2024 Updating Screening Assessment for Causeway Coast and Glens Borough Council

In fulfilment of Environment (Northern Ireland) Order 2002

Local Air Quality Management

Date: June 2024

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Executive Summary

The new Council of Causeway Coast and Glens Borough Council was formed under Local Government Reform on 1st April 2015, merging Legacy Councils; Ballymoney, Coleraine, Limavady and Moyle.

Within the Borough of Causeway Coast and Glens monitoring of nitrogen dioxide (NO_2) has been undertaken since 2008. This monitoring was undertaken as a result of desktop and stage 1 assessments carried out in the preceding years. Nitrogen dioxide from traffic emissions was identified as a significant pollutant which required detailed investigation.

An Air Quality Management Area (AQMA) was declared within the legacy Limavady District Council, along Dungiven Main Street, in 2009 as levels were in excess of the annual mean concentration of 40ugm^{-3}.

A continuous automatic monitor was installed along Main Street on 4th August 2010 in order to monitor Nitrogen dioxide pollutant concentrations (see below).

Passive monitoring has been undertaken in other legacy Council locations within the Borough to ensure that levels did not increase.

This report details the air quality information/data gathered by Causeway Coast and Glens Borough Council within the year 2023 and compares it with air quality pollutant levels obtained in previous years as far back as 2019.

Whilst there have been difficulties with the automatic monitoring site due to intermittent mechanical malfunctions in 2021, passive monitoring data derived has shown that levels have remained constant if not, in some cases, slightly reduced on last year.

It is assumed that the 2020 & 2021 data may have been influenced by COVID restrictions on travel.

The action plan derived by legacy Limavady Borough Council, now Causeway Coast and Glens Borough Council, had identified the only long-term solution to the elevated levels due to road traffic within the Dungiven AQMA as being the construction of a bypass in Dungiven.

This bypass has been alluded to for decades, and up until 2018 no progress had been made. The bypass was to form part of a wider dualling scheme of the A6 from Drumahoe to Dungiven, but financial constraints up until then had meant that the project was delayed.

The scheme has now been completed and opened on 6th April 2023 and has demonstrated that levels have improved as a result as 2023 delivered the lowest annual mean NO_2 concentration level.

In previous reports it was documented that most of the traffic going through Dungiven was through traffic. These vehicles did not stop in the town to access businesses or dwellings. Local traffic only accounted for a small proportion of the daily volumes.

It is envisaged that the bypass will divert through traffic, a significant percentage of which are HGV's, away from the town, and that significant improvements in air quality will be achieved.

Monitoring will continue within the existing AQMA as NO_2 levels remain high.

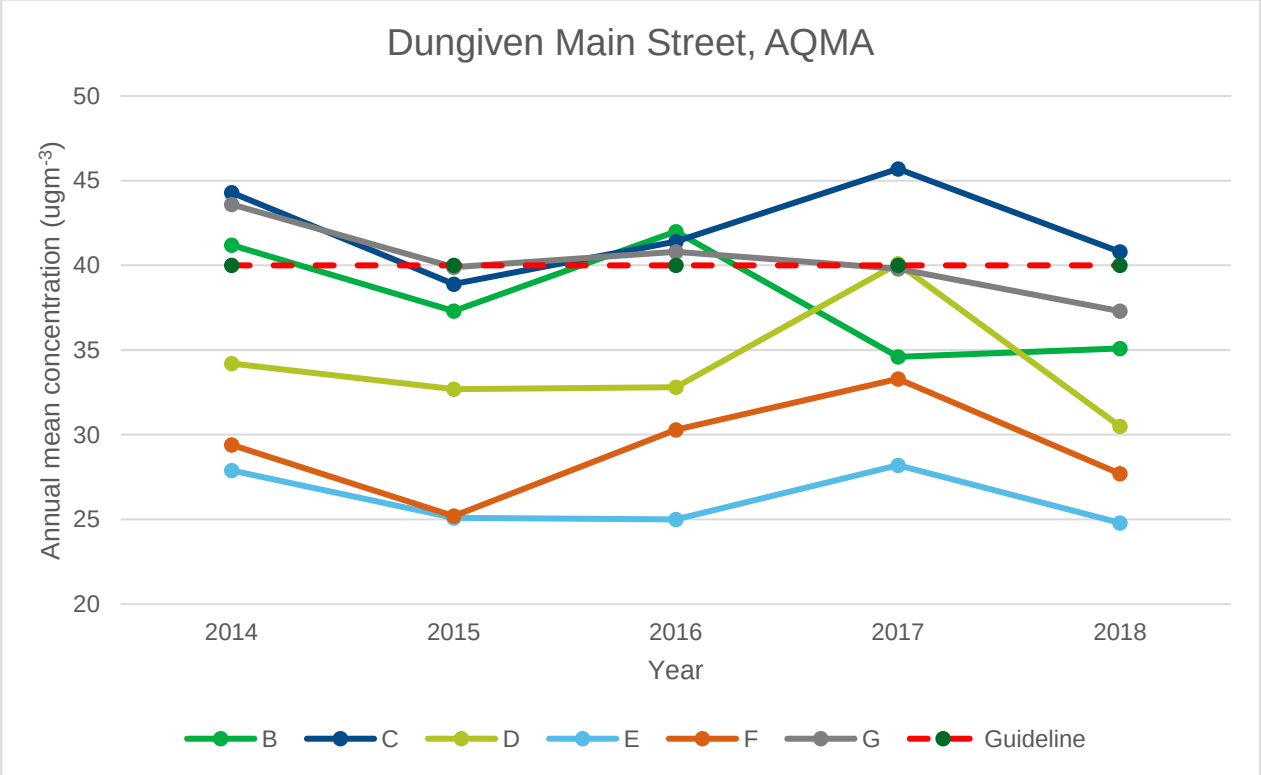
Passive monitoring in the other main urban areas of the Borough was discontinued in 2019.

Analysis of the NO_2 data at the passive monitoring sites throughout the Borough over the period 2014 – 2018 showed that concentrations were below the applicable annual mean objective level at the legacy monitoring locations in Ballymoney Borough Council, Moyle District Council and Coleraine Borough Council areas.

From the passive diffusion data derived, results showed the levels were below the annual mean concentration of $40ugm^{-3}$.

However, the annual mean objective level of $40ug/m^3$ continued to be exceeded during this period (2014-2018) at two passive monitoring sites within the Dungiven AQMA. These two sites (locations C and G) correspond with junctions which lead onto Main Street, Dungiven.

