2014 Air Quality Progress Report

Newry & Mourne D.C.

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

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Executive Summary

This 2014 Progress Report for Newry and Mourne 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 2013.

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) (40$\mu g/m^3$) 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) (40$\mu g/m^3$).
- Exceedance of hourly mean objective for (NO2) (200$\mu g/m^3$) 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 $\mu g/m^3$ which is an indicator that the hourly mean objective (200$\mu g/m^3$) may be exceeded.
- No exceedance of annual mean objective for PM10.

These results differ from the 2012 monitoring data in that there was no exceedance of the daily mean objective or annual mean objective for PM10 in 2012. 2013 monitoring data has identified an exceedance of the daily mean objective for PM10 at Canal Street which confirms the conclusions of the 2012 Detailed Assessment and justifies the declaration of the Newry (Canal Street) Air Quality Management Order 2013.

From reviewing monitoring data for the hourly mean objective for NO2 over the past three years it would indicate exceedances at Canal Street and Kilmorey Street. The Council has a identified a number of possible actions to take in relation to declaring an AQMA for these exceedances (as detailed within this report), the council will seek advice and guidance from DoE on the best way forward.

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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1 Introduction

1.1 Description of Local Authority Area

Newry and Mourne District Council (NMDC) 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. Its neighbouring council areas in Northern Ireland are Down District Council (North East), Banbridge District Council (North) and Armagh City and District Council (North West). To the South it shares a boundary with Louth County Council and Monaghan County Council in the Republic of Ireland.

The existing council area had a population of 99,480 in the 2011 census. Newry, (from the Irish Iuir Cinn Tra meaning Head of the Strand), is the largest settlement in the council area. With a population of 20,614 in the 2011 census, the city accommodates approximately 21% of the total population of the district.

Newry City is set in the valley of Clanrye River between two mountain ranges, the Mourne Mountains in Northern Ireland and the Cooley Mountains in the Republic of Ireland. The Clanrye River empties into Carlingford Lough. Running parallel with the Clanrye River through Newry City is Newry Canal. The canal is for much of its route unused today, although some leisure crafts travel from Carlingford Lough to the edge of Newry City using this route.

Newry City 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.

Under the Review of Public Administration (RPA) the Council is due to merge with Down District Council on 1st April 2015 to form a single council for the enlarged area totalling 1539 km² and a population of 150,886.

1.2 Purpose of Progress 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 AQMA and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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 microgram's per cubic metre μg/m^3 (milligram's 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 Local Air Quality Management in Northern Ireland.

Pollutant	Concentration	Measured as	Date to be achieved by
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

Table 1.2 Summary Newry and Mourne 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 50mg/m3. 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) ($40\mu g/m^3$) 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 2012	As a result of the findings of the 2010 Progress Report a Detailed Assessment was carried out to determine if there was a risk of the 1-hour mean objective for NO2 and daily mean objective for PM10 being exceeded 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.
Progress 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.

