2024 Updating Screening Assessment for Antrim and Newtownabbey Borough Council

In fulfilment of

Environment (Northern Ireland) Order 2002

Local Air Quality Management

Date: June 2024

	Antrim and Newtownabbey Borough Council Details
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Executive Summary

This report follows Guidance LAQM.TG(22) issued by DEFRA and intends to identify any significant changes that have occurred since the previous stage of Review and Assessment which may have the potential to affect the localised air quality.

The findings of this assessment would indicate the following:

AQMA 3, Antrim Road, Elmfield

Results of Automatic Monitoring for nitrogen dioxide showed an annual mean concentration of 32 µg/ m^3. Results of diffusion tube monitoring on the façade of the relevant locations within the AQMA were below the annual mean objective.

Antrim and Newtownabbey Borough Council will continue to monitor and implement Action Plan measures in this AQMA.

All other diffusion tube monitoring results are below the annual mean objective.

This report has not identified any new sources with relevant exposure therefore it is not considered necessary to proceed to a Detailed Assessment based on potential sources.

Antrim and Newtownabbey Borough Council will be submitting its next Progress Report in June 2025. The Air Quality Action Plan Progress Report for 2023 is included in the report.

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1 Introduction

1.1 Description of Local Authority Area

The Borough of Antrim and Newtownabbey covers 274 sq miles from the shores of Lough Neagh in the west to the shores of Belfast Lough in the east and from its northern boundary with Ballymena, the Glens of Antrim and the Port of Larne to its southern borders with Belfast and Lisburn.

Antrim and Newtownabbey Borough Council has a population of 138,000 with 3,730 business and 212,000 annual visitors. Over five million people arrive or depart every year through Northern Ireland's busiest gateway, Belfast International Airport.

Two of Northern Ireland's most popular and modern retails outlets, Junction One and Abbey Centre, attract shoppers from far and wide.

Two higher education facilities, CAFRE Agricultural College at Greenmount Campus in Antrim and Northern Regional College cater for 20,000 students. Two hospitals, Antrim Area and Whiteabbey are within its boundaries.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedances are considered likely, the local authority must then 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.

The aim of this Updating and Screening Assessment is to identify any matters that have changed which may lead to a risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify

significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

If an Updating and Screening Assessment has not been submitted in accordance with the dates set in the DEFRA Local Air Quality Management Technical Guidance (currently LAQM TG22), DAERA will be unable to pay staff costs offered under the conditions of the LAQM Grant.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in Northern Ireland are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This 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 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in Northern Ireland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be achieved by
Benzene	16.25μg/m^3	Running annual mean	31.12.2003
	3.25μg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25μg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5μg/m^3	Annual mean	31.12.2004
	0.25μg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200μg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40μg/m^3	Annual mean	31.12.2005

Particles (PM_{10}) (gravimetric)	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Newtownabbey Borough Council:

Report Type	**Date**	**Exceedances**	**AQMA's Declared/Revoked**
Stage 1 Review and Assessment of Air Quality	Mar 2001	None	No
Stage 2/3 Review and Assessment of Air Quality	Aug 2004	Yes PM10	PM10 for Ballyclare Declared
Stage 3 Domestic Fuel Combustion (PM10) Stage 4 Air Quality Review and Assessment PM10	Aug 2004	Yes	
Declaration of AQMA for PM10 Ballyclare	Oct 2004		
Progress Report	Apr 2005	None	

Updating and Screening Assessment	May 2006	None	PM10 Ballyclare Revoked
Revocation of AQMA for PM10	Nov 2006		
Air Quality Progress Report	Aug 2007	Yes Nitrogen Dioxide	3 Declared for: • Ballyclare • Antrim Road, Elmfield • Sandyknowes
Declaration of 3 Air Quality Management Areas for Nitrogen Dioxide	Jan 2008		
Air Quality Progress Report	Aug 2008	Yes Nitrogen Dioxide	
Air Quality Detailed Assessment Nitrogen Dioxide	Apr 2009		
Amendment of AQMA, Antrim Road, Elmfield	Jun 2009		
Updating & Screening Assessment	Aug 2009	1. Exceedances of annual mean and 1 hour objective at Antrim Road, Elmfield; 2. No exceedances at Ballyclare or Sandyknowes	
Progress Report	Sep 2010	1. Exceedances of annual mean and 1 hour objective at	

		Antrim Road, Elmfield; 2. No exceedances at Ballyclare or Sandyknowes	
Action Plan for Antrim Road, Elmfield	Mar 2011		
Progress Report	Jun 2011	1. Exceedances of annual mean and 1 hour objective at Antrim Road, Elmfield; 2. No exceedances at Ballyclare or Sandyknowes	
Updating and Screening Assessment	April 2012	1. Exceedances of annual mean and 1 hour objective at Antrim Road, Elmfield; 2. No exceedances at Ballyclare or Sandyknowes. Revocation of both AQMAs.	
Action Plan Progress Report	October 2012		
Progress Report	Dec 2013	Exceedances of annual mean at Antrim Road, Elmfield	
Progress Report	Sept 2014	No Exceedances of annual mean at Antrim Road, Elmfield	

Antrim Borough Council:

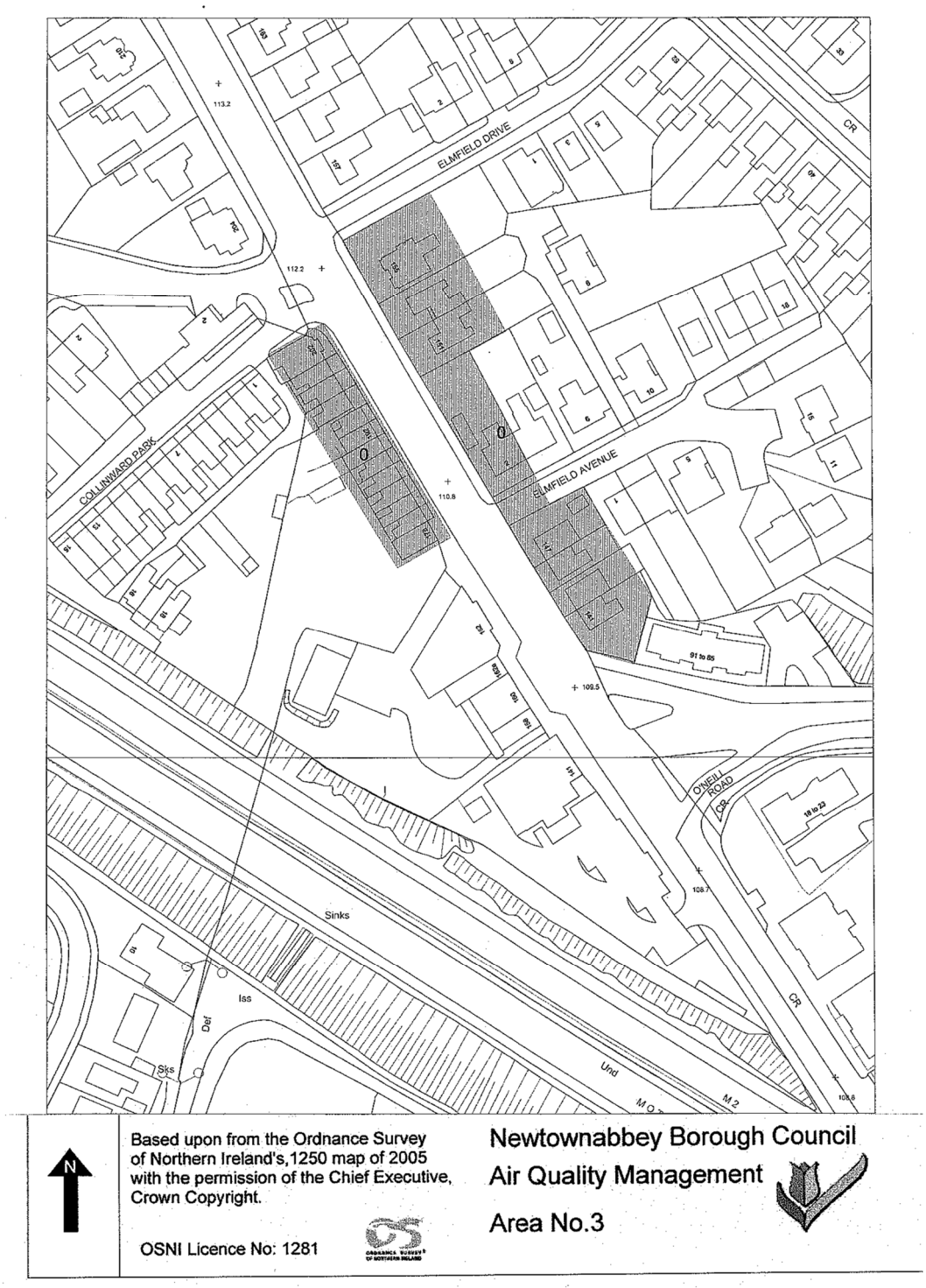
Year	Report	Outcomes
2001	1st Stage Review & Assessment	2nd/3rd Stage Assessments required for Nitrogen Dioxide, Sulphur Dioxide & Particulates (PM_{10}).
2004	2nd/3rd Stage Review & Assessment	AQMA required for domestic sulphur dioxide emissions. (Declared Oct 2004)
2005	Progress Report	Confirmed no change to local circumstances
2005	Detailed Assessment	Confirmed need for AQMA
2006	Updating & Screening Assessment	Identified need for Action Plan for AQMA. Identified need for No_2 monitoring near Belfast International Airport.
2007	Progress Report	No significant changes found
2008	Progress Report	No significant changes found
2009	Updating & Screening Assessment	No requirement for detailed assessment.
2010	Progress Report (Incorporating AQMA Action Plan Progress Report)	Report determined AQMA could be revoked. SO_2 real time analyser could be decommissioned.

