Newry, Mourne and Down District Council
2019 Air Quality Progress Report

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

December 2019

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Executive Summary

Newry Mourne and Down District Council has completed this 2019 Progress Report in accordance with the provisions of the Environment (Northern Ireland) Order 2002 and the Northern Ireland Local Air Quality Management Policy Guidance document.

This 2019 Progress Report for Newry Mourne and Down District Council provides a review and assessment of all new or existing potential sources of air quality pollutants and a summary of air quality monitoring results for the calendar year 2018.

Newry Mourne and Down District Council has measured concentrations of NO_2 above the annual mean objective at Market Street Downpatrick. A detailed assessment for Market Street, Downpatrick has also been completed and has been submitted for review.

Four of the 24 NO_2 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO_2) and monitoring at all sites will continue into 2020 to assess if a Detailed assessment will be necessary on the AQMA.

The PM_{10} daily mean objective was not exceeded within Canal Street, Newry. This location is within an existing Air Quality Management Area - Newry (Canal Street) Air Quality Management Order 2013. Monitoring at this site will continue into 2020 to assess if a Detailed assessment will be necessary on the AQMA.

This report has not identified any new sources with relevant exposure therefore it is not considered necessary to proceed to a Detailed Assessment based on potential sources.

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1 Introduction

1.1 Description of Local Authority Area

Newry, Mourne and Down District Council area has a population of approximately 171,500. 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 NO_2) and Newry (Canal St) Air Quality Management Area (24 hour mean objective for PM_{10}).

In 2018 there were 2 air quality monitoring stations (AQMS) in operation, 1 in Newry city area and 1 in Downpatrick. The AQMS in Newry monitored PM_{10} and NO_2 while the Downpatrick station monitored NO_2.

1.2 Purpose of Progress Report

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

For Local Authorities in Northern Ireland, Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedance of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 – Air Quality Objectives included in Regulations for the purpose of LAQM in Northern Ireland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	3.25 µg/m^3	Running annual mean	31.12.2010
1,3-butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Title of Work	Summary of Report
USA (2004)	Potential exceedances 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 PM_{10} 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 PM_{10}. The street had formally been declared an AQMA for PM_{10} but this was revoked following further dispersion modelling results (Further Assessment 2009), which indicated that exceedance of PM_{10} objective was not likely within Newry City. Monitoring of PM_{10} 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 (NO_2) ($40\mu g/m^3$) for a number of streets within Newry City. These streets were within an existing Air Quality Management Area - Newry (Urban Centre) Air Quality Management Area for which there is an agreed Action Plan. Air quality monitoring results for NO_2 and PM_{10} 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 (200$\mu g/m^3$) for NO_2 at and for the 24-hour mean objective (50 mgm^{-3}) for PM_{10}. It was concluded that a Detailed Assessment for the 1-hour mean objective for NO_2 and the 24-hour mean objective for PM_{10} 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 NO_2 and daily mean objective for PM_{10} being exceed for Canal Street, Newry. Findings of the assessment did not establish a risk for 1-hour mean objective for NO_2 being exceeded but there was a risk identified for the daily mean objective for PM_{10} being exceeded for Canal Street. It was recommended that an AQMA be declared in Canal Street for the daily mean objective for PM_{10}.
Progress Report 2013	The 2013 report identified the following issues;

	Exceedance in Annual Mean objective for nitrogen dioxide (NO_2) (40$\mu g/m^3$) 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 (NO_2) (40$\mu g/m^3$). Exceedance of hourly mean objective for (NO_2) (200$\mu g/m^3$) at Canal St AQMS, at three diffusion sites in Newry Urban AQMA,(Canal Street and Kilmorey Street) the annual mean NO_2 level recorded by diffusion tubes exceeded 60 $\mu g/m^3$. No exceedance of annual mean or daily mean objective for PM_{10}. 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 NO_2 being exceeded in Newry AQMA but there was a risk identified for the daily mean objective for PM_{10} 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 (NO_2) (200$\mu g/m^3$) in Canal Street and Kilmorey Street but monitoring at both these locations has continued.

Further Assessment 2014	A further assessment of PM_{10} 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 PM_{10} 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 PM_{10} at Canal Street AQMS. Exceedance in Annual Mean objective for nitrogen dioxide (NO_2) ($40\mu g/m^3$) at Trevor Hill AQMS and Canal St AQMS. 10 of the 28 diffusion tubes located within Newry City Centre

	exceeded the annual mean objective for nitrogen dioxide (NO_2) (40$\mu g/m^3$). Exceedance of hourly mean objective for (NO2) (200$\mu g/m^3$) at Trevor Hill AQMS and Canal St AQMS. A diffusion tube site at Canal St in Newry Urban AQMA recorded an annual mean NO_2 level of 60 $\mu g/m^3$ which is an indicator that the hourly mean objective (200$\mu g/m^3$) may be exceeded. No exceedance of annual mean objective for PM_{10}.
Progress Report 2017	The 2017 Progress Report which contained 2016 monitoring data identified the following: • No exceedance of annual mean objective for PM_{10}. • No exceedance of daily mean objective for PM10. • 9 of the 24 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO_2) (40$\mu g/m3$). • Exceedance of the annual mean objective for NO_2 at Market Street automatic station. • Council will proceed to a detailed assessment for the Market Street location.

USA 2018	The USA 2018 report which contained monitoring data from 2017 identified the following: • Five of the 27 NO_2 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO_2) • Monitoring at all sites will continue into 2019 to assess if a Detailed assessment will be necessary on the AQMA. • The PM_{10} daily mean objective was not exceeded within Canal Street, Newry. Monitoring at this site will continue into 2019 to assess if a Detailed assessment will be necessary on the AQMA. • Concentrations of NO_2 above the annual mean objective at Market Street Downpatrick were monitored. A detailed assessment for Market Street, Downpatrick will be carried out.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Table 2.1 below provides details of the automatic monitoring sites that operated within Newry, Mourne and Down District Council area during the calendar year 2018.

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
CM1	Canal Street, Newry	Roadside	308485	326976	1.5	PM10 NO2	Y	N/A	Y(<1M)	3M	Y
CM2	Market Street, Downpatrick	Roadside	348655	344596	2	NO2	N	N/A	Y(10M)	1.5M	Y

The automatic monitoring stations within the district are National Environmental Technology Centre (NETCEN) type tested and approved analysers, which contain air-conditioned units to maintain the correct operating temperature. In April 2018 the Downpatrick NO_2 analyser was replaced due to a defective analyser.