Figure 1.1 Map showing boundary of Newry (Urban Centre) AQMA

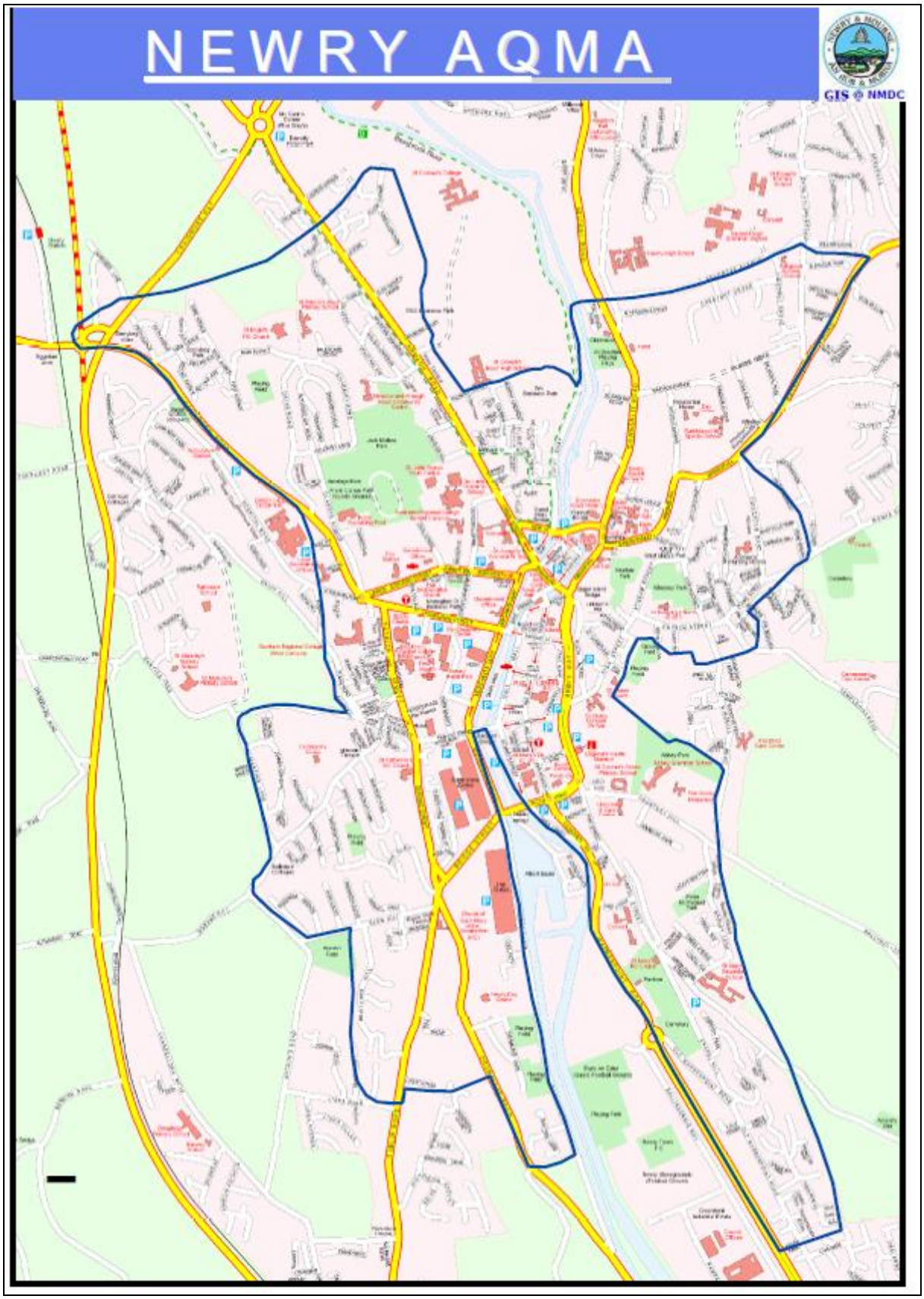
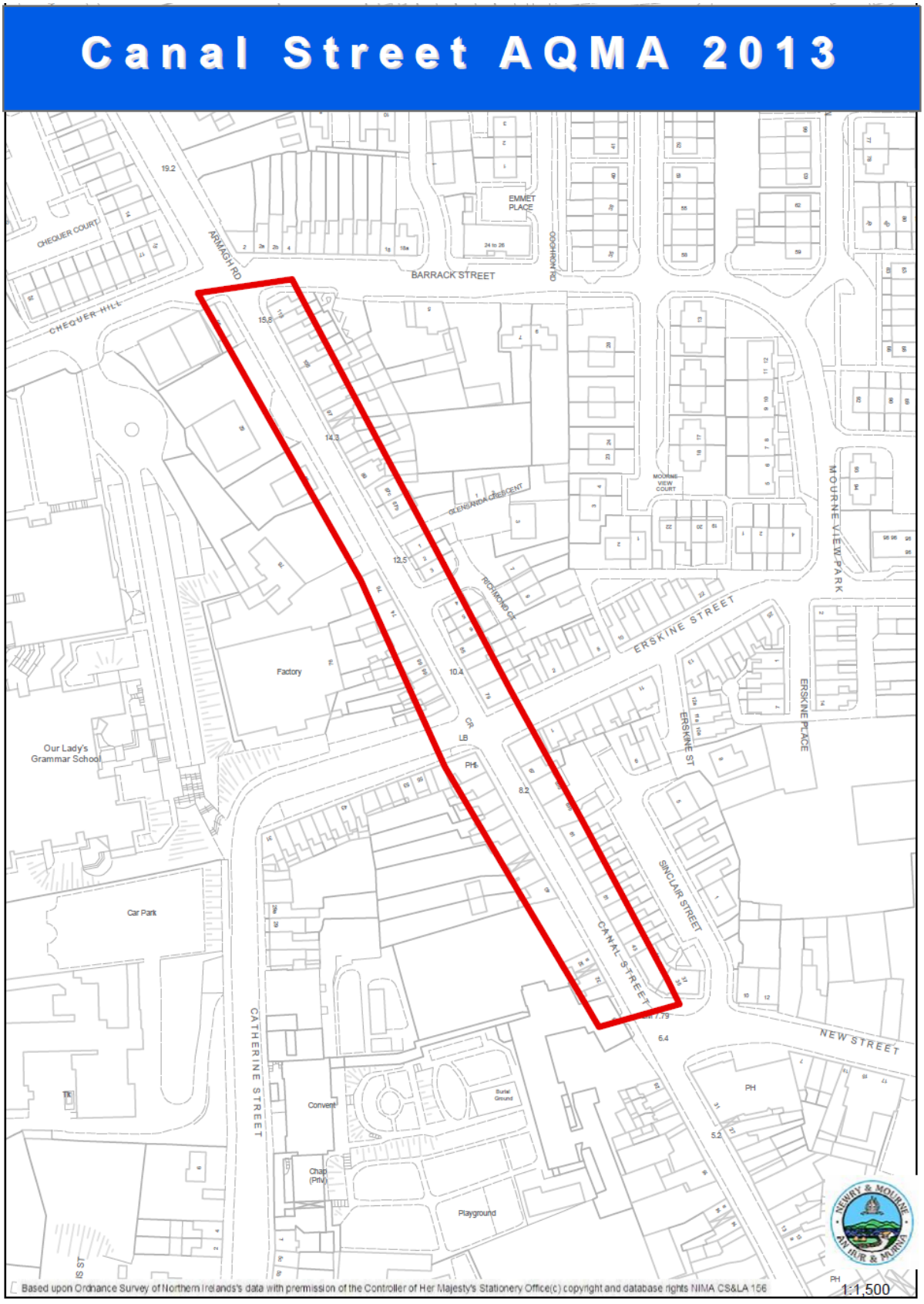


Figure 1.2 Map showing boundary of Newry (Canal Street) AQMA


Canal Street AQMA 2013
BARRACK STREET
ARMAGH RD
CHEQUER COURT
CHEQUER HILL
EMMET PLACE
OGHORN RD
MOURNE VIEW PARK
MOURNE VIEW COURT
GLENLANDA CRESCENT
RICHMOND CT
ERSKINE STREET
ERSKINE PLACE
ERSKINE ST
SINCLAIR STREET
CANAL STREET
NEW STREET
CATHERINE STREET
Factory
Our Lady's Grammar School
Car Park
Convent
Burial Ground
Chap (Priv)
Playground
PH
LB
CR
TK
19.2
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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 within Newry and Mourne District Council area.

There are currently three automatic monitoring sites. 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 and Mourne District Council currently have a QA/QC and Data Management contract with Netcen (AEA Technology Plc). QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area. A QA/QC contract has been running since 1st March 2002 and certified calibration results are available to cover this period.

