

2021 Updating and Screening Assessment for

Lisburn & Castlereagh City Council

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

November 2021



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Report Reference	LCCC 2021
number	
Date	November 2021

Executive Summary

The Air Quality Strategy has established the framework for air quality management in the UK. Local Authorities have a duty under the Environment Act 1995 and subsequent regulations to review and assess air quality in their areas on a periodic basis so as to identify all areas where the air quality objectives are being or are likely to be exceeded. A phased approach has been adopted for the review and assessment process so that the level of assessment undertaken is commensurate with the risk of an exceedence of an air quality objective.

An updating and screening assessment (USA) is required to be prepared every three years by all local authorities in the UK with two interim progress reports. The last updating and screening assessment of air quality was undertaken in 2018, this followed with a progress report in 2019 and 2020. This is the 2021 USA report for Lisburn and Castlereagh City Council (LCCC) and has been completed using the recommended template. The report is fully compliant with the applicable policy and technical guidance.

This report identified no exceedances with relevant exposure, of the Air Quality Strategy objectives during 2020 for any of the pollutants assessed. PM₁₀ results remained low although solid fuel use is still popular as a secondary source of heating in the LCCC area, NO₂ levels due to vehicle emissions although reduced still remain the main source of concern within LCCC which is one of the main commuter belts of Greater Belfast. The automatic monitoring site in Dundonald next to the Air Quality Management Area (AQMA) has shown a continued trend in a reduction of NO₂, the NO₂ diffusion tube sites across the council area showed a decrease in 2019, which may have been due to the growing popularity of the Park & Rides and the completion in 2018 of the new Rapid Transport system to the city centre. However, it is too early to establish a trend in the reduction of NO₂, and the large reduction in emissions in 2020 are more likely to have been a result of the low traffic flows during the COVID pandemic. LCCC launched a new initiative in 2019 in primary schools "Engine off Prevent the Cough", educating pupils and parents to the harmful emissions from vehicles with the emphasis on idling engines outside schools, unfortunately it was not run in 2020 due to COVID 19, it will continue in 2021 restrictions permitting. The Blaris Greenway walking and cycling path was completed in 2020, linking Sprucefield

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Shopping Centre and the Park & Ride to the existing tow path leading to Lisburn and Belfast City centres.

Monitoring shall continue within the AQMA and throughout the Council area using automatic monitoring stations and NO₂ diffusion tubes to ascertain further trends. In 2021 the AQMA shall remain in the Dundonald area as a continuing trend in a reduction of NO₂ has not been conclusive due to the pandemic, if this is established in future monitoring LCCC shall review the AQMA.

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<u>Appendix A</u> QA/QC Data of automatic sites QA/QC of Diffusion Tube Monitoring

1 Introduction

1.1 Description of Local Authority Area

LCCC has a population of 146,452 and an area of approximately 200 square miles. The area is of urban rural character and the predominant wind direction is from the Southwest. It is bounded by a number of other council areas and has the largest boundary with Belfast City Council. This has made LCCC a very popular residential area due to the ease of the commute to Belfast City Centre. There are several main arterial routes into Belfast City centre through LCCC, and the Council was located within Belfast Metropolitan Transport plan (www.infrastructure-ni.gov.uk/publications/belfast-metropolitan-transport-plan). Dundonald to the East also falls within the Belfast Rapid transport network completed in September 2018 https://www.infrastructure-ni.gov.uk/articles/belfast-rapid-transit-glider-introduction. Road transport remains one of the main concerns, however solid fuel use as a secondary fuel is still quite common in the Lisburn area.



Figure 1.1 Map showing position of LCCC within Northern Ireland

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Figure 1.2 Map of Rapid Transport route (glider bus) from Dundonald



1.2 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 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre μ g/m³ (milligrams per cubic metre, mg/m³ for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

	Air Quality Objective		Date to be
Pollutant	Concentration	Measured as	achieved by
Bonzono	16.25 μg/m³	Running annual mean	31.12.2003
Delizene	3.25 µg/m³	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m³	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m ³	Running 8-hour mean	31.12.2003
Load	0.5 µg/m ³	Annual mean	31.12.2004
Leau	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m ³	Annual mean	31.12.2005
Particles (PM10) (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
	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide	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

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

1.4 Summary of Previous Review and Assessments

Local authorities in Northern Ireland amalgamated on 1st April 2015 creating 11 new councils, the following reports have been submitted by Lisburn & Castlereagh City since the amalgamation.

- 2015 Update and Screening Assessment
- 2016 Progress report
- 2017 Progress report
- 2018 Update and Screening Assessment
- 2019 Progress report
- 2020 Progress report

MAPS of AIR QUALITY MANAGEMENT AREA (AQMA)

No's 2,6,10,1,5,7 Normandy Court Dundonald BT16 2LA

Figure 1.3 Map showing position of Dundonald Village within LCCC





Figure 1.4 Map showing position of AQMA in Dundonald Village

Figure 1.5 Ariel photograph showing position of AQMA in Dundonald Village



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Figure 1.6 Photograph showing position of Normandy Court within AQMA



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Lisburn & Castlereagh City Council has two automatic monitoring sites.

