



# 2012 Air Quality Updating and Screening Assessment for

## ***Newry and Mourne District Council***

In fulfillment of Environment (Northern Ireland) Order  
2002

Local Air Quality Management

**20 August, 2012**

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# Executive Summary

This 2011 Updating and Screening Assessment 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 2011.

2011 monitoring data identified exceedances of the annual mean objective for nitrogen dioxide (NO<sub>2</sub>) (40µg/m<sup>3</sup>) and daily mean objective for PM<sub>10</sub> in Canal Street which is located within Newry City. Canal Street is already within an existing Air Quality Management Area - Newry (Urban Centre) Air Quality Management Area for which there is an agreed Action Plan however, this only relates to annual mean for NO<sub>2</sub>.

The Progress Report 2010 had highlighted the potential for the daily mean for PM<sub>10</sub> and 1-hour mean objective for NO<sub>2</sub> to be exceeded in Canal Street. As a consequence a Detailed Assessment for this was undertaken during this year. The Detailed Assessment concluded that there was not a risk of the 1-hour mean objective for NO<sub>2</sub> being exceeded but there was a risk for the daily mean objective for PM<sub>10</sub> being exceeded. Consequently it has been recommended that an Air Quality Management Area be declared for Canal Street for the daily mean objective for PM<sub>10</sub>.

The Council continues to monitor progress in the implementation of the agreed Action Plan for the Newry Urban Centre) Air Quality Management Area.

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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, 880 in 2010. Newry City is the largest settlement in the council area.

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.

## **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  $\mu\text{g}/\text{m}^3$  (milligram's per cubic metre,  $\text{mg}/\text{m}^3$  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 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric)	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

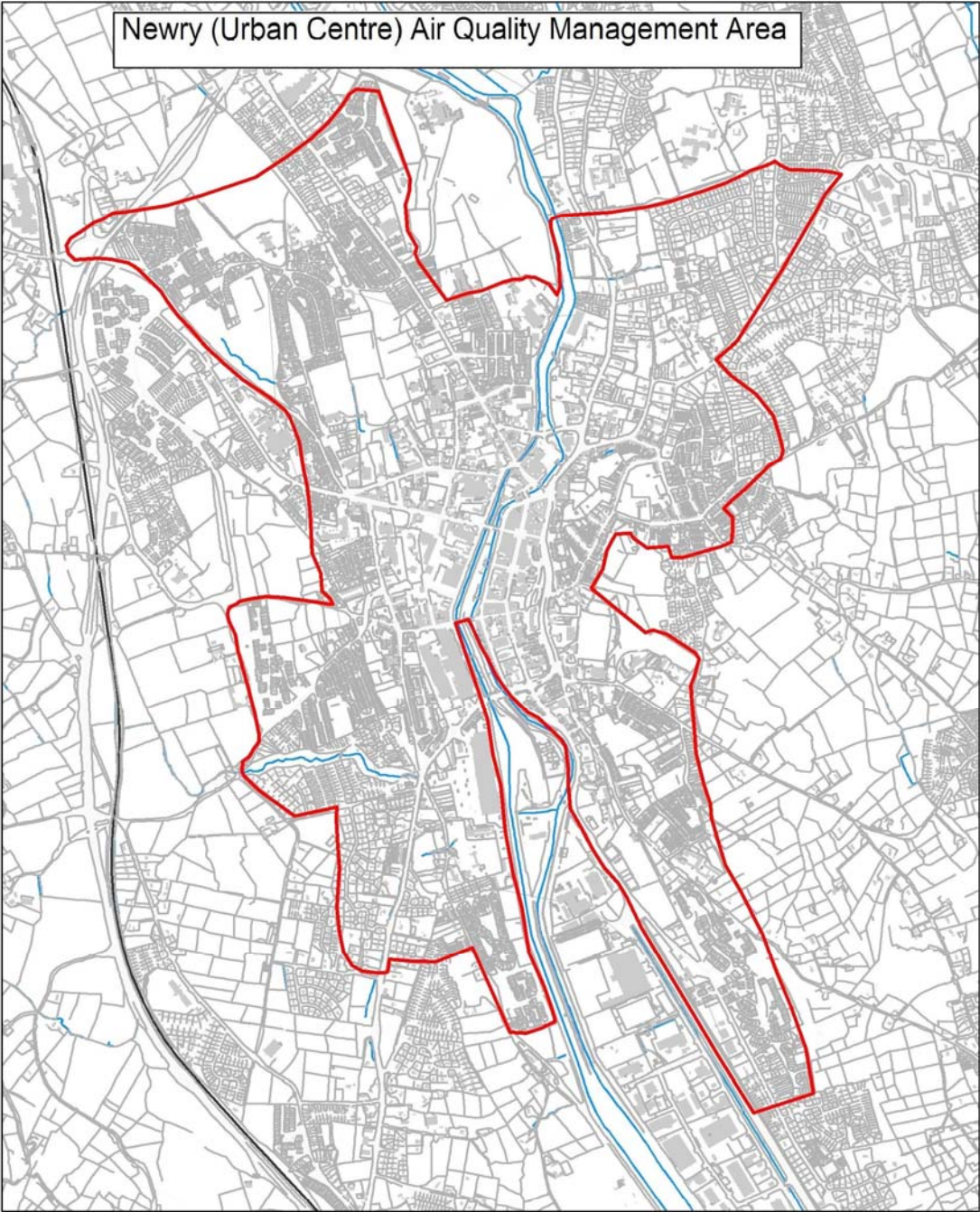
Table 1.2 Summary Newry and Mourne Air Quality Review and Assessment