2011	Progress Report	AQMA revocation came into effect on 31 January 2011. No significant changes found.
2012	Updating & Screening Assessment	No requirement for detailed assessment.
2013	Progress Report	No significant changes found
2014	Progress Report	No significant changes found

Antrim and Newtownabbey Borough Council:

Year	Report	Outcomes
2015	Updating & Screening Assessment	No requirement for detailed assessment.
2016	Progress Report	No requirement for detailed assessment.
2017	Progress Report	No requirement for detailed assessment.
2018	Updating & Screening Assessment	No requirement for detailed assessment.
2019	Progress Report	No requirement for detailed assessment.
2020	Progress Report	No requirement for detailed assessment
2021	Updating & Screening Assessment	No requirement for detailed assessment
2022	Progress Report	No requirement for detailed assessment
2023	Progress Report	No requirement for detailed assessment

Figure 1.1 Map(s) of AQMA Boundaries



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Antrim and Newtownabbey Borough Council has one automatic monitoring station located at Antrim Road, Elmfield. The details of the automatic continuous monitoring station is included in **Table 2.1** and the map is included in **Appendix C**.

Antrim Road, Elmfield

This monitor has been located here since January 2008. In January 2010 on advice from Review and Assessment Helpdesk we moved the sample inlet to 1m from the façade of the relevant location.

Routine calibrations are completed every 6 weeks on the automatic monitoring station by Environmental Health Officers. Site audits are carried out annually by AQDM.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road (m) *(N/A if not applicable)*	Does this location represent worst-case exposure?
Antrim Road, Elmfield	Roadside	332305	381697	NO_2	Y	-	Y (1m)	3m	Y

2.1.2 Non-Automatic Monitoring Sites

Antrim and Newtownabbey Borough Council operated a network of 8 nitrogen dioxide diffusion tubes in 2023.

The diffusion tubes are exposed for a 4-5 week period and further site specific details on these tube locations are provided in **Table 2.2** with maps in **Appendix C**.

The diffusion tube data is presented in **Table 2.5** with exceedances of the 40µg/m3 annual mean NO2 highlighted in bold.

In 2023 the diffusion tubes were analysed by Gradko Services using 20% triethylamine in water.

QA/QC details which include the bias adjustment factors for 2023 is reported in **Appendix A**.

Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring co-located with a Continuous Analyser (Y/N)	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road (m) *(N/A if not applicable)*
Site 8	Braden Heights, Rathcoole	Urban Background	333898	381926	NO_2	N	N	Y (5m)	n/a
Site 46	12 Collinbridge Road	Roadside	332193	381666	NO_2	N	N	Y (located on property)	9m
Site 48	24 Sandyknowes Avenue	Roadside	330631	382729	NO_2	N	N	Y (located on property)	1.7m
Site 49	6 Sandyknowes Gardens	Urban Background	330641	382771	NO_2	N	N	Y (located on property)	5.5m
Site 58	Lamp-post, 198 Antrim Road, Elmfield	Roadside	332305	381697	NO_2	Y	N	Y (3m)	1.7m
Site 60	196 Antrim Road	Roadside	332305	381697	NO_2	Y	N	Y (located on Property	4m
Site 61	196 Antrim Road	Roadside	332305	381697	NO_2	Y	N	Y (located on property)	4m
Site 62	Shore Road, Whiteabbey Village	Urban Background	336044	383084	NO_2	N	N	Y (4.4m)	2.2m

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Table 2.3 provides all nitrogen dioxide continuous monitoring data collected since 2018 and **Table 2.4** compares the results with the 1 hour Mean Objective.

Table 2.3 Results of Automatic Monitoring for Nitrogen Dioxide: Annual Mean NO_2 Monitoring Results (µg/m^3) for Comparison with the Annual Mean Objective

Site ID	Site Type	Within AQMA?	2018* [c]	2019* [c]	2020* [c]	2021* [c]	2022* [c]	2023 [c]
Antrim Rd, Elmfield	Roadside	Y	36	37	29	30	38	32

In **bold**, exceedance of the NO_2 annual mean AQS objective of 40µg/m^3.

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

[c] Means should be "annualised" as per LAQM.TG22, if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Figure 2.1 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Sites

Figure 2.1 shows the Trends in Annual Mean Nitrogen Dioxide Concentrations measured at the Antrim Road, Elmfield monitoring site. In 2010 the sample inlet was moved from the roadside to within 1m of the façade of the relevant location and this resulted in a significant decrease in the concentrations. In October 2021 the sample point was moved back to the inlet cage on the analyser. The annual mean in 2023 is again below the annual average mean objective. This may be due to more modern cars being somewhat less pollutant, whilst increased levels of working from home may lead to fewer vehicles on the road.

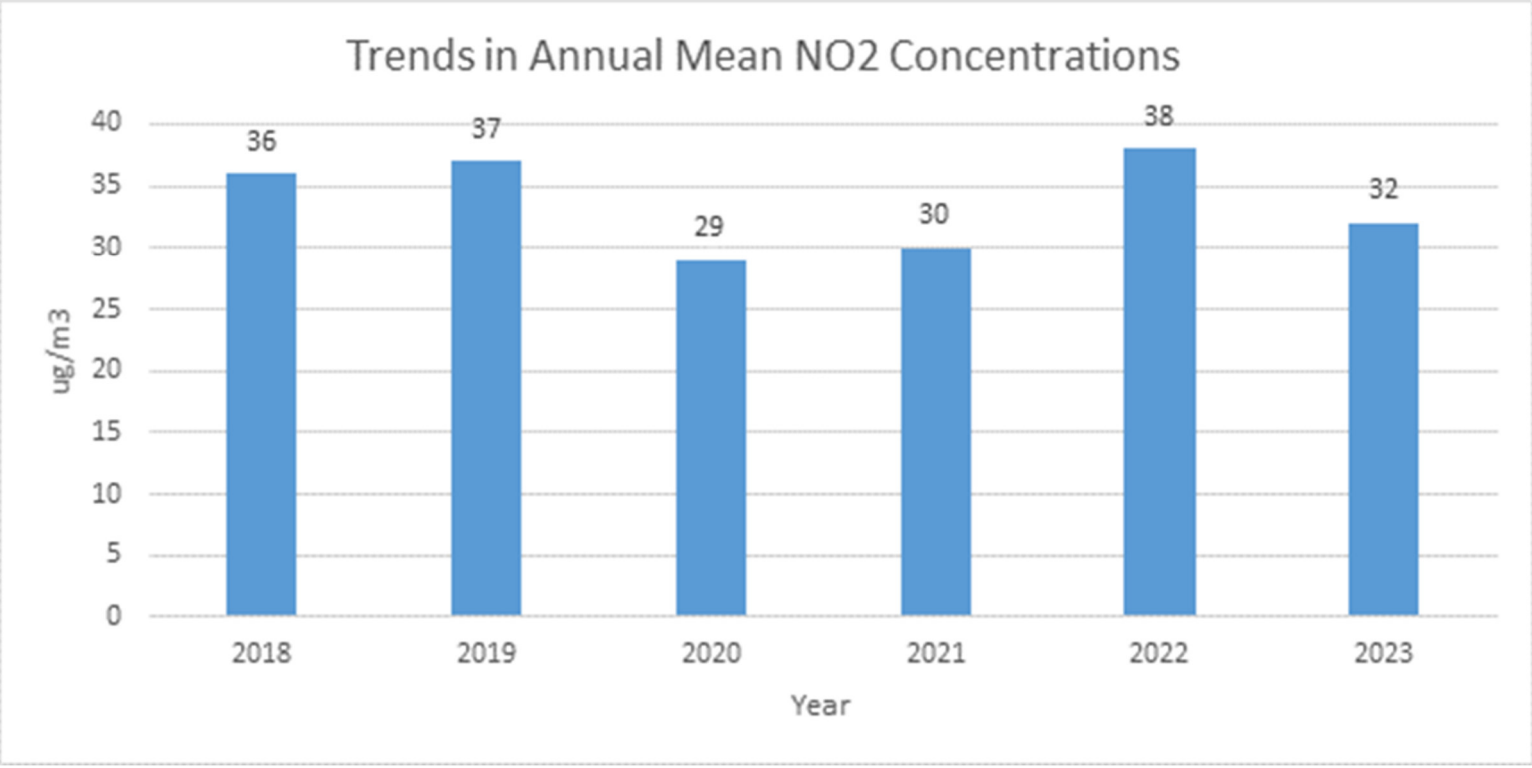


Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Number of Exceedances of 1-hour mean Objective (200µg/m^3)

Site ID	Site Type	Within AQMA? Which AQMA?	2018* [c]	2019* [c]	2020* [c]	2021* [c]	2022* [c]	2023 [c]
Antrim Rd, Elmfield	Roadside	Y	0	0	0	0	0	0

In **bold**, exceedance of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

[c] If the period of valid data is less than 85%, include the 99.8th percentile of hourly means in brackets

* Number of exceedances for previous years are optional.

Diffusion Tube Monitoring Data

Antrim and Newtownabbey Borough Council operated a network of 8 nitrogen dioxide diffusion tubes in 2023. A new diffusion tube was placed in Whiteabbey Village in June 2019.