In 2018 Newry, Mourne and Down District Council had a QA/QC contract with Ricardo-AEA and Data Management contract with AQDM. QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area.

Figure 2.1 – Maps of Automatic Monitoring Sites

Downpatrick

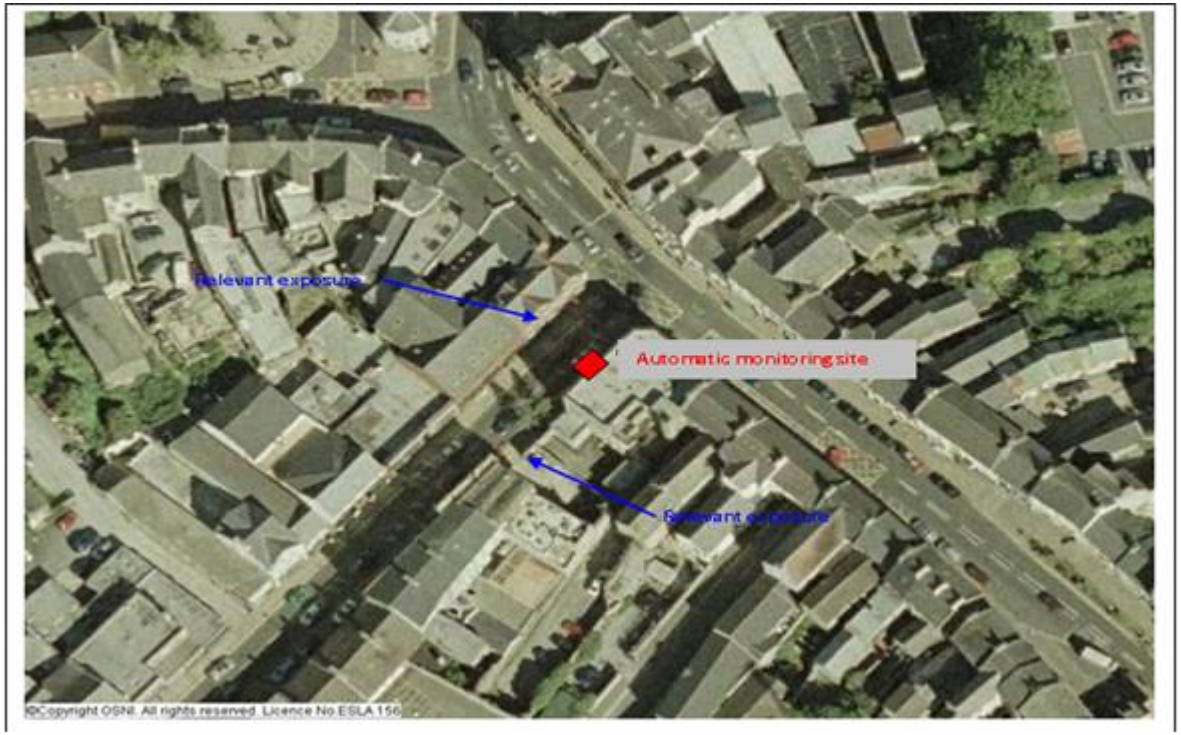
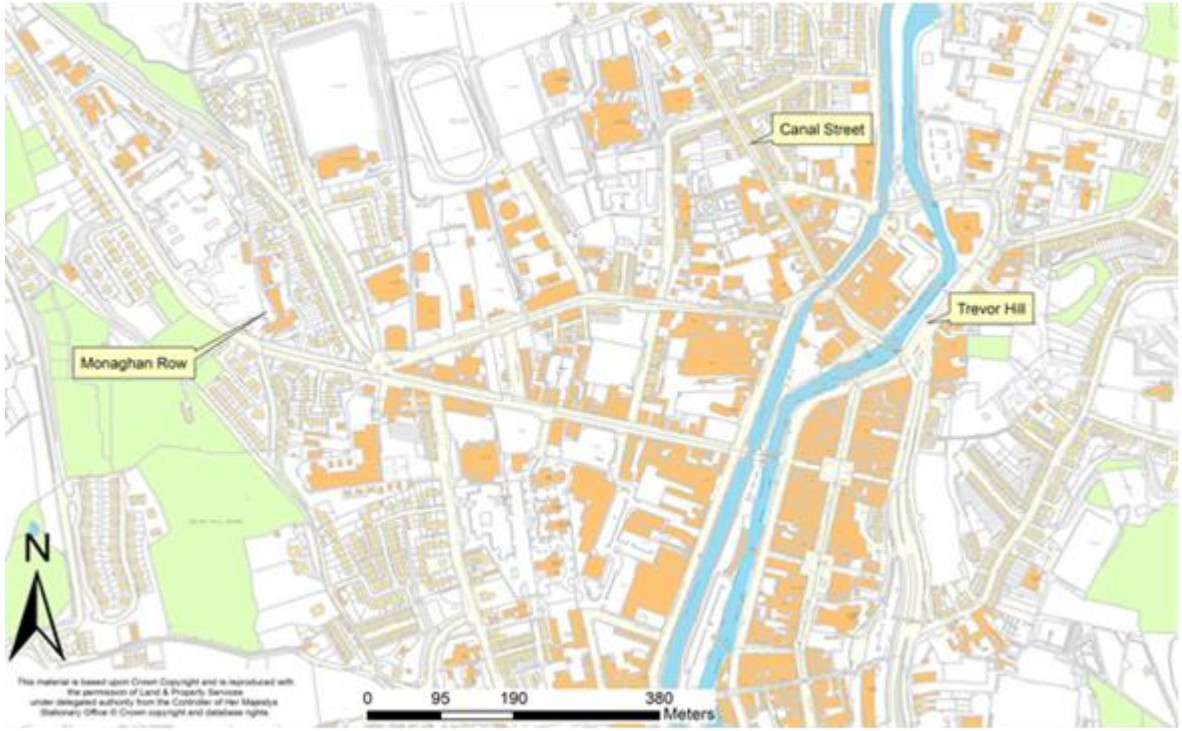
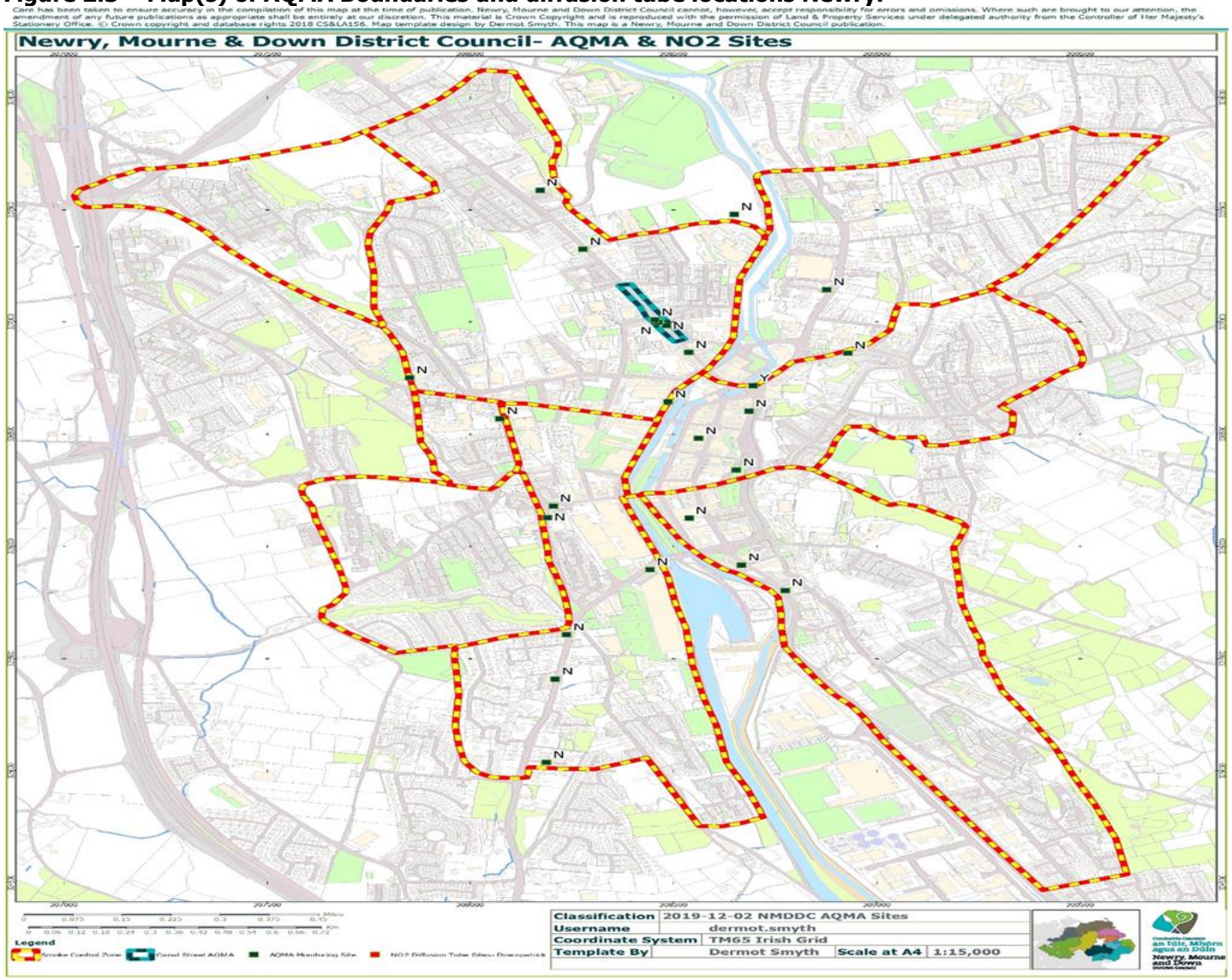