Title of Work	Summary of Report
USA (2004)	Potential exceedences of the <b>NO<sub>2</sub></b> and <b>PM<sub>10</sub></b> AQS objectives in the vicinity of several roads in Newry City centre
Detailed Assessment (2005)	Concluded a risk of exceeding air quality objectives for <b>NO<sub>2</sub></b> and <b>PM<sub>10</sub></b> 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 AQMA's for the annual mean <b>NO<sub>2</sub></b> objective and the 24-hour <b>PM<sub>10</sub></b> objective
USA (2006)	Concluded that the risk of the air quality objectives for <b>NO<sub>2</sub></b> being exceeded outside existing AQMA's was negligible for all sources. In addition, the USA indicated that there was little likelihood of the 2004 air quality objectives for <b>PM<sub>10</sub></b> being exceeded.
Further Assessment (2007)	The results showed that <b>NO<sub>2</sub></b> 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 <b>PM<sub>10</sub></b> , the focus of the further assessment and source apportionment study was therefore focused on <b>NO<sub>x</sub></b> and <b>NO<sub>2</sub></b>
Further Modelling (2009)	The model performance was improved from 2005 results. The results showed that <b>NO<sub>2</sub></b> 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 <b>PM<sub>10</sub></b> being exceeded within Newry City. The Council resolved to revoke existing 5 AQMA's and to declare one AQMA for the annual mean <b>NO<sub>2</sub></b> 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



	<p>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.</p>
<b>Progress Report 2011</b>	<p>2010 monitoring data identified exceedances of the annual mean objective for nitrogen dioxide (NO2) (<math>40\mu\text{g}/\text{m}^3</math>) 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.</p> <p>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.</p> <p>During 2010 air quality monitoring in Canal Street, Newry, monitored exceedances for the 1-hour mean objective (<math>200\mu\text{g}/\text{m}^3</math>) for NO2 and for the 24-hour mean objective (<math>50\text{mg}/\text{m}^3</math>) 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.</p>
<b>Detailed Assessment 2011</b>	<p>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 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.</p>

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



0 130 260 520 780 1,040  
Meters

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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 1<sup>st</sup> 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 AQM A?	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 <sub>10</sub>	Y	FDMS	N	50m	N
Trevor Hill	Roadside	X 308716 Y 326734	PM <sub>10</sub> NO <sub>2</sub>	Y	FDMS	N	3m	Y
Canal Street*	Roadside	X308485 Y 326976	PM <sub>10</sub> NO <sub>2</sub>	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**

