2010 Air Quality Progress Report for Limavady Borough Council

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

Date: June 2010

Local Authority Officer	Joanne O'Kane

Department	Environmental Health
Address	7 Connell Street, Limavady, BT49 0HA
Telephone	028 777 60302
e-mail	joanne.o'kane@limavady.gov.uk

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Executive Summary

Limavady Borough Council has in recent years assessed air quality within the Borough to determine if pollutant levels adhere to air quality objectives as set out in the Air Quality Regulations (Northern Ireland) 2003.

An initial desktop review and assessment determined that further investigation of Sulphur dioxide (SO_2), particulate matter (PM_{10}) and nitrogen dioxide (NO_2) was required. Modelling and passive monitoring established that PM_{10} and SO_2 levels were at acceptable levels and their respective objectives were not exceeded. NO_2 monitoring however indicated that traffic emissions in Dungiven were contributing to elevated levels. An AQMA was declared in Main Street and consultation with the relevant authority DRD Roads Service was carried out. An action plan was devised and it was deemed that the only long term solution to the problems being experienced by residents was the construction of a bypass around the periphery of the town.

The progress report details the work which has been undertaken by Council in the last year. Passive monitoring has shown that NO_2 levels remain high within the AQMA and the annual mean objective level of 40 $\mu g/m^3$ is being exceeded. Amendments in Technical Guidance (TG 09) require Council to monitor NO_2 levels in two 'narrow congested streets' in Limavady.

Further assessment of these two areas will be carried out and on the basis of the data collected a determination will be made as to whether a detailed assessment is required.

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1 Introduction

1.1 Description of Local Authority Area

The Borough of Limavady is situated in the north-west of the Province. The map below shows it location in relation to the rest of the Province. It covers an area of approximately 239 square miles and has a resident population of almost 32,000 people. The main centre of population within the Borough is Limavady town itself. Its population is in the region of 13,000 and is mainly residential in character with a small commercial base. Limavady was previously a market town but in recent years has developed into a commuter base for residents working in the neighbouring towns of Coleraine and Londonderry. Outside Limavady town are the smaller communities of Dungiven, Ballykelly, Greysteel, Bellarena and Drumsurn. These smaller areas predominately rely on agriculture as a source of revenue. Limavady Borough Council is bordered to the west by Derry City Council, one of the largest authorities in Northern Ireland, Coleraine Borough Council to the east and Magherafelt District Council to the south.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

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

1.3 Air Quality Objectives

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

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

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Report Title	Date produced	Outcomes
Stage 1 Review and Assessment	2001	Desktop exercise concluded that further investigation of sulphur dioxide (SO_2), particulate matter (PM_{10}) and nitrogen dioxide (NO_2) levels was required. No further investigation of benzene, 1,3-butadiene, carbon monoxide and lead required
Stage 2 Review and Assessment	2002	Modelling exercise undertaken by consultants on Council's behalf. Identified that in one area of Limavady town (Coolessan) levels of PM_{10} required monitoring over a six month winter period to determine the effect of solid and smokeless fuel burning. DMRB assessment and monitoring indicated that elevated levels of NO_2 were possible in Dungiven as a result of traffic emissions
Monitoring of PM_{10} levels in Coolessan Oct 2004-March 2005	Oct 2004-April 2005	PM_{10} levels were found to be below the national air quality objective levels.
Air quality review & assessment	Oct 2005	NO_2 levels to be continuously monitored in Dungiven.
Update Screening and Assessment report	Nov 2006	NO_2 levels continue to exceed the national air quality objectives –AQMA to be declared
AQMA declaration	Jan 2007	Declaration of an AQMA in Dungiven as a result of excessive NOx levels. The annual mean concentration of 40 $\mu g/m^3$ has been exceeded over the last 4 years as a result if traffic emissions.AQMA extends from Roe Bridge to 89/102 Main Street Dungiven as shown in Figure 1.1
Air Quality Action Plan	Mar 2008	Examined possible alternatives to traffic movements through Main Street Dungiven. Only viable long-term solution to elevated levels of NO_2 is construction of

		a bypass
Source apportionment report	**Aug 2008**	**AQMA to be extended within to encompass all of Main Street Dungiven. A 42 % reduction in NOx concentrations required to comply with air quality standards**
Revised AQMA	**Dec 2008**	**Amended AQMA declared**
Update screening and assessment	**April 2009**	**Further assessment of NOx required in Limavady town as guidance was amended. Situation with regard to other pollutants remains satisfactory**