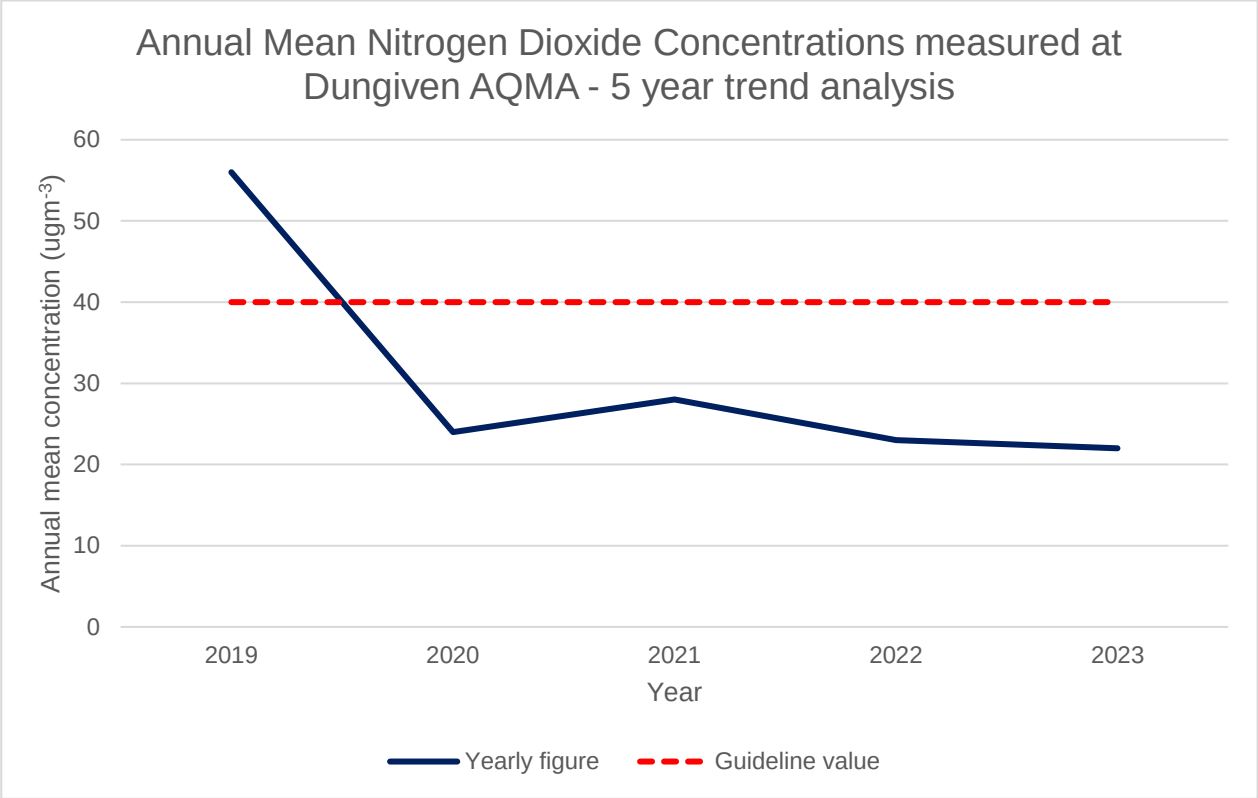
Figure (i) Graph demonstrating annual mean concentration at passive monitoring sites in Dungiven Main Street between 2014 – 2018.



The above graph demonstrates the trend of the annual mean concentration being exceeded at the passive monitoring sites in Dungiven between 2014-2018.

Since the opening of the A6 Bypass in 2023 levels continue to demonstrate a falling trend, this is also replicated in passive monitoring as 2023 levels do not exceed the guideline values.

Figure (ii) Graph demonstrating annual mean nitrogen dioxide concentrations at Dungiven AQMA over a 5 year period



No further detailed assessments have been deemed necessary to evaluate air quality within the Borough. This will be reviewed in the next Progress Report, or if Council become aware of any new developments which have the potential to adversely impact air quality.

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1 Introduction

1.1 Description of Local Authority Area

Causeway Coast and Glens Borough Council is located along the North and East coasts of Northern Ireland and encompasses the former Councils of Ballymoney, Coleraine, Limavady and Moyle. From the 2021 Northern Ireland Census data, it has a population of just over 141,746 residents (NISRA, 2022).

The land area is approximately 2000km^2.

The council area is a mix of market towns, commercial, small industrial hubs, and open countryside.

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 aim 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.

If an Updating and Screening Assessment has not been submitted in accordance with the dates set in the DEFRA Local Air Quality Management Technical Guidance (currently LAQM TG22), DAERA will be unable to pay staff costs offered under the conditions of the LAQM Grant.

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 exceedances 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 Concentration	Air Quality Objective Measured as	Date to be achieved by
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
	3.25µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5µg/m^3	Annual mean	31.12.2004
	0.25µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40µg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/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

Desktop assessments were carried out within legacy Councils (Ballymoney, Coleraine, Limavady and Moyle) to determine if the defined air quality pollutant levels were likely to exceed the National Air Quality Objective levels as set out within the Air Quality Regulations (NI) 2003.