Kilmakee Activity Centre Seymour Hill

Measuring SO_2 and PM_{10} , and $PM_{2.5}$ to be added in 2021, this site also houses a Defra network PAH and black carbon monitor and therefore meets the requirements for the AURN specifications.

Data has been available from this site since Nov 2012. The 2016-2020 data is included in this report.

Dundonald

Measuring NOx using a chemiluminescence analyser, this site is within 30m of the AQMA. A co-location study for the NO₂ diffusion tubes is also carried out at this site. Results from this study were submitted to the national data base for 2020. Manual calibrations are carried out every two weeks by the Local Air Quality officer. Air Quality Data Management (AQDM) are employed to ratify and validate the data. A specialist engineer is employed to service and maintain the site as required. Results and correction factors are detailed in Appendix A



Figure 2.1 Position of the two air monitoring sites within LCCC



Figure 2.2 Position of Air monitoring site Kilmakee Activity Centre Seymour Hill

Kilmakee Activity Centre Seymour Hill

Figure 2.3 Position of Automatic Monitoring Site at Kilmakee Activity Centre



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Figure 2.4 Picture of Automatic Monitoring Stations at Kilmakee Activity Centre

Figure 2.5 Position of automatic monitoring site in Dundonald Village





Figure 2.6 Picture of Automatic Monitoring Station in Dundonald Village

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	Irish Grid Ref	Irish Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst- case exposure?
Kilmakee Activity Centre	Urban Background	E328956	N367973	PM ₁₀ , SO ₂	NO	TEOM UV Analyser	YES 10m	NA	YES
Dundonald Village	Roadside	E342016	N374041	NO ₂ ,	NO	Chemiluminescence	YES 22m	ЗМ	YES (30m from AQMA)

2.1.2 Non-Automatic Monitoring Sites

Lisburn and Castlereagh City Council in 2020 had 21 passive monitoring NO₂ diffusion tubes, at 18 roadside and background sites and a co-location study is also carried out at the automatic station in Dundonald. Most are positioned along the main arterial routes into Belfast, triplicate tubes are positioned on the façade of Normandy Court within the AQMA. Two new sites were identified in 2018 and established in 2019 these where, Blaris Green / Drive and Knockmore Road and tube 13 Blaris Road was relocated in 2019 due to vandalism (tube 13a). In 2020 a new site was established at Cairnshill Park & Ride next to residential properties at the entrance, plans to extend this site were under discussion.

Results from the co-location study at the automatic station in Dundonald, were submitted into the national data base for 2020.

The diffusion tube studies for the past five years do not show any particular trends outside of the AQMA (See Fig. 2.18) although there was an encouraging reduction in 2019, this coincides with the opening of the Park & Ride in 2014 and the new Rapid transport System coming into operation in September 2018, in 2019 the Park & Rides had grown in popularity. In 2020 there was another significant reduction at all the NO₂ sites, however this was during the COVID restrictions, the traffic flows on all the main commuter routes through LCCC to Belfast City centre were greatly reduced during lockdown and this continued when lockdown was lifted as home working and schooling continued during the remainder of 2020, therefore the COVID restrictions were probably the reason for this significant reduction.

The NO₂ diffusion tubes were supplied and analysed by Gradko Environmental.

Details of the QA/QC for the diffusion tubes and the reason for the use of the bias adjustment factor can be found in Appendix A

Below are maps of the diffusion tube sites, and the new site identified in 2020.

Figure 2.7 Map(s) of Non-Automatic Monitoring Sites





Figure 2.8 Position of tube 1. Dundonald village in AQMA(Normandy Court), and Comber Road Dundonald

Figure 2.9 Picture of NO₂ Tubes on AQMA Normandy Court Dundonald





Figure2.10 Position of tubes Castlereagh area (Newtownbreda)

Figure 2.11 Position of tube Saintfield Road, Carryduff



Figure2.12 Position of tube Seymour Hill

Figure 2.13 Position of tubes in Lisburn City



Figure 2.14 Map of the tube in Hillsborough



Figure 2.15 Position of the tube in Main Street Moira





Figure 2.16 Position of new tube site 18 (Cairnshill Park & Ride)

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?
1	Normandy Court Dundonald (AQMA)	Roadside	341991	374013	3m	NO ₂	Yes	No	Yes (0m)	0.5m	Yes
2	Newtownbreda Road Castlereagh	Roadside	335246	370061	2.5m	NO ₂	No	No	Yes (7m)	2.5m	Yes
3	Saintfield Road Carryduff	Roadside	336832	365625	2m	NO ₂	No	No	Yes (70m)	10m	Yes
	Ventnor Pk Lambeg	Background	326900	362013	2.5m	NO ₂	No	No	No (6m)	0.5m	No
4	Seymour Hill	Background	328585	368117	2.5m	NO ₂	No	No	No (50m)	100m	
5	Antrim Rd Lisburn	Roadside	326313	364621	2.5m	NO ₂	No	No	Yes (7m)	1m	Yes
6	Benson Street Lisburn	Roadside	326090	364619	2m	NO ₂	No	No	Yes (0.1m)	Yes	Yes
7	Sloan Street Lisburn	Roadside	327236	364102	2.5m	NO ₂	No	No	Yes (1.5m)	2m	Yes