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	Background	X307855 Y 326749	PM_{10}	Y	FDMS	N	50m	N
Trevor Hill	Roadside	X 308716 Y 326734	PM_{10} NO_2	Y	FDMS	N	3m	Y
Canal Street	Roadside	X308485 Y 326976	PM_{10} NO_2	Y	N/A	Y (<1M)	3M	Y

Refer to Appendix 2 for Figure 8.2 Map of Automatic Monitoring Sites

2.1.2 Non-Automatic Monitoring

Newry and Mourne District Council currently deploy 37 No2 diffusion tubes per month at 35 sites within its District (26 within Newry City Centre). 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 3 for Figure 8.3 - Map of Non-Automatic Monitoring Sites

Table 2.2 Details of Non- Automatic Monitoring Sites

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 (Pub)	Roadside	308463 327003	NO_2	Y	Y	1m	Y
2	13 Canal St	Roadside	308516 326909	NO_2	Y	Y	1m	Y
3	Catherine Street	Roadside	308450 327007	NO_2	Y	Y	2m	Y
4	25 Sandy Street	Roadside	308973 326873	NO_2	Y	Y	1m	Y
5	59 Sandy Street	Roadside	308929 326861	NO_2	Y	Y	1m	Y
6	Water Street	Roadside	308688 326593	NO_2	Y	Y	1m	Y
7,8,9	Trevor Hill 1, 2, 3	Roadside	308716 326794	NO_2	Y	N	2m	Y
10	33 Kilmorey Street	Roadside	308668 325918	NO_2	Y	Y	1m	Y
11	52 Kilmorey Street	Roadside	308727 325869	NO_2	Y	Y	1m	Y
12	4 Bridge Street	Roadside	308443 325896	NO_2	Y	Y	2m	Y
13	60 Bridge Street	Roadside	308330 325789	NO_2	Y	Y	1m	Y
14	Basin View Terrace	Roadside	308239 325607	NO_2	Y	Y	1m	Y
15	Doran's Hill	Roadside	308033 326153	NO_2	Y	Y	1m	Y
16	Dominic/Patrick St	Roadside	308177 326170	NO_2	Y	Y	1m	Y
17	Francis Street	Roadside	308205 326138	NO_2	Y	Y	2m	Y
18	Market Office	Urban Background	308539 326129	NO_2	Y	N	25m	Y
19	115 Chapel St	Roadside	308985 325510	NO_2	Y	Y	1m	Y
20	42 Patrick Street	Roadside	308072 326608	NO_2	Y	Y	1m	Y
21	Monaghan Row	Urban Background	307855 326749	NO_2	Y	N	50m	Y
22	Pine Grove	Roadside	308208 325259	NO_2	Y	Y	1m	Y
23	4 Windsor Hill	Roadside	309007 326900	NO_2	Y	Y	1m	Y
24	9 Kilmorey Terrace	Roadside	308078 326567	NO_2	Y	Y	2m	Y
25	2 Chapel Street	Roadside	308829 325802	NO_2	Y	Y	2m	Y
26	71 Kilmorey Street	Roadside	308775 325803	NO_2	Y	Y	1m	Y
27	Camlough Road 1	Near road	306909 327510	NO_2	N	Y	10m	N
28	Camlough Road 2	Near road	306765 327566	NO_2	N	Y	5m	N
29	Duke Street Warrenpoint	Near road	314280 318379	NO_2	N	Y	3m	N
30	Main street Camlough	Roadside	303781 326882	NO_2	N	Y	3m	N
31	Lower Edward St	Roadside	308432 326747	NO_2	Y	Y	1m	Y
32	Soho Bus Station	Near road	308461 326407	NO_2	Y	N	5m	Y
33	Belfast Road 1 (Glee Court)	Near road	308908 327334	NO_2	N	Y	2m	N
34	Main Street Hilltown	Roadside	321197 328925	NO_2	N	Y	3m	N
35	Belfast Road 2 (D/Shire Ct)	Roadside	308890 327162	NO_2	N	Y	5m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

The existing monitoring network consists of three continuous monitoring stations and 37 NO2 diffusion tubes. There is one NO2 diffusion tube co-location site at Trevor Hill Newry (35 sites).

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

In 2013 the Council monitored NO2 at two sites in Newry City: Trevor Hill and Canal Street.

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

Location	Within AQMA ?	Data Capture for monitoring period (2013 calendar year) %	Annual mean concentrations (μg/m^3)					
			2008	2009	2010	2011	2012	2013
Trevor Hill	Y	69.4	46.0	44	44	31	51	55
Canal Street	Y	94.2	N/A	N/A	44	33	47	47

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

Location	Within AQMA?	Data Capture for monitoring period (2013 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.					
			2008	2009	2010	2011	2012	2013
Trevor Hill	Y	69.4	5 (172)	0	8 (178)	1	0	3(180)
Canal Street	Y	94.2	N/A	N/A	34	6	75	29

