Comhairle Ceantair
an Iúir, Mhúrn
agus an Dúin
Newry, Mourne
and Down
District Council

2016 Air Quality Progress Report

Newry, Mourne and Down District Council

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

November 2016

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Executive Summary

This 2016 Progress Report for Newry Mourne and Down District Council provides a review and assessment of all new or existing potential sources of air quality pollutants and a summary of air quality monitoring results for the calendar year 2015.

2015 monitoring data has identified the following:

- No exceedance of annual mean objective for PM10.
- No exceedance of daily mean objective for PM10.
- 6 of the 27 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO2) (40µg/m3).
- No exceedance of annual mean objective for NO_2 at Market Street Downpatrick.

The Council continues to monitor progress in the implementation of the agreed Action Plan for the Newry (Urban Centre) Air Quality Management Area and this is reported on within this report.

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Introduction

1.1 Description of Local Authority Area

On 1st April 2015 the new Newry Mourne and Down District Council was created which comprises the former Down District Council area and Newry and Mourne District Council area. The new super council has a population of approximately 171,500. Newry City is the largest settlement in the council area.

The area lies on the east coast of Ireland with its southern boundary forming part of the border between Northern Ireland and the Republic of Ireland.

The district's main settlement is Newry city which has a thriving commercial sector and with its proximity to the border with the Republic of Ireland it experiences fluctuations in cross border trade depending on the exchange rate between sterling and the euro. When the exchange rate is favourable shoppers from the Republic of Ireland visit Newry City with resultant increases in traffic volumes.

The area has two declared AQMAs Newry (Urban Centre) Air Quality Management Area (AQMA) (Annual mean objective for NO2) and Newry (Canal St) Air Quality Management Area (24 hour mean objective for PM10).

In 2015 there were 4 air quality monitoring stations in operation, 3 in Newry city area and 1 in Downpatrick. Due to a series of breakdowns the NOx Analysers within the Newry city AQMS were switched off in 2014. The AQMS in Newry currently monitors PM10 and the Downpatrick station monitors NO_2.

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

Table 1.2 Summary Newry and Mourne District Council Air Quality Review and Assessment

Title of Work	Summary of Report
USA (2004)	Potential exceedences of the **NO_2** and **PM_{10}** AQS objectives in the vicinity of several roads in Newry City centre
Detailed Assessment (2005)	Concluded a risk of exceeding air quality objectives for **NO_2** and **PM_{10}** in Newry city centre. There was a high degree of uncertainty in the modelling results. Following discussions with the Environment and Heritage Service of the Department of Environment (NI), NMDC resolved to declare five AQMAs for the annual mean **NO_2** objective and the 24-hour **PM_{10}** objective
USA (2006)	Concluded that the risk of the air quality objectives for **NO_2** being exceeded outside existing AQMAs was negligible for all sources. In addition, the USA indicated that there was little likelihood of the 2004 air quality objectives for **PM_{10}** being exceeded.
Further Assessment (2007)	The results showed that **NO_2** annual average concentrations within the AQMA were still likely to exceed the AQS objective along Canal Street, Water Street and Kilmorey Street in Newry City. Given the uncertainties in modelling **PM_{10}**, the focus of the further assessment and source apportionment study was therefore focused on **NOx** and **NO_2**
Further Modelling (2009)	The model performance was improved from 2005 results. The results showed that **NO_2** annual average concentrations within the AQMA were still likely to exceed the AQS objective along Canal Street, Water Street, Kilmorey Street, and a newly identified street, Sandy Street in Newry City. The model indicated that there was little likelihood of the 2004 air quality objectives for **PM_{10}** being exceeded within Newry City. The Council resolved to revoke existing 5 AQMAs and to declare one AQMA for the annual mean **NO_2** objective covering all areas of possible exceedance - Newry (Urban Centre) AQM.
USA (2009)	As no new or significantly changed sources of pollutants were identified a further detailed assessment was not required. Newry and Mourne Council finalised the Action Plan for the Newry (Urban Centre) AQMA.

Progress Report 2010	The PM10 AQ Objective was not breached during 2009. A new site was established at Canal Street in June 2009. This site recorded 21 exceedances of the daily mean objective for PM10. The street had formally been declared an AQMA for PM10 but this was revoked following further dispersion modelling results (Further Assessment 2009), which indicated that exceedance of PM10 objective was not likely within Newry City. Monitoring of PM10 has continued at this location. 2009 monitoring data found that a number of sites of relevant exposure breached the annual mean objective for nitrogen dioxide. All of these sites were within the existing AQMA.
Progress Report 2011	2010 monitoring data identified exceedances of the annual mean objective for nitrogen dioxide (NO2) (40µg/m^3) for a number of streets within Newry City. These streets were within an existing Air Quality Management Area - Newry (Urban Centre) Air Quality Management Area for which there is an agreed Action Plan. Air quality monitoring results for NO2 and PM10 for 2010 were elevated from 2009 and it was argued that these increases were due mainly to the prevailing weather conditions during 2010 rather than as a result of new or increased sources of pollutants. During 2010 air quality monitoring in Canal Street, Newry, monitored exceedances for the 1-hour mean objective (200µg/m^3) for NO2 at and for the 24-hour mean objective (50 mgm^{-3}) for PM10. It was concluded that a Detailed Assessment for the 1-hour mean objective for NO2 and the 24-hour mean objective for PM10 at Canal Street, Newry was required.
Detailed Assessment 2011	As a result of the findings of Progress Report 2010 a Detailed Assessment was carried out to determine if risk of 1-hour mean objective for NO2 and daily mean objective for PM10 being exceed for Canal Street, Newry. Findings of the assessment did not establish a risk for 1-hour mean objective for NO2 being exceeded but there was a risk identified for the daily mean objective for PM10 being exceeded for Canal Street. It was recommended that an AQMA be declared in Canal Street for the daily mean objective for PM10.
Progess Report 2013	The 2013 report identified the following issues; Exceedance in Annual Mean objective for nitrogen dioxide (NO2) (40µg/m^3) at Trevor Hill AQMS and Canal St AQMS. 15 of the 26 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO2) (40µg/m^3). Exceedance of hourly mean objective for (NO2)

	(200µg/m^3) at Canal St AQMS, at three diffusion sites in Newry Urban AQMA,(Canal Street and Kilmorey Street) the annual mean NO2 level recorded by diffusion tubes exceeded 60 µg/m^3 . No exceedance of annual mean or daily mean objective for PM10. These results were in contradiction to the conclusions drawn from the Detailed Assessment carried out in 2012 where it was concluded that there was no risk of the 1-hour mean objective for NO2 being exceeded in Newry AQMA but there was a risk identified for the daily mean objective for PM10 being exceeded in Canal Street. It was not proposed to make any declaration in relation to a likelihood of an exceedance of the hourly mean objective for (NO2) (200µg/m^3) in Canal Street and Kilmorey Street but monitoring at both these locations has continued.
Further Assessment 2014	A further assessment of PM10 concentrations within the Canal Street Air Quality Management Area (AQMA) was undertaken in early 2014. The further assessment involved a review of air quality monitoring data, dispersion modeling for road and domestic chimney sources and source apportionment. The assessment found that the PM10 objective was exceeded in both 2012 and 2013 and recommended that the AQMA should remain and monitoring continue. Source apportionment of local emission found that ambient background concentrations contribute the largest proportion to the overall concentration followed by emissions from cars on local roads
Progress Report 2014	The 2014 Progress Report for the former Newry and Mourne District Council which contained 2013 monitoring data has identified the following: Exceedance of daily mean objective for PM10 at Canal Street AQMS. Exceedance in Annual Mean objective for nitrogen dioxide (NO2) (40µg/m^3) at Trevor Hill AQMS and Canal St AQMS. 10 of the 28 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO2) (40µg/m^3). Exceedance of hourly mean objective for (NO2) (200µg/m^3) at Trevor Hill AQMS and Canal St AQMS. A diffusion tube site at Canal St in Newry Urban AQMA recorded an annual mean NO2 level of 60 µg/m^3 which is an indicator that the hourly mean objective (200µg/m^3) may be exceeded.

	No exceedance of annual mean objective for PM10.

