Newry & Mourne District Council - Northern Ireland

Newry and Mourne District Council

2009 Air Quality Updating and Screening Assessment for NEWRY AND MOURNE DISTRICT COUNCIL

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

Date 23rd OCTOBER 2009

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Report Reference number	
Date	

Executive Summary

This Updating and Screening Report for Newry and Mourne District Council provides a review and assessment of all new or existing potential sources of air quality pollutants within the district.

This report has found there has been no new or significant source of pollutants identified within the local authority that may cause potential exceedence of the air quality objectives.

Newry and Mourne District Council are not required to proceed to a Detailed Assessment for any of the pollutants investigated.

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1 Introduction

The review and assessment process conducted over the past number of years has found that air quality throughout NMDC is generally good. However, a Detailed Assessment completed in 2005 by Bureau Veritas UK Limited on behalf of NMDC, using the air quality dispersion model ADMS Roads concluded that there was a risk of exceeding the annual mean air quality objectives for NO_2 and the 24-hour air quality objective for PM_{10} in Newry city centre. Although there was a high degree of uncertainty in the modelling results NMDC resolved to take a precautionary approach, and declare five Air Quality Management Areas (AQMAs) for the annual mean NO2 objective and the 24-hour PM10 objective as shown in Figure 1.1. The AQMA boundaries covered five streets within Newry City centre – Canal Street, Water Street, Kilmorey Street, Bridge Street and St Mary Street.

Following these designations NMDC increased the level of monitoring of NO2 and PM10 within Newry City and obtained additional data to help improve the uncertainty demonstrated by the model in 2005. In 2008, NMDC engaged Bureau Veritas UK Limited to carry out a further modeling assessment for the five AQMAs declared in Newry City using ADMS Roads. In addition, two new hotspot areas, Patrick Street and Sandy Street were modeled to assess compliance with the prescribed objectives for NO2 and PM10.

The findings of the updated monitoring and modeled results were reported in the Further Assessment Report May 2009 and can be summarized as follows:

- Exceedences of the annual mean NO2 objective continue to be monitored and modeled within the Canal Street, Water Street and Kilmorey Street AQMAs . The PM10 objectives are predicted to be met in these AQMAs in all years modeled (2007, 2008, and 2010).
- Bridge Street and St Mary's Street AQMAs meet the prescribed air quality objectives for both NO_2 and PM_{10}. Monitoring data for the last three years show compliance with the prescribed air quality objectives within these AQMA.
- It is predicted that the PM10 objectives will be met in all AQMAs in all years modeled (2007, 2008, and 2010). Monitoring data at roadside sites on Trevor Hill and Bridge Street (AQMA) show levels are well below the objectives.
- There is a risk of exceedences of the annual mean NO2 objective outside of AQMA declarations in Sandy Street (near the junction with Trevor Hill) and, to a lesser extent, in Patrick Street (a small area near the junction with Monaghan Street).

The Council having reviewed these findings and following consultation with DoE (NI) took the decision to revoke the existing 5 AQMAs and to designate one larger AQMA covering all possible areas of exceedance of NO2 annual mean objective. Consideration was given to delineating the boundary of the new AQMA. The Council during the 1990's declared seven smoke control areas within Newry City. The Council considered that for administrative purposes the border of the new AQMA should be coterminous with the existing smoke control boundaries.

In August 2009 the Council carried out the statutory procedure to revoke the 5 AQMAs designated in 2006 and designated the new Newry (Urban Centre) AQMA.

Figure 1.2 is a map of the Newry (Urban Centre) AQMA. NMDCs air quality review process has identified road transport as a significant source of NO2 within the Newry (Urban Centre) AQMA. In partnership with a number of statutory agencies and non statutory bodies an Action Plan comprising of 24 measures has been developed for the designated Newry (Urban Centre) AQMA.

