

2021 Updating Screening Assessment for Antrim and Newtownabbey Borough Council

In fulfilment of Environment (Northern Ireland) Order 2002

Local Air Quality Management

Date: June 2021

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Executive Summary

This report follows Guidance LAQM.TG(16) 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 29 μ g/m³. 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 April 2022. The Air Quality Action Plan Progress Report for 2021 is included in Appendix F.

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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.

Three higher education facilities, the University of Ulster at Jordanstown, 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 objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to 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.

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 microgrammes per cubic metre μ g/m³ (milligrammes per cubic metre, mg/m³ 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	/l 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
Benzene	3.25µg/m³	Running annual mean	31.12.2010
1,3-Butadiene	2.25µg/m³	Running annual mean	31.12.2003
Carbon monoxide	10.0mg/m ³	Running 8-hour mean	31.12.2003
Lead	0.5µg/m³	Annual mean	31.12.2004
Lead	0.25µg/m³	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
Nitrogen dioxide	40µg/m ³	Annual mean	31.12.2005
Particles (PM10) (gravimetric)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004

Particles (PM ₁₀) (gravimetric)	40µg/m³	Annual mean	31.12.2004
Sulphur dioxide	350µg/m³, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide	125µg/m³, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide	266µg/m³, 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	 Exceedances f annual mean and 1 hour objective at Antrim Road, Elmfield; No exceedances at Ballyclare or Sandyknowes 	
Action Plan for Antrim Road, Elmfield	Mar 2011		
Progress Report	Jun 2011	 Exceedances f annual mean and 1 hour objective at Antrim Road, Elmfield; No exceedances at Ballyclare or Sandyknowes 	

Updating and Screening Assessment	April 2012	 Exceedances fannual mean and 1 hour objective at Antrim Road, Elmfield; 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	1 st Stage Review & Assessment	2 nd /3 rd Stage Assessments required for Nitrogen Dioxide, Sulphur Dioxide & Particulates (PM ₁₀).
2004	2 nd /3 rd 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. SO2real 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



Figure 1.1 AQMA 3 (amended) Antrim Road

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.

Table 2.1 Details of Automatic Monitoring Sites

Does this location represent worst- case exposure?	٨
Distance to kerb of nearest road	3m
Relevant Exposure?	Y (1m)
Monitoring Technique	
In AQMA?	٨
Pollutants Monitored	NO2
Y OS Grid Ref	381697
X OS Grid Ref	332305
Site Type	Roadside
Site Name	Antrim Road, Elmfield

2.1.2 Non-Automatic Monitoring Sites

Antrim and Newtownabbey Borough Council operated a network of 8 nitrogen dioxide diffusion tubes in 2020. A review of the monitoring sites in the Borough was completed and an additional site in Whiteabbey Village was added

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 2020 the diffusion tubes were analysed by Gradko Services using 20% triethylamine in water.

QA/QC details which include the bias adjustment factors for 2020 is reported in **Appendix A**.

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Table 2.2 Details of Non-Automatic Monitoring Sites

e	Site Type	X & Y OS Grid Ref	Pollutants Monitored	In AQMA?	ls monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)
ghts,	Urban Background	333898 381926	NO2	z	z	Y (5m)	n/a
dge Road	Roadside	332193 381666	NO2	z	z	Y (located on property)	9m
lowes	Roadside	330631 382729	NO2	z	z	Y (located on property)	17m
sewo	Urban Background	330641 382771	NO2	z	z	Y (located on property)	55m
198 Antrim eld	Roadside	332305 381 <i>697</i>	NO2	~	z	Y (3m)	1.7m
Road	Roadside	332305 381697	NO2	Y	z	Y (located on Property	4m
Road	Roadside	332305 381697	NO ₂	Y	Z	Y (located on property)	4m
l, y Village	Urban Background	336044 383084	NO2	Z	z	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 since2016 and **Table 2.4** compares the results with the 1 hour Mean Objective.

Table 2.3 – Results of Automatic Monitoring for Nitrogen Dioxide (2016-2020)

			Valid Data	Annu	ual Mea	n Conce	ntration	μ g/m ³
SITE ID	Site Type	Within AQMA?	Capture 2020 %	2016	2017	2018	2019	2020
Antrim Rd, Elmfield	Roadside	Y	85.5	41	34.91	36	37	29

In bold, exceedance of the NO2 annual mean AQS objective of 40µg/m³

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

Figure 2.3 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. The annual mean in 2020 is again below the annual average mean objective, this will have been impacted by the Covid-19 Pandemic.



Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Number of Exceedances of 1-hour mean Objective (200µg/m³)

Site ID	Site Type	Within	Valid Data Capture	Num	ber of E (2	xceede Meai 200 μg/	ences of H n /m³)	ourly
		AQMA?	2020 %	2016	2017	2018	2019	2020
Antrim Rd, Elmfield	Roadside	Y	85.5	1	0	0	0	0

In **bold**, exceedance of the NO₂ hourly mean AQS objective $(200\mu g/m^3 - not to be exceeded more than 18 times per year$

Diffusion Tube Monitoring Data

Antrim and Newtownabbey Borough Council operated a network of 8 nitrogen dioxide diffusion tubes in 2020. A new diffusion tube was placed in Whiteabbey Village in June 2019.

Table 2.5 provides all diffusion tube data for 2020 with exceedances of the 40 μ g/m3 annual mean NO2 highlighted in bold and Table 2.6 provides all diffusion tube data collected since 2016.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2020

:			Within	Triplicate or Collocated	Data Capture 2020 (Number of Months	Confirm if data has been distance corrected	Annual mean concentration (national Bias Adjustment factor = 0.81
Site ID	Location	Site Type	AQMA?	Tube	or %)	(V/N)	2020 (µg/m³)
Site 8	Braden Heights, Rathcoole	Urban Background	Z		10 months	Z	9.86
Site 46	12 Collinbridge Road	Roadside	Z		10 months	Z	19.38
Site 48	24 Sandyknowes Avenue	Roadside	Z		10 months	Z	21.74
Site 49	6 Sandyknowes Gardens	Urban Background	Z		10 months	Z	16.22
Site 58	Lamp-post, 198 Antrim Road ,EImfield	Roadside	7		10 months	Y	21.2*
Site 60	196 Antrim Road	Roadside	~	Collocated with site 61	10 months	Z	21.93
Site 61	196 Antrim Road	Roadside	~	Collocated with site 60	10 months	Z	22.49
Site 62	Shore Road, Whiteabbey Village	Roadside	z		10 months	Z	15.75

*Distanced corrected calculations in Appendix E

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Factor = 0.81 Adjustment 2020 (Bias 19.38 21.74 16.22 21.93 22.49 21.2* 9.86 Annual mean concentration (adjusted for bias) $\mu g/m^3$ Factor = 0.92Adjustment (Bias 35.12 15.89 31.69 33.55 34.44 2019 25.24 31.8* Factor = 0.93**Adjustment** (Bias 2018 39.40 37.40 37.15 17.84 28.56 37.2* 37.71 Factor = 0.89Adjustment 32.93* (Bias 15.05 35.88 25.93 33.75 2017 36.22 32.81 Factor = 0.92Adjustment 35.33* (Bias 35.45 15.66 34.67 26.55 34.53 33.92 2016 AQMA? Within Ζ Z Z Z ≻ > > Background Background Site Type Roadside Roadside Roadside Roadside Roadside Urban Urban Sandyknowes 196 Antrim Rd Sandyknowes Collinbridge Lamp-post, Site ID Rathcoole 198 Antrim 196 Antrim Gardens Heights, Elmfield Avenue Braden Site 46 Site 58 Site 48 Site 49 Road Site 60 Site 8 Road Site 61 Road 12 24 \$

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes, adjusted for bias (µg/m³): 2016 to 2020

LAQM Progress Report 2020

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				Annual mean con	centration (adjuste	ed for bias) µg/m ³		
			2016	2017	2018	2019	2020 (Bias	
			(Bias	(Bias	(Bias	(Bias	Adjustment	
		Within	Adjustment	Adjustment	Adjustment	Adjustment	Factor = 0.81	
Site ID	Site Type	AQMA?	Factor = 0.92	Factor = 0.89	Factor = 0.93	Factor = 0.92		
Site 62		z					15.75	
Shore Road,								
Whiteabbey								
Village	Background							

Antrim and Newtownabbey Borough Council

In bold, exceeence of the NO $_{\rm 2}$ annual mean AQS objective of 40µg/m 3

*Distance Corrected

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



As can be seen from the chart above, there has been a steady decline in the annual mean nitrogen dioxide concentrations at diffusion tube monitoring sites since 2018.

2.2.2 Particulate Matter (PM₁₀)

Antrim and Newtownabbey Borough Council does not carry out PM₁₀ 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 the duelling of the A6 Randalstown to Toome road is now completed.