Figure 2.2- Newry Automatic Monitoring Stations



Note –Only Canal Street is still operating

Figure 2.3 – Map(s) of AQMA Boundaries and diffusion tube locations Newry.



2.1.2 Non-Automatic Monitoring Sites

In the calendar year 2018 Newry, Mourne and Down District Council deployed 31 NO_2 diffusion tubes per month at 29 sites within its District. One site at Canal Street was a triplicate site. The NO_2 diffusion tubes used were prepared and analysed by Socotec using the 50% TEA in acetone method. The laboratory methods are currently UKAS accredited.

Figure 2.4 NO_2 diffusion tube locations within Downpatrick

Table 2.2 – Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
83610	Monaghan Row	Urban background	307851	326751	2.5	NO_2	Y	N	N	50m	Y
84610	Lower Canal Street	Roadside	308562	326481	2.5	NO2	Y	N	Y	1m	Y
87268	14 Canal Street	Roadside	308538	326864	2.5	NO2	Y	N	Y	2m	Y
87241 87252 87253	Canal Street Station1,2,3	Roadside	308697	326715	2.5	NO2	Y	Y	Y	2m	Y
87242	63 Canal Street	Roadside	308483	326984	2.5	NO2	Y	N	Y	2m	Y
84609	Canal Street	Roadside	308463	326998	2.5	NO2	Y	N	Y	1m	Y
84611	Catherine Street	Roadside	308454	327009	2.5	NO2	Y	N	Y	2m	Y
87313	Southern ITEC	Roadside	308172	327586	2.5	NO2	Y	N	Y	2m	Y
87312	2 Mountain View Drive	Roadside	308650	327479	2.5	NO2	Y	N	Y	2m	Y
84649	59 Sandy Street	Roadside	308929	326861	2.5	NO2	Y	N	Y	1m	Y
87314	Abbey Way	Roadside	308655	326340	2.5	NO2	Y	N	Y	2m	Y
82651	Water Street	Roadside	308686	326602	2.5	NO2	Y	N	Y	1m	Y
87085	Market Office	Urban Background	308539	326125	2.5	NO2	Y	N	Y	25m	Y
85064	33 Kilmorey Street	Roadside	308668	325916	2.5	NO2	Y	N	Y	1m	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
87088	71 Kilmorey Street	Roadside	308775	325803	2.5	NO2	Y	N	Y	1m	Y
87089	4 Bridge Street	Roadside	308443	325896	2.5	NO2	Y	N	Y	2m	Y
87315	Loretto Park	Roadside	308188	325037	2.5	NO_2	Y	N	Y	2m	Y
85070	Basin View Terrace	Roadside	308237	325606	2.5	NO2	Y	N	Y	1m	Y
85077	Dominic Street	Roadside	308190	326128	2.5	NO2	Y	N	Y	2m	Y
87369	11 Armagh Road	Roadside	308278	327324	2.5	NO2	Y	N	Y	3m	Y
87370	21 Merchant Quay	Roadside	308487	326643	2.5	NO2	Y	N	Y	3m	Y
87371	31 Dublin Road	Roadside	308209	325408	2.5	NO2	Y	N	Y	1m	Y
87397	30 Irish Street	Roadside	348718	344579	2.5	NO2	N	N	Y	3m	Y
87398	10 English Street	Roadside	348608	344679	2.5	NO2	N	N	Y	3m	Y
87399	6 Church Street	Roadside	348633	344690	2.5	NO2	N	N	N	3m	Y
87400	13 Church Street	Roadside	348664	344728	2.5	NO2	N	N	N	3m	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
87401	19 Market Street	Roadside	348615	344572	2.5	NO2	N	N	Y	3m	Y
87402	40 Market Street	Roadside	348605	344527	2.5	NO2	N	N	N	3m	Y
87403	58 Irish Street	Roadside	348764	344536	2.5	NO2	N	N	Y	3m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

The existing monitoring network consists of two continuous monitoring stations at Canal Street, Newry and Market Street, Downpatrick and 31 NO_2 diffusion tubes at 29 sites across Newry, Mourne and Down District Council area.

