Antrim and Newtownabbey Borough Council
2016 Air Quality Progress Report

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

October 2016

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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 39 µg/ m^3. Results of diffusion tube monitoring on the façade of the relevant locations were below the annual mean objective.
Antrim and Newtownabbey Borough Council will continue to monitor and implement Action Plan measures in this AQMA.

Diffusion tube monitoring results have been well below the annual mean objective at Sites 57, 12,11, 47 and 50 for the last three years, therefore monitoring will cease at these sites.

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 2017.

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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. 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 Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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.

For Local Authorities in Northern Ireland, Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

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 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 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 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
Particulate matter (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.

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 12 nitrogen dioxide diffusion tubes in 2015.

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 2015 the diffusion tubes were analysed by Gradko Services using 20% triethylamine in water.

QA/QC details which include the bias adjustment factors for 2015 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 57 7 Sandyholme Way	Roadside	330514 382939	NO_2	N	N	Y (5m)	9m
Site 12 7 Sandyholme Way	Roadside	330514 382939	NO_2	N	N	Y (5m)	9m
Site 8 Braden Heights, Rathcoole	Urban Background	333898 381926	NO_2	N	N	Y (5m)	n/a
Site 11 44 Sandyknowes Avenue	Roadside	330675 382586	NO_2	N	N	Y (7m)	7m
Site 46 12 Collinbridge Road	Roadside	332193 381666	NO_2	N	N	Y (located on property)	9m
Site 47 13 Sandyholme Park	Roadside	330554 382848	NO_2	N	N	Y (7m)	7m
Site 48 24 Sandyknowes	Roadside	330631 382729	NO_2	N	N	Y (located on property)	17m

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)*
Avenue							
Site 49 6 Sandyknowes Gardens	Urban Background	330641 382771	NO_2	N	N	Y (located on property)	55m
Site 50 45 Burney's Lane	Roadside	331025 382224	NO_2	N	N	Y (located on property)	17m
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 (NO_2)

Automatic Monitoring Data

Table 2.3 provides all nitrogen dioxide continuous monitoring data collected since 2011 and **Table 2.4** compares the results with the 1 hour Mean Objective.

Table 2.3 – Results of Automatic Monitoring for Nitrogen Dioxide (2011-2015)

Site ID	Site Type	Within AQMA?	Valid Data Capture 2015 %	Annual Mean Concentration μg/m³				
				2011	2012	2013	2014	2015
Antrim Rd, Elmfield	Roadside	Y	98.1	**43**	**42**	39	40	39

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

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. Since then there has been a decrease in concentrations at the site, with only a slight increase of 1 μg/m³ in 2014.

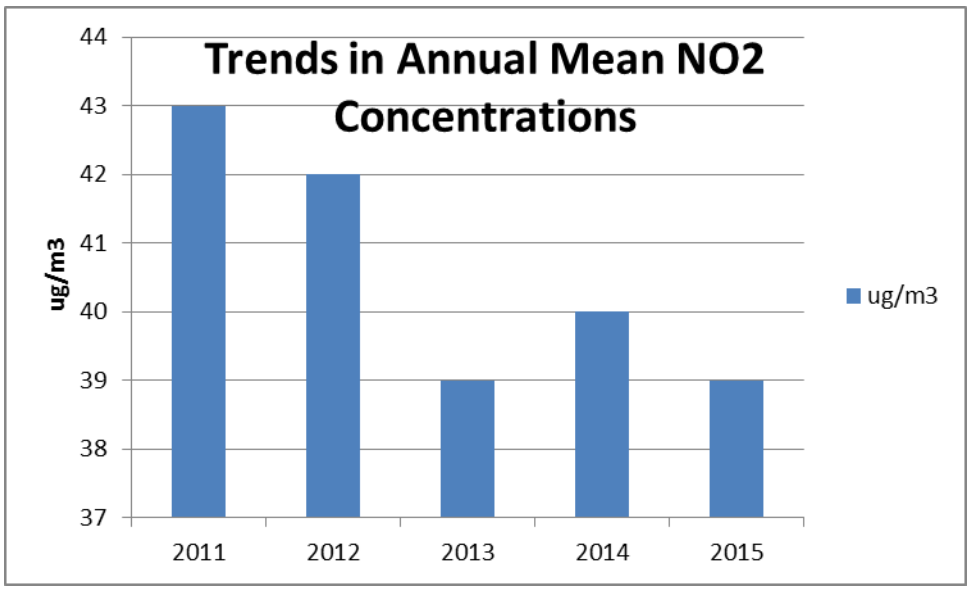


Table 2.4 – Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2015 %	Number of Exceedences of Hourly Mean (200 µg/m³)				
				2011	2012	2013	2014	2015
Antrim Rd, Elmfield	Roadside	Y	98.1	7	3	0	1	7

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 12 nitrogen dioxide diffusion tubes in 2015.

Table 2.5 provides all diffusion tube data for 2015 with exceedances of the 40 µg/m3 annual mean NO2 highlighted in bold and **Table 2.6** provides all diffusion tube data collected since 2011.

Table 2.5 – Results of NO_2 Diffusion Tubes 2015 (full monthly data sheets are in Appendix D)

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2015 (Number of Months or %)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (national Bias Adjustment factor = 0.88) 2015 ($\mu g/m^3$)
Site 57	7 Sandyholme Way	Roadside	N	Collocated with Site12	11 months	Y	33.5*
Site 12	7 Sandyholme Way	Roadside	N	Collocated with Site 57	10 months	Y	36.6*
Site 8	Braden Heights, Rathcoole	Urban Background	N		11 months	N	15.34
Site 11	44 Sandyknowes Avenue	Roadside	N		11 months	Y	31.2*
Site 46	12 Collinbridge Road	Roadside	N		11 months	N	35.76
Site 47	13 Sandyholme Park	Roadside	N		11 months	Y	34.1*
Site 48	24 Sandyknowes Avenue	Roadside	N		11 months	N	38.26
Site 49	6 Sandyknowes Gardens	Urban Background	N		11 months	N	25.53
Site 50	45 Burney's Lane	Roadside	N		11 months	N	31.43
Site 58	Lamp-post, 198 Antrim Road ,Elmfield	Roadside	Y		11 months	Y	35.3*
Site 60	196 Antrim Road	Roadside	Y	Collocated with site 61	11 months	N	32.88
Site 61	196 Antrim Road	Roadside	Y	Collocated with site 61	11 months	N	34.54

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 NO_2 Diffusion Tubes (2011 to 2015)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2011 (Bias Adjustment Factor = 0.92)	2012 (Bias Adjustment Factor = 0.96)	2013 (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.95)	2015 (Bias Adjustment Factor = 0.88)
Site 57 7 Sandyholme Way	Roadside	Y	40	**40.74**	38.30*	35.31*	33.5*
Site 12 7 Sandyholme Way	Roadside	Y	40	**40.05**	35.40*	36.58*	36.6*
Site 8 Braden Heights, Rathcoole	Urban Background	N	16	16.72	15.70	16.51	15.34
Site 11 44 Sandyknowes Avenue	Roadside	N	37	38.87	32.10*	30.58*	31.2*
Site 46 12 Collinbridge Road	Roadside	N	36	37.79	32.92	37.94	35.76
Site 47 13 Sandyholme Park	Roadside	Y	**41**	**40.56**	33.30*	32.76*	34.1*

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2011 (Bias Adjustment Factor = 0.92)	2012 (Bias Adjustment Factor = 0.96)	2013 (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.95)	2015 (Bias Adjustment Factor = 0.88)
Site 48 24 Sandyknowes Avenue	Roadside	N	35	35.39	33.86	39.12	38.26
Site 49 6 Sandyknowes Gardens	Urban Background	N	27	27.97	26.10	25.33	25.53
Site 50 45 Burney's Lane	Roadside	N	37	34.59	33.87	32.67	31.43
Site 58 Lamp-post, 198 Antrim Road ,Elmfield	Roadside	Y	**48**	**49.10**	34.8*	38.13*	35.3*
Site 60 196 Antrim Road	Roadside	Y	39	37.7	33.02	34.63	32.88
Site 61 196 Antrim Rd	Roadside	Y	38	37.75	33.80	34.67	34.54

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

*Distance Corrected

2.2.2 Particulate Matter (PM_{10})

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

2.2.3 Sulphur Dioxide (SO_2)

Antrim and Newtownabbey Borough Council does not carry out SO_2 monitoring.

2.2.4 Benzene

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

2.2.5 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 New Local Developments

3.1 Road Traffic Sources

No new roads have been opened since the last Updating and Screening Assessment was carried out and no busy or narrow congested streets have been identified that have not previously been considered. No roads with significantly changed traffic flows have been identified and there are no roads with high flows of buses and or HGVs. There are no new bus or coach stations.

3.2 Other Transport Sources

No new airports, railway stations or ports have opened since the last Updating and Screening Assessment took place.

In 2015, there were 4.1 million passengers passed though the airport, a 9% increase on 2014 numbers. In addition, the airport handled 30 389 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 1/3 mppa which is still well under the 10 million passengers per annum threshold for relevant exposure.

3.3 Industrial Sources

There are no new industrial installations within the borough or substantial changes to existing installations.

There are no new major fuel storage depots storing petrol within the borough.

No new petrol stations opened within the borough in 2015.

Although no new poultry farms became operational in 2015, two applications for proposed poultry houses were made and approved via the planning system. Air quality assessments accompanied these applications and demonstrated that the relevant targets would be met. Neither poultry farm application exceeded the

"number of birds" screening values as detailed in technical guidance LAQM.TG(09) and as such will not need considered in the next Updating and Screening Assessment.

3.4 Commercial and Domestic Sources

No new biomass installations have been identified in the borough since the last Updating and Screening Assessment.

No areas of significant solid fuel burning have been identified.

3.5 New Developments with Fugitive or Uncontrolled Sources

No new landfill sites, quarries or other potential sources of fugitive particulate emissions have been identified since the last Updating and Screening Assessment.

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

Antrim and Newtownabbey Borough Council confirms that all the following have been considered:

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

4 Planning Applications

Applications for two new poultry houses were made and approved via the planning regime in 2015. Air quality assessments were submitted alongside these applications which demonstrated the relevant air quality objectives would be met. Both applications were for less than 100 000 birds and as such will not need considered in the next Update and Screening Assessment. Both sites will be regulated by the Northern Ireland Environment Agency as Part A PPC installations.