Approval has also been granted for the Ballyclare Relief Road.

Antrim and Newtownabbey Borough Council has assessed new/proposed roads meeting the criteria in Table 7.1 of Chapter 7 of LAQM.TG16 and concluded that it will not be necessary to proceed to a Detailed Assessment.

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

The largest airport in Northern Ireland, Belfast International Airport, is located within the Borough. In 2020 passenger numbers carried were 1,747,086. In addition the airport handled a total of 27,946 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 approximately equivalent to a further 279,460 passengers per annum giving a total of around 2,026,546 passengers per annum. This is well under the 10million passengers per annum threshold for relevant exposure.

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

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 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.

5.1.2 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

There are no locations within Antrim and Newtownabbey Borough Council area that have not been considered within previous rounds of review and assessment.

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

AQMA 3, Antrim Road, Elmfield

Results of the Automatic Monitor, whose inlet is 1m from the façade of the relevant location, for nitrogen dioxide in 2020 showed an annual mean concentration of 29μ g/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 21.2μ g/m³. (distance corrected)

Diffusion tubes 60 and 61 are located on the façade of the relevant location and they showed annual mean concentrations of 21.93 and 22.49 μ g/m³ respectively.

Antrim and Newtownabbey Borough Council will continue to monitor at all sites in 2021
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 2022

9 References

Defra (2009) Part IV of the Environment Act 1995. Local Air Quality Management. Technical Guidance LAQM.TG(16).

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

https://en.wikipedia.org/wiki/Belfast_International_Airport#Cargo

Appendices

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Appendices

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2020 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 18 studies from Gradko Services for 2020 using the diffusion tube spreadsheet tool, for the diffusion tubes study.

A	B	C D E F					I.	J	к	L	М		
Nation	nal Diffusion Tub	e Bias Adju	Istment	t Fa	ctor Spreadsheet			Spreadsh	eet Ver	sion Num	ber: 03/21		
Follow the Data only a Whenever This spread	steps below in the correct orc pply to tubes exposed monthly a presenting adjusted data, you sh dhseet will be updated every fev	ler to show the resi nd are not suitable f ould state the adjus v months: the factor	ults of <u>releva</u> for correcting tment factor u s may therefo	individ individ ised a pre be	location studies ual short-term monitoring periods nd the version of the spreadsheet subject to change. This should not dis	scourage the	ir immediate use	e,)	This upda	spreadshe ted at the e 2021	eet will be nd of June		
The LAQM I contract pa	Helpdesk is operated on behalf of E rtners AECOM and the National Ph	Defra and the Devolve ysical Laboratory.	d Administratio	ons by i	Bureau Veritas, in conjunction with	Spreadsh compiled t	eet maintained I by Air Quality C	by the National onsultants Ltd.	Physical	Laborator	y. Original		
	Step 1:	Step 2:	Step 3:			- 20	Step 4:						
Select th Tub	e Laboratory that Analyses Your es from the Drop-Down List	Select a Preparation Method from the	Select a Year from the Drop-	Whe	ere there is only one study for a c caution. Where there is more th	hosen com an one stu the fi	bination. you dy, use the ou nal column.	u should use the adjustment factor shown werall factor [®] shown in blue at the foot of					
lf a laboratory i	rnatzhaun, we have na data far this labaratary.	If a proparation mothod in natrhoun, we have no data or thir mothod at thir laboratory	lf a year ir nat zhaun, we have na data	li	you have your own co-location study th Management Helpdesk	n what to do ther eritas.com or 88	en contact the Local Air Quality 1800 0327953						
	Analysed By	Method Turida sur colorition alour Methylocaethe survey find	Year	Site Typ e	ite yp Local Authority e		Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Monitor Mean Conc. (Cm)	Bias (B)	Tube Precisio n [®]	Adjustm t Facto (A)		
Gradko	7	20% TEA in water	2020	В	Bath & North East Somerset	11	32	29	13.0%	G	0.89		
Gradko		20% TEA in water	2020	B	Gateshead Council	12	22	17	28.1%	G	0.78		
Gradko		20% TEA in water	2020	B	Gateshead Council	12	23	21	11.6%	G	0.90		
Gradko		20% TEA in water	2020	B	Gateshead Council	10	26	25	6.5%	G	0.94		
Gradko		20% TEA in water	2020	B	Gateshead Council	12	28	21	30.5%	G	0.77		
Gradko		20% TEA in water	2020	B	Gateshead Council	12	31	32	-3.4%	G	1.03		
Gradko		20% TEA in water	2020	B	Luton Borough Council	9	38	28	33.8%	G	0.75		
Gradko		20% TEA in water	2020	B	Nottingham City Council	12	31	34	-8.5%	G	1.09		
Gradko		20% TEA in water	2020	B	Dudley MBC	13	33	28	19.9%	G	0.83		
Gradko		20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	0.62		
		20% TEA in water	2020	B Dudley MBC		13	44	30.6% G					
Gradko		20% TEX III water	2020		waaregrowe .					200.0			

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 WASP results for 2020 were satisfactory.

