2015 Updating and Screening Assessment for

Causeway Coast and Glens Borough Council

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

July 2015

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Executive Summary

Air quality assessments have been undertaken in the four legacy Councils of Causeway Coast and Glens Borough Council. Initially desktop assessments were carried out to identify possible pollutant concentrations which would exceed the national air quality objective levels. These assessments identified that further work should be carried out to determine levels of nitrogen dioxide, sulphur dioxide and particulate matter.

Following on from these desktop assessments modelling and in some instances monitoring were carried out to determine if these objective levels of these pollutants were likely to be exceeded. Fuel use surveys, DMRB assessments and passive monitoring were carried out to establish if any of these pollutants required more detailed assessment.

Of the three pollutants considered sulphur dioxide and particulate matter concentrations were found to be within the air quality objective levels. Of the four legacy councils Limavady Borough Council declared an AQMA within Main Street Dungiven as levels of nitrogen dioxide were found to be above the annual mean concentration of 40ugm^{-3}. In 2005 Ballymoney Council declared an AQMA within the Glebeside Estate as PM_{10} levels were above the daily mean air quality objective level as a result of domestic fuel burning. This AQMA was revoked in 2009 following the conversion of domestic properties from solid fuel to gas within the estate. Within Coleraine Moyle and Ballymoney Councils nitrogen dioxide levels were below the annual mean but it was decided that passive monitoring should continue to gauge levels and ensure that concentrations did not rise as a result of traffic emissions.

In light of this update and screening assessment no further detailed assessments are required within Causeway Coast and Glens Borough Council. The AQMA will remain in place as nitrogen dioxide levels in Main Street Dungiven remain above 40ugm^{-3}

Table of contents

Appendices

1 Introduction

1.1 Description of Local Authority Area

Causeway Coast and Glens Borough Council is located along the North and East coasts of the province and encompasses the former Councils of Limavady, Coleraine, Moyle and Ballymoney. It has a population of just over 140,000 residents and covers an area of approximately 2000km^2

The council area is a mix of market towns, small industrial hubs and open countryside.

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

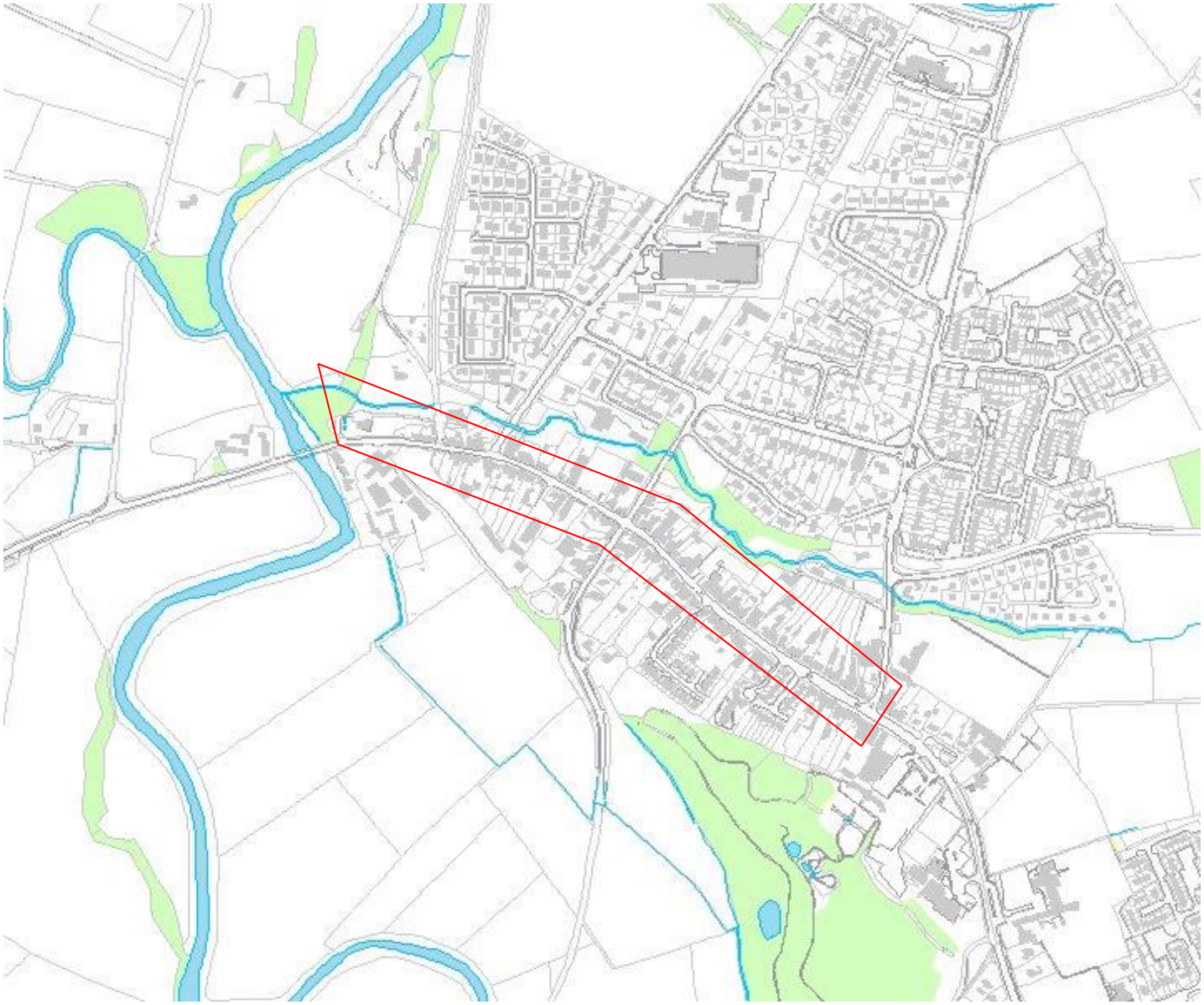
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	3.25 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	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

All four legacy Councils have carried out air quality review and assessments since 1998. Stage 1 assessments were carried out as desktop assessments to determine if any pollutant levels were likely to exceed the National Air Quality Objectives. Stage 2 assessments examined these pollutants in greater detail and required the need to carry out DMRB assessments, fuel use surveys and monitoring (either passively or continuously). Those assessments carried out in the past by the four legacy councils identified one Air Quality Management Area (AQMA) within Causeway Coast and Glens Borough Council area. The AQMA is located in Main Street Dungiven and was declared in 2006 as monitoring had shown that levels of nitrogen dioxide were above that annual mean concentration of 40µgm^{-3}. This AQMA was subsequently extended in 2008 to cover the whole of Main Street in Dungiven. A continuous monitor has been operational within the AQMA since mid-2010 and passive NO_2 diffusion tubes are used to compliment the data collected by the monitor. Passive monitoring of NO_2 levels has continued in areas beyond the AQMA. No other pollutant exceedences were identified within the legacy Council areas. Figure 1.1 shows the AQMA within Dungiven.

Figure 1.1 Map of AQMA Boundary

Map illustrating AQMA, Main Street, Dungiven



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

A continuous monitor has been located in Main Street Dungiven. In recent years (2013 & 2014) there have been several technical issues with the monitor. The data capture (%) would not be sufficient to rely on the results from the analyser. Monitoring data from the passive diffusion tubes would however suggest that levels of nitrogen dioxide are still in excess of the annual mean threshold of 40ugm^{-3}.