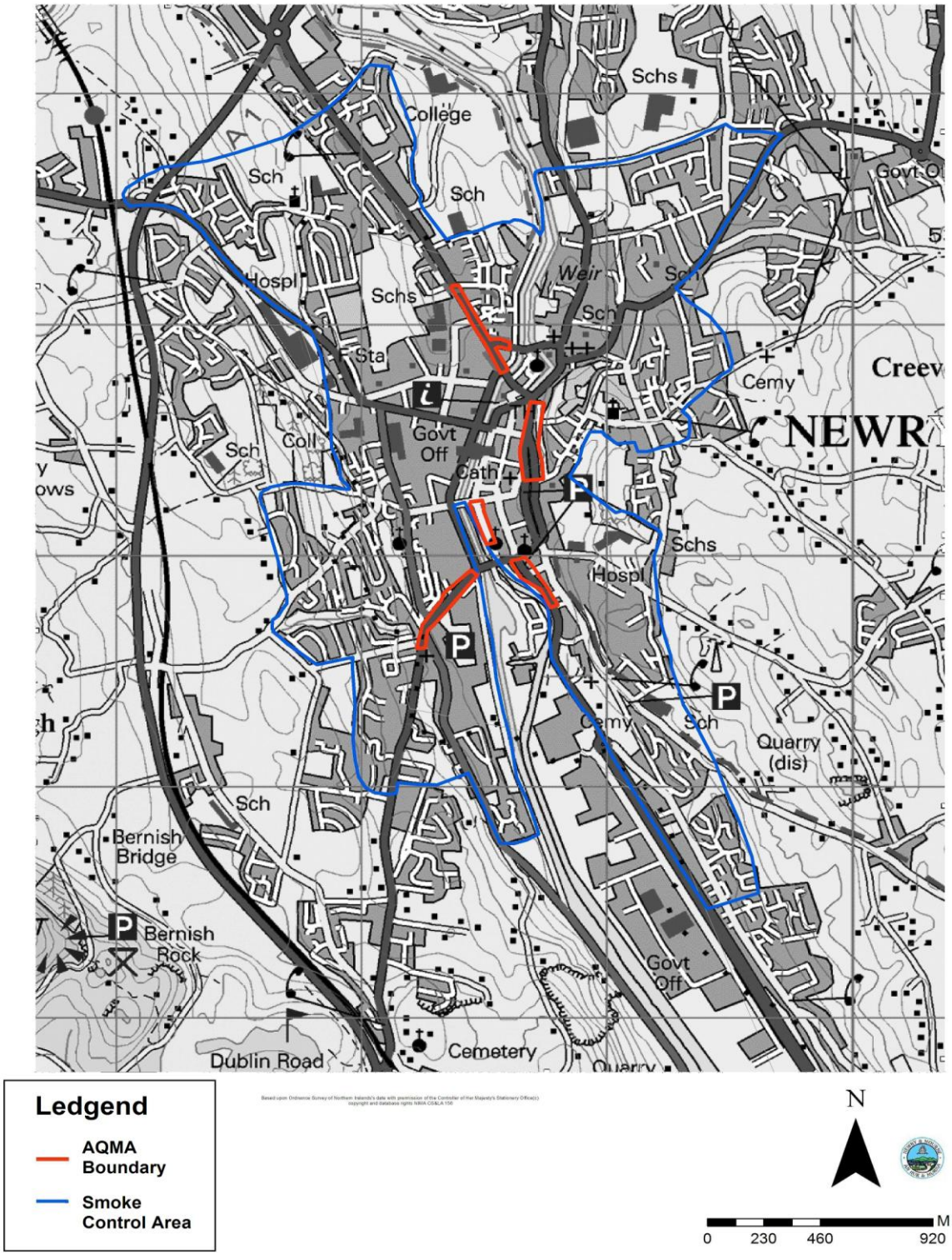


Figure 1.1 Newry City Air Quality Management Areas (2006)