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

In 2018 the Council monitored NO_2 at two sites, Market Street, Downpatrick and Canal Street, Newry.

Table 2.3 – Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2018 % [b]	Annual Mean Concentration (µg/m^3)				
					2014	2015[c]	2016* [c]	2017* [c]	2018
Canal Street	Roadside	Y	98.2	98.2	-	-	-	33	40
Market Street	Roadside	N	91.3	91.3	41	34	**44**	**47**	**47**

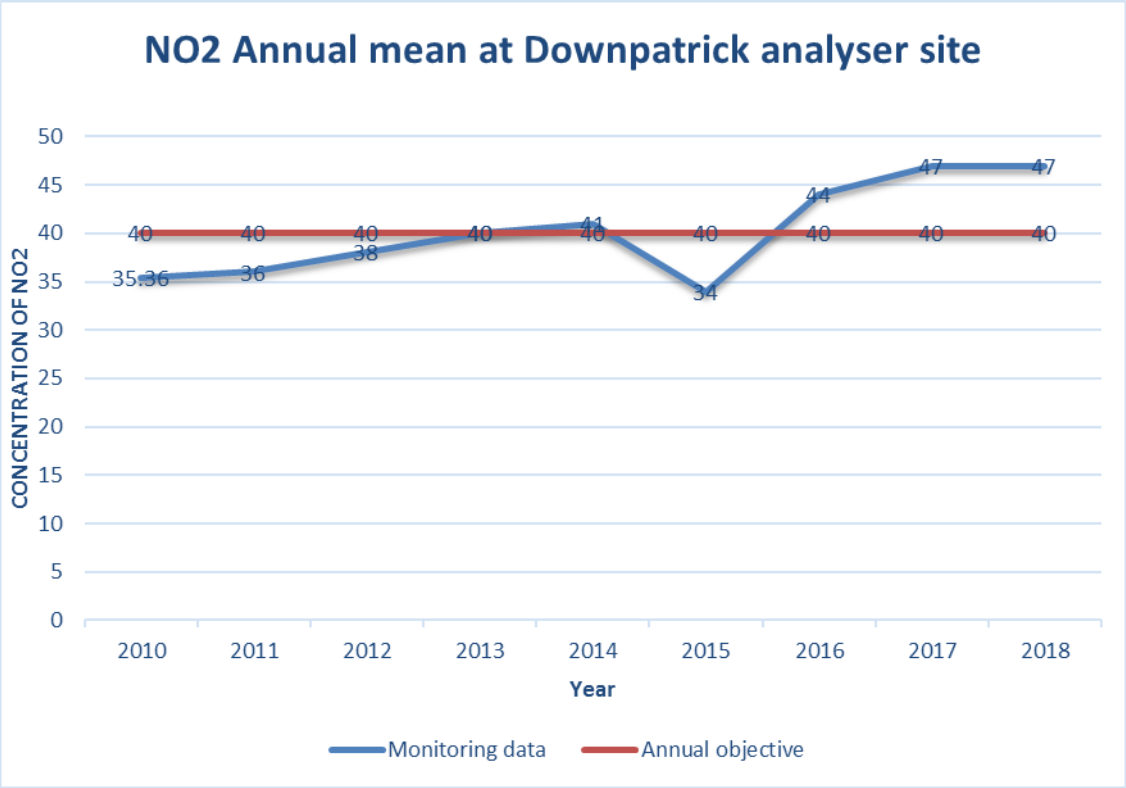
In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

Figure 2.5 – Trends in Annual Mean NO_2 Concentrations Measured at Downpatrick Automatic Monitoring Site



The annual mean concentration of NO_2 from 2010-2018 as displayed in Figure 2.5 shows an upward trend in levels culminating in breaches of the air quality objective in 2016, 2017 and 2018. Where it has been identified that an air quality objective will be exceeded at a location with relevant public exposure (as in this case), the Council is required to undertake a Detailed Assessment following the guidance set out in the Technical Guidance document. Where a likely exceedance is identified, the assessment should be sufficiently detailed to determine both its magnitude and geographical extent. The Council will not declare an AQMA until a Detailed Assessment has been completed and submitted. For the purposes of this Detailed Assessment additional NO_2 diffusion tubes

were placed along Market Street, Irish Street, English Street and Church Street, Downpatrick from January 2018. At the end of 2018 a full year of monitoring has occurred permitting a detailed assessment to be completed and submitted. It is important to recognise that the monthly NO_2 levels recorded by the automatic monitoring site in Market Street rose dramatically during January to April 2018. Although rises may be expected during this seasonal time the NO_2 analyser was defective as was reported in the previous Updating and Screening assessment (this station required replacement in Spring 2018) and results impacted upon.

Table 2.4 – Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2018 % [b]	Number of Hourly Means > 200µg/m^3				
					2014* [c]	2015* [c]	2016* [c]	2017* [c]	2018 [c]
Canal Street	Roadside	Y	98.2	98.2	-	-	**-**	0(147)	0
Market Street	Roadside	Y	91.3	91.3	0	0(117)	1	13	11

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] If the data capture for full calendar year is less than 85%, include the 99.8th percentile of hourly means in brackets

* Number of exceedences for previous years is optional

Diffusion Tube Monitoring Data

Table 2.5 – Results of NO_2 Diffusion Tubes 2018

Type in bold demonstrates an exceedance of the NO_2 annual mean AQS objective of 40µg/m3. The full data set is included in Appendix B.