Table 2.2 Details of Non-Automatic Monitoring Sites

Relevant Exposure? ls Distance Does this (Y/N with Monitorina to Kerb of Location Site **Co-located** distance (m) X OS Grid Y OS Grid Site **Pollutants** In Nearest Represent Site Type Site Name Height with a from ID Reference Reference Monitored AQMA? Road (m) Worst-(m) Continuous monitoring (N/A if not Case Analyser site to applicable) Exposure? (Y/N) relevant exposure) Yes (1m) Façade of Sprucefield Roadside garage 8 327586 Yes 363586 2m NO₂ No No 15m Court Lisburn adjacent to house from road Harry's Road Roadside 323811 No No 5m Yes 360577 3m NO₂ Yes (10m) Culcavv **Culcvavy Road** Roadside Yes (10m) Yes 323849 360318 2.5m NO₂ No No 2m Culcavv **Comber Road** 9 Roadside 341731 373666 2.5m NO₂ No No Yes (4m) 1.5m Yes (Comber side) **Comber Road** 10 Yes (4m) Roadside 341622 373759 2.5m NO₂ No No 1.5m Yes (Belfast side) 11 Hillsborough Roadside 324404 358876 2m NO₂ No No Yes (0.1m) 1m Yes 58-62 Main 12 Yes (4m) Roadside 314994 360589 3m NO₂ No No 1.5m Yes Street,Moira Blaris Road 13 2.5m No Yes (4m) Yes Roadside 325993 362462 NO₂ No 1.5m Lisburn Blaris Road 13a Roadside 325993 362462 2m NO₂ No No Yes (0m) 5.5m Yes Lisburn facade Saintfield Road 14 2.5m No Roadside 327810 363609 NO₂ No Yes (4m) 1.5m Yes Lisburn

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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?
15	Moira Road Lisburn	Roadside	324169	363671	2.5m	NO ₂	No	No	Yes (4m)	1.5m	Yes
16.	Blaris Green/Drive	Roadside	325883	362501	2.5m	NO ₂	No	No	Yes (7m)	1m	Yes
17.	Knockmore Road	Roadside	324883	365180	2.5m	NO ₂	No	No	Yes (19m)	1.5m	Yes
18	Cairnshill Park & Ride	Roadside	335702	368362	2.5m	NO ₂	No	No	Yes (7m)	1.5m	Yes

(Site listed in orange was new in 2020)

(Sites listed in purple were new in 2019)

(sites listed in blue were new in 2017)

(sites listed in green were re-located to new sites in 2017)

2.2 Comparison of Monitoring Results with Air Quality Objectives

No exceedances of the AQS objectives have been identified from the monitoring data collected since the last progress report. All monitored pollutant concentrations outside of the AQMA have been below their respective air quality objective limits at relevant exposure. In the following section results are presented for NO₂ at the automatic and diffusion tube sites and compared with the objective.

2.2.1 Nitrogen Dioxide

In the following section results are presented for NO₂ at the automatic and diffusion tube sites and compared with the objective.

Automatic Monitoring Data

Table 2.3 presents the annual mean concentrations of NO₂ determined at the automatic site in 2020 from the hourly measurements.

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

Site ID	Site Type	Within AQMA?	Valid Data	Valid Data Capture 2020 % ^b	Annual Mean Concentration (µg/m ³)					
			Capture for Monitoring Period % ^a		2016	2017	2018	2019	2020	
Castlereagh Dundonald	Roadside	N (within 30M)	N/A	100%	27	27	24	22	17	

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

	Site Type		Valid Data	Valid Data Capture 2020 % ^b	Number of Hourly Means > 200µg/m ³					
Site ID		Within AQMA?	Capture for Monitoring Period % ^a		2016	2017	2018	2019	2020	
Normandy Court Dundonald (AQMA)	Roadside	Y	N/A	100%	0	0	0	0	0	

In bold, exceedence of the NO₂ annual mean AQS objective of 40μ g/m³

^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

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Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Sites

The automatic station was installed in Dundonald in 2008 because of high results from NO₂ tubes at the Upper Newtownards Road site at Normandy Court. Results have shown a steady reduction in results since 2015, with a significant reduction by 2019, this coincides with the opening of the Park & Ride in 2014 and the new Rapid transport System coming into operation in September 2018, in 2019 the Park & Ride was at full capacity during working hours. In 2020 there was another significant reduction in the NO₂ results at the automatic site, however the 19% reduction from the previous year was during the COVID restrictions, the traffic flow through Dundonald was greatly reduced during lockdown and this continued when lockdown was lifted as home working and schooling continued during the remainder of 2020, therefore the probably reason for this significant reduction. The continued trend of a reduction in NO₂ emissions through Dundonald village due to the introduction of the Rapid Transport System is inconclusive in 2020