In the calendar year 2011 Newry and Mourne District Council deployed 35 NO<sub>2</sub> diffusion tubes per month at 33 sites within its District. One site was a triplicate site. The NO<sub>2</sub> 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 <sub>2</sub>	Y	Y	1m	Y
2	13 Canal St	Roadside	308516 326909	NO <sub>2</sub>	Y	Y	1m	Y
3	Catherine Street	Roadside	308450 327007	NO <sub>2</sub>	Y	Y	2m	Y
4	25 Sandy Street	Roadside	308973 326873	NO <sub>2</sub>	Y	Y	1m	Y
5	59 Sandy Street	Roadside	308929 326861	NO <sub>2</sub>	Y	Y	1m	Y
6	Water Street	Roadside	308688 326593	NO <sub>2</sub>	Y	Y	1m	Y
7	Trevor Hill 1, 2, 3	Roadside	308716 326794	NO <sub>2</sub>	Y	N	2m	Y
8	33 Kilmorey Street	Roadside	308668 325918	NO <sub>2</sub>	Y	Y	1m	Y
9	52 Kilmorey Street	Roadside	308727 325869	NO <sub>2</sub>	Y	Y	1m	Y
10	115 Chapel St	Roadside	308985 325510	NO <sub>2</sub>	Y	Y	1m	Y
11	4 Bridge Street	Roadside	308443 325896	NO <sub>2</sub>	Y	Y	2m	Y
12	60 Bridge Street	Roadside	308330 325789	NO <sub>2</sub>	Y	Y	1m	Y
13	Basin View Terrace	Roadside	308239 325607	NO <sub>2</sub>	Y	Y	1m	Y
14	Doran's Hill	Roadside	308033 326153	NO <sub>2</sub>	Y	Y	1m	Y
15	Dominic/Patrick St	Roadside	308177 326170	NO <sub>2</sub>	Y	Y	1m	Y
16	Francis Street	Roadside	308205 326138	NO <sub>2</sub>	Y	Y	2m	Y
17	Market Office	Urban Background	308539 326129	NO <sub>2</sub>	Y	N	25m	Y
18	42 Patrick Street	Roadside	308072 326608	NO <sub>2</sub>	Y	Y	1m	Y
19	Monaghan Row	Urban Background	307855 326749	NO <sub>2</sub>	Y	N	50m	Y
20	Pine Grove	Roadside	308208 325259	NO <sub>2</sub>	Y	Y	1m	Y
21	4 Windsor Hill	Roadside	309007 326900	NO <sub>2</sub>	Y	Y	1m	Y
22	9 Kilmorey Terrace	Roadside	308078 326567	NO <sub>2</sub>	Y	Y	2m	Y
23	2 Chapel Street	Roadside	308829 325802	NO <sub>2</sub>	Y	Y	2m	Y
24	71 Kilmorey Street	Roadside	308775 325803	NO <sub>2</sub>	Y	Y	1m	Y
25	Camlough Road1	Near road	306909 327510	NO <sub>2</sub>	N	Y	10m	N
26	Camlough Road2	Near road	306765 327566	NO <sub>2</sub>	N	Y	5m	N
27	Parkhead Crescent	Near road	307133327428	NO <sub>2</sub>	N	Y	10m	N
28	1 Forkhill Road	Near road	308002 323791	NO <sub>2</sub>	N	Y	10m	N
29	Lower Edward St	Roadside	308432 326747	NO <sub>2</sub>	Y	Y	1m	Y
30	Soho Bus Station	Near road	308461 326407	NO <sub>2</sub>	Y	N	5m	Y
31	Dundalk St, NTH	Roadside	292998 327716	NO <sub>2</sub>	N	Y	1m	N
32	Church St, W/point	Roadside	314353 318238	NO <sub>2</sub>	N	Y	2m	N
33	Newry St, Kilkeel	Roadside	330361 314677	NO <sub>2</sub>	N	Y	2m	N

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

The existing monitoring network consists of three continuous monitoring stations and 35 NO<sub>2</sub> diffusion tubes. There is one NO<sub>2</sub> diffusion tube co-location site at Trevor Hill Newry (33 sites).

### 2.2.1 Nitrogen Dioxide

#### Automatic Monitoring Data

In 2011 the Council monitored NO<sub>2</sub> at two sites in Newry City: Trevor Hill and Canal Street. The results from this monitoring found no exceedances of the annual mean air quality objective of 40 µg/m<sup>3</sup> or the hourly mean objective of 200 µg/m<sup>3</sup> (not to be exceeded more than 18 times in the year).

**Table 2.3 Annual Mean Nitrogen Dioxide levels monitored for 2011**

Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2011 %	Annual mean concentrations (µg/m <sup>3</sup> )
Trevor Hill	Y	91.1%	91.1%	31
Canal Street	Y	94.5%	94.5%	33

**Table 2.4 Number of exceedances of Hourly Mean Nitrogen Dioxide objective in 2011**

Location	Within AQMA?	Number of Exceedances of hourly mean (200 µg/m <sup>3</sup> )
Trevor Hill	Y	1
Canal Street	Y	6

## **Non Automatic Monitoring Data**

In the calendar year 2011 Newry and Mourne District Council deployed 35 NO<sub>2</sub> diffusion tubes per month at 33 sites within its District. One site, Trevor Hill, was a triplicate site. One site recorded an annual mean above the air quality objective for NO<sub>2</sub>, Canal Street (Pub) which had an annual mean of 46 µg/m<sup>3</sup>.