AIR PT Nitrogen Dioxide Proficiency Scheme Results 2020

AIR	PT Proficienc	y Scheme	- Nitrogen Dio	xide 202	0							
		Assigned	Proced	dure GLM	7							
Date	Round	value	Measured concentration	z- Score	% Blas							
Feb-20	AIR PT 36-1	2.06	2.15	0.58	4.4%							
Feb-20	AIR PT 36-2	2.06	2.03	-0.19	-1.5%							
Feb-20	AIR PT 36-3	1.26	1.26	0	0.0%							
Feb-20	AIR PT 36-4	1.21	0.98	- <mark>2.4</mark> 3	-19.0%							
May-20	AIR PT 31-1			77								
May-20	AIR PT 31-2		Proficiency scheme r	not available								
May-20	AIR PT 31-3											
May-20	AIR PT 31-4	<u> </u>										
Aug-20	AIR PT 33-1	12			ļ							
Aug-20	AIR PT 33-2		Proficiency scheme r	not available	2							
Aug-20	AIR PT 33-3		roliciency scheme i									
Aug-20	AIR PT 33-4		r	ř	[
Oct-20	AIR PT 34-1	2.38	1.99	-2.08	-16.4%							
Oct-20	AIR PT 34-2	4-2 2.28 1.93 -1.90 -15.										
Oct-20	AIR PT 34-3	0.87	0.87	0	0.0%							
Oct-20	AIR PT 34-4	0.88	0.88	0.08	0.0%							

Methods: GLM 7 – CARY 60 Spectrophotometer







Sep-20

	Analysed	Prepared	%Bias
1	2.78	2.67	4.1
2	1.43	1.38	3.1
3	2.71	2.67	1.7
4	0.57	0.55	4.3
5	1.43	1.38	3.1
6	0.57	0.55	4.1
7	2.75	2.67	3.1
8	1.43	1.38	3.1
9	0.57	0.55	4.3
10	0.56	0.55	2.3
			Average %bias
	RSD 0.55	0.95	3.33
	RSD 1.38	0.04	
	RSD 2.67	1.15	

QA/QC of Automatic Monitoring

In 2020 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(16). 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 85.5% in 2020 as the NOx Analyser was out of service from 26th August – 14 October 2020 as it stopped functioning and needed replaced with a new analyser

The 2020 summary for the Antrim Road, Elmfield monitor is provided below:



Air Quality Statistics

Pollutant	NO ₂	NO	NOx
Number Very High #	0	-	-
Number High #	0	-	Ξ.
Number Moderate #	0	-	-
Number Low #	7509	-	-
Maximum 15-min mean	170 µg m ⁻³	456 µg m ⁻³	847 µg m ⁻³
Maximum hourly mean	155 µg m ⁻³	395 µg m ⁻³	755 µg m ⁻³
Maximum running 8-hr mean	115 µg m ⁻³	197 µg m ⁻³	408 µg m ⁻³
Maximum running 24-hr mean	92 µg m ⁻³	114 µg m ⁻³	260 µg m ⁻³
Maximum daily mean	81 µg m ⁻³	110 µg m ⁻³	236 µg m ⁻³
Average	29 µg m ⁻³	21 µg m ⁻³	62 µg m ⁻³
Data capture	85.5 %	85.5 %	85.5 %

[#] 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 NOx mass units are NO_X as NO₂ μ g m⁻³

Air Quality Exceedences

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Max Conc	Number	Days	Allowed	Exceeded
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	29 µg m ⁻³	0		-	No
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	155 µg m ⁻³	0	0	18 hours	No



Monthly Data Captures %

Pollutant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nitrogen Dioxide	99.5	99.4	96.8	100.0	100.0	100.0	97.7	<mark>81.2</mark>	0.0	56.5	96.3	98.0

Monthly Means

Pollutant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nitrogen Dioxide µg m-3	38	34	32	19	21	24	24	25	-	32	36	37