. Figure 2.17 trend in annual mean NO2 at Dundonald Automatic site



Diffusion Tube Monitoring Data

Results at the NO₂ diffusion tube sites, situated within the council area are shown below in Table 2.5. They are sited in accordance with the technical guidance LAQM.TG (16)

A diffusion tube co-location study was carried out at the Dundonald automatic site. The results of this study have been submitted into the national data base. The 2020 local bias was **0.75**. As in previous years a decision has been made to apply the national bias adjustment factor of **0.81**, as based on 27 studies this was deemed to be a more realistic figure. All diffusion tube sites are below the objective at relevant exposure. The Kerbside site Newtownbreda Road has been distance calculated to the nearest relevant exposure, in 2019 the Blaris Road site was re-located to the façade of the nearest property and a further site was added at Blaris Green opposite, where a new residential development is nearing completion. A new site was established at the entrance of Cairnshill Park & Ride next to residential properties as plans to extend this site were under discussion. Details of the QA/QC for the diffusion tubes and the reason for the use of the bias adjustment factor **0.81** can be found in Appendix A

Within the Lisburn area the Sprucefield Court site has produced the highest monitored results due to its proximity to the M1 motorway, but remains below the objective along with the extended monitoring in this area at Blaris Road. The Normandy Court Dundonald NO₂ tube site within the AQMA showed a further reduction in 2019, this was most likely due to the Park & Ride in Dundonald which opened in 2014 which had continued to grow in popularity since the completion in September 2018 of the new Glider Rapid Transport Network from Dundonald with a direct link to Belfast City, and was regularly found to be at capacity. Although the results of the NO₂ diffusion tube sites were reduced in 2020, to a large extent the COVID pandemic will have been the contributing factor. Traffic flows which

have been deemed to be the main source of NO₂ emissions within the LCCC area were greatly reduced during lockdown, and home working and schooling also had a large impact on traffic flows for the remainder of 2020, due to this LCCC will continue to monitor NO₂ in Dundonald to establish if existing measures continue to show a trend in reducing NO₂ within the AQMA.

Trends for the 18 diffusion tube sites within the Council area are shown in Figure 2.18

					Data Capture	Data with less than 9	Confirm if data has	Annual mean concentration
				Triplicate	2020	months has	been	(Bias Adjustment
Sito			Within	Or Collocated	(Number	been	distance	factor = 0.81)
ID	Location	Site Type	AQMA?	Tube	or %)	(Y/N)	(Y/N)	2020 (µg/m³)
1	Normandy Court Dundonald (AOMA)	Roadside	Y	Triplicate	10 months	N/A	N	23
2	Newtownbreda Road	Roadside	N	single	10 months	N/A	v	23.7 ^b
3	Saintfield Road Carryduff	Roadside	N	single	10 months	N/A	N	11
4	Seymour Hill	Background	Ν	single	9 months	N/A	Ν	17
5	Antrim Rd Lisburn	Roadside	N	single	9 months	N/A	N	20
6	Benson Street Lisburn	Roadside	N	single	10 months	N/A	N	18
7	Sloan Street Lisburn	Roadside	N	single	10 months	N/A	Ν	23
8	Sprucefield Court Lisburn	Roadside	N	single	10 months	N/A	Ν	26
9	Comber Road (Comber side)	Roadside	N	single	10 months	N/A	N	18
10	Comber Road (Belfast side)	Roadside	N	single	10 months	N/A	N	17
11	Hillsborough	Roadside	N	single	10 months	N/A	N	20

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				Triplicate or	Data Capture 2020 (Number	Data with less than 9 months has been	Confirm if data has been distance	Annual mean concentration (Bias Adjustment factor = 0.81)
Site ID	Location	Site Type	Within AQMA?	Collocated Tube	of Months or %)	annualised (Y/N)	corrected (Y/N)	2020 (μg/m³)
12	58-62 Main Street Moira	Roadside	N	single	10 months	N/A	N	20
13a	Blaris Road Lisburn facade	Roadside	Ν	single	9 months	N/A	Y	24
14	Saintfield Road Lisburn	Roadside	N	single	12 months	N/A	Ν	23
15	Moira Road Lisburn	Roadside	N	single	10 momths	N/A	N	17
16.	Blaris Green/Drive	Roadside	N	single	10 momths	N/A	Ν	23
17.	Knockmore Road	Roadside	N	single	9 months	N/A	Ν	24
18	Cairnshill Rark & Ride	Roadside	N	single	10 months	N/A	Ν	20

Sites in blue were new in 2017, sites in purple were new in 2019 Sites in orange were new in 2020

^a This site has been "annualised" as in Boxes 7.9 and 7.10 of LAQM.TG16, as full calendar year data capture was less than 75%

^b These sites have been distance calculated to the nearest relevant exposure using the following tool "<u>NO₂ fall-off with distance</u>" calculator (<u>http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html</u>),