There have been a number of applications received that, although not yet approved, have required an air quality assessment to be submitted in support of their application. Decisions on these applications will be made in due course by the relevant planning authority.

As reported in Antrim Borough Council's 2014 Air Quality Progress Report, consultations had been reissued by Planning NI for a biomass fuelled power plant just outside Antrim and Newtownabbey Borough Council's borough (S/2008/0630 F). The status of this application remains on hold.

Following on from the previously reported pre-application preliminary enquiry, T/2010/0240/Q, for arc21 waste treatment facilities for the sorting, biological treatment and incineration of waste at Hightown Quarry, a full application has now been submitted to Planning NI. An Environmental Statement, including an Air Quality Assessment, was submitted in support of the application. The assessment concluded that the impacts at local receptors will be well within Environmental Action Levels as well as statutory air quality limit values, target values and objectives. No decision has yet been taken as to whether this proposal will be granted permission or refused. It is anticipated this decision will be made by the end of the year.

No decision has been made in relation to two planning applications for a recycling facility and landfill site for inert construction and demolition waste at a disused quarry (T/2005/0977/F and T/2005/1054/F). Should permission be granted, activities at these developments may be a potential source of fugitive particulate emissions and would be considered as such in future reports.

The status of the above-mentioned planning applications will be reassessed and given further consideration in the next Progress Report in 2017.

5 Air Quality Planning Policies

Local Development Plan 2030

The Council is working on a new plan for the entire Borough that will look forward to 2030. It will be prepared in two parts starting with the Plan Strategy which once adopted will be followed by the Local Policies Plan. These will be prepared in the context of the Council's overall Corporate Plan and wider government policy including the Regional Development Strategy and Strategic Planning Policy Statement.

Current Development Plans

Until a new Plan is adopted, planning decisions must be taken in accordance with the provisions of the development plans and planning policy publications that were prepared by the Department of the Environment (DOE), unless material considerations indicate otherwise.

In this context, the current development plans for the Borough are the Antrim Area Plan 1984-2001 (including Alterations 1, 2 and 3) and the Belfast Metropolitan Area Plan 2015.

Additionally, the operational planning policies contained in the relevant DOE planning policy publications will continue in force until our new Plan Strategy is adopted.

6 Local Transport Plans and Strategies

Regional Development Strategy

The Regional Development Strategy (RDS) is a strategy to guide the future development of Northern Ireland to 2025. The RDS will influence the future distribution of activities throughout the region and recognises that development policies will have a significant impact on the environment and the health of individuals.

Spatial Development Strategy for Northern Ireland

The Spatial Development Strategy (SDS) guides the physical development of the Region to 2025. The SDS will contribute to meeting a number of key regional challenges emerging from the significant local, national and international forces, which will drive change over the next 25 years, including:

Transport:

- Promote a change in travel culture and particularly manage the effects of a possible 100% growth in the number of vehicles by 2025;
- Contribute to the creation of a modern, sustainable, safe transportation system for the Region, meeting the travel needs of all groups in society;
- Accommodate the growing volume of freight moving to and from the regional gateways; and
- Strengthen the regional gateways to handle the increasing flow of people and goods in and out of the Region.

Environment:

- Accommodate future development growth while protecting and caring for the environment;
- Reduce the consumption of resources;
- Continue to maintain or, where needed, improve the quality of air, water and land resources within the Region;

- Seek to maintain local landscape character and to conserve cultural assets; and
- Take particular care to sustain and, where required, to enhance the biodiversity of the Region, its natural habitats, high quality landscapes and built heritage.

Developing a Regional Transportation System

Creating an upgraded and integrated transport system, built around the Regional Strategic Transport Network of the key transport corridors with **t**heir main public transport services providing the framework for future development is recognised as one of the key assets to accommodate growth. Strategic planning guidelines relating to the development of a Regional Transport System (RTS) are as follows:

- **SPG-TRAN 1:** To develop a Regional Strategic Transport Network (RSTN), based on Key Transport Corridors (KTCs), to enhance accessibility to regional facilities and services.

- **SPG-TRAN 2:** To extend travel choice for all sections of the community by enhancing public transport, including the strengthening of the regional bus network (including the promotion of public transport routes and Park and Ride schemes) and the regional rail system;

- **SPG-TRAN 3:** To integrate land use and transportation to provide a much better range of travel choices for all, and reduce the demand for travel; and

- **SPG-TRAN 4:** To change the regional travel culture and contribute to healthier lifestyles, such as giving greater priority to encouraging more walking and cycling.

Regional Transportation Strategy

The Regional Transportation Strategy (RTS) for Northern Ireland 2002- 2012 identifies strategic transportation investment priorities and considers potential funding sources and affordability of planned initiatives. The RTS focuses on 3 geographic areas and one overlying Network. These are as follows:

- Belfast Metropolitan Area (BMA), containing the continuous area comprising Belfast City Council and the built-up areas within the Council areas of Carrickfergus, Castlereagh, Lisburn, Newtownabbey and North Down;

- Other Urban Areas (OUAs): collectively those towns described as main or local hubs in the RDS;

- Rural Area – the remainder of Northern Ireland; and

- Regional Strategic Transport Network (RSTN) comprising the complete rail network and all motorway and trunk road links (including the Key Transport Corridors and Link Corridors).

The RTS is a "daughter document" of the Regional Development Strategy (RDS), which sets out the spatial development framework for Northern Ireland up to 2025. Implementation of the Strategy will be through three Transport Plans covering the Regional Strategic Transport Network (RSTN), the Belfast Metropolitan Area (BMA), and the Sub-Regional Transport Plan (SRTP).

Regional Strategic Transport Network Transport Plan

The Regional Strategic Transport Network (RSTN) Transport Plan prepared by the Department for Regional Development (DRD) covers the complete rail network, 5 Key Transport Corridors (KTCs), 4 Link Corridors, the Belfast Metropolitan Transport Corridors and the remaining trunk network across Northern Ireland. The Plan is based on the guidance set out in the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS), as described in Sections 3.1 and 3.2, above.

The RSTN Transport Plan consists of proposals for transport schemes and measures for the maintenance, management and development of the RSTN until 2015. The RSTN Transport Plan also includes a number of measures for rail, bus, roads, walking and cycling.

Sub-Regional Transport Plan 2015

The Sub-Regional Transport Plan (SRTP) was prepared by the Department for Regional Development (DRD) and completed in 2007. The SRTP is based upon the guidance provided by the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS).

7 Implementation of Action Plans

Progress of Antrim and Newtownabbey Borough Council's Action Plan is provided in **Table 9.1**

Table 9.1 – Action Plan Progress

Action Plan Measure	Lead Authority	Original Timescale	Implementation	On Target?	Progress in last 12 months (Jan – Dec 2015)
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	Yes	2013/14 saw the advancement from Euro 5 to Euro 6 engine LGV; the Council actively reviews 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	Newtownabbey still has one of the youngest fleets across the network with no Euro 1's or Euro 2's and a number of the latest Euro 6. • Ulsterbus – No Euro 1 or 2. The majority being Euro 3 (60.61%) and 6% of the Fleet newest Euro 6 • Metro – No Euro 1 or 2. The majority being Euro 3 (48.89%) and 8.89% of the Fleet newest Euro 6. Translink also continue to use eco driving techniques across bus operations. This scheme is now well embedded with drivers receiving refresher training annually to maintain efficiencies in fuel consumption across the business. Year on year, bus travel is currently showing a 3.2% improvement in fuel economy.

3. Carry out vehicle emission testing	Antrim and Newtownabbey Borough Council	October 2011 & ongoing	No of Vehicle Emission Testing Events	Yes	Vehicle Emission Testing was carried out in October 2015 with approximately 50 cars tested.
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	DFI TransportNI	1-2 years (depending on approval) Not yet in programme 2015/16 subject to finance	Park & Ride Scheme implemented 2016/17 2016/17	No Yes No	Approval granted but scheme not going ahead at the present time. 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	Yes	• 7 schools in the Borough of Newtownabbey participated in the Travelwise/Sustrans Active School Travel Programme in 2015 • A number of schools in the area participated in Travelwise NI Walk to School Week promotions in May 2015. • Antrim and Newtownabbey Borough Council in partnership with Travelwise NI carried out a number of cycling promotions as part of Bike Week in June 2015

6. Develop a Green Travel Plan for borough	Antrim and Newtownabbey Borough Council	October 2011	Production of Green Travel Plan for council employees initially	Yes	Newtownabbey Borough Council's Workplace Travel Plan was launched October 2011 and the action plan is currently being implemented. Actions in 2015 included: • 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. • Travelwise (Bike Week) funding – used to deliver cycle skills workshops to 12 primary schools within the Borough, while a number of Council employees took part in a Big Breakfast event, which encouraged staff to cycle to work or on their lunch break during Bike Week, and obtain a free breakfast. In addition over 900 Primary 7 pupils from local primary schools received information on bike safety and walking and cycling routes in Newtownabbey at the annual Bee Safe event in May 2015.

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	Delivered as part of Health Fair
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	Promotional stands set up at 2 main Council buildings during Learning Week, encouraging staff to sign up to Council's Bike to Work scheme.
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	Yes	402 Planning Applications were commented on

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 2015 showed an annual mean concentration of 39µg/m^3.

All diffusion tubes within this AQMA were also 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 35.3µg/m^3.

Diffusion tubes 60 and 61 are located on the façade of the relevant location and they showed annual mean concentrations of 32.88 and 34.54 µg/m^3 respectively.

Although these measurements are below the annual mean objective Antrim and Newtownabbey Borough Council will continue to monitor in 2016/17

Other monitoring results

Sites 57, 12, 11, 47 and Site 50

Results have been continuing to decrease at these for the past 3 years with results in 2015 being 33.5µg/m^3, 36.6 µg/m^3 , 31.2 µg/m^3 , 34.1 µg/m^3 and 31.43 µg/m3 respectively. We propose to cease monitoring at these sites.