Table 2.5 below provides the results for all sites used during 2011.

**Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes for 2011**

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 = 0.6)
					2011 ( $\mu\text{g}/\text{m}^3$ )
Canal St (Pub)	Roadside	Y	100	Y	46
13 Canal Street	Roadside	Y	100	Y	27
Catherine Street	Roadside	Y	92	Y	28
25 Sandy Street	Roadside	Y	92	Y	34
59 Sandy Street	Roadside	Y	100	Y	34
Water Street	Roadside	Y	100	Y	32
Parkhead Crescent	Near Road	Y	100	Y	13
33 Kilmorey Street	Roadside	Y	92	Y	34
52 Kilmorey Street	Roadside	Y	100	Y	39
115 Chapel St	Roadside	Y	100	Y	31
4 Bridge Street	Roadside	Y	100	Y	25
60 Bridge Street	Roadside	Y	100	Y	21
Basin View Terrace	Roadside	Y	100	Y	27
Doran's Hill	Roadside	Y	92	Y	17
Dominic/Patrick St	Roadside	Y	100	Y	22
Francis Street	Roadside	Y	100	Y	28
Market Office	Urban Background	Y	100	Y	14
42 Patrick St	Roadside	Y	100	Y	31
Monaghan Row	Urban Background	Y	100	Y	9
Pine Grove	Roadside	Y	92	Y	21
4 Windsor Hill	Roadside	Y	100	Y	25
9 Kilmorey Terrace	Roadside	Y	100	Y	20
2 Chapel Street	Roadside	Y	100	Y	20
71 Kilmorey Street	Roadside	Y	100	Y	37



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 = 0.6
					2011 ( $\mu\text{g}/\text{m}^3$ )
Trevor Hill1	Roadside	Y	100	Y	29
Trevor Hill2	Roadside	Y	100	Y	31
Trevor Hill3	Roadside	Y	100	Y	34
Camlough Rd1	Near Road	N	100	Y	11
Camlough Rd2	Near Road	N	100	Y	15
1 Forkhill Rd	Near Road	N	100	Y	11
Lower Edward Street	Roadside	Y	100	Y	18
Soho Bus Depot	Near Road	Y	92	Y	18
Dundalk St Newtownhamilton	Roadside	N	100	Y	16
Church St, Warrenpoint	Roadside	N	100	Y	21
Newry Street, Killeel	Roadside	N	100	Y	13

## 2.2.2 PM<sub>10</sub>

In 2011 the Council monitored PM<sub>10</sub> 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<sup>3</sup> at any site. There was an exceedance the daily mean objective at the Canal Street site.

**Table 2.6 Annual Mean PM<sub>10</sub> levels monitored for 2011**

Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2011 %	Annual mean concentrations (µg/m <sup>3</sup> )
Monaghan Row	Y	94.5%	94.5%	14
Trevor Hill	Y	89.4%	89.4%	22
Canal Street	Y	90.0%	90.0%	30

**Table 2.7 Number of exceedances of Daily Mean objective for PM<sub>10</sub> in 2011**

Location	Within AQMA?	Number of exceedances of daily mean objective (50 µg/m <sup>3</sup> )
Monaghan Row	Y	13
Trevor Hill	Y	26 (47)*
Canal Street	Y	<b>39</b>

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

## 2.2.3 Sulphur Dioxide

In 2011 there was no monitoring of sulphur dioxide undertaken within the council area.

## 2.2.4 Benzene

In 2010 there was no monitoring of benzene undertaken within the council area.

## 2.2.5 Other pollutants monitored

In 2010 there was no other pollutants monitored within the council area.

## 2.3 Air Quality Trends

The Air Pollution in Northern Ireland 2010 Report published by the Department of the Environment (NI) reports that recent years have seen a marked improvement in Northern Ireland's overall air quality. The report which provides a summary of air quality monitoring in Northern Ireland for the calendar year 2010 highlights winter pollution episodes at the beginning and end of 2010. This was something which was highlighted within this Council Progress Report for 2010.

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. For reference purposes the annual mean objective of 40  $\mu\text{g}/\text{m}^3$  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 site at Trevor Hill, which became operational in 2001, there is also an overall decreasing trend. However, for both 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. In 2011 with milder weather pollution levels for the sites fell back down.

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  $\mu\text{g}/\text{m}^3$  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. The results for 2011 have fallen back down in a similar way to PM10.

