Comhairle Ceantair
an Iúir, Mhúrn
agus an Dúin

Newry, Mourne
and Down
District Council

2015 Updating and Screening Assessment for

Newry, Mourne and Down District Council

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

January 2016

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Executive Summary

This 2015 Updating and Screening Assessment 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 2014.

On 1st April 2015 Local Government Reform in NI saw the creation of 11 new super councils. Newry, Mourne and Down District Council comprises the legacy councils of Newry and Mourne District Council and Down District Council. In 2014 both these councils carried out separate air quality monitoring. This USA report will detail the separate monitoring results of the legacy councils and will consider new developments, draw conclusions and make recommendations based on the 2014 data for the new Newry, Mourne and Down District Council.

Newry Mourne and Down District Council has 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 will now be carried out.

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.

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1 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 approx 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 2014 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 monitor PM10 and the Downpatrick station monitors NO2.

As this report relates to monitoring data gathered during the calendar year 2014 prior to local government reform the report will contain separate monitoring data for both former council areas.

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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded.

A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of 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 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, 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. Realtime 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 Sreet, 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.

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

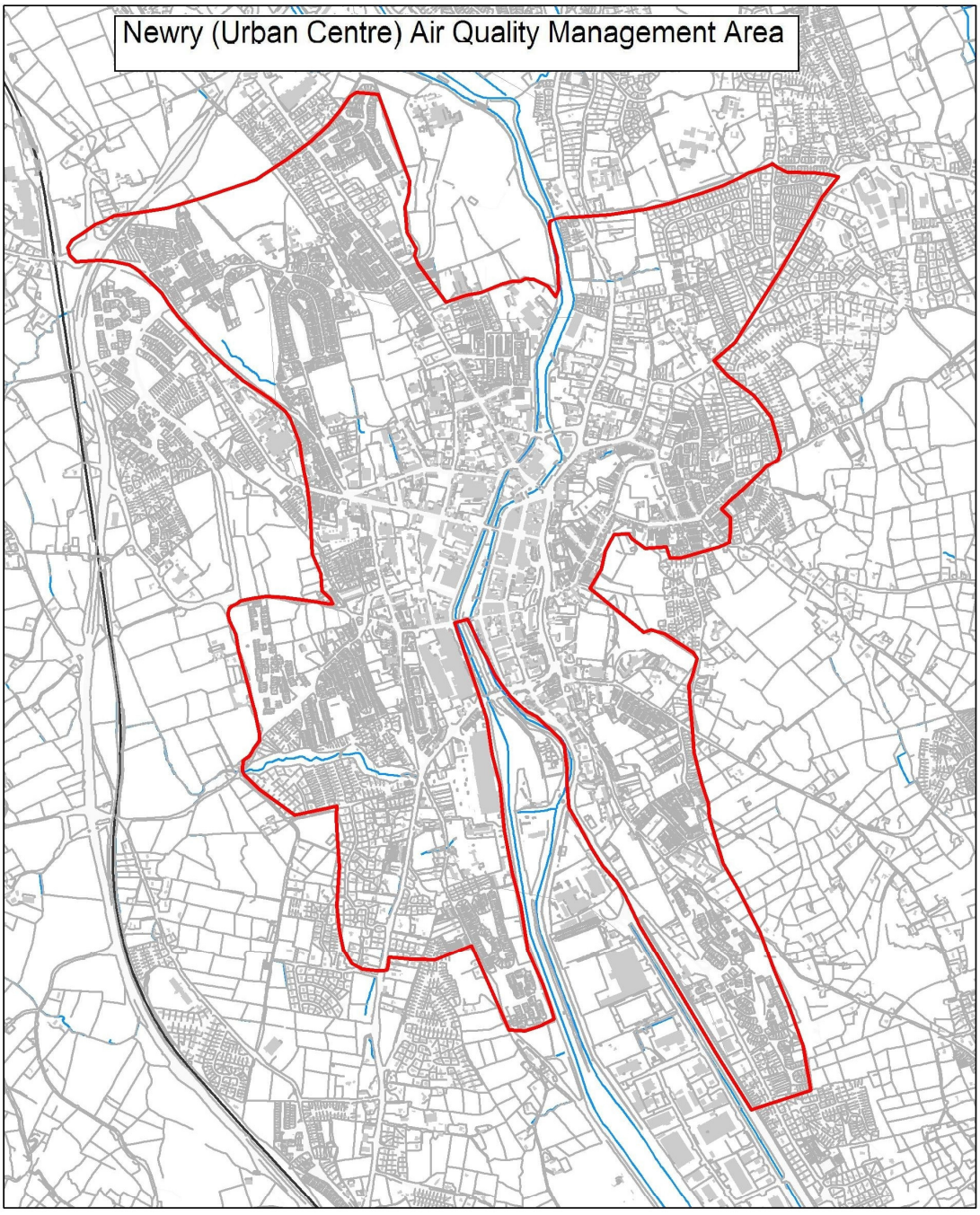
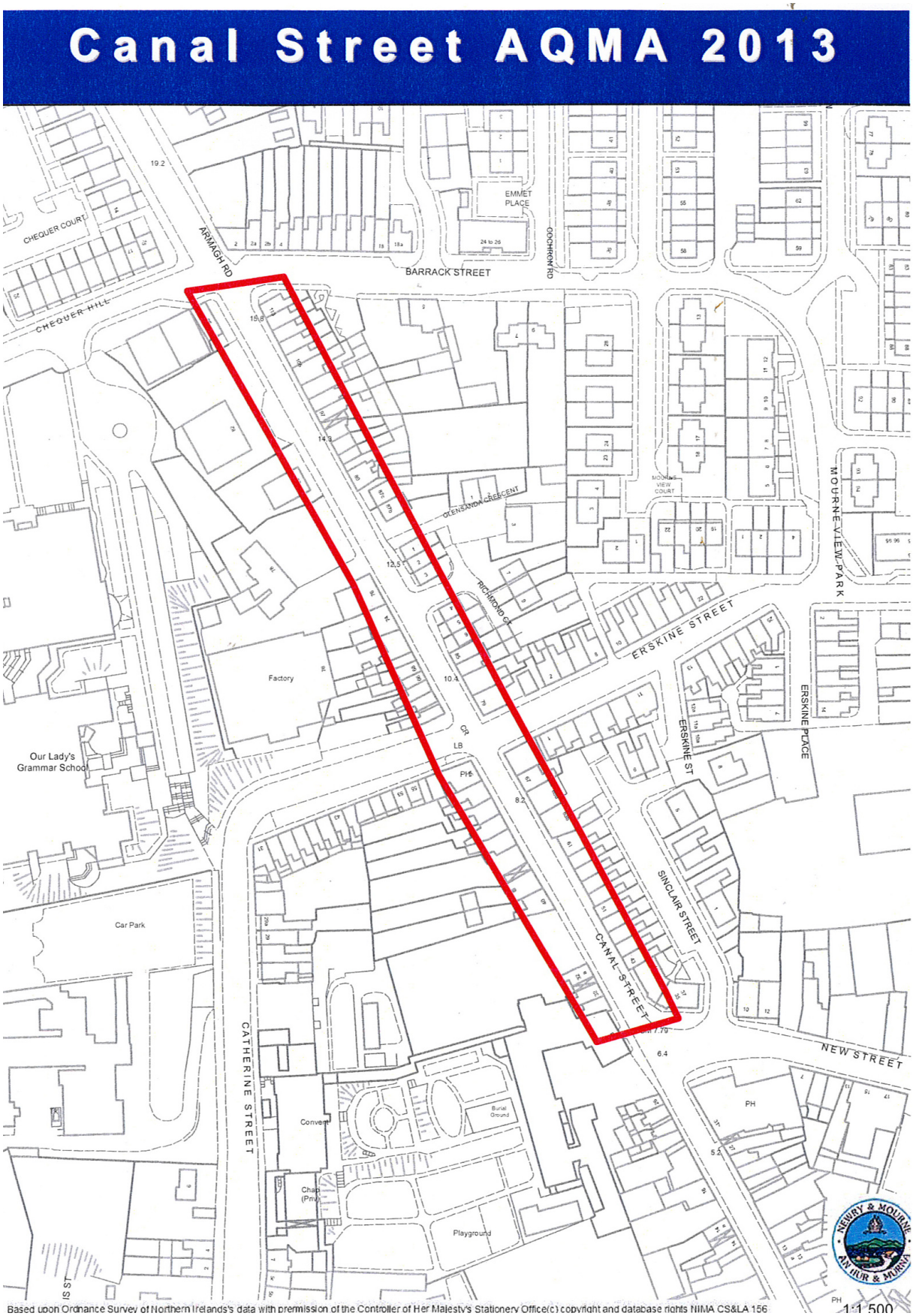


