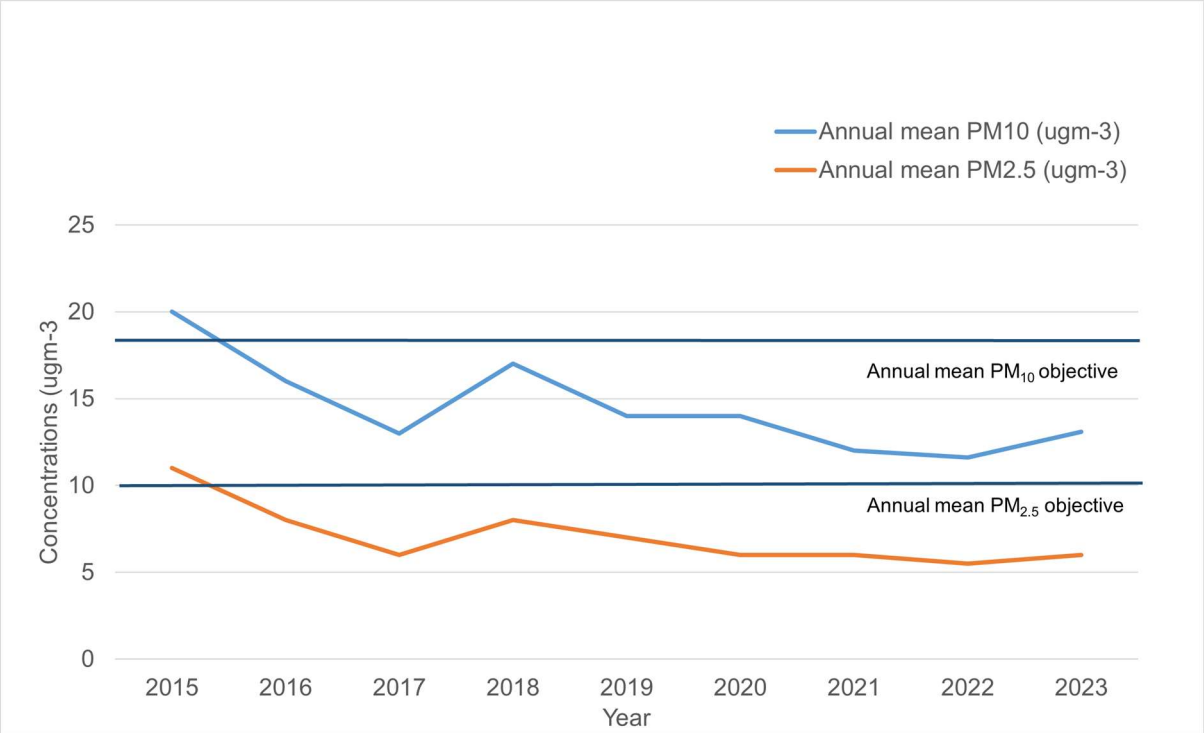


Figure 3: Annual Mean PM_{10} and $PM_{2.5}$ Concentrations Wellington Road Monitoring Station



Data from the last 9 years shows a progressive decreased in annual mean NO_2. PM_{10} and $PM_{2.5}$ concentrations similarly decreased over the period 2015-2020, although concentrations increased slightly between 2022-2023. This may in part due to a return to pre-covid traffic flows flowing the pandemic. Vehicle exhaust emissions account for significantly less of total measured PM_{10} and $PM_{2.5}$ compared to NO_2, hence continued substantial reductions in exhaust emissions are likely to be less evident.

5.4 City Centre LEZ and City Centre Vehicle Access Restrictions

A City Centre Low Emission Zone (LEZ) was introduced in June 2024 preventing the most polluting vehicles from entering the restricted areas. The following significant vehicle access restrictions in the City Centre were introduced in 2022 and 2023 which also had the potential to generate additional traffic in the wider area around the city centre.

- Bus gates in June 2022 introduced on the central section of Union Street/Market Street (between the junction with Hadden Street and the Adelphi), and
- Vehicle access restrictions introduced in August 2023 on Market Street (north of Guild Street), Guild Street (east of Wapping Street) and Bridge Street

The purpose of these restrictions was to minimise the amount of traffic in parts of the city centre and prevent general traffic from using the streets as a through route thereby supporting a more reliable and efficient bus service.