			Annual mean con	centration (adjuste	ed for bias) μg/m ³		
Site ID	Site Type	Within AQMA?	2016 (Bias Adjustment Factor =0.92)	2017 (Bias Adjustment Factor = 0.89)	2018 (Bias Adjustment Factor = 0.93)	2019 (Bias Adjustment Factor = 0.92)	2020 (Bias Adjustment Factor = 0.81)
1	Normandy Court Dundonald (AQMA)	Roadside	39	40	34	31	23
2	Newtownbreda Road Castlereagh	Roadside	33 ^b	31 ^b	32 ^b	31 ^b	23.7 ^b
3	Saintfield Road Carryduff	Roadside	17	19	23	17	11
	Ventnor	Background	14				
4	Seymour Hill	Roadside		14	18	17	17
5	Antrim Rd Lisburn	Roadside	29	27	30	27	20
6	Benson Street Lisburn	Roadside	27	26	28	26	18
7	Sloan Street Lisburn	Roadside	34	26	32	28	23
8	Sprucefield Court Lisburn	Roadside	37	39	38	34	26
	Harry's road Culcavy	Roadside	20				
	Culcavy Road	Roadside	17				
9	Comber Road (Comber side)	Roadside		28	25	24	18
10	Comber Road (Belfast side)	Roadside		29	28	23	17

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2016 to 2020)

Lisburn & Castlereagh City Council

			Annual mean cor	ncentration (adjust	ed for bias) μg/m³		
Site ID	Site Type	Within AQMA?	2016 (Bias Adjustment Factor =0.92)	2017 (Bias Adjustment Factor = 0.89)	2018 (Bias Adjustment Factor = 0.93)	2019 (Bias Adjustment Factor = 0.92)	2020 (Bias Adjustment Factor = 0.81)
11	Hillsborough	Roadside	28	27	29	25	20
12	58-62 Main Street Moira	Roadside	30	29	29	26	20
13	Blaris Road Lisburn	Roadside		28 ^b	29 ^b	N/A	
13a	Blaris Road Lisburn facade	Roadside				31 _a	24
14	Saintfield Road Lisburn	Roadside			33	29	23
15	Moira Road Lisburn	Roadside		25	25	23	17
16	Blaris Green/Drive	Roadside				27	23
17	Knockmore Road	Roadside				32	24
18	Cairnshill Rark & Ride	Roadside					20

(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%

(b) If an exceedence is measured at a monitoring site not representative of public exposure, NO2 concentration at the nearest relevant exposure should be estimated based on the "NO2 fall-off with distance" calculator (http://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.figures in red are the distance calculated figures

In bold, exceedence of the NO₂ annual mean AQS objective of 40µg/m³

<u>Underlined</u>, annual mean > 60µg/m³, indicating a potential exceedence of the NO₂ hourly mean AQS objective





2.2.2 PM₁₀

Automatic monitoring of PM₁₀ in 2020 was undertaken at Kilmakee Activity Centre, Rowan Drive, Seymour Hill situated between Lisburn City and Belfast City.

This location is also the site for the AURN PAH and Black Carbon monitors and was chosen due to the high use of secondary solid fuel use.

In 2020 measurements were recorded using a TEOM instrument, this instrument will be upgrade to a FIDAS 200 in 2021, the results are ratified and adjusted accordingly by AQDM, the data management company.

Summaries of this data, with regard to annual and hourly mean objectives, are presented below.

All results remain below the objective.

Table 2.7 Results of Automatic Monitorin	g of PM₁₀: Comparison with	Annual Mean Objective
--	----------------------------	-----------------------

	Site Type	Within AQMA ?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2020 % ^b	Confirm	Annual Mean Concentration (µg/m ³)					
Site ID					Gravimetric Equivalent (Y or N/A)	2016	2017	2018	2019	2020	
Kilmakee Activity Centre (PM ₁₀)	Urban Background	Ν	N/A	98.2%	Y	12	11	14	14	12	

Table 2.8 – Results of Automatic Monitoring for PM₁₀: Comparison with 24-hour Mean Objective

	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2020 % ^b	Confirm	Number of Daily Means > 50µg/m ³					
Site ID					Gravimetric Equivalent (Y or N/A)	2016	2017	2018	2019	2020	
Kilmakee Activity Centre (PM ₁₀)	Urban Background	Ν	N/A	98.2%	Y	2	0	0	0	0	

^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 is less than 90%, include the 90th percentile of 24-hour means in brackets

* Optional

Trends in Annual Mean PM₁₀ Concentrations

PM₁₀ has remained consistently low in Dunmurry

2.2.3 Sulphur Dioxide

Lisburn and Castlereagh City Council have an SO₂ automatic site situated at Kilmakee alongside the PM₁₀ and PAH analysers, installed at the end of 2012. This site was chosen due to high PAH results in the area and across Northern Ireland compared to the rest of the UK, there is secondary high solid fuel use in the area and it is adjacent to relevant exposure. There were no exceedences of the air quality objective in 2020.

The data has been fully ratified by AQDM.