Figure 1.2 Map showing boundary of Newry (Canal Street) AQMA



2 New Monitoring Data – Newry and Mourne District Council

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 and Mourne District Council area during the calendar year 2014.

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 RICARDO - AEA. 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 - Newry

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 1 for Figure 2.5 Map of Automatic Monitoring Sites - Newry

2.1.2 Non-Automatic Monitoring

In the calendar year 2014 Newry and Mourne District Council deployed 35 NO2 diffusion tubes per month at 33 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 2.7 - Map of Non-Automatic Monitoring Sites.

Table 2.2 Details of Non- Automatic Monitoring Sites - Newry

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	Trevor Hill 1, 2, 3	Roadside	308716 326794	NO_2	Y	N	2m	Y
8	33 Kilmorey Street	Roadside	308668 325918	NO_2	Y	Y	1m	Y
9	52 Kilmorey Street	Roadside	308727 325869	NO_2	Y	Y	1m	Y
10	115 Chapel St	Roadside	308985 325510	NO_2	Y	Y	1m	Y
11	4 Bridge Street	Roadside	308443 325896	NO_2	Y	Y	2m	Y
12	60 Bridge Street	Roadside	308330 325789	NO_2	Y	Y	1m	Y
13	Basin View Terrace	Roadside	308239 325607	NO_2	Y	Y	1m	Y
14	Doran's Hill	Roadside	308033 326153	NO_2	Y	Y	1m	Y
15	Dominic/Patrick St	Roadside	308177 326170	NO_2	Y	Y	1m	Y
16	Francis Street	Roadside	308205 326138	NO_2	Y	Y	2m	Y
17	Market Office	Urban Background	308539 326129	NO_2	Y	N	25m	Y
18	4 Patrick Street	Roadside	308072 326608	NO_2	Y	Y	1m	Y
19	Monaghan Row	Urban Background	307855 326749	NO_2	Y	N	50m	Y
20	Pine Grove	Roadside	308208 325259	NO_2	Y	Y	1m	Y
21	4 Windsor Hill	Roadside	309007 326900	NO_2	Y	Y	1m	Y
22	9 Kilmorey Terrace	Roadside	308078 326567	NO_2	Y	Y	2m	Y
23	2 Chapel Street	Roadside	308829 325802	NO_2	Y	Y	2m	Y
24	71 Kilmorey Street	Roadside	308775 325803	NO_2	Y	Y	1m	Y
25	Duke St, Warrenpoint	Roadside	314268 318359	NO_2	N	Y	2m	Y
26	Lower Edward St	Roadside	308432 326747	NO_2	Y	Y	1m	Y
27	Soho Bus Station	Near road	308461 326407	NO_2	Y	N	5m	Y
28	Belfast Rd 1 (Glen Ri)	Roadside	308880 327149	NO_2	Y	Y	5m	Y
29	Belfast Rd 2 (Down Ct)	Roadside	308896 327337	NO_2	Y	Y	2m	Y
30	Canal St Station	Roadside	308484326984	NO_2	Y	Y	2m	Y
31	63 Canal St	Roadside	308483326984	NO_2	Y	Y	2m	Y
32	Kilmorey St 4	Roadside	308775 325803	NO_2	Y	Y	2m	Y
33	Kilmorey St 5	Roadside	308727 325689	NO_2	Y	Y	2m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

The existing monitoring network consists of three continuous monitoring stations and 35 NO2 diffusion tubes. There is one NO2 diffusion tube co-location site at Trevor Hill Newry (33 sites).