Table 2.5 provides all diffusion tube data for 2023 with exceedances of the 40 µg/m3 annual mean NO2 highlighted in bold and Table 2.6 provides all diffusion tube data collected since 2018.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2023

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2023 (Number of Months or %) [a]	2023 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.81 [b]
Site 8	Braden Heights, Rathcoole	Urban Background	N		12 months	11.39
Site 46	12 Collinbridge Road	Roadside	N		10 months	25.01
Site 48	24 Sandyknowes Avenue	Roadside	N		12 months	25.93
Site 49	6 Sandyknowes Gardens	Urban Background	N		12 months	19.50
Site 58	Lamp-post, 198 Antrim Road, Elmfield	Roadside	Y		12 months	27.9*
Site 60	196 Antrim Road	Roadside	Y	Co-located with site 61	12 months	26.87
Site 61	196 Antrim Road	Roadside	Y	Co-located with site 60	12 months	26.41
Site 62	Shore Road, Whiteabbey Village	Roadside	N		10 months	17.91

In **bold**, exceedance of the NO_2 annual mean AQS objective of 40µg/m^3.

Underlined, annual mean > 60µg/m^3, indicating a potential exceedance of the NO_2 hourly mean AQS objective.

[a] Means should be "annualised" as per LAQM.TG22, if full calendar year data capture is less than 75%.

[b] If an exceedance is measured at a monitoring site not representative of public exposure, NO_2 concentration at the nearest relevant exposure should be estimated based on the NO_2 fall-off with distance calculator, and results should be discussed in a specific section.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes, adjusted for bias (µg/m^3): 2018 to 2023

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3					
			2018 [a] (Bias Adjustment Factor = 0.93)	2019 [a] (Bias Adjustment Factor = 0.92)	2020 [a] (Bias Adjustment Factor = 0.81)	2021 [a] (Bias Adjustment Factor = 0.84)	2022 [a] (Bias Adjustment Factor = 0.83)	2023 [a] (Bias Adjustment Factor = 0.81)
Site 8 Braden Heights, Rathcoole	Urban Background	N	17.84	15.89	9.86	12.75	12.78	11.39
Site 46 12 Collinbridge Road	Roadside	N	39.40	31.69	19.38	26.78	27.02	25.01
Site 48 24 Sandyknowes Avenue	Roadside	N	37.40	35.12	21.74	27.06	28.03	25.93
Site 49 6 Sandyknowes Gardens	Urban Background	N	28.56	25.24	16.22	21.18	19.49	19.50
Site 58 Lamp-post, 198 Antrim Road ,Elmfield	Roadside	Y	37.2*	31.8*	21.2*	26.3*	29.3*	27.9*
Site 60 196 Antrim Road	Roadside	Y	37.71	33.55	21.93	29.4	30.49	26.87

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m³					
			2018 [a] **(Bias Adjustment Factor = 0.93)**	**2019** [a] **(Bias Adjustment Factor = 0.92)**	**2020** [a] **(Bias Adjustment Factor = 0.81)**	**2021** [a] **(Bias Adjustment Factor = 0.84)**	**2022** [a] **(Bias Adjustment Factor = 0.83)**	**2023** [a] **(Bias Adjustment Factor = 0.81)**
Site 61 196 Antrim Rd	Roadside	Y	37.15	34.44	22.49	29.00	30.23	26.41
Site 62 Shore Road, Whiteabbey Village	Urban Background	N	-	-	15.75	18.24	18.20	17.91

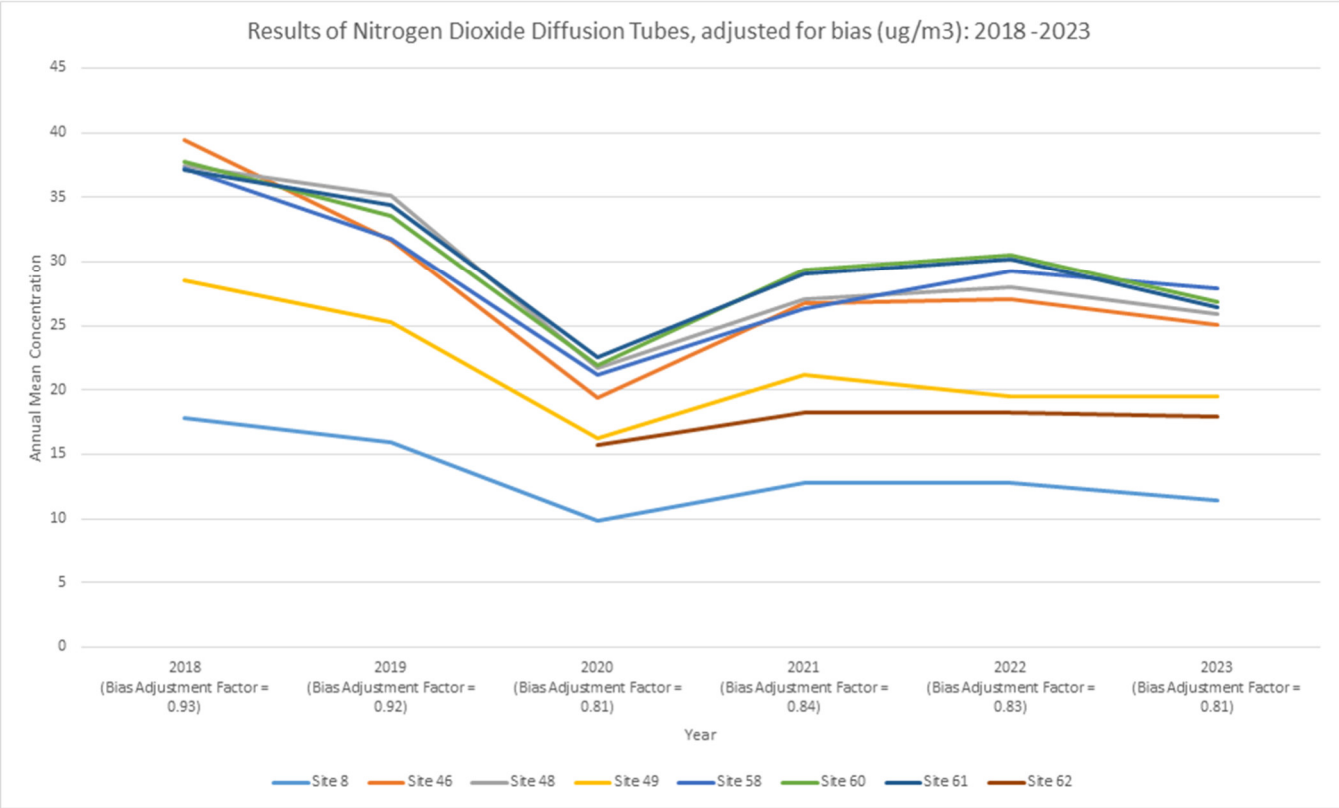
In **bold**, exceedance of the NO_2 annual mean AQS objective of 40μg/m³.

Underlined, annual mean > 60μg/m³, indicating a potential exceedance of the NO_2 hourly mean AQS objective.

[a] Means should be "annualised" as per LAQM.TG22, if full calendar year data capture is less than 75%.

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

Figure 2.2 shows the Trends in Annual Mean Nitrogen Dioxide Concentrations measured at each diffusion tube monitoring site since 2018. In 2020 an additional diffusion tube was placed in Whiteabbey Village. Since 2018 concentrations have gradually reduced at each site. 2020 showed an increased reduction which can be explained by the Covid-19 Lockdown. Concentrations in 2023 have returned to pre Lockdown levels. The annual mean in 2023 for each site is again below the annual average mean objective. This may be due to more modern cars being somewhat less pollutant, whilst increased levels of working from home may lead to fewer vehicles on the road.



2.2.2 Particulate Matter (PM_{10})

Antrim and Newtownabbey Borough Council does not carry out PM_{10} monitoring.

2.2.3 Sulphur Dioxide

Antrim and Newtownabbey Borough Council does not carry out SO2 monitoring.

2.2.4 Benzene

Antrim and Newtownabbey does not carry out any Benzene monitoring

2.2.5 Other pollutants monitored

There were no other pollutants monitored.

2.2.6 Summary of Compliance with AQS Objectives

Antrim and Newtownabbey Borough Council has examined the results from monitoring in the Borough. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1 hour or More Close to Traffic

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Antrim and Newtownabbey Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Antrim and Newtownabbey Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Antrim and Newtownabbey Borough Council confirms that there are no new/newly identified airports in the Local Authority area. In 2023, 5,957,055 passengers passed though the airport, compared to 4,818,214 in 2022. In addition, the airport handled 22,280 tonnes of freight. If it is assumed that all freight arrives in “freight-only” then using the method given in the technical guidance this is equivalent to a further 0.223 mppa which is well under the 10 million passengers per annum threshold for relevant exposure.

4.2 Railways (Diesel and Stream Trains)

4.2.1 Stationary Trains

Antrim and Newtownabbey Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Antrim and Newtownabbey Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports

Antrim and Newtownabbey Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

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

Antrim and Newtownabbey Borough Council has assessed new and proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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

Antrim and Newtownabbey Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Antrim and Newtownabbey Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Antrim and Newtownabbey Borough Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Antrim and Newtownabbey Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Antrim and Newtownabbey currently have one application in for a biomass combustion plant in the Local Authority area. This will be considered during our next Progress report.

6.2 Biomass Combustion – Combined Impacts

Antrim and Newtownabbey Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid Fuel Burning

Antrim and Newtownabbey Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Antrim and Newtownabbey Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Results of the Automatic Monitor, whose inlet is 1m from the façade of the relevant location, for nitrogen dioxide in 2023 showed an annual mean concentration of 32µg/m3.

All diffusion tubes within this AQMA were below the annual mean objective.

Diffusion tube 58 is located on a lamp post adjacent to the road, within 3m from the relevant location, had an annual mean concentration of 27.9µg/m3.

