2018 Updating and Screening Assessment for Antrim and Newtownabbey Borough Council

In fulfillment of Environment (Northern Ireland) Order 2002
Local Air Quality Management

July 2018

Local Authority Officer	**Vanessa Hodgen Pamela Christie**
Department	**Environmental Health**
Address	**Mossley Mill, Newtownabbey**
Telephone	**02890340160**
e-mail	**Vanessa.hodgen@antrimandnewtownabbey.gov.uk**
Report Reference number	
Date	**July 2018**

Executive Summary

This report follows Guidance LAQM.TG(09) 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 34.91 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 April 2019. The Air Quality Action Plan Progress Report for 2017 is included in Appendix F.

Table of contents

List of Tables

List of Figures

Appendices

1 Introduction

1.1 Description of Local Authority Area

The Borough of Antrim and Newtownabbey covers 274sq 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 exceedences 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 micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences 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		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	3.25 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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.

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

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 *(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 7 nitrogen dioxide diffusion tubes in 2017.

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 40 µg/m3 annual mean NO2 highlighted in bold.

In 2017 the diffusion tubes were analysed by Gradko Services using 20% triethylamine in water.

QA/QC details which include the bias adjustment factors for 2017 is reported in **Appendix A**.

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X & Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is 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)*
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)	17m
Site 49 6 Sandyknowes Gardens	Urban Background	330641 382771	NO_2	N	N	Y (located on property)	55m
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

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 2013 and **Table 2.4** compares the results with the 1 hour Mean Objective.

Table 2.3 – Results of Automatic Monitoring for Nitrogen Dioxide (2013-2017)

Site ID	Site Type	Within AQMA?	Valid Data Capture 2016 %	Annual Mean Concentration μg/m³				
				2013	2014	2015	2016	2017
Antrim Rd, Elmfield	Roadside	Y	98.9	39	40	39	**41**	34.91

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

Figure 2.3 – Trends in Annual Mean NO_2 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 has fluctuated around 40μg/m^3 since 2013 however in 2017 there was a significant decrease in the level to 34.91μg/m^3 . We have been advised by Ricardo-AEA that there has been an overall decrease in levels province wide in 2017.

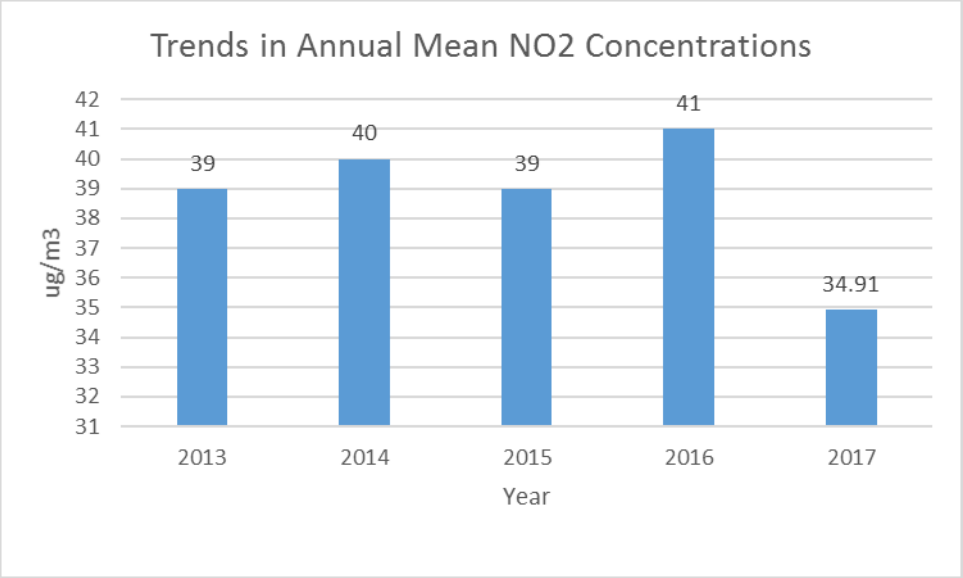


Table 2.4 – Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2016 %	Number of Exceedences of Hourly Mean (200 µg/m³)				
				2013	2014	2015	2016	2017
Antrim Rd, Elmfield	Roadside	Y	98.7	0	1	7	1	0

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/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 7 nitrogen dioxide diffusion tubes in 2016.

Table 2.5 provides all diffusion tube data for 2017 with exceedances of the 40 µg/m3 annual mean NO2 highlighted in bold and **Table 2.6** provides all diffusion tube data collected since 2013.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2017 (full monthly data sheets are in Appendix D)

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2017 (Number of Months or %)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (national Bias Adjustment factor = 0.89 2017 (μg/m^3)
Site 8	Braden Heights, Rathcoole	Urban Background	N		12 months	N	15.05
Site 46	12 Collinbridge Road	Roadside	N		12 months	N	36.22
Site 48	24 Sandyknowes Avenue	Roadside	N		12 months	N	35.88
Site 49	6 Sandyknowes Gardens	Urban Background	N		10 months	N	25.93
Site 58	Lamp-post, 198 Antrim Road ,Elmfield	Roadside	Y		12 months	Y	32.93*
Site 60	196 Antrim Road	Roadside	Y	Collocated with site 61	12 months	N	33.75
Site 61	196 Antrim Road	Roadside	Y	Collocated with site 60	12 months	N	32.81

In bold, exceedence of the NO_2 annual mean AQS objective of 40μg/m$^{3.}$ *Distance Correction Calculations in Appendix E

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2013 to 2017)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m³				
			2013 (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.95)	2015 (Bias Adjustment Factor = 0.88)	2016 (Bias Adjustment Factor = 0.92	2017 (Bias Adjustment Factor = 0.89
Site 8 Braden Heights, Rathcoole	Urban Background	N	15.70	16.51	15.34	15.66	15.05
Site 46 12 Collinbridge Road	Roadside	N	32.92	37.94	35.76	35.45	36.22
Site 48 24 Sandyknowes Avenue	Roadside	N	33.86	39.12	38.26	34.67	35.88
Site 49 6 Sandyknowes Gardens	Urban Background	N	26.10	25.33	25.53	26.55	25.93
Site 58 Lamp-post, 198 Antrim Road ,Elmfield	Roadside	Y	34.8*	38.13*	35.3*	35.33*	32.93*
Site 60 196 Antrim Road	Roadside	Y	33.02	34.63	32.88	34.53	33.75
Site 61 196 Antrim Rd	Roadside	Y	33.80	34.67	34.54	33.92	32.81

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m³ *Distance Corrected

2.2.2 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 Summary of Compliance with AQS Objectives

Antrim and Newtownabbey Borough Council has examined the results from monitoring in their 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

The proposed dualling of the A6 Randalstown to Toome road is now under construction. An air quality impact assessment formed part of the Environmental Statement undertaken in 2007 for this strategic project. A copy of the assessment is available online at https://www.infrastructure-ni.gov.uk/publications/a6-randalstown-toome-environmental-statement .The forecasted air quality concentrations at all receptors within 200m of the new road fell well below the relevant air quality standards for NO2 and PM10. The assessment was sufficient for review and assessment purposes and concluded there was no need to carry out a further detailed air quality assessment.