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

In 2014 the Council monitored NO2 at two sites in Newry City: Trevor Hill and Canal Street. The data capture rate for both of these sites is well below the 90% requirement. This was due to numerous breakdowns of both analysers and the fact that both analysers were switched off mid-2014.

The results from this monitoring found one exceedance of the annual mean air quality objective of 40 μg/m^3 at both of the sites. There was no exceedance of the hourly mean objective of 200 μg/m^3 (not to be exceeded more than 18 times in the year).

Table 2.3 Annual Mean Nitrogen Dioxide levels monitored for 2014 - Newry

Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2011 %	Annual mean concentrations (μg/m^3)
Trevor Hill	Y	28.7	28.7	53
Canal Street	Y	46.1	46.1	46

Table 2.4 Number of exceedances of Hourly Mean Nitrogen Dioxide objective in 2014 - Newry

Location	Within AQMA?	Number of Exceedences of hourly mean (200 μg/m^3)
Trevor Hill	Y	9 (5 days)
Canal Street	Y	0

Non Automatic Monitoring Data

In the calendar year 2014 Newry and Mourne District Council deployed 35 NO2 diffusion tubes per month at 33 sites within its District. One site Trevor Hill was a triplicate site. A number of sites recorded an annual mean above the air quality objective for NO2.

Table 2.5 below provides the results for all sites used during 2014.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes for 2014

Location	Site Type	Within AQMA?	Data Capture for monitoring period %	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor 2014 = 0.81
Canal Street (Pub)	Roadside	Y	100	Y	36
13 Canal St	Roadside	Y	100	Y	**58**
Catherine Street	Roadside	Y	100	Y	**41**
25 Sandy Street	Roadside	Y	100	Y	**41**
59 Sandy Street	Roadside	Y	100	Y	**52**
Water Street	Roadside	Y	100	Y	**42**
Trevor Hill 1, 2, 3	Roadside	Y	100	Y	39
33 Kilmorey Street	Roadside	Y	100	Y	**49**
52 Kilmorey Street	Roadside	Y	100	Y	39
115 Chapel St	Roadside	Y	100	Y	19
4 Bridge Street	Roadside	Y	100	Y	34
60 Bridge Street	Roadside	Y	100	Y	27
Basin View Terrace	Roadside	Y	100	Y	33
Doran's Hill	Roadside	Y	100	Y	24
Dominic/Patrick St	Roadside	Y	100	Y	28
Francis Street	Roadside	Y	100	Y	34
Market Office	Urban Background	Y	100	Y	23
4 Patrick Street	Roadside	Y	100	Y	**40**
Monaghan Row	Urban Background	Y	100	Y	12
Pine Grove	Roadside	Y	100	Y	28
4 Windsor Hill	Roadside	Y	100	Y	35
9 Kilmorey Terrace	Roadside	Y	100	Y	29
2 Chapel Street	Roadside	Y	100	Y	30
71 Kilmorey Street	Roadside	Y	100	Y	**51**
Duke St, Warrenpoint	Roadside	N	100	N	29
Lower Edward St	Roadside	Y	100	Y	24
Soho Bus Station	Near road	Y	92	Y	24
Belfast Rd 1 (Glen Ri)	Roadside	Y	100	Y	28
Belfast Rd 2 (Down Ct)	Roadside	Y	100	Y	22
Canal St Station	Roadside	Y	100	Y	**42**
63 Canal St	Roadside	Y	100	Y	**45**
Kilmorey St 4	Roadside	Y	58	Y	27
Kilmorey St 5	Roadside	Y	58	Y	30

2.2.2 PM_{10}

In 2014 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. There were no recorded exceedances of the annual mean objective of 40 µg/m^3 at any site. There was an exceedance the daily mean objective at the Canal Street site.

Table 2.6 Annual Mean PM10 levels monitored for 2014 - Newry

Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2011 %	Annual mean concentrations (µg/m^3)
Monaghan Row	Y	91.1%	91.1%	16
Trevor Hill	Y	99.2%	99.2%	19
Canal Street	Y	97.2%	97.2%	33

Table 2.7 Number of exceedances of Daily Mean objective for PM10 in 2014 - Newry

Location	Within AQMA?	Number of exceedances of daily mean objective (50 µg/m^3)
Monaghan Row	Y	9
Trevor Hill	Y	10
Canal Street	Y	**48**

** If the period of valid data is less than 90% of a full year, the 90th percentile of daily means is included in brackets.*

2.2.3 Sulphur Dioxide

In 2014 there was no monitoring of sulphur dioxide undertaken within the council area.

2.2.4 Benzene

In 2014 there was no monitoring of benzene undertaken within the council area.

2.2.5 Other pollutants monitored

In 2014 there was no other pollutants monitored within the council area.

2.3 Air Quality Trends

Figure 2.1 below shows annual mean concentrations of PM10 at Monaghan Row (Background site) and Trevor Hill (Roadside Site) during the period 1998 to 2011 and Canal Street from 2009 to 2014. For reference purposes the annual mean objective of 40 μgm3 is also provided. Figure 2.1 demonstrates that there has been a general reduction in urban background PM10 concentrations at Monaghan Row since 1998. For the Council's roadside sites at Trevor Hill and Canal Street there has also been an overall decreasing trend. For all sites 2010 showed an increase in levels monitored compared to the previous three years, due to the poor winter periods at the beginning and end of 2010. However since 2012 the Canal Street site has been showing an upward tend.

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. There are no clear trends in NO2 concentration for these sites although the results recorded at all sites for 2010 were higher than in the immediate preceding years.

These results are a reminder to us all that annual mean pollutant concentrations will vary from year to year due to a number of factors, which may include changes to pollution sources in the local area in addition to factors outside the influence of the local council such as regional transboundary pollution issues and variations in weather conditions.