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2018 (Number of Months) [a]	2018 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.77
83610	Monaghan Row	Urban background	Y	N	12	14
84610	Lower Canal Street	Roadside	Y	N	12	32
87268	14 Canal Street	Roadside	Y	N	12	29
87241 87252 87253	Canal Street Station1,2,3	Roadside	Y	Y	12	39
87242	63 Canal Street	Roadside	Y	N	12	33
84609	Canal Street	Roadside	Y	N	11	**49**
84611	Catherine Street	Roadside	Y	N	12	39
87313	Southern ITEC	Roadside	Y	N	12	23
87312	2 Mountain View Drive	Roadside	Y	N	12	18
84649	59 Sandy Street	Roadside	Y	N	12	39
87314	Abbey Way	Roadside	Y	N	12	23
82651	Water Street	Roadside	Y	N	12	**49**
87085	Market Office	Urban background	Y	N	11	18
85064	33 Kilmorey Street	Roadside	Y	N	12	**49**
87088	71 Kilmorey Street	Roadside	Y	N	12	**54**
87089	4 Bridge Street	Roadside	Y	N	12	31
87315	Loretto Park	Roadside	Y	N	12	14
85070	Basin View Terrace	Roadside	Y	N	12	34
85077	Dominic Street	Roadside	Y	N	12	32
87369	11 Armagh Road	Roadside	Y	N	11	39
87370	21 Merchant Quay	Roadside	Y	N	11	29
87371	31 Dublin Road	Roadside	Y	N	11	35
87397	30 Irish Street	Roadside	N	N	12	28
87398	10 English Street	Roadside	N	N	12	21
87399	6 Church Street	Roadside	N	N	12	**42**
87400	13 Church Street	Roadside	N	N	9	32

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2018 (Number of Months) [a]	2018 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.77
87401	19 Market Street	Roadside	N	N	9	32
87402	40 Market Street	Roadside	N	N	9	28
87403	58 Irish Street	Roadside	N	N	8	23*

*****calculated by using Box 7.10 of the government's local air quality management technical guidance LAQM.TG16. See appendix C.

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

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

[b] If an exceedance is measured at a monitoring site not representative of public exposure, NO_2 concentration at the nearest relevant exposure should be estimated based on the NO_2 fall-off with distance calculator (https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html), and results should be discussed in a specific section. The procedure is also explained in paragraphs 7.77 to 7.79 of LAQM.TG16.

Table 2.6 – Results of NO_2 Diffusion Tubes (2014 to 2018)

Site ID		Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
				2014 (Bias Adjustment Factor = 0.81)	2015 (Bias Adjustment Factor = 0.79)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.77)
83610	Monaghan Row	Urban background	Y	12	15	12	12	14
84610	Lower Canal Street	Roadside	Y	**58**	33	37	32	32
87268	14 Canal Street	Roadside	Y	-	27	26	26	29
87241 87252 87253	Canal Street Station1,2,3	Roadside	Y	-	-	-	36	39
87242	63 Canal Street	Roadside	Y	**45**	37	43	36	33
84609	Canal Street	Roadside	Y				**55**	**49**
84611	Catherine Street	Roadside	Y	**41**	39	**56**	39	39
87313	Southern ITEC	Roadside	Y	-	-	23	24	23
87312	2 Mountain View Drive	Roadside	Y	-	-	19	15	18
84649	59 Sandy Street	Roadside	Y	**52**	40	**41**	40	39
87314	Abbey Way	Roadside	Y	**-**	-	23	20	23
82651	Water Street	Roadside	Y	**42**	**48**	**46**	**50**	**49**
87085	Market Office	Urban background	Y	23	17	19	18	18
85064	33 Kilmorey Street	Roadside	Y	4**9**	**51**	**50**	**52**	**49**
87088	71 Kilmorey Street	Roadside	Y	-	-	-	**58**	**54**
87089	4 Bridge Street	Roadside	Y	34	31	33	30	31
87315	Loretto Park	Roadside	Y	-	17	14	12	14
85070	Basin View Terrace	Roadside	Y	33	34	34	34	34

Site ID		Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
				2014 (Bias Adjustment Factor = 0.81)	2015 (Bias Adjustment Factor = 0.79)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.77)
85077	Dominic Street	Roadside	Y	-	-	34	32	32
87369	11 Armagh Road	Roadside	Y	-	-	-	39	39
87370	21 Merchant Quay	Roadside	Y	-	-	-	32	29
87371	31 Dublin Road	Roadside	Y	-	-	-	39	35

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

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

[a] Means should be "annualised" as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

2.2.2 Particulate Matter (PM_{10})

In 2017 the Council monitored PM_{10} at Canal Street using a R & P Teom instrument. This instrument changed on 8th March 2017 to a BAM PM_{10} analyser.

Table 2.7 – Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2018 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)				
						2014* [c]	2015* [c]	2016* [c]	2017* [c]	2018 [c]
Canal Street	Roadside	Y	90.1	90.1	Y	33	28	29	19	19

In bold, exceedance of the PM_{10} annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Figure 2.6 – Trends in Annual Mean PM_{10} Concentrations

This figure demonstrates that the downward trend in PM_{10} concentrations has continued in the last five years. If this continues a Detailed assessment may be carried out.