The Environmental Health Department has requested an Air Quality Assessment to be submitted as part of the Environmental Statement accompanying the planning application for a proposed relief road in Ballyclare LA03/2018/0162/DETEIA. Such an assessment will be reviewed as part of the planning process and further updates provided in future Progress Reports.

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.

In relation to the proposed new road in Ballyclare, this development will be considered in future rounds of review and 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 2017 passenger numbers carried were 5,836,552. In addition the airport handled a total of 12,308 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 120,000 passengers per annum giving a total of around 6,000,000 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 Steam 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 (Shipping)

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

As reported in previous Progress Reports and the 2015 Update and Screening Assessment, a number of proposed installations were under consideration within the planning system awaiting a decision. At the time of writing this report, there has been no change of status to any of these proposals, with each of the decisions still pending.

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 (Petrol) Storage 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

There is one industrial process within the Antrim and Newtownabbey Borough Council area involving biomass combustion. Springfarm Architectural Mouldings Ltd, which is located within the Newpark Industrial Estate on Greystone Road, Antrim, produces architectural mouldings manufactured from medium density fibreboard (MDF) for the construction and DIY industries. MDF dust and chips generated by the manufacturing process are collected and burnt to generate heat and electricity.

The installation consists of 3 boilers. Boilers 1 & 2 are rated at 2.2Mw Thermal and Boiler 3 is rated at 5Mw Thermal.

This installation has been previously screened, in accordance with the procedure set out in Section D.1a of chapter 5, TG(09), by comparing the background adjusted emission rates of particulate matter (PM10) and NO_2 with the screening target rate for the relevant pollutant. It was concluded that a detailed assessment was not required.

There have been no changes to this biomass installation that would require these findings to be reconsidered.

Antrim and Newtownabbey Borough Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

Antrim and Newtownabbey Borough Council has identified one commercial biomass combustion installation which was assessed a previous USA. This installation is in an industrial park and there are no other commercial installations burning biomass or domestic properties burning solid fuel in the same 500 x 500 m square.

Antrim and Newtownabbey Borough Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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.

A planning application is currently pending for an extension to Boyd's Quarry which brings existing houses within the relevant exposure category of 200m. Environmental Health have requested an air quality impact assessment and dust assessment to be undertaken in relation to this matter and will consider its findings in due course should planning permission be granted.

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

Newtownabbey Borough Council:

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 2017 showed an annual mean concentration of 34.91 µg/m^3. This was a significant decrease from previous 5 years and we have been advised that the annual mean concentrations have been significantly lower across UK in 2017.

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, and showed a decrease in the annual mean concentration with a result of 32.93 µg/m^3.

Diffusion tubes 60 and 61 are located on the façade of the relevant location and they showed an annual mean concentration of 33.75 µg/m^3 and 32.81 µg/m^3 respectively.

Antrim and Newtownabbey Borough Council will continue to monitor in 2018.

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 2019
- Assess Air Quality Impact Assessment and dust assessment as part of pending planning application for extension to Boyd's quarry.

9 References

Defra (2009) Part IV of the Environment Act 1995. Local Air Quality Management. Technical Guidance LAQM.TG(09).

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 - for passenger numbers, freight tonnage at Belfast International Airport

IAQM (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning, Version 11 May 2016.

Department for Regional Development, Roads Service (2007). A6 Randalstown to Toome Environmental Statement. Available online at https://www.infrastructure-ni.gov.uk/publications/a6-randalstown-toome-environmental-statement

Appendices

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2017 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 0.89 was calculated from 34 studies from Gradko Services for 2017 using the diffusion tube spreadsheet tool, for the diffusion tubes study.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/18

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2018

LAQM Helpdesk Website

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

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

Step 1:	Step 2:	Step 3:	Step 4:
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2017	R	Gateshead Council	12	36	37	-2.7%	G	**1.03**
Gradko	20% TEA in water	2017	R	Gateshead Council	12	29	25	17.5%	G	**0.85**
Gradko	20% TEA in water	2017	R	Gateshead Council	12	34	35	-5.3%	G	**1.06**
Gradko	20% TEA in water	2017	R	LB Hounslow	12	65	54	22.2%	G	**0.82**
Gradko	20% TEA in water	2017	R	LB Hounslow	12	59	53	10.6%	G	**0.90**
Gradko	20% TEA in water	2017	B	LB Hounslow	11	28	30	-6.0%	G	**1.06**
Gradko	20% TEA in water	2017	R	LB Hounslow	11	43	34	28.8%	G	**0.78**
Gradko	20% TEA in water	2017	B	LB Hounslow	9	38	33	14.9%	G	**0.87**
Gradko	20% TEA in water	2017	R	LB Hounslow	11	52	42	24.4%	G	**0.80**
Gradko	20% TEA in water	2017	UB	Liverpool	11	20	17	15.2%	G	**0.87**
Gradko	20% TEA in water	2017	R	North Ayrshire Council	12	26	21	23.2%	G	**0.81**
Gradko	20% TEA in water	2017	R	South Gloucestershire Council	12	25	23	10.3%	G	**0.91**
Gradko	20% TEA in water	2017	KS	Marylebone Road Intercomparison	12	101	79	28.6%	G	**0.78**
Gradko	20% TEA in water	2017		**Overall Factor[3] (34 studies)**				**Use**		**0.89**