Figure 2.1: PM10 Annual Mean Value at Selected Newry City Sites, 1998 to 2014

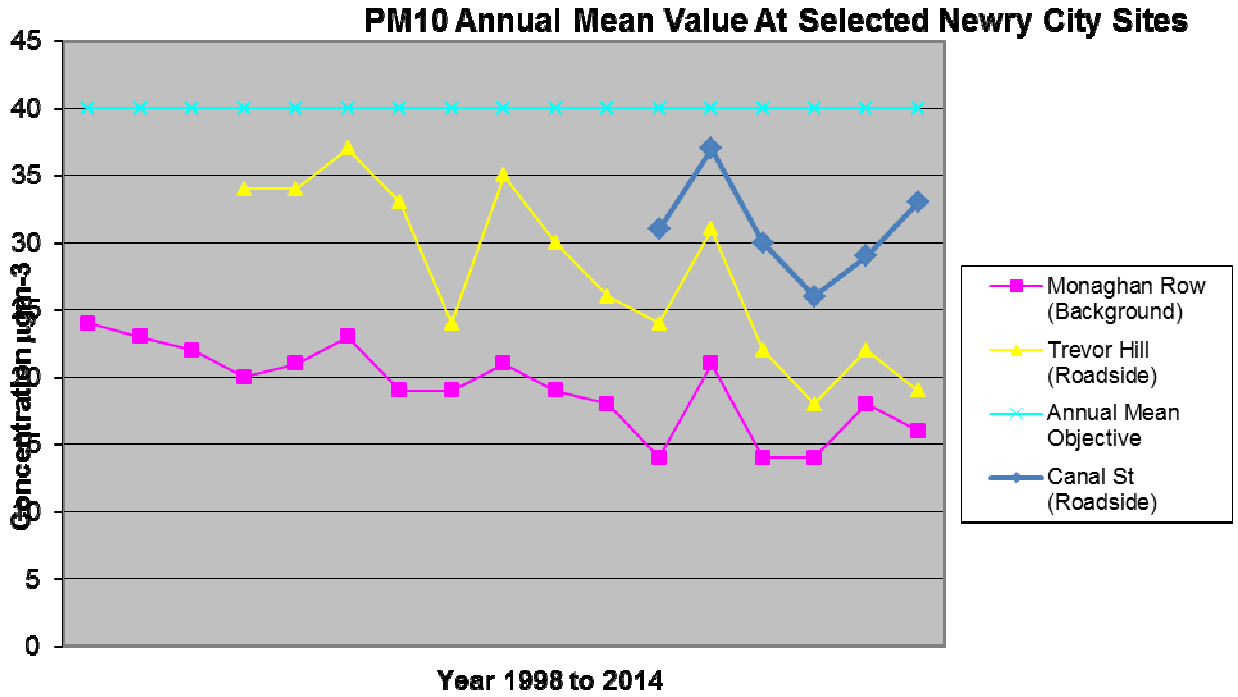
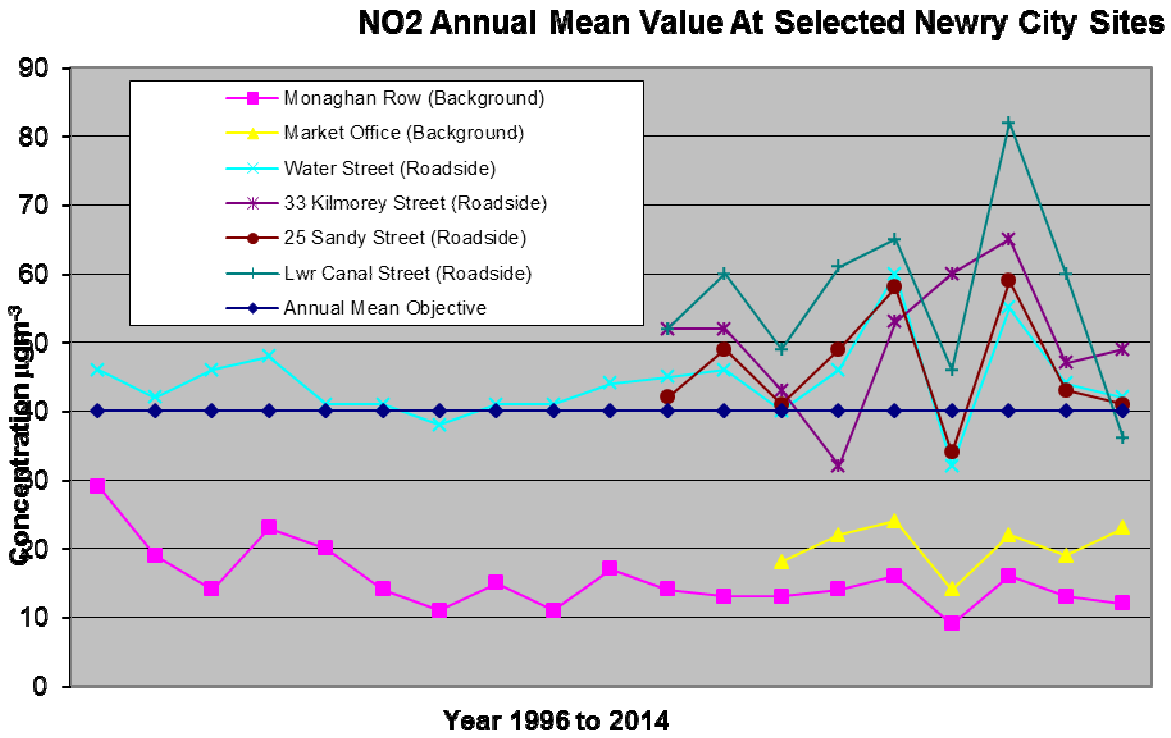


Figure 2.2 NO2 Annual Mean Value at Selected Newry City Sites, 1996 to 2014



2.3.1 Summary of Compliance with AQS Objectives

Newry Mourne and Down District Council has measured concentrations of NO2 above the annual mean objective at Canal Street and Trevor Hill, however these sites are within an existing AQMA. The PM10 daily mean objective was exceeded also within Canal Street, Newry.