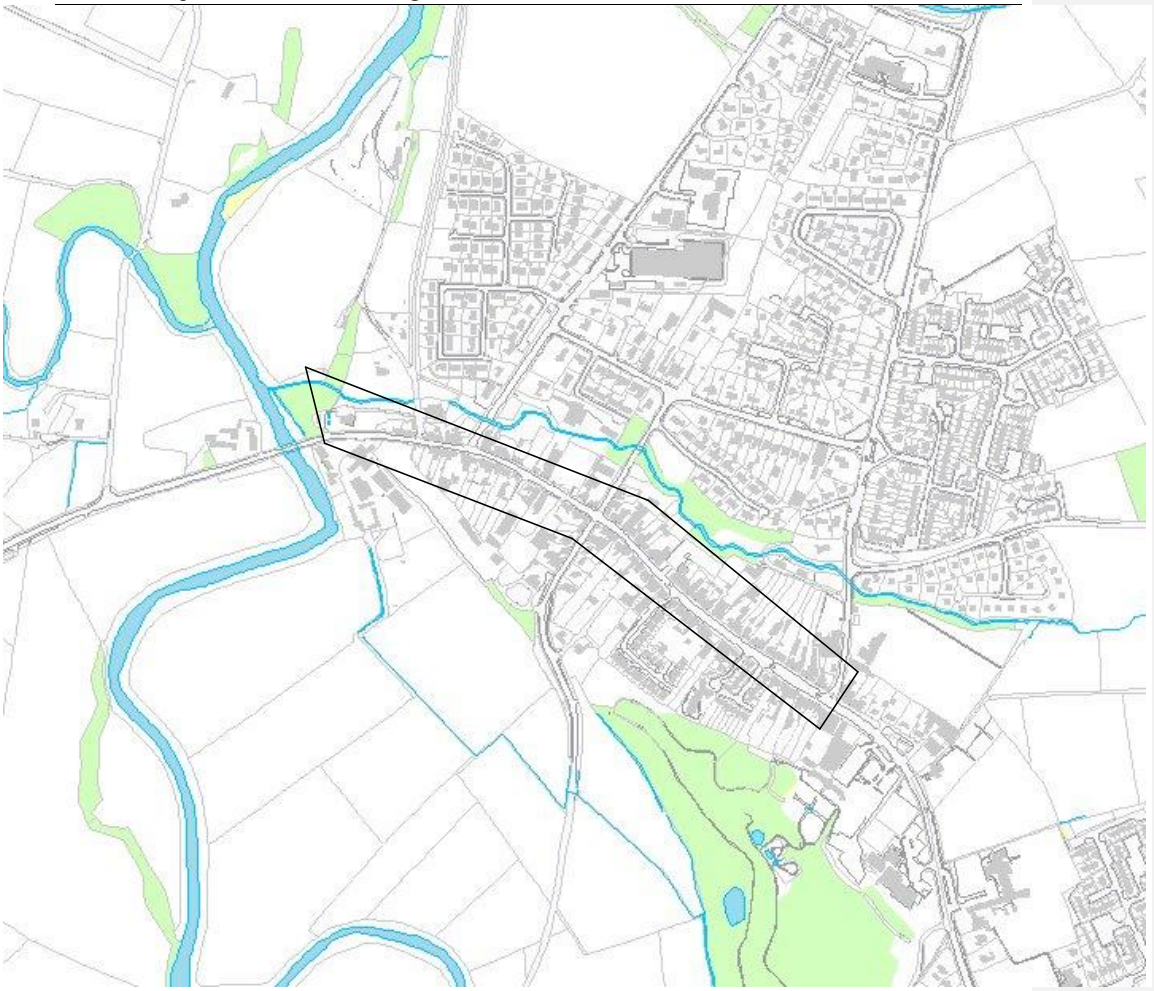
There have been no instances where air quality objective levels have been exceeded and the decision was taken not to declare and AQMA. No declared AQMA's have been revoked

Progress with a detailed assessment is ongoing. Modelling of a proposed bypass has been carried out and will be submitted in the next few weeks. Discussions are ongoing with the relevant authority DRD Roads Service with regard to traffic management within the AQMA.