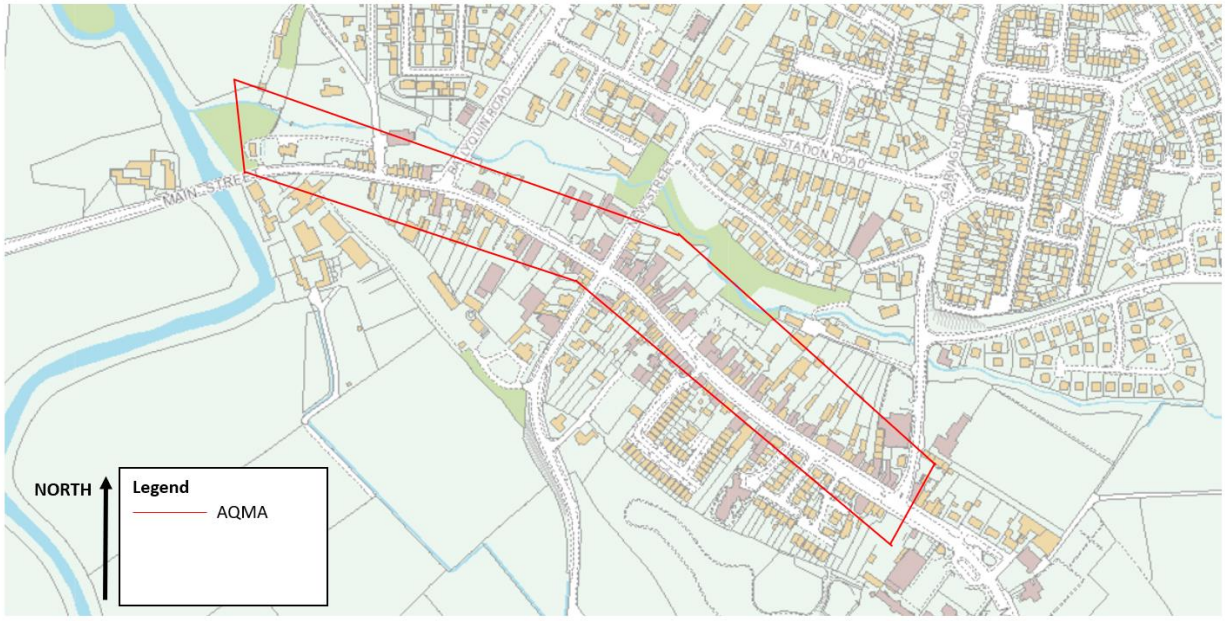
Of particular interest for these Councils were nitrogen dioxide from traffic emissions, particulate matter (PM_{10}) and sulphur dioxide. Particulate matter and sulphur dioxide emissions are associated with industrial processes and the burning of fossil fuels. Following on from these desktop assessments further analysis of pollutants was carried out. Fuel use surveys, DMRB (design manual for roads and bridges) assessments and passive monitoring (nitrogen dioxide for road traffic emissions) were carried out to assess levels.

In terms of the legacy Councils, Air Quality Management Areas (AQMAs) were declared:

- Legacy Limavady Borough Council - Main Street Dungiven for nitrogen dioxide (NO_2), road traffic pollutant emission source.
- Legacy Ballymoney Borough Council - Glebeside, Ballymoney for particulates (PM_{10}), domestic fossil fuel emission source. (The Glebeside AQMA was undeclared as houses in this estate had been converted over to gas).

The AQMA within Dungiven is the only one remaining in place.

Figure 1.1 Map(s) of AQMA Boundaries



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Causeway Coast and Glens Borough Council has a continuous NO_2 monitor within the AQMA in Dungiven. It has been operational since 2010. The monitor is audited and serviced on an annual basis by contractors and the data is ratified.

Figure 2.1 Map(s) of Automatic Monitoring Sites

Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Inlet Height (m)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road (m) *(N/A if not applicable)*	Does this location represent worst-case exposure?
Dungiven AQMA	Main Street	Urban Roadside	268851	409503	2.0	NO_2	Y	Chemiluminescent	Y (1m)	1m	Y

2.1.2 Non-Automatic Monitoring Sites

Nitrogen dioxide (NO_2) and nitric oxide (NO) are both oxides of nitrogen and are collectively referred to as nitrogen oxides.

All combustion processes produce nitrogen oxide emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide mainly as a result of reactions with ozone in the atmosphere.

Exposure to high concentrations of nitrogen dioxide is reported to sensitize asthmatics to allergens, such as irritant chemicals, house dust mites and pollen.

In urban areas, particularly close to major roads, motor vehicles account for the largest proportion of nitrogen oxide emissions. The contribution of road transport to nitrogen oxide emissions has declined significantly in recent years because of various national policy measures.

Diffusion tubes are a type of passive sampler; they absorb the pollutant to be monitored directly from the surrounding air. Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives.

Monitoring sites are chosen to provide data on locations where there is relevant public exposure and where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review.

Diffusion tubes are placed out in accordance with and adherence to the DEFRA – Exposure Calendar and Methodology. At the end of the monitoring period the tubes are collected, documentation completed and then sent to the appointed laboratory (Gradko Environmental) to undergo analysis.

On completion of analysis, the results are emailed to the Environmental Protection Team and are recorded for use in the results tabulation for the applicable year.

Results obtained from diffusion tube analysis require correction for possible positive bias (over-read), or negative bias (under-read). The preparation method used was an absorbent of 20% TEA (Triethanolamine) in water. The bias adjustment factor for Gradko and the technique in 2022 is 0.84. This factor is based on 33 studies and is taken from the DEFRA website at: http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html.

Passive monitoring in Legacy Council Areas of Coleraine, Moyle and Ballymoney was discontinued in 2019, following the publication of the report entitled “Passive Diffusion Monitoring of NO_2 within Causeway Coast and Glens Borough Council 2014-2018” (Appendix C).