Details of the QA/QC are available in Appendix A

Table 2.9 Results of Automatic Monitoring of SO₂: Comparison with Annual Mean Objectives 2020

		Within	Valid Data Captura for	Valid Data	Number of exceedances:				
Site ID	Site Type	AQMA?	Monitoring Period % ^a	Capture 2020 ^b	15-minute Means > 266µg/m ³	1-hour Means > 350µg/m ³	24-hour Means > 125µg/m ³		
Kilmakee Activity Centre Dunmurry	Urban Background	Ν	100	100%	0	0	0		

^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 is less than 90%, include the relevant percentile in brackets

Trends in SO₂ Concentrations

Results have remained very low at this site.

2.2.4 Benzene

No monitoring of Benzene is carried out in 2020.

2.2.5 Other pollutants monitored

PAHs

Polycyclic aromatic hydrocarbons (PAH)

The national network monitoring for PAH includes three monitoring sites in Northern Ireland, Kilmakee Activity Centre, Seymour Hill in LCCC is one of these. The UK National Air Quality Objective for PAH is an annual average of 0.25ng /m3, the EU limit value for PAH is an annual average of 1ng BaP/m3. The Kilmakee site is below the EU objective but over the UK nonmandatory objective. Results did show an increase in 2016 which is most probably climatic as the Derry site showed a similar percentage increase and there have been no new local developments, the 2020 results have remained consistent.

Site	2015	2016	2017	2018	2019	2020
	ng/m³ annual					
	mean	mean	mean	mean	mean	mean
Derry	0.85	1.29	0.86	0.80	0.82	0.49
Ballymena	0.55	0.52	0.64	0.37	0.44	0.47
Kilmakee	0.33	0.48	0.35	0.26	0.38	0.23

Table 2.10 PAH results 2015 - 2020.

Figure 2.19 Trends in PAH Northern Ireland



LAQM USA 2021

2.2.6 Summary of Compliance with AQS Objectives

Lisburn and Castlereagh City Council has examined the results from monitoring in the area. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Lisburn and Castlereagh City 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

Lisburn and Castlereagh City 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.

Lisburn and Castlereagh City Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Lisburn and Castlereagh City 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

Lisburn and Castlereagh City Council confirms that there are no new/proposed roads meeting the criteria in Table 7.1 of Chapter 7 of LAQM.TG16

3.6 Roads with Significantly Changed Traffic Flows

Lisburn and Castlereagh City Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Lisburn and Castlereagh City Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Lisburn and Castlereagh City confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Lisburn and Castlereagh City 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

Lisburn and Castlereagh City Council confirms 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)

Lisburn and Castlereagh City Council confirms that there are no ports or shipping 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

Lisburn and Castlereagh City 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

Lisburn and Castlereagh City 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

Lisburn and Castlereagh City 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.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Lisburn and Castlereagh City Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Lisburn and Castlereagh City Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 **Biomass Combustion – Individual Installations**

Lisburn and Castlereagh City Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Lisburn and Castlereagh City Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Lisburn and Castlereagh City Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Lisburn and Castlereagh City Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 **Conclusions and Proposed Actions**

8.1 Conclusions from New Monitoring Data

All monitoring at relevant exposure within the Council Area have not shown an increase at key locations in 2020 and are below the objective. The COVID lockdown and change in living showed no impact on the PM₁₀ results but with the reduction in traffic flows did have an impact on the reduction of the NO₂ levels across the area.

The NO₂ levels within the AQMA in Dundonald continued to reduce in 2019, which was a positive early indicator of a trend in reduced vehicle emissions in the village since the new Rapid Transport System (Glider Bus) commenced in 2018 from the Park & Ride. There was a further 19% reduction in 2020 however it would be difficult to determine how much of this was due to COVID in 2020, therefore before a review of the AQMA can be carried out Lisburn & Castlereagh City Council shall continue monitoring at this location in 2021 to establish a further trend in NO₂ levels.

8.2 Conclusions from Assessment of Sources

No new sources were identified.

8.3 **Proposed Actions**

This 2021 Update and Screening Report for LCCC has identified there is no need to proceed to a detailed assessment for any of the pollutants, all monitoring sites are sited in accordance with the guidance and at relevant exposure and shall remain in 2021.

Monitoring shall continue at all locations in 2021 until a more normal living trend is established and LCCC shall look at moving forward with educational initiatives in 2021.

9 References

TG (2009) Part IV of the Environment Act 1995. Local Air Quality Management: Technical

Guidance LAQM.TG(16). Guidance prepared by the Department for Environment, Food and Rural Affairs, February 2016

Appendix A:

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

QA/QC Data of automatic sites

Lisburn City & Castlereagh City Council commissioned AQDM Technology to provide the QA/QC of the automatic measurements of NO₂, SO₂, PM₁₀, for the Kilmakee, Seymour Hill and Dundonald A20 sites. Local authority staff act as the local site operator and visit the sites on a weekly basis carrying out any manual calibration or filter changes required. The sites were repaired as necessary and ESU1 were contracted to service the sites.