In view of the recent revision of the Technical Guidance TG(09) assessment of two streets within Limavady town are required, namely Linenhall Street and Irish Green Street. Both require assessment of NOx levels. Both streets have residential properties within 2m of the kerbside, and daily traffic flows in excess of the 5000 vehicles per day. Average traffic speeds would not exceed 25mph.

Figure 1.1 Map of AQMA Boundaries (if applicable)

Revised AQMA Main Street Dungiven



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Not applicable

Figure 2.1 Map(s) of Automatic Monitoring Sites (if applicable)

Not applicable

Table 2.1 Details of Automatic Monitoring Sites

Not applicable

2.1.2 Non-Automatic Monitoring

The passive NOx diffusion tubes are supplied by Envirotechnology plc. They are Gradko tubes and the preparation method is 20%TEA in water. The laboratory which Envirotechnology use for analysis is NAMAS accredited and complies with the requirements of WASP. With regard to the precision of these tubes they have consistently performed well.

The tubes were positioned, in duplicate, at 14 locations within the AQMA. All with the exception of those tubes at location J were located at roadside sites. These were deemed to represent relevant exposure within the AQMA. Those at J served as background measurements. Sites B, C, D, E, G, K & M provided data for 11 of the 12 months monitoring period. In the first few years of use the bias adjustment factors were 0.98 (2006) and 0.89 (2007). For 2008 the bias adjustment factor is 0.9. The bias adjustment for 2009 is again 0.9. These figures have been obtained from the Review and Assessment website.

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

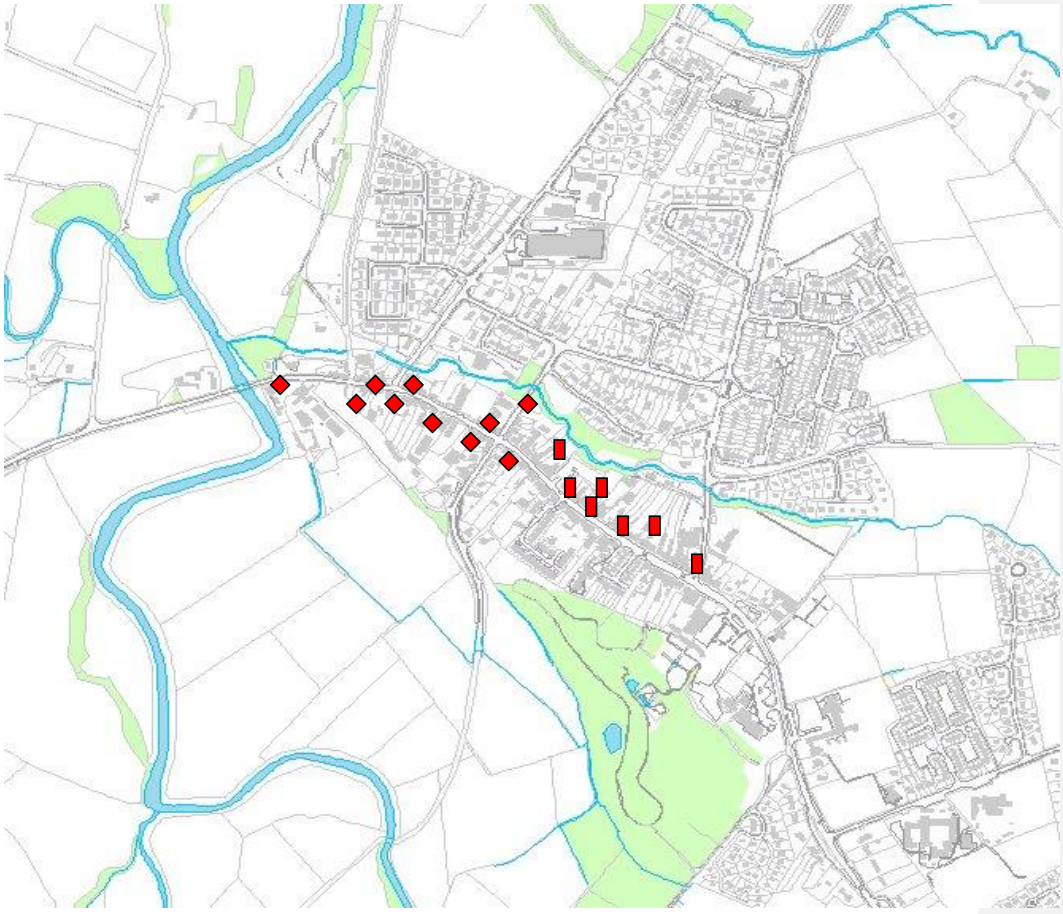


Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
A	Roadside	268650	409566	NO_2	Y	Y - 1m	1m	Y
B	Roadside	268707	409545	NO_2	Y	Y – 1m	1m	Y
C	Roadside	268717	409555	NO_2	Y	Y – 1m	1m	Y
D	Roadside	268854	409485	NO_2	Y	Y – 1m	1m	Y
E	Roadside	268889	409464	NO_2	Y	Y – 1m	1m	Y
F	Roadside	268901	409474	NO_2	Y	Y – 1m	1m	
G	Roadside	268939	409432	NO_2	Y	Y – 1m	1m	
H	Roadside	268737	409541	NO_2	Y	Y – 1m	1m	Y
I	Roadside	268761	409547	NO_2	Y	Y – 1m	1m	Y
J	Background	268944	409372	NO_2	Y	N	1m	
K	Roadside	268992	409372	NO_2	Y	Y – 2m	2m	
L	Roadside	268087	409372	NO_2	Y	Y – 1m	1m	
M	Roadside	268142	409272	NO_2	Y	Y – 1m	1m	Y
O	Roadside	269009	409380	NO_2	Y	Y – 1m	1m	

2.2 Comparison of Monitoring Results Objectives

Monitoring of nitrogen dioxide has been carried out within Lima Street Dungiven. No continuous monitoring has been undertaken have been used to gauge monthly levels and from this the annua determined.

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Not applicable

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar yea 2009 %
A	Main Street Dungiven	Y	-	75
B	Main Street Dungiven	Y	-	91.6
C	Main Street Dungiven	Y	-	91.6
D	Main Street Dungiven	Y	-	91.6
E	Main Street Dungiven	Y	-	91.6
F	Main Street Dungiven	Y	-	83.3
G	Main Street Dungiven	Y	-	91.6
H	Main Street Dungiven	Y	-	81.3
I	Main Street Dungiven	Y	-	75
J	New Street Dungiven	N	-	75
K	Main Street Dungiven	Y	-	91.6
L	Main Street Dungiven	Y	-	81.3
M	Main Street Dungiven	Y	-	91.6
P	Main Street Dungiven	Y	-	81.3

[a] i.e. data capture for the monitoring period, in cases where monitoring was c
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried ou
capture for the full calendar year would be 50%.)
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not
[d] Annual mean concentrations for previous years are optional.

The bias adjusted results for 2009 indicate that the annual m A,B,C,D,E,H,I & L all exceed the annual mean objective leve The full data set is included in appendix A These location AQMA

2.2.2 Particulate matter PM_{10}

Not applicable – PM10 levels within the Borough are below the national air quality objective levels

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Not applicable

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

Not applicable

2.2.3 Sulphur Dioxide

Not applicable – levels of sulphur dioxide within the Borough are below the national air quality objective threshold

2.2.4 Benzene

Not applicable – levels of benzene within the Borough are below the national air quality objective thresholds

2.2.5 Other pollutants monitored

No other pollutants are monitored within Limavady Borough

2.2.6 Summary of Compliance with AQS Objectives

Limavady Borough Council has examined the results from monitoring in Limavady Borough. Concentrations of pollutants outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

New Local Developments

2.3 Road Traffic Sources

Narrow congested streets with residential properties close to the kerb

The revised technical guidance LAQM TG (09) suggests that where annual average daily traffic flows exceed 5000 vehicles per day (approximately 35 or more vehicles within a five minute period), where the average speed will be less than 25kph and where there are residential properties within 2m of the kerb Councils should carry out further investigation of NO_2 concentrations. Since this guidance was published in 2009 Limavady Borough Council has identified two streets within Limavady town centre where monitoring is proposed over a six month period. These streets will be monitored over the coming months to determine if NO_2 levels are excessive.

The other sources were considered in Council's recent USA report and no detailed assessments were required

2.4 Other Transport Sources

Not applicable – these were all considered in Council's recent USA report and no detailed assessments were required

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2.5 Industrial Sources

Not applicable – these were all considered in Council's recent USA report and no detailed assessments were required

2.5 Commercial and Domestic Sources

Not applicable – these were all considered in Council's recent USA report and no detailed assessments were required

2.6 New Developments with Fugitive or Uncontrolled Sources

Not applicable – these were all considered in Council's recent USA report and no detailed assessments were required

Limavady Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

3 Local / Regional Air Quality Strategy

Limavady Borough Council has no formal air quality strategy at present. One will be developed in due course.

4 Planning Applications

Limavady Borough Council has reviewed those planning applications received and is not aware of any future developments within the Borough which will to the best of its knowledge have an adverse impact on air quality.

The only issue which Council is aware of is a major road improvement scheme of the existing A6 linking the city of Derry to Belfast. A feature of this scheme will be the inclusion of a bypass of Dungiven town which will have a positive impact on air quality within the existing AQMA. This scheme is in its infancy and it may be a few years until it reaches fruition

5 Air Quality Planning Policies

Planning policy within Northern Ireland is the responsibility of DOE Planning Service. Limavady Borough Council, in its role as a statutory consultee to Planning Service, highlights any issues which would adversely impact on air quality within the Borough and would strive to control through planning conditions such impacts to ensure air quality is not compromised by development.

Planning Service in Northern Ireland has produced its Regional Development Strategy 2025 – Shaping the Future. It is a strategic and long term perspective on future development within Northern Ireland. The content of the document is not just limited to land use planning but recognises that policies for physical development have an important bearing on other matters such as developing a strong spatially based economy, a healthy living environment and an inclusive society which tackles inequalities relating to health, education and living standards.

6 Local Transport Plans and Strategies

The Department of Regional Development (DRDNI) is responsible in Northern Ireland for the formulation and implementation of transportation Strategies. The current Regional Transport Strategy (RTS) – 2025 examines in detail the various projections which DRDNI would hope to achieve by 2025. This document focuses on enhancing accessibility for all, examining all forms of transport, moving people and goods rather than vehicles, educating the public on the impact and full cost of their transport choices and on reducing their need to travel. In terms of the national perspective car ownership is growing at the fastest rate in Northern Ireland. It is DRDNI's belief at meeting the levels of future demand by improvements alone, particularly for unrestrained car use in larger urban centres and their hinterlands is not a sustainable option in the future.

The RTS aims to further develop policies and measures to reduce the inverse environmental impact of transport and contribute to sustainable patterns of development and movement through support for the role of public transport, walking, cycling and more responsible use of the car.

Chapter 11 of the RTS sets out DRD's aims and objectives in the coming years. DRDNI aim to develop a Regional Transportation Strategy which will create an integrated transportation system which in turn will not only contribute to the economy and promote access to jobs services and facilities but which will also reduce the adverse environmental impact of transport and contribute to sustainable patterns of development and movement through support for public transport, promotion of alternatives to the car, and more responsible use of the car. They hope through a strategic approach to traffic management to achieve wider planning and transportation aims including more responsible car use in urban and rural areas.

Areas which they will focus on include:

- **Awareness campaigns to highlight the adverse environmental impact of car use**
- **Encourage the development and implementation of travel plans by major employers through partnership with business and the wider community**
- **Promote an integrated approach to reducing car use**
- **Promote higher car occupancy**
- **Develop and promote the use of "park and share sites" at key nodes on the road network**
- **Strengthen traffic law enforcement particularly in relation to illegal parking and road safety**
- **Channel major freight movements on to the road network and identify urban and rural feeder routes for heavy lorries to facilitate local businesses and protect residential amenity.**

7 Climate Change Strategies

Limavady Borough Council is committed to ensuring a better quality of life for the people living, working and visiting the Borough Council area. The Council recognises that in pursuing its activities it can also have an impact on the local, regional and global environment.

Limavady Borough Council is fully committed to its involvement in improving the local and global environment and will use its influence and resources to achieve a local environment which it will be proud to pass on to future generations.

Limavady Borough Council has devised its Sustainable Environment Policy action plan in which it sets out what steps it will take to protect the environment on both a local regional and global scale.

- **The Council operates within all statutory requirements in relation to environmental performance.**
- **It uses a greater proportion of local produce, materials and expertise in order to reduce our carbon footprint.**
- **Council takes steps to ensure, as far as possible, that Council buildings contribute to sustainable development.**
- **It makes efficient use of energy and water.**
- **Staff minimise the environmental impact of travelling on Council business**
- **Council's waste production is minimized as far as is practicable - reuse or recycle waste where possible.**
- **Council will lobby for investment in, and encourage the use of, public and community transport and facilities for cyclists and pedestrians**
- **Council will protect, restore and enhance the diversity of the Borough's wildlife and countryside including responsible management of the countryside.**
- **It will maintain and manage the Council's facilities and land holdings in an environmentally sensitive way.**
- **Promote a sense of responsibility and understanding for environmental issues within the local community through education, information provision and open consultation.**

8 Implementation of Action Plans

Limavady Borough Council has developed an action plan with regard to improving air quality within its existing AQMA. Work is ongoing on this plan and an update will be submitted at a later date.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Monitoring data for the period January to December 2009 indicates that the annual mean concentrations of NOx within our existing AQMA remain above the annual mean air quality objective of 40 μg/m^3.

9.2 Conclusions relating to New Local Developments

There have been no new local developments which Council is aware of that will have an adverse effect on air quality and hence no detailed assessments are required.

9.3 Other Conclusions

Limavady Borough Council is working towards the implementation of its AQMA action plan. Scenario modelling of the proposed bypass has been completed and the resulting report will be finalised in the coming weeks. This will be forwarded to PEPG for appraisal.

9.4 Proposed Actions

The most recent NOx monitoring data (2009) has indicated that the levels within the AQMA remain high. Further work will be undertaken in conjunction with the relevant authority, DRD Roads Service, to increase public awareness and highlight steps which can be taken to reduce emissions. The construction of a bypass on the outskirts of Dungiven is planned but it is appreciated that this would be a long term solution to the problem. Short to mid term actions whilst subject to public participation may help to focus minds on the steps which individual car users can adopt to reduce emissions. The existing boundary of the AQMA does not require amendment.

With recent amendments to Technical Guidance TG(09) additional monitoring will be carried out within two narrow congested streets within Limavady, namely Irish Green Street and Linenhall Street to assess if NOx levels exceed the air quality objective levels. This monitoring will take place within the next 9 months.

Exceedences of no other pollutants have been identified.

A detailed assessment will be submitted by Council in due course

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10 References

Technical Guidance TG(09

Appendices

Appendix A: Annual mean NOx concentrations 2009 within Dungiven AQMA (not bias adjusted)

Monitoring site	Location	Annual average NO_2 concentration
A	Main Street Dungiven	46.52
B	Main Street Dungiven	54.52
C	Main Street Dungiven	54.65
D	Main Street Dungiven	51.61
E	Main Street Dungiven	53.24
F	Main Street Dungiven	39.58
G	Main Street Dungiven	43.55
H	Main Street Dungiven	50.16
I	Main Street Dungiven	46.90
J (background)	New Street Dungiven	23.90
K	Main Street Dungiven	39.60
L	Main Street Dungiven	47.50
M	Main Street Dungiven	43.98
N	Main Street Dungiven	41.25
O	Main Street Dungiven	42.19
P	Main Street Dungiven	39.66

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Supplied By Envirotechnology plc,
Gradko tubes
20% TEA in water
Bias adjustment factor 2009: 0.9

Factor from Local Co-location Studies (if available)

Not applicable

Discussion of Choice of Factor to Use

Not applicable

PM Monitoring Adjustment

Not applicable

Short-term to Long-term Data adjustment

Not applicable

QA/QC of automatic monitoring

Not applicable

QA/QC of diffusion tube monitoring

NAMAS accredited laboratory, WASP accredited