Figure 2.1 Map of Automatic Monitoring Site, Main Street, Dungiven

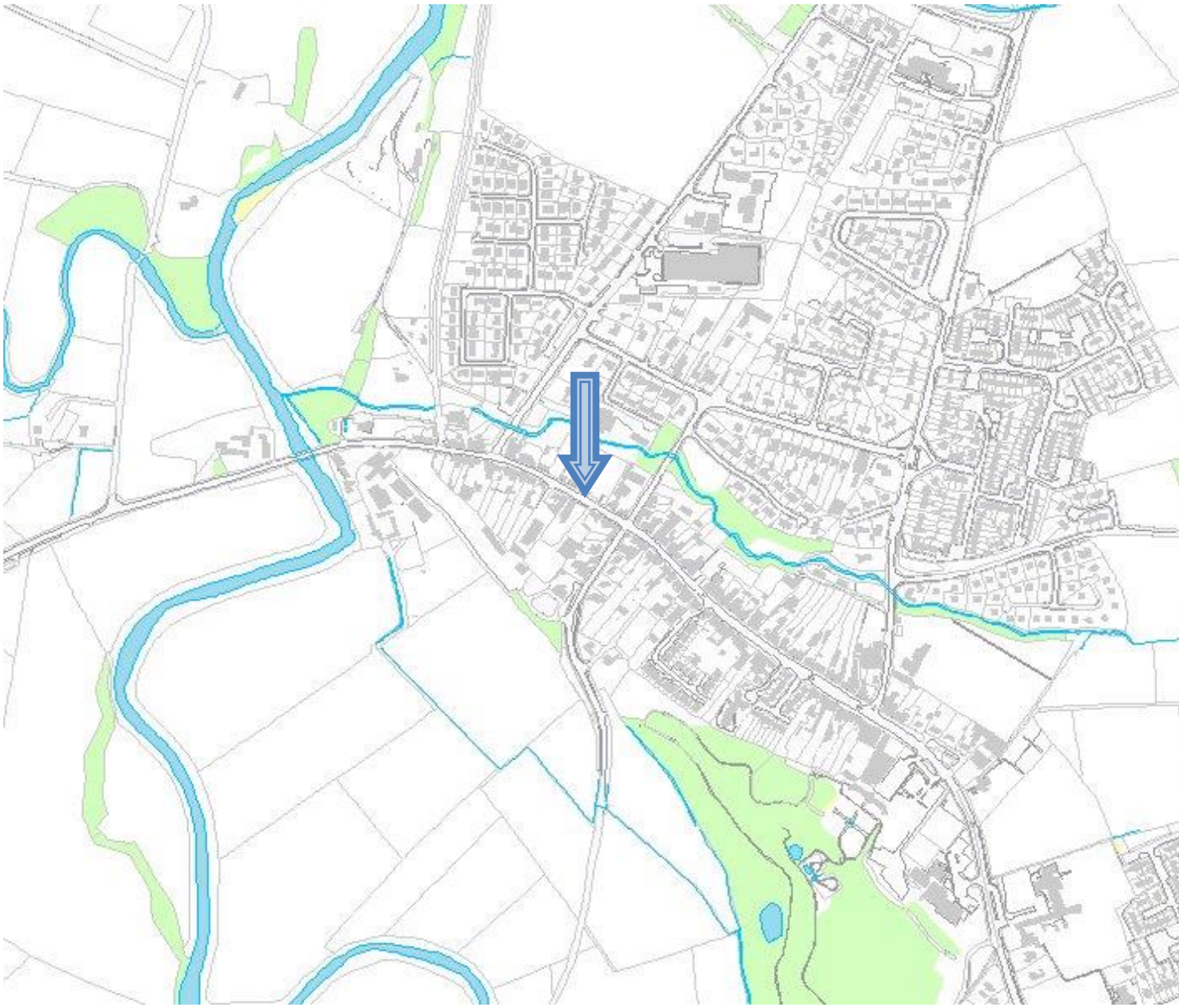


Table 2.1 Details of Automatic Monitoring Sites

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?
Dungiven AQMA	Roadside	54.928354	-6.926665	NO_2	Y	Chemiluminescent	Y (1m)	1m	Y

2.1.2 Non-Automatic Monitoring Sites

Nitrogen dioxide (NO_2) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides. All combustion processes produce nitrogen oxide emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide mainly as a result of reactions with ozone in the atmosphere. Exposure to high concentrations of nitrogen dioxide is reported to sensitize asthmatics to allergens such as irritant chemicals, house dust mites and pollen.

In urban areas, particularly close to major roads, motor vehicles account for the largest proportion of nitrogen oxide emissions. The contribution of road transport to nitrogen oxide emissions has declined significantly in recent years as a result of various national policy measures. Within Coleraine nitrogen dioxide monitoring is being carried out at 30 sites using passive diffusion tubes. Seven passive diffusion sites are located within the AQMA in Dungiven to supplement the data collected by the continuous monitor. Within Ballymoney eight sites have been identified for passive monitoring and 10 sites are assessed around the towns and villages of Ballycastle, Cushendall, Armoy and Bushmills.

Diffusion tubes are a type of passive sampler; they absorb the pollutant to be monitored directly from the surrounding air. Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives. Monitoring sites are chosen to provide data on locations where there is relevant public exposure and where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review.

Tubes are replaced once per month resulting in an exposure period of one month. At the end of the monitoring period the tubes are collected, documentation filed and then sent to the laboratory (Gradko) to undergo analysis.

On completion of analysis the results are e mailed to the respective offices and are recorded for use in the final results tabulation for the year.

Results obtained from diffusion tube analysis require correction for possible positive bias (over-read), or negative bias (under-read). The preparation method used was an absorbent of 20% TEA (Triethanolamine) in water. The bias adjustment factor for Gradko and the technique in 2013 is 0.95. This factor is based on 24 studies and is taken from the defra website at:
http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

YEAR	BIAS ADJUSTMENT FACTOR
2010	**0.85**
2011	**0.91**
2012	**0.97**
2013	**0.95**
2014	**0.91**

Figure 2.2 Map(s) of Non-Automatic Monitoring Sites (if applicable)

Not applicable

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	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)*	Does this location represent worst-case exposure?
Coleraine13	Kerbside	282003	437106	NO_2	N	N	Y(4m)	1m	Y
Coleraine 14	kerbside	281742	437925	NO_2	N	N	Y(3m)	1m	Y
Coleraine 15	kerbside	285684	440929	NO_2	N	N	Y (3m)	1m	Y
Coleraine 7	kerbside	286048	439997	NO_2	N	N	Y(2m)	1m	Y
Coleraine 16	suburban	285608	438986	NO_2	N	N	Y(4m)	1m	Y
Coleraine 9	Urban background	284487	434466	NO_2	N	N	Y(2m)	1m	Y
Coleraine 17	roadside	285040	433065	NO_2	N	N	Y(1m)	1m	Y
Coleraine 1	Urban centre	284876	432701	NO_2	N	N	Y(3m)	1m	Y
Coleraine 18	Urban centre	285075	432722	NO_2	N	N	Y(3m)	1m	Y
Coleraine 2	Urban centre	285247	432709	NO_2	N	N	Y (4m)	1m	Y
Coleraine 19	roadside	285350	432873	NO_2	N	N	Y (3m)	1m	Y
Coleraine 3	Urban centre	285197	432555	NO_2	N	N	Y (1m)	1m	Y
Coleraine 20	roadside	285022	432209	NO_2	N	N	Y (0.5m)	1m	Y
Coleraine 10	Urban centre	284855	432048	NO_2	N	N	Y (1m)	1m	Y
Coleraine 21	Roadside	284637	432268	NO_2	N	N	Y (1m)	1m	Y
Coleraine 5	kerbside	284495	432337	NO_2	N	N	Y (1m)	1m	Y
Coleraine 17	Roadside	285677	431651	NO_2	N	N	Y (1m)	1m	Y
Coleraine 22	roadside	285506	431161	NO_2	N	N	Y (1m)	1m	Y