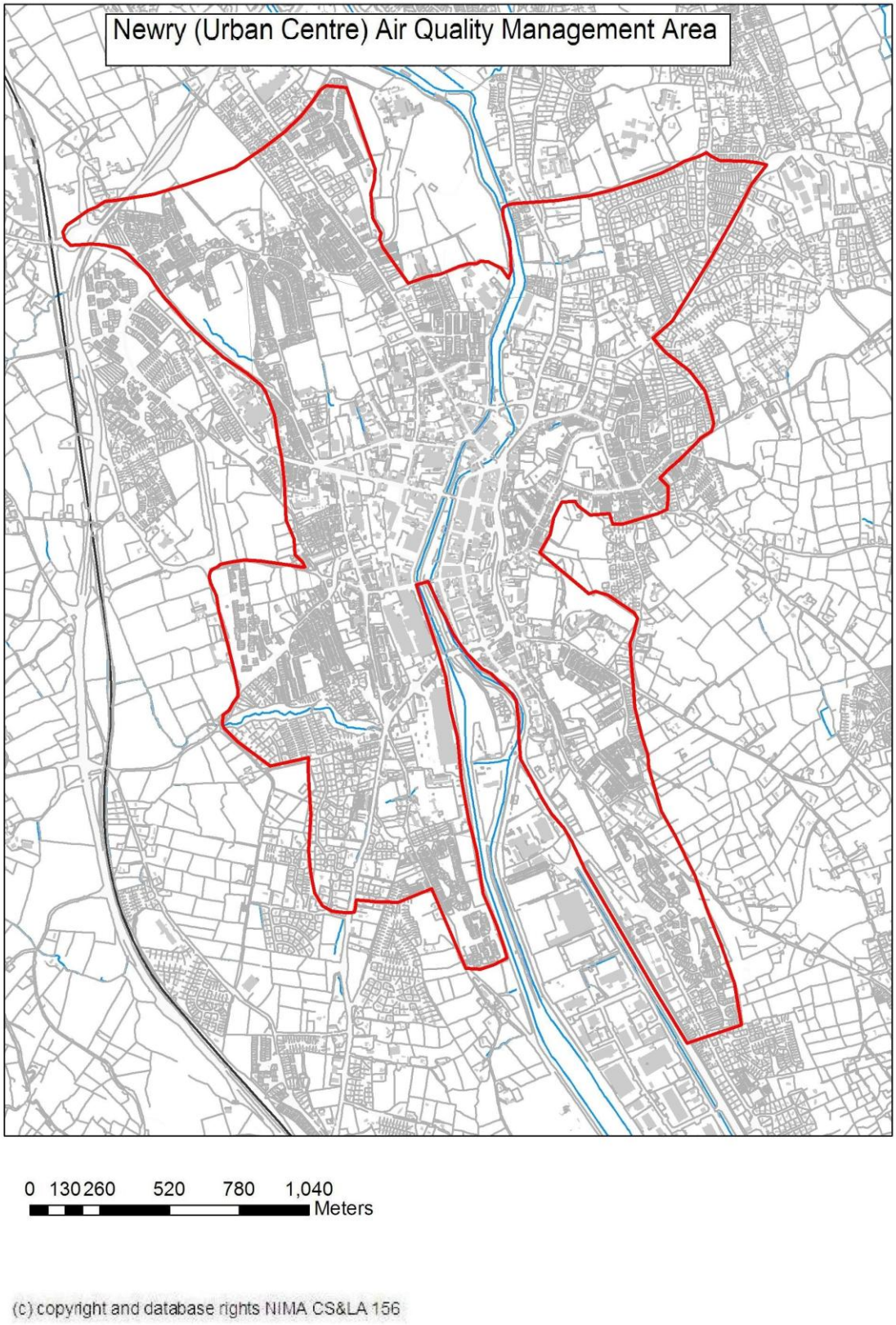


Figure 1.2 Newry (Urban Centre) AQMA

1.1 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an AQMA and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

1.2 Air Quality Objectives

The objectives for seven pollutants (benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide (NO2), sulphur dioxide (SO2), and particulates (PM10), have been prescribed within the Air Quality Standards (NI) Regulations 2007 for local air quality management. The objectives set out in the regulations for these pollutants are presented in Table 1.1.

Where it appears that the air quality objectives will not be met by the designated target dates local authorities must declare an AQMA and develop action plans in pursuit of the air quality objectives. Following designation of the AQMA, the local authority is required by Article 13(2) of the Environment (Northern Ireland) Order 2002 to prepare and submit a written action plan to the Department of the Environment for Northern Ireland.

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Northern Ireland.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene			
	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, 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

1.3 Summary of Previous Review and Assessments

Table 1.2 provides a summary of Air Quality Review and Assessment for Newry & Mourne District Council. Figure 1.2 shows the boundary of the Newry (Urban Centre) AQMA.

Table 1.2

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 town centre
Detailed Assessment (2005)	Concluded a risk of exceeding air quality objectives for **NO_2** and **PM_{10}** in Newry city centre. However, due to a high degree of uncertainty in the modelling results, it was not recommended that the Council declare an AQMA but that additional monitoring be undertaken 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 is 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 show that **NO_2** annual average concentrations within the AQMA are still likely to exceed the AQS objective along Canal Street, Water Street and Kilmorey Street Given the uncertainties in modelling **PM_{10}**, the focus of the further assessment and source apportionment study has therefore focused on **NOx** and **NO_2**
Further Modelling (2009)	The model performance was improved from 2005 results. The results show that **NO_2** annual average concentrations within the AQMA are still likely to exceed the AQS objective along Canal Street, Water Street, Kilmorey Street, and a newly identified street, Sandy Street. 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.

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 monitoring site at Bridge Street was discontinued in April 2009 as the results were consistently below the National Air Quality Strategy Objectives.

Non- Automatic monitoring indicated Canal Street area was potential area of concern. Automatic monitoring for NO2 and PM10 commenced at this site in June 2009.

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. This 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 as of 31/12/08 ?	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}	N	N	50m	N
Trevor Hill	Roadside	X308780 Y 326718	PM_{10} NO_2	N	N	3m	Y
Bridge Street *	Roadside	X308336 Y 325770	PM_{10} NO_2	Y	N	3M	Y
Canal Street**	Roadside	X308485 Y 326976	PM_{10} NO_2	Y	Y (<1M)	3M	Y

* Decommissioned April 2009
** Commencement of monitoring June 2009

2.1.2 Non Automatic Monitoring

The NO_2 diffusion tubes used were prepared and analysed by Harwell Scientific in 2006 -2007 using the 50% TEA in acetone method. The 2008 tubes were prepared and analysed by Gradko Ltd also using the 50% TEA in acetone method. The laboratory methods are currently UKAS accredited.

In 2008 there were two co-location sites within the council area; one at Bridge Street AQMS and Trevor Hill AQMS.

Non Automatic Monitoring

Table 2.2 provides details of the non-automatic monitoring locations within Newry and Mourne District Council. The table includes a summary of the bias adjusted annual mean for each of the diffusion tube sites for the calendar years 2006 to 2008.

Area	LOCATION	X	Y	2006 ANNUAL MEAN µgm-^{3}	No. Months	2007 ANNUAL MEAN µgm-^{3}	No. Months	2008 ANNUAL MEAN µgm-^{3}	No. Months	Relevant exposure	Worse case location
				Bias=0.79		Bias=0.817		Bias=0.81			
Canal St Area	Lower Canal St	308466	327000	**43**	12	**41**	12	34	9	Y	Y
	Canal Street (Pub)	308485	326976	**52**	12	**60**	12	**49**	12	Y	Y
	Catherine Street	308485	327008	31	4	**43**	12	36	12	Y	Y
	Erskine Street	308525	327043	25	4	25	5	20	11	Y	Y
	Barrack Street	308378	327178	33	4	33	11	27	12	Y	Y
	Convent 1	308487	326959	-	-	37	7	**58**	7	Y	Y
	Catherine Street 2	-	-	-	-	31	7	-	-	Y	Y
	Convent 2	308488	326957	-	-	-	-	22	5	Y	Y
	Canal St Building Site	308485	326976	-	-	-	-	25	7	Y	Y
	New Street	-	-	**44**	8	-	-	-	-	Y	Y
Water St Area	North Street	308714	326608	33	11	34	11	27	11	Y	Y
	High Street	308805	326378	32	12	31	12	25	12	Y	Y
	Water Street	308688	326593	**45**	12	**46**	12	**40**	12	Y	Y
	Trevor Hill 1, 2, 3	308659	326485	**2**8	12	28	10	22	12	N	Y
	Lower Water Street	308659	326485	28	12	28	10	22	12	Y	Y
Kilmorey St Area	33 Kilmorey Street	308668	325918	**52**	12	**52**	12	**43**	12	Y	Y
	52 Kilmorey Street	308727	325869	**43**	12	**48**	12	39	12	Y	Y
	River Street	308673	325884	22	4	29	12	26	12	Y	Y