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Location	Site Type	Within AQMA?	Data Capture for monitoring period%	Confirm if data has been distance corrected (Y/N)	**Annual mean concentration** (Local Bias Adjustment factor 0.81 (μg/m3)					
					2008	**2009**	**2010**	**2011**	**2012**	**2013**
Canal Street (Pub)	Roadside	Y	100	Y	49	61	65	46	82	**60**
Lower Canal St	Roadside	Y	100	Y	-	-	57	27	49	38
Catherine Street	Roadside	Y	100	Y	36	42	52	28	55	**41**
25 Sandy Street	Roadside	Y	100	Y	41	49	58	34	59	**43**
59 Sandy Street	Roadside	Y	100	Y	56	56	51	34	55	**42**
Water Street	Roadside	Y	100	Y	40	46	60	32	55	**44**
Trevor Hill 1	Roadside	Y	100	Y	35	35	44	45	48	37
Trevor Hill 2	Roadside	Y	100	Y	34	34	43	44	52	**40**
Trevor Hill 3	Roadside	Y	100	Y	33	33	45	44	55	**44**
33 Kilmorey Street	Roadside	Y	100	Y	43	32	53	60	65	**47**
52 Kilmorey Street	Roadside	Y	100	Y	39	13	48	54	53	**43**
4 Bridge Street	Roadside	Y	100	Y	31	38	43	25	42	34
60 Bridge Street	Roadside	Y	100	Y	-	-	29	17	34	25
Basin View Terrace	Roadside	Y	100	Y	32	41	45	27	48	30
Doran's Hill	Roadside	Y	100	Y	-	-	29	17	32	23
Dominic/Patrick St	Roadside	Y	100	Y	29	25	41	22	38	29
Francis Street	Roadside	Y	100	Y	32	41	45	27	48	36
Market Office	Urban Background	Y	100	Y	18	22	24	14	22	19
115 Chapel St	Roadside	Y	100	Y	-	28	34	20	25	18
42 Patrick Street	Roadside	Y	100	Y	35	46	52	31	50	18
Monaghan Row	Urban Background	Y	100	Y	13	14	16	9	16	13
Pine Grove	Roadside	Y	100	Y	-	-	37	21	36	26
4 Windsor Hill	Roadside	Y	100	Y	26	39	25	25	45	35
9 KilmoreyTerrace	Roadside	Y	100	Y	-	51	69	37	38	35
2 Chapel Street	Roadside	Y	100	Y	-	28	34	20	35	30
71Kilmorey street	Roadside	Y	100	Y	-	51	69	37	74	**56**
Camlough Road 1	Near road	Y	100	Y	-	44	45	29	23	19
Camlough Road 2	Near road	Y	100	Y	-	43	44	31	26	21
Duke Street Warrenpoint	Roadside	Y	100	Y	-	-	-	13	23	31
Main Street Camlough	Roadside	N	100	Y	-	-	-	11	24	19
Lower Edward St	Roadside	N	100	Y	-	-	-	18	34	25
Soho Bus Station	Near road	N	100	Y	-	-	-	18	30	23
Belfast Rd 1 (Glin Court)	Near road	Y	100	Y	-	-	-	-	14	24
Main Street Hilltown	Roadside	Y	100	Y	-	-	-	-	33	24
Belfast Rd 2 (Downshire Ct))	Roadside	Y	100	Y	-	-	-		15	22
Canal St Station	Road side	Y	50	Y	-	-	-	-	-	40
63 Canal Street	Roadside	Y	50	Y	--	-	-	-	-	37

2.2.2 PM_{10}

In 2013 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 2013) %	Annual mean concentrations ($\mu g/m^3$)				
			2009	2010	2011	2012	2013
Monaghan Row	Y	98.5	14	21	14	14	18
Trevor Hill	Y	94.9	24	31	22	18	22
Canal Street*	Y	99.1	31	37	30	26	29

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 2013) %	Number of Exceedences of daily mean objective (50 $\mu g/m^3$) If data capture < 90%, include the 90th percentile of daily means in brackets.					
			2008	2009	2010	2011	2012	2013
Monaghan Row	Y	98.5	12(34)	6	16 (40)	13	7(26)	13
Trevor Hill	Y	94.9	12(44)	6	46 (55)	26(47)	10(32)	21
Canal Street*	Y	99.1	N/A	21	73	39	27	42

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

2.2.3 Sulphur Dioxide

In 2013 there was no monitoring of sulphur dioxide undertaken within the council area.

2.2.4 Benzene

In 2013 there was no monitoring of benzene undertaken within the council area.

2.2.5 Other pollutants monitored

In 2013 there was no other pollutants monitored within the council area.

2.3 Air Quality Trends

The Air Pollution in Northern Ireland 2013 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.

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 2013. For reference purposes the annual mean objective of 40 μgm3 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. 2013 monitoring data shows an increase in levels of PM10 across all three sites in comparison to 2012, however levels are not as high as those monitored in 2010. 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. The recent Further Assessment of PM10 concentrations within the Canal Street AQMA identified the same conclusion.

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 theses 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 2.1: PM10 Annual Mean Value at Automatic Monitoring Stations Newry City Sites, 1998 to 2012