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 Newry and Mourne District Council such as regional transboundary pollution issues and variations in weather conditions. The latter can have a significant influence on pollutant concentrations which is demonstrated from the monitoring results for 2010.

**Figure 2.1: PM10 Annual Mean Value at Selected Newry City Sites, 1998 to 2011**

**PM10 Annual Mean Value At Selected Newry City Sites**

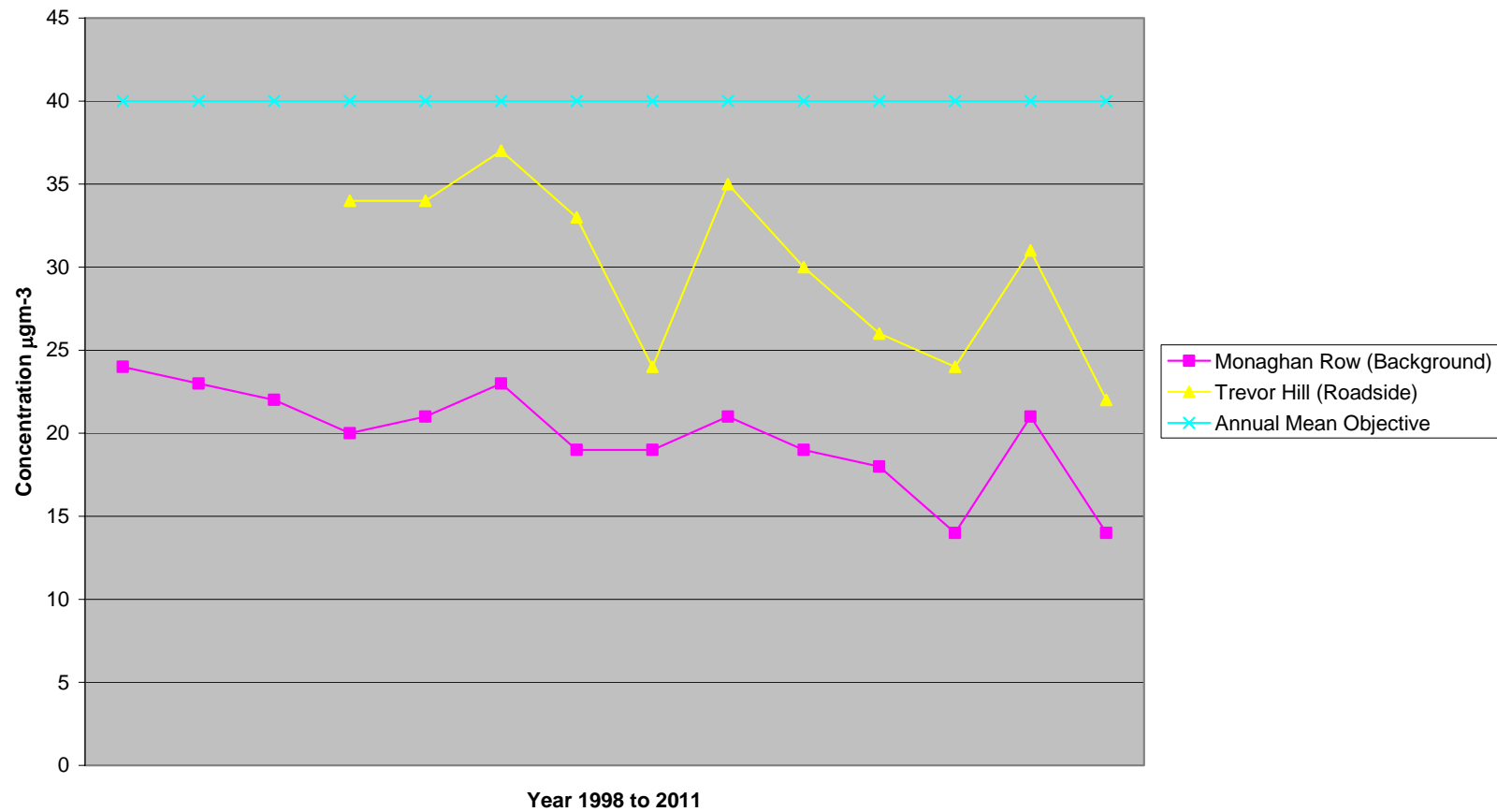
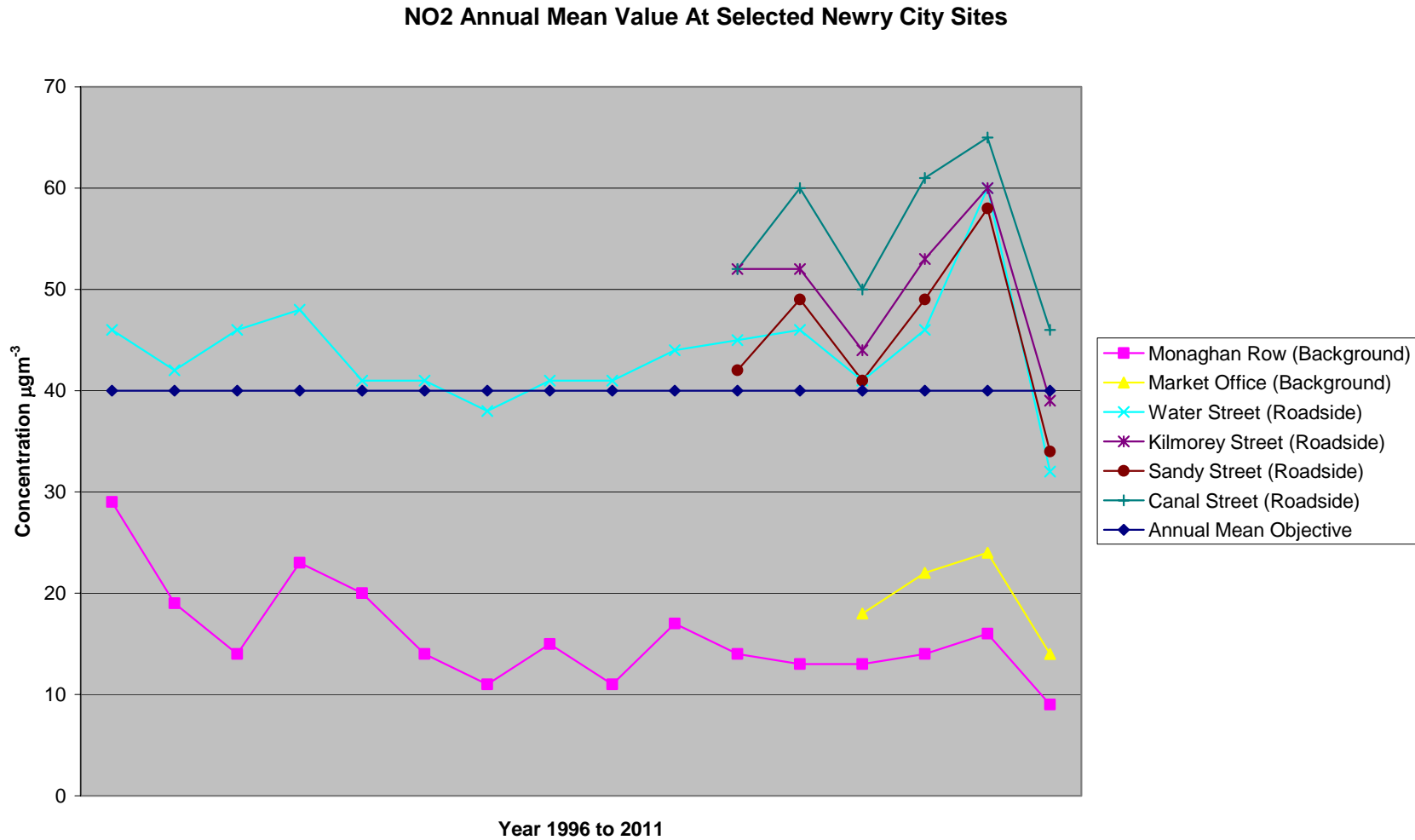