Table 1.3 Summary Down District Council Air Quality Review and Assessment

Title of Work	Summary of Report
Stage 1 Report 2000	The first stage assessment identified all significant pollutant sources with Down District Council area. The air quality objectives were unlikely to be exceeded and no detailed assessment was necessary.
Stage 2/3 Air Quality Review 2003	The conclusions of this review stated that there was no need to progress to the third stage review and assessment and that no Air Quality Management Areas (AQMA'S) needed to be declared.
Progress Report 2005	The progress report concluded that NO_2, SO_2 and PM_{10} were not predicted to cause exceedances of the air quality objectives at relevant receptors.
Updating and Screening Assessment 2006	The USA was carried out according to Local Air Quality Management Policy Guidance LAQM.TG(03). The assessment looked at seven pollutants and no detailed assessments were required. No AQMA's were required in Down District Council and there was no need for a detailed assessment in 2007.
Progress Report 2008	Diffusion tube monitoring indicated that the annual average objective for NO_2 was being exceeded at the Irish street location in Downpatrick. Down DC Officers evaluated sites with a view to installing real time monitoring equipment. There are currently no Air Quality Management Areas (AQMA'S) within the Down District Council area. Diffusion tube measurements made in the Irish Street area during 2007 and 2008 indicated exceedances in relation to NO_2. A detailed assessment involving additional diffusion tubes was commenced in late 2008 at this Irish Street location.
Progress Report 2010	With respect to Nitrogen Dioxide, the 2010 Progress Report has identified two exceedances of the Nitrogen Dioxide annual mean objective at diffusion tube monitoring sites in Downpatrick i.e. Market Street and Church Street. A Detailed Assessment for

	NO_2 was submitted by Down District Council in 2010. As a result of this a real time analyser has now replaced the diffusion tubes at the junction of Market Street/ Irish Street, Downpatrick. Real-time data has now been available for six months and the results are below the objective. Further monitoring is to continue at this site. There have been no other exceedances of the Air Quality Strategy objectives within Down District Council area.
Updating and Screening Assessment 2012	In July 2010 a real time analyser was installed in Market Street, in the prime location in accordance with the technical guidance. The results from this site are below the objective and therefore no AQMA has been declared. Further monitoring is to continue at this site in 2012 along with diffusion tube monitoring in the surrounding area.
Progress Report 2013	The 2012 monitored data for NO2 was assessed and indicated no exceedances of the national air quality objectives at relevant exposure. No other exceedances identified.
Progress Report 2014	The 2013 monitored data for NO2 was assessed and indicated no exceedances of the national air quality objectives at relevant exposure. No other exceedances identified.

Table 1.4 Summary Newry, Mourne and Down District Council Air Quality Review and Assessment

Title of Work	Summary of Report
USA 2015	In 2014 Newry Mourne and Down District Council measured concentrations of NO2 above the annual mean objective at Canal Street Newry, Trevor Hill Newry and Market Street Downpatrick. The locations within Newry city centre are already within an existing Air Quality Management Area - Newry (Urban Centre) Air Quality Management Area, for which there is an agreed Action Plan for annual mean NO2. A detailed assessment for Market Street, Downpatrick is required. There was no exceedance of the hourly mean NO2 objective. The PM10 daily mean objective was exceeded within Canal Street, Newry. This location is already within

	an existing Air Quality Management Area - Newry (Canal Street) Air Quality Management Order 2013.

Figure 1.1 – Map of Newry AQMA Boundary

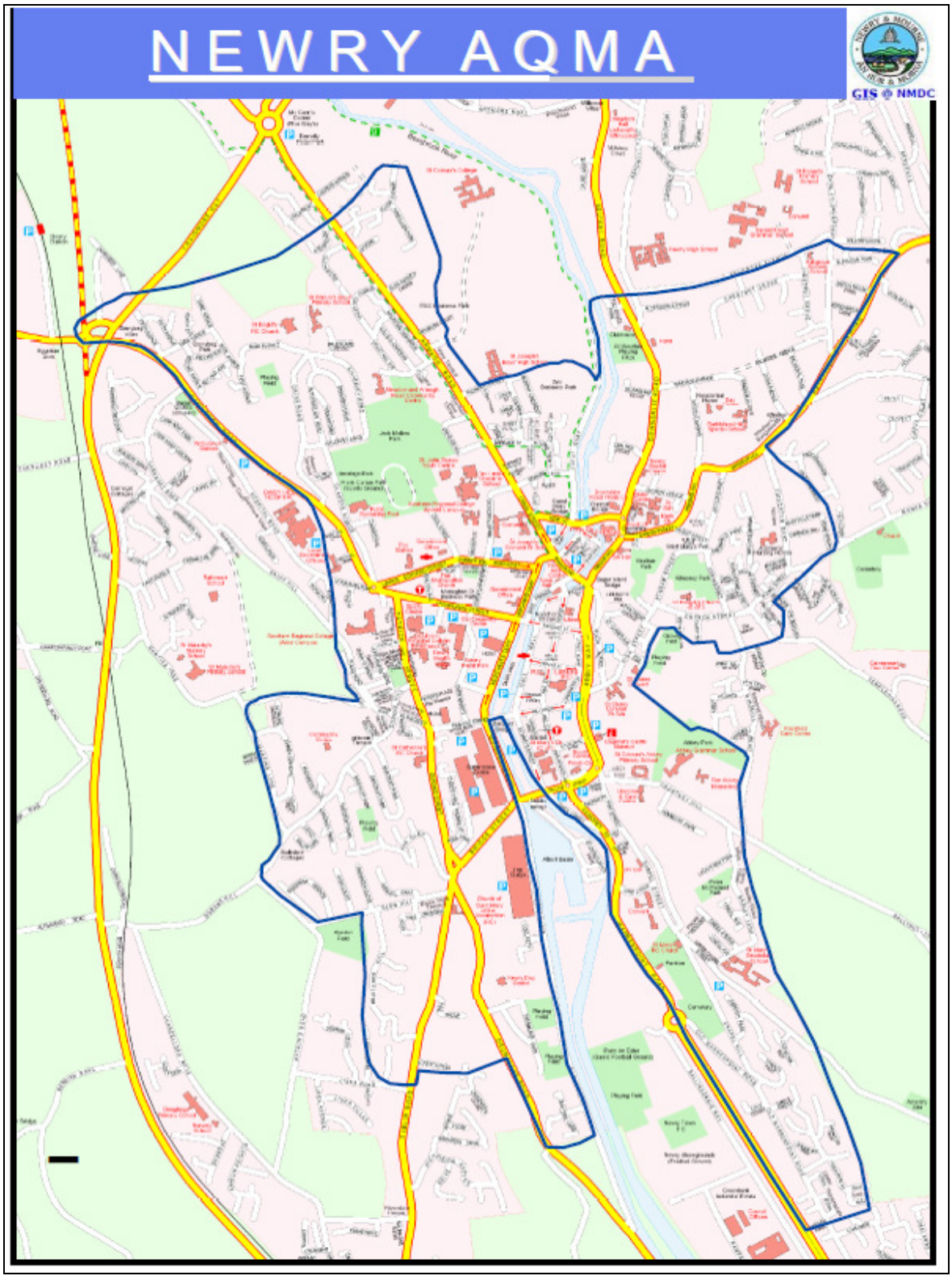
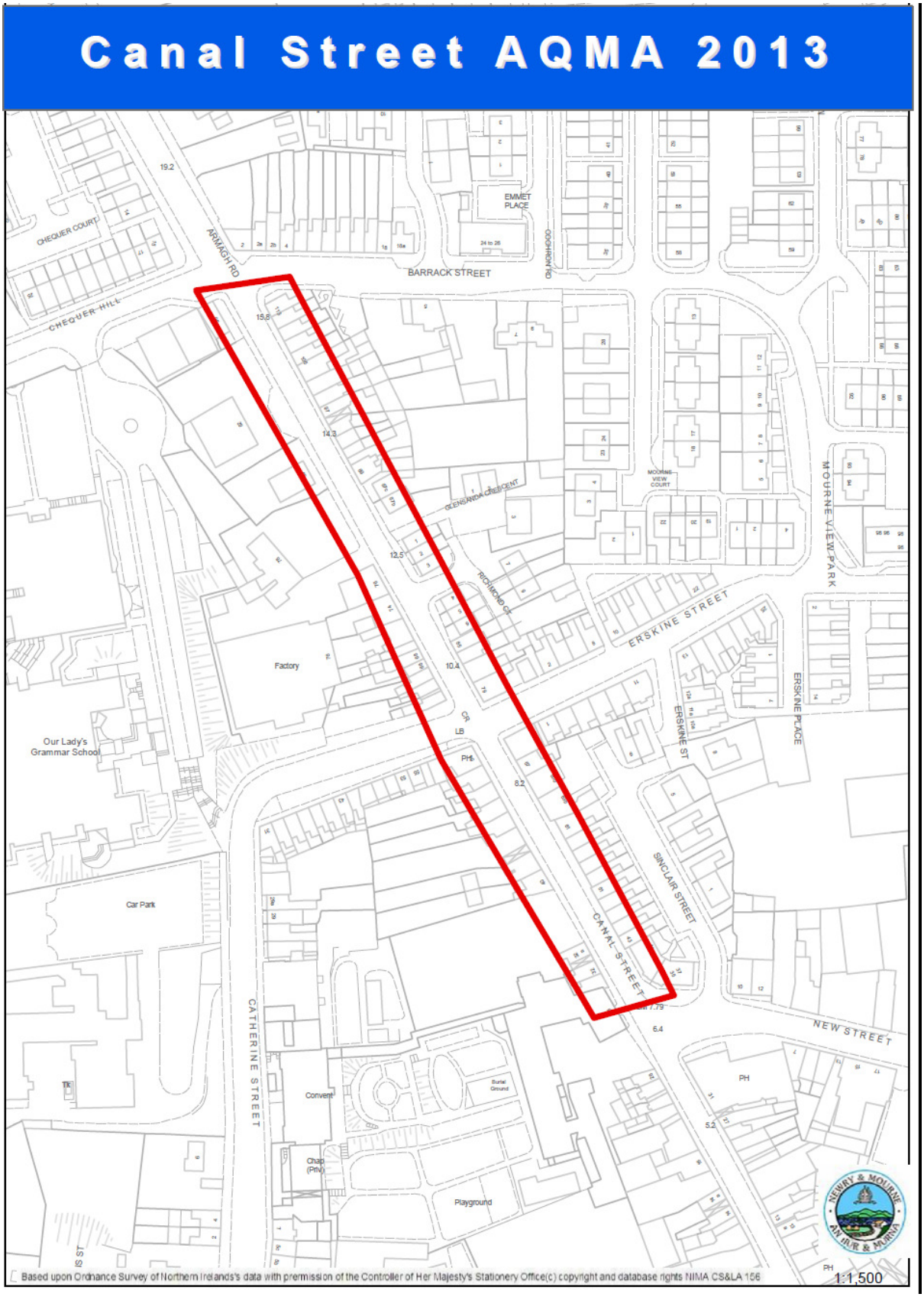