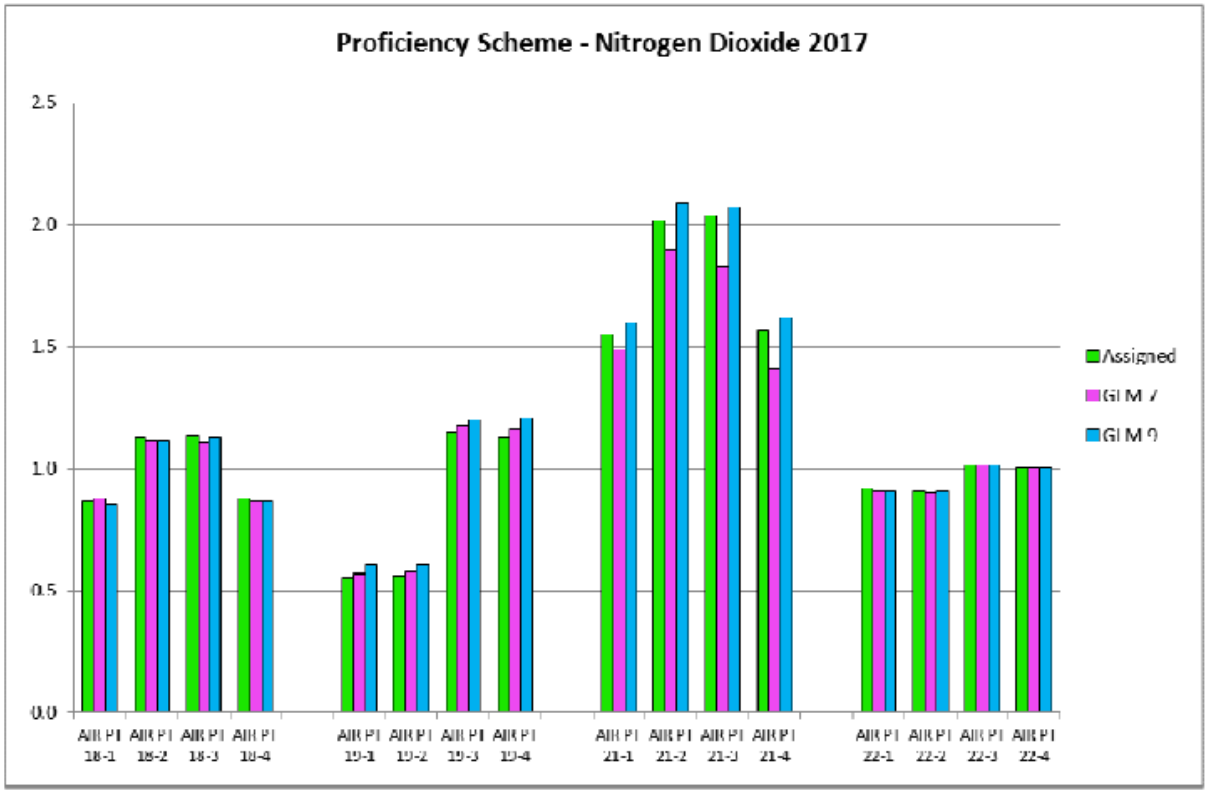
QA/QC of diffusion tube monitoring

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 2017 were satisfactory.

AIR PT Nitrogen Dioxide Proficiency Scheme Results 2017

Methods: GLM 7 – Camspec M550 Spectrophotometer, GLM 9 – QuAAtro Continuous Flow analyser

AIR PT Proficiency Scheme - Nitrogen Dioxide 2017								
Date	Round	Assigned value	Camspec M550 - GLM 7			QuAAtro - GLM 9		
			Measured concentration	z-Score	% Bias	Measured concentration	z-Score	% Bias
Feb-17	AIR PT 18-1	0.87	0.88	0.15	1.1%	0.86	-0.15	-1.1%
Feb-17	AIR PT 18-2	1.13	1.12	-0.12	-0.9%	1.12	-0.12	-0.9%
Feb-17	AIR PT 18-3	1.14	1.11	-0.35	-2.6%	1.13	-0.12	-0.9%
Feb-17	AIR PT 18-4	0.88	0.87	-0.15	-1.1%	0.87	-0.15	-1.1%
May-17	AIR PT 19-1	0.55	0.57	0.49	3.6%	0.61	1.46	10.9%
May-17	AIR PT 19-2	0.56	0.58	0.48	3.6%	0.61	1.19	8.9%
May-17	AIR PT 19-3	1.15	1.18	0.35	2.6%	1.20	0.58	4.3%
May-17	AIR PT 19-4	1.13	1.16	0.34	2.7%	1.21	0.90	7.1%
Aug-17	AIR PT 21-1	1.55	1.49	-0.49	-3.9%	1.60	0.41	3.2%
Aug-17	AIR PT 21-2	2.02	1.90	-0.79	-5.9%	2.09	0.46	3.5%
Aug-16	AIR PT 21-3	2.04	1.83	-1.28	-10.3%	2.07	0.18	1.5%
Aug-16	AIR PT 21-4	1.57	1.41	-1.29	-10.2%	1.62	0.40	3.2%
Oct-17	AIR PT 22-1	0.92	0.91	-0.14	-1.1%	0.91	-0.14	-1.1%
Oct-17	AIR PT 22-2	0.91	0.90	-0.15	-1.1%	0.91	0	0.0%
Oct-17	AIR PT 22-3	1.02	1.02	0	0.0%	1.02	0	0.0%
Oct-17	AIR PT 22-4	1.01	1.01	0.0	0.0%	1.01	0	0.0%



QA/QC of Automatic Monitoring

In 2017 Air Quality Data Management for the Automatic Analyser was carried out by Ricardo-AEA. The measured data was ratified using the techniques developed for the AURN and AEA Calibration Club as specified in LAQM TG(09). Bi-annual Quality Control audits were carried out by Ricardo-AEA.

Routine calibration of the NOx analyser is undertaken by Newtownabbey Borough Council fortnightly, using on-site certified calibration gas cylinders traceable to National Calibration Standards.

The 2017 summary for the Antrim Road, Elmfield monitor is provided below:

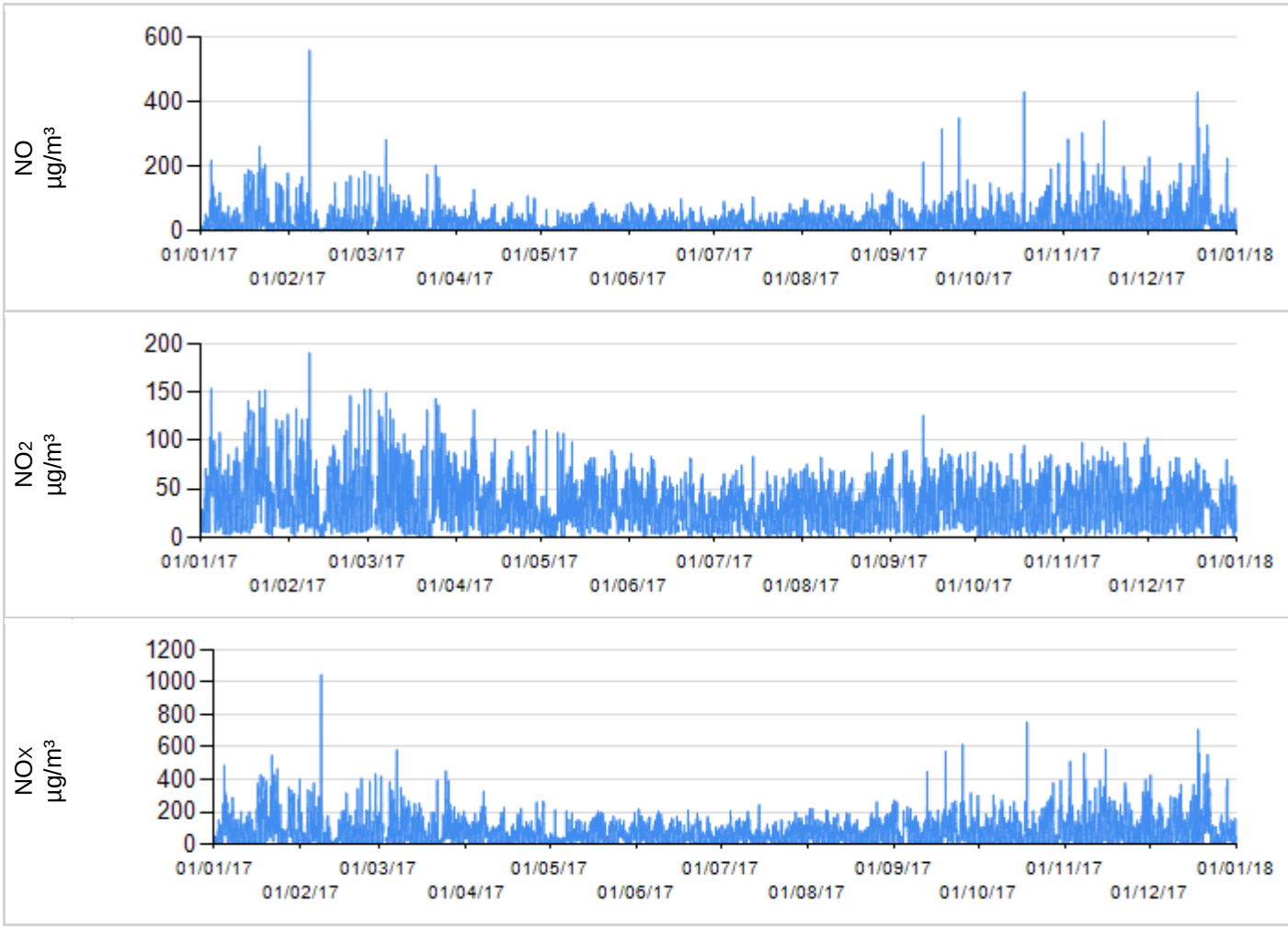
Newtownabbey Antrim Road

01/01/2017 to 31/12/2017

Correction Factor for Gravimetric Equivalence applied

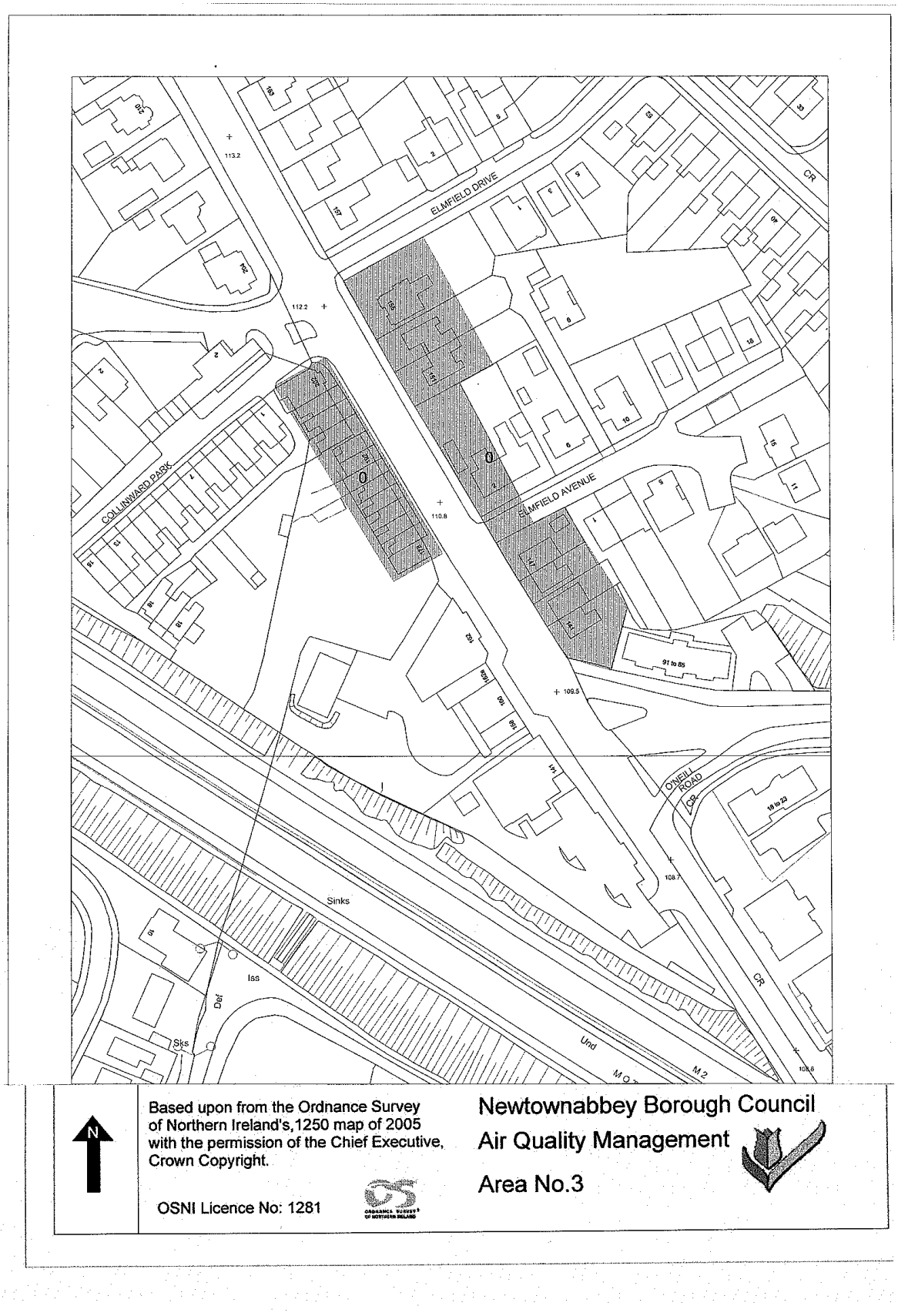
	V High (No. of Days)	High (No. of Days)	Mod (No. of Days)	Low (No. of Days)	Max. Hourly Conc.	Max. Daily Conc.	Max. Running 8 Hour Mean	Max. Running 24 Hour Mean	Period Mean Conc.	Period Data Capture (%)
NO (µg/m³)	0	0	0	0	558.44	160.20	259.27	160.32	29.78	98.7
NO_2 (µg/m³)	0	0	0	365	190.79	73.79	119.94	83.93	34.91	98.7
NOx (µg/m³)	0	0	0	0	1047.05	293.24	477.79	293.46	80.58	98.7

	Air Quality Objective	Exceedances	Days
NO_2	Hourly mean > 200 µg/m³	None	0
NO_2	Period mean > annual mean obj 40 µg/m³	No	
Note: When comparing site measurements against the air quality objectives data capture should meet or exceed 90% across a calendar year.			