Automatic station reports produced by data management company

Produced by AQDM on behalf of Lisburn



Air Quality Statistics

Pollutant	NO ₂	NO	NOx
Number Very High #	0	-	-
Number High #	0	-	-
Number Moderate #	0	-	-
Number Low #	8782	-	-
Maximum 15-min mean	128 µg m- ³	397 µg m-3	723 µg m-3
Maximum hourly mean	107 µg m- ³	337 µg m- ³	593 µg m-3
Maximum running 8-hr mean	70 µg m- ³	177 µg m-³	320 µg m- ³
Maximum running 24-hr mean	53 µg m ⁻³	101 µg m ⁻³	197 µg m ⁻³
Maximum daily mean	51 µg m ⁻³	83 µg m ⁻³	175 µg m ⁻³
Average	17 µg m-³	13 µg m-³	37 µg m-3
Data capture	100.0 %	100.0 %	100.0 %

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

Air Quality Exceedences

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Max Conc	Number	Days	Allowed	Exceeded
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	17 µg m ⁻³	0	-	-	No
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	107 µg m-3	0	0	18 hours	No

LISBURN DUNMURRY SEYMOUR HILL 2020 Air Quality Statistics

Pollutant	PM10 ⁺	PM10*	SO ₂	Wind Dir	Wind Speed
Number Very High #	0	-	0	-	-
Number High #	0	-	0	-	-
Number Moderate #	0	-	0	-	-
Number Low #	365	-	34930	-	-
Maximum 15-min mean	-	90 µg m ⁻³	16 µg m ⁻³	-	5.0 m/s
Maximum hourly mean	78 µg m-3	65 µg m- ³	13 µg m- ³	-	5.0 m/s
Maximum running 8-hr mean	54 µg m ⁻³	50 µg m ⁻³	9 µg m ⁻³	-	5.0 m/s
Maximum running 24-hr mean	37 µg m ⁻³	28 µg m ⁻³	5 µg m ⁻³	-	3.8 m/s
Maximum daily mean	36 µg m-3	26 µg m-3	4 µg m-3	-	2.9 m/s
Average	12 µg m-3	11 µg m-3	0 µg m-3	-	0.7 m/s
Data capture	98.2 %	98.2 %	100.0 %	77.8 %	78.5 %

Daily Air Quality Index (DAQI) as defined by COMEAP January 2012 and revised April 2013

* PM₁₀ as measured by a TEOM using the VCM for Indicative Gravimetric Equivalent

* PM₁₀ as measured by a TEOM

Mass units for the gases are at 20'C and 1013mb

Air Quality Exceedences

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Max Conc	Number	Days	Allowed	Exceeded
PM₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	36 µg m ⁻³	0	0	35 days	No
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m-3	12 µg m-³	0	-	-	No
Sulphur Dioxide	15-minute mean > 266 µg m-3	16 µg m ⁻³	0	0	35 15 mins	No
Sulphur Dioxide	Hourly mean > 350 µg m-3	13 µg m- ³	0	0	24 hours	No
Sulphur Dioxide	Daily mean > 125 µg m⁻³	4 µg m ⁻³	0	0	3 days	No
Sulphur Dioxide	Annual mean > 20 µg m-3	0 µg m ⁻³	0	-	-	No

QA/QC of Diffusion Tube Monitoring

In 2020 the NO₂ tubes were supplied, prepared, and analysed by Gradko International Limited, using the preparation method 20%TEA/Water

Diffusion Tube Bias Adjustment Factors

Factor from Local Co-location Studies

A co-location study was carried out at the Dundonald site, and the data submitted to the national data base.