Diffusion tubes 60 and 61 are located on the façade of the relevant location and they showed annual mean concentrations of 26.87 and 26.41 µg/m3 respectively.

Antrim and Newtownabbey Borough Council will continue to carry out monitoring in 2023/2024.

8.2 Conclusions from Assessment of Sources

No new sources with relevant exposure have been identified through this Update and Screening Assessment. It is therefore not considered necessary to proceed to a ‘Detailed Assessment’ based on potential sources.

8.3 Proposed Actions

- Continue monitoring and implement Action Plan Measures
- Submit Progress Report in 2025

9 References

Defra (2022) Part IV of the Environment Act 1995 as amended by the Environment Act 2021 Environment (Northern Ireland) Order 2002 Part III Local Air Quality Management Technical Guidance (TG22)

AEA Energy & Environment (2008). Diffusion Tubes for Ambient NO2 Monitoring: A Practical Guide for Laboratories and Users.

https://www.caa.co.uk/data-and-analysis/uk-aviation-market/airports/uk-airport-data/uk-airport-data-2023/annual-2023/ for passenger numbers, freight tonnage at Belfast International Airport

Appendices

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

Appendix B: Location of AQMA

Appendix C: Locations of Monitoring Sites

Appendix D: Monthly Diffusion Tube Results

Appendix E: Air Quality Action Plan Progress Report 2023

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

QA/QC of Diffusion Tube Monitoring

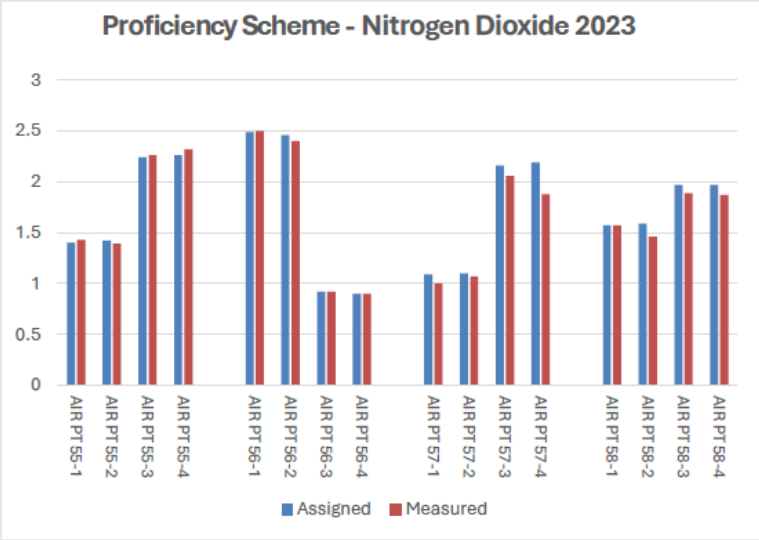
Diffusion tubes were analysed by Gradko Services using 20% triethylamine in water.

Gradko have confirmed that their laboratory complies with the procedures detailed in the DEFRA Harmonisation Practical Guidance and their AIR-PT results for 2023 were satisfactory.

AIR PT Nitrogen Dioxide Proficiency Scheme Results 2023

Methods: GLM 7 – CARY 60 Spectrophotometer

AIR PT Proficiency Scheme - Nitrogen Dioxide 2023					
Date	Round	Assigned value	Procedure GLM 7		
			Measured concentration	z-Score	% Bias
Feb-23	AIR PT 55-1	1.4	1.43	0.29	2.1%
Feb-23	AIR PT 55-2	1.42	1.39	-0.28	-2.1%
Feb-23	AIR PT 55-3	2.24	2.26	0.11	0.9%
Feb-23	AIR PT 55-4	2.26	2.32	0.34	2.7%
Jun-23	AIR PT 56-1	2.49	2.5	0.05	0.4%
Jun-23	AIR PT 56-2	2.46	2.4	-0.33	-2.4%
Jun-23	AIR PT 56-3	0.92	0.92	0	0.0%
Jun-23	AIR PT 56-4	0.9	0.9	0	0.0%
Aug-23	AIR PT 57-1	1.09	1.00	-1.1	-8.3%
Aug-23	AIR PT 57-2	1.10	1.07	-0.36	-2.7%
Aug-23	AIR PT 57-3	2.16	2.06	-0.62	-4.6%
Aug-23	AIR PT 57-4	2.19	1.88	-1.89	-14.2%
Oct-23	AIR PT 58-1	1.57	1.57	0	0.0%
Oct-23	AIR PT 58-2	1.59	1.46	-1.09	-8.2%
Oct-23	AIR PT 58-3	1.97	1.89	-0.54	-4.1%
Oct-23	AIR PT 58-4	1.97	1.87	-0.68	-5.1%



April 2024

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Antrim and Newtownabbey Borough Council recorded data capture of at least 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.

Diffusion Tube Bias Adjustment Factors

Antrim and Newtownabbey Borough Council have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by Antrim and Newtownabbey Borough Council over the past five years is presented in **Table A.1**

In 2023 the diffusion tubes were analysed by Gradko Services using 20% TEA in water.

There are no co-located diffusion tubes at the inlet of the continuous monitor therefore the national bias adjustment factor was used. The laboratory bias correction factor was calculated using the diffusion tube spreadsheet tool. This diffusion tube spreadsheet tool is published by Air Quality Consultants Ltd on behalf of DEFRA, the Welsh Assembly

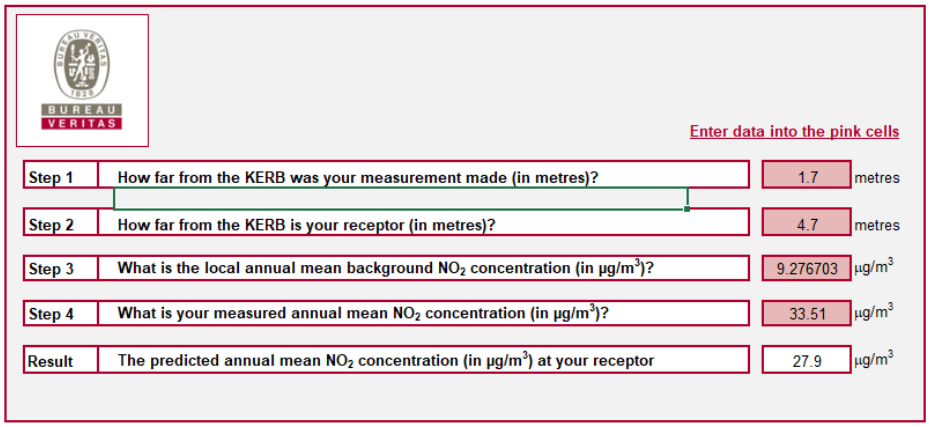
Government, the Scottish Executive and the Department of the Environment Northern Ireland and it is available on the UWE website.

The bias adjustment factor of 0.81 was calculated from 23 studies from Gradko Services for 2023 using the diffusion tube spreadsheet tool, for the diffusion tubes study.

Table A.1 Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.81
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	09/20	0.81
2019	National	06/19	0.92

NO_2 Fall-off with Distance from the Road



QA/QC of Automatic Monitoring

In 2023 Air Quality Data Management for the Automatic Analyser was carried out by Air Quality Data Management (AQDM). The measured data was ratified using the techniques developed for the AURN and AEA Calibration Club as specified in LAQM TG(22). Bi-annual Quality Control audits were carried out by NPL.

Routine calibration of the NOx analyser is undertaken by Antrim and Newtownabbey Borough Council fortnightly, using on-site certified calibration gas cylinders traceable to National Calibration Standards. The data capture was 98.2% in 2023.

The 2023 summary for the Antrim Road, Elmfield monitor is provided below:

Air Quality Report

NEWTOWNABBEY ANTRIM ROAD 2023

Air Quality Statistics

Pollutant	NO_2	NO	NO_X
Number Very High #	0	-	-
Number High #	0	-	-
Number Moderate #	0	-	-
Number Low #	8605	-	-
Maximum 15-min mean	230.6 µg m^{-3}	503.3 µg m^{-3}	970.8 µg m^{-3}
Maximum hourly mean	176.7 µg m^{-3}	359.8 µg m^{-3}	725.4 µg m^{-3}
Maximum running 8-hr mean	144.0 µg m^{-3}	239.7 µg m^{-3}	502.7 µg m^{-3}
Maximum running 24-hr mean	94.4 µg m^{-3}	149.3 µg m^{-3}	307.3 µg m^{-3}
Maximum daily mean	93.5 µg m^{-3}	142.4 µg m^{-3}	298.5 µg m^{-3}
Average	32.1 µg m^{-3}	23.8 µg m^{-3}	68.6 µg m^{-3}
Data capture	98.2 %	98.2 %	98.2 %

Daily Air Quality Index (DAQI) as defined by COMEAP January 2012 and revised April 2013
Mass units for the gases are at 20'C and 1013mb
NO_X mass units are NO_X as NO_2 µg m^{-3}

Air Quality Exceedances

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Max Conc	Number	Days	Allowed	Exceeded
Nitrogen Dioxide	Annual mean > 40 µg m^{-3}	32.1 µg m^{-3}	0	-	-	No
Nitrogen Dioxide	Hourly mean > 200 µg m^{-3}	176.7 µg m^{-3}	0	0	18 hours	No