Modelling and traffic surveys were carried out by the Scottish Environmental Protection Agency (SEPA) and Transport Scotland in 2023 as part of the LEZ study and used to undertake a road traffic source apportionment exercise. Small and localised increases in NO_2 concentrations were predicted in some areas. Traffic unable to enter the City Centre due to the access restrictions or the LEZ were not predicted to divert onto Wellington Road. The LEZ and vehicle access restrictions will therefore have minimal impact on the Wellington Road AQMA.

6. Future Actions to be Retained for the AQMA

6.1 Measures to be Continued to Ensure Future Air Quality Compliance

The monitoring of NO_2, PM_{10} and $PM_{2.5}$ at the Wellington Road continuous monitoring station and NO_2 diffusion tube location will be retained to ensure continued compliance with the objectives within the AQMA. The modelling will also indicate if the trend of increasingly improved air quality is maintained.

A Draft Area Quality Action Plan (AQAP) was developed in 2023 to replace the 2011 Action Plan. The draft Plan was issued for stakeholder consultation in November 2003 as an appendix within the Council's draft revised Transport Strategy (2023-2030). The proposed new AQAP describes the actions the Council will implement to continue to improve air quality within the City's 3 AQMA. It is anticipated the refreshed Transport Strategy and new AQAP will be submitted for council approval and adoption in late 2023/early 2025. Progress in implementing the AQAP will be reported in the authority's Annual Progress Reports. The key priorities within the draft 2023 AQAP that will contribute to further air quality improvements in the Wellington Road AQMA are:

- Ongoing development and delivery of transport corridor improvement strategies: and
- Ongoing strategic and city-wide infrastructure and behaviour-change measures to promote and encourage more walking and cycling, more public transport use and further adoption of alternative fuel vehicles, in preference to continued use of fossil fuel (particularly diesel) vehicles.

Compliance with the national air quality objectives was achieved at all monitoring locations within the 3 AQMA for the first time in 2023. It is anticipated that, through the implementation of the city centre LEZ and the action within the 2023 draft AQAP, compliance with the objectives will be achieved at all locations in future years. Should this be case the Council will look towards the replacement of the AQAP with an Air Quality Strategy that will support the implementation of measures to improve air quality across the city.

7. Conclusions and Recommendations

The air quality objectives for NO_2, PM_{10} and $PM_{2.5}$ have been met at the Wellington Road continuous monitoring station since 2017. Diffusion tubes at roadside locations along the route have not exceeded the annual mean NO_2 objective since 2019 and all sites recorded concentrations well below the objective in the period 2020-2023. Modelling undertaken by SEPA as part of the city centre LEZ appraisal work did not predict any likelihood of exceedance of the objectives with the LEZ and other recently adopted city centre vehicle access restrictions operational. Revocation of the Wellington Road AQMA is therefore proposed.

The Council will continue to implement measures within the 2023 draft air quality action plan and draft refreshed Transport Strategy to further improve air quality both in the 3 AQMAs and the wider area. Monitoring of NO_2, PM_{10} and $PM_{2.5}$ will continue across the AQMA to ensure continued compliance with the objectives and that air quality continues to improve. The replacement of the Air Quality Action Plan with an Air Quality Strategy to support improvement in air quality across the city will also be considered.

8. 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
CCMP	City Centre Masterplan
LAQM	Local Air Quality Management
LEZ	Low Emission Zone
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
SEPA	Scottish Environmental Protection Agency