New Monitoring Data – Down District Coucnil

2.4 Summary of Monitoring Undertaken

2.4.1 Automatic Monitoring Sites

NO_2 diffusion tubes sited at the junction of Church Street, Irish Street and Market Street, Downpatrick, had shown levels of NO_2 to be above the objective. These were replaced in June 2010 with an automatic station monitoring NO_2 real time data using a chemiluminescence technique. The site is positioned to give the worst case scenario at relevant exposure. Since monitoring commenced at this site results have increased slightly each year.

Refer to Appendix 1 Figure 2.6 For map of Automatic Monitoring site - Downpatrick.

See Appendix 3: Details of Quality Assurance and Quality Control

Table 2.8 Details of Automatic Monitoring Sites - Downpatrick

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
Market Street Downpatrick	Roadside	348655	344596	NO_2	No	Chemiluminescence	YES 10M	1.5metres	Yes

2.4.2 Non-Automatic Monitoring Sites

No diffusion tube monitoring during 2014 in Down District Council area.

2.5 Comparison of Monitoring Results with Air Quality Objectives

2.5.1 Nitrogen Dioxide

In the following section results are presented for NO_2 at the automatic site.

Automatic Monitoring Data

Table 2.9 presents the annual mean concentrations of NO_2 determined at the automatic site in 2014 from the hourly measurements. Results are very slightly raised each year.

Table 2.9 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective - Downpatrick

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration µg/m^3				
					2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]
Market Street	Roadside	N	83.3	83.3	35.36	36	38	40	41

Table 2.10 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective - Downpatrick

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Number of Exceedences of Hourly Mean (200 µg/m^3)				
					2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]
Market Street	Roadside	N	83.3	83.3	0	0	0	1	0

Diffusion Tube Monitoring Data

Down District Council did not carry out any diffusion tube monitoring in 2014.

Table 2.11 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2012) – Downpatrick

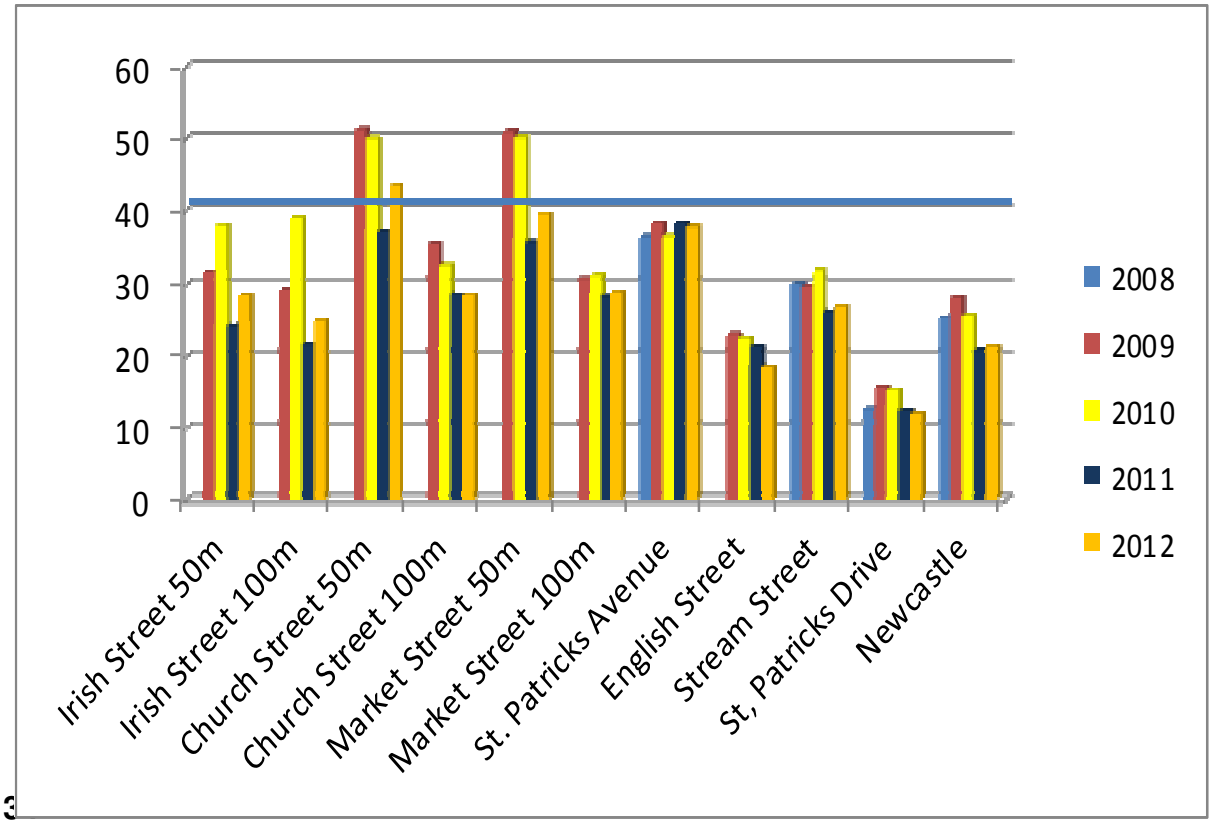
Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3		
			2010* (Bias Adjustment Factor = 0.84)	2011* (Bias Adjustment Factor = 0.72)	2012* (Bias Adjustment Factor = 0.76)
Irish Street 50M	Roadside	N	38	24	29
Irish Street 100M	Roadside	N	39	22	25
Church Street 50M	Roadside	N	50	37	**43**
Church Street 100M	Roadside	N	33	29	29

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3		
			2010* (Bias Adjustment Factor = 0.84)	2011* (Bias Adjustment Factor = 0.72)	2012* (Bias Adjustment Factor = 0.76)
Market Street 50M	Roadside	N	50	36	**40**
Market Street 100M	Roadside	N	31	28	29
St. Patricks Ave	Roadside	N	36	38	38
English Street	Roadside	N	23	21	18
Stream Street	Roadside	N	32	26	27
St Patricks Drive	Background	N	15	12	12
Newcastle	Roadside	N	26	21	21

*Optional

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

Levels had remained consistent at all sites, in 2011 there was a noticeable reduction this was due to a more accurate new local bias adjustment factor applied. A very slight increase in 2012 was more likely to be as a result of climatic conditions rather than changes in emissions. The sites 50 metres from the Church Street/ Market Street junction showed results similar to the realtime analyser and dropped considerably at 100 metres.