NO µg/m³
600
400
200
0
01/01/17
01/02/17
01/03/17
01/04/17
01/05/17
01/06/17
01/07/17
01/08/17
01/09/17
01/10/17
01/11/17
01/12/17
01/01/18
NO2 µg/m³
200
150
100
50
0
NOx µg/m³
1200
1000
800
600
400
200
0

Appendix B: Location of AQMA

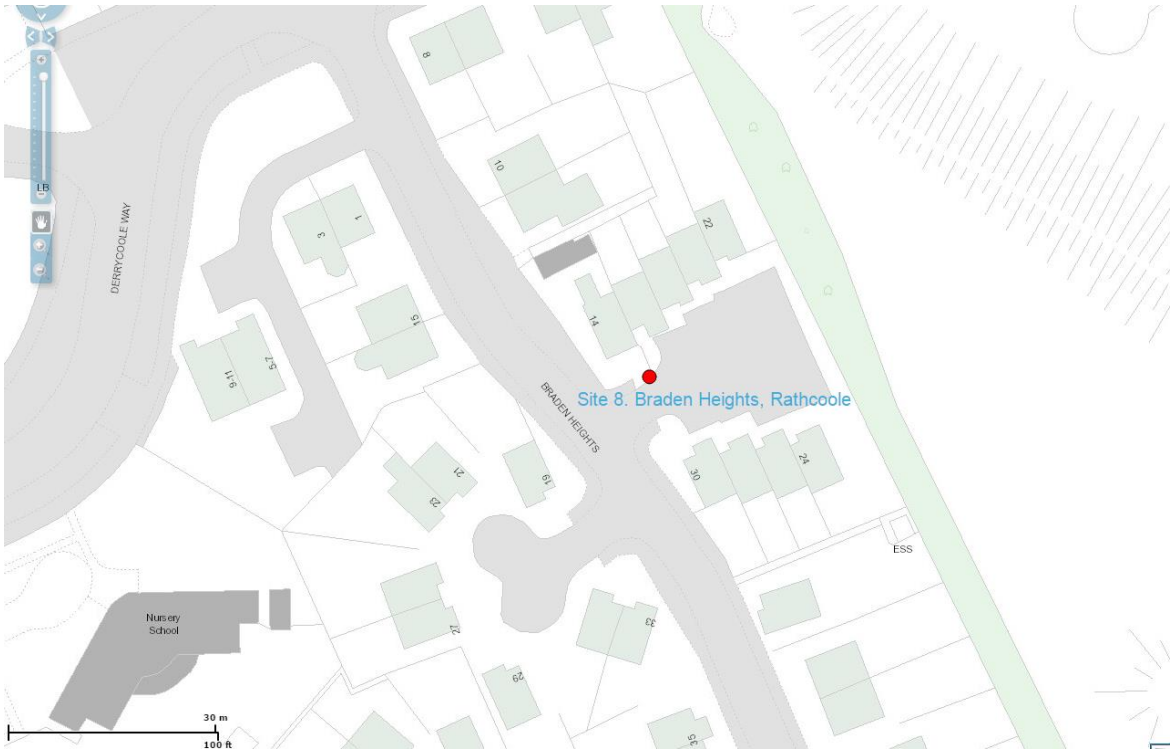
Figure 1-1 AQMA 3 (amended) Antrim Road, Elmfield



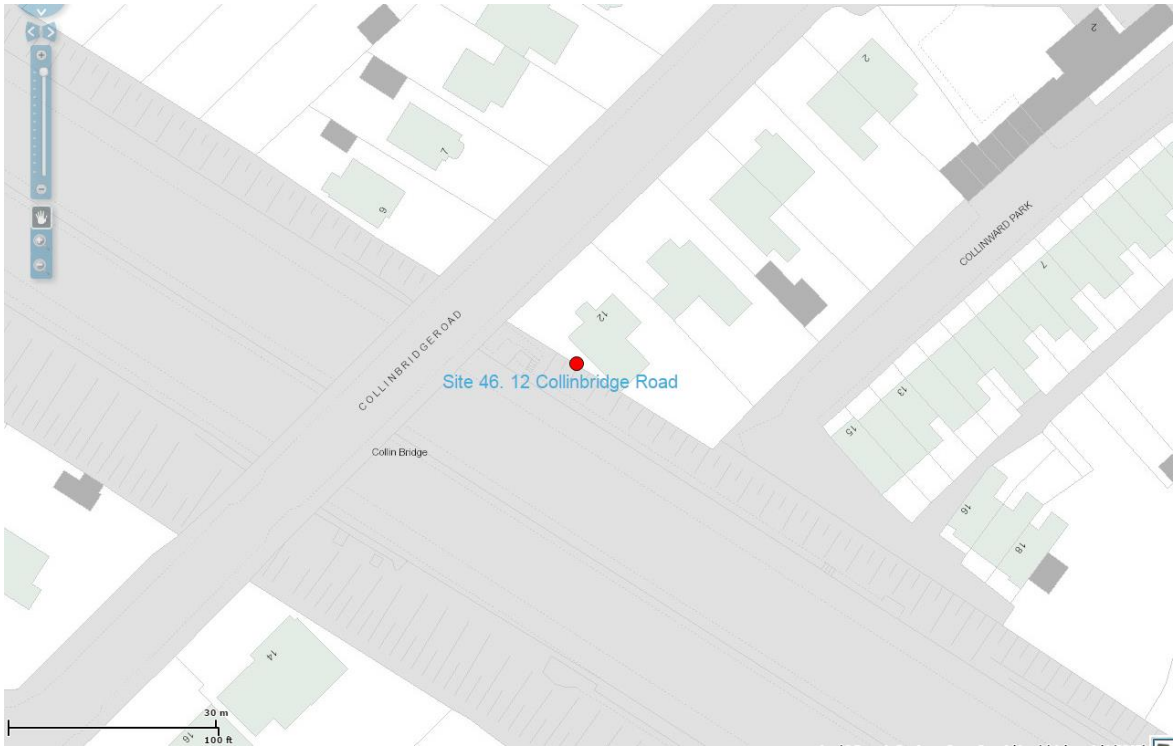
Appendix C: Location of Monitoring Sites