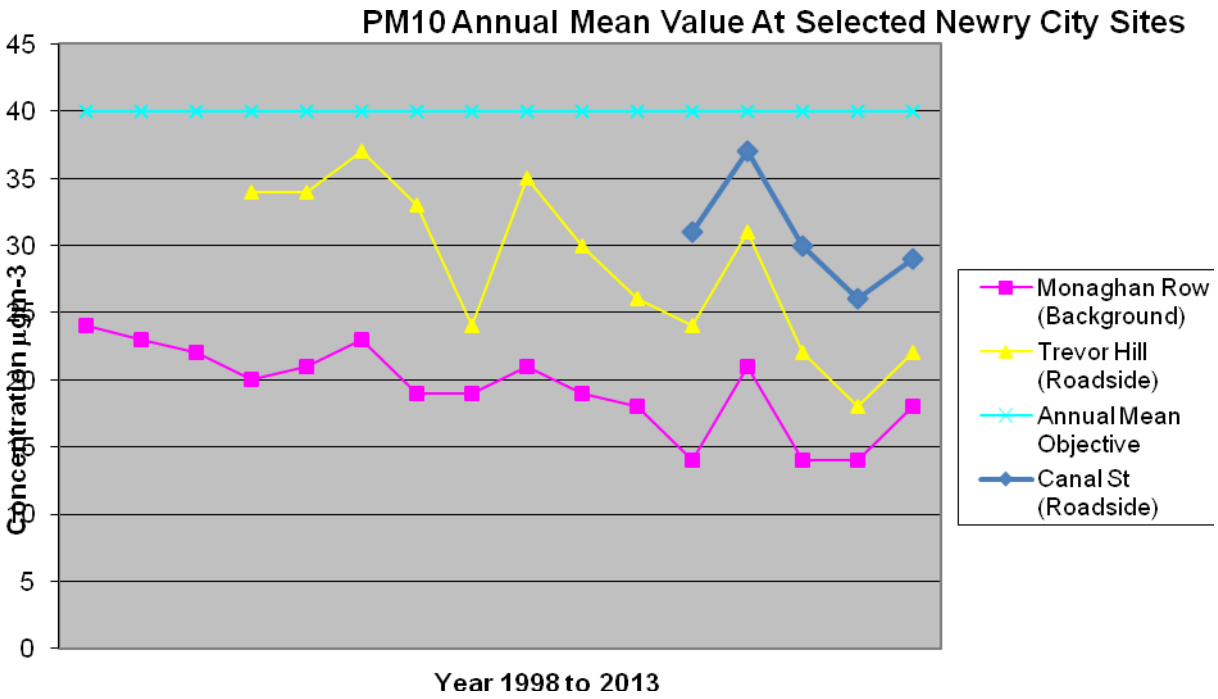
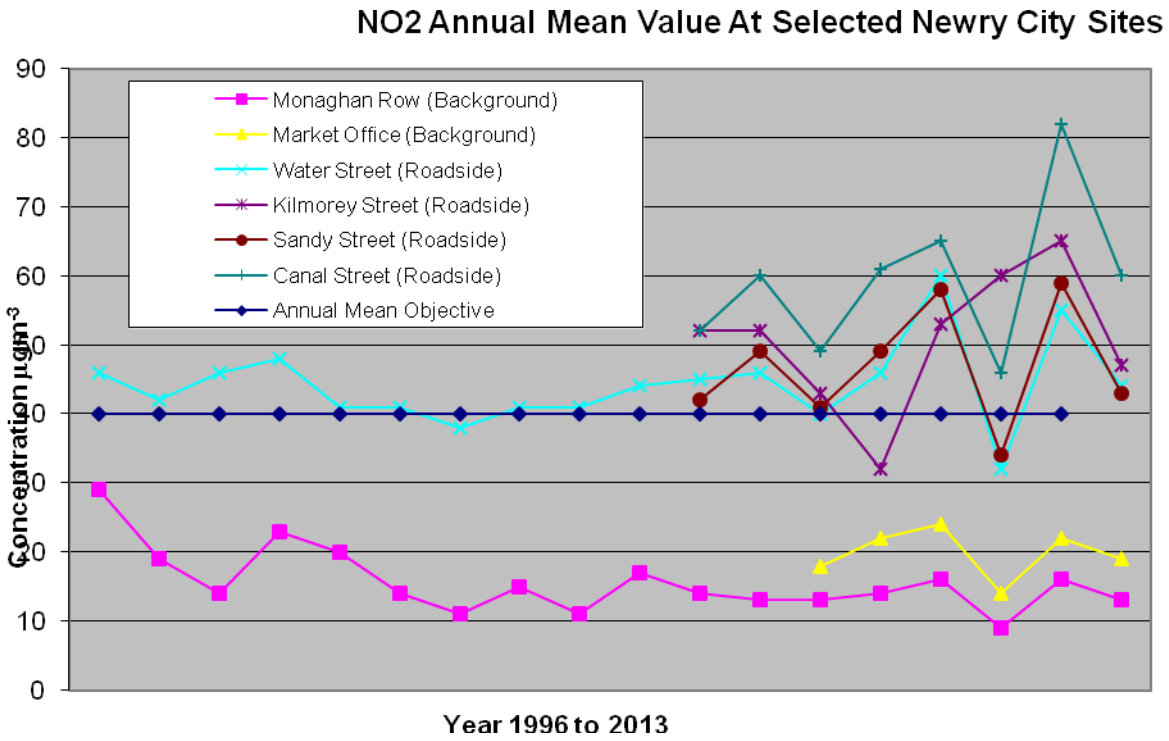


Figure 2.2 NO2 Annual Mean Value at Automatic Monitoring Stations Newry City, 1996 to 2013



2.3.1 Summary of Compliance with AQS Objectives

Newry & Mourne District Council 2013 monitoring data has identified the following:

- No exceedance of annual mean objective for PM10.
- 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.
- Trevor Hill AQMS is not a site of relevant exposure.

3 New Local Developments

3.1 Road Traffic Sources

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

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

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

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

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

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

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

3.2 Other Transport Sources

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

3.3 Industrial Sources

Newry and Mourne 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 and Mourne area since the last Progress Report.

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

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

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

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

3.4 Commercial and Domestic Sources

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

Newry and Mourne 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 and Mourne 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 and Mourne 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 and Mourne 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

Within Northern Ireland the Department of the Environment Planning Service has responsibility for implementing government planning policy and development plans.

With regard to this Council area, the Banbridge / Newry and Mourne Area Plan 2015 was adopted by the DoE on 4th October 2013.

The Area Plan for this district consists of designations, policies, proposals and zonings specific to the administrative area of the council (including Newry city centre). The Plan recognises that the continuing growth in road transport has consequential impacts on air quality. If left unmanaged traffic growth has social and economic consequences, such as congestion and the effect on residents' quality of environment, and the reduced attractiveness of town centres as retail and service destinations.

In addition to the overall Plan Strategy, the Development Strategy for Newry identifies projects to relieve existing and potential congestion within the city centre by proposing a road-widening scheme at Bridge Street, a Southern bypass and a Rathfriland Road link. The latter two schemes will enable east-west cross-city traffic to avoid the city centre.

The assessment of applications for development within the council considers the Area Plan plus the Planning Strategy for rural Northern Ireland and a number of other Planning Policy Statements (PPSs) and Development Control Advice Notes (DCANs) issued by Planning Service. These will be material in the decision making process and a professional judgement is made as to the weight to be given to the various policies. While there is no actual policy relating to air quality, the issue can be considered under PPS1 General Principles (Para 59)

"The Department's guiding principle in determining planning applications is that developments should be permitted, having regard to the development plan and all other material considerations, unless the proposed development will cause demonstrable harm to interests of acknowledged importance. In such cases the Department has the power to refuse planning permission. Grounds for refusal will be clear, precise and give a full explanation of why the proposal is unacceptable to the Department."

Planning permission may be refused if the proposed development will cause demonstrable harm.

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.

Under the Newry USR, the reviewed and enhanced services were implemented from February 2007.

These following improvements have been achieved:

- simplified and standardised modern route network, designed to meet customers needs;
- low floor accessible vehicles;
- simplified clock face timetables to ease understanding;
- enhanced hourly services between Newry and Rathfriland;
- increased frequency and more regular services between Newry and Armagh;
- half hourly services between Newry and Belfast during peak times; and
- Provision of a new rail passenger terminal in Newry City.

7 Climate Change Strategies

Newry and Mourne District Council vision is to:

"create a Low Carbon City through the use of sustainable energy practice."