Site Name	Site Type	X OS Grid Ref	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)*	Does this location represent worst-case exposure?
Coleraine 8	rural	285950	429864	NO_2	N	N	Y (4m)	1m	Y
Coleraine 23	roadside	292590	412560	NO_2	N	N	Y (3m)	0.5m	Y
Coleraine 24	roadside	292420	412440	NO_2	N	N	Y (2m)	2m	Y
Coleraine 25	roadside	238972	415319	NO_2	N	N	Y (4m)	1m	Y
Coleraine 26	roadside	284105	416066	NO_2	N	N	Y (0.5)	1m	Y
Coleraine 27	roadside	284003	430787	NO_2	N	N	Y (5m)	0.5	Y
Coleraine 28	roadside	284433	432263	NO_2	N	N	Y (3m)	1m	Y
Coleraine 29	roadside	278148	434046	NO_2	N	N	Y (4m)	1m	Y
Coleraine 30	suburban	277358	435877	NO_2	N	N	Y (4m)	1m	Y
Coleraine 12	urban	248397	432451	NO_2	N	N	Y (7m)	1m	Y
Coleraine 6	urban	248397	432451	NO_2	N	N	Y (4m)	1m	Y
Coleraine 11	urban	285036	433417	NO_2	N	N	Y (4m)	1m	Y
Dungiven	Urban background	268957	409535	NO_2	Y	N	Y (1m)	1m	Y
Dungiven	roadside	268887	409482	NO_2	Y	N	Y (1m)	1m	Y
Dungiven	roadside	268852	409502	NO_2	Y	N	Y (1m)	1m	Y
Dungiven	roadside	268742	409543	NO_2	Y	N	Y (1m)	1m	Y
Dungiven	roadside	268981	409387	NO_2	Y	N	Y (1m)	2m	Y
Dungiven	roadside	269190	409219	NO_2	Y	N	Y (1m)	2m	Y
Dungiven	roadside	269051	409338	NO_2	Y	N	Y (1m)	2m	Y

Site Name	Site Type	X OS Grid Ref	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)*	Does this location represent worst-case exposure?
Ballycastle	Roadside	311978	441022	NO_2	N	N	Y (12m)	1.6	Y
Ballycastle	Roadside	311505	440828	NO_2	N	N	Y (10m)	5.25	Y
Ballycastle	Roadside	311290	440659	NO_2	N	N	Y (10m)	1.6	Y
Ballycastle	Roadside	310912	440761	NO_2	N	N	Y (6m)	2.5	Y
Cushendall	Roadside	323685	427677	NO_2	N	N	Y (15m)	1.4	Y
Cushendall	Roadside	324177	427237	NO_2	N	N	Y (12m)	4.1	Y
Bushmills	Roadside	294076	440884	NO_2	N	N	Y (20m)	1.3	Y
Bushmills	Roadside	294103	440626	NO_2	N	N	Y (8m)	1.2	Y
Bushmills	Roadside	293777	440755	NO_2	N	N	Y (14m)	2.8	Y
Armoy	Roadside	306815	432830	NO_2	N	N	Y (30m)	2.0	Y
Ballymoney	kerbside			NO_2	N	N	N	1m	Y
Ballymoney	kerbside			NO_2	N	N	Y (10m)	1m	Y
Ballymoney	Urban background			NO_2	N	N	Y (20m)	N/A	Y
Ballymoney	Urban background			NO_2	N	N	Y (5m)	N/A	Y
Ballymoney	kerbside			NO_2	N	N	Y (10m)	1m	Y
Ballymoney	kerbside			NO_2	Y	N	Y (15m)	1m	Y
Ballymoney	kerbside			NO_2	N	N	Y (15m)	1m	Y
Ballymoney	kerbside			NO_2	N	N	Y (10m)	1m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Within AQMA

Passive monitoring has been deployed to compliment the data collected by the automatic monitor located within Main Street. Data has shown that levels of nitrogen dioxide remain high within the AQMA. There would appear at times to be seasonal variations in the levels measured but overall levels are close to if not above the annual mean concentration of 40ugm^{-3} and indeed levels at times can be close to the hourly mean concentration of 60ugm$^{-3.}$

Beyond the AQMA nitrogen dioxide levels are consistently below the annual mean concentration of 40ugm^{-3}. Previous update and screening assessments and progress reports have not highlighted a need for detailed or further assessments to be undertaken and more recent data would indicate that this is still the case. Given the data obtained it is proposed to reduce the number of monitoring sites within the former Coleraine Borough Council area. Passive monitoring will continue within the Causeway Coast and Glens Borough Council area to ensure that any increase in levels will be detected.

Automatic Monitoring Data

Due to technical issues with the continuous monitor there has been insufficient data captured to comment on pollutant levels

Diffusion Tube Monitoring Data

Within AQMA

Levels of nitrogen dioxide within the AQMA remain high. Results show that at several locations within the AQMA levels are above the annual mean concentration of 40ugm^{-3} .

Within Coleraine, Ballymoney and Ballycastle nitrogen dioxide levels have remained below the annual mean objective level over the past few years.

The levels recorded have been illustrated in the corresponding graphs below.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (μg/m^3)
Coleraine 13	Outside 114 Coleraine Rd Portstewart	Kerbside	N	N	8	Y	N	13.33
Coleraine 14	Outside O'Hara Court Portstewart	kerbside	N	N	11	N	N	17.66
Coleraine 15	Corner of Antrim Gardens Main St Portrush	kerbside	N	N	10	N	N	9.7
Coleraine 7	Crocknamack Roundabout Portrush	kerbside	N	N	11	N	N	19.6
Coleraine 16	Outside 118 Coleraine Rd Portrush	suburban	N	N	11	N	N	12.63
Coleraine 9	UUC Coleraine	Urban background	N	N	11	N	N	8.13
Coleraine 17	Millburn Road Coleraine	roadside	N	N	11	N	N	15.89
Coleraine 1	Bottom of Union St Coleraine	Urban centre	N	N	11	N	N	28.4
Coleraine 18	Corner of Brook St Coleraine	Urban centre	N	N	11	N	N	28.5
Coleraine 2	Top of Union St Coleraine	Urban centre	N	N	11	N	N	22.04
Coleraine 19	Outside 42 Bushmills Rd Coleraine	roadside	N	N	11	N	N	21.65

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (μg/m^3)
Coleraine 3	Railway Road Coleraine	Urban centre	N	N	10	N	N	15.69
Coleraine 20	Outside 75 Long Commons Coleraine	roadside	N	N	11	N	N	21.54
Coleraine 10	Outside Tesco Coleraine	Urban centre	N	N	11	N	N	20.59
Coleraine 21	Hanover Place Post 34 Coleraine	Roadside	N	N	10	N	N	19.61
Coleraine 5	Strand Rd Coleraine	kerbside	N	N	11	N	N	18.5
Coleraine 4	Lodge Rd Roundabout Coleraine	Roadside	N	N	10	N	N	25.04
Coleraine 22	Mountsandel Rugby Ave Roundabout	roadside	N	N	11	N	N	13.26
Coleraine 8	Glenara Court Castleroe Coleraine	rural	N	N	11	N	N	5.87
Coleraine 23	Kilrea Lower Diamond	roadside	N	N	11	N	N	22.2
Coleraine 24	Kilrea Maghera St	roadside	N	N	11	N	N	17.9
Coleraine 25	Outside 8 Carhill Rd Garvagh	roadside	N	N	10	N	N	11.17
Coleraine 26	Opposite Supervalu Garvagh	roadside	N	N	11	N	N	15.7
Coleraine 27	Post 11 Lismurphy Greenmount	roadside	N	N	10	N	N	18.92