Diffusion Tube sites

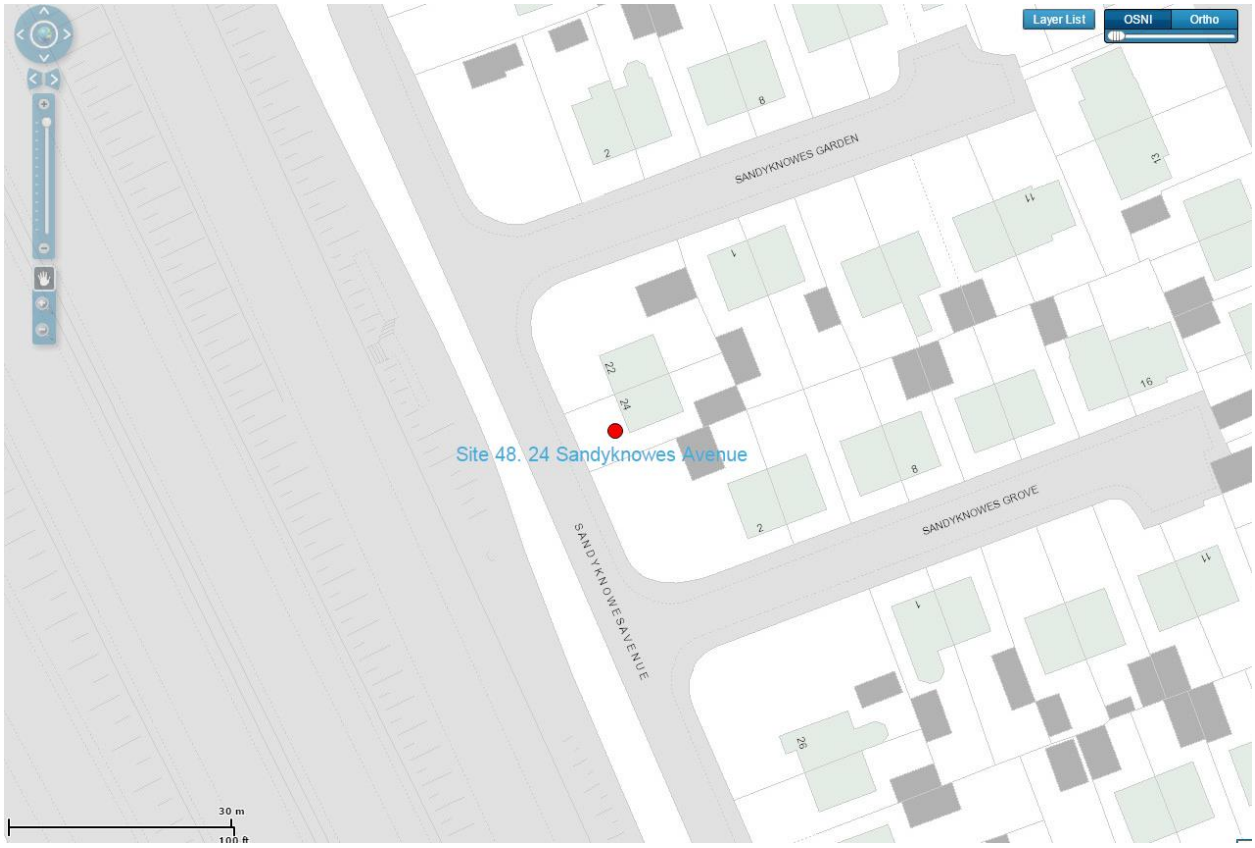
Site 8 -Braden Heights, Rathcoole



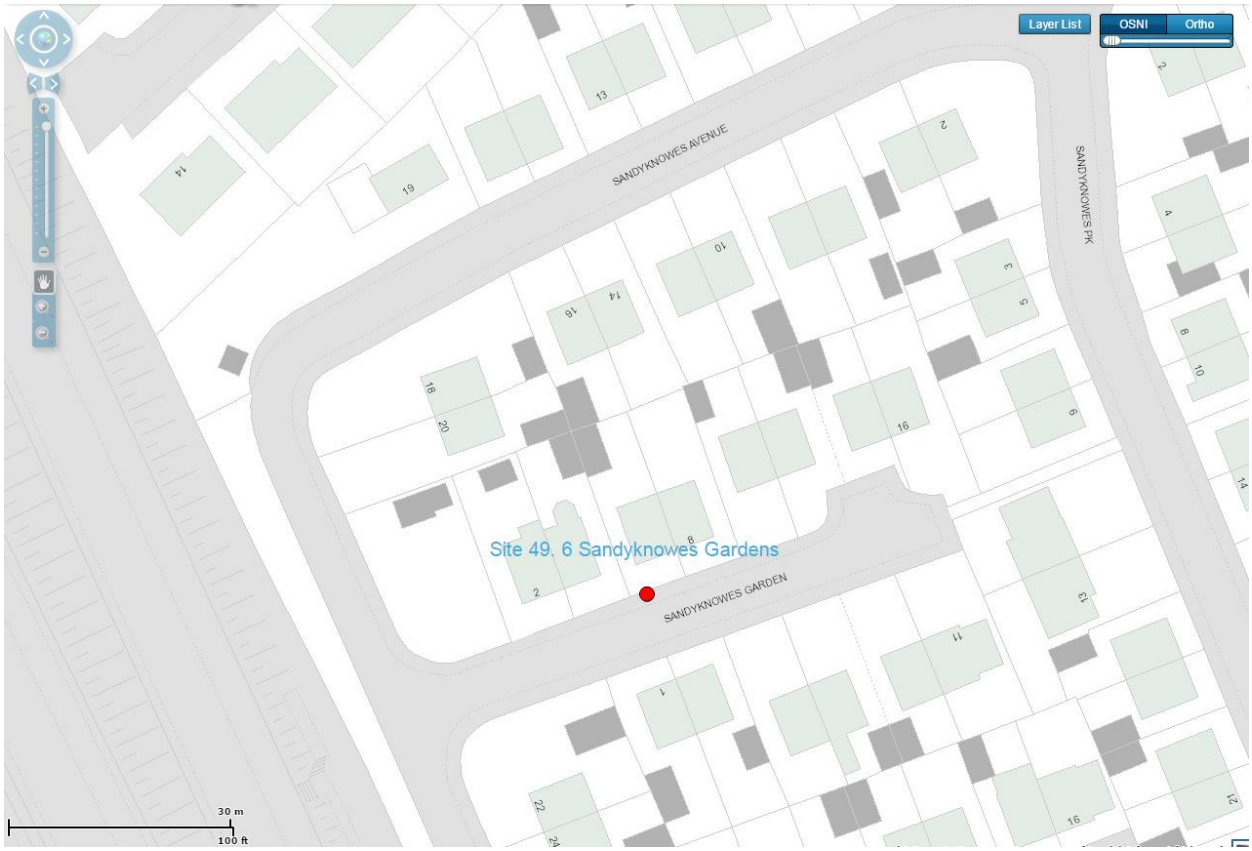
Site 46 - 12 Collinbridge Road



Site 48 - 24 Sandyknowes Avenue

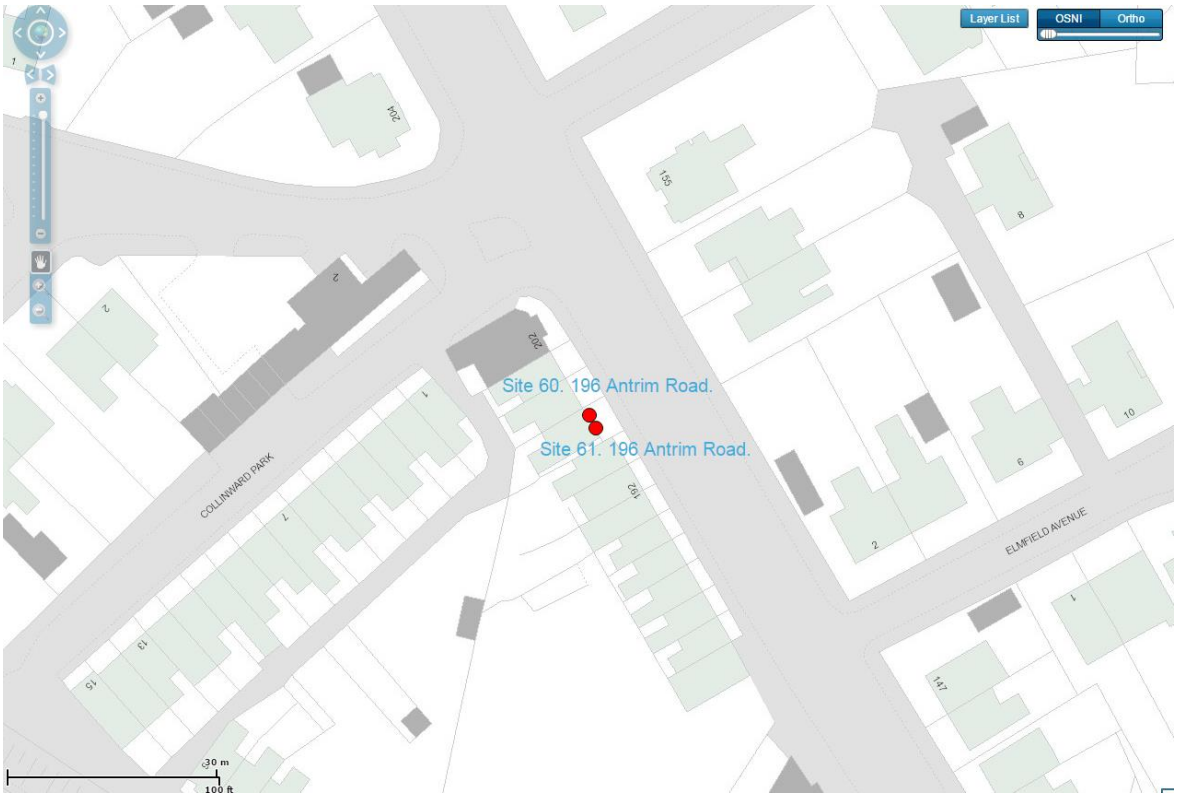


Site 49 - 6 Sandyknowes Gardens

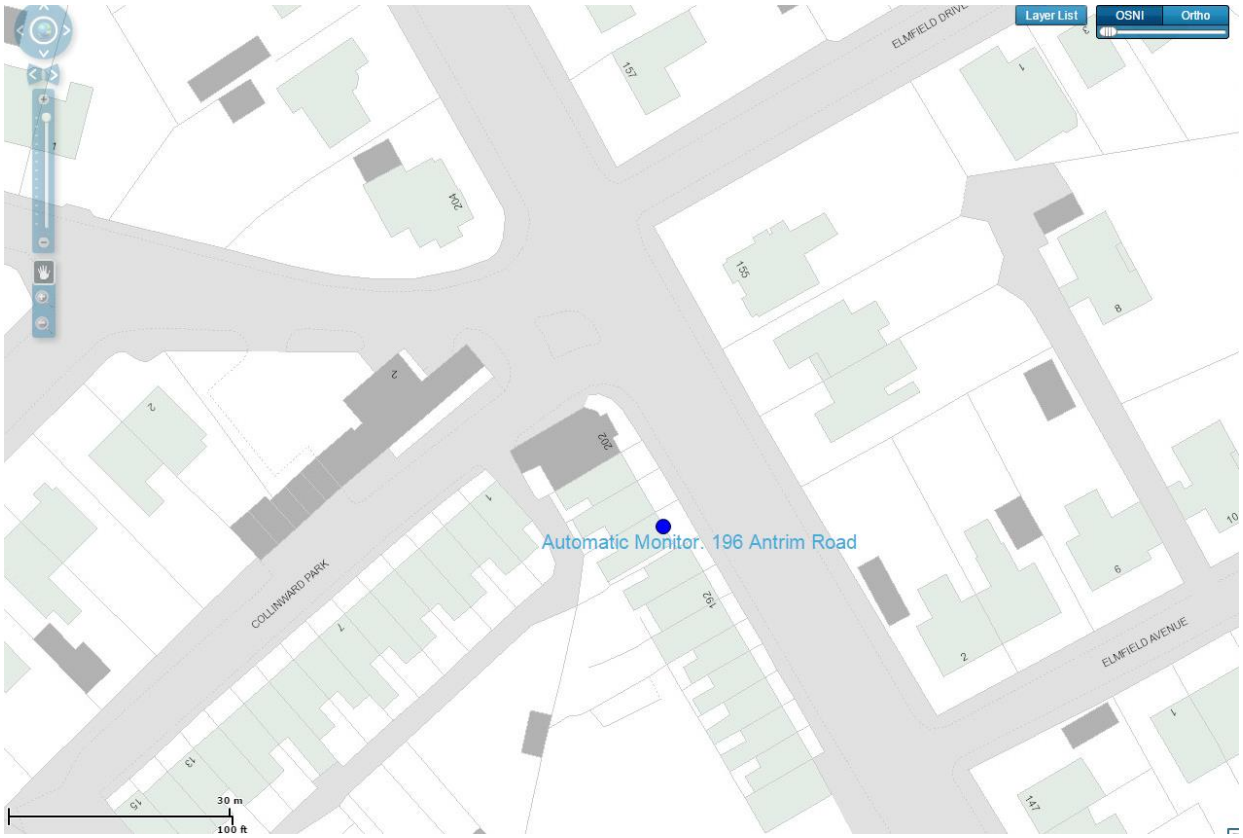


Site 58 - 198 Antrim Road

Site 60 and Site 61 -196 Antrim Road



Automatic Monitoring Site -196 Antrim Road

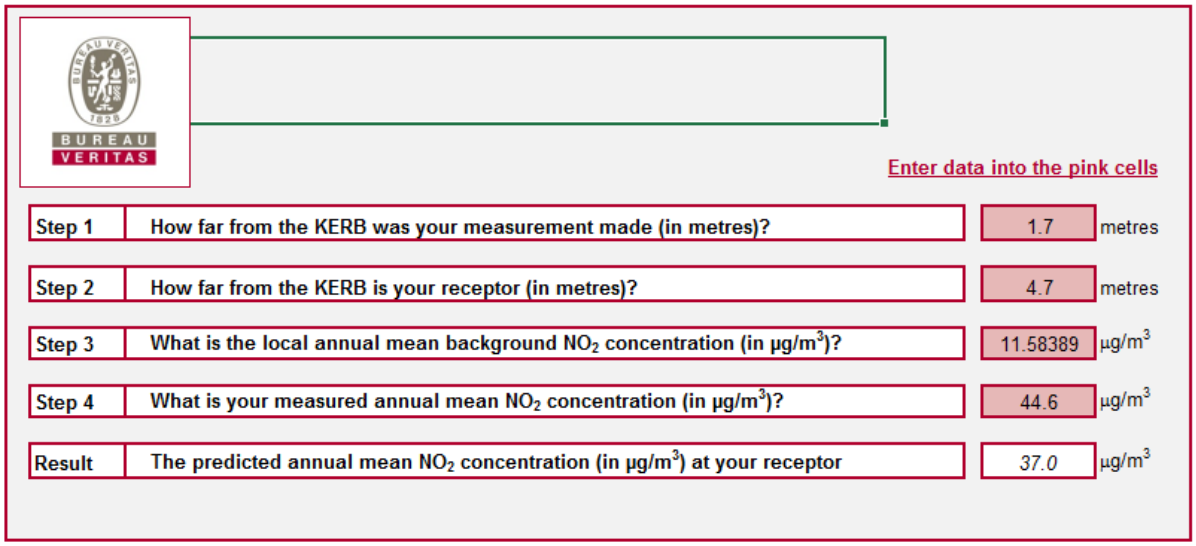


Appendix D: Monthly Diffusion Tube Results 2017

	Location	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Site 8	Braden Heights, Rathcoole	25.19	20.20	23.15	14.67	14.44	14.37	10.59	11.60	16.04	18.18	10.71	23.72
Site 58	Lampost at Antrim, Elmfield Analyser	61.77	48.47	54.86	44.26	43.86	46.43	33.60	43.20	45.18	42.47	18.60	52.51
Site 46	12 Collinbridge Road	50.60	46.98	51.53	46.03	40.97	37.05	29.91	36.26	43.66	39.68	24.59	41.16
Site 48	24 Sandyknowes Avenue	48.70	49.08	48.55	47.21	26.58	31.63	26.25	33.22	34.00	43.79	46.31	48.52
Site 49	6 Sandyknowes Gardens	40.45	34.90	33.68	33.50	damaged	26.54	20.94	26.85	29.81	missing	17.92	36.67
Site 60	On downpipe 196 Antrim Rd	46.06	42.77	44.50	44.16	36.42	36.23	27.73	36.51	40.30	37.87	20.56	41.97
Site 61	On downpipe 196 Antrim Rd	47.51	41.32	45.81	42.64	36.32	35.08	29.68	30.29	37.69	33.18	19.13	43.81

Appendix E: NO2 Fall off with Distance Calculator Result

Diffusion Tube 58 – Lamp post Antrim Road



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 µg/m^3)?	11.58389	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	44.6	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	*37.0*	µg/m^3

Appendix F: Action Plan Progress Report

Action Plan Measure	Lead Authority	Original Timescale	Implementation	On Target?	Progress in last 12 months (Jan – Dec 2017)