Climate change is one of the greatest challenges facing mankind. Unchecked, no one will remain immune from its consequences, yet we each contribute to it. Every time we use electricity or gas at home or work, travel, or buy goods and services, we are responsible for emitting greenhouse gases that are warming the planet and changing our climate. If unchecked climate change is to be avoided and our contribution to it must be reduced dramatically

Newry aspires to be a showcase of partnership working in the use of technologies, policies and practices needed to develop sustainable communities. Carrying out these actions will take time and resources and apart from the contribution towards combating climate change there are many benefits

- Financial – Households, industry, businesses, public and voluntary sectors will all save money by increasing energy efficiency and reducing waste

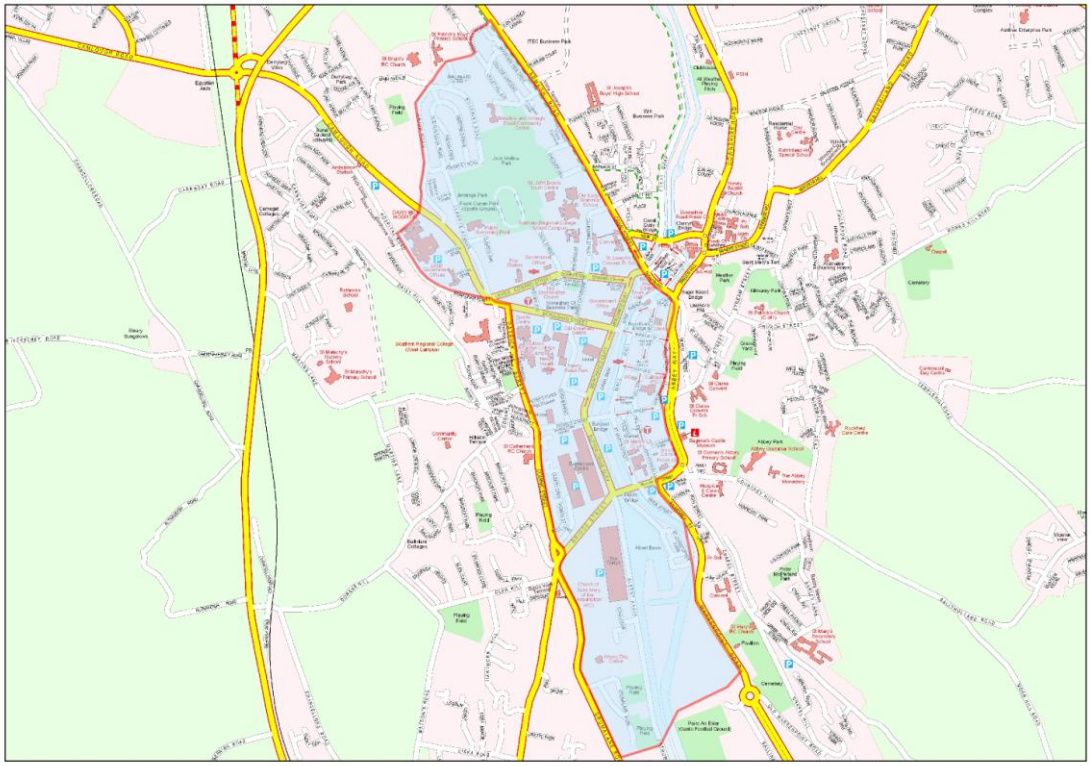
- Improved Air Quality – many of the most effective ways to reduce carbon emissions also benefit air quality. The reduction of air pollutants will improve air quality and in turn reduce the instance of respiratory disease.

- Renewable energy systems will provide reliable and affordable clean energy and new employment opportunities.

- Enhanced community liveability – the combination of all the benefits resulting from activities to reduce greenhouse gas emissions and improve air quality will be translated into more environmentally friendly and habitable communities.

In 2009 Newry and Mourne District Council designated a sustainable energy zone in the heart of Newry City (see Figure 8.1 below) and is working together with central and local government departments, agencies, private businesses, commercial, voluntary sectors and local residents in a partnership approach to examine ways of creating a sustainable energy environment within the zone.

Figure 8.1: Newry Sustainable Energy Zone



The targets set for the Newry, Low Carbon City Project to be achieved by 2020 are:

- 20% of the heat required within the zone to be supplied from renewables
- 20% of the electricity required within the zone to be supplied from renewables.
- And 40% greater energy efficiency in designated buildings

The Greater Newry Vision – Sustainable Energy Group has been established to lead this project and comprises both statutory and non-statutory bodies. The participants are fully supportive of the aims and objectives of the Newry, Low Carbon City project and have each committed to:

- Use their best efforts to advance the project and all its constituent parts.
- Collaborate fully with the other participants in the project.
- Make appropriate resources available to support the project.
- Promote the project and the theme of sustainable energy that underlies it.

8 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 1996 to 2013 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 9.1 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. With recent reviews of spending being conducted by all public agencies there are increasing risks that previous commitments for actions which could improve local air quality within the Newry (Urban City) AQMA will not be carried out or will be delayed. The Council will monitor this over the coming period.

Newry and Mourne 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 9.1 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 DRD.	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	Ongoing. However, under current spending review budget for such works has been reduced	Provision of new footpaths in Newry City Centre (Hill St, Monaghan St, Merchant Quay) as part of ongoing Public Realm Schemes.	Ongoing	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	Ongoing. However, under current spending review budget for such works has been reduced	Provision of cycle paths and cycle stands along Merchants Quay. Introduction of approximately	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							15 new cycle 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 April 2011, average road fleet age of 5.1 years and oldest vehicle still in use is 18.40 years.	As of Feb 2014, average road fleet age of 5.87 years and oldest vehicle in use is 12.74 years.	Ongoing	Not known
8	Improved bus stops and customer information	Encourage greater use of public transport	Translink	2002 - 2015	2007 - 2015	Improvement to existing bus stops and increase	Not known	From 07/08 to 08/09 there was a 10% increase in	No known improvements during last 12 months.	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
		against use of private vehicles thereby reducing emissions from private vehicles				to number of bus stops		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. Ulster bus advises that the drop in passenger numbers is due to numbers of 'senior citizen' passengers reducing their number of journeys to city centre.			
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	Firms	Ongoing	Ongoing	Increased uptake of natural gas customers in Newry City	Not known	Network of natural gas supply expanded over past number of years	There are 1112 domestic properties converted to Firmus Energy Gas	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
		which have higher emission rates of NO2							Network across the 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 1295 NIHE properties within Newry City 107 properties have gas-heating system and 737 have oil-heating system.	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.	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	Council	2004 - 2011	2004 - 2011	Maintenance of ISO 14001 accreditation.	Not known	Scope of ISO 14001 accreditation extended within Council.	The council maintained ISO 14001 accreditation until Match 2015.	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
		leading by example, will encourage 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	Travel plan has been developed and approved by Council. Decision on implementation mechanism still to be taken. Further replacement of council fleet with less polluting vehicles, increased number of employees part of Cycle scheme	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	2015	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
									employees part of Cycle scheme		