Figure 2.2 Map(s) of Non-Automatic Monitoring Sites

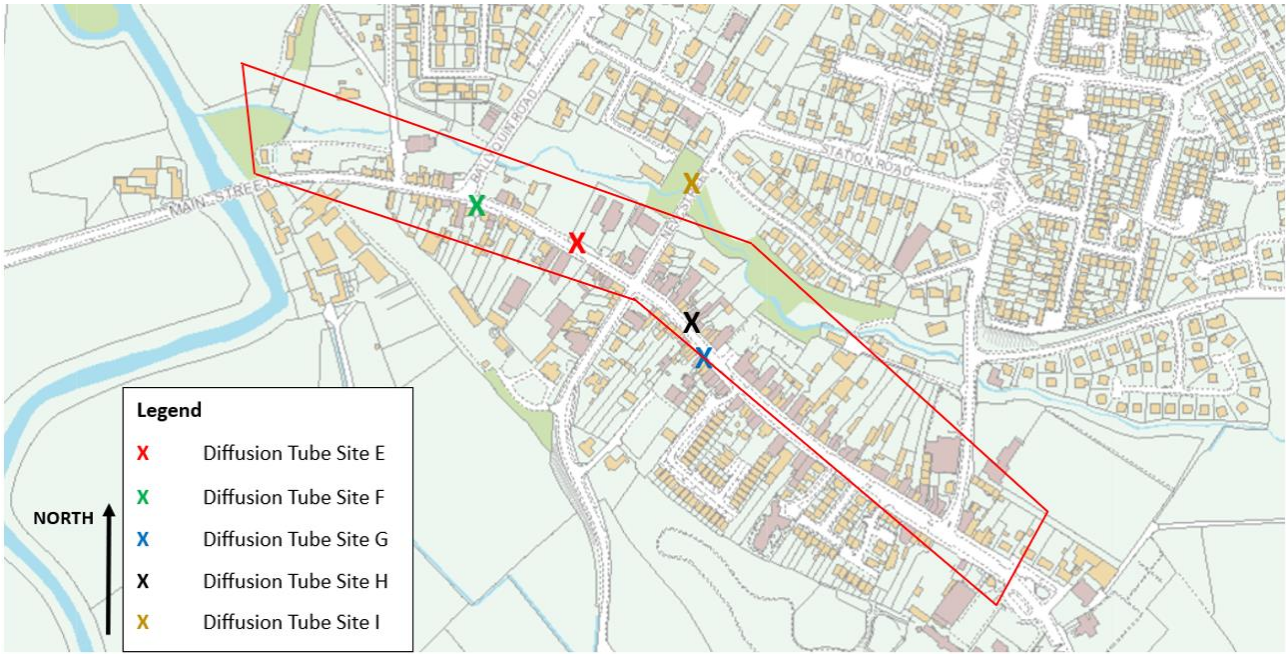


Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA? Which AQMA?	Is monitoring co-located with a Continuous Analyser (Y/N)	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road (m) *(N/A if not applicable)*	Does this location represent worst-case exposure?
E	Main Street (AQ Monitor)	Roadside	268851	409503	2.5	NO_2	Y	Y	Y (1m)	1	Y
F	Main Street	Roadside	268742	409543	2.5	NO_2	Y	N	Y (1m)	1	Y
G	Main Street	Roadside	268981	409387	2.5	NO_2	Y	N	Y (1m)	1	Y
H	Main Street	Roadside	269051	409338	2.5	NO_2	Y	N	Y (1m)	1	Y
I	New Street	Roadside	268957	409535	2.5	NO_2	Y	N	Y (1m)	1	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.1.3 Nitrogen Dioxide

Automatic Monitoring Data

Table 2.3 Results of Automatic Monitoring for Nitrogen Dioxide: Annual Mean NO_2 Monitoring Results ($\mu g/m^3$) for Comparison with the Annual Mean Objective

Site ID	Site Type	Within AQMA? Which AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2023 % [b]	2019* [c]	2020* [c]	2021* [c]	2022* [c]	2023 [c]
Dungiven AQMA	Roadside	Y, Dungiven AQMA	97	100	**56**	24	28	23	22

In **bold**, exceedance 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 per LAQM.TG22, if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Sites

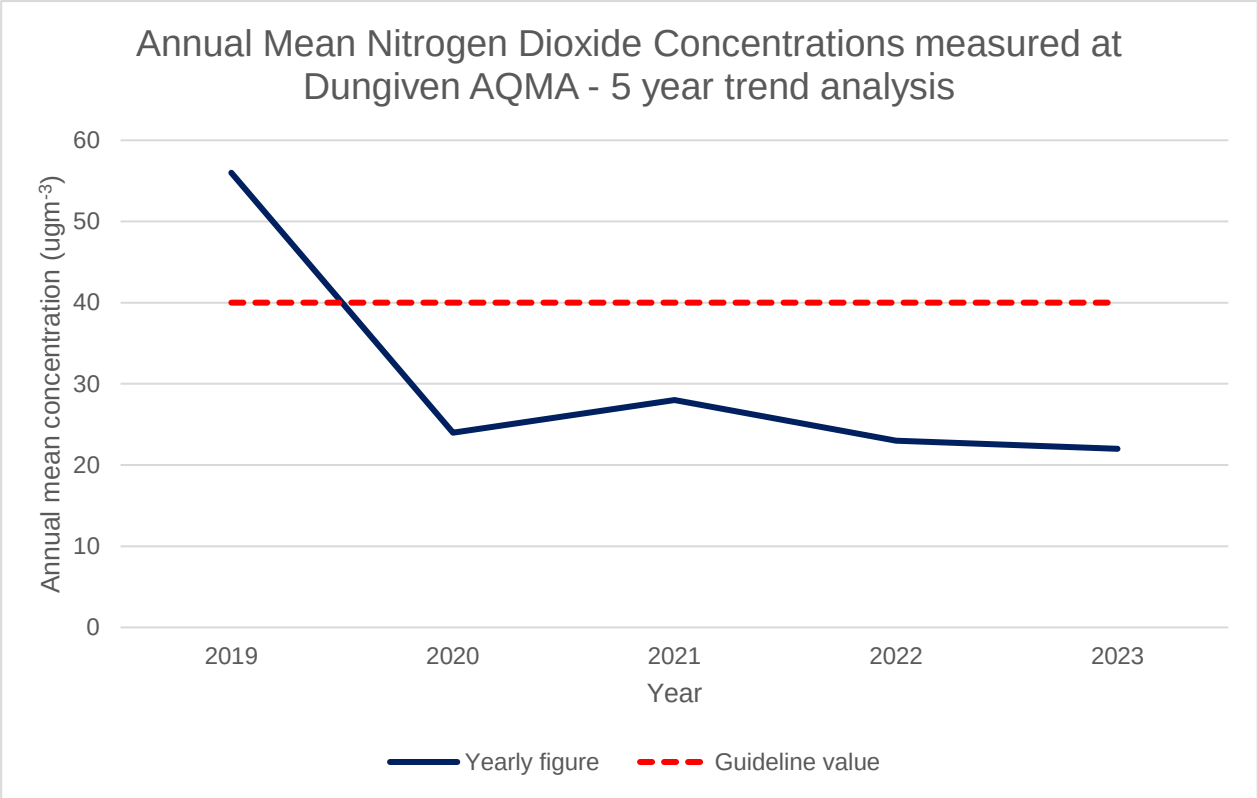


Figure 2.3 demonstrates that there has been an ongoing trend since 2019 of annual mean NO_2 concentrations dropping. It is assumed that the figures for years 2020 and 2021 have been influenced by COVID restrictions on travel/unnecessary journeys, however, this trend has continued and with the A6 Bypass opening in 2023 this may explain why 2023 recorded the lowest levels as traffic congestion will have been greatly reduced due to the bypass.

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Number of Exceedances of 1-hour mean Objective (200µg/m^3)

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2023 % [b]	Number of Hourly Means > 200µg/m^3					
					2018* [c]	2019* [c]	2020* [c]	2021* [c]	2022* [c]	2023[c]
Dungiven AQMA	Urban Roadside	Y	97	100	0	0	0	0	0	**3**

In **bold**, exceedance 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 period of valid data is less than 85%, include the 99.8th percentile of hourly means in brackets

* Number of exceedances for previous years are optional.