Figure 1.2 Map showing boundary of Newry (Canal Street) AQMA



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites -

Table 2.1 provides details of the automatic monitoring sites that operated within Newry, Mourne and Down District Council area during the calendar year 2015.

The automatic monitoring stations within the district are National Environmental Technology Centre (NETCEN) type tested and approved analysers, which contain an air-conditioned unit to maintain the correct operating temperature. Newry, Mourne and Down District Council currently have a QA/QC and Data Management contract with RICARDO - AEA. QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area.

All data from each station is downloaded daily by remote communication via modem to Council Offices.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	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)*	Worst-case Location?
Monaghan Row, Newry	Background	X307855 Y 326749	PM_{10}	Y	FDMS	N	50m	N
Trevor Hill, Newry	Roadside	X 308716 Y 326734	PM_{10}	Y	FDMS	N	3m	Y
Canal Street, Newry	Roadside	X308485 Y 326976	PM_{10}	Y	N/A	Y (<1M)	3M	Y
Market Street, Downpatrick	Roadside	X 348655 Y 344596	NO_2	N	N/A	Y (10M)	1.5M	Y

Refer to Appendix 1 for:
Figure 2.1 Map of Automatic Monitoring Sites – Newry
Figure 2.2 Map of Automatic Monitoring Sites - Downpatrick

2.1.2 Non-Automatic Monitoring

In the calendar year 2015 Newry Mourne and Down District Council deployed 27 NO2 diffusion tubes per month at 25 sites within its District. One site was a triplicate site. The NO_2 diffusion tubes used were prepared and analysed by Environmental Scientifics Group using the 50% TEA in acetone method. The laboratory methods are currently UKAS accredited.

Refer to Appendix 1 for Figure 2.3 - Map of Non-Automatic Monitoring Sites.

Table 2.2 Details of Non- Automatic Monitoring Sites

Table 2.2

Location	Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
1	Canal Street (No 52 Pub)	Roadside	308463 326998	NO_2	Y	Y	1m	Y
2	Lower Canal St (Butchers)	Roadside	308562 326481	NO_2	Y	Y	1m	Y
3	Catherine Street (O'Nares Pub)	Roadside	308454 327009	NO_2	Y	Y	2m	Y
4	25 Sandy Street	Roadside	308971 326871	NO_2	Y	Y	1m	Y
5	59 Sandy Street	Roadside	308929 326861	NO_2	Y	Y	1m	Y
6	Water Street	Roadside	308686 326602	NO_2	Y	Y	1m	Y
7	Trevor Hill	Roadside	308697 326715	NO_2	Y	N	2m	Y
8	33 Kilmorey Street	Roadside	308668 325916	NO_2	Y	Y	1m	Y
9	52 Kilmorey Street	Roadside	308728 325871	NO_2	Y	Y	1m	Y
10	4 Bridge Street	Roadside	308443 325896	NO_2	Y	Y	2m	Y
11	60 Bridge Street	Roadside	308328 327788	NO_2	Y	Y	1m	Y
12	Basin View Terrace	Roadside	308237 325606	NO_2	Y	Y	1m	Y
13	Dominic/Patrick St	Roadside	308175 326170	NO_2	Y	Y	1m	Y
14	Francis Street	Roadside	308205 326179	NO_2	Y	Y	2m	Y
15	Market Office	Urban Background	308539 326125	NO_2	Y	N	25m	Y
16	4 Patrick Street	Roadside	308067 326629	NO_2	Y	Y	1m	Y
17	Monaghan Row	Urban Background	307851 326751	NO_2	Y	N	50m	Y
18	4 Windsor Hill	Roadside	309006 326896	NO_2	Y	Y	1m	Y
19	9 Kilmorey Terrace	Roadside	308073 326569	NO_2	Y	Y	2m	Y
20	71 Kilmorey Street (Off Licence)	Roadside	308775 325803	NO_2	Y	Y	1m	Y
21	Belfast Rd 1 (Glen Ri)	Roadside	308877 327143	NO_2	Y	Y	5m	Y
22	Belfast Rd 2 (Down Ct)	Roadside	308895 327336	NO_2	Y	Y	2m	Y
23	Canal St Station 1,2,3	Roadside	308484 326984	NO_2	Y	Y	2m	Y
24	63 Canal St	Roadside	308483 326984	NO_2	Y	Y	2m	Y
25	14 Canal St (near school service yard)	Roadside	308538 326864	NO_2	Y	Y	2m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

The existing monitoring network consists of one continuous monitoring station at Market Street, Downpatrick and 27 NO_2 diffusion tubes at 25 sites across Newry city centre.

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

In 2015 the Council monitored NO_2 at one site Market Street, Downpatrick.

Table 2.3a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Location	Within AQMA?	Data Capture for monitoring period (2015 calendar year) %	Annual mean concentrations (µg/m^3)		
			2013	2014	2015
Market Street	N	74.9	40	41	34*

*calculated by using Box 7.9 of the government's local air quality management technical guidance LAQM.TG16. See appendix 4

Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Location	Within AQMA?	Data Capture for monitoring period (2015 calendar year) %	Number of Exceedences of hourly mean (200 µg/m^3) If the period of valid data is less than 90% of a full year, include the 99.8th percentile of hourly means in brackets.		
			2013	2014	2015
Market Street	N	74.9	1	0	0(117)