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (μg/m^3)
Coleraine 28	Outside Killowen House Coleraine	roadside	N	N	11	N	N	15.91
Coleraine 29	Dunboe Gardens Post 24 Articlave	roadside	N	N	11	N	N	7.72
Coleraine 30	41 Sea Rd Castlerock	suburban	N	N	11	N	N	8.42
Coleraine 12	Bottom of Castlerock Rd Coleraine	urban	N	N	11	N	N	23.86
Coleraine 6	Dunnes Carpark Coleraine	urban	N	N	11	N	N	18.26
Coleraine 11	End of Portstewart Rd Coleraine	urban	N	N	11	N	N	19.54
Dungiven 1	Main St Dungiven	Urban background	Y	Triplicate	12	N	N	20.30
Dungiven 2	Main St Dungiven	roadside	Y	Triplicate	11	N	N	**41.25**
Dungiven 3	Main St Dungiven	roadside	Y	Triplicate	12	N	N	**44.31**
Dungiven 4	Main St Dungiven	roadside	Y	Triplicate	12	N	N	34.16
Dungiven 5	Main St Dungiven	roadside	Y	Triplicate	12	N	N	27.91
Dungiven 6	Main St Dungiven	roadside	Y	Triplicate	12	N	N	29.44
Dungiven 7	Main St Dungiven	roadside	Y	Triplicate	11	N	N	**43.60**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (μg/m^3)
Ballycastle 1	Quay Road Ballycastle	Roadside	N	N	12	N	N	15.16
Ballycastle 2	Ann St Ballycastle	Roadside	N	N	11	N	N	24.61
Ballycastle 3	Castle St Ballycastle	Roadside	N	N	12	N	N	22.04
Ballycastle 4	Market St/Leyland Rd junction Ballycastle	Roadside	N	N	12	N	N	14.91
Cushendall 1	Mill St Cushendall	Roadside	N	N	12	N	N	17.10
Cushendall 2	Coast Rd Cushendall	Roadside	N	N	12	N	N	8.97
Bushmills 1	The Diamond Bushmills	Roadside	N	N	10	N	N	13.65
Bushmills 2	Main St Bushmills	Roadside	N	N	11	N	N	24.25
Bushmills 3	Priestland Rd Bushmills	Roadside	N	N	12	N	N	10.05
Armoy 1	Main St Armoy	Roadside	N	N	10	N	N	13.12

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91) 2014 (μg/m^3)
Ballymoney 1	19 Linenhall St Ballymoney	kerbside	N	N	12	N	N	25.2
Ballymoney 2	8 Ballybogey Rd Ballymoney	kerbside	N	N	12	N	N	16.1
Ballymoney 3	Opp 16 Armour Ave Ballymoney	Urban background	N	N	10	N	N	8.5
Ballymoney 4	Semicock Ave Ballymoney	Urban background	N	N	11	N	N	11.0
Ballymoney 6	31 Charles St Ballymoney	kerbside	N	N	12	N	N	20.2
Ballymoney 7	Opp 51 Queen St Ballymoney	kerbside	N	N	11	N	N	22.3
Ballymoney 8	Meetinghouse St Ballymoney	kerbside	N	N	11	N	N	30.2
Ballymoney 9	Castle St Ballymoney	kerbside	N	N	12	N	N	15.9

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010* (Bias Adjustment Factor = 0.95)	2011* (Bias Adjustment Factor = 0.89)	2012* (Bias Adjustment Factor = 0.97)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
Coleraine 13	Kerbside	N	16.25	11.67	13.84	12.23	13.33
Coleraine 14	kerbside	N	23.56	17.81	20.03	17.90	17.66
Coleraine 15	kerbside	N	12.65	10.03	11.11	11.17	9.7
Coleraine 7	kerbside	N	23.83	19.49	20.39	20.13	19.6
Coleraine 16	suburban	N	15.52	12.31	13.75	12.71	12.63
Coleraine 9	Urban background	N	10.26	7.45	7.92	7.73	8.13
Coleraine 17	roadside	N	21.95	17.03	20.05	17.44	15.89
Coleraine 1	Urban centre	N	31.66	29.81	31.53	30.36	28.4
Coleraine 18	Urban centre	N	29.65	27.21	33.88	29.39	28.5
Coleraine 2	Urban centre	N	25.12	21.34	24.50	22.86	22.04
Coleraine 19	roadside	N	24.44	22.24	24.91	22.36	21.65
Coleraine 3	Urban centre	N	18.61	15.62	18.59	15.52	15.69
Coleraine 20	roadside	N	24.66	19.47	22.99	21.82	21.54
Coleraine 10	Urban centre	N	27.23	20.91	22.38	21.89	20.59

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010* (Bias Adjustment Factor = 0.95)	2011* (Bias Adjustment Factor = 0.89)	2012* (Bias Adjustment Factor = 0.97)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
Coleraine 21	Roadside	N	25.72	21.92	20.37	20.16	19.61
Coleraine 5	kerbside	N	23.53	18.87	20.84	20.21	18.5
Coleraine 4	Roadside	N	32.52	26.01	31.25	27.96	25.04
Coleraine 22	roadside	N	20.19	14.21	16.4	14.89	13.26
Coleraine 8	rural	N	8.26	6.68	6.32	5.54	5.87
Coleraine 23	roadside	N	25.1	23.36	24.98	23.23	22.2
Coleraine 24	roadside	N	19.77	16.58	18.15	16.68	17.9
Coleraine 25	roadside	N	16.96	13.28	15.42	13.51	11.17
Coleraine 26	roadside	N	18.9	15.7	17.49	16.18	15.7
Coleraine 27	roadside	N	20.53	17.73	20.26	19.29	18.92
Coleraine 28	roadside	N	20.82	15.91	16.76	16.76	15.91
Coleraine 29	roadside	N	10.34	7.85	8.61	9.02	7.72
Coleraine 30	suburban	N	13.32	8.60	8.88	8.37	8.42
Coleraine 12	urban	N	27.17	20.6	23.44	24.69	23.86
Coleraine 6	urban	N	20.8	19.97	19.19	18.87	18.26
Coleraine 11	urban	N	22.87	20.86	21.34	21.47	19.54
Dungiven	Urban background	Y		18.83	21.43	18.18	20.30
Dungiven	roadside	Y		37.22	**47.23**	**40.50**	**41.25**
Dungiven	roadside	Y		**44.05**	**50.39**	**47.05**	**44.31**
Dungiven	roadside	Y		**46.81**	**48.67**	**42.41**	34.16