2.5.2 PM_{10}

Down District Council does not carry out monitoring for PM_{10} pollution at this time.

2.2.3 Sulphur Dioxide

Down District Council did not carry out any monitoring of SO_2 in 2014.

2.5.3 Benzene

No monitoring of Benzene is carried out.

2.5.4 Other pollutants monitored

In 2014 Nitrogen Dioxide was the only pollutant monitored.

2.5.5 Summary of Compliance with AQS Objectives

Newry, Mourne and Down District Council has measured concentrations of Nitrogen Dioxide above the annual mean at relevant locations and **will need to proceed to a Detailed Assessment**, for the Market Street/Irish Street junction in Downpatrick.

3 New Local Developments

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

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

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

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.

3.3 Road with a High Flow of Buses and/ or HGVs

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

3.4 Junctions

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

3.5 New Road Constructed or Proposed Since the Last Round of Review and Assessment

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.

3.6 Road with Significantly Changed Traffic Flow

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

3.7 Bus and Coach Stations

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

4 Other Transport Sources

Newry Mourne and Down District Council confirm that there are no airports in the council area

4.1 Bus and Coach Stations

4.1.1 Stationary Trains

Newry Mourne and Down District Council confirm that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m

4.1.2 Moving Trains

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

4.2 Ports (Shipping)

Newry Mourne and Down District Council confirm that there are no new/newly-identified ports within the council area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been carried out

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 council area since the last Progress Report.

5.1.2 Existing Installations where Emissions have increased Substantially or New Relevant Exposure has been introduced

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.

5.1.3 New or Significantly changed Installations with No Previous Air Quality Assessment

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.

5.2 Major Fuel (Petrol) Storage Depots

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

5.3 Petrol Stations

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

5.4 Poultry Farms

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Newry Mourne and Down District Council confirm that there are no new Biomass Combustion plants in the council area which have not been previously assessed.

6.2 Biomass Combustion – Combined Impacts

Newry Mourne and Down District Council confirm that there are no biomass combustion plant in the council area which require to be assessed for their combined impact.

6.3 Domestic Solid – Fuel Burning

Newry Mourne and Down District Council confirm that there are no new areas of significant domestic fuel use in the council area.

7 Fugitive or Uncontrolled Sources

7.1 Fugitive or Uncontrolled Sources

Newry Mourne and Down District Council confirm that there are no new or newly identified fugitive or uncontrolled sources which may have an impact on air quality within the council area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

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 will now be carried out.

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.

Monitoring data for the hourly mean objective for NO2 from 2010 – 2013 indicated exceedances at Canal Street and Kilmorey St, Newry. 2014 monitoring data has not found any exceedance of the hourly mean objective for NO2 at either of the streets. Due to funding cuts and equipment breakdown the council have ceased the automatic monitoring of NO2 within Newry City Centre.

8.2 Conclusions from Assessment of Sources

There have been no new industrial installations or new commercial or fugitive source emissions within the Newry Mourne and Down District Council area in 2014.

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.

8.3 Proposed Actions

The 2015 Updating and Screening Assessment has identified a need to proceed to a detaield assessment for NO_2 at the Market Street/Irish Street junction in Downpatrick. The automatic monitoring station is sited in accordance with guidance and at relevant exposure. No new sites have been identified.

The 2014 monitoring data for Nitrogen Dioxide both from the AQMS and diffusion tubes located within Newry City Centre indicate exceedances of the annual mean objective and the need to retain Newry (Urban Centre) AQMA.

The 2014 monitoring data for PM10 from the AQMS indicated exceedances of the daily mean objective and the need to retain Newry (Canal Street) AQMA 2013.

References

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

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

Appendices

Appendix 1: Map of Monitoring Sites

Appendix 2: QA/QC Data / Bias Adjustment Factor– Newry and Mourne District Council

Appendix 3: QA/QC Data – Down District Council

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Appendix 1: Figure 2.5 Map of Automatic Monitoring Sites - Newry