Figure 2.2 NO2 Annual Mean Value at Selected Newry City Sites, 1996 to 2011



## 2.4 Summary of Compliance with AQS Objectives

Newry and Mourne District Council has measured concentrations of NO<sub>2</sub> above the annual mean objective at one relevant location, however this site (Canal Street) is within an existing AQMA. The PM<sub>10</sub> daily mean objective was exceeded also within Canal Street, Newry.

## **3 New Local Developments**

### **3.1 Narrow Congested Streets with Residential Properties Close to the Kerb**

Newry and Mourne 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 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.

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

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

### **3.4 Junctions**

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

### **3.7 Bus and Coach Stations**

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



## 4 Other Transport Sources

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

### 4.1 Bus and Coach Stations

#### 4.1.1 Stationary Trains

Newry and Mourne 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 and Mourne 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 and Mourne 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 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 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 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.

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

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.

### **5.2 Major Fuel (Petrol) Storage Depots**

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

### **5.3 Petrol Stations**

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

## 5.4 Poultry Farms

Newry and Mourne 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 and Mourne 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 and Mourne 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 and Mourne 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 and Mourne 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 2011 Newry and Mourne District Council measured concentrations of NO<sub>2</sub> above the annual mean objective at one relevant location, however this site (Canal Street) is within an existing AQMA. The PM<sub>10</sub> daily mean objective was exceeded also with Canal Street, Newry.

Arising from a recommendation from the Progress Report 2010, a Detailed Assessment based on analysis of monitoring data was carried out for Canal Street, Newry, during 2011/2012. This was required as more than 35 exceedences of the PM<sub>10</sub> daily mean air quality objective of 50µg/m<sup>3</sup> and more than 18 exceedences of the NO<sub>2</sub> hourly mean of 200µg/m<sup>3</sup> were recorded at this monitoring site in 2010.

The Detailed Assessment concluded that as fewer than 18 exceedences of the hourly mean NO<sub>2</sub> objective of 200 µg/m<sup>3</sup> were recorded at the monitoring stations in Newry in 2011, it is not necessary to amend the existing AQMA to include the hourly NO<sub>2</sub> objective.

39 exceedences of the PM<sub>10</sub> daily mean objective for PM<sub>10</sub> of 50µg/m<sup>3</sup> were recorded in 2011, indicating that an AQMA for the PM<sub>10</sub> daily mean objective is required for part of Canal Street, Newry.

### **8.2 Conclusions from Assessment of Sources**

There have been no new industrial installations or new commercial or fugitive source emissions within the Newry and Mourne District Council area in 2011.

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 Detailed Assessment has been concluded that an AQMA for the daily mean PM<sub>10</sub> objective is required for Canal Street. The geographic extent of the AQMA now needs to be determined. This could be based on modelling, however the estimation of emissions from domestic heating sources is somewhat uncertain.

It is therefore recommended that the AQMA be confined to the area of Canal Street which is a street canyon, where the combination of road traffic and domestic heating emissions along with poor dispersion are likely to have caused exceedence of the objective.

# References

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

Newry & Mourne District Council LAQM Progress Report 2009

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 2011 the NO<sub>2</sub> 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<sub>2</sub> Network QA/QC Field Intercomparison survey.

The National Bias Adjustment Factor for Environmental Scientifics Group in 2011 was found to be 0.84 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.

Diffusion Tubes Measurements									
Period	Start Date	End Date	Tube 1 $\mu\text{gm}^{-3}$	Tube 2 $\mu\text{gm}^{-3}$	Tube 3 $\mu\text{gm}^{-3}$	Triplicate Average	Standard Deviation	CV	95% CI mean
1	07.01.11	03.02.11	64.0	67.0	73.0	68.0	4.58	6.74	11.38
2	03.02.11	03.03.11	68.0	72.0	82.0	74.0	7.21	9.74	17.91
3	03.03.11	29.03.11	61.0	43.0	64.0	56.0	11.36	20.28	28.21
4	29.03.11	27.04.11	40.0	44.0	53.0	45.7	6.66	14.58	16.54
5	27.04.11	02.06.11	37.0	40.0	36.0	37.7	2.08	5.53	5.17
6	02.06.11	30.06.11	29.0	33.0	37.0	33.0	4.00	12.12	9.94
7	30.06.11	04.08.11	33.0	35.0	42.0	36.7	4.73	12.89	11.74
8	04.08.11	02.09.11	43.0	51.0	56.0	50.0	6.56	13.11	16.29
9	02.09.11	29.09.11	57.0	56.0	57.0	56.7	0.58	1.02	1.43
10	29.09.11	03.11.11	57.0	68.0	75.0	66.7	9.07	13.61	22.54
11	03.11.11	02.12.11	43.0	46.0	50.0	46.3	3.51	7.58	8.72
12	02.12.11	05.01.12	48.0	51.0	57.0	52.0	4.58	8.81	11.38

<b>Automatic Method</b>	
<b>Period Mean</b> $\mu\text{gm}^{-3}$	<b>Data Capture</b> <b>(% DC)</b>
<b>44</b>	<b>91.1</b>

Summary Results for Trevor Hill:

Bias factor A	0.58 (0.53 – 0.65)
Bias B	71% (55% - 88%)
Diffusion Tube Mean:	52 $\mu\text{g}/\text{m}^3$
Mean CV (Precision):	10
Automatic Mean:	44 $\mu\text{g}/\text{m}^3$
Data Capture for Periods used:	95%
Adjusted Tubes Mean	30 (27-33) $\mu\text{g}/\text{m}^3$

### **Discussion of Choice of Factor to Use**

Both local and national bias adjustment factors were available, however, it was decided to use the bias adjustment factor obtained from our local co-location study. Reasons for choosing local co-location factor were:

- Co-location sites were found to have ‘good’ precision for diffusion tubes.
- Co-location study period is greater than 9 months.
- Automatic Analyser is subject to Netcen QA/QC Checks.