1. To investigate options for moving to cleaner fuels and purchase vehicles that comply with the prevailing EURO standard	Antrim and Newtownabbey Borough Council	March 2012 & Ongoing	No of vehicles purchased in compliance and cleaner fuels being used	ongoing	The Council continues to actively review vehicle specifications and acquisitions with regard to emission levels. There has been no further advancement in suitable cleaner fuels option vehicles.
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	Translink	Ongoing	No of drivers trained and devices fitted	Completed	Ulsterbus Fleet of 31 vehicles with an average age of 9.16 years. Metro Fleet of 47 vehicles with an average age of 9.16, again the newest bus is less than a month old Translink continue to use eco driving techniques across Bus Operations as the 'norm' New reporting suite has been installed across Bus Operations to allow ease of reporting on eco-driving performance and tracking of vehicles with 'super-users' trained from each Depot.
3. Carry out vehicle emission testing	Antrim and Newtownabbey Borough Council	October 2011 & ongoing	No of Vehicle Emission Testing Events	ongoing	Vehicle Emission Testing was carried out in October 2017 with 49 cars tested.
4. Introduce a Park and Ride Scheme at Ballyhenry	DFI TransportNI	1-2 years (depending on	Park & Ride Scheme implemented	No	Approval granted but scheme not going ahead at the present time.

Road Introduce a Park and Ride Scheme at Ballynure Introduce a Park and Ride Scheme in New Street/John Street Randalstown		approval) Not yet in programme 2015/16 subject to finance	 2016/17 2016/17	 Completed Completed	 Completed (24 spaces) Extension to existing car park in John Street with access off New Street adjacent to existing bus stops – Car Park Completed July 2016 (44 spaces)
5. Promote sustainable modes of transport to Newtownabbey Borough Council employees, residents/commuters within the AQMA and St Bernard's Primary School	Travelwise	March 2012 & ongoing	No of initiatives implemented	Ongoing	• 16 schools in the Antrim/ Newtownabbey Council area participated in the Travelwise/Sustrans Active School Travel Programme in 2017