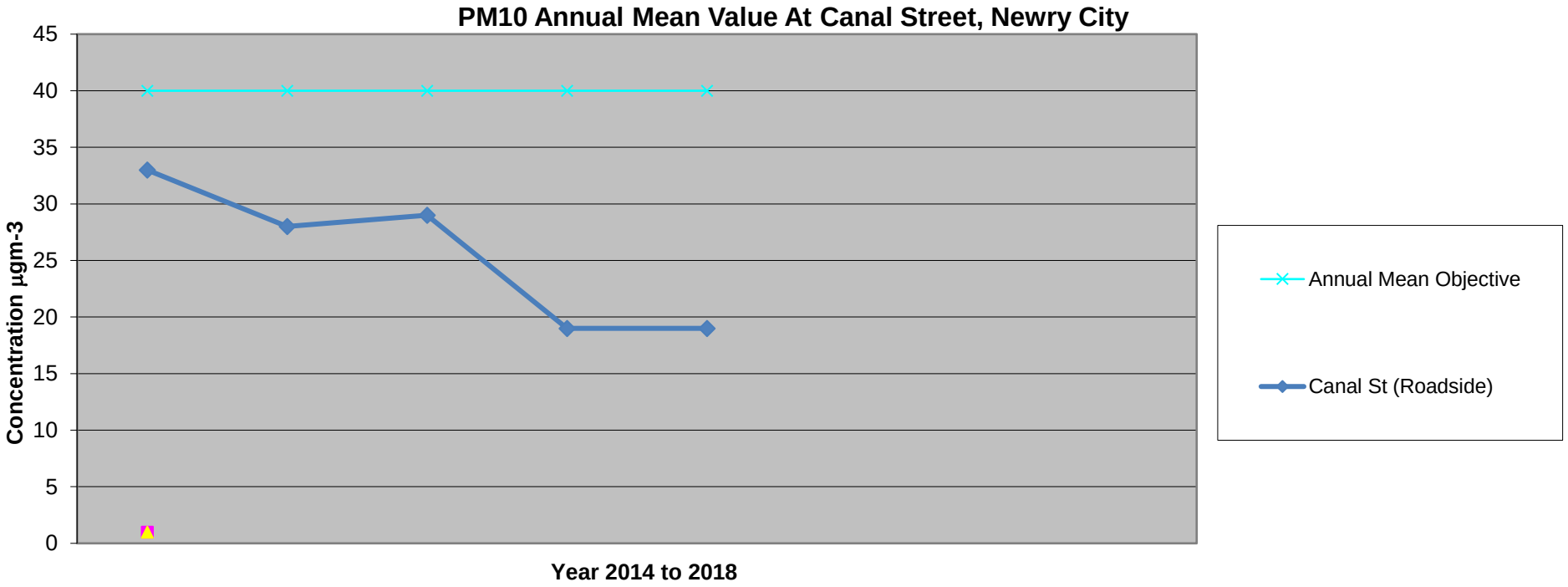


Table 2.8 – Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2018 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3				
						2014* [c]	2015* [c]	2016* [c]	2017* [c]	2018 [c]
Canal Street	Roadside	Y	90.1	90.1	Y	48	32	23	6	4

In bold, exceedance of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] if data capture for full calendar year is less than 85%, include the 90.4th percentile of 24-hour means in brackets

* Number of exceedances for previous years is optional

2.2.3 Sulphur Dioxide (SO_2)

In 2018 there was no monitoring of sulphur dioxide undertaken within the council area.

2.2.4 Benzene

In 2018 there was no monitoring of benzene undertaken within the council area.

2.2.5 Other Pollutants Monitored

In 2018 there were no other pollutants monitored within the council area.

2.2.6 Summary of Compliance with AQS Objectives

Newry, Mourne and Down District Council has measured concentrations of NO_2 above the annual mean objective at relevant locations in Downpatrick and **will need to proceed to an additional Detailed Assessment**, for the area at Market Street, Downpatrick.

Newry, Mourne and Down District Council's 2018 monitoring data also identified the following:

- No exceedance of annual mean objective for PM_{10}.
- No exceedance of daily mean objective for PM_{10}.
- 4 of the 27 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO_2) (40µg/m3)

3 New Local Developments

3.1 Road Traffic Sources

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

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

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

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

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

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

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

3.2 Other Transport Sources

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

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

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

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

3.3 Industrial Sources

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

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

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

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

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

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

3.4 Commercial and Domestic Sources

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

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

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

3.5 New Developments with Fugitive or Uncontrolled Sources

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

Newry, Mourne and Down District Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

Local authorities in Northern Ireland are responsible for reviewing the state of air quality in their district. To assist them with this process an air quality strategy(AQS) has been devised for the UK. This sets down standards and objectives for the air quality pollutants causing the problems and allows councils to review air quality in their area against these.

5 Planning Applications

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

6 Air Quality Planning Policies

Responsibility for Planning now lies with the local councils in Northern Ireland. The councils are responsible for:

- Local development planning
- Development Management
- Planning enforcement.

The Department of Infrastructure are responsible for:

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

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

In administering its planning function councils must take account of the Regional Development Strategy 2035 (RDS) (2010), and the Strategic Planning Policy Statement (SPPS) (2015), and any other policies or advice in guidance issued by the Department. The RDS represents the overarching regional planning framework, while the SPPS provides an overarching statement of the general planning principles underlying the planning system. Of particular relevance in the RDS is RG9: Reduce our carbon footprint and facilitate mitigation and adaption to climate change whilst improving air quality.

This guidance includes several mitigation measures in relation to air quality, including:

- Reducing noise and air pollution from transport
- Developing strong linkages between policies for managing air pollution and climate change
- Protecting Air Quality Management Areas

The Council is currently working on a new Area Plan for its district and it is anticipated that this will be completed shortly.

7 Local Transport Plans and Strategies

Public transport in Northern Ireland is delivered mainly through the actions of the Northern Ireland Transport Holding Company (NITHC) and its Translink operating subsidiaries; Metro, NI Railways and Ulsterbus. A key corporate aim is integration and co-ordination of services. Through the Ulsterbus Strategic Review (USR), Ulsterbus and Translink seek to establish a platform for change, which will create in Northern Ireland a network of services that is comparable with any modern transport system. This will result in the development of modern, efficient, reliable services that rival the private car in convenience, accessibility and value for money.

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

8 Climate Change Strategies

In terms of Climate Strategy, Newry Mourne and Down District Council is developing a Local Climate Adaptation Plan for the Council. This should be published in draft by late 2020.

9 Implementation of Action Plans

An Action Plan for the Newry (Urban Centre) AQMA was approved in April 2010. The Action Plan has on going and planned actions which have the potential to reduce NO_2 levels from traffic and background emissions within the designated AQMA. It is recognised that many of these measures will also contribute towards the wider strategic objectives of sustainable development and tackling climate change.

Table 9.1 below summarises progress made on the implementation of the Action Plan measures.

The monitoring by diffusion tubes in 2018 does show marginal downward trends in the annual mean NO_2 level within some streets which previously exceeded this air quality objective. It could therefore be argued that the Action Plan measures, actual and proposed, have created the building blocks for reducing levels of NO_2 within these areas. It is therefore argued that the implementation of the Action Plan measures are in pursuit of ensuring that annual mean objective for NO_2 is met at all relative exposure locations within Newry (Urban Centre) AQMA.

It is important that the existing and proposed Action Plan measures within the plan are implemented and built upon so that continual improvements can be made. Critical to this is the modal shift from car to other more sustainable modes of transport. To achieve this we cannot rely on people's altruistic behaviour; we must make that choice easier for them by providing modern efficient public transport facilities and services. For those who choose to walk or cycle we must ensure that their choice is safe and convenient. Newry, Mourne and Down District Council and other stakeholders continue to make the case for the Newry Southern Relief Road, which if implemented, has the potential to provide traffic relief to Newry City centre with the consequent improvements in local air quality. However, even if a decision to undertake this scheme was approved today it would take several years before it would open to traffic and therefore we cannot rely on this as the ultimate solution.