### **PM Monitoring Adjustment**

The data from all three PM10 monitors were subject to QA/QC inspection by Netcen during 2009-2011. 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 2011 Newry and Mourne District Council had 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.

During 2011 automatic calibration of NO<sub>2</sub> 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

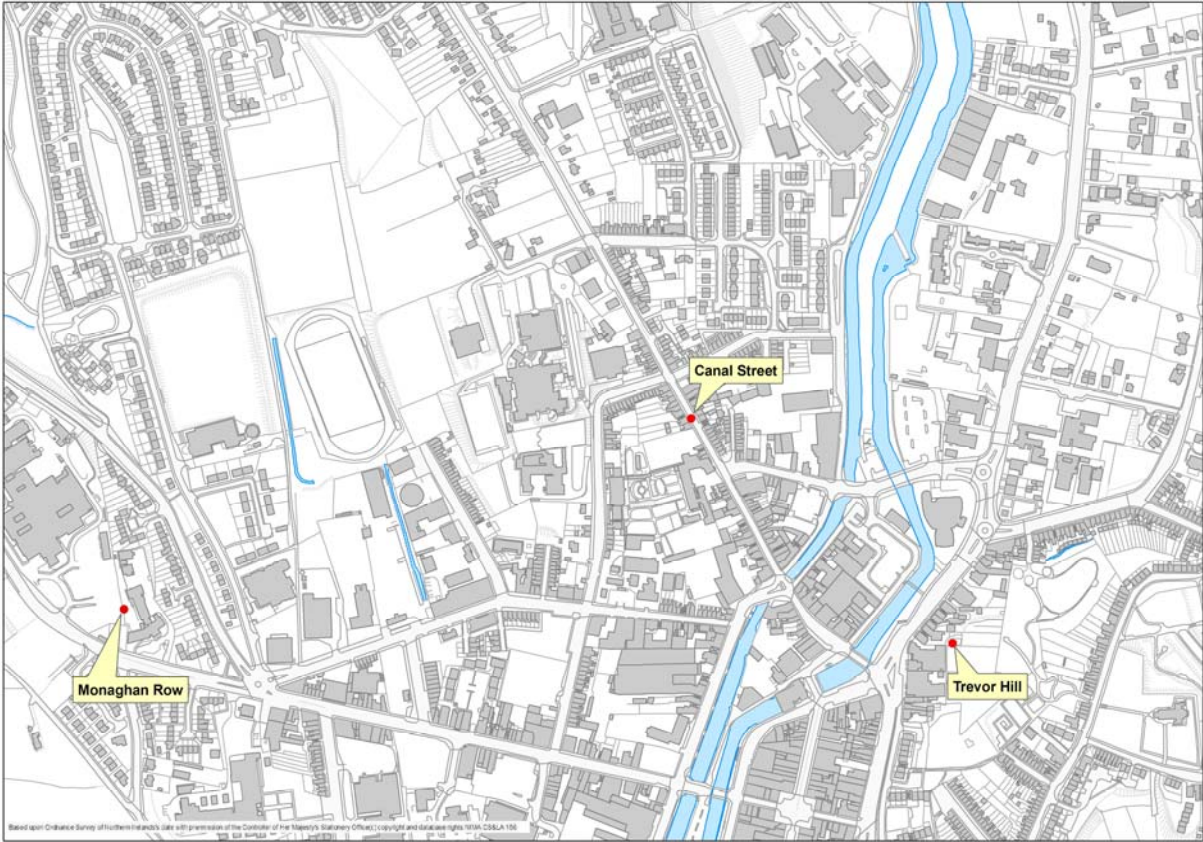
instrument drifts to be documented using traceable calibration gas standards and the results are used to scale data. All calibration records are sent to Netcen who conduct QA/QC checks.

### **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 2: Figure 8.2 Map of Automatic Monitoring Sites**



# Appendix 3: Figure 8.3 Map of Non Automatic Monitoring Sites