Bridge St Area	Basin View Terrace	308239	325607	35	12	33	11	32	11	Y	Y
	18 Bridge Street	308419	325868	37	12	36	12	-	-	Y	Y
	60 Bridge Street	308325	325792	30	11	30	9	-	-	Y	Y
	4 Bridge Street	308443	325896	-	-	-	-	31	12	Y	Y
	Bridge Street 1,2,3	308336	325770	-	-	-	-	24	12	N	Y
St Mary St Area	42 St Mary Street	308505	326097	29	12	29	12	23	12	Y	Y
	18 St Mary Street	-	-	32	6	-	-	-	-	Y	Y
Area	**LOCATION**	**X**	**Y**	**2006 ANNUAL MEAN µgm-^{3}**	**No. Months**	**2007 ANNUAL MEAN µgm-^{3}**	**No. Months**	**2008 ANNUAL MEAN µgm-^{3}**	**No. Months**	**Relevant Exposure**	**Worse case location**
Dominic St / Patrick St Area	Dominic Street	308248	325776	23	4	29	11	23	12	Y	Y
	Dominic/Francis Street	308177	326170	31	11	31	12	29	12	Y	Y
	Francis Street	308205	326138	33	4	39	12	32	12	Y	Y
	42 Patrick Street	308072	326608	**43**	10	**48**	11	35	12	Y	Y
	Patrick Street (Tech)	308067	326527	21	4	25	11	21	12	N	Y
	9 Kilmorey Terrace	308078	326567	-	-	-	-	25	5	Y	Y
Sandy St Area	25 Sandy Street	308973	326873	**42**	4	**49**	12	**41**	11	Y	Y
	59 Sandy Street	308929	326861	**47**	12	**45**	12	**56**	10	Y	Y
	Talbot Street	309067	326836	28	4	29	12	30	7	Y	Y
	Glinn Ree Court	-	-	31	12	34	12	-	-	Y	Y
Background	Market Office	308539	326129	-	-	22	7	18	12	N	N
	Monaghan Row	30785	326749	14	12	13	11	13	12	N	N
	Balmoral Park	-	-	33	10	19	5	-	-	Y	N
	Hill Street	-	-	-	-	24	7	-	-	N	N
	Abbey Yard	-	-	30	8	30	7	-	-	Y	N

2.2 Comparison of Monitoring Results with AQ Objectives

The existing monitoring network consists of three continuous monitoring stations and 33 NO_2 diffusion tubes (which equates to 29 sites).

2.2.1. Nitrogen Dioxide

The Updating and Screening Assessment 2008 concluded that was a risk of the 2005 objectives for NO2 being exceeded outside the five AQMA's declared in 2006. This risk was in regard to the streets Sandy Street and Patrick Street. These areas have subsequently been included within the Newry (Urban Centre) AQMA. In 2008 the annual mean objective for NO2 was exceeded at Canal Street, Water Street, Sandy Street and Kilmorey Street.

Automatic Monitoring Data

In 2008 Newry and Mourne District Council had two continuous NO_2 analyser (Fluorescent Real-Time Analyser Model 100A) located at Trevor Hill and Bridge Street in Newry City. These locations are close to transport links where there is a significant daily traffic flow. The analysers are housed in an air-conditioned and secure cabins.

The Bridge Street site indicates that there has been no exceedance for the annual mean or an increase of 1-hour mean concentrations exceeding 200µg/m^3. The concentration levels at Trevor Hill 2008 have indicated an exceedance of the annual mean objective however there was no more than 18 1-hour means above 200µg/m^3.

Table 2.3a and 2.3b provides a summary of the results.

NO2 Monitoring Results (2004-2008)

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

Location	Within AQMA as of 31.12.08?	Proportion of year with valid data 2008 %	Annual mean concentrations (µg/m^3)		
			2006 *	2007 *	2008
Monaghan Row*	N	N/A	23.0	N/A	n/A
Trevor Hill	Y	69.3	**42.0**	**41.0**	**46.0**
Bridge Street**	Y	95.5	24.0	27.0	24.0

* Based on operation of NOx analyser between 01 January 2006 and 09 March 2006 after which the instrument was removed from the site.