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

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) (40$\mu g/m^3$) 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) (40$\mu g/m^3$).
- Exceedance of hourly mean objective for (NO2) (200$\mu g/m^3$) 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 $\mu g/m^3$ which is an indicator that the hourly mean objective (200$\mu g/m^3$) may be exceeded.
- No exceedance of annual mean objective for PM10.

9.2 Conclusions relating to New Local Developments

There have been no new industrial installations or new commercial or fugitive source emissions within the Newry and Mourne District Council area in 2013.

Newry City is a smoke control area. All new developments within the city centre are required to comply with the restrictions within the smoke control areas in relation to the use of authorised fuels.

9.3 Other Conclusions

Section 8 of this report provides a summary of the progress in completion of actions within the Air Quality Action Plan. With recent reviews of spending being conducted by all public agencies there are increasing risks that previous commitments for actions which could improve local air quality within the Newry (Urban City) AQMA and Canal Street AQMA will not be carried out or will be delayed. The Council will monitor this over the coming period.

9.4 Proposed Actions

A further assessment of PM10 concentrations within the Canal Street Air Quality Management Area (AQMA) was undertaken in early 2014. The further assessment involved 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 emissions found that ambient background concentrations contribute the largest proportion to the overall concentration followed by emissions from cars on local roads.

The 2013 monitoring results differ from the 2012 monitoring data in that there was no exceedance of the daily mean objective or annual mean objective for PM10 in 2012. 2013 monitoring data has identified an exceedance of the daily mean objective for PM10 at Canal Street which confirms the conclusions of the 2012 Detailed Assessment and justifies the declaration of the Newry (Canal Street) Air Quality Management Order 2013.

The 2013 monitoring data for Nitrogen Dioxide both from the AQMS and diffusion tubes indicate exceedances of the annual mean objective and the need to retain Newry (Urban Centre) AQMA.

From reviewing monitoring data for the hourly mean objective for NO2 over the past three years it would indicate exceedances at Canal Street and Kilmorey Street. The Council could take the following actions to deal with these exceedances:

1. Declare an AQMA for exceedances of the Hourly Mean Objective for NO2 at Canal St and an AQMA for exceedances of the Hourly Mean Objective for NO2 at Kilmorey St.

2. Declare an AQMA for exceedances of the Hourly Mean Objective for NO2 for a larger geographical area similar to Newry (Urban Centre) AQMA boundary.

3. Amend Newry (Urban Centre) AQMA to include exceedances of the Nitrogen Dioxide objectives and PM10 objectives.

The council will seek advice and guidance from DoE on the best way forward.

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.

10 References

Local Air Quality Management Technical Guidance – LAQM.TG (09)

Newry & Mourne District Council LAQM Progress Report 2013

www.airqualityni.co.uk

Local Authority Air Quality Support website
http://laqm.defra.gov.uk/

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 1: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2013 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 2013 was found to be 0.81 Cm/Dm.

Factor from Local Co-location Studies

There are three tubes co-located with the air quality monitoring station at Trevor Hill, Newry, to enable the bias factor to be calculated. All are classed as kerbside sites and are within 3m of the road.

Discussion of Choice of Factor to Use

As the data capture from our NOx Analyser at the Trevor Hill site was less than 75% we were not able to determine our local bias adjustment factor, therefore it was decided to use the National Bias Adjustment Factor which was found to be 0.81 Cm/Dm.

PM Monitoring Adjustment

The data from all three PM10 monitors were subject to QA/QC inspection by Ricardo AEA for the 2013 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 2013 Newry and Mourne 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.