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010* (Bias Adjustment Factor = 0.95)	2011* (Bias Adjustment Factor = 0.89)	2012* (Bias Adjustment Factor = 0.97)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
Dungiven	roadside	Y		39.19	**45.20**	37.44	27.91
Dungiven	roadside	Y		25.86	32.66	31.02	29.44
Dungiven	roadside	Y		38.25	37.51	**41.88**	**43.60**
Ballycastle 1	Roadside	N	19.38	17.4	16.29	16.2	15.61
Ballycastle 2	Roadside	N	34.87	31.41	26.73	26.5	24.61
Ballycastle 3	Roadside	N	26.86	22.05	22.06	21.4	22.04
Ballycastle 4	Roadside	N	19.21	20.88	16.92	16.6	14.91
Cushendall 1	Roadside	N	18.34	17.1	15.33	17.1	17.10
Cushendall 2	Roadside	N	11.10	10.98	8.59	9.9	8.97
Bushmills 1	Roadside	N	16.48	14.94	14.89	14.7	13.65
Bushmills 2	Roadside	N	25.19	26.78	23.74	24.3	24.25
Bushmills 3	Roadside	N	12.68	11.70	9.37	12.0	10.05
Armoy 1	Roadside	N	13.32	13.92	14.56	13.9	13.12
Ballymoney 1	kerbside	N	30	23	25.10	25	25.2
Ballymoney 2	kerbside	N	19	15	18.43	17	16.1
Ballymoney 3	Urban background	N	10	7	9.54	11	8.5

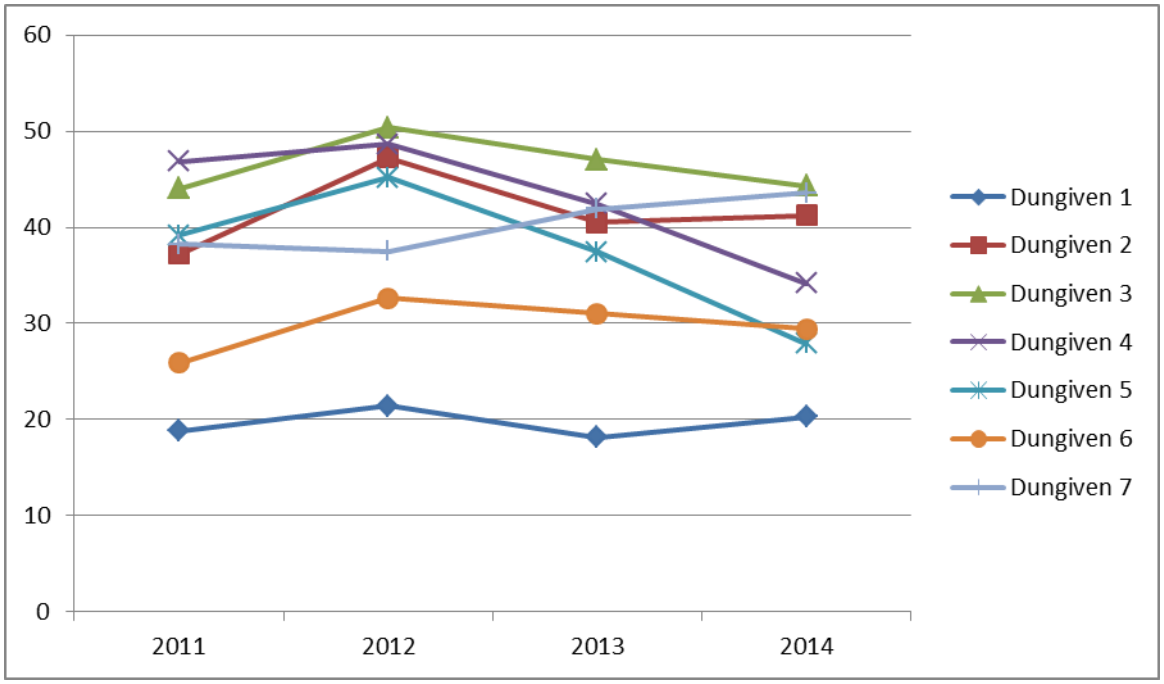
Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010* (Bias Adjustment Factor = 0.95)	2011* (Bias Adjustment Factor = 0.89)	2012* (Bias Adjustment Factor = 0.97)	2013* (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
Ballymoney 4	Urban background	N	12	9	10.59	10	11.0
Ballymoney 6	kerbside	N	22	24	25.34	27	20.2
Ballymoney 7	kerbside	N	22	21	23.47	25	22.3
Ballymoney 8	kerbside	N	35	26	31.40	28	30.2
Ballymoney 9	kerbside	N	18	14	17.79	29	15.9

*Optional

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

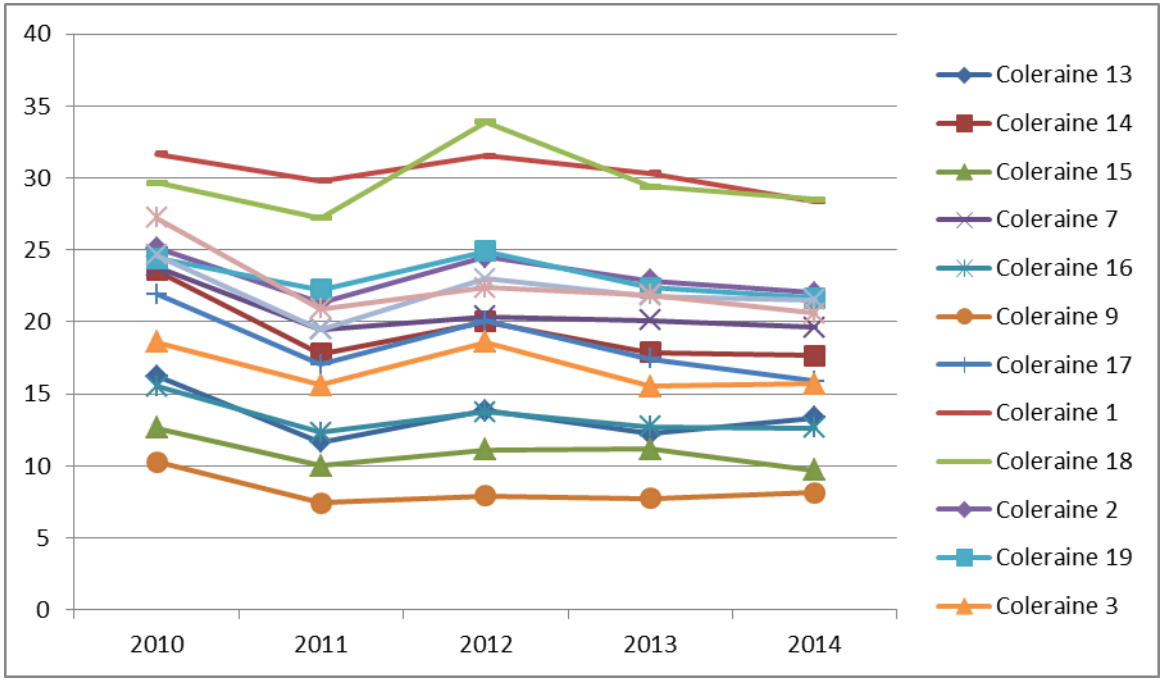
A trend chart may be inserted here. Please discuss any trends shown.