Air Quality Report
NEWTOWNABBEY ANTRIM ROAD 2023

Monthly Data Captures %

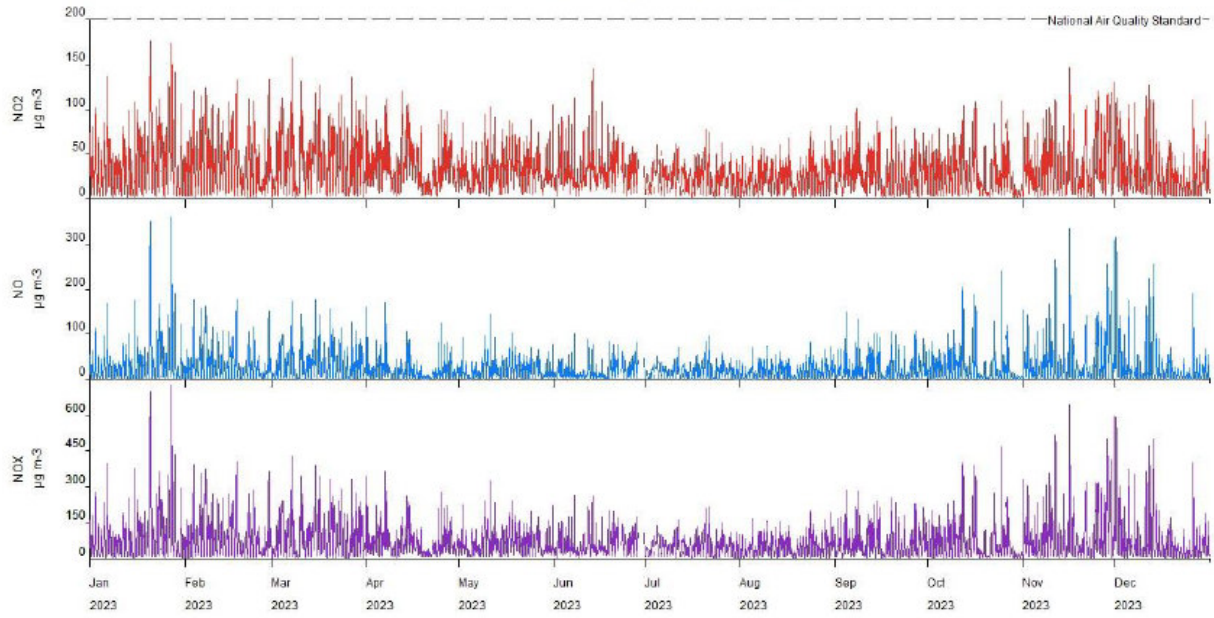
Pollutant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nitrogen Dioxide	99.9	100.0	99.9	99.4	100.0	89.9	91.0	99.6	100.0	99.9	99.7	99.6

Monthly Means

Pollutant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nitrogen Dioxide µg m^{-3}	39.9	37.1	40.4	34.1	32.8	31.7	22.6	24.0	29.2	26.0	36.7	30.0

Air Quality Report
NEWTOWNABBEY ANTRIM ROAD 2023

Hourly Means



NO_2 Fall-off with Distance from the Road

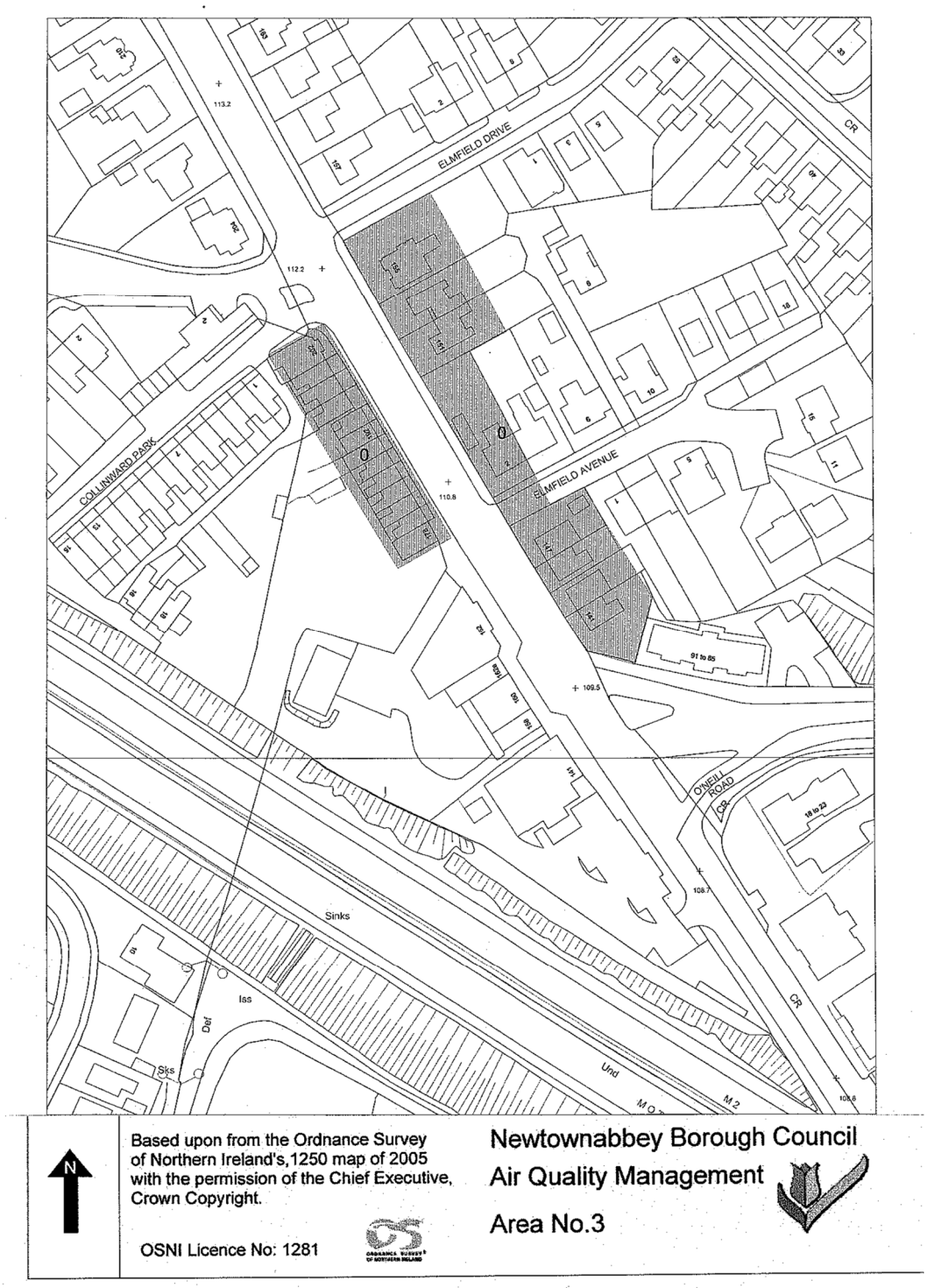
No automatic NO_2 monitoring locations within Antrim and Newtownabbey Borough Council required distance correction during 2023

Table A.2 NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
58	1.7	4.7	33.51	9.276703	27.9	

Appendix B: Location of AQMA

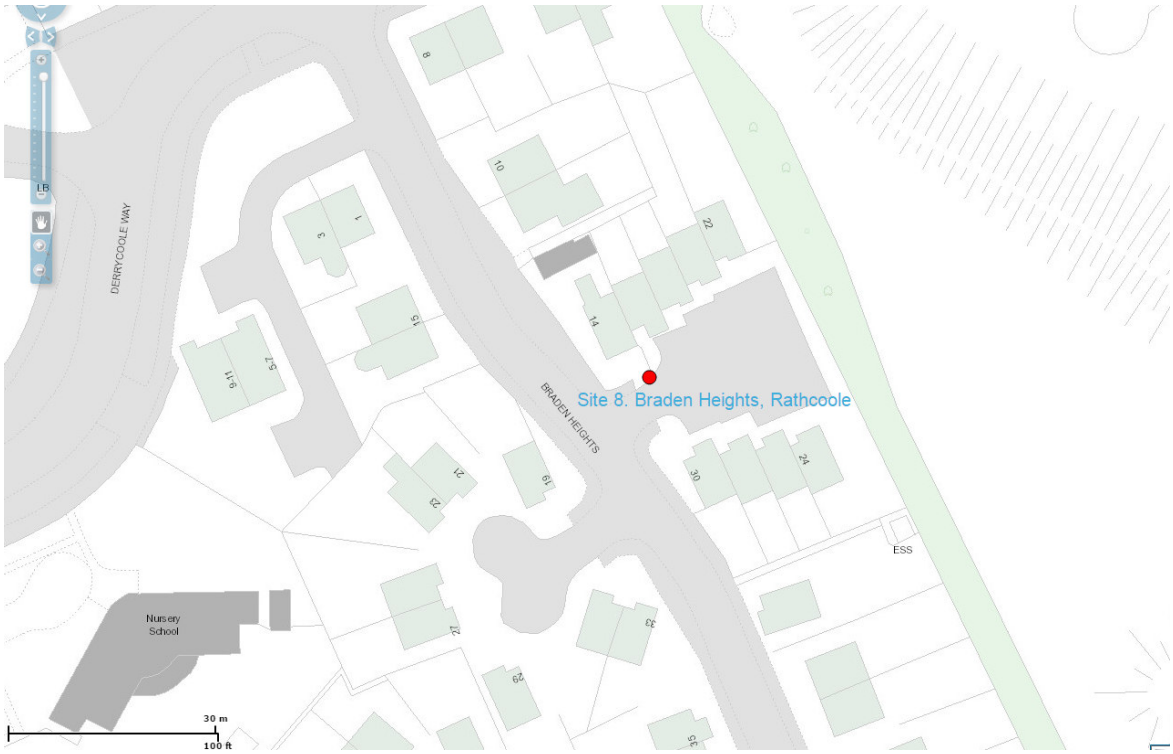
Figure 1-1 AQMA 3 (amended) Antrim Road, Elmfield