8.2 Conclusions relating to New Local Developments

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

- AQMA 3, Antrim Road, Elmfield

  Continue monitoring and implement Action Plan Measures

- Cease diffusion tube monitoring at sites 57, 12, 11, 47 and 50
- Submit Progress Report 2017

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

Appendices

Appendix A	QA/QC Data
Appendix B	Location of Air Quality Management Area
Appendix C	Locations of Monitoring Sites
Appendix D	Monthly Diffusion Tube Results
Appendix E	Nitrogen Dioxide Fall off with Distance Calculator

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2015 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 0.88 was calculated from 27 studies from Gradko Services for 2015 using the diffusion tube spreadsheet tool, for the diffusion tubes study.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/16

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 September 2016

LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data[2]

Step 4:

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

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

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (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	2015	B	Pembrokeshire Council	10	4	3	36.7%	G	0.73
Gradko	20% TEA in water	2015	R	City of Lincoln Council	12	39	33	17.9%	G	0.85
Gradko	20% TEA in water	2015	R	Borough Council of King's Lynn and West Norfo	12	29	22	32.5%	G	0.75
Gradko	20% TEA in water	2015	R	Cheshire West and Chester	10	38	40	-5.2%	G	1.06
Gradko	20% TEA in water	2015	R	Dudley MBC	12	47	50	-5.9%	G	1.06
Gradko	20% TEA in water	2015	R	Dudley MBC	12	40	35	14.0%	G	0.88
Gradko	20% TEA in water	2015	R	Dudley MBC	12	34	31	10.0%	G	0.91
Gradko	20% TEA in water	2015	UB	Dudley MBC	11	23	19	20.9%	G	0.83
Gradko	20% TEA in water	2015	KS	Marylebone Road Intercomparison	12	102	81	26.2%	G	0.79
Gradko	20% TEA in water	2015	UB	Liverpool	12	20	22	-9.0%	G	1.10
Gradko	20% TEA in water	2015	R	Preston City Council	12	29	27	8.9%	G	0.92
Gradko	20% TEA in water	2015	R	Thurrock Borough Council	12	28	23	22.5%	G	0.82
Gradko	20% TEA in water	2015	R	Gateshead Council	11	33	34	-1.2%	G	1.01
Gradko	20% TEA in water	2015	R	Gateshead Council	12	28	27	3.9%	G	0.96
Gradko	20% TEA in water	2015	R	Gateshead Council	10	36	32	11.5%	G	0.90
Gradko	20% TEA in water	2015	KS	New Forest DC	11	47	36	31.1%	P	0.76
Gradko	20% TEA in water	2015	R	New Forest DC	11	33	25	31.7%	G	0.76
Gradko	20% TEA in water	2015	UC	Southampton City Council	12	28	29	-3.5%	G	1.04
Gradko	20% TEA in water	2015	R	Wokingham Borough Council	11	36	33	7.9%	G	0.93
Gradko	20% TEA in water	2015	R	Brighton & Hove City Council	9	47	38	24.1%	G	0.81
Gradko	20% TEA in water	2015	R	NOTTINGHAM CITY COUNCIL	12	40	39	4.3%	G	0.96
Gradko	20% TEA in water	2015		**Overall Factor[3] (27 studies)**				**Use**		**0.88**

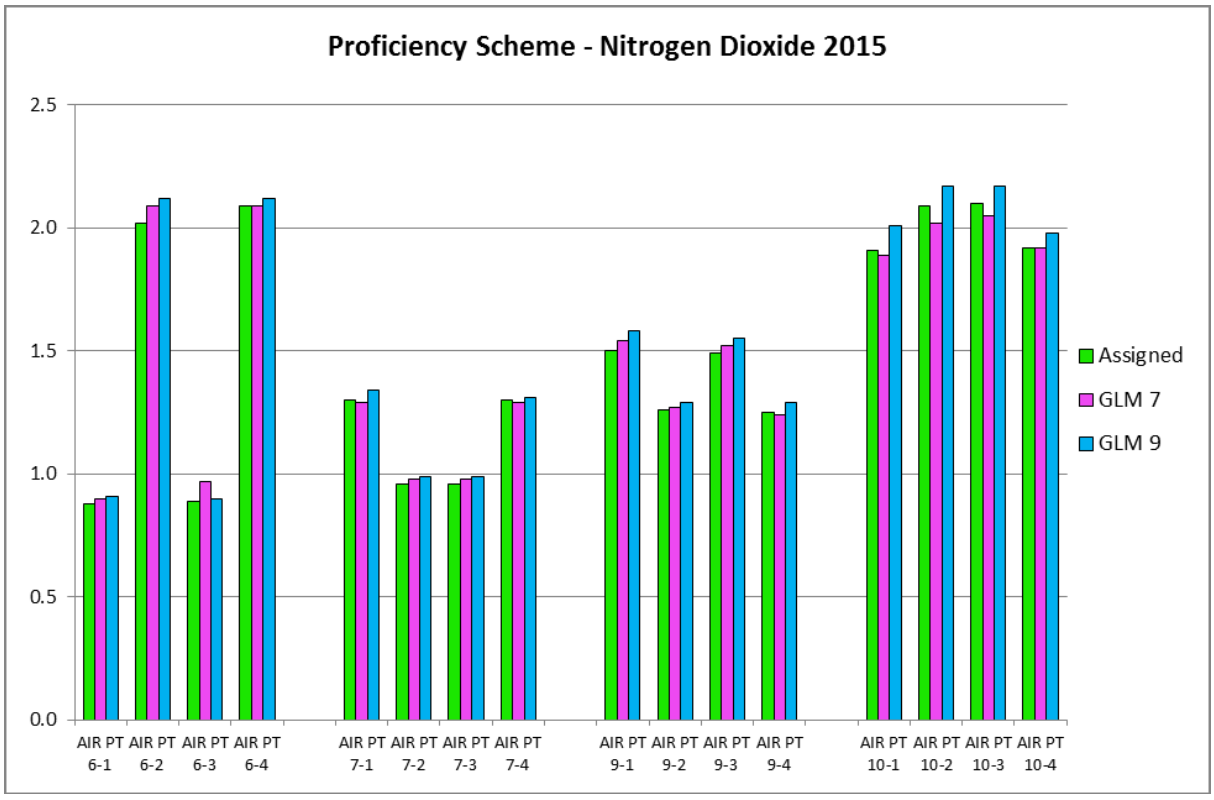
QA/QC of diffusion tube monitoring

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 2015 were satisfactory.

AIR PT Nitrogen Dioxide Proficiency Scheme Results 2015

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

Date	Round	Assigned value	Camspec M550 - GLM 7			QuAAtro - GLM 9		
			Measured concentration	z-Score	% Bias	Measured concentration	z-Score	% Bias
Feb-15	AIR PT 6-1	0.88	0.90	0.28	2.3%	0.91	0.41	3.4%
Feb-15	AIR PT 6-2	2.02	2.09	0.46	3.5%	2.12	0.66	5.0%
Feb-15	AIR PT 6-3	0.89	0.97	-0.30	-2.2%	0.90	0.15	1.1%
Feb-15	AIR PT 6-4	2.09	2.09	0.00	0.0%	2.12	0.19	1.4%
May-15	AIR PT 7-1	1.30	1.29	-0.10	-0.8%	1.34	0.41	3.1%
May-15	AIR PT 7-2	0.96	0.98	0.28	2.1%	0.99	0.42	3.1%
May-15	AIR PT 7-3	0.96	0.98	0.28	2.1%	0.99	0.42	3.1%
May-15	AIR PT 7-4	1.30	1.29	-0.10	-0.8%	1.31	0.10	0.8%
Aug-15	AIR PT 9-1	1.50	1.54	0.4	2.7%	1.58	0.71	5.3%
Aug-15	AIR PT 9-2	1.26	1.27	0.1	0.8%	1.29	0.32	2.4%
Aug-15	AIR PT 9-3	1.49	1.52	0.27	2.0%	1.55	0.54	4.0%
Aug-15	AIR PT 9-4	1.25	1.24	-0.11	-0.8%	1.29	0.43	3.2%
Nov-15	AIR PT 10-1	1.91	1.89	-0.14	-1.0%	2.01	0.7	5.2%
Nov-15	AIR PT 10-2	2.09	2.02	-0.45	-3.3%	2.17	0.51	3.8%
Nov-15	AIR PT 10-3	2.10	2.05	-0.32	-2.4%	2.17	0.44	3.3%
Nov-15	AIR PT 10-4	1.92	1.92	0.0	0.0%	1.98	0.42	3.1%



QA/QC of Automatic Monitoring

In 2015 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 NO_x analyser is undertaken by Newtownabbey Borough Council fortnightly, using on-site certified calibration gas cylinders traceable to National Calibration Standards.

The 2015 summary for the Antrim Road, Elmfield monitor are provided below:

Full Statistical Reports for Monitor

NEWTOWNABBEY ANTRIM ROAD

01 January to 31 December 2015

These data have been fully ratified by Ricardo

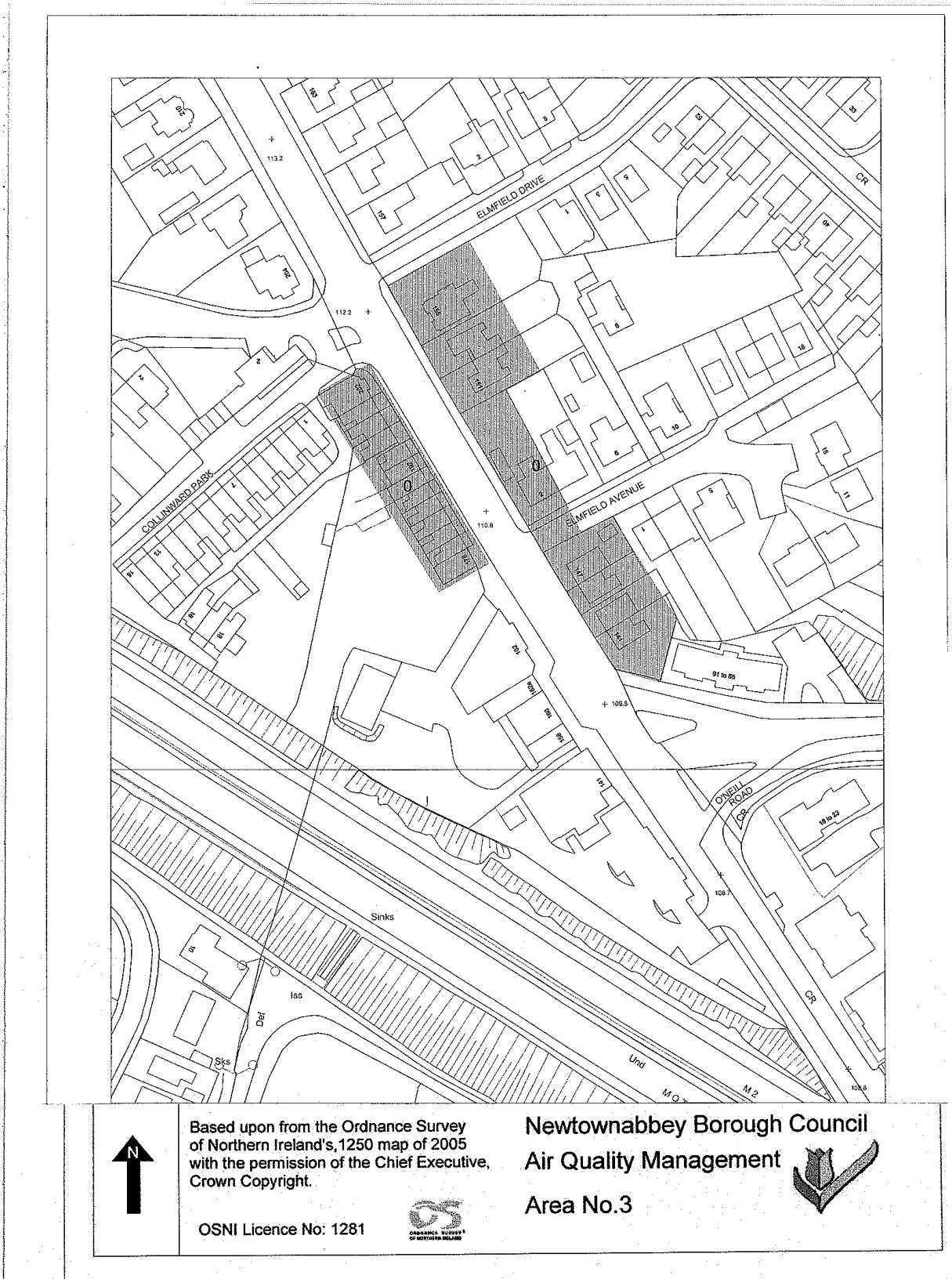
POLLUTANT	NO	NO_2	NO_X
Number Very High	-	0	-
Number High	-	0	-
Number Moderate	-	1	-
Number Low	-	8591	-
Maximum 15-minute mean	659 µg m^{-3}	321 µg m^{-3}	1255 µg m^{-3}
Maximum hourly mean	534 µg m^{-3}	309 µg m^{-3}	1121 µg m^{-3}
Maximum running 8-hour mean	361 µg m^{-3}	215 µg m^{-3}	766 µg m^{-3}
Maximum running 24-hour mean	235 µg m^{-3}	147 µg m^{-3}	485 µg m^{-3}
Maximum daily mean	213 µg m^{-3}	137 µg m^{-3}	462 µg m^{-3}
Average	30 µg m^{-3}	39 µg m^{-3}	86 µg m^{-3}
Data capture	98.1 %	98.1 %	98.1 %

All gaseous pollutant mass units are at 20'C and 1013mbNO_X mass units are NO_X as NO_2 µg m-3

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual mean > 40 µg m^{-3}	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m^{-3}	7	2
Nitrogen Oxides (NO_2)	Annual mean > 30 µg m^{-3}	1	-