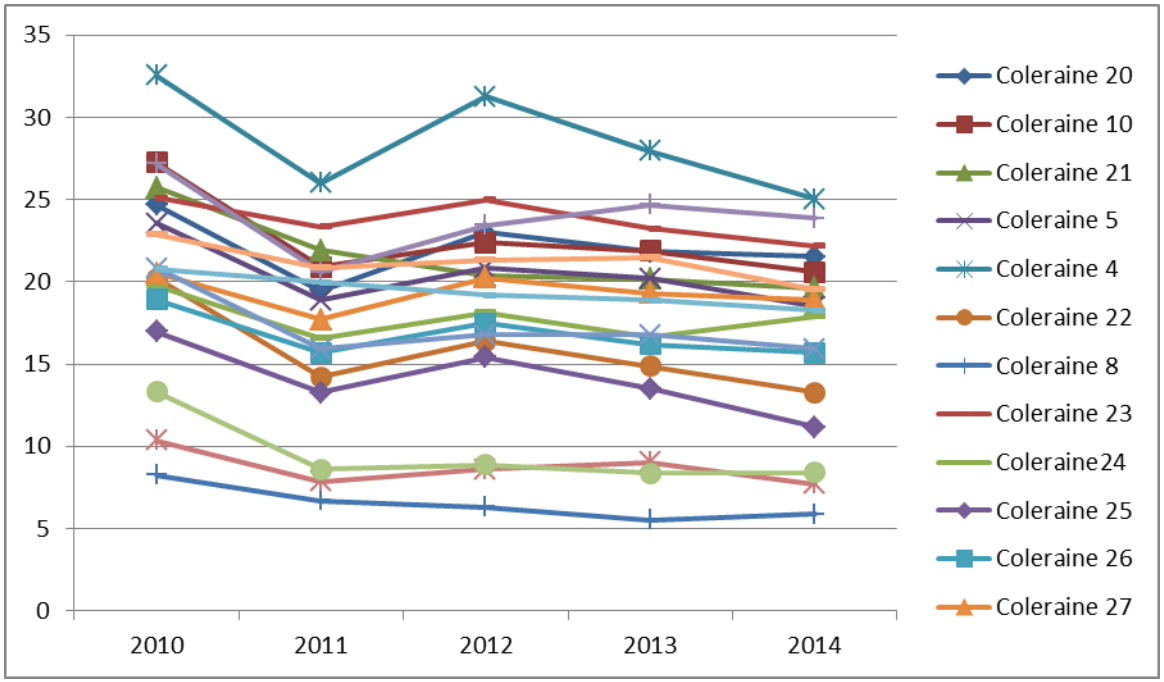
Dungiven



Levels of NO_2 remain high within the AQMA in Dungiven. Monitoring points Dungiven 2,3,4 & 5 all show levels above the annual mean concentration of 40ugm^{-3} over the past 4 years. (Dungiven 7 represents background concentrations)

Coleraine


40
35
30
25
20
15
10
5
0
2010
2011
2012
2013
2014
Coleraine 13
Coleraine 14
Coleraine 15
Coleraine 7
Coleraine 16
Coleraine 9
Coleraine 17
Coleraine 1
Coleraine 18
Coleraine 2
Coleraine 19
Coleraine 3


35
30
25
20
15
10
5
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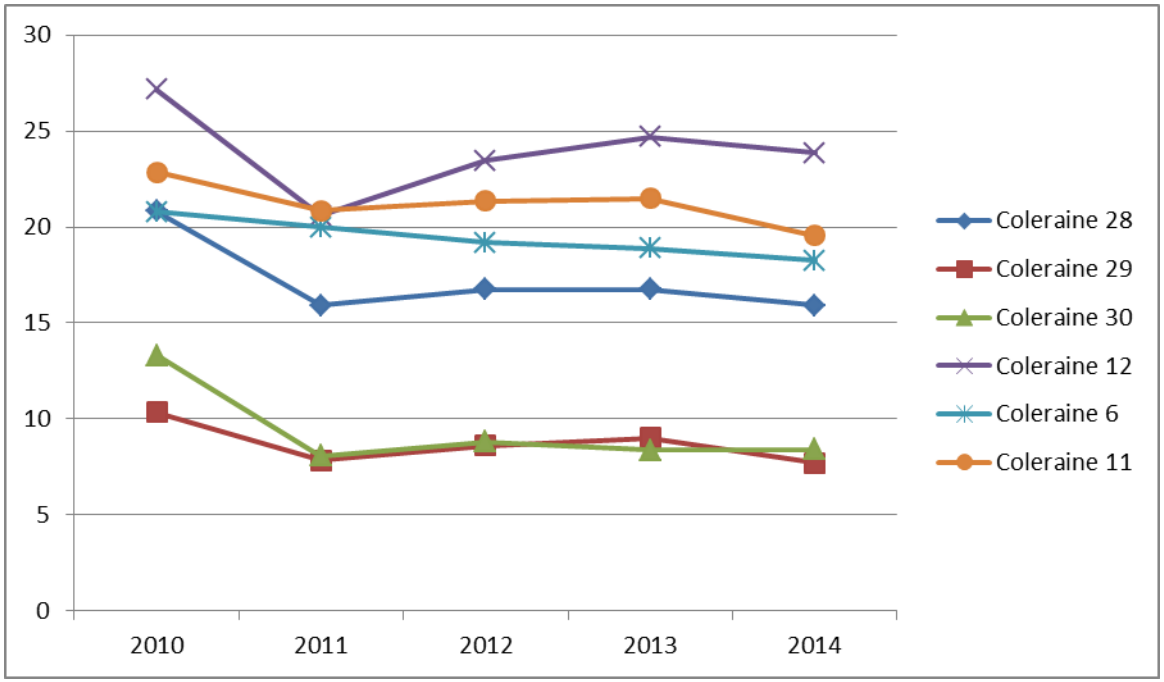
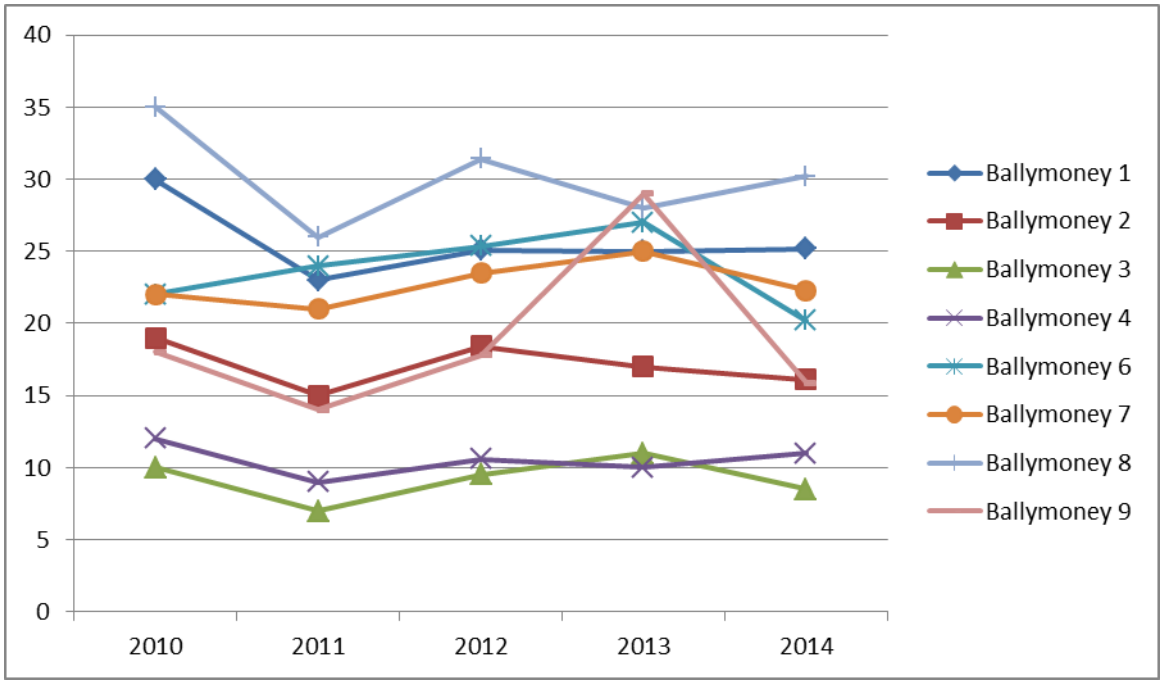
2010
2011
2012
2013
2014
Coleraine 20
Coleraine 10
Coleraine 21
Coleraine 5
Coleraine 4
Coleraine 22
Coleraine 8
Coleraine 23
Coleraine24
Coleraine 25
Coleraine 26
Coleraine 27