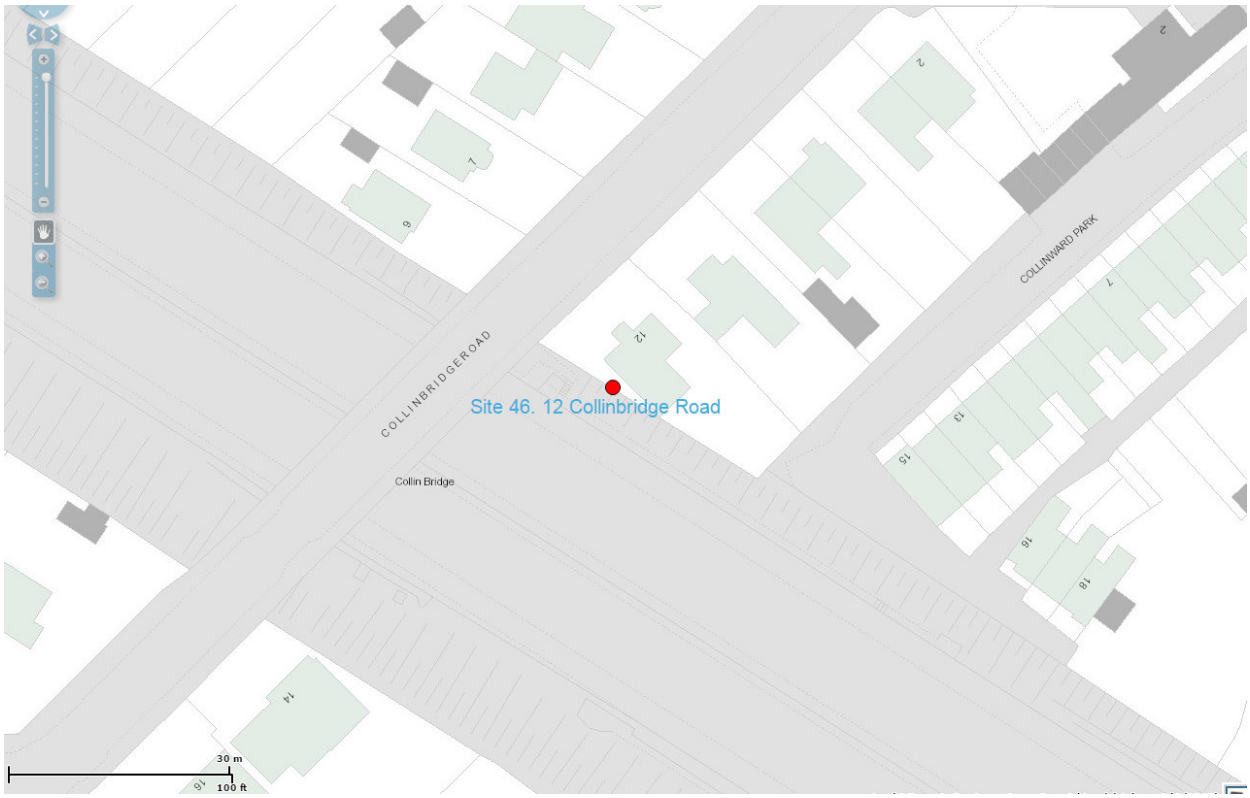
Appendix C: Location of Monitoring Sites