Appendix B: Location of AQMA

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

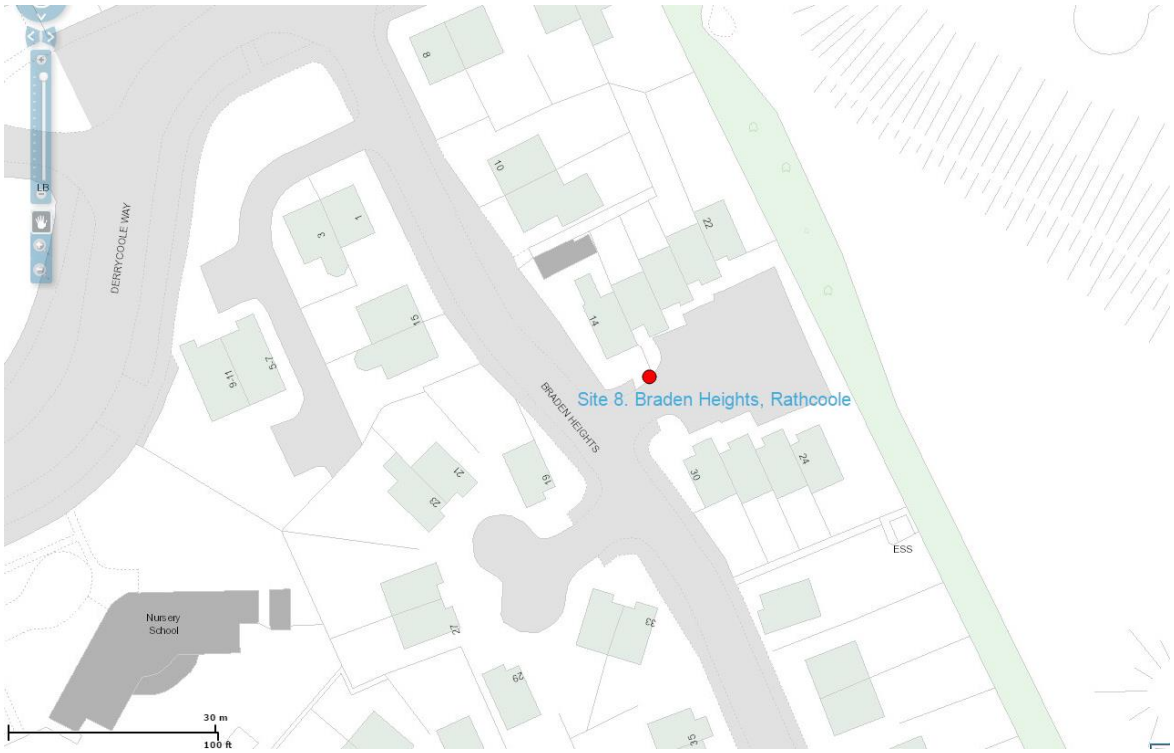


Appendix C: Location of Monitoring Sites

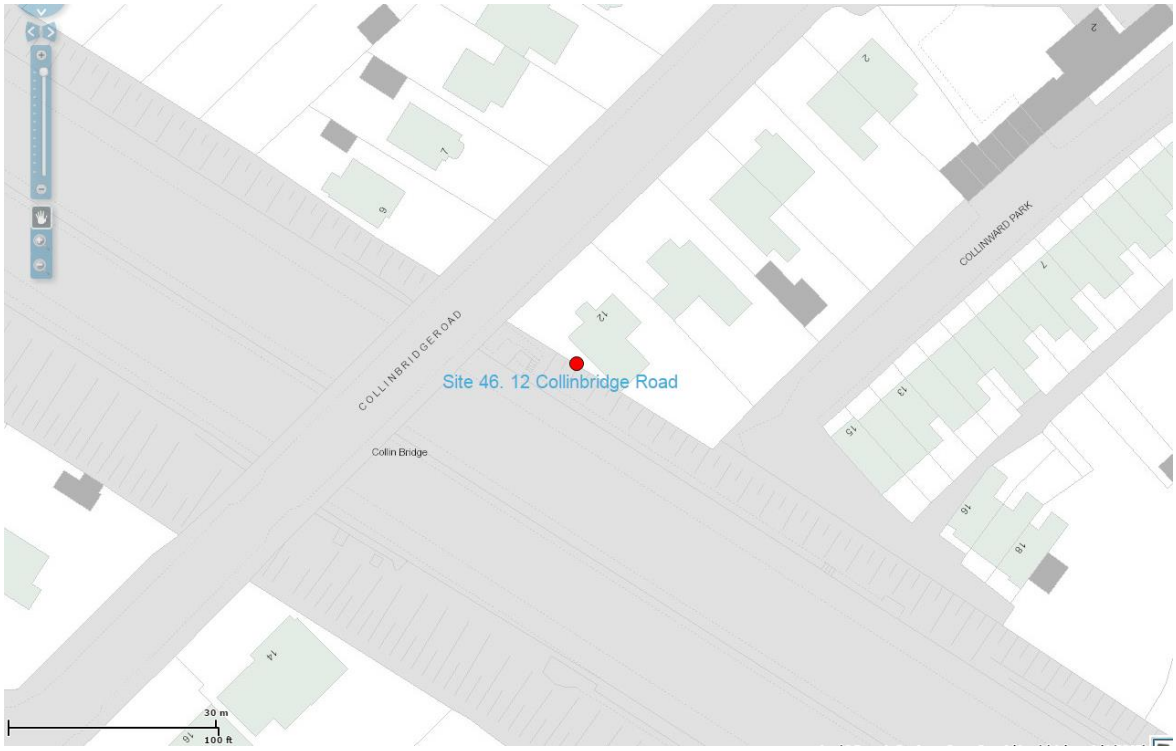
Diffusion Tube sites

Site 57 and Site 12 - 7 Sandyholme Way

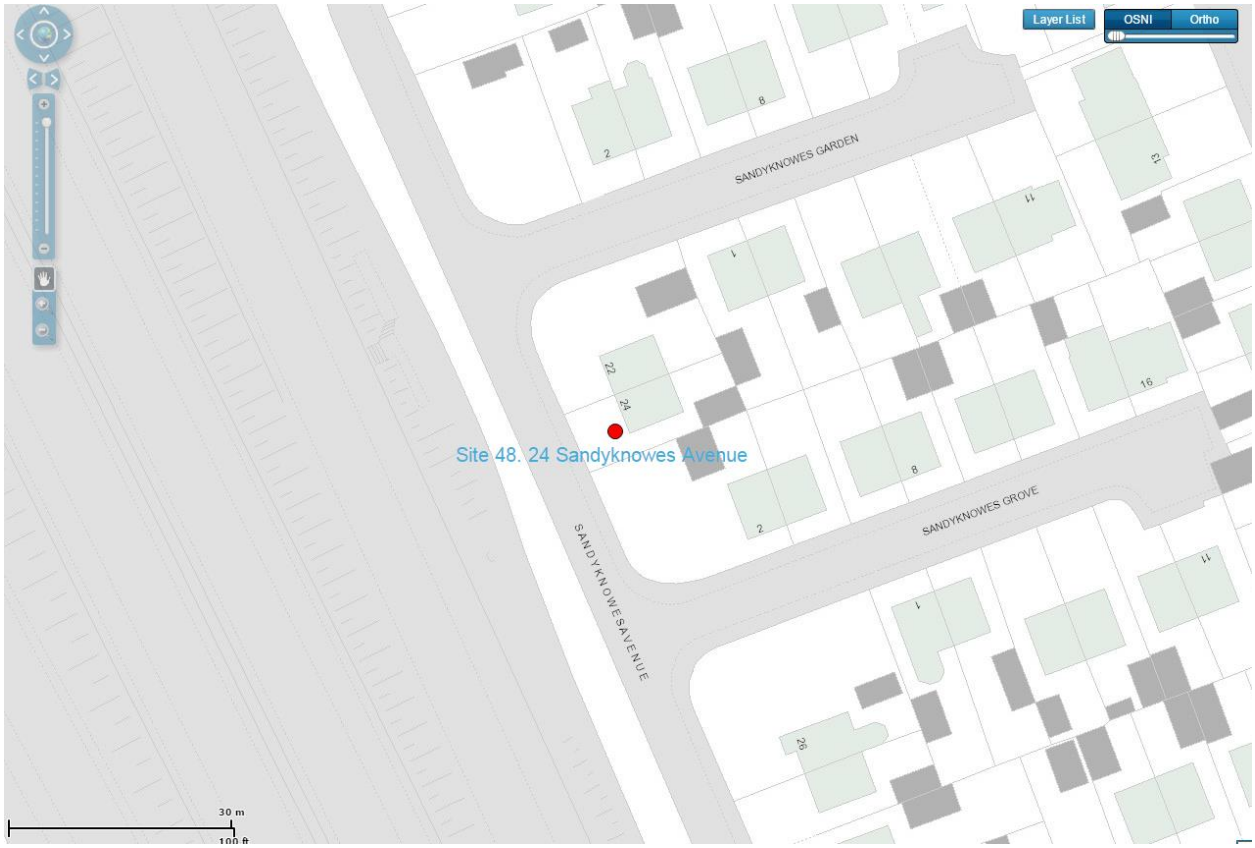
Site 8 -Braden Heights, Rathcoole



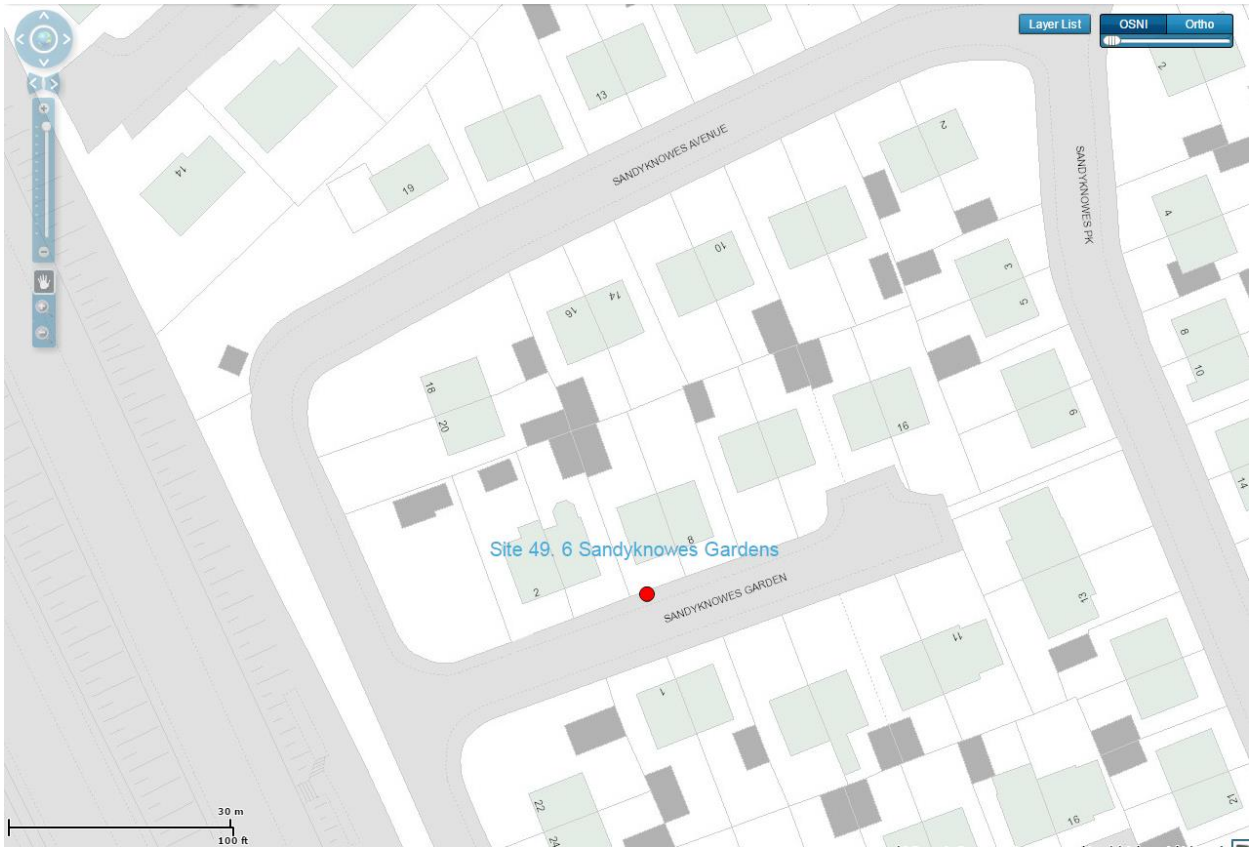
Site 46 - 12 Collinbridge Road