Diffusion Tube Monitoring Data

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2023

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2023 (Number of Months or %) [a]	2023 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.81 [b]
Dungiven E	Main Street (Monitor)	Urban Roadside	Y	Triplicate	11 Months	28.6
Dungiven F	Main Street	Urban Roadside	Y	Triplicate	11 Months	33.1
Dungiven G	Main Street	Urban Roadside	Y	Triplicate	12 Months	22.7
Dungiven H	Main Street	Urban Roadside	Y	Triplicate	12 Months	35
Dungiven I	New Street	Urban Roadside	Y	Triplicate	12 Months	15.2

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2023 (Number of Months or %) [a]	2023 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.81 [b]
Ballykelly A	Plantation Road	Urban Roadside	N	Triplicate	12 Months	7
Ballykelly B	Main Street	Urban Roadside	N	Triplicate	12 Months	25.6
Ballykelly C	Main Street	Urban Roadside	N	Triplicate	11 Months	18.9
Ballykelly D	Glenhead Road	Urban Roadside	N	Triplicate	12 Months	8.8

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 per LAQM.TG22, if full calendar year data capture is less than 75%.

[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, and results should be discussed in a specific section.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes, adjusted for bias (µg/m^3): 2019 to 2023

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]					
			2018 (Bias Adjustment Factor = 0.92)	2019 (Bias Adjustment Factor = 0.91)	2020 (Bias Adjustment Factor = 0.81)	2021 (Bias Adjustment Factor = 0.84)	2022 (Bias Adjustment Factor = 0.84)	2023 (Bias Adjustment Factor = 0.81)
Dungiven E	Urban Roadside	Y	40.8/30.5	Data unavailable	Insufficient data	Insufficient data	30.3	28.6
Dungiven F	Urban Roadside	Y	24.8	Data unavailable	Insufficient data	Insufficient data	35.2	33.1
Dungiven G	Urban Roadside	Y	37.3	Data unavailable	Insufficient data	Insufficient data	25.0	22.7
Dungiven H	Urban Roadside	Y	27.7	Data unavailable	Insufficient data	Insufficient data	34.5	35
Dungiven I	Urban Roadside	Y	35.1	Data unavailable	Insufficient data	Insufficient data	15.1	15.2
Ballykelly A	Urban Roadside	N	N/A	N/A	N/A	N/A	4.8	7

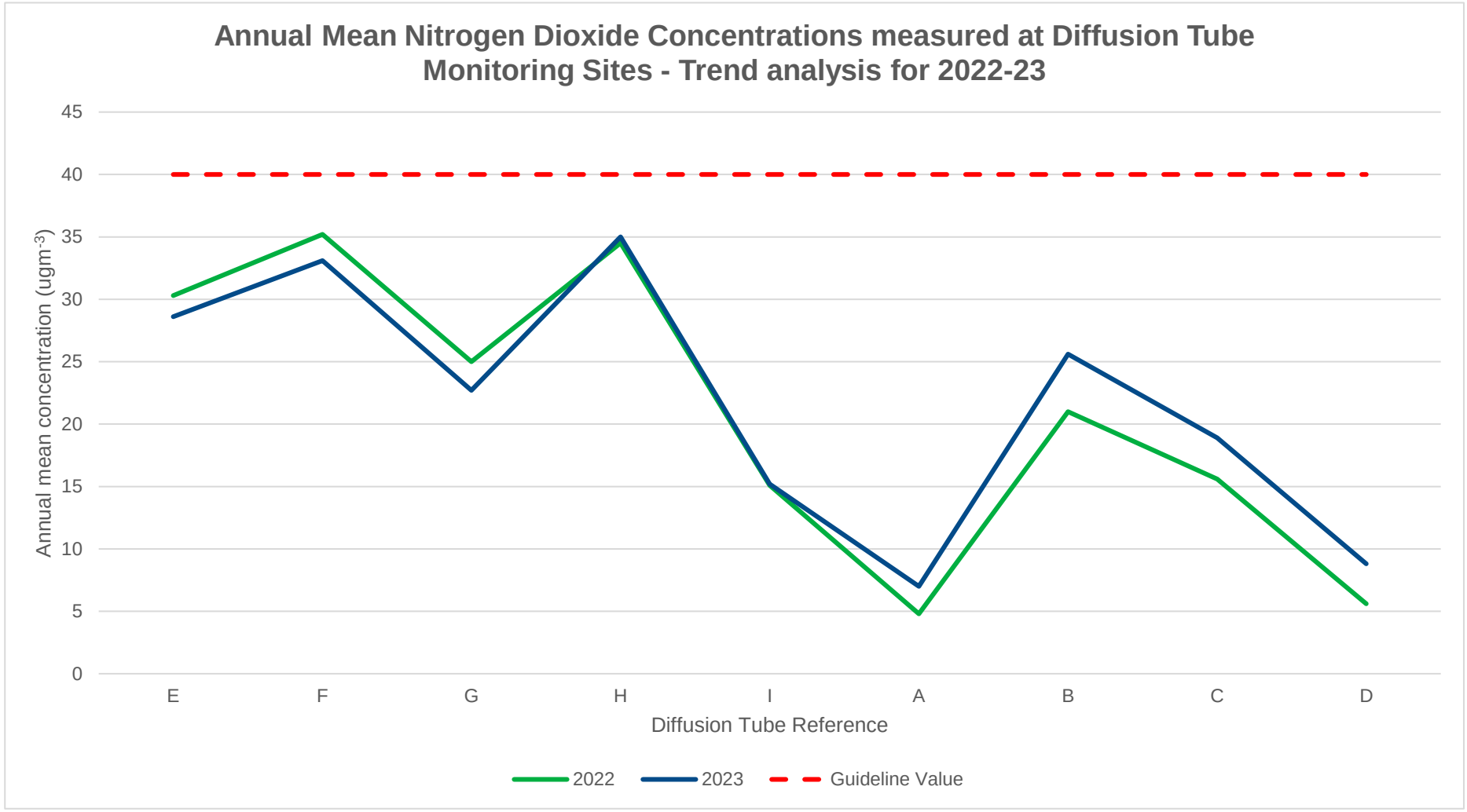
Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]					
			2018 (Bias Adjustment Factor = 0.92)	2019 (Bias Adjustment Factor = 0.91)	2020 (Bias Adjustment Factor = 0.81)	2021 (Bias Adjustment Factor = 0.84)	2022 (Bias Adjustment Factor = 0.84)	2023 (Bias Adjustment Factor = 0.81)
Ballykelly B	Urban Roadside	N	N/A	N/A	N/A	N/A	21.0	25.6
Ballykelly C	Urban Roadside	N	N/A	N/A	N/A	N/A	15.6	18.9
Ballykelly D	Urban Roadside	N	N/A	N/A	N/A	N/A	5.6	8.8

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 per LAQM.TG22, if full calendar year data capture is less than 75%.