** Based on installation of the NOx analyser on 30 June 2006 with continuous operation until 31 December 2007

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

Location	Within AQMA as of 31.12.08?	Data Capture 2008 %	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 %ile of hourly means in brackets.*		
			2006 *	2007 *	2008
Monaghan Row	N	N/A	0	N/A	N/A
Trevor Hill	Y	69.3	0	9	5 (172)
Bridge Street	Y	95.5	0	0	0

Diffusion Tube Monitoring Data

Newry & Mourne District Council currently operate 29 diffusion tube sites within the district. At two of these locations the Council operate co-location studies with its NOx automatic analysers (Trevor Hill and Bridge Street AQMS) using triplicate NO_2 diffusion tubes. The purpose of this is to provide a local bias adjustment factor for the diffusion tubes provided the data from the NOx automatic analyser is ratified and has sufficient data capture.

Table 2.4a below provides a summary of the annual mean NO2 results fro all diffusion tube sites operated in the council area during 2008 including the data capture. Table 2.4b provides a summary of the annual mean NO2 results fro all diffusion tube sites operated in the council area during 2006-2008.

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes

Location	Within AQMA as if 31.12.08?	Data Capture 2008 %	Annual mean concentrations
			2008 (μg/m^3) Adjusted for bias
Lower Canal St	Y	75	34
Canal Street	Y	100	**50**
Convent1	Y	58	**58**
Convent2	Y	42	23
Catherine Street	Y	100	36
Erskine Street	N	92	20
Barrack Street	Y	100	27
Talbot Street	N	58	30
25 Sandy Street	N	92	**41**
59 Sandy Street	N	83	**56**
North Street	Y	92	27
High Street	Y	100	25
Lower Water Street	Y	100	23
Water Street	Y	100	**41**
Trevor Hill 1	N	100	35
Trevor Hill 2	N	100	34
Trevor Hill 3	N	100	33
33 Kilmorey St	Y	100	**44**
52 Kilmorey St	Y	100	39
River St	Y	100	26
4 Bridge St	Y	100	31
Bridge St 1	Y	100	24
Bridge St 2	Y	100	25
Bridge St 3	Y	100	28
Basin View Terrace	Y	92	32

Dominic Street	N	100	23
Dominic / Patrick St	N	100	29
Francis Street	N	100	33
Market Office	N	100	18
St Marys St	N	100	24
Patrick St	N	100	22
42 Patrick St	N	100	36
Monaghan Row	N	100	13
Canal St B/Site	Y	56	26
Windsor Hill	N	42	26
9 Kilmorey St	N	42	25

Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes

Location	Within AQMA as of 31.12.08?	Annual mean concentrations ($\mu g/m^3$) Adjusted for bias		
		2006	2007	2008
Lower Canal St	Y	**43**	**41**	34
Canal Street	Y	**52**	**59**	**50**
Convent1	Y	n/a	n/a	**58**
Convent2	Y	n/a	n/a	23
Catherine Street	Y	31	30	36
Erskine Street	N	25	24	20
Barrack Street	Y	n/a	n/a	27
Talbot Street	N	28	29	30
25 Sandy Street	N	**42**	**49**	**41**
59 Sandy Street	N	**45**	**45**	**56**
North Street	Y	33	34	27
High Street	Y	32	31	25
Lower Water Street	Y	28	**41**	23
Water Street	Y	**45**	**46**	**41**
Trevor Hill 1	N	39	**41**	35
Trevor Hill 2	N	39	**42**	34
Trevor Hill 3	N	40	40	33
33 Kilmorey St	Y	**52**	**51**	**44**
52 Kilmorey St	Y	**43**	**47**	39
River St	Y	22	29	26
4 Bridge St	Y	37	36	31
Bridge St 1	Y	n/a	n/a	24
Bridge St 2	Y	n/a	n/a	25
Bridge St 3	Y	n/a	n/a	28
Basin View Terrace	Y	27	32	32
Dominic Street	N	23	29	23
Dominic / Patrick St	N	31	31	29
Francis Street	N	33	39	33
Market Office	N	n/a	21	18
St Marys St	N	32	29	24
Patrick St	N	21	24	22
42 Patrick St	N	**43**	**47**	36
Monaghan Row	N	n/a	13	13
Canal St B/Site	Y	n/a	n/a	26
Windsor Hill	N	n/a	n/a	26
9 Kilmorey St	N	n/a	n/a	25

2.2.2 PM_{10}

In 2008 the Council monitored PM10 at three sites in Newry City; Monaghan Row, Trevor Hill and Bridge Street using R&P TEOM (FDMS) instruments.

Table 2.5a Results of PM_{10} Automatic Monitoring

Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations 2008 (μg/m^3) Adjusted for bias
Monaghan Row	N	73.4	18
Trevor Hill	N	55.9	26
Bridge Street (a)	Y	41.9	29

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

Location	Within AQMA?	Data Capture %	Data Capture %	Data Capture 2008* %	Number of Exceedences of daily mean objective (50 μg/m^3) *If data capture < 90%, include the 90th %ile of daily means in brackets.*		
		2006	2007		2006	2007	2008
Monaghan Row	N	96.4	94.5	73.4	8	7	12(34)
Trevor Hill	N	93.4	93.1	55.9	**41**	18	12(44)
Bridge Street (a)	Y	99	99	41.9	12	16	17(53)

(a) Based on installation of the PM_{10} analyser on 30 June 2006 with continuous operation until 31 December 2008

* Reduced data capture following modification of analysers to include FDMS

Within the Bridge Street AQMA, Newry and Mourne District Council recorded less than 35 exceedences of the daily mean objective for 2008. However the data capture was poor and therefore the 90% percentile results were used. These indicated above the 50μg/m^3 mean objective. However the Further Assessment May 2009 has modelled PM10 in this area and found that there is no likelihood that the daily mean objective for Pm10 will be exceeded in Bridge Street. As a consequence of the results from the Further Assessment May 2009 all AQMAs designated for PM10 in Newry City were revoked in August 2009.