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





Appendix D: Monthly Diffusion Tube Results 2020

	Location	Grid Ref	Jan-20	Feb-20	Mar-20 *	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20 /	Average	Bias Adjustment 0.81	
Site 8	Braden Hei	339819	23.52	17.43	9.56			9.32	7.39	11.22	13.29	14.37	19.17	20.81	12.17	9.86	
Site 58	Lampost at	323817	39.14	41.41	26.23			29.50	27.48	33.53	37.56	38.01	43.97	41.61	29.87	24.15	
Site 46	12 Collinbri	322817	34.08	32.42	19.06			27.05	22.75	28.46	28.66	29.17	33.05	32.33	23.92	19.38	
Site 48	24 Sandykn	306827	50.13	39.42	21.69			23.20	27.74	24.32	33.53	34.78	35.40	31.87	26.84	21.74	
Site 49	6 Sandyknc	306827	32.84	26.44	17.78			16.36	19 <u>.</u> 23	18.20	26.97	26.03	28.60	27 73	20.02	16.22	
Site 60	On downpip	e 196 Antrii	41.72	38.75	22.40			26.13	28.21	30.30	36.83	34.94	35.91	29.59	27.07	21.93	
Site 61	On downpip	e 196 Antrii	42.58	37.87	22.90			29.03	27.62	32.10	34.97	33.91	38.40	33.78	27.76	22.49	
Site 62	On lamppost	: in Whiteal	33.4	26.69	13.50			15.55	11.74	17.49	17.82	18.87	30.08	24.56	19.44	15.75	

Appendix E: NO2 Fall off with Distance Calculator Result

Diffusion Tube 58 – Lamp post Antrim Road

B U R E V E R I T	NU A S	Enter data into the pink cells
Step 1	How far from the KERB was your measurement made (in metres)?	1.7 metres
Step 2	How far from the KERB is your receptor (in metres)?	4.7 metres
Step 3	What is the local annual mean background NO_2 concentration (in μ g/m ³)?	11.16591 μg/m ³
Step 4	What is your measured annual mean NO₂ concentration (in µg/m³)?	24.15 μg/m ³
Result	The predicted annual mean NO ₂ concentration (in μ g/m ³) at your receptor	21.2 µg/m ³

Appendix F: Action Plan Progress Report

Action Plan Progress Report 2021

Action Plan Measure	Lead Authority	Original Timescale	Implementation	On Target?	Progress in last 12 months (Jan – Dec 2020)
1. To	Antrim and	March	No of vehicles	ongoing	The Council continues to actively review vehicle
investigate	Newtownabbey	2012 &	purchased in		specifications and acquisitions with regard to
options for	Borough	Ongoing	compliance		emission levels and options for transitioning its fleet
moving to	Council		and cleaner		from diesel powered vehicles to alternative fuel
cleaner fuels			fuels being used		sources.
and					Council has developed a transition plan of its
purchase					existing diesel powered vehicles, this plan will
vehicles that					commence to roll out later this year and will be
comply with					kept until continued review as vehicle technologies
the prevailing					advance.
EURO					
standard					

Translink has launched their Climate Positive Strategy,	with supporting Net Zero Emissions Fleet Strategy.		The strategy states that they want to achieve this	responsibly by:			 AChleving at least ou% reduction in our 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,	ana tor ali our puses, irains ana pullaings to pe 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. Translink have a	further 100 Zero Emission vehicles ordered (80 x battery	electric and 20 x fuel cell (hydrogen) electric.		
Ongoing																				
No of drivers	trained and	devices fitted																		
Ongoing																				
Translink																				
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		renewal	

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Borough Council employees, residents/commuters within the AQMA and St Bernard's Primary School					
6. Develop a Green	Antrim and	October	Production of	Ongoing	Newtownabbey Borough Council's
Travel Plan for	Newtownabbey	2011	Green Travel Plan		Workplace Travel Plan was launched
			employees initially		currently being implemented by
					ANBC.
					Actions in 2020 included:
					 Staff and Council Members able to
					avail of Council Bike to Work Scheme
					all year round. In the period January –
					December 2020 a total of 2ANBC

employees purchased a new bike through the scheme.	 cycle stands have been installed throughout the Borough 	 The Council has submitted 6 No. expression of interest forms to Dfl – for greenways and active travel routes 	Expressions of Interest (Greenways):	Doagh to Larne Greenway: Bqllyclare Town Route Mallusk/Hightown to Gideon's Green Greenway