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



2.1.4 Particulate Matter (PM_{10})

Causeway Coast and Glens Borough Council do not monitor PM_{10}

2.1.5 Sulphur Dioxide

Causeway Coast and Glens Borough Council do not monitor Sulphur Dioxide.

2.1.6 Benzene

Causeway Coast and Glens Borough Council do not monitor Benzene.

2.1.7 Other pollutants monitored

Not Applicable

2.1.8 Summary of Compliance with AQS Objectives

Causeway Coast and Glens Borough Council has examined the results from monitoring in the Borough. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

There have been no new road schemes within the Borough that would negatively impact upon air quality. No new roads have been opened since the last Updating and Screening Assessment however the A6 bypass in Dungiven has been completed and opened on 6th April 2023. No busy or narrow congested streets have been identified that have not previously been considered. No roads with significantly changed traffic flows have been identified and there are no roads with high flows of buses and or HGVs. There are no new bus or coach stations.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Causeway Coast and Glens Borough 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

The technical guidance indicates that consideration should be given to busy streets where there are many shops, outdoor cafes, bars etc., where persons are likely to be exposed within 5m of the kerb for 1-hour or more. Busy streets are those where there are 10,000 or more vehicle movements per day. Consideration should be given to the traffic flow, the vehicle speed and the percentage of vehicle types. Following a review of the Northern Ireland Traffic Count Data (OpenDataNI, 2022) no further areas were identified in the Causeway Coast and Glens Borough Area.

Causeway Coast and Glens Borough 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.

The technical guidance indicates that consideration should be given to roads where the traffic flows are less than 20,000 vehicle movements per day and there is an unusually high percentage of HGV and/or buses. An unusually high proportion is in the region of 20%. Roads with relevant exposure within 10m should be considered. Northern Ireland Traffic Count Data (OpenDataNI, 2022) indicates that there were no roads within Causeway Coast and Glens Borough Council which convey 20,000 vehicle movements per day and have an unusually high percentage of HGV's (>20%). The largest percentage of HGV's was recorded on the A6 to the west of Dungiven. The percentage here was 12.5%.

Causeway Coast and Glens Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Pollutant concentrations are generally higher close to junctions where the combined impact of traffic emissions from two roads and/or the elevated emissions due to stopping and starting. The technical guidance suggests identifying busy junctions and determining if they are new or have been previously assessed. A 'busy' junction is defined as one which experiences 10,000 vehicle movements per day or more. Relevant exposure is deemed to be within 10m of the kerb. Information such as traffic speed, %HDV's including HGV's and buses should be considered. Following a review using published traffic data and online mapping tools no new 'busy' junctions were identified within the Borough Causeway Coast and Glens.

Causeway Coast and Glens Borough 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

Nitrogen dioxide and particulate matter

The technical guidance suggests examining those roads which have been constructed since the last assessment. Within the Causeway Coast and Glens Borough, there is a new road scheme which has been completed: Dungiven to Drumahoe dualling scheme.

This would have been subject to an environmental impact assessment/air quality considerations at the time.

Causeway Coast and Glens Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

This assessment looks at the impact of traffic flows on nitrogen dioxide and particulate matter levels. The technical guidance requires consideration of roads with significant changes in flow. The guidance indicates roads where the volume of traffic is in excess of 10,000 vehicle movements per day where volumes have increased by 25%. From the traffic data available for 2021 there are no roads within the borough where volumes have increased by 25%. It is assumed that the 2020 & 2021 traffic flow data may have been influenced by COVID restrictions on travel and therefore any percentage change in the data may not align with the overall trend.

Causeway Coast and Glens Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Technical guidance TG. 22 indicates that assessment is required where bus stations or sections of bus stations are not enclosed and where there is relevant exposure, including at nearby residential properties. The guidance requires assessment where there is relevant exposure within 10m of any part of the bus station where buses are present and where the number of bus movements is greater than 2500 per day. There are no bus stations within the Causeway Coast and Glens Borough area that fall into this category.

Causeway Coast and Glens Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

City of Derry airport partially falls within the edge of the Borough. This small regional airport is within 1000m of residential properties. The Technical Guidance indicates that assessment is required where:

- There is relevant exposure within 1000m of the airport boundary and
- the annual throughput of passengers/freight equates to 10 million passengers per year

City of Derry airport's website indicates that in 2009 350,000 passengers passed through the airport. In 2011 this increased to 405,697 passengers (UK AIP at NATS/ Statistics from UK Civil Aviation Authority). In 2015 it was reported that in the past year, numbers of passengers had fallen to 350,257 (Belfast Telegraph, 2015). In 2019 the airport's transported 203,777 passengers (City of Derry Airport, 2022); this represented a 9.7% decrease in the number of passengers from the previous year. In 2023 the airport transported 154,486 passengers which was a 5% decrease from 2022. (CAA, 2023)

There is currently no freight transport in or out of the airport.

There is therefore no requirement to assess nitrogen dioxide levels originating from the airport.

Causeway Coast and Glens Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Stream Trains)

4.2.1 Stationary Trains

The main Belfast to Derry/Londonderry railway line passes through the Borough with stops including Bellarena, Castlerock, Coleraine and Ballymoney. There is also a train line from Coleraine to Portrush with 4 stops in total.

The technical guidance requires Council to identify locations where diesel or steam locomotives regularly stop for periods of 15 minutes or more, where relevant exposure is

within 15m of the stationary locomotive and to establish the number of trains per day which might affect these locations and the typical duration that engines may be left running when stationary. The guidance indicates that a detailed assessment may be required where there are three or more occasions when there might be a stationary locomotive with its engine running for 15 minutes or more. All trains in Northern Ireland are diesel; there are no steam trains operated by Translink, the rail service provider.

The following Planning Applications were received; LA01/2021/0973/F and LA01/2021/0972/F – relating to proposed extensions to platforms in Coleraine and Portrush. The nearest receptors to these proposed developments are located within The Whins, Portrush and Cromore Court, Coleraine. The separation distances are approximated to be approximately 15.6m and 8.5m, respectively. Further review of documentation submitted as part of the applications and from Translink relating to these train stations demonstrated that it is very unlikely that there will be stationary locomotives with engines running for 15 minutes or more at these locations.

Causeway Coast and Glens Borough 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

Table 7.2 within technical guidance TG. 22 lists those rail lines with heavy traffic of diesel trains. None of these required for consideration are within Causeway Coast and Glens Borough Council.