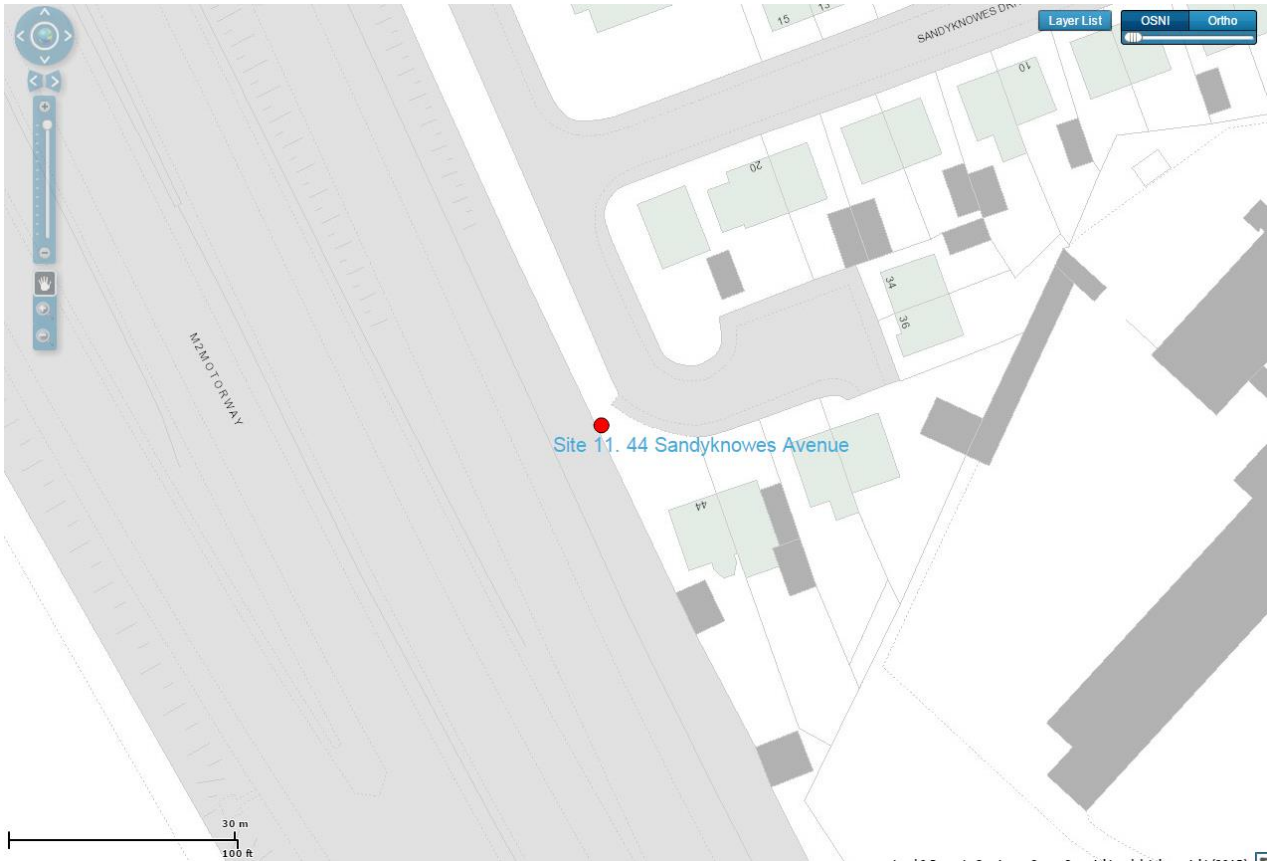
Site 48 - 24 Sandyknowes Avenue



Site 49 - 6 Sandyknowes Gardens



Site 11 - 44 Sandyknowes Avenue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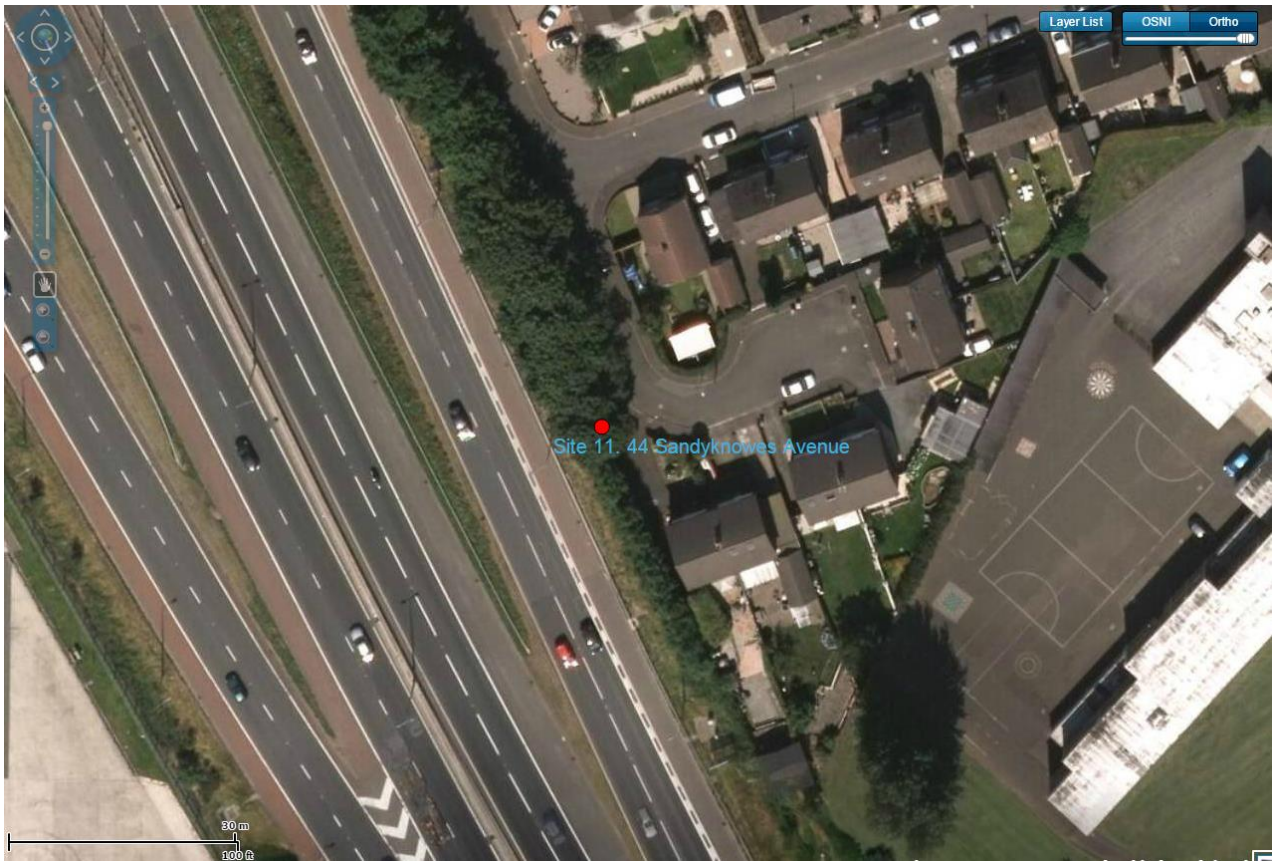
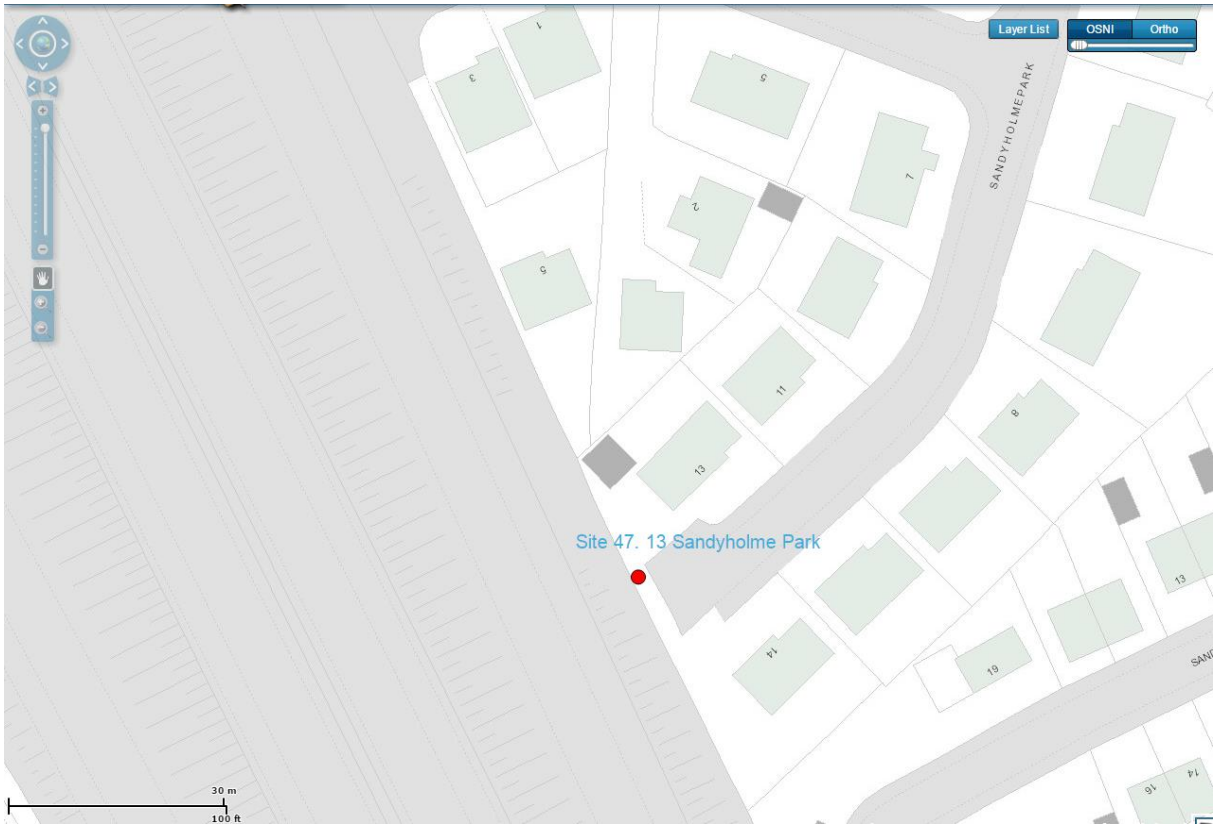
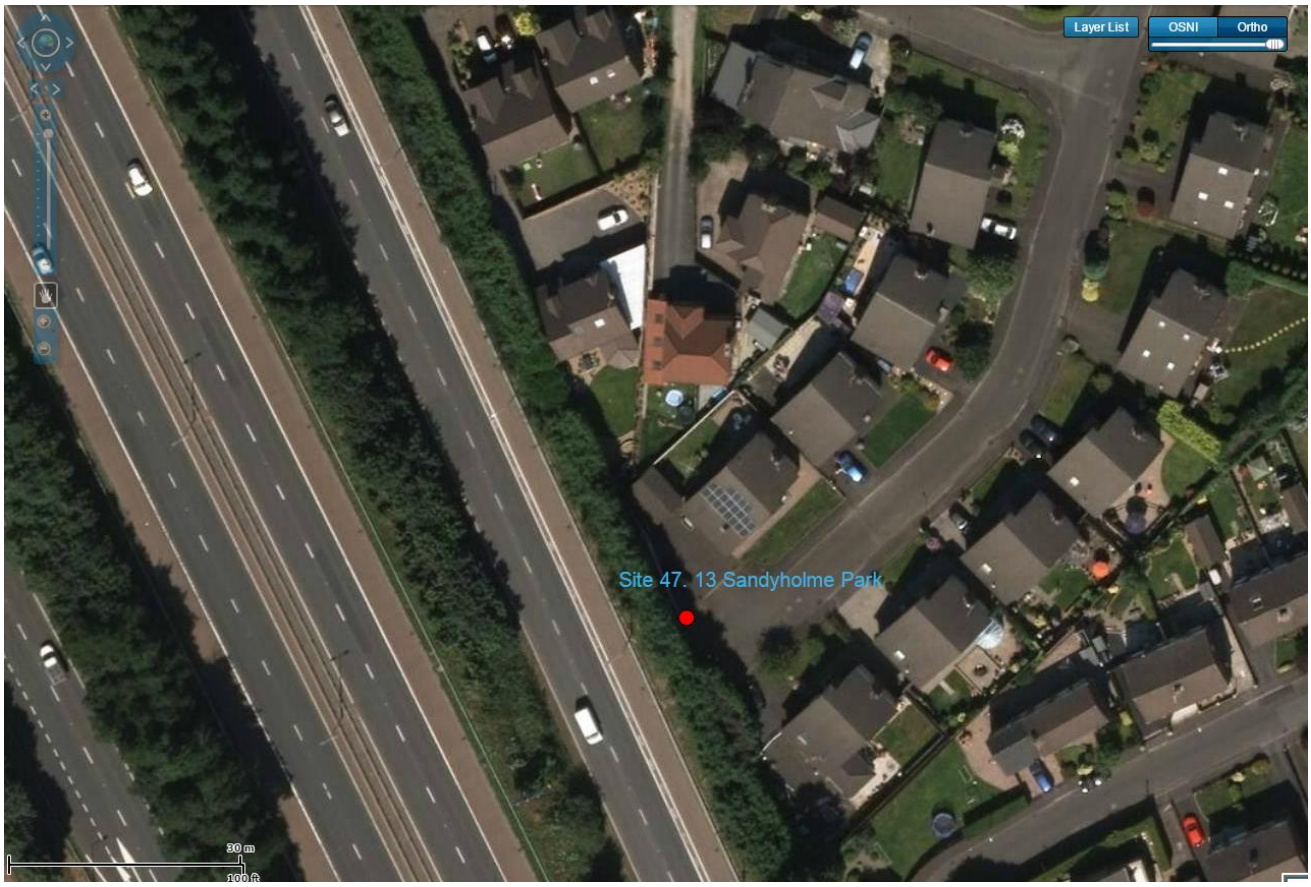
OSNI
Ortho
SANDYKNOWES DR
M2/M1 MOTORWAY
Site 11. 44 Sandyknowes Avenue
30 m
100 ft