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					<u>Expressions of Interest (Active Travel</u>
					<u>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
7. Deliver the 'Air	Antrim and	March 2012	Air Quality	Completed	
Quality Schools	Newtownabbey		Initiative delivered		
Initiative' to St	Borough Council				
Bernard's Primary					
School					

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8. Organise an Information Event for residents in the AQMA	Antrim and Newtownabbey Borough Council	March 2012	Information Event organised	Ongoing	Information provided on Council Website. No specific Information Event to be organised at present.
9. Provide information on the Council Website to encourage people to change their travel behaviour	Antrim and Newtownabbey Borough Council	October 2011 and ongoing	Information provided	Ongoing	Ongoing information on website and new facebook page
10. Comment on planning applications to ensure that all relevant air quality issues are highlighted and	Antrim and Newtownabbey Borough Council	gniogno	No of plans commented	Ongoing	421 Planning Applications were commented on

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mitigation measures				
are considered				
wherever possible				

			-	-	
3. Carry out vehicle	Antrim and	October	No of Vehicle	ongoing	Vehicle Emission Testing was carried
emission testing	Newtownabbey	2011 &	Emission Testing		out in October 2019
	Borough Council	ongoing	Events		
4. Introduce a Park	DFI TransportNI	1-2 years	Park & Ride	No	Approval granted but scheme not
and Ride Scheme at		(depending	Scheme		going ahead at the present time.
Ballyhenry Road		on approval)	implemented		
				Completed	Completed (24 spaces)
Introduce a Park			2016/17	-	
and Ride Scheme at		piogramme			
Ballynure					
		2015/16 subject to	2016/17	Completed	Extension to existing car park in John Street with access off New Street
					adiacent to existina bus stops – Car
Introduce a Park		lindnce			Park Completed July 2016 (44 spaces)
and Ride Scheme in					
New Street/John					
Street Randalstown					
5. Promote	Travelwise	March 2012	No of initiatives	Completed	Dfl has discontinued the Travelwise NI
sustainable modes		& ongoing	implemented		initiative and no longer provides
of transport to					support for workplace travel plans.
Newtownabbey					
	_		-		

LAQM Progress Report 2020

Council
Borough
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Borough Council employees, residents/commuters within the AQMA and St Bernard's Primary School					
6. Develop a Green Travel Plan for borough	Antrim and Newtownabbey Borough Council	October 2011	Production of Green Travel Plan for council employees initially	Ongoing	Newtownabbey Borough Council's Workplace Travel Plan was launched October 2011 and the action plan is currently being implemented by ANBC. Actions in 2019 included: • Staff and Council Members able to avail of Council Bike to Work Scheme all year round. In the period January – December 2019 a total of 5 ANBC
					employees purchased a new bike through the scheme
---	---	--------------------------------	-------------------------------------	-----------	--
7. Deliver the 'Air Quality Schools Initiative' to St Bernard's Primary School	Antrim and Newtownabbey Borough Council	March 2012	Air Quality Initiative delivered	Completed	
8. Organise an Information Event for residents in the AQMA	Antrim and Newtownabbey Borough Council	March 2012	Information Event organised	Ongoing	Information provided on Council Website. No specific Information Event to be organised at present.
9. Provide information on the Council Website to encourage people to change their travel behaviour	Antrim and Newtownabbey Borough Council	October 2011 and ongoing	Information provided	Ongoing	Ongoing information on website and new facebook page

Antrim and Newtownabbey Borough Council

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10. Comment on	Antrim and	ongoing	No of plans	Ongoing	481 Planning Applications were
planning	Newtownabbey		commented		commented on
applications to	Borough Council				
ensure that all					
relevant air quality					
issues are					
highlighted and					
mitigation measures					
are considered					
wherever possible					

Appendix G Impact of Covid-19 on LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales. COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities and other organisations with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention and changes in behaviour such as reduced road traffic and working from home.

Diffusion tube monitored continued for all of 2020, with the exception of April and May.

The UK national lockdown began on 23rd March and finished on 4th July 2020. The effect of the lockdown and the easing on NO2 is apparent in the below Running 7-Day plot for 2020

The Antrim Road NO₂ levels and the nearby AURN stations were lower with dampened peaks during the lockdown. The NO₂ levels at the Roadside locations were similar to the Urban Background locations. The levels have slowly increased since the lockdown ended on 4th July. This is also reflected in the NO₂ diffusion tube results.