Diffusion Tube sites

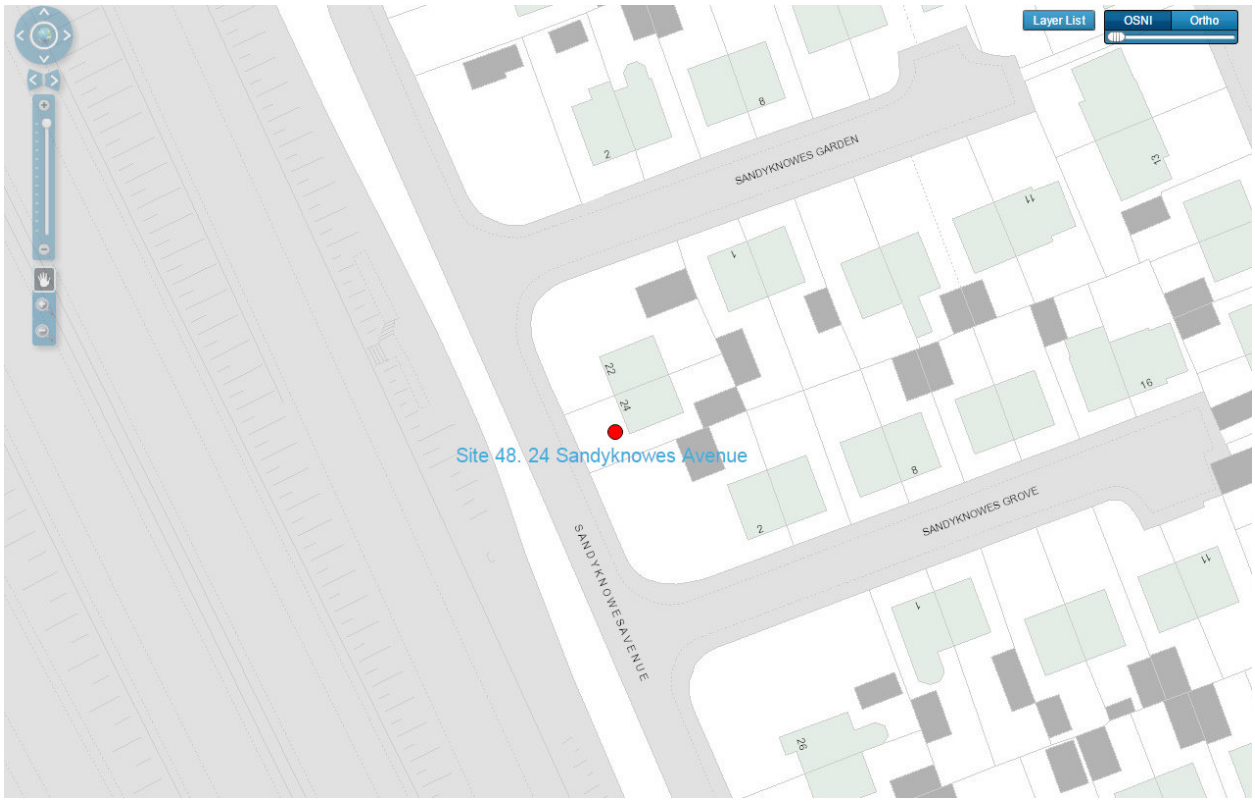
Site 8 - Braden Heights, Rathcoole



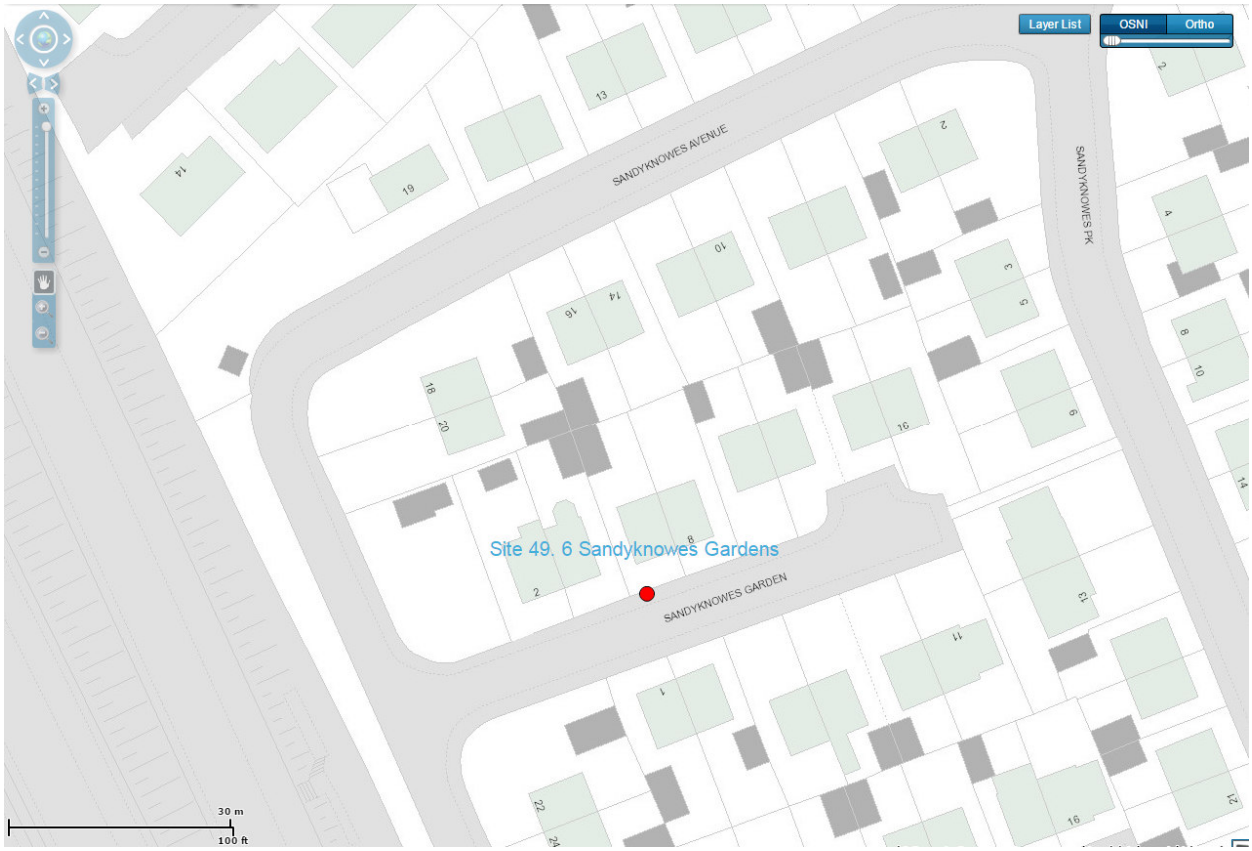
Site 46 - 12 Collinbridge Road



Site 48 - 24 Sandyknowes Avenue



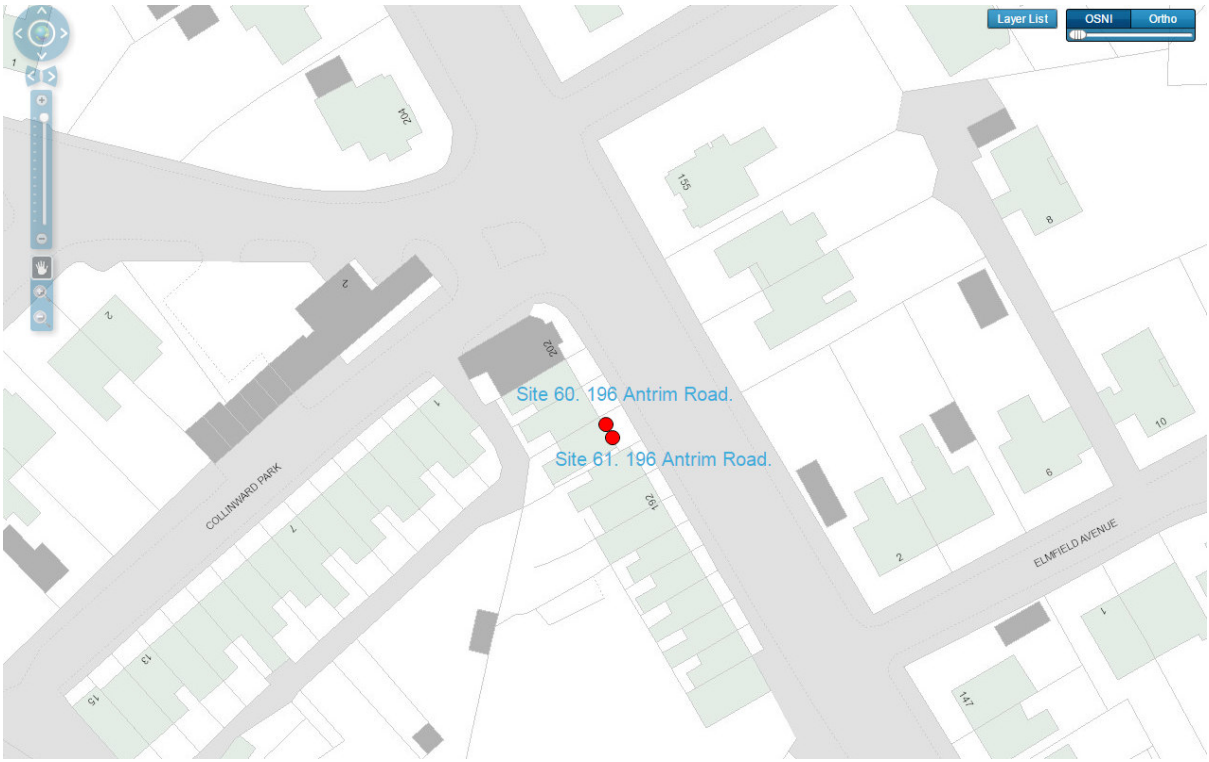
Site 49 - 6 Sandyknowes Gardens



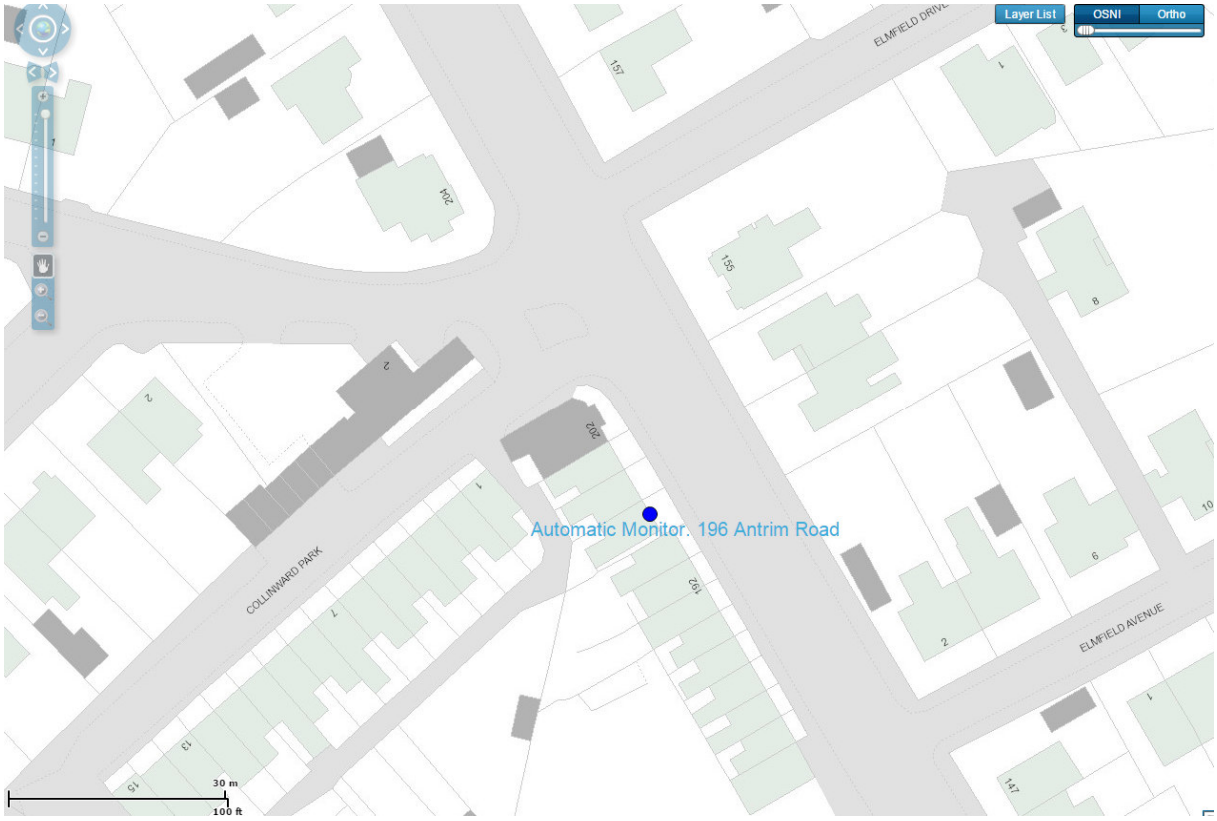
Site 58 - 198 Antrim Road

Site 62 - Whiteabbey Village (commenced June 2019)

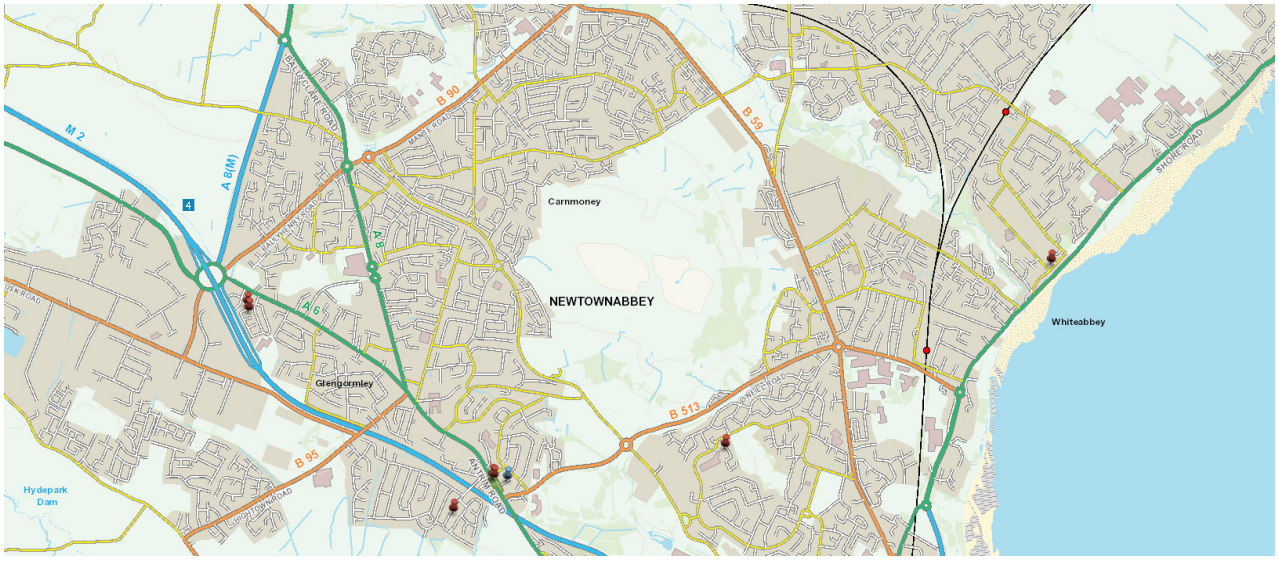
Site 60 and Site 61 -196 Antrim Road



Automatic Monitoring Site -196 Antrim Road



Location of Monitoring Sites (red pin) and the AQMA (blue pin)