2.2.3. Sulphur Dioxide

Based on monitoring data from 2005 and 2007, there have been no exceedences of the AQS objectives for SO_2 at Monaghan Row and Trevor Hill. Monitoring of SO2 ceased at both these sites on 31st March 2008.

2.2.4. Benzene

In 2008 there was no monitoring of benzene undertaken within the council area.

2.2.5. Other pollutants monitored

Newry and Mourne District Council has no other monitoring sites within the district and has not closed any since the previous Review and Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Newry and Mourne District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

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

Newry and Mourne District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Newry and Mourne District Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

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

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

Newry and Mourne District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Newry and Mourne District Council confirms 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 District.

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

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

4.2.2 Moving Trains

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.

4.3 Ports (Shipping)

Newry and Mourne District Council confirm that there are no ports that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Industrial sources can have a significant contribution to local air pollution.

There have been no new or proposed industrial installations which are likely to give rise to significant emissions for which an air quality assessment has been required in the Newry and Mourne area or in a neighbouring authority since the previous Review and Assessment.

Newry and Mourne District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

There have no existing industrial installations where emissions have increased substantially or any new relevant exposure been introduced that have been identified in the Newry and Mourne area or within a neighbouring authority since the previous Review and Assessment,

Newry and Mourne District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

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

There have been two new Industrial processes that have been identified by Newry and Mourne District Council since the previous Review and Assessment, these are detailed in Appendix D.

Newry and Mourne District Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.2 Major Fuel (Petrol) Storage Depots

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Biomass burning boilers can emit a number of pollutants including nitrogen dioxide, PM10 and sulphur dioxide. The mix and the amount of pollution produced will depend on the size, design and the quality of fuel used.

Newry and Mourne District Council have identified two biomass boilers that have been installed. The procedure set out in TG(09) has been used to assess each of these and to date in Newry and Mourne there has been no exceedances of the threshold in the relevant nomogram in LAQM TG(09). It has therefore not been necessary to proceed to a Detailed Assessment.

Newry and Mourne District Council has assessed the biomass combustion plants, and concluded that it will not be necessary to proceed to a Detailed Assessment. See Appendix E

6.2 Biomass Combustion – Combined Impacts

There have been no biomass installations that satisfy the criteria laid out in LAQM TG (09) within Newry and Mourne District Council area

Newry and Mourne District Council confirms that there are no biomass combustion plant in the District.

6.3 Domestic Solid-Fuel Burning

Newry and Mourne District Council confirms that there are no areas of significant domestic fuel use in the district.

7 Fugitive or Uncontrolled Sources

Dust emissions from a number of uncontrolled and fugitive sources can give rise to elevated PM_{10} levels. Potential sources include quarrying, landfill sites and coal / material stockyards or material handling.

Newry and Mourne District Council identified an area of concern following a number of dust complaints. The complaints relate to the loading and unloading of grain at Warrenpoint Harbour.

The procedure set out in LAQM TG (09) has been used to assess the need for a Detailed Assessment. There has been no air quality assessment carried out and therefore approach two has been used.

From the TG (09) it has been concluded that there is no relevant exposure near to the source and therefore a Detailed Assessment is not required.

Newry and Mourne District Council confirms that there are no potential sources of fugitive particulate matter emissions in the District.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

NO2 diffusion tube results in 2008 confirmed the need to maintain AQMAs for the following streets in Newry City; Canal Street, Water Street, and Kilmorey Street. Diffusion tube results for Sandy Street, which lay outside the five AQMAs designated in 2006 confirmed the need to include this street within an AQMA.

In 2008 there were no monitored exceedances of the PM10 objectives within Newry and Mouren District Council.

In August 2009 the Council took the decision to revoke the existing 5 AQMAs which related to the daily mean PM10 objective and annual mean NO2 objective and to designate one larger AQMA in Newry City to include all possible exccedances of the annual mean objective for NO2.

A detailed assessment is not required.

8.2 Conclusions from Assessment of Sources

There have been no new or significantly changed sources of pollutants identified which may cause potential exceedance within the Council area.

A detailed assessment is not required.

8.3 Proposed Actions

Newry and Mourne District Council has not identified a need for further action above and beyond the action already in place. The Updating and Screening Assessment has not identified the need to proceed to a detailed assessment.

Newry and Mourne have submitted a Draft Action Plan for the Newry (Urban Centre) AQMA for review by the Department of Environment.

The next course of action will be to submit a Progress Report for 2010.