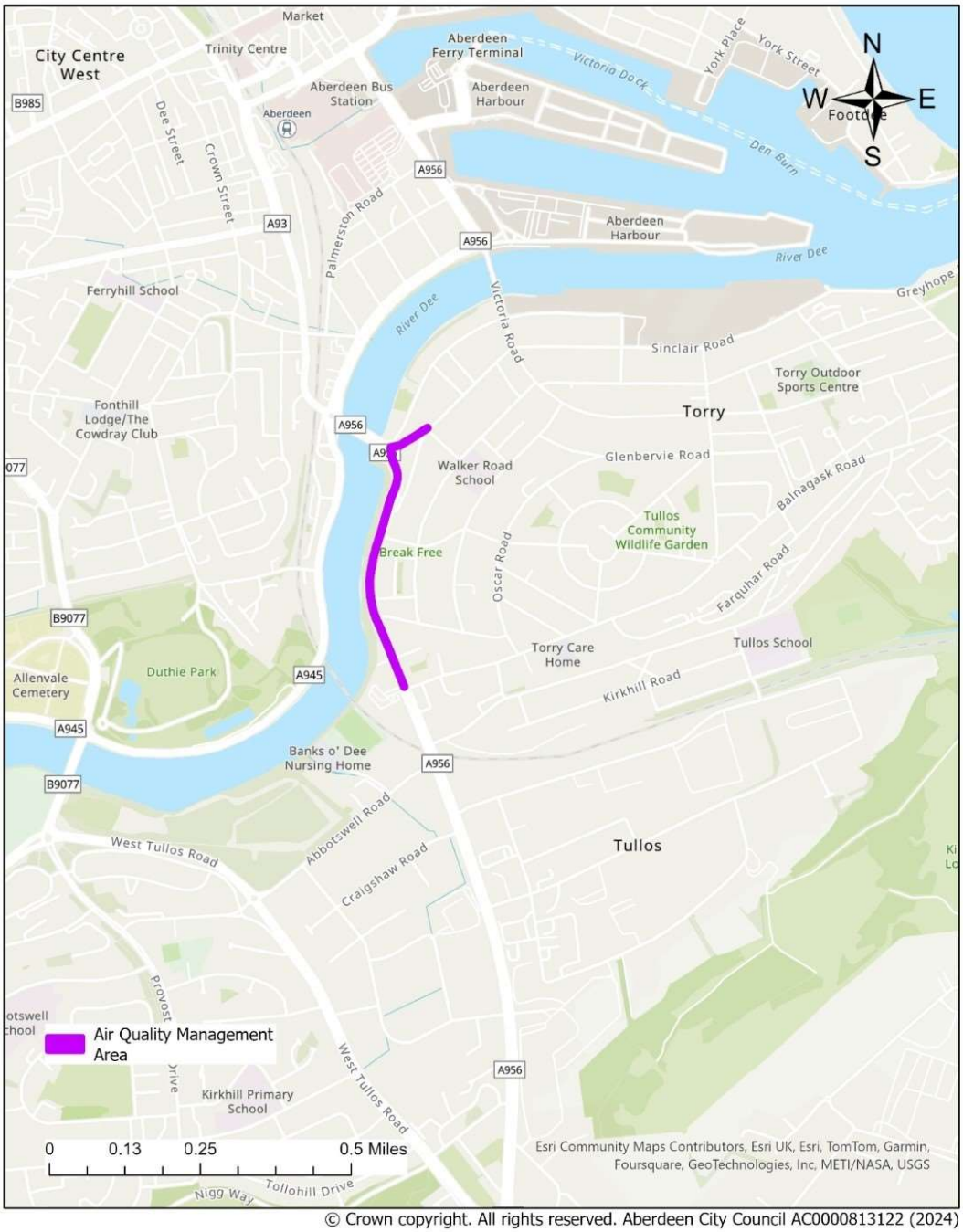
9. References

1. Environment Act 1995
2. The Air Quality (Scotland) Regulations 2000
3. The Air Quality (Scotland) Amendment Regulations 2001 and 2016
4. Local Air Quality Management Technical Guidance LAQM (TG22), DEFRA, August 2022
5. Local Air Quality Management Policy Guidance, (PG(S) (24), the Scottish Government, May 2024
6. Aberdeen City Council Action Plan, March 2011
7. Aberdeen City Council Draft Air Quality Action Plan, August 2023
8. Draft Aberdeen Local Transport Strategy (2023-2030)
9. Aberdeen City Council Progress Report, June 2024
10. Low Emission Zone Evidence Report, October 2021 and Addendum Report, January 2022, SEPA

10. Appendices

Appendix 1 – Wellington Road Air Quality Management Area

Wellington Road Air Quality Management Area



Appendix 2 – Wellington Road AQMA Monitoring Locations

Wellington Road AQMA Monitoring Locations