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

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

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

Location	Site Type	Within AQMA?	Data Capture for monitoring period%	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (National Bias Adjustment Factor 0.79 (µg/m3)					
					2010	2011	2012	2013	2014	2015
Canal Street (Pub)	Roadside	Y	100	Y	65	46	82	**60**	**36**	**56**
Lower Canal St	Roadside	Y	100	Y	57	27	49	38	58	33
Catherine Street	Roadside	Y	100	Y	52	28	55	**41**	**41**	39
25 Sandy Street	Roadside	Y	100	Y	58	34	59	**43**	**41**	**43**
59 Sandy Street	Roadside	Y	100	Y	51	34	55	**42**	**52**	**40**
Water Street	Roadside	Y	100	Y	60	32	55	**44**	**42**	**48**
Trevor Hill 1	Roadside	Y	100	Y	44	45	48	37	39	34
Trevor Hill 2	Roadside	Y	100	Y	43	44	52	**40**	**39**	-
Trevor Hill 3	Roadside	Y	100	Y	45	44	55	**44**	**39**	-
33 Kilmorey Street	Roadside	Y	100	Y	53	60	65	**47**	**49**	**51**
52 Kilmorey Street	Roadside	Y	100	Y	48	54	53	**43**	**39**	**40**
4 Bridge Street	Roadside	Y	100	Y	43	25	42	34	34	31
60 Bridge Street	Roadside	Y	100	Y	29	17	34	25	27	25
Basin View Terrace	Roadside	Y	100	Y	45	27	48	30	33	34
Doran's Hill	Roadside	Y	100	Y	29	17	32	23	24	-
Dominic/Patrick St	Roadside	Y	100	Y	41	22	38	29	28	27
Francis Street	Roadside	Y	100	Y	45	27	48	36	34	31
Market Office	Urban Background	Y	100	Y	24	14	22	19	23	17
115 Chapel St	Roadside	Y	100	Y	34	20	25	18	19	-
42 Patrick Street	Roadside	Y	92	Y	52	31	50	18	40	39
Monaghan Row	Urban Background	Y	100	Y	16	9	16	13	12	15
Pine Grove	Roadside	Y	100	Y	37	21	36	26	28	-
4 Windsor Hill	Roadside	Y	100	Y	25	25	45	35	35	32
9 KilmoreyTerrace	Roadside	Y	100	Y	69	37	38	35	29	25
2 Chapel Street	Roadside	Y	100	Y	34	20	35	30	30	-
71Kilmorey street	Roadside	Y	100	Y	69	37	74	**56**	**51**	**54**
Camlough Road 1	Near road	Y	100	Y	45	29	23	19	-	-
Camlough Road 2	Near road	Y	100	Y	44	31	26	21	-	-
Duke St Warrenpoint	Roadside	Y	100	Y	-	13	23	31	29	-
Main St Camlough	Roadside	N	100	Y	-	11	24	19	-	-
Lwr Edward St	Roadside	N	100	Y	-	18	34	25	24	-
Soho Bus Station	Near road	N	100	Y	-	18	30	23	24	-
Belfast Rd 1 (Glin Court)	Near road	Y	100	Y	-	-	14	24	28	27
Main St Hilltown	Roadside	Y	100	Y	-	-	33	24	-	17
Belfast Rd 2 (Downshire Ct))	Roadside	Y	100	Y	-		15	22	22	-
Canal St Station 1	Road side	Y	100	Y	-	-	-	40	42	37
Canal St Station 2	Road side	Y	100	Y	-	-	-	-	-	38
Canal St Station 3	Road side	Y	100	Y	-	-	-	-	-	35
63 Canal Street	Roadside	Y	100	Y	-	-	-	37	45	37
Kilmorey St 4	Roadside	Y	100	Y	-	-	-	-	27	-
Kilmorey St 5	Roadside	Y	100	Y	-	-	-	-	3017	-
14 Canal Street	Roadside	Y	100	Y	-	-	-	-	-	27

2.2.2 PM_{10}

In 2015 the Council monitored PM10 at three sites in Newry City: Monaghan Row, Trevor Hill and Canal Street. Monaghan Row and Trevor Hill use R&P TEOM (FDMS) instruments, Canal St use R & P Teom instrument.

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Location	Within AQMA?	Data Capture for monitoring period (calendar year 2015) %	Annual mean concentrations (µg/m^3)				
			2011	2012	2013	2014	2015
Monaghan Row	Y	93.4	14	14	18	16	14
Trevor Hill	Y	95.6	22	18	22	19	17
Canal Street*	Y	95	30	26	29	33	28

Table 2.5b Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Location	Within AQMA?	Data Capture for monitoring period (calendar year 2015) %	Number of Exceedences of daily mean objective (50 µg/m^3) If data capture < 90%, include the 90th percentile of daily means in brackets.				
			2011	2012	2013	2014	2015
Monaghan Row	Y	93.4	13	7(26)	13	9	2
Trevor Hill	Y	95.6	26(47)	10(32)	21	10	7
Canal Street*	Y	95	39	27	42	48	32

* Data has been corrected using Volatile Correction Model (VCM)

2.2.3 Sulphur Dioxide

In 2015 there was no monitoring of sulphur dioxide undertaken within the council area.

2.2.4 Benzene

In 2015 there was no monitoring of benzene undertaken within the council area.

2.2.5 Other pollutants monitored

In 2015 there was no other pollutants monitored within the council area.

2.3 Air Quality Trends

The Air Pollution in Northern Ireland 2014 Report published by the Department of the Environment (NI) reports that air quality in NI has improved substantially over recent decades. However some pollutants in some parts of NI continue to exceed air quality objectives.

Air Quality Trends in Newry City

Figure 2.1 below shows annual mean concentrations of PM10 at Monaghan Row (Background site), Trevor Hill (Roadside Site) and Canal St (Roadside Site) during the period 1998 to 2015. For reference purposes the annual mean objective of 40 ·gm3 is also provided. Figure 2.1 demonstrates that there has been a general downward trend in urban background PM10 concentrations at all three sites over the past number of years. 2010 and 2013 monitoring data shows an increase in levels of PM10 across all three sites in comparison to other years this may have been caused by weather conditions. From reviewing monitoring data and times of exceedances it would appear that the main source of PM10 is domestic emissions as high levels have been recorded on cold calm evenings when traffic within the city has eased.

Figure 2.2 below shows annual mean concentrations of NO2 concentrations at a number of diffusion tube sites throughout Newry City. Two of the sites, Monaghan Row and Market Office, are urban background sites with the remaining being roadside sites and considered to be sites of relevant exposure. For reference purposes the annual mean objective of 40 µgm3 is also provided. The background sites would appear to display a slight downward trend but the roadside sites fluctuate from year to year. The main source of nitrogen dioxide at these roadside locations is considered to be traffic pollution. As it is considered that traffic usage in these locations has not changed significantly during the monitoring periods it is concluded that the fluctuation in results from one year to another is caused by prevailing weather conditions.

Figure 2.4: PM10 Annual Mean Value at Automatic Monitoring Stations Newry City Sites, 1998 to 2015

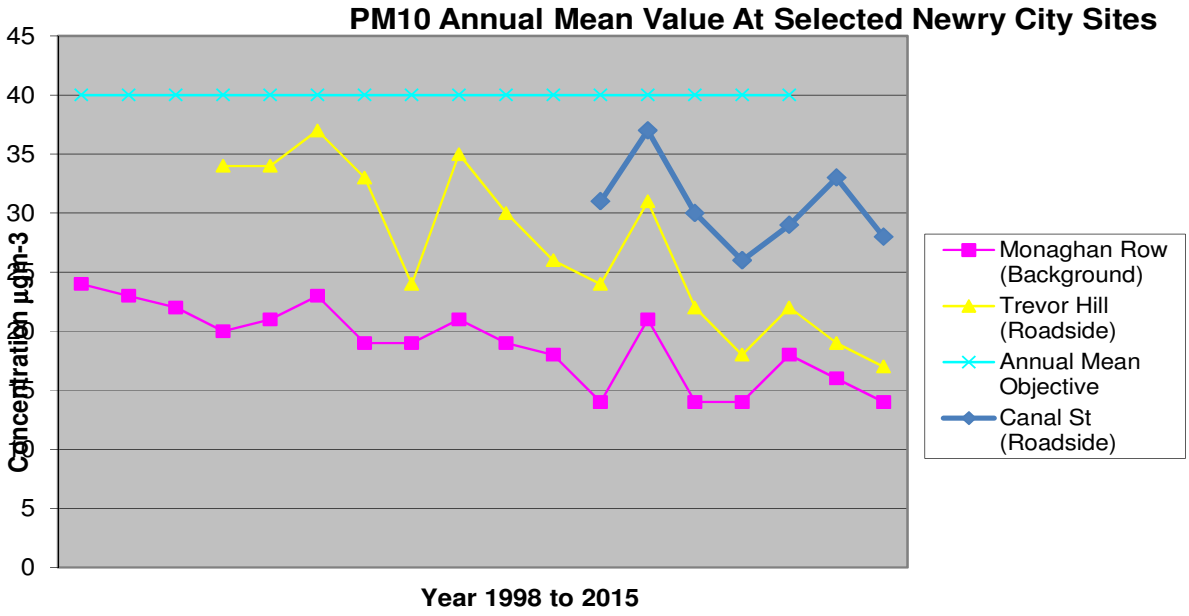
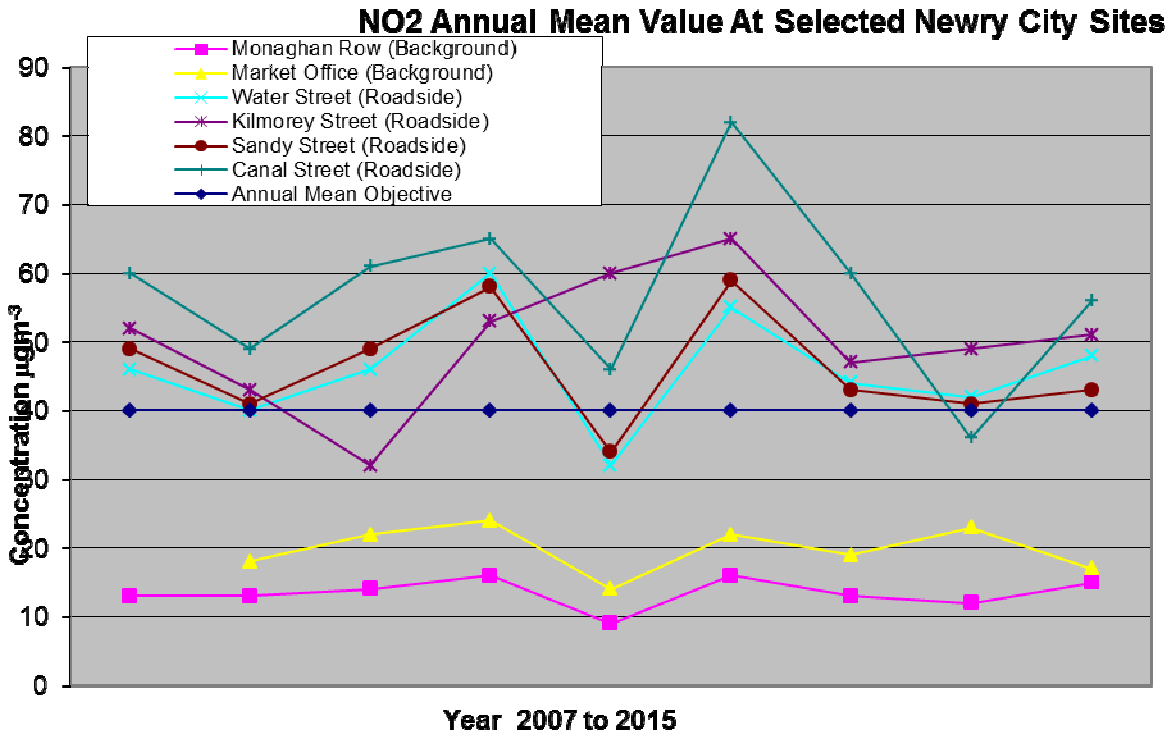