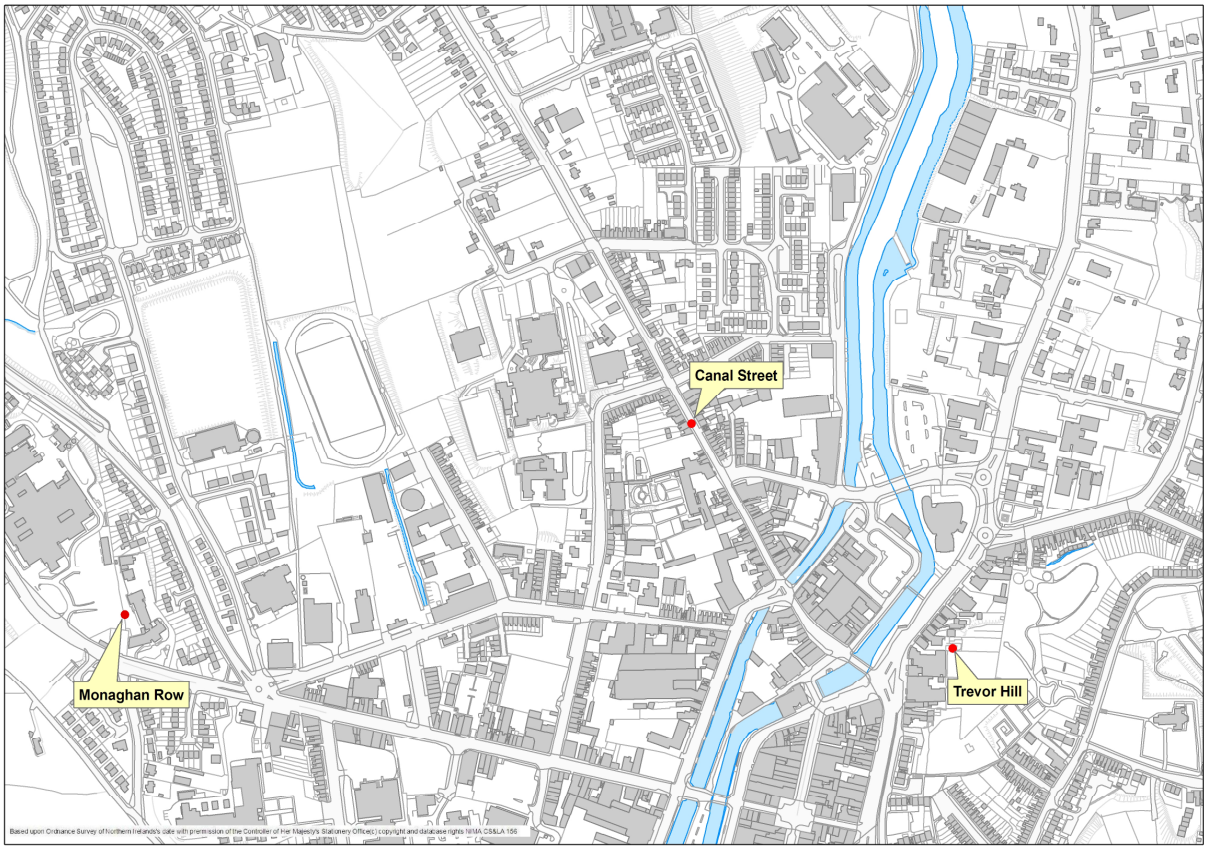
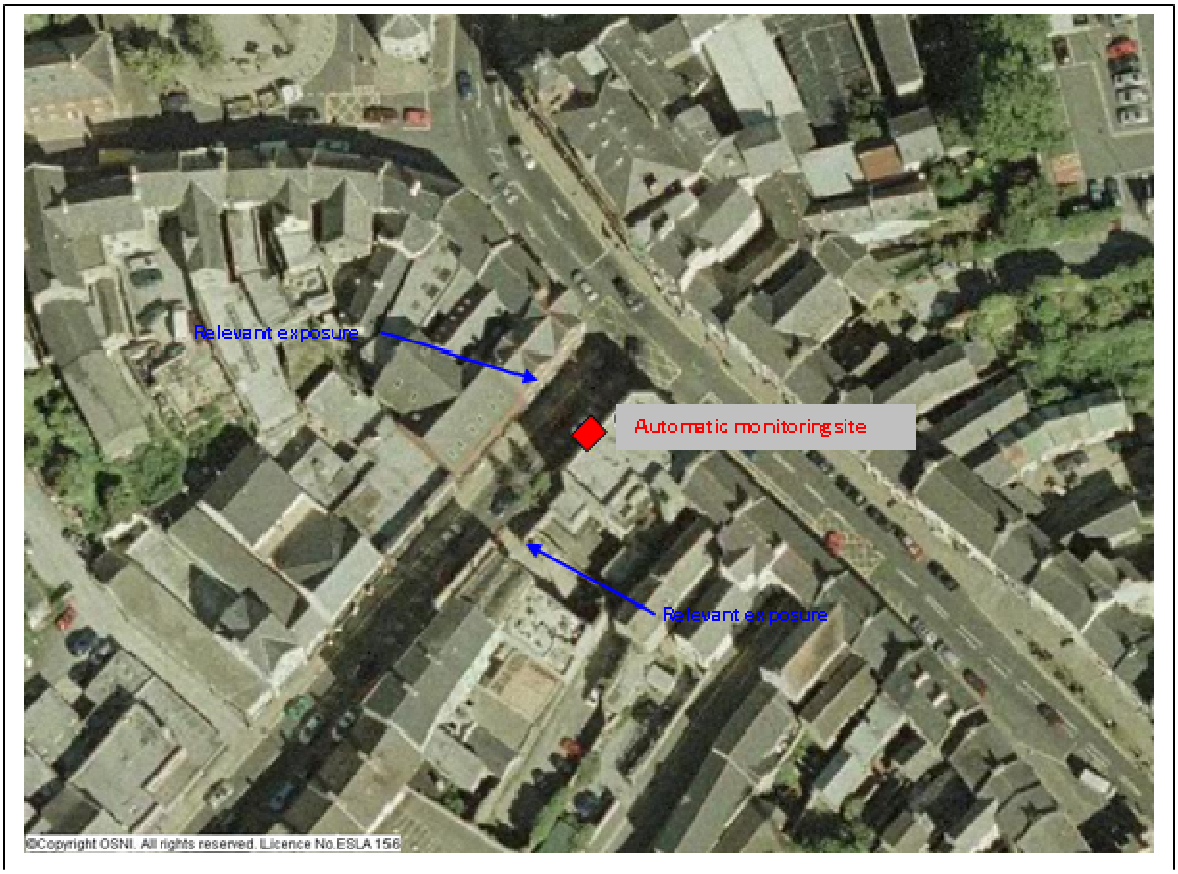
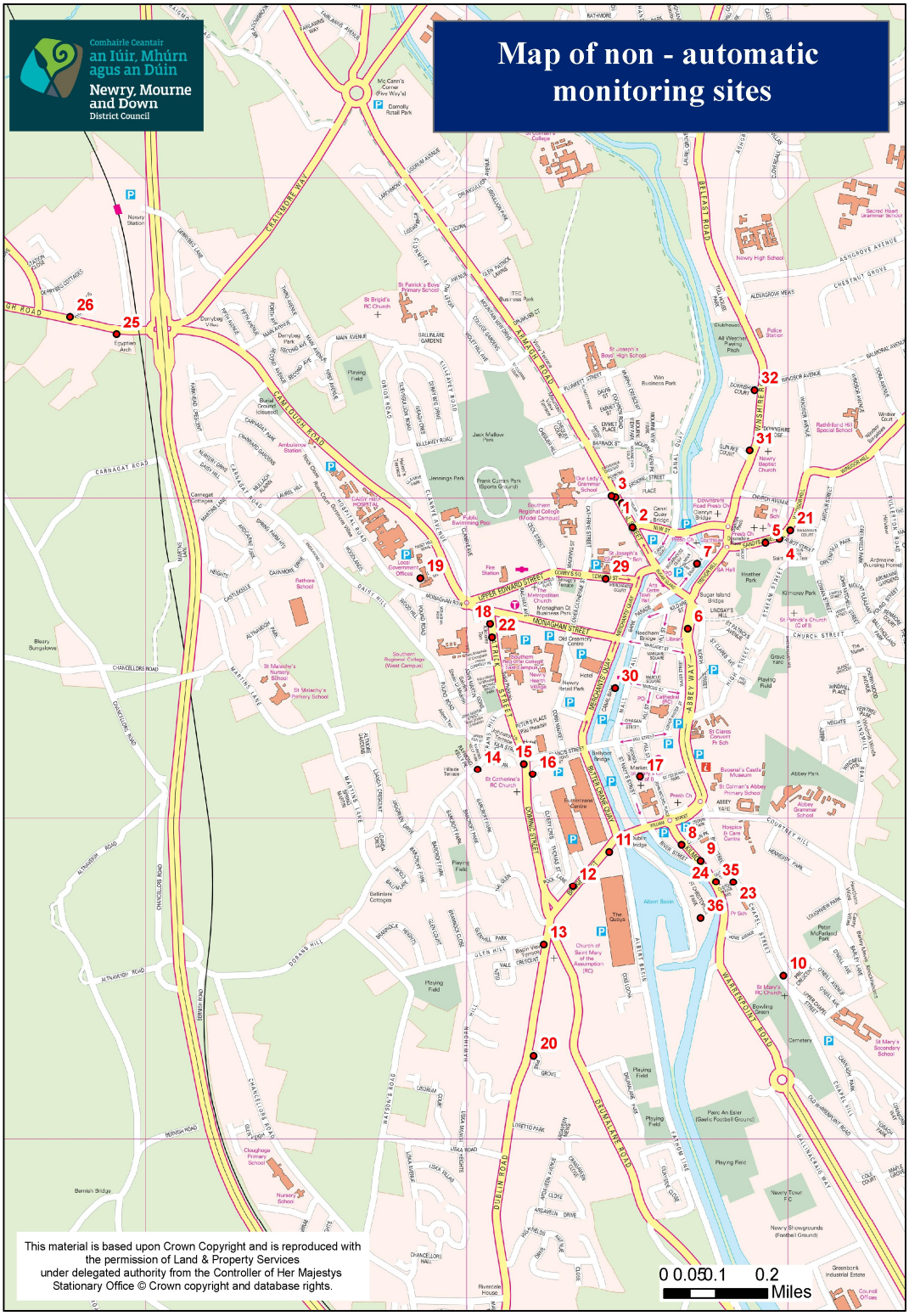