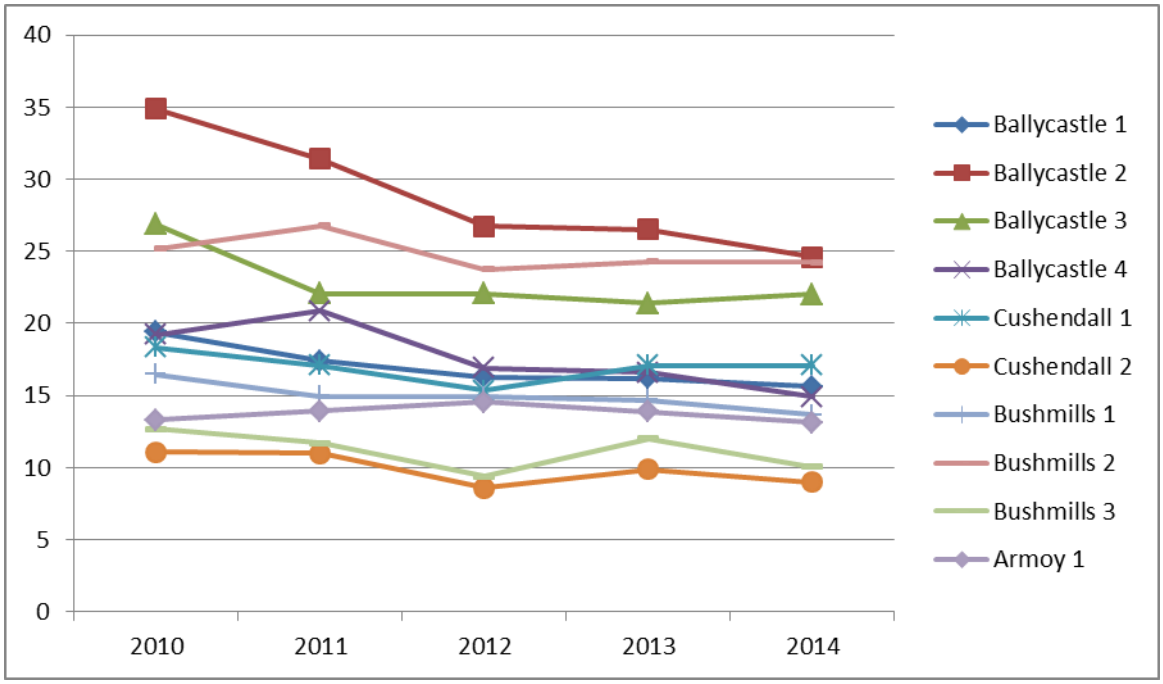
Passive monitoring within these 30 sites over the past 5 years indicates that levels of NO_2 are below the annual mean concentration of 40 ugm^{-3} and the national air quality objective is being met. The highest levels were recorded at Coleraine 4 & 18 where levels were above 30ugm^{-3} in 2010 and 2012 respectively. However levels did not exceed 40ugm-3.

Ballymoney



NO_2 levels within the Ballymoney have remained below the annual mean concentration of 40ugm^{-3} over the past five years.

Moyle



NO_2 levels within the eight sites in and around Ballycastle, Cushendall, Bushmills and Armoy are all below the annual mean concentration of 40ugm^{-3}

2.2.2 PM_{10}

Not applicable

Table 2.7 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration μg/m³				
						2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.
* Optional

Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 μg/m³)				
						2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets
* Optional

Figure 2.5 Trends in Annual Mean PM_{10} Concentrations

A trend chart may be inserted here. Please discuss any trends shown.

2.2.3 Sulphur Dioxide

Not applicable

Table 2.9 Results of Automatic Monitoring of SO_2: Comparison with Annual Mean Objectives

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Number of Exceedences (percentile in bracket μg/m³)[c]		
					15-minute Objective (266 μg/m³)	1-hour Objective (350 μg/m³)	24-hour Objective (125 μg/m³)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] if data capture is less than 90%, include the relevant percentile in brackets

Figure 2.6 Trends in SO_2 Concentrations

A trend chart may be inserted here. Please discuss any trends shown.

2.2.4 Benzene

Not applicable

2.2.5 Other pollutants monitored

Not applicable

2.2.6 Summary of Compliance with AQS Objectives

Causeway Coast and Glens Borough Council has examined the results from monitoring in the borough. Concentrations outside of the AQMA (declared for NO_2) are all below the objectives at relevant locations, 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

Three narrow congested streets within Limavady and Ballykelly were reassessed for NO_2 concentrations in a detailed assessment submitted in 2011. They were reassessed as the technical guidance had been amended in 2009. The monitoring indicated that levels of NO_2 in all three streets were below the annual mean threshold of 40ugm^{-3}.

Causeway Coast and Glens 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

The technical guidance indicates that consideration should be given to busy streets where there are many shops, outdoor cafes, bars etc. where persons are likely to be exposed within 5m of the kerb for 1-hour or more. Busy streets are those where there are 1000 or more vehicles per day. Consideration should be given to the traffic flow, the vehicle speed and the percentage of vehicle types. No such areas have been identified in the Causeway Coast and Glens Borough Area.

Causeway Coast and Glens 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.

The technical guidance indicates that consideration should be given to roads here the traffic flows are less than 20000 vehicles per day and there is an unusually high percentage of HGV and/or buses. An unusually high proportion is considered to be in the region of 20%. Roads with relevant exposure within 10m should be considered. Traffic and Travel data (2007) indicates that there are no roads within Causeway Coast and Glens Borough Council which convey 20000 vehicles per day and have an unusually high percentage of HGV's. The largest percentage of HGV's was recorded on the A6 to the west of Dungiven. The percentage here was 10.9%.

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

3.4 Junctions

Pollutant concentrations are usually higher close to junctions where the combined impact of traffic emissions from two roads and/or the elevated emissions due to stopping and starting. The technical guidance suggests identifying busy junctions and determining if they are new or have been previously assessed. A 'busy' junction is defined as one which experiences 10000 vehicles per day or more. Relevant exposure is deemed to be within 10m of the kerb. Information such as traffic speed, %HDV's including HGV'S and buses should be considered.

Causeway Coast and Glens 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

Nitrogen dioxide and particulate matter

The technical guidance suggests examining those roads which have been constructed since the last assessment. Within the Causeway Coast and Glens Borough no new roads have been constructed where relevant exposure is within 10m and the road conveys more than 10000 vehicles per day

Causeway Coast and Glens Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

This assessment looks at the impact of traffic flows on nitrogen dioxide and particulate matter levels. The technical guidance requires consideration of roads with significant changes in flow. The guidance indicates roads where the volume of traffic is in excess of 10000 vehicles per day where volumes have increased by 25 %. From the traffic data available for 2007 there are no roads within the borough where volumes have increased by 25 %

Causeway Coast and Glens Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Technical guidance TG(09) indicates that assessment is required where bus stations or sections of bus stations are not enclosed and where there is relevant exposure, including at nearby residential properties. The guidance requires assessment where there is relevant exposure within 10m of any part of the bus station where buses are present and where the number of bus movements is greater than 2500 per day. There are no bus stations within the Causeway Coast and Glens Borough area that fall into this category.