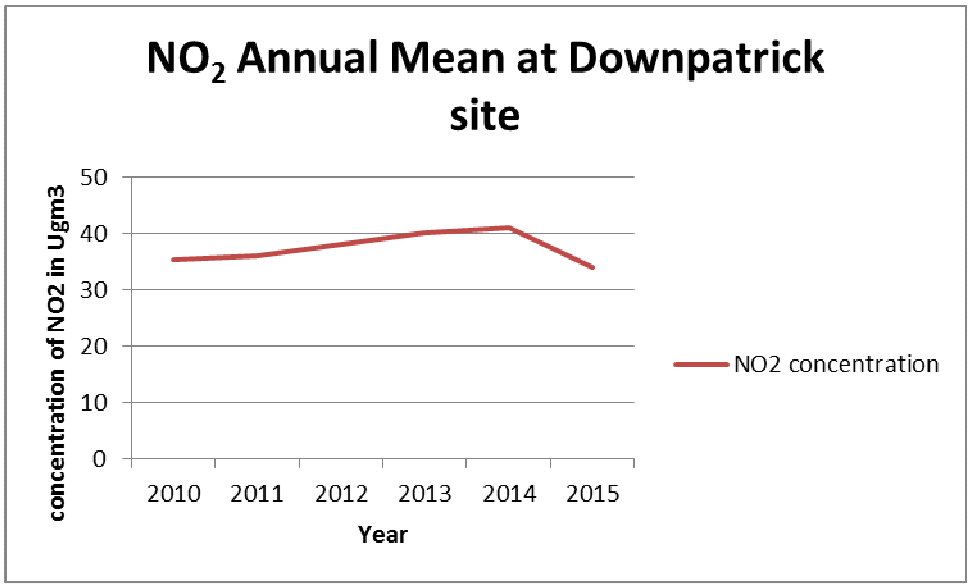
Figure 2.5 NO2 Annual Mean Values at Automatic Monitoring Stations Newry City, 2007 to 2015



Air Quality Trends in Downpatrick

The annual mean concentration of NO_2 from 2010-2015 Figure 2.3 shows a gradual upward trend in levels culminating in a breach of the objective in 2014. The appraisal of the Council's Updating and Screening Assessment was confirmed in correspondence dated 13th April 2016. This appraisal recommended that a detailed assessment be completed for Downpatrick. However, with continuous monitoring at the point of maximum relevant public exposure the level in 2015 has fallen considerably from 41 µg/m^3 in 2014 to 34 µg/m^3 .
It must be noted that data capture at the station in 2015 was 74.9% when a pump failed during autumn 2015. The Technical Guidance LAQM-TG-16 permits that where short periods of monitoring data are available, the results may be adjusted to estimate an annual mean concentration using the approach found in Appendix 4. In this situation Council has used the worst case scenario by using Belfast Stockman's Lane (Roadside) dataset arriving at a figure of 34 µg/m^3 (33.79).
Council is of the view that at present there is no evidence to support a detailed assessment or of a declaration of an Air Quality Management Area within Downpatrick.

Figure 2.6 - **NO_2 Annual Mean Value at Downpatrick Automatic Monitoring Station 2010-2015**



2.3.1 Summary of Compliance with AQS Objectives

Newry, Mourne and Down District Council 2015 monitoring data has identified the following:

- No exceedance of annual mean objective for PM10.
- No exceedance of daily mean objective for PM10.
- 6 of the 27 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO2) (40µg/m3).
- No exceedance of the annual mean objective for NO2 at Market Street automatic station.

3 New Local Developments

3.1 Road Traffic Sources

Newry Mourne and Down District Council confirm that there are no new/newly identified congested streets with residential properties close to the kerb.

Newry Mourne and Down District Council confirm that there are no new/newly identified busy streets where people may spend one hour or more close to traffic.

Newry Mourne and Down District Council confirm that there are no new/newly-identified roads with a high flow of buses and/or HGVs.

Newry Mourne and Down District Council confirm that there are no new/newly identified busy junctions.

Newry Mourne and Down District Council confirm that there have been no newly constructed or proposed roads since the last round of review and assessment.

Newry Mourne and Down District Council confirm that there are no new/newly-identified roads with significantly changed traffic flows.

Newry Mourne and Down District Council confirm that there are no relevant bus stations in the District.

3.2 Other Transport Sources

Newry, Mourne and Down District Council confirm that there are no airports in the District or neighbouring authorities that have a throughput of 5 million passengers per year and/or 500,000 tonnes of freight.

Newry, Mourne and Down District Council confirm there are no new, or newly identified locations where diesel locomotives or steam trains are regularly stationary for fifteen minutes or more.

Newry, Mourne and Down District Council confirm that there are no new/newly-identified locations with a large number of movements of diesel locomotives and potential long-term relevant exposure within 30m.

Newry, Mourne and Down District Council confirm that there are no new/newly identified ports.

3.3 Industrial Sources

Newry Mourne and Down District Council confirm that there have been no new or proposed industrial installations for which an air quality assessment has been required in the Newry Mourne and Down area since the last Progress Report.

Newry Mourne and Down District Council confirm that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area since the last Progress Report.

Newry Mourne and Down District Council confirm that there are no new or significantly changed installations with any previous air quality assessment since the last Progress Report.

Newry Mourne and Down District Council confirm that there are no major fuel (petrol) storage depots within the Local Authority area.

Newry Mourne and Down District Council confirm that there are no petrol stations meeting the specified criteria**.**

Newry Mourne and Down District Council confirm that there are no poultry farms meeting the specified criteria.

3.4 Commercial and Domestic Sources

Newry Mourne and Down District Council confirm that there are no new Biomass Combustion plants meeting the specified criteria since the last Progress Report.

Newry Mourne and Down District Council confirm that there are no new areas where the combined impact of several biomass combustion sources may be relevant since the last Progress Report.

Newry Mourne and Down District Council confirm that there are no new areas of significant domestic fuel use in the district since the last Progress Report.

3.5 New Developments with Fugitive or Uncontrolled Sources

Newry Mourne and Down District Council confirm that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Planning Applications

Newry Mourne and Down District Council can confirm that there has been no planning applications approved which it is considered will have a significant detrimental impact on the air quality within the district.

5 Air Quality Planning Policies

On 1st April 2015 the new Newry, Mourne and Down District Council was created which comprises the former Down District Council area and Newry and Mourne District Council area. The new super council has a population of approx 171,500. Newry City is the largest settlement in the council area. Responsibility for Planning now lies with the local councils in NI. The councils are responsible for:

- Local development planning
- Development Management
- Planning enforcement.