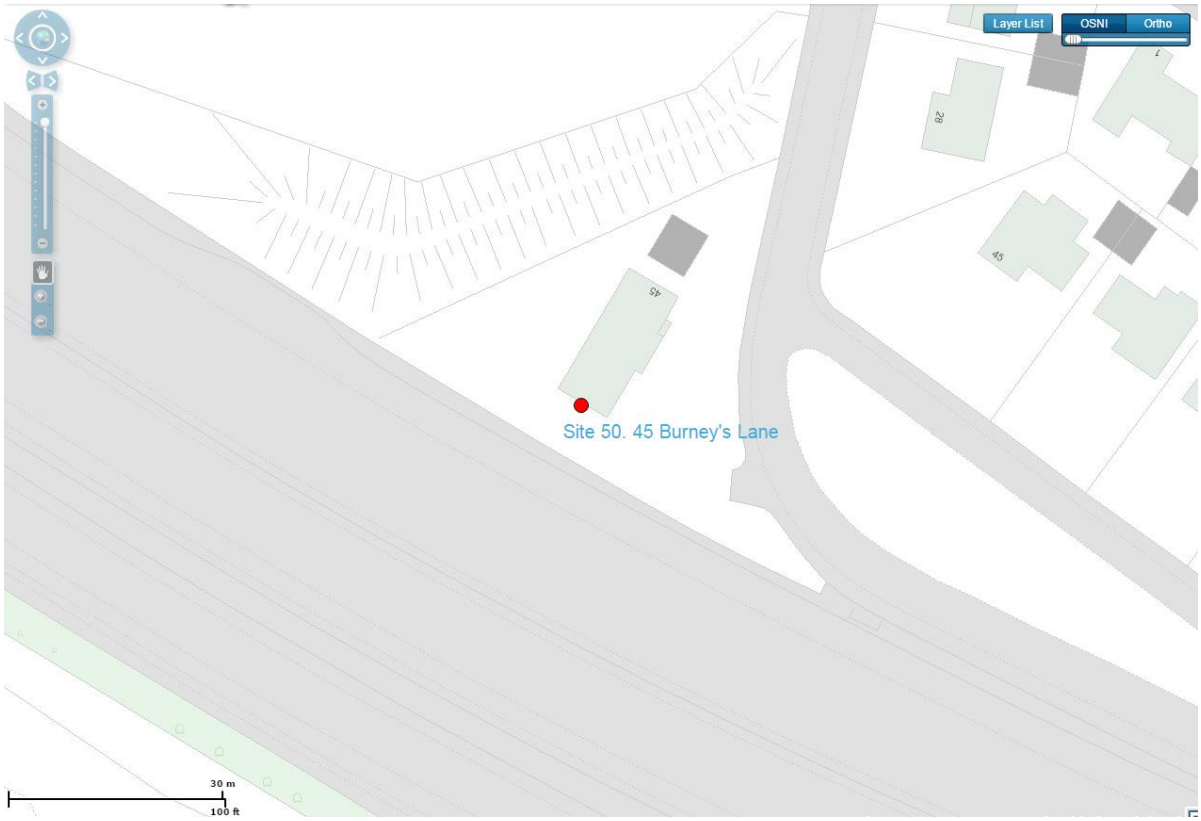

Layer List
OSNI
Ortho
Site 11. 44 Sandyknowes Avenue
30 m
100 ft

Site 47 - 13 Sandyholme Park



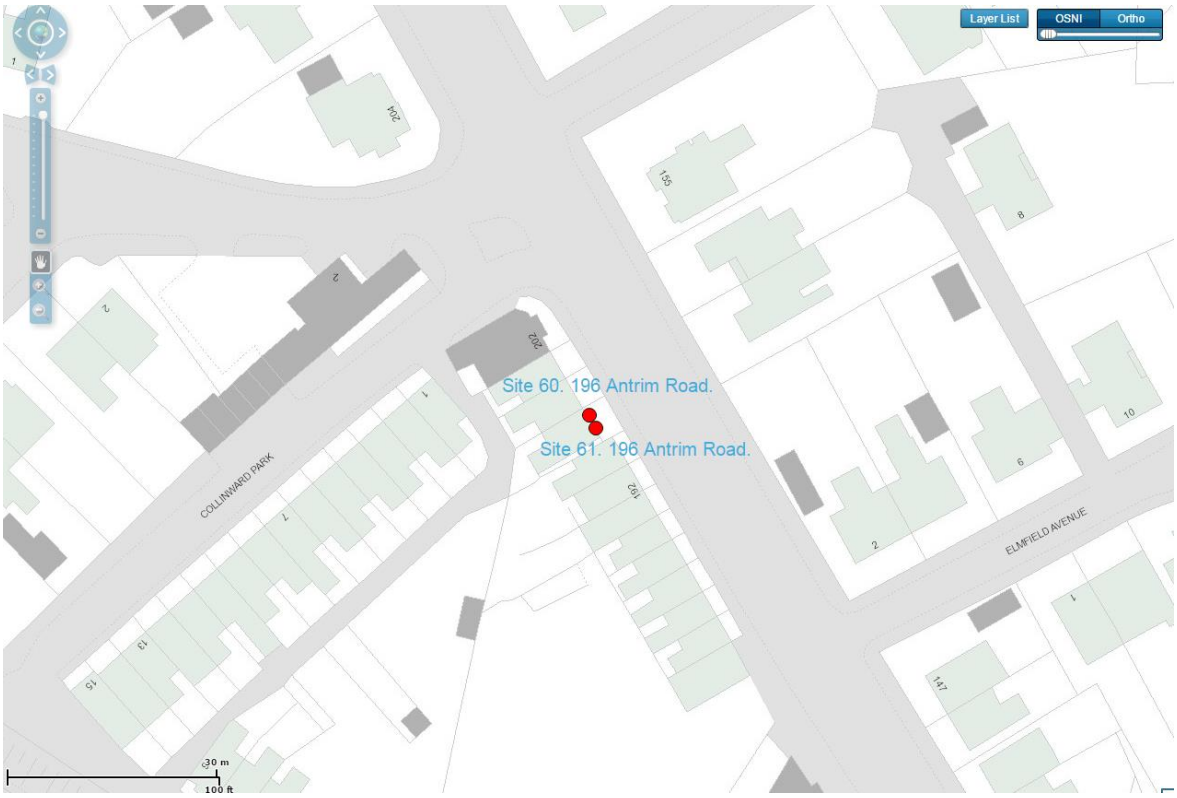


Site 50 - 45 Burney's Lane

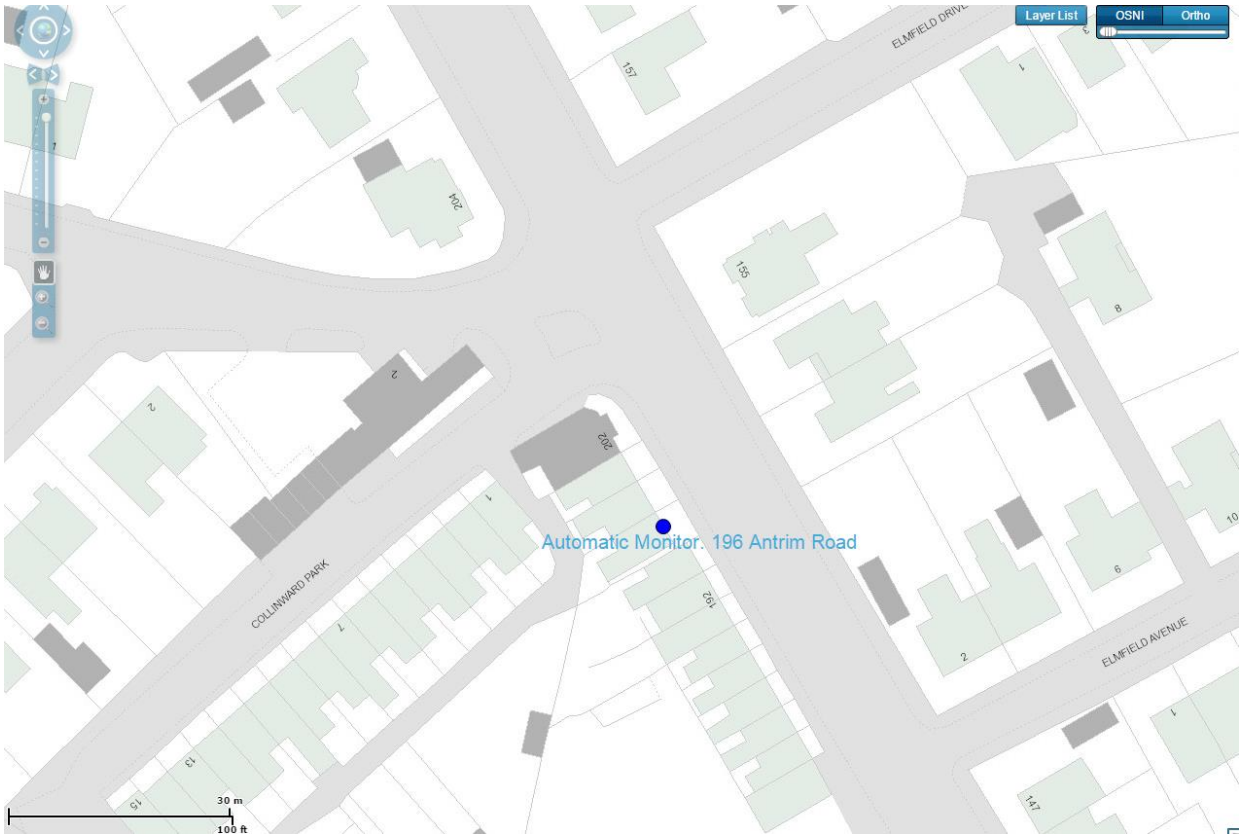


Site 58 - 198 Antrim Road

Site 60 and Site 61 -196 Antrim Road



Automatic Monitoring Site -196 Antrim Road



Appendix D: Monthly Diffusion Tube Results 2015

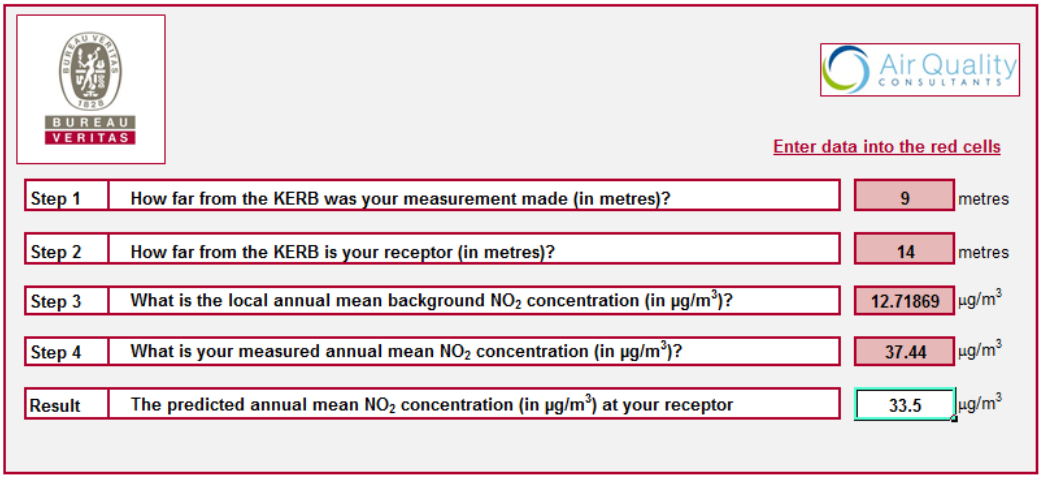
	Location	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Site 57	7 Sandyholme Way	47.95	45.71	38.61	39.10	34.27	42.58			70.17*	57.11	44.24	48.29
Site 12	7 Sandyholme Way	50.11	45.53	44.40	40.69	35.51	45.04		tube missing	50.93	54.63	51.76	48.31
Site 8	Braden Heights, Rathcoole	21.80	19.29	17.25	16.42	11.62	11.76		15.29	14.19	22.87	16.81	24.47
Site 11	44 Sandyknowes Avenue	47.07	48.50	42.97	42.15	34.57	36.37		43.14	41.92	47.58	35.98	39.20
Site 58	Lampost at Antrim, Elmfield Analyser	43.39	49.09	50.79	48.02	39.39	33.63		51.68	45.76	66.59	43.63	55.75
Site 46	12 Collinbridge Road	38.12	39.97	41.17	41.75	32.60	35.26		42.21	42.77	54.19	37.44	41.51
Site 47	13 Sandyholme Park	53.98	45.32	46.55	43.80	36.99	43.81		43.40	41.19	48.75	56.33	45.71
Site 48	24 Sandyknowes Avenue	56.19	48.37	53.39	40.96	36.10	37.68		33.10	38.95	44.66	48.47	40.40
Site 49	6 Sandyknowes Gardens	34.91	31.00	32.89	30.36	23.81	22.99		28.51	28.35	30.68	27.04	28.60
Site 50	45 Burney's Lane	40.85	39.52	37.96	32.50	27.38	29.00		40.19	37.28	41.91	28.48	37.81
Site 60	On downpipe 196 Antrim Rd	41.28	39.70	42.89	40.39	31.24	32.88			70.59*	45.21	29.46	37.35
Site 61	On downpipe 196 Antrim Rd	44.93	41.17	38.95	39.98	31.05	33.85			78.11*	51.46	34.49	37.77

*Tube exposed for two months

July 2015 During analysis of nitrogen dioxide diffusion tubes the laboratory experienced a computer error and all data was lost.