Figure 2.6 Map of Automatic Monitoring Sites - Newry



Appendix 1: Figure 2.7 Map of Non Automatic Monitoring Sites



Appendix 2: QA/QC Data – Newry and Mourne District Council

Diffusion Tube Bias Adjustment Factors

In 2014 the NO_2 diffusion tubes were prepared and analysed by Environmental Scientifics Group. 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 autoanalyser 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 Environmental Scientifics Group in 2014 was found to be 0.81 Cm/Dm.

Discussion of Choice of Factor to Use

Due to the low data capture rate for the automatic analyser at the Trevor Hill site (28.7%) for 2014 it was decided to use the National bias Adjustment Factor.

PM Monitoring Adjustment

The data from all three PM10 monitors were subject to QA/QC inspection by Ricardo AEA during 2014. 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 2014 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 2014 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

Environmental Scientifics Group laboratory 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 the Scientifics Diffusion Tube Instruction Manual for exposure and location.

Appendix 3: QA/QC Data – Down District Council

Down District Council commissioned AQDM (Air Quality Data Management) to provide the QA/QC of the automatic measurements of NO_2 at their Market Street site. Local authority staff act as the local site operator and visit the site on a weekly basis carrying out any manual calibration or filter changes required. Audits of the site were carried out by NPL (National Physical Laboratory) on a six monthly basis. SupportingU were employed to service and maintain the analyser.

Produced by AQDM on behalf of Down District Council

DOWNPATRICK ROADSIDE 2014
These data have been fully ratified by AQDM to LAQM TG(09) standards

Site Description
Outside the Ulster Bank on Market St close to the intersection with Irish St.

Air Quality Statistics

Pollutant	NO_2	NO	NO_X
Number Very High #	0	-	-
Number High #	0	-	-
Number Moderate #	0	-	-
Number Low #	7294	-	-
Maximum 15-minute mean	241 µg m^{-3}	921 µg m^{-3}	1595 µg m^{-3}
Maximum hourly mean	197 µg m^{-3}	776 µg m^{-3}	1381 µg m^{-3}
Maximum running 8-hour mean	139 µg m^{-3}	553 µg m^{-3}	979 µg m^{-3}
Maximum running 24-hour mean	90 µg m^{-3}	308 µg m^{-3}	560 µg m^{-3}
Maximum daily mean	79 µg m^{-3}	250 µg m^{-3}	460 µg m^{-3}
Average	41 µg m^{-3}	45 µg m^{-3}	110 µg m^{-3}
Data capture	83.3%	83.3 %	83.3 %

Daily Air Quality Index (DAQI) as defined by COMEAP January 2012 and revised April 2013
Mass units for the gases are at 20'C and 1013mb
NO_X mass units are NO_X as NO_2 µg m^{-3}

Air Quality Exceedences

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Max Conc	Number	Days	Allowed	Exceeded
Nitrogen Dioxide	Annual mean > 40 µg m^{-3}	41 µg m^{-3}	1	-	-	YES
Nitrogen Dioxide	Hourly mean > 200 µg m^{-3}	197 µg m^{-3}	0	1	18 hours	No