The Department of Infrastructure are responsible for:

- Determination of regionally significant and 'called in' planning applications.
- Regional Development Strategy
- Regional Planning Policy
- Planning Legislation
- Performance management
- Oversight and guidance for councils.

The new Council are currently working on the Area Plan and it is anticipated that this will be completed within the next 18 months. The Council are working to the area plans pre Local Government Reform.

The new Strategic Planning Policy Statement for Northern Ireland (SPPS) 'Planning for Sustainable Development' published in September 2015 consolidates the previous planning policy statements into one document and details strategic subject planning policy for a wide range of planning matters. It also sets out the strategic direction for the new councils to bring forward detailed operational policies within future local development plans. Annex A to SPPS highlights how the planning system can positively contribute to the improvement of air quality and in minimising its harmful impacts on health and wellbeing.

6 Local Transport Plans and Strategies

Public transport in Northern Ireland is delivered mainly through the actions of the Northern Ireland Transport Holding Company (NITHC) and its Translink operating subsidiaries; Metro, NI Railways and Ulsterbus. A key corporate aim is integration and co-ordination of services.

Through the Ulsterbus Strategic Review (USR), Ulsterbus and Translink seek to establish a platform for change, which will create in Northern Ireland a network of services that is comparable with any modern transport system. This will result in the development of modern, efficient, reliable services that rival the private car in convenience, accessibility and value for money.

The new Translink Strategy 'Get on Board' is a five year strategy which aims to deliver a transformation in public transport, providing integrated services which connect people, enhance the economy and improve the environment , enabling a thriving Northern Ireland.

7. Implementation of Action Plans

An Action Plan for the Newry (Urban Centre) AQMA was approved in April 2010. The Action Plan has twenty-four on going and planned actions which have the potential to reduce NO2 levels from traffic and background emissions within the designated AQMA. It is recognised that many of these measures will also contribute towards the wider strategic objectives of sustainable development and tackling climate change.

Figure 2.2 provided an analysis of the NO2 levels for the time period 2007 to 2015 for a number of NO2 diffusion tube sites within Newry City, including background and roadside sites. There are no clear trends in NO2 concentration for these sites although the results recorded at all sites for 2010 and 2012 were higher than other years. The high levels in 2010 would, in this Council's opinion, be related to the exceptionally cold weather during the winter of 2010 and in 2012 there was also a period of cold weather over the winter period.

Table 7.1 below summaries progress made over the past 12 months with implementation of the Action Plan measures.

Whilst at present there is no evidence to show a downward trend in the annual mean NO2 level within those streets which currently exceed this air quality objective, it would be argued that the Action Plan measures, actual and proposed, have created the building blocks for reducing levels of NO2 within these areas. It is therefore argued that the implementation of the Action Plan measures are in pursuit of ensuring that annual mean objective for NO2 is met at all relative exposure locations within Newry (Urban Centre) AQMA.

It is important that the existing and proposed Action Plan measures within the plan are implemented and built upon so that continual improvements can be made. Critical to this is the modal shift from car to other more sustainable modes of transport. To achieve this we cannot rely on people's altruistic behaviour; we must make that choice easier for them by providing modern efficient public transport facilities and services. For those who choose to walk or cycle we must ensure that their choice is safe and convenient.

Newry, Mourne and Down District Council and other stakeholders continue to make the case for the Newry Southern Relief Road, which if implemented, has the potential to provide traffic relief to Newry City centre with the consequent improvements in local air quality. However, even if a decision to undertake this scheme was approved today it would take several years before it would open to traffic and therefore we cannot rely on this as the ultimate solution.

Table 7.1 Action Plan Progress

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	DBFO 2 - A1 Beech Hill – Cloghogue. Project	Reduce traffic entering city centre thereby reducing emissions	Road Service	2007 - 2010	2008 - 2010	Completion of road	Not known	New road open to traffic July 2010	Complete	Complete	Not known
2	Expanded Strategic Road Improvement Programme 2015 – Southern Relief Road	Reduce traffic entering city centre thereby reducing emissions	Road Service	2011 onwards	Not determined	DRD Road Service to identify preferred route for the Southern Relief Road by 2011. Estimated Cost of scheme £100 - 210 million (depending on preferred route - Newry Southern Relief Road Feasibility Study Report August 2009)	Not known	Environmental & Technical investigation ongoing by DfI.	Ongoing	Not known	Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
3	Review signage displayed under Traffic Weight Restriction (Newry) Order (NI) 1992 and to raise awareness of TRO among motorists	Enforce provisions of TRO in Canal Street thereby reducing emissions from HGV's using this street	PSNI	Ongoing	Ongoing	Compliance with TRO	Not known	Ongoing	Ongoing	Ongoing	Not known
4	Proposed improvements to walking facilities in Newry City, as detailed in the SRTP Technical Supplement for Newry, by 2015.	Improve walking facilities thereby encourage walking as an alternative mode of transport to private car	Road Service	2002 - 2015	2007 - 2015	Improved walking facilities	Not known	Provision of new footpaths in Newry City Centre (Hill St, Monaghan St, Merchant Quay) as part of ongoing Public Realm Schemes.	Complete	Complete	Not known
5	Proposed improvements to cycling facilities in Newry City, as detailed in the SRTP Technical Supplement	Improve cycling facilities thereby encourage cycling as an alternative mode of transport to	Road Service	2002 - 2015	2007 - 2015	Improved cycling facilities	Not known	Provision of cycle paths and cycle stands along Merchants Quay. Introduction of approximately 15 new cycle	Not known	Ongoing	Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	for Newry, by 2015.	private car						stands across Newry city centre.			
6	Park and Share Facilities to be provided at Beech Hill and Cloghogue of A1	Encourage car sharing thereby reducing number of single occupancy vehicles using city	Road Service	2002 - 2015	2007 - 2015	Establishing park and share facilities	Not known	As part of DBFO 2 - A1 Beech Hill – Cloghogue. Project Park and Share facilities established at Sheepbridge and Cloghogue (25 spaces each)	Provision of 15 extra park and ride spaces at the Sheepbridge Park and Ride due to over demand for spaces.	**Complete**	Not known
7	Replace Ulsterbus Newry Fleet with new less polluting vehicles in accordance with Translink Environmental Statement	Reduce emissions from public transport in the AQMA	Translink	2007 - 2013	2007 - 2013	To achieve an average road fleet age of 8 years and a retirement age of 12 years for coaches and 18 years for buses by 2013.	Not known	As of Feb 2014, average road fleet age of 5.87 years and oldest vehicle in use is 12.74 years.	There are 77 buses in service at Newry Depot all are Euro Type 3 – 6. As of September 2016, average road fleet age of 7.94 years and oldest vehicle in use is 15.09 years.	Ongoing	Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
8	Improved bus stops and customer information	Encourage greater use of public transport against use of private vehicles thereby reducing emissions from private vehicles	Translink	2002 - 2015	2007 - 2015	Improvement to existing bus stops and increase to number of bus stops	Not known	From 07/08 to 08/09 there was a 10% increase in passenger numbers using Ulster bus, 08/09 to 09/10 saw a further 7% increase however, from 09/10 to 10/11 there has been an 8% reduction in passenger numbers.	There has been a 3% reduction in passenger number s form 2014/2015 to 2015/2016. Again it is believed that the drop in passenger numbers is due to numbers of 'senior citizen' passengers reducing their number of journeys to city centre.	Ongoing	Not known
9	Provision of network of natural gas in Newry City	Providing natural gas as an alternative fuel over other fuels such as oil and coal which have higher emission	Firmus	Ongoing	Ongoing	Increased uptake of natural gas customers in Newry City	Not known	There are 1112 domestic properties converted to Firmus Energy Gas Network across the Newry area.	As of September 2016 there are 1864 properties converted to Firmus Energy Gas Network across the	Ongoing	Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		rates of NO2							Newry area.		
10	**NIHE Energy Efficiency Improvement Programme**	Improve energy efficiency of NIHE homes in AQMA thereby reducing energy consumption & emissions	NIHE	2007-2013	2007- 2013. Advised by NIHE implementation date has extended to 2015/16 due to the current and anticipated levels of funding for the heating programme.	Increased number of housing stock with improved energy efficiency and cleaner heating systems	Not known	Of the 1281 NIHE properties within Newry City 265 properties have gas-heating system and 737 have oil-heating system. 45 properties converted to gas heating and 0 homes converted to oil heating in past 12 months.	Of the 1281 NIHE properties within Newry City 628 properties have been fitted with gas-heating system. This is a 28% rise since 2015.	Ongoing	Not known
11	Extension of Council ISO 14001 management system	Reduce the impact of Council services on the environment, including air quality. The Council, by leading by example, will encourage	Council	2004 - 2011	2004 - 2011	Maintenance of ISO 14001 accreditation.	Not known	The council maintained ISO 14001 accreditation until Match 2015	. There has been no progress in the last 12 months.		Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		other businesses within the Council area to implement their own environmental management system									
12	**Establish a Workplace Travel Plan for NMDC**	Reduce emissions from Council travel	Council	2009 - 2010	2010 - 2015	Achievement of targets set within Council Travel plan	Not known	Council purchased its first electric vehicle for use by an Enforcement Officer and installed an electric charging point at the Monaghan Row site. Further replacement of council fleet with less polluting vehicles, increased number of employees part of Cycle scheme	The council continue to use an electric vehicle for enforcement officer. The council have launched a new Cycle 2 Work Scheme and are encouraging employees to take par in the scheme.		Not known

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

2015 monitoring data has identified the following:

- No exceedance of annual mean objective for PM10.
- No exceedance of daily mean objective for PM10.
- 6 of the 27 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO2) (40µg/m3).
- No exceedance of annual mean objective for NO_2 in Downpatrick. No need to proceed to Detailed Assessment.