Causeway Coast and Glens Borough 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

Causeway Coast and Glens Borough 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

There have been new or proposed installations permitted within the borough since the last Update Screening Assessment. A review of recent planning history for the Borough identified the following planning applications which may meet the above criteria:

LA01/2022/0620/F - Proposed extension to existing premises, involving an extension of an existing industrial building for the assembly of material handling equipment, including installation of new replacement paint line system and associated extension of the service yard and new car park and associated works. (Determined)

LA01/2022/0427/F - Erection of gas to grid system involving gas clean up and grid injection plant. Installation involves the construction of a biogas upgrading unit, quick sludge removal system (includes CO2 vent stack), compressed biomethane dispensing unit, biomethane network entry facility unit, electrical kiosk, transformer; 3no. trailer filling bays; 1no. tractor filling bay; dispenser fuel island & instrumentation; buffer tank; 3no. chillers; 3no. compressors & coolers; biomethane storage compound; 3no. propane tanks; flare; and associated site works and pipework. (Amended description). (Determined)

Causeway Coast and Glens Borough Council confirms that there have been new industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

Air quality pollutants relevant to the developments were required to have been addressed through the planning /development control processes and/or as necessary fall within the regulatory control under the Pollution Prevention and Control (Industrial Emissions) Regulations (NI) 2013 in terms of air pollutant controls.

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

There are no existing installations where emissions have increased substantially, or new relevant exposure has been introduced.

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

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

There have been no new installations within the Borough and no significant changes made to any existing installations with no previous air quality assessment.

Causeway Coast and Glens Borough 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 Depots

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

5.3 Petrol Stations

Technical guidance TG. 22 requires identification of all petrol stations with an annual throughput of more than 2000m^3 of petrol with a busy road nearby. A busy road is defined as one with more than 30,000 vehicle movements per day.

Causeway Coast and Glens Borough Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Technical guidance TG. 22 states that the following farms should be considered for PM_{10} if there is relevant exposure within 100m:

- Those with 400,000 birds if mechanically ventilated
- Those with 200,000 birds if naturally ventilated, and
- Those with 100,000 turkeys

A review of the DAERA Public Register (Pollution Prevention and Control (Industrial Emissions) Regulations (NI) 2013) within the Causeway Coast and Glens Borough Council area (Schedule 1 Section 6.9, Part A (a) (i) “Intensive Farming”) installations concluded that there are no poultry farms within the Borough which fall into any of the above categories.

Coast and Glens Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Technical guidance TG. 22 recommends identification of all plant burning biomass in 50kW to 20 MW units.

Following a review of relevant historical planning documentation for biomass boilers within the Causeway Coast and Glens Borough, installations were identified which fell within the criteria stated above. Such developments were screened for air quality impacts using the DEFRA Industrial Emissions Screening Tool. Following this, it can be determined if the actual emissions provided in the Emissions Certificate are below the maximum emission rate calculated by the Tool (Version 3) in relation to both NO_2 and PM_{10}. As detailed in Local Air Quality Management Technical Guidance (TG 22) it can then be determined if further modelling and/or monitoring is required. For the applications received, the tool has not identified that further modelling/monitoring was required, as plant were screened out, falling within the guideline levels.

Causeway Coast and Glens Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

The technical guidance states that there may be the potential that many small combustion units including domestic solid fuel burners may attribute to elevated levels of pollutants. Whilst acceptable individually, they could in combination lead to unacceptably high PM_{10} levels in areas where PM_{10} levels are close to or above the national air quality objective.

Councils are required to identify 500mx500m grid squares where housing densities are highest and there are service sector biomass combustion appliances. To quantify the impact of domestic appliances within the grid square each type of appliance should be identified. Once identified calculations should be used in conjunction with Table 5.3 within the guidance to determine the annual domestic emission level for each grid square.

Regarding those units in the service sector, the floorspace occupied within each grid square for each of solid fuel burning plants is identified. Again, the annual service sector emission level per hectare should be calculated and this, along with the domestic emission level, will indicate the total emission level within the grid square.

Estimations of the fraction of space within the grid square occupied by solid fuel burning premises can then be used to determine the emission density for each grid square (kg emissions/500x500m square).

If the source exceeds the threshold, detailed assessment is required.

Causeway Coast and Glen Borough Council has assessed the biomass combustion plant within the district and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid Fuel Burning

Technical Guidance (TG 22) states that areas of significant domestic coal burning should be considered. Previous monitoring/modelling and fuel use surveys of such significant areas i.e., any area of 500x500m with more than 50 houses burning coal/smokeless fuel have indicated that no exceedances of sulphur dioxide (SO_2) and particulate matter (PM_{10}) were likely. Many of these areas have since moved over to gas usage.

Causeway Coast and Glens Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Particulate matter (PM_{10})

Dust emissions can give rise to elevated levels of PM_{10}. These emissions may arise from operations such as quarries, landfills, coal and material stockpiles, major construction works and waste management sites. Consideration should be given to any air quality studies which have been carried out with regard to such operations, and if there is relevant exposure. The distance of any receptor should be assessed from source as opposed to the site boundary.

To determine accurately the impact such activities would have on PM_{10} emissions, local authorities should assess any existing air quality assessments carried out in relation to specific sites and determine if exposure falls under the definition of 'near'. 'Near' is defined in relation to local background PM_{10} concentrations. For the 2004 National air quality objective level 'near' is defined as

- 1000m if [background] >28ugm^{-3}
- 400m if [background] >26ugm^{-3}
- 200m for any [background]

These distances are from source which may not always coincide with the site boundary.

If the relevant exposure is within 50m of an off-site road used to access the site and there are visible deposits on the road, then these sections of road which may extend up to 1000m from the site entrance are considered as 'near', as long as the background concentration is above 25ugm^{-3} for the 2004 objective levels.

History of complaints regarding dust and visual inspection of emissions and evidence of dust being carried out onto roadways from such sites should be considered.

If there is relevant exposure and if there is either a history of complaint and/or visual emissions detailed assessment is required.

Within the Causeway Coast and Glens Borough there are several quarries, and these would have been subject to previous review and assessment in terms of the technical guidance.

There are two landfill sites operating within the Borough, one of which is council owned at the Craigahulliar site and one privately owned by RiverRidge Recycling Ltd., located outside Garvagh. There are in total four closed landfills within the Borough.

A review of the relevant planning data and PPC permitted installations was carried out pertaining to quarry and landfill sites and no additional sites which would require inclusion were identified. Included in this review was a screening of relevant complaints held by the Council.

Causeway Coast and Glens Borough 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

Within the Dungiven AQMA levels of NO_2 remain below the annual mean objective levels of 40µg/m^3. Monitoring, both passive and continuous, will continue within the AQMA. Construction of the Dungiven bypass has been completed and it is envisaged that levels will remain below the annual mean objective level.

