Banbridge District Council

Local Air Quality Progress Report

April 2007

Executive Summary

A Updating and Screening Assessment Report for Banbridge District Council was appraised by the University of the West of England (UWE) on behalf of the Environment & Heritage Service in May 2006. This report was accepted by the Environment & Heritage Service, with no conditions. No further detailed assessments were required at this time for any of the pollutants reviewed and there was currently no requirement for any statutory Air Quality Management Areas (AQMAs) to be declared.

Preparation of this Progress Report is the final activity prescribed in the timetable for the Second Round of reviews and assessments as set out in LAQM Policy Guidance (LAQM.PGNI(03)). The report has been produced in accordance with guidance detailed in Progress Report Guidance LAQM.PRGNI(04), and summarises the findings of the LAQM activities undertaken by the Council including the currently available air quality monitoring results for 2006.

The conclusion of this report confirms that for all the prescribed air pollutants, concentrations in the district are well within the statutory limits for 3 of the 4 monitoring sites. The exception being sampling location 11 (A1 – adjacent to Fortfield in Dromore). It has been determined that there is an inconsistency in the monitoring results for March 2006 which demonstrates unusually high levels of NO_2 emissions at this location (62 ug/m^3). This may be due to an unexplained event which has caused such an unexpected elevation in the results. Comparable, historical data for the previous months and years of monitoring at this location, supports the conclusion that this is a specific monitoring anomaly. The Council has also taken into consideration that the nearest sensitive receptor in proximity to the sampling location is the façade of a nearby house. The façade is more than 10 metres from the sampling location and therefore it is unlikely that there is a risk to human health at this time. On this basis the council has decided that it would be unnecessary to proceed to a detailed assessment for this location, although the Council will continue to monitor emissions at this location.

The Council will continue to participate fully in the ongoing LAQM Review & Assessment process, to ensure that local air quality across all parts of the district is managed in a way that effects compliance with health-based, statutory pollutant limits. In this context, the development of a local air quality management strategy for the district is currently in progress.

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1.0 Introduction

1.1 Purpose and Role of Progress Reports

In 1995 the UK Government published its strategic framework for air quality management and established national strategies and policies on air quality. The Northern Ireland Environment Order came into force in January 2003 and implements the European Air Framework Directive 96/62EC and the UK Air Quality Strategy here in Northern Ireland.

Under the Local Air Quality Management (LAQM) regime, councils are required to review present local air quality, make projections on future trends and assess whether the nationally prescribed objectives are likely to be achieved. Progress reports are required to be produced in the years when the authority is not carrying out updating and screening assessments or detailed assessments of air quality.

This progress report has been prepared as part of Banbridge District Council's responsibilities under the Environment (Northern Ireland) Order 2002 to "fill the gap" between three yearly rounds of review and assessment of local air quality. The progress report has been introduced into the local air quality management system, as a means of combating the 'stop-start' approach to environmental reporting and integrate the concepts of local air quality management into the routine of local authority operations.

It is intended that progress reports can assist the district councils by:

- helping to retain a profile for LAQM within the council, including the retention of staff with knowledge of air quality issues.
- providing a means for communicating air quality information to members and the public.
- maximising the value of the investment in monitoring equipment.
- facilitating the next round of review and assessment as there will be a readily available up-to-date source of information.
- helping district councils respond to requests for up-to-date information on air quality.
- providing information to assist in other policy areas, such as transport and land use planning.
- providing a ready source of information on air quality for developers carrying out environmental assessments for new schemes.
- demonstrating progress with implementation of air quality Action Plans and/or air quality strategies.
- providing a timely indication of the need for further measures to improve air quality, rather than delaying until the next full round of review and assessment.

The overall aims of this progress report are to:

- Report progress on implementing local air quality management.
- Report progress in achieving and maintaining concentrations of prescribed pollutants below the air quality objectives.

This report has therefore been prepared in accordance with the Environment & Heritage Service guidelines as published in Progress Report Guidance LAQM.PRGNI(04), November 2004.

1.2 Air Quality Strategy Objectives

The following air quality objectives set out in the Air Quality Regulations (NI) 2003 provide the statutory basis for the system of Local Air Quality Management.

Table 1: Air Quality Strategy Objectives

Pollutant	Objective	Measured as	To be achieved by
Benzene	3.25 µg/m^3	Running Annual Mean	31/12/2010
1,3-Butadiene	2.25 µg/m^3	Running Annual Mean	31/12/2003
Carbon monoxide	10.0 mg/m^3	Maximum daily running 8 Hour Mean	31/12/2003
Lead	0.5 µg/m^3	Annual Mean	31/12/2004
	0.25 µg/m^3	Annual Mean	31/12/2008
Nitrogen dioxide	200 µg/m^3 Not to be exceeded more than 18 times per year	1 Hour Mean	31/12/2005
	40 µg/m^3	Annual Mean	31/12/2005
Particles (PM_{10}) (gravimetric)[d]	50 µg/m^3 Not to be exceeded more than 35 times per year	24 Hour Mean	31/12/2004
	40 µg/m^3	Annual Mean	31/12/2004
Sulphur Dioxide	266 µg/m^3 Not to be exceeded more than 35 times per year	15 Minute Mean	31/12/2005
	350 µg/m^3 Not to be exceeded more than 24 times per year	1 Hour Mean	31/12/2004
	125 µg/m^3 Not to be exceeded more than 3 times per year	24 Hour Mean	31/12/2004

1.3 Conclusions of Previous Review and Assessment, 2006.

PM_{10}

The Second Round, Stage 1 review and assessment (USA) completed in 2006, concluded that PM_{10} emissions did not require any further assessment at that time, on the basis of results gathered from diffusion tube monitoring at a number of sampling locations within the district.

NO_2

The Second Round, Stage 1 review and assessment (USA) completed in 2006, concluded that a further Stage 2 assessment of NO_2 emissions was not required at that time, on the basis of results gathered from diffusion tube monitoring at a number of sampling locations within the district.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Banbridge District Council undertakes ambient monitoring of the following pollutants in its area:

- **NO_2** (by Diffusion Tube).

Table 2.1: Air Quality Monitoring In Banbridge

Pollutant	Equipment	Location	Eastings	Northings	Site Type
NO2	Nitrogen Dioxide diffusion tubes	17 Springfields, Banbridge BT32 3LT	312010	344249	Background
		7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS	312845	346275	Kerbside
		9 Fortfield, Maypole Hill, Dromore BT25 1DD	319800	353508	Background
		A1 Dromore By-Pass	319803	353635	Kerbside

Roadside = 1-5m from kerb, urban background = at least 50m from the kerb of any major road.

No other pollutants covered in the air quality strategy objectives are monitored in the area covered by Banbridge District Council.

2.1.1 Automatic Monitoring Stations

There are no automatic monitoring sites within Banbridge District Council area.

2.1.2 NO_2 Diffusion Tube Monitoring Sites

Banbridge District Council carries out monitoring of NO_2 by diffusion tubes at four sites within the District. The NO_2 diffusion tubes are prepared and analysed by Lambeth Scientific Services Limited. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in water. Analysis is carried out using a colorimetric technique

Four of the sites are included in the UK NO_2 Network, but none of the sites were co-located with an automatic NO_2 analyser. Details are given in Table 2.1 and maps in Appendix A.

Table 2.1.2: Diffusion Tube Monitoring Site Details in Banbridge

Pollutant	Equipment	Location	Eastings	Northings	Site No.	Site Ref.
NO2	Nitrogen Dioxide diffusion tubes	17 Springfields, Banbridge BT32 3LT	312010	344249	8	82760 K
		7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS	312845	346275	10	82979 K
		9 Fortfield, Maypole Hill, Dromore BT25 1DD	319800	353508	7	82762 B
		A1 Dromore By-Pass	319803	353635	11	82763 B

2.1.3 SO_2 Diffusion Tube Monitoring Sites

Banbridge District Council no longer carries out monitoring of SO_2 by diffusion tubes

2.2 NEW MONITORING

No new monitoring sites have been set up or discontinued, since the previous Updating and Screening Assessment.

2.3 MONITORING RESULTS AND COMPARISON WITH AQS OBJECTIVES

2.3.1 (Automatic Monitoring Station)

There is no automatic monitoring equipment currently located within the Banbridge District Council area.

2.3.2 NO_2 (Diffusion Tube Monitoring)

NO_2 diffusion tube monitoring results have been bias corrected for 2001 to 2006.

Nitrogen Dioxide concentrations recorded by the diffusion tubes indicate that Nitrogen Dioxide concentrations currently comply with the annual mean Air Quality Strategy objective at all measurement locations with the exception of sampling location 11 (A1 – adjacent to Fortfield in Dromore). It has been determined that there is an inconsistency in the monitoring results for March 2006 which demonstrates unusually high levels of NO_2 emissions at this location (62 ug/m^3). This may be due to an unexplained event which has caused such an unexpected elevation in the results. Comparable, historical data for the previous months and years of monitoring at this location, supports the conclusion that this is a specific monitoring anomaly. The Council has also taken into consideration that the nearest sensitive receptor location is the façade of a private residence which is more than 10 metres from the sampling location and therefore it is unlikely that there is a risk to human health at this time. On this basis the council has decided that it would be unnecessary to proceed to a detailed assessment for this location, although the Council will continue to monitor emissions at this location.

Tables 1 to 6 in Appendix B, list the results for NO_2 diffusion tubes from 2001 to 2006.

2.3.4 SO_2 (Diffusion Tube Monitoring)

Banbridge District Council no longer carries out monitoring of SO_2 by diffusion tubes

3.0 New Developments – Since the First Stage Review & Assessment

3.1 Industrial Processes

3.1.1 Part A Industrial Processes

No new Part A processes were authorised for operation.
None of the existing Part A processes underwent significant changes likely to increase their emissions by 30% or more.

3.1.2 Part B Industrial Processes

No new Part B industrial processes were authorised in Banbridge. No previously existing Part B processes underwent significant changes likely to increase their emissions by 30% or more.

3.1.3 Other Industrial Processes

3.1.3.1 New landfill, Quarrying and Mineral Processes

No landfill, quarrying or mineral processes have started operation or significantly changed.

3.1.3.2 New Fuel Storage Depots

No new major fuel storage depots, either in or close to the Banbridge District, have been identified.

3.1.3.3 Small Boilers

Banbridge District Council are not aware of any significant changes to >5$MW_{(thermal)}$ fuel plants and processes.

3.1.4 Industrial Process Closures

Banbridge District Council has not identified any process closures within the district.

3.2 Transport

3.2.1 New Road Developments

See section 3.2.*2 Significant Changes to Existing Roads* below.

3.2.2 Significant Changes to Existing Roads

The A1 Belfast to Dublin road has undergone extensive renovation and upgrading between Loughbrickland and Sheepsbridge. The works included the upgrading of the existing single lane carriageway to a dual carriageway standard. Associated works included the construction of brand new sections of the road which incorporates the engineering of cuts and fills in the local landscape. An Environmental Impact Statement was prepared by Babtie Group, Belfast and a copy has been made available to the Council. The construction works was not considered as contentious and only had a short term impact on local air quality. No significant complaints regarding air pollution associated with construction were received by the Council.

3.2.3 Newly Identified Public Exposure to Vehicle Emissions

No roads have been identified with annual average daily traffic flow (AADT) greater than 10,000 vehicles per day, which have experienced large increases (25% or more) in traffic flow, since the previous Updating and Screening Report. Local Authorities are required to consider whether there are any of the following in their area, either new since the last report, or newly identified:

1. Narrow congested streets meeting the following criteria:
   - Residential properties are within 5m of the kerb.
   - Average traffic speeds are 50kph or less.
   - The carriageway is less than 10m wide, and
   - AADT is greater than 10,000.

2. Busy streets where people may spend 1 hour or more close to traffic (most likely in streets of shops, bars, cafes etc.), meeting the following criteria:
   - Public exposure for 1 hour or more within 5m of the kerb
   - AADT > 10,000 vehicles per day.

The Updating and Screening Assessment of March 2006 identified no roads in Banbridge meeting these criteria. There are no new or newly identified streets meeting these criteria since the previous report.

3.2.4 Other Transport Sources

As well as road vehicles, public exposure to emissions from planes, buses, trains, ships etc. must also be considered.

3.2.4.1 Trains

There are no new, or newly identified, locations where diesel locomotives are regularly stationary for five minutes or more and -

- There is potential for public exposure within 15m of the locomotives

- There are more than two occasions a day when diesel locomotives are stationary with engines running for more than 15 minutes.

3.2.4.2 Airports

There are no airports in Banbridge or neighbouring authorities that have a throughput of 5 million passengers per year and/or 500,000 tonnes of freight.

3.2.4.3 Bus Stations

The main bus stations within the Banbridge District Council area have less than 1000 bus movements per day. There are no newly identified bus stations with more than 1000 bus movements per day, and no bus stations where movements have increased to more than 1000 per day since the previous Updating and Screening Report.

3.2.4.4 Shipping

Banbridge is inland and has no ports with more than 5,000 shipping movements per year

3.3 Residential, Commercial and Public

3.3.1 New Housing Developments

There are no new housing developments proposed for the Banbridge District Council area that have full planning permission granted.

3.3.2 New Commercial Developments

There are no new commercial developments (e.g. retail parks, office blocks, leisure centres).

3.3.3 New Public Developments

New public developments such as schools, hospitals, stations, major car parks require consideration as they may impact on local traffic flow.

No new public developments have been confirmed since the previous Updating and Screening Assessment.

4.0 Conclusions and Recommendations

4.1 Conclusions from New Monitoring Data

Since the submission of the Second Round 'Updating & Screening Assessment' Report of May 2006, ongoing assessment indicates that concentrations of the most significant of the prescribed pollutants, PM_{10}, & NO_2, are unlikely to exceed the statutory limits with the exception of sampling location 11 (A1 – adjacent to Fortfield in Dromore). It has been determined that there is a possible inconsistency in the monitoring results for March 2006 which demonstrates unusually high levels of NO_2 emissions at this location (62 ug/m^3). This may be due to an unusual event which has caused such an unexpected elevation in the results. Comparable, historical data for the previous months and years of monitoring at this location, supports the conclusion that this is a specific monitoring anomaly. The Council has also taken into consideration that the nearest sensitive receptor in proximity to the sampling location is the façade of a house. The façade is more than 10 metres from the sampling location and therefore it is unlikely that there is a risk to human health at this time. On this basis the council has decided that it would be unnecessary to proceed to a detailed assessment for this location, although the Council will continue to monitor emissions at this location.

This Progress Report has not identified any sources that require further assessment. Therefore at this stage it is not necessary for