Table 9.1 – Action Plan Progress

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
1	DBFO 2 - A1 Beech Hill – Cloghogue. Project	Reduce traffic entering city centre thereby reducing emissions	Road Service	2007 - 2010	2008 - 2010	Completion of road	Not known	New road open to traffic July 2010	Complete	Complete	Not known
2	Expanded Strategic Road Improvement Programme 2015 – Southern Relief Road	Reduce traffic entering city centre thereby reducing emissions	Road Service	2011 onwards	Not determined	DRD Road Service to identify preferred route for the Southern Relief Road by 2011. Estimated Cost of scheme £100 - 210 million (depending on preferred route - Newry Southern Relief Road Feasibility Study Report August 2009)	Not known	The Department announced the Preferred Route in October 2018. Subsequent will help finalise the design used for the technical Scheme Assessment Reports, the Environmental Impact Assessment (EIA) and the draft Statutory Orders.	Ongoing	Not known	Not known

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

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

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
8	Improved bus stops and customer information	Encourage greater use of public transport against use of private vehicles thereby reducing emissions from private vehicles	Translink	2002 - 2015	2007 - 2015	Improvement to existing bus stops and increase to number of bus stops	Not known	From 07/08 to 08/09 there was a 10% increase in passenger numbers using Ulster bus, 08/09 to 09/10 saw a further 7% increase however, from 09/10 to 10/11 there has been an 8% reduction in passenger numbers.	There has been a 3% reduction in passenger numbers from 2014/2015 to 2015/2016. Again it is believed that the drop in passenger numbers is due to numbers of 'senior citizen' passengers reducing their number of journeys to city centre.	Ongoing	Not known
9	Provision of network of natural gas in Newry City	Providing natural gas as an alternative fuel over other fuels such as oil and coal which have higher emission rates of NO2	Firmus	Ongoing	Ongoing	Increased uptake of natural gas customers in Newry City	Not known	There are 2837 domestic properties converted to Firmus Energy Gas Network across the Newry area.	By close of 2018 there were 3393 properties converted to Firmus Energy Gas Network across the Newry area.	Ongoing	Not known
10	NIHE Energy Efficiency Improvement Programme	Improve energy efficiency of NIHE homes in AQMA thereby reducing energy consumption & emissions	NIHE	2018- 2021	NIHE's 2018/21 Energy Efficiency Programme includes 16 schemes at a cost of £8.9m.	Increased number of housing stock with improved energy efficiency and cleaner heating systems	Not known	Of the NIHE properties within Newry City 265 properties have gas-heating system and 737 have oil-heating system.	In 2018/19, the Energy Efficiency Programme included 165 installations at a cost of £0.84m.	Ongoing	Not known

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
11	Extension of Council ISO 14001 management system	Reduce the impact of Council services on the environment, including air quality. The Council, by leading by example, will encourage other businesses within the Council area to implement their own environmental management system	Council	2004 - 2011	2004 - 2011	Maintenance of ISO 14001 accreditation.	Not known	The council has not maintained the accreditation	. No progress in the last 12 months.		Not known

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
12	Establish a Workplace Travel Plan for NMDC	Reduce emissions from Council travel	Council	2009 - 2010	2010 - 2015	Achievement of targets set within Council Travel plan	Not known	Council purchased its first electric vehicle for use by an Enforcement Officer and installed an electric charging point at the Monaghan Row site. Further replacement of council fleet with less polluting vehicles, increased number of employees part of Cycle scheme	The council continue to use an electric vehicle for enforcement officer. The council have launched a new Cycle 2 Work Scheme and are encouraging employees to take part in the scheme.		Not known

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Newry, Mourne and Down District Council has measured concentrations of NO_2 above the annual mean objective at Market Street, Downpatrick outside of an AQMA and will be submitting an additional Detailed Assessment, for the area around Market Street Downpatrick. Newry, Mourne and Down District Council. 2018 monitoring data also identified the following:

- No exceedance of annual mean objective for PM_{10}.
- No exceedance of daily mean objective for PM_{10}.
- 4 of the 27 diffusion tubes located within Newry City Centre exceeded the annual mean objective for nitrogen dioxide (NO_2) (40µg/m3).

10.2 Conclusions relating to New Local Developments

There have been no new industrial installations or new commercial or fugitive source emissions within the Newry, Mourne and Down District Council area in 2018.

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

10.3 Other Conclusions

Section 9 of this report provides a summary of the progress in completion of actions within the Air Quality Action Plan. It is important that the existing and proposed Action Plan measures within the plan are implemented and built upon so that continual improvements can be made. Critical to this is the modal shift from car to other more sustainable modes of transport. To achieve this we cannot rely on people's altruistic behaviour; we must make that choice easier for them by providing modern efficient public transport facilities and services. For those who choose to walk or cycle we must ensure that their choice is safe and convenient.

10.4 Proposed Actions

Because of the defective analyser in Downpatrick during the early part of 2018 the annual air quality objective for NO_2 was exceeded in Market Street, Downpatrick. There was only one diffusion tube which did breach the objective in Downpatrick, but it is not near any receptors. Newry, Mourne and Down District Council will continue to monitor NO_2 in the centre of Downpatrick during 2019 and will proceed to an additional Detailed assessment and declaration of an AQMA if necessary.
Results within Newry city centre will be monitored during 2019 to ascertain the need for the current AQMA and Council will then proceed to Detailed Assessment.

11 References

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

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

Local Air Quality Management Technical Guidance (TG16)

Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Diffusion Tube Bias Adjustment Factors

The diffusion samples were analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance.'
The tubes were prepared by spiking acetone:triethanolamine (50:50) onto grids prior to the tubes being assembled. The tubes are desorbed with distilled water and the extract analysed using a segmented flow autoanalyzer with ultraviolet detection.
Please note:
(i) As set out in the practical guidance, the results were initially calculated assuming an ambient temperature of 11^{o}C, the reported values have been adjusted to 20^{o}C to allow for direct comparison with EU limits.
(ii) The reported results from the laboratory were not bias adjusted.

The National Bias Adjustment Factor for Socotec in 2019 was found to be 0.77 Cm/Dm. This was taken from spreadsheet version 09/19.

PM Monitoring Adjustment

The data from the PM_{10} monitor was subject to QA/QC inspection by Ricardo AEA for the 2018 monitoring period.

Short-term to Long-term Data adjustment

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

QA/QC of automatic monitoring

During 2018 Newry, Mourne and Down District Council had a QA/QC contract with Ricardo AEA. AQDM acted as the Data Management contractor. QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area.

QA/QC of diffusion tube monitoring

SOCOTEC is assessed annually by UKAS to establish conformance of the Laboratory Quality Procedures. In the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a Satisfactory laboratory.