8.2 Conclusions from Assessment of Sources

No significant issues have been identified beyond the existing AQMA which require any additional investigation or monitoring. Regarding potential sources, no new issues have been identified since the last USA report.

Passive diffusion monitoring sites have been installed in Ballykelly in order to gain up to date data on nitrogen dioxide, this has indicated that levels are well below the guideline values but will continue to be monitored.

8.3 Proposed Actions

On the basis of the data collected to date no new or additional monitoring is required. Similarly, no additional detailed no further assessments are required. Monitoring will continue as is within the existing Dungiven AQMA and in Ballykelly. This will be reviewed in the next report and may be scaled back depending on the levels obtained.

9 References

CAA (2023). Annual airport data 2023. Terminal and Transit Passengers 2023.

Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Defra (2016) Review & Assessment: Technical Guidance LAQM.TG16, Defra.

Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users, Report to Defra and the Devolved Administrations, Feb 2008

EU Emissions Trading Scheme Charging Scheme Northern Ireland. Department for the Environment, November 2009

Local Air Quality Management Policy Guidance LAQM.PG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

Local Air Quality Management Technical Guidance LAQM.TG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

Preparing for Climate Change in Northern Ireland. DoE/ Scotland and Northern Ireland Forum for Environmental Research, 2007.

Shaping Our Future: Adjustments to the Regional Development Strategy (RDS) 2025. Department for Regional Development, June 2008

Sub-Regional Transport Plan 2015. Department for Regional Development, March 2007.

The Environment (Northern Ireland) Order 2002, Statutory Instrument 3153 (2002),

The Northern Ireland Climate Change Partnership. http://www.sniffer.org.uk/ourwork/climate-change/niccip.asp

Appendices

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

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

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Bias Adjustment Factors

Gradko International Ltd, St Martins House, 77 Wales Street, Winchester, Hampshire

20%TEA in water

2023 Bias Adjustment factor = 0.81

QA/QC of Diffusion Tube Monitoring

Please find below Gradko Internal Laboratory Methods used for the analysis of air pollution monitoring equipment:

Nitrogen dioxide and sulphur dioxide diffusive air monitors

Analysed by UKAS accredited in-house method GLM 3

Nitrogen dioxide and NOx diffusive air monitors

Analysed by UKAS accredited in-house method GLM 7 and GLM 9

Monitoring was completed in adherence with the 2023 DEFRA Diffusion Tube Monitoring Calendar.

Diffusion Tube Bias Adjustment Factors

Causeway Coast and Glens Borough Council have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by Causeway Coast and Glens Borough Council over the past five years is presented in

Table A.1.

Table A.1 Bias Adjustment Factor

2023	National	03/24	0.81
2022	National	03/24	0.85
2021	National	03/24	0.84
2020	National	03/24	0.81
2019	National	03/24	0.91

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Causeway Coast and Glens Borough Council required distance correction during 2023.

QA/QC of Automatic Monitoring

QA/QC of automatic monitoring contract:

Ricardo, Bright Building, 1st Floor, Manchester Science Park, Pencroft Way, Manchester, M15 6GZ

QA/QC audits (2 audits at 6 monthly intervals)

Data Management

Air Quality Data Management (AQDM) – Geoff Broughton

Ratification process – completed to the LAQM TG22 standards using the AURN methodology. See below:

QA/QC of Automatic Air Quality Instruments

Air quality measurements from the automatic instruments are validated and ratified by Air Quality Data Management (AQDM) http://www.aqdm.co.uk to the standards described in the Local Air Quality Management – Technical Guidance LAQM (TG22) https://laqm.defra.gov.uk/technical-guidance.

Validation

This process operates on data during the data collection stage. All data are continually screened algorithmically and manually for anomalies. There are several techniques designed to discover spurious and unusual measurements within a very large dataset. These anomalies may be due to equipment failure, human error, power failures, interference or other disturbances. Automatic screening can only safely identify spurious results that need further manual investigation.

Raw data from the gaseous instruments (e.g. NO_x, O_3, SO_2 and CO) are scaled into concentrations using the latest values derived from the manual and automatic calibrations. These instruments are not absolute and suffer drifts. Both the zero baseline (background) and the sensitivity may change over time. Regular calibrations with certified gas standards are used to measure the zero and sensitivity. However, these are only valid for the moment of the calibration since the instrument will continue to drift. Raw measurements from particulate instruments (e.g. PM_{10} and $PM_{2.5}$) generally do not require scaling into concentrations. The original raw data are always preserved intact while the processed data are dynamically scaled and edited.

Ratification

This is the process that finalises the data to produce the measurements suitable for reporting. All available information is critically assessed so that the best data scaling is applied and all anomalies are appropriately edited. Generally this operates at three, six or twelve month intervals. However, unexpected faults can be identified during the instrument routine services or independent audits which are often at 6-monthly intervals. In practice, therefore, the data can only be fully ratified in 12-month or annual periods. The data processing performed during the three and six monthly cycles helps build a reliable dataset that is finalised at the end of the year.

There is a diverse range of additional information that can be essential to the correct understanding and editing of data anomalies. These may include

- the correct scaling of data
- ignoring calibrations that were poor e.g. a spent zero scrubber
- closely tracking rapid drifts or eliminating the data
- comparing the measurements with other pollutants and nearby sites
- corrections due to span cylinder drift
- corrections due to flow drifts for the particulate instruments
- corrections for ozone instrument sensitivity drifts
- eliminating measurements for NO_2 conversion inefficiencies
- eliminating periods where calibration gas is in the ambient dataset
- identifying periods were instruments are warming-up after a powercut
- identification of anomalies due to mains power spikes

- correcting problems with the date and time stamp
- observations made during the sites visits and services

The identification of data anomalies, the proper understanding of the effects and the application of appropriate corrections requires expertise gained over many years of operational experience. Instruments and infrastructure can fail in numerous ways that significantly and visually affect the quality of the measurements. There are rarely simple faults that can be discovered by computer algorithms or can be understood without previous experience.

The PM_{10} and $PM_{2.5}$ concentrations may require scaling into Gravimetric Equivalent concentration units by use of the Volatile Correction Model (VCM) http://www.volatile-correction-model.info or by corrections published by Defra https://uk-air.defra.gov.uk/networks/monitoring-methods?view=mcerts-scheme depending on the measurement technique.

Further information about air quality data management, expert data ratification and examples of bad practices are given on the Air Quality Data Management (AQDM) website http://www.aqdm.co.uk.