Appendix D: Monthly Diffusion Tube Results 2023

Nitrogen Dioxide Diffusion Tubes

Nitrogen Dioxide Concentrations (ug/m3)

	Location	Grid Ref	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Average	Bias Adjustment Factor =0.81
Site 8	Braden Heights, Rathcoole	339819	20.37	17.44	16.90	12.07	10.19	11.58	9.44	10.78	12.92	13.74	20.27	12.97	14.06	11.39
Site 58	Lampost at Antrim, Elmfield Analyser	323817	48.43	46.38	49.42	34.25	38.98	41.66	36.12	34.87	40.72	40.59	47.49	37.57	41.37	27.90
Site 46	12 Collinbridge Road	322817	33.52	31.70	33.84	30.92	-	32.45	26.69	26.73	31.01	28.82	33.13	-	25.73	25.01
Site 48	24 Sandyknowes Avenue	306827	44.80	37.31	31.92	25.43	32.59	26.74	28.67	27.68	30.68	30.16	37.26	30.92	32.01	25.93
Site 49	6 Sandyknowes Gardens	306827	33.30	25.50	24.73	20.33	24.23	20.29	19.83	22.38	24.13	22.76	27.93	23.52	24.08	19.50
Site 60	On downpipe 196 Antrim Rd		40.93	34.30	38.69	28.98	35.01	31.58	28.20	29.51	33.44	30.76	36.75	29.83	33.17	26.87
Site 61	On downpipe 196 Antrim Rd		40.41	35.36	38.46	29.84	34.42	31.81	26.76	27.46	33.61	30.18	34.86	28.04	32.60	26.41
Site 62	On lamppost in Whiteabbey Village		27.02	26.85	24.42	20.37	N/A	N/A	16.82	18.07	19.59	20.43	25.96	21.60	18.43	17.91

Appendix E: Air Quality Action Plan Progress Report 2023

Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1. To investigate options for moving to cleaner fuels and purchase vehicles that comply with the prevailing EURO standard	Reducing the impact of Council fleet vehicles	Antrim and Newtownabbey Borough Council	Completed	Ongoing	Reduction in polluting emissions from Council vehicles	N/A	Council has made the decision to transition all of its compatible fleet vehicles from diesel fuel to HVO	Council continues to actively review vehicle specifications and acquisitions with regard to emission levels and options for transitioning its fleet from diesel powered vehicles to alternative fuel sources. The Council's Fleet Management Strategy 2022 – 2027 sets out a blueprint for the decarbonisation of the fleet. Pilots of alternative fuelled vehicles continue to be explored in order to assess their potential suitability for implementation into the fleet. Council has also been exploring options for hydrogen fuelled vehicles within the fleet. A Hydrotreated Vegetable Oil (HVO) pilot involving 15 of Councils fleet vehicles was completed and given the positive results attained from this pilot, Council made the decision to transition all of its compatible fleet vehicles from diesel fuel to HVO. This presents an annual reduction of CO2 emissions for Council by 90% (as per manufacturers data) for these vehicles. Council also continues to engage with its drivers in specific training programmes to encourage awareness of the effects of vehicle usages and methods to improve fuel efficiency, etc, in order to assist Council to reduce its carbon footprint and impact on local air quality and the environment.	Ongoing	Potential capital costs and maintenance

<table>
<tr>
<td>2. To continue to improve the bus fleet by providing Eco-Driving Training and installing Driver Monitoring Devices

To continue the current practice of cleaning up the bus fleet as part of the planned fleet renewal</td>
<td>Reducing the impact of Translink buses.</td>
<td>Translink</td>
<td>Completed</td>
<td>Ongoing</td>
<td>Reduction in polluting emissions from Council vehicles</td>
<td>N/A</td>
<td>Passenger carrying fleet: All drivers take part in a standard driver training programme which includes Eco-Driving techniques. 100% of vehicles are fitted with Driver Monitoring Devices and all new vehicles are fitted with these devices as standard.

Other Divisions: All support vehicles (across all divisions) have undergone Eco-Driving training. This is refreshed every 5 years (last window was early 2023). Support vehicles are being fitted with ECO driving systems in an ongoing programme.</td>
<td>Translink continues to deliver it's Net Zero fleet strategy through the introduction of battery and hydrogen fuel cell electric vehicles, with over 250 now in service across Northern Ireland. The Euro VI rating indicates a reduction of at least 67% in NOX emissions over previous engines, cleaner burning and more efficient. The new zero emissions vehicles along with the increased proportion of class-leading Euro VI vehicles and eco-driving techniques deliver substantially reduced impacts on local air quality and the environment.

The strategy states that they want to achieve this responsibly by:
• Achieving at least 50% reduction in current emissions by 2030 in line with our Climate Action Pledge (baseline 2018/19)
• Placing Translink at the forefront in the journey towards zero emission public transportation, and for all our buses, trains and buildings to be Net Zero by 2040.
• Being Climate Positive by 2050, going beyond achieving net zero to create and an environmental benefit by removing additional carbon dioxide from the environment while growing our business.

Below is the latest fleet breakdown for the Antrim and Newtownabbey area, with 2020-21 data included for comparison purposes. There is an ongoing programme of procurement of zero emission and low emission vehicles.

<table>
<tr><th></th><th>2020/21</th><th>2023/24</th></tr>
<tr><td>Fleet</td><td>125</td><td>135</td></tr>
<tr><td>Zero Emissions Vehicle</td><td>0%</td><td>13%</td></tr>
</table>
</td>
<td>Ongoing</td>
<td>Potential capital costs and maintenance</td>
</tr>
</table>

								Euro 6 26% 66% Other 74% 21%		
3. Carry out vehicle emission testing	Consider the provision of free vehicle emissions testing for motorists and supporting information about responsible car ownership, highlight vehicle pollution issues, eco driving and alternatives to the motor car	Antrim and Newtownabbey Borough Council	Completed	Ongoing	Number of vehicles checked	N/A	New emissions equipment has been purchased	Emissions testing carried out	Ongoing	Due to more modern cars on the market, the number of vehicles failing continues to fall.
4. Introduce a Park and Ride Scheme at Ballyhenry Road Introduce a Park and Ride Scheme at Ballynure Introduce a Park and Ride Scheme in New Street/John Street Randalstown	Increased use of public transport	DFI TransportNI	Completed	Ongoing	Number of schemes introduced	N/A	Ballynure and Randalstown Schemes have been completed	Ballyhenry Scheme has approval granted but scheme not going ahead at the present time.	Ongoing	Ballyhenry scheme shelved due to residents concerns
5. Promote sustainable modes of transport to Newtownabbey Borough Council employees, residents/commuters within the AQMA and St Bernard's Primary School	Increase awareness and availability of sustainable transport	Travelwise	Completed	Completed	The number of workplace travel plans	N/A	A number of initiatives implemented	DfI has discontinued the Travelwise NI initiative and no longer provides support for workplace travel plans.	Completed	
6. Develop a Green Travel Plan for borough	Reduce the amount of vehicles on the road	Antrim and Newtownabbey Borough Council	Completed	Ongoing	Production of Green Travel Plan for council employees initially	N/A	Newtownabbey Borough Council's Workplace Travel Plan was launched October 2011 and the action plan is currently being	Staff and Council Members able to avail of Council Bike to Work Scheme all year round. In the period January – December 2023 a total of 0 ANBC employees purchased a new bike through the scheme. • cycle stands have been installed throughout the Borough	Ongoing	

							implemented by ANBC.	• The Council has submitted 6 No. expression of interest forms to DfI – for greenways and active travel routes **<u>Expressions of Interest (Greenways):</u>** Doagh to Larne Greenway: Bqllyclare Town Route- 2 sections of path in construction circa 750 metres, part DfI and part DAERA. DfI have awarded Council c.£280,000 towards this scheme – to be completed by March 2025 Mallusk/Hightown to Gideon's Green Greenway-circa 2 km completed – not fully connected as yet – part DfI and part DAERA. Future funding is to be sought for this. **<u>Expressions of Interest (Active Travel Routes):</u>** Steeple Park: Active Travel Project Global Point: Active Travel Project Supporting Cycling in Glengormley Secure cycle parking for Edmund Rice College Belfast High School Bicycle shelter and repair station DfI has decided not to fund Active Travel Routes for the above sites.		
7. Deliver the 'Air Quality Schools Initiative' to St Bernard's Primary School	Increase awareness amongst young people highlighting the health and environmental problems associated with air pollution	Antrim and Newtownabbey Borough Council	Completed	Completed	Creation of sustainable attitudes to our environment among young people	N/A	Initiative completed	N/A	Completed	
8. Organise an Information Event for residents in the AQMA	Provide the public with air quality information	Antrim and Newtownabbey Borough Council	Completed	Completed	Creation of sustainable attitudes to our environment	N/A	Information Event organised	Information event has been completed.	Completed	
9. Provide information on the Council	Provide the public with air quality information through	Antrim and Newtownabb	Completed	Ongoing	Website updated	N/A	Website has been updated	Website has been updated with relevant information and reports	Ongoing	

Website to encourage people to change their travel behaviour	the Councils web site and links to the Northern Ireland air quality website (www.airqualityni.co.uk)	ey Borough Council								
10. Comment on planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	Use Planning Process to ensure potential air quality issues are assessed. Comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	Antrim and Newtownabbey Borough Council	Completed	Ongoing	Sustainable development which considers environmental as well as socio-economic impact	N/A	Ongoing	554 Planning consultations were considered and responded to by Environmental Health in 2023	Ongoing	