Causeway Coast and Glens Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

City of Derry airport partially falls within the edge of the Borough. This small regional airport is within 1000m of residential properties. The Technical Guidance indicates that assessment is required where:

- There is relevant exposure within 1000m of the airport boundary and
- the annual throughput of passengers/freight equates to 10million passengers per year

City of Derry airport's website indicates that in 2009 350000 passengers passed through the airport. In 2011 this increased to 405697 passengers (source UK AIP at NATS/ Statistics from UK Civil Aviation Authority) and in 2015 it was reported that in the past year numbers of passengers had fallen to 350257 (source Belfast Telegraph). There is currently no freight transport in or out of the airport.

There is therefore no requirement to assess nitrogen dioxide levels originating from the airport.

Causeway Coast and Glens Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

The main Belfast to Londonderry railway line passes through the Borough with stops including Bellarena, Castlerock, Coleraine and Ballymoney. There is also a train line from Coleraine to Portrush with 4 stops in total.

The technical guidance requires Council to identify locations where diesel or steam locomotives regularly stop for periods of 15 minutes or more, where relevant exposure is within 15m of the stationary locomotive and to establish the number of trains per day which might affect these locations and the typical duration that engines may be left running when stationary. The guidance indicates that a detailed assessment may be required where there are three or more occasions when there might be a stationary locomotive with its engine running for 15 minutes or more.

All trains in Northern Ireland are diesel; there are no steam trains operated by Translink the rail service provider.

Causeway Coast and Glens 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

Table 5:1 within technical guidance TG(09) lists those rail lines with heavy traffic of diesel trains. None of these required for consideration is within Causeway Coast and Glens Borough Council.

Causeway Coast and Glens 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)

Causeway Coast and Glens 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

There have been no new PPC Part C installations permitted within the borough since the last USA.

Causeway Coast and Glens 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

There are no existing installations where emissions have increased substantially or new relevant exposure has been introduced

Causeway Coast and Glens 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

There have been no new installations within the Borough and no significant changes made to any existing installations.

Causeway Coast and Glen 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

Technical guidance TG(09) requires identification of all petrol stations with an annual throughput of more than 2000m^3 of petrol with a busy road nearby. A busy road is defined as one with more than 30000 vehicles per day.

Causeway Coast and Glens Borough Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Technical guidance TG(09) states that the following farms should be considered for PM_{10} if there is relevant exposure within 100m:

- Those with 400000 birds if mechanically ventilated
- Those with 200000 birds if naturally ventilated, and
- Those with 100000 turkeys

There are no poultry houses within the Borough which fall into any of the above categories.

Causeway Coast and Glens Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Technical guidance TG(09) recommends identification of all plant burning biomass in 50kW to 20 MW units. Consultation with Council's Building Control department indicates that there are no such burners within the borough.

Causeway Coast and Glens Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

The technical guidance states that there may be the potential that many small combustion units including domestic solid fuel burners may attribute to elevated levels of pollutants. Whilst acceptable individually they could in combination lead to unacceptably high PM_{10} levels in areas where PM_{10} levels are close to or above the national air quality objective.

Councils are required to identify 500mx500m grid squares where housing densities are highest and there are service sector biomass combustion appliances. To quantify the impact of domestic appliances within the grid square each type of appliance should be identified. Once identified calculations should be used in conjunction with Table 5.3 within the guidance to determine the annual domestic emission level for each grid square.

With regard to those units in the service sector the floorspace occupied within each grid square for each of solid fuel burning plants identified. Again the annual service sector emission level per hectare should be calculated and this along with the domestic emission level will indicate the total emission level within the grid square.

Estimations of the fraction of space within the grid square occupied by solid fuel burning premises can then be used to determine the emission density for each grid square (kg emissions/500x500m square).

If the source exceeds the threshold as set out nomogram Fig 5.22 detailed assessment is required.

Having considered the information which this department and Building Control retain Causeway Coast and Glens Borough Council do not foresee that emissions from biomass combustion will be excessive.

Causeway Coast and Glen 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

Technical Guidance TG(09) states that areas of significant domestic coal burning should be considered. Previous monitoring/modelling and fuel use surveys of such significant areas i.e. any area of 500x500m with more than 50 houses burning coal/smokeless fuel have indicated that no exceedence of sulphur dioxide (SO_2) and particulate matter (PM_{10}) were likely. Many of these areas have since moved over to gas usage.

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

7 Fugitive or Uncontrolled Sources

Particulate matter (PM_{10})

Dust emissions can give rise to elevated levels of PM_{10}. These emissions may arise from operations such as quarries, landfills, coal and material stockpiles, major construction works and waste management sites. Consideration should be given to any air quality studies which have been carried out with regard to such operations and if there is relevant exposure. The distance of any receptor should be assessed from source as opposed to the site boundary.

To determine accurately the impact such activities would have on PM_{10} emissions local authorities should assess any existing air quality assessments carried out in relation to specific sites and determine if exposure falls under the definition of 'near'. 'Near' is defined in relation to local background PM_{10} concentrations. For the 2004 National air quality objective level 'near' is defined as

- 1000m if [background] > 28ugm^{-3}
- 400m if [background] > 26ugm^{-3}
- 200m for any [background]

These distances are from source which may not always coincide with the site boundary.

If the relevant exposure is within 50m of an off-site road used to access the site and there are visible deposits on the road then these sections of road which may extend up to 1000m from the site entrance are considered as 'near' as long as the background concentration is above 25 ugm^{-3} for the 2004 objective levels.

History of complaint regarding dust and visual inspection of emissions and evidence of dust being carried out onto roadways from such sites should be considered.

If there is relevant exposure and if there is either a history of complaint and/or visual emissions detailed assessment is required.

Within the Causeway Coast and Glens Borough there are several quarries but they are in remote locations and there would be no relevant exposure in the vicinity. These would have been assessed in previous rounds.

There are 2 landfill sites operating within the Borough, 1 of which is council owned at the Craigahulliar site and 1 privately owned by River Ridge Recycling Ltd. located outside Garvagh. There are in total 4 closed landfills within the Borough.

Causeway Coast and Glens 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

This update and screening assessment has indicated that aside from the AQMA no new issues have arisen which would require either a detailed or further assessment for any pollutants. Levels of NO_2 within the AQMA in Dungiven remain above the annual mean objective level of 40ugm^{-3}. The AQMA will remain in place and monitoring will continue.

8.2 Conclusions from Assessment of Sources

With regard to potential sources no new issues have been identified since the last USA report.

8.3 Proposed Actions

Monitoring will continue within the AQMA. Its boundaries do not need changed or extended. No detailed assessments or further assessments are required with regard to any of the pollutants. Any additional data will be analysed within future progress reports.

9 References

Belfast Telegraph. (2015). *Traffic rise at Belfast airports as City Derry falls.* Available: http://www.belfasttelegraph.co.uk/business/news/traffic-rise-at-belfast-airports-as-city-of-derry-falls-30920265.html. Last accessed 18th June 2015.

TG(09) Technical Guidance

Appendices

Appendix A:

Diffusion Tube Bias Adjustment Factors

YEAR	BIAS ADJUSTMENT FACTOR
2010	0.85
2011	0.91
2012	0.97
2013	0.95
2014	0.91