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

Appendix B: Monthly diffusion tube results 2018

	Grid Ref Site Easting	Grid Ref Site Northing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average round up	Bias adjustment round up. 0.77
Water Street	308649	326461	69.8	73.5	67.7	63	62.5	61.8	53.9	53.9	56.3	80.6	59.3	59.3	63	49
11 Monaghan Row	307910	326642	16.5	19.3	22.9	14.4	15.1	15.7	11.9	11.9	32.2	20.5	16.7	16.7	18	14
13 Canal Street	308443	327016	55.9	80.4	72.5		60.4	70.1	56.9	56.9	57.2	56.8	66	66	64	49
Lower Canal Street	308444	327014	42.5	43.8	48.2	50.3	45.9	45.3	29.4	29.4	32.2	42.3	42.6	42.6	41	32
Catherine Street	308366	326939	58.1	57.6	45.6	57.4	49.6	49.5	41.3	41.3	39.5	52.7	56.4	56.4	50	39
59 Sandy Street	308927	326861	62.5	61.1	33	55.5	50.5	48.1	42.6	42.6	49.2	57.8	55.6	55.6	51	39
33 Kilmorey Street	308666	325911	66.3	71.5	65.8	58.9	61.6	66.3	58.1	58.1	54.6	75.9	58.2	58.2	63	49
Basin View Terrace	308237	325611	47.4	49.2	47.2	47.3	44.4	45	37.2	37.2	37.1	50.1	42.1	42.1	44	34
36 Dominic/Patrick Street	308171	326172	41	54.1	43.3	35.8	39.2	41.6	34.1	34.1	34.5	52.7	40.3	40.3	41	32
Market Office	308539	326129	25.3	28.4	31.2	23.9	20.6	21.7	17.8	17.8	16.8		28	28	24	18
71 Kilmorey Street	308775	325883	68.8	76	82	79.3	76.7	66.1	63.7	63.7	56	84.1	63.7	63.7	70	54
4 Bridge Street	308443	325896	36.4	42.8	47.4	43.5	40.8	45.3	31.6	31.6	27.8	45.1	45.6	45.6	40	31
Canal Street Stat 1	308484	326984	39.2	60	58.5	63.9	57.8	59.5	34.8	34.8	34.8	51.7	56.3	56.3	51	39
Canal Street Stat 2	308484	326984	41.2	60.2	69.3	64.1	59.2	57.6	47.3	47.3	36.6	46.4	44.7	44.7	52	40
Canal Street Stat 3	308484	326984	43.4	51.1	63.2	65.4	64.8	55.3	45.7	45.7	32.4	52.8	39.3	39.3	50	39
63 Canal Street	308526	326909	38.6	55.6	61.1	59.5	54.7	46.2	40.6	40.6	31.8	51.3	36.4	36.4	43	33
14 Canal Street	308443	324555	36.1	41.8	40.2	45.2	35.4	36.9	32.2	32.2	27.8	39.5	42.1	42.1	38	29
2 Mountain View Drive	308061	327616	29.2	30.3	32	25	18.8	19.3	13.8	13.8	16	28	27.9	27.9	24	18
Southern ITEC	308412	327076	35.7	35	30.5	31.1	25.4	25.6	21.1	21.1	23.1	35.4	36.8	36.8	30	23
Abbey Way	308727	326046	32.4	32.8	60.3	30.2	26.5	26.2	21.3	21.3	19	34.8	30.4	30.4	30	23
Loretto Park	308161	325040	20	23.6	21.9	18.1	14.8	14.9	13	13	15	22.1	20.8	20.8	18	14
Armagh Road	308279	327324	58.7	61.8	56.4	54.5	50.8	50.8	39.1	39.1	44.9		52.5	52.5	51	39
Merchants Quay	308487	326643	40.7	50.5	41.9	30.9	33.6	35.3	32	32	35		41.2	41.2	38	29
Dublin Road	308210	325408		52.4	41.2	45.3	43.6	50	41.9	41.9	44.2	54.5	43.8	43.8	46	35
30 Irish Street	348718	344579	38	43.1	41	39.1	37	49.8	28.2	28.2	34.2	36.6	35.6	35.6	37	28
10 English Street	348608	344679	31.2	30.4	22.3	27.7	21.5	23.6	20.4	20.4	21.3	29.4	40.4	40.4	27	21
6 Church Street	348633	344690	47.5	62.2	54.2	49.8	50.9	50.1	42.3	42.3	61.9	64.1	63.6	63.6	54	42
13 Church Street	348664	344728			47.2	39.8	39.6	43.7	34	34		42	45.7	45.7	41	32
19 Market Street	348615	344572			48.4	42	34.9	44.9	28.2	28.2		49.8	46.1	46.1	41	32
40 Market Street	348605	344527			39.9	39.5	36.2	38.3	29.5	29.5		34.1	43.5	43.5	37	28
58 Irish Street	348764	344536		29		31.2	27.5	32.8	24.2	24.2		33.2	25.9		29	22
Black- missing tube																

Appendix C- Annualising NO_2 Diffusion Tube data for Downpatrick tube site

Downpatrick Market Street Continuous Monitoring Site

2018 Nitrogen dioxide Annualised Mean = 47 µg/m^3

Downpatrick Market Street diffusion tube Monitoring Site

Short-term to Long-term Data Adjustment

Guidance for the treatment of continuous monitoring data requires that where annual mean results are based upon monitoring data of less than 9 months sampling, these means should be "annualised" in accordance with the procedures outlined in Box 7.10 of the government's local air quality management technical guidance LAQM.TG16.

To complete the annualisation process, councils are required to identify two to four nearby long-term background continuous monitoring sites for nitrogen dioxide. As there is only one background site in Northern Ireland monitoring nitrogen dioxide, Newry, Mourne and Down District Council has elected to use data from the Belfast Centre AURN (urban centre) and Belfast Stockmans Lane AURN (Roadside) sites.

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

Table A.1 – Short-Term to Long-Term Monitoring Data Adjustment

Site	Site Type	2018 Annual Mean	Diffusion tube Monitoring site	2018 Annual Mean for site sampling period	Ratio	Average Ratio (Ra)
Belfast Centre AURN Site	Urban Centre	27	Downpatrick Market Street	26.5	1.018	1.026
Stockmans Lane AURN Site	Roadside	49		47.38	1.034	

"M" is the measured mean concentration for the valid period which is the monitoring period of the Downpatrick site in 2018. The mean concentration for this eight-month period was 29µg/m^3.
M x Ra = Annual mean
29 x 1.026 = 29.76 µg/m^3