8.2 Conclusions relating to New Local Developments

There have been no new industrial installations or new commercial or fugitive source emissions within the Newry, Mourne and Down District Council area in 2015.

Newry City and Downpatrick have smoke control areas. All new developments within these areas are required to comply with the restrictions within the smoke control areas in relation to the use of authorised fuels.

8.3 Other Conclusions

Section 8 of this report provides a summary of the progress in completion of actions within the Air Quality Action Plan. It is important that the existing and proposed Action Plan measures within the plan are implemented and built upon so that continual improvements can be made. Critical to this is the modal shift from car to other more sustainable modes of transport. To achieve this we cannot rely on people's altruistic behaviour; we must make that choice easier for them by providing modern efficient public transport facilities and services. For those who choose to walk or cycle we must ensure that their choice is safe and convenient.

8.4 Proposed Actions

The 2015 monitoring data within Newry City centre has identified no exceedances of PM10 objectives. The council have secured match funding to purchase a new NOx Analyser for the Canal St AQMS and will recommence continuous monitoring of NO_2 at this site.

The Council continues to monitor progress in the implementation of the agreed Action Plan for the Newry (Urban Centre) Air Quality Management Area and this is reported on within this report.

The Market Street NO_2 station will continue monitoring.

Appendices

Appendix 1: QA/QC Data - Bias Adjustment Factor Calculations.

Appendix 2: Map of Automatic Monitoring Sites

Appendix 3: Map of Non Automatic Monitoring Sites

Appendix 4: Short-term to Long-term Data Adjustment

Appendix 1: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2015 the NO_2 diffusion tubes were prepared and analysed by ESG Limited. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in water. Analysis is carried out using a segmented flow auto analyser with ultraviolet detection. The laboratory methods are currently UKAS accredited. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparsion survey.

The National Bias Adjustment Factor for ESG in 2015 was found to be 0.79 Cm/Dm.

PM Monitoring Adjustment

The data from all three PM10 monitors were subject to QA/QC inspection by Ricardo AEA for the 2015 monitoring period. Instruments at Trevor Hill and Monaghan Row are R & P Teom (FDMS) and therefore monitoring data from these instruments has not required any correction. The Canal Street site has an R&P Teom and data has been corrected using the Volatile Correction Method (VCM).

Short-term to Long-term Data adjustment

No short-term to long term data adjustments are required.

QA/QC of automatic monitoring

During 2015 Newry, Mourne and Down District Council had a QA/QC and Data Management contract with Ricardo- AEA. QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area.

QA/QC of diffusion tube monitoring

ESG is assessed annually by UKAS to establish conformance of the Laboratory Quality Procedures and have demonstrated a good performance in the latest round of WASP assessment for nitrogen dioxide diffusion tubes.

Newry, Mourne and Down District Council QA/QC procedure ensures that the diffusion tubes are handled and stored in accordance with ESG Diffusion Tube Instruction Manual for exposure and location.