9 References

AEA Energy & Environment (2009) Technical Guidance: Screening Assessment for Biomass Boilers

Air Quality Archive (http://www.airquality.co.uk/index.php) Accessed August 2009

Defra (2009) Local Air Quality Management, Technical Guidance LAQM (09)

European Environment Agency (2007) EMEP/CORINAIR Emission Inventory Guidebook (http://www.eea.europa.eu/publications/EMEPCORINAIR4/B216v2.pdf) Accessed August 2009

Newry & Mourne District Council Progress Report 2005

Newry & Mourne District Council Updating and Screening Assessment 2006

Newry & Mourne District Council Progress Report 2007

Newry & Mourne District Council Progress Report 2008

Newry & Mourne District Council draft Action Plan 2009

Newry & Mourne District Council LAQM Further Assessment Report 2009

Appendices

Appendix A: QA/QC Data

Appendix B: Location Map of NO2 Diffusion Tubes

Appendix C: Newry & Mourne District Council Further Assessment May 2009

Appendix D: Updating of Industrial Processes

Appendix E: Biomass Calculation

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

In 2008 the NO_2 diffusion tubes were prepared and analysed by Gradko International 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 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.

Factor from Local Co-location Studies

The local co-location study at Bridge Street Roadside site has been used to derive a bias adjustment factor of 0.82 as the data capture from the NOx analyser at Bridge Street met the data capture requirements.

Bridge Street Roadside Site

Bias factor A	0.81 (0.7-0.96)
Bias B	23% (4% - 42%)
Diffusion Tube Mean:	31μg/m^3
Mean CV (Rrecision):	4
Automatic Mean:	25μg/m^3
Data Capture for Periods used:	96%
Adjusted Tubes Mean	25 (21-29) μg/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 adjusted obtained from our local co-location study. The local co-location study provides a more accurate adjustment.

PM Monitoring Adjustment

Newry and Mourne District Council has employed an QA/QC contract. The data from each TEOM have been used corrected using the Volatile Correction Model (VCM).

QA/QC of automatic monitoring

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. This contract has been running since 1st March 2002 and certified calibration results are available to cover this period.

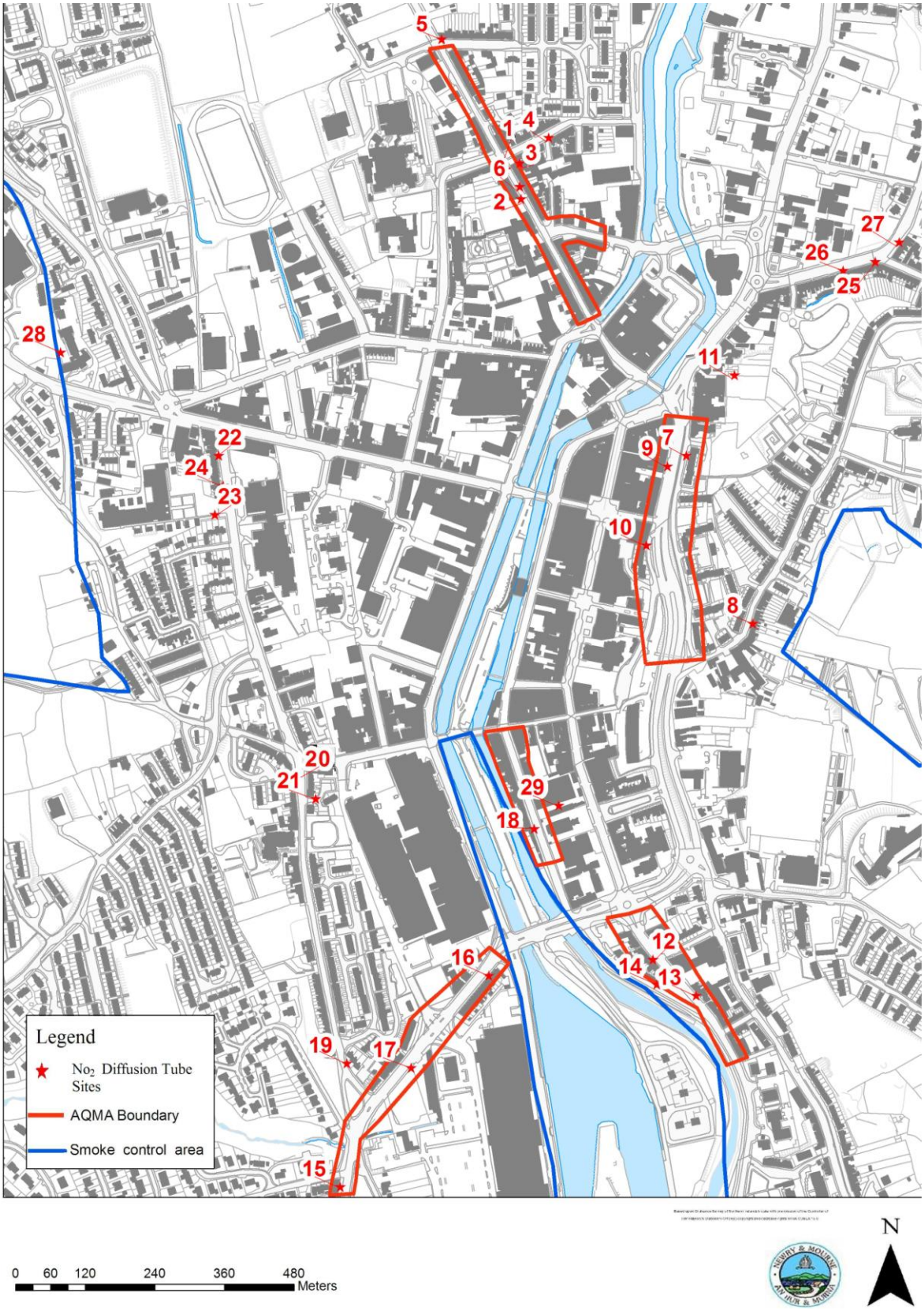
Automatic calibration of NO2 automatic monitors is undertaken at Trevor Hill every three days. Manual calibration of Bridge Street is undertaken every two weeks by Newry and Mourne District Council officers. This allows the instrument drifts to be documented using traceable calibration gas standards 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