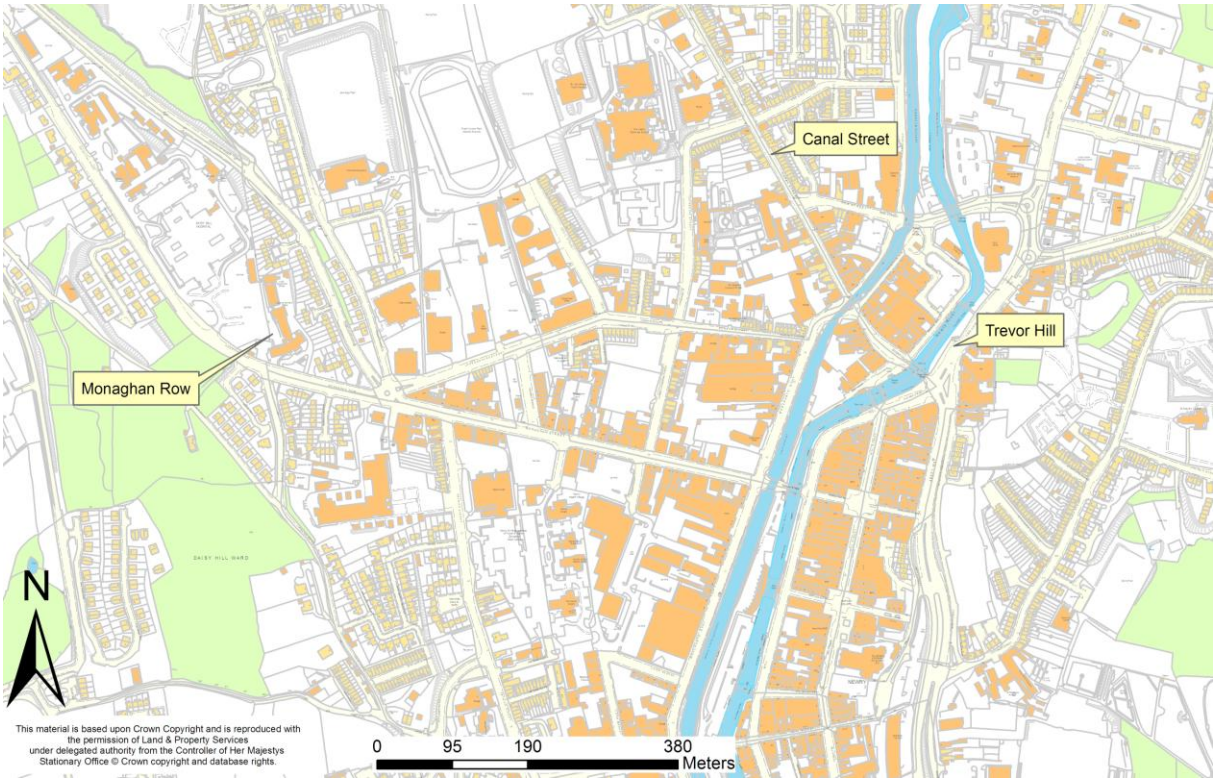
During 2013 automatic calibration of NO2 automatic monitors was undertaken at Trevor Hill every three days. Manual calibration was undertaken at Canal Street periodically by Newry and Mourne District Council officers. This has allowed instrument drifts to be documented using traceable calibration gas standards and the results are used to scale data. All calibration records are sent to Ricardo- AEA who conduct QA/QC checks.

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.

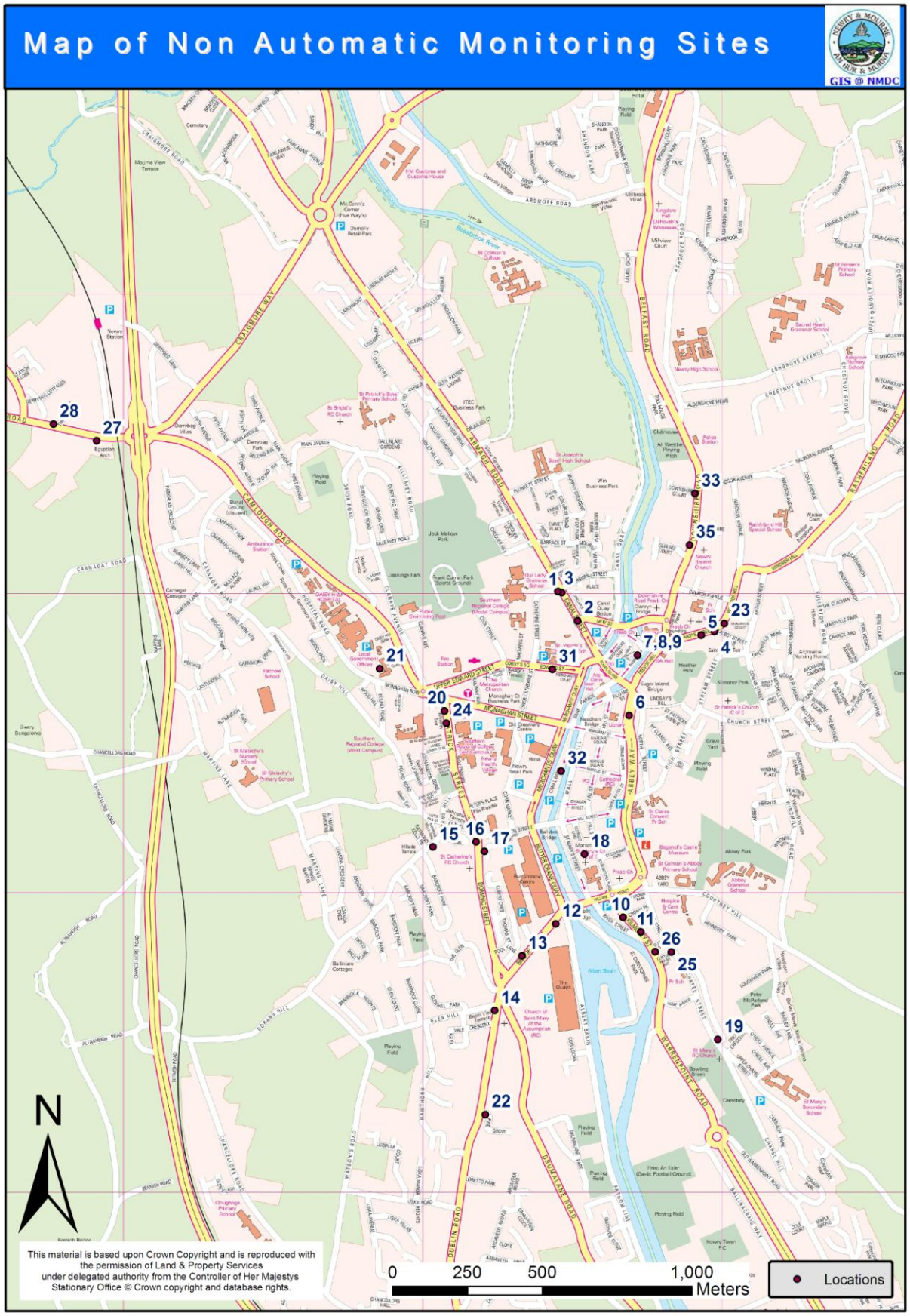
Newry and Mourne District Council QA/QC procedure ensures that the diffusion tubes are handled and stored in accordance with ESG Diffusion Tube Instruction Manual for exposure and location.

Appendix 2: Figure 8.2 Map of Automatic Monitoring Sites



Appendix 3: Figure 8.3 Map of Non Automatic Monitoring Sites

Diffusion Tube Sites in Newry AQMA



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