Appendix 2: Figure 2.1 Map of Automatic Monitoring Sites – Newry City

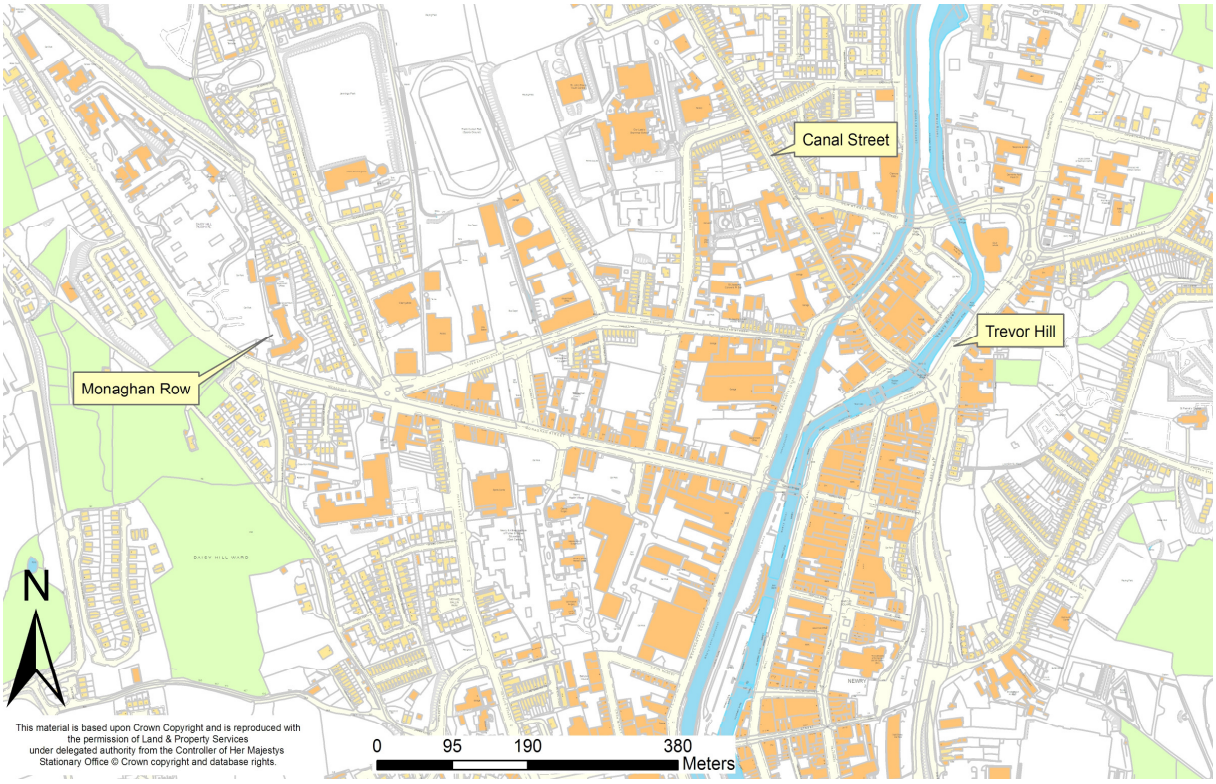
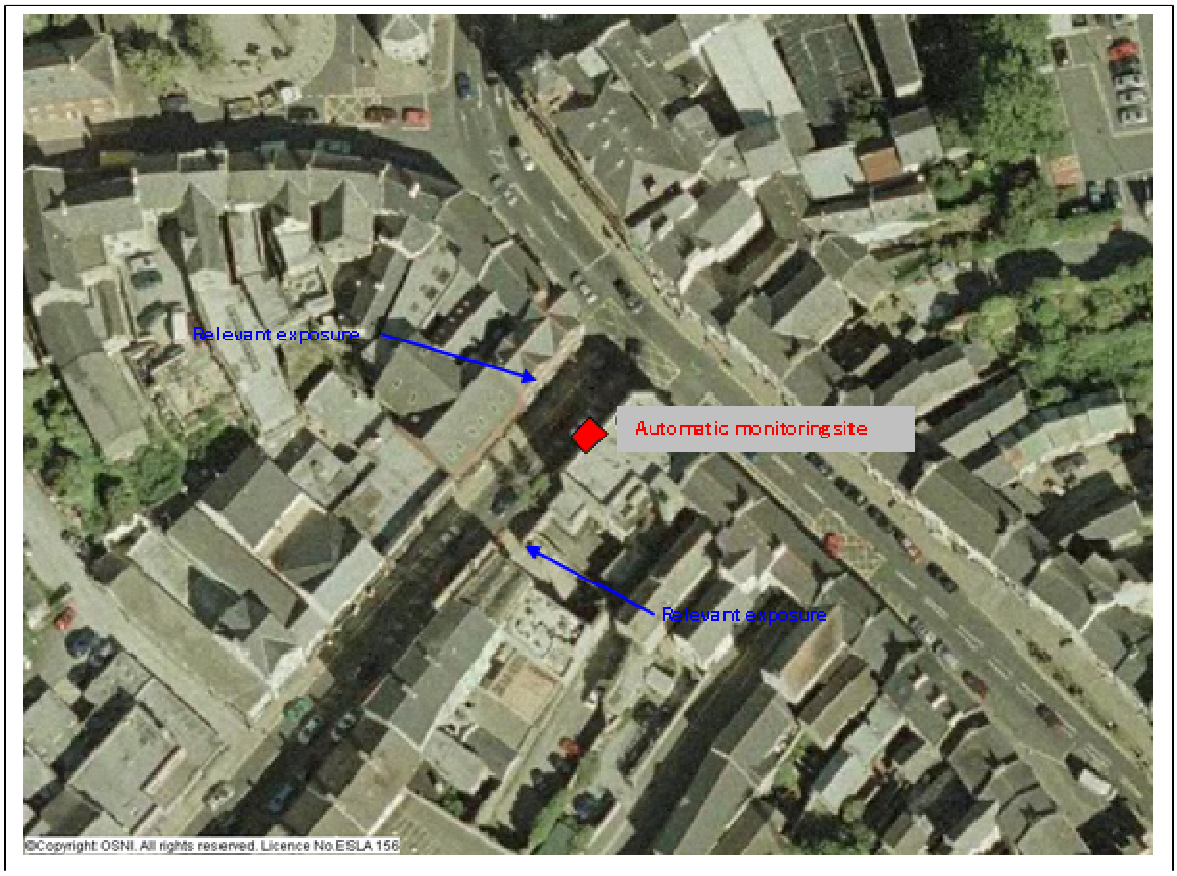
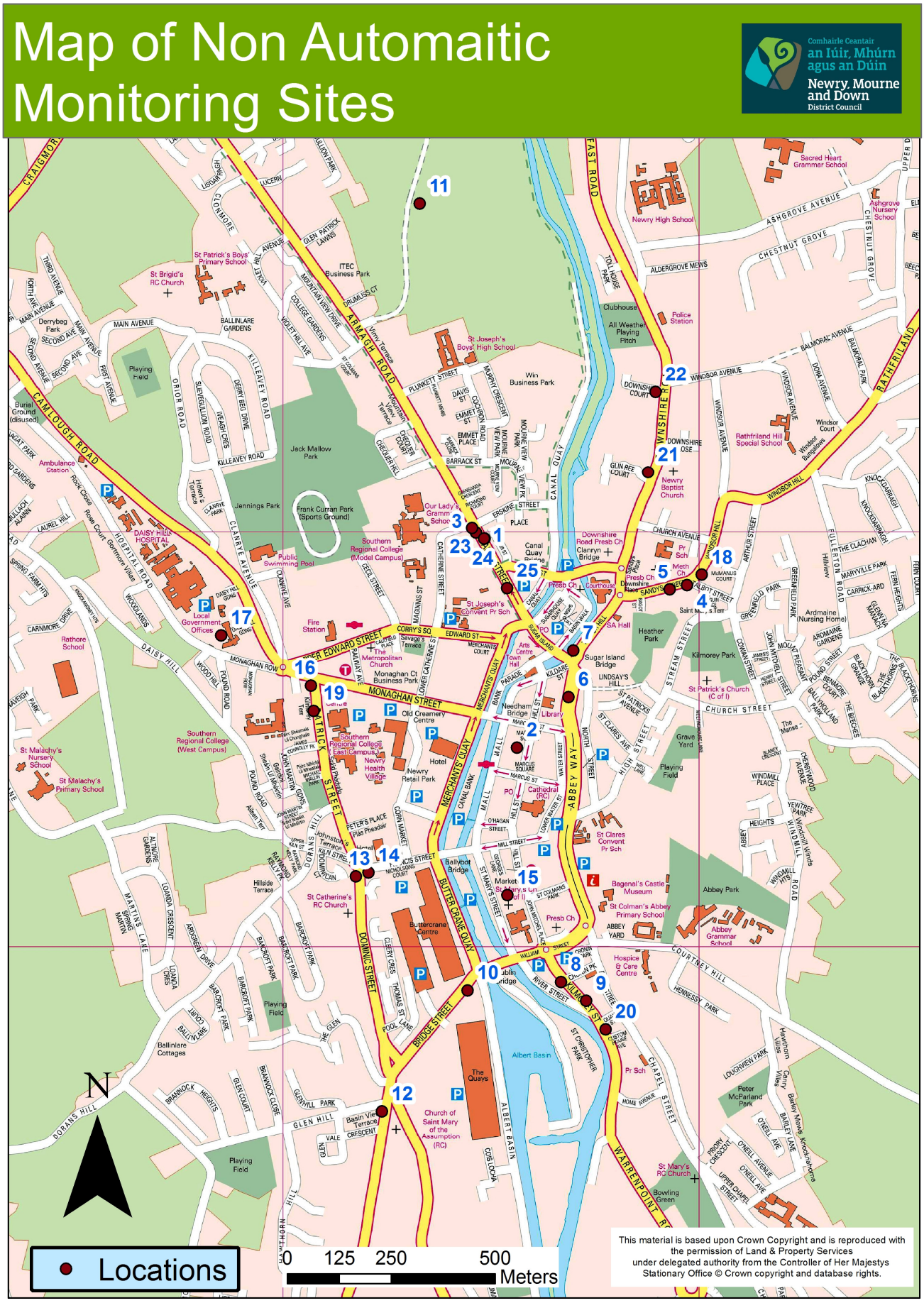


Figure 2.2 Map of Automatic Monitoring Site – Downpatrick



Appendix 3: Figure 2.3 Map of Non Automatic Monitoring Sites

Diffusion Tube Sites in Newry AQMA



Appendix 4

Downpatrick Market Street Continuous Monitoring Site

2015 Nitrogen dioxide Annualised Mean = 34 µg/m^3 (33.79) using worst case scenario.

Short-term to Long-term Data Adjustment

Guidance for the treatment of continuous monitoring data requires that where annual mean results are based upon monitoring data of less than 9 months sampling, these means should be "annualised" in accordance with the procedures outlined in Box 7.9 of the government's local air quality management technical guidance LAQM.TG16.

In order to complete the annualisation process, councils are required to identify two to four nearby long-term background continuous monitoring sites for nitrogen dioxide. If no background sites are available, and the site to be annualised is itself a Roadside site, then it is permissible to annualise using a Roadside site. As there is only one background site in Northern Ireland monitoring nitrogen dioxide, Newry, Mourne and Down District Council has elected to use data from the Belfast Centre AURN (urban centre) and Belfast Stockman's Lane AURN (Roadside) sites.

Individual adjustment factors have been calculated for Downpatrick Market Street monitoring site, corresponding with the relevant exposure periods. The adjustment ratio for the site with less than 85% data capture is summarised in the following table:

Table 8.1 – Short-Term to Long-Term Monitoring Data Adjustment

Site	Site Type	2015 Annual Mean	Continuous Monitoring site	2015 Annual Mean for site sampling period	Ratio	Average Ratio (Ra)
Belfast Centre AURN Site	Urban Centre	29	Downpatrick Market Street	26.6	1.090	1.063
Stockman's Lane AURN Site	Roadside	50		48.25	1.036	

"M" is the measured mean concentration for the valid period which is the monitoring period of the Downpatrick site from January to August 2015. The mean concentration for this eight month period was 31µg/m^3.
M x Ra = Annual mean
31 x 1.063 = 32.953 µg/m^3

In further analyzing the results from the Belfast datasets separately the worst case scenario can be obtained. In This case in table A.2 with a result of 34 µg/m^3

Table 8.2- Short**-Term to Long-Term Monitoring Data Adjustment for Urban Centre**

Site	Site Type	2015 Annual Mean	Continuous Monitoring site	2015 Annual Mean for site sampling period	Ratio (Ra)	Down measured mean conk (M)	M x Ra
Belfast Centre AURN Site	Urban Centre	29	Downpatrick Market Street	26.6	1.090	31	33.79

Table 8.3- **Short-Term to Long-Term Monitoring Data Adjustment for Roadside**

Site	Site Type	2015 Annual Mean	Continuous Monitoring site	2015 Annual Mean for site sampling period	Ratio (Ra)	Down measured mean conc (M)	M x Ra
Stockman's Lane AURN Site	Roadside	50	Downpatrick Market Street	48.25	1.036	31	32.12

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