WASP results for January 2008 – January 2009 for Gradko:

Month	Round	Reference Value	Measured Value	Score	Comment
Jan-08	100	1.36µgNO2	1.34µgNO2	-0.1	Satisfactory
		1.47µgNO2	1.50µgNO2	0.2	Satisfactory
Mar-08	101	0.92µgNO2	0.95µgNO2	0.2	Satisfactory
		1.86µgNO2	1.85µgNO2	0	Satisfactory
Jul-08	102	1.37µgNO2	1.42µgNO2	0.3	Satisfactory
		2.28µgNO2	2.21µgNO2	-0.2	Satisfactory
Jan-09	104	2.02µgNO2	1.85µgNO2	-0.7	Satisfactory
		1.22µgNO2	1.21µgNO2	-0.1	Satisfactory

Appendix B: Location of NO2 Monitoring Sites



Appendix C: Newry and Mourne District Council Further Assessment May 2009

Report attached as a separate pdf document.

Appendix D: Updating of Industrial Sources

J. Tinnelly & Sons is permitted under The Pollution Prevention and Control Regulations (NI) 2003 for the use of a Mobile Crusher. Assessments are carried out when it is in use within the district to ensure the conditions of the permit are being complied with.

Norbrook Laboratories Ltd is regulated under The Pollution Prevention Control Regulations (NI) 2003 Schedule 1 Section 7 SED Activities. Assessment, through calculation, has determined that the emission of VOCs is within the limits set out in the permit.

Appendix E – Biomass Calculations

Newry and Mourne identified two premises within the district to be assessed.

The procedure provided in LAQM TG (09) and 'Technical Guidance: Screening Assessment for Biomass Boilers', (July 2008).

6.1.1 **Council Offices, Monaghan Row, Newry**

The following information was used to assess if the background-adjusted emission rate is greater than or equal to the threshold emission rate. If this was the case, a more detailed assessment of the biomass should be considered.

- The stack height is 12m above the ground
- The stack diameter is 0.2m
- The nearest building within 5m is 10m high
- The biomass installation is 300kW wood-pellet burner
- Maximum emission rate of PM_{10} is 0.0198g/s
- Maximum emission rate of NO_2 is 0.045g/s

Background concentrations have been obtained for both PM_{10} and NO_2 from Air Quality archives.

Background PM_{10} =15 $\mu g/m^3$
Background NO_2 = 9$\mu g/m^3$

To calculate the Background adjusted emission rate the following formulae was used:

PM_{10} :

$$E_A = \frac{E}{32 - G} = 0.0198 / 32 - 15$$

$$= \mathbf{0.0012}$$

NO_2 :

$$E_A = \frac{E}{40 - G} = 0.045 / 40 - 9$$

$$= \mathbf{0.00145}$$

Summary:

	PM_{10} g/s	NO_2 g/s
Emission Rate	0.0198	0.045
Background Concentration	15	9
Background Adjusted Emission Rate	0.0012	0.0145
Threshold Emission Rate for stack height	0.0197	0.1079

Conclusion:

Maximum emission rate for NO_2 is lower than the threshold emission rate and therefore **no further action is required.**

For PM_{10}The Threshold Emission Rate is 0.0197g/s and the Maximum Emission Rate is 0.0198 g/s and therefore exceeds the value by 0.0001g/s.

The Guidance would indicate that a Detailed Assessment is needed.

The calculation is based on the boiler operating continuously at full load. However this biomass boiler does not operate all of the time.

In autumn / winter time (6 months of the year) the boiler is in operation 27.5 hours per week, out of a potential 168 hours. This equates to the boiler in use a total of 16% of the time. Also when the boiler is in operation it is not required to work at 100% load and usually works at 50%.
In the summer months the operation time of the boiler is again reduced.

The biomass boiler was introduced in January 2007 and is based in Monaghan Row. There is continuous PM_{10} monitoring carried out at this site.

Monitoring is carried out using a Tapered Element Oscillating Microbalance (TEOM). NETCEN ratify the data as part of a QA/QC contract. This data has been Volatile Correction model (VCM) corrected. The ratified results from this continuous monitoring for 2006, 2007 and 2008 are shown below.

Location	**Within AQMA?**	**Data Capture %**	**Data Capture %**	**Data Capture 2008* %**	**Number of Exceedences of daily mean objective (50 μg/m^3)** *If data capture < 90%, include the 90th %ile of daily means in brackets.*		
		2006	**2007**		**2006**	**2007**	**2008**
Monaghan Row	N	96.4	94.5	73.4	8	4	13(34)

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- Reduced data capture following modification of analysers to include FDMS

Newry and Mourne District Council recorded less than 35 exceedances of the daily mean objective for each of the specific monitoring periods.

This continuous monitoring at the site provides evidence that that the introduction of the biomass boiler at the site has not significantly impacted the air quality of the area.

Therefore given the above information **Newry and Mourne District Council has concluded that a Detailed Assessment is not required for the Biomass Boiler for PM_{10}**