Appendix E: NO2 Fall off with Distance Calculator Results

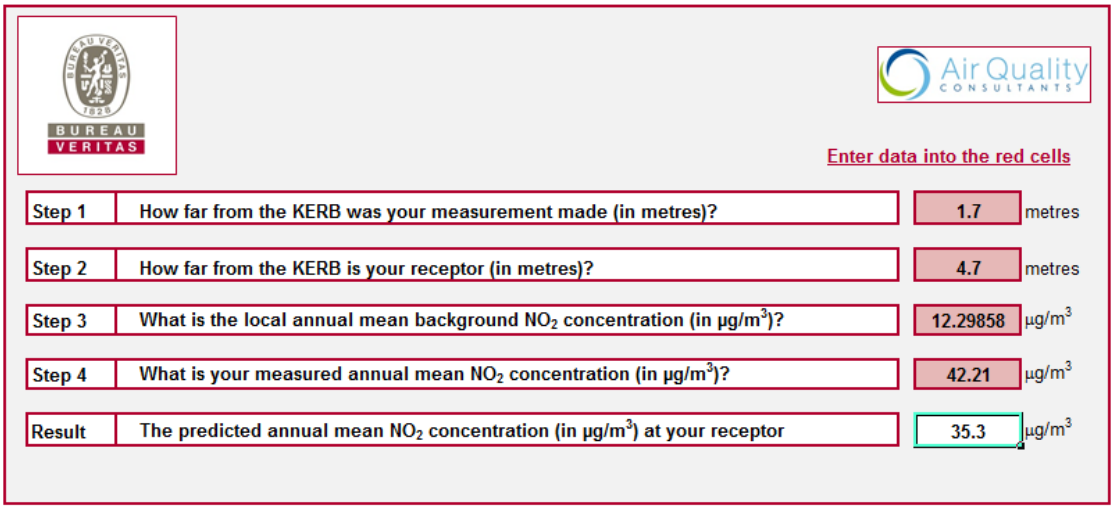
Diffusion Tube 57 (7 Sandyholme Way)



Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	9	metres
Step 2	How far from the KERB is your receptor (in metres)?	14	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.71869	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	37.44	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	33.5	µg/m^3

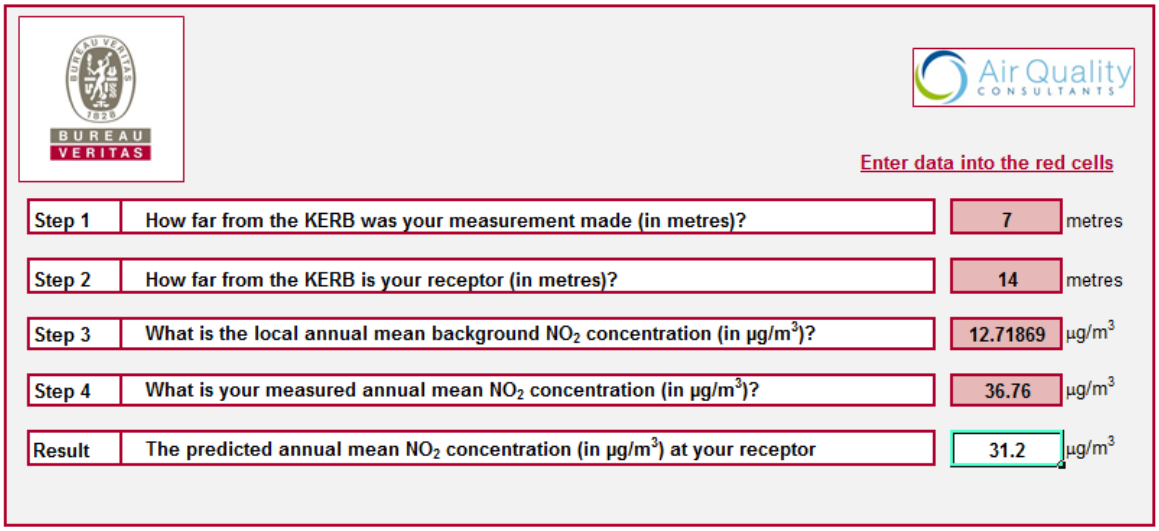
Diffusion Tube 58 – Lamp post Antrim Road



Enter data into the red 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)?	12.29858	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	42.21	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	35.3	µg/m^3

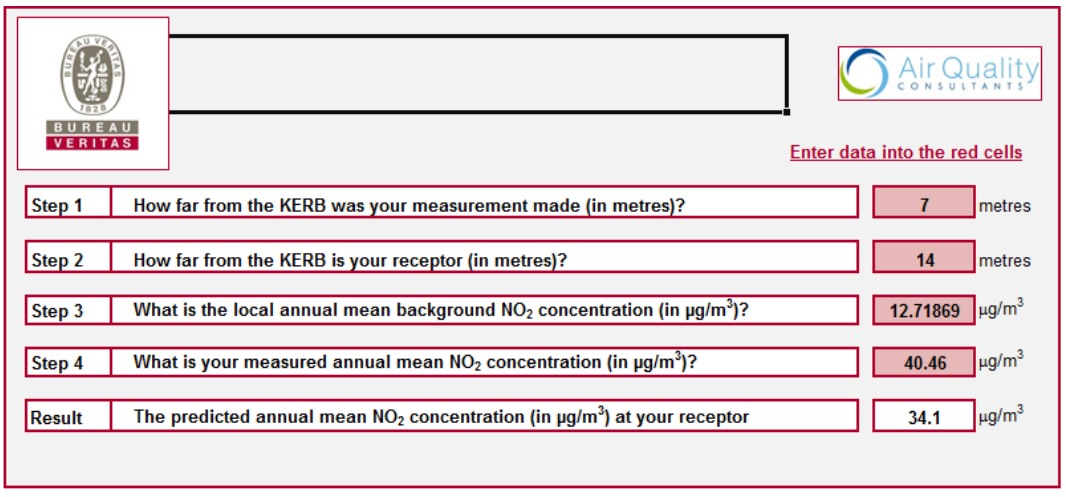
Diffusion Tube 11 (44 Sandyknowes Avenue)



Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	7	metres
Step 2	How far from the KERB is your receptor (in metres)?	14	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.71869	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	36.76	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	31.2	µg/m^3

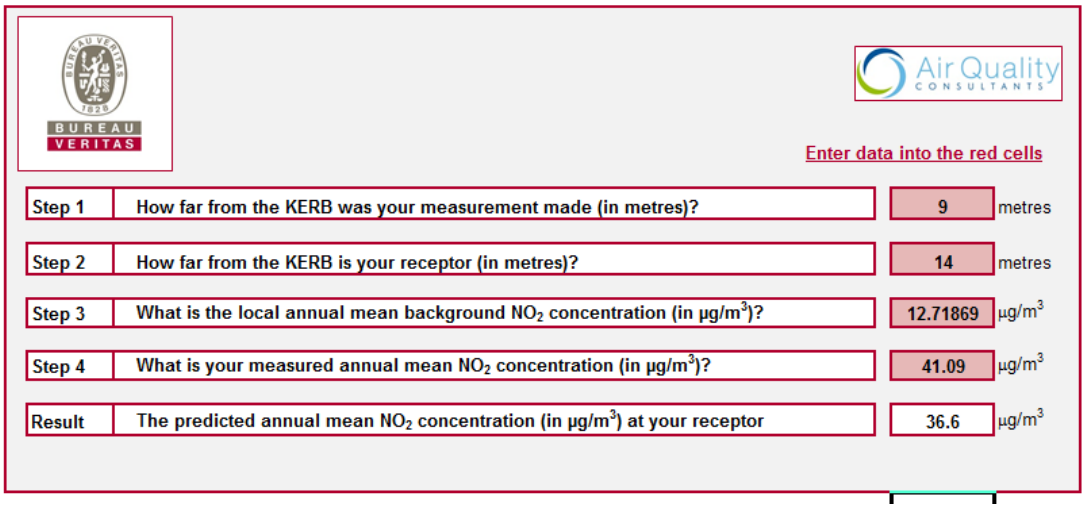
Diffusion Tube 47 (13 Sandyholme Park)



Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	7	metres
Step 2	How far from the KERB is your receptor (in metres)?	14	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.71869	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	40.46	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	34.1	µg/m^3

Diffusion Tube 12 (7 Sandyholme Way)



Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	9	metres
Step 2	How far from the KERB is your receptor (in metres)?	14	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.71869	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	41.09	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	36.6	µg/m^3