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 2017 included: • The Department of Infrastructure Cycling Unit that delivers the Travelwise Initiative, were unable to provide financial support to local authorities to hold Bike Week events in 2017. However, Council Officers still progressed events and

					initiatives, so as to continue to encourage the promotion of cycling and other sustainable modes of transport. In the end only the led bike family cycles were provided by Belfast Activity Centre on 17th and 18th June as part of the Street Velodrome event in Antrim Town (approx 30 people per day). Plans for Sustrans to deliver "Bikeability" cycle training over the summer months, including safe cycling and bike maintenance courses, had to be postponed due to operational reasons. It is hoped that they will take place later in 2018 at Antrim Castle Gardens, Six Mile Water Park, Ballyclare and Hazelbank Park, Newtownabbey • Council Staff induction training includes information on Bike to Work Scheme, Car Share and Walk/Cycle Site • Staff and Council Members able to avail of Council Bike to Work Scheme all year round. In the period April 2017 – March 2018 alone, a total of **17** ANBC employees purchased a new bike through the scheme

					• Council Staff induction training includes information on Bike to Work Scheme, Car Share and Walk/Cycle Site. • Staff and Council Members able to avail of Council Bike to Work Scheme all year round. In the period April 2016 – March 2017 alone, a total of **20** 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
10. Comment on planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	Antrim and Newtownabbey Borough Council	Ongoing	No of plans commented on	Ongoing	453 Planning Applications were commented on