https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/

National Diffusion Tube	tional Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadst	neet Version Number: 09/21			
Follow the steps below in the correct order	r to show the results	of <u>relevant</u> c	o-loca	tion studies				This	spreadshe	eet will be	
Data only apply to tubes exposed monthly a	nd are not suitable f	or correcting i	ndivid	ual short-term monitoring periods				updat	ed at the er 2022	nd of March	
Whenever presenting adjusted data, you sh This spreadhseet will be undated every few	ould state the adjus	tment factor u may therefore	sed a	nd the version of the spreadsheet ubject to change. This should not discr	urade their	immediate us	<u>م</u>		Helpdes		
The LAOM Heindesk is operated on behalf of Def	ra and the Devolved A	dministrations k	v Bure	au Verites in conjunction with contract	Spreadeh	et maintained	by the Nationa	Dhysic	al Laborato	n/ Original	
partners AECOM and the National Physical Labor	atory.		y Dure	au ventas, in conjunction with contract	compiled by Air Quality Consultants Ltd.						
Step 1:	Step 2:	Step 3:			S	tep 4:					
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop- Down List	Wher	ere there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ³ shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory, is a preparation method is a first shown, we have no data for this laboratory. If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Manageme Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953									Management		
Analysed By ¹	Method To y vido your zelection, choose Gill) from the pop-up list	Year ⁵ To undo your relection, choore (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (μg/m ³)	Bias (B)	Tube Precision ®	Bias Adjustment Factor (A) (Cm/Dm)	
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	25	14	77.4%	G	0.56	
Gradko	20% TEA in water	2020	R	Fareham Borough Council	12	30	22	35.1%	G	0.74	
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	22	17	26.5%	G	0.79	
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	11	32	31	4.9%	G	0.95	
Gradko	20% TEA in water	2020	KS	Marylebone Road Intercomparison	12	57	43	33.3%	G	0.75	
Gradko	20% TEA in water	2020	R	Bath & North East Somerset	11	32	29	13.0%	G	0.89	
Gradko	20% TEA in water	2020	R	Gateshead Council	12	22	17	28.1%	G	0.78	
Gradko	20% TEA in water	2020	R	Gateshead Council	12	23	21	11.6%	G	0.90	
Gradko	20% TEA in water	2020	R	Gateshead Council	10	26	25	6.5%	G	0.94	
Gradko	20% TEA in water	2020	R	Gateshead Council	12	28	21	30.5%	G	0.77	
Gradko	20% TEA in water	2020	R	Gateshead Council	12	31	32	-3.4%	G	1.03	
Gradko	20% TEA in water	2020	R	Luton Borough Council	9	38	28	33.8%	G	0.75	
Gradko	20% TEA in water	2020	R	Nottingham City Council	12	31	34	-8.5%	G	1.09	
Gradko	20% TEA in water	2020	R	Dudley MBC	13	33	28	19.9%	G	0.83	
Gradko	20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	0.62	
Gradko	20% TEA in water	2020	R	Dudley MBC	13	44	34	30.6%	G	0.77	
Gradko	20% TEA in water	2020	R	Ards and North Down Borough Council	10	27	20	34.0%	G	0.75	
Gradko	20% TEA in water	2020	R	Belfast City Council	10	26	21	22.8/	G	0.81	
Gradko	20% TEA in water	2020	R	Belfast City Council	10	41	36	12.6/	G	0.89	
Gradko	20% TEA in water	2020	R	Belfast City Council	10	36	25	43.9%	G	0.69	
Gradko	20% TEA in water	2020	R	Lancaster City Council	11	27	23	19.9%	G	0.83	
	20% IEA in water	2020	н	Lancaster City Council		32	28	13.0%	6	0.89	
Gradko	20% IEA in water	2020	H	Eastleigh Borough Council	3	23	20	13.6%	<u>نا</u>	0.88	
	20% IEA in water	2020	UB	Eastleigh Borough Council	9	22	19	17.97	6	0.85	
Gradko	20% TEA in water	2020	н	Lisburn & Castlereagh Lity Council	10	23	18	32.5%	6	0.75	
Gradko	20% TEA in water	2020		Overall Factor (21 studies)					Jse	0.81	

The local bias adjustment figure was **0.75**, this was calculated using the DEFRA precision & accuracy calculation tool.

A decision was made not to use the local factor as it was deemed to be very low and would show a large decrease in the results, so as in previous years the national bias adjustment figure of **0.81** was therefore applied as 27 studies were included in this as shown in the September 2021 data.

Method used to distance calculate in accordance to current guidance

The following tool was used to distance calculate NO₂ levels at the Newtownbreda Road and Blaris Road sites at relevant exposure

https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html

BUREAU VERITAS	Enter data into the pink cells
Step 1 How far from the KERB was your measurement made (in metres)?	2.5 metres
Step 2 How far from the KERB is your receptor (in metres)?	7 metres
Step 3 What is the local annual mean background NO ₂ concentration (in µg/m ³)?	14 μg/m ³
Step 4 What is your measured annual mean NO ₂ concentration (in µg/m ³)?	27 μg/m ³
Result The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	23.7 μg/m ³

Appendix B: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional, and national scales. COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities and other organisations with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention and changes in behaviour such as reduced road traffic and working from home.

Lisburn & Castlereagh City Council

DAERA deemed air quality to be an essential service during lockdown. The LCCC air quality monitoring sites do not require access to any premises and therefore it was possible to continue monitoring both the automatic sites and all the NO₂ diffusion tubes sites, with the loss of only one months data in 2020 due to a postal issue during the lockdown period. LCCC employs a dedicated air quality officer which made restrictions easier to comply with as this was the only officer requiring permission to visit the sites, maintaining good QA/QC.

There was a noticeable reduction in NO₂ due to the reduction in traffic flows this can been seen in table 2.3 and table 2.6, there was a possibility PM₁₀ may have risen due to lockdown and home working but there was no evidence of this, which most likely was due to the unusual mild climate during this period.

There was a greatly reduced use of public transport and the Park & Rides were seldom used, but home working and schooling did continue throughout 2020 to keep the traffic greatly reduced. Cycling had become very popular as a recreational activity during lockdown and on clean air day LCCC ran a social media campaign encouraging this to continue and using cycling as a cleaner healthier mode of transport, the Blaris Greenway cycle and walking path was also completed giving a designated route to and from the Sprucefield shopping centre and Park & Ride, linking with the existing cycle routes within LCCC.

During 2020 and the pandemic, analysing the results and considering the DAERA COVID report LCCC has concluded the large reduction was due to reduced traffic flows, consideration was to be given to revoking the AQMA in Dundonald in 2021 when a trend was established that the completion of the Rapid Transport System through Dundonald had the desired 20% reduction in NO₂, however as the 2020 results have been greatly affected by COVID lockdown LCCC have concluded continued monitoring at the AQMA and the other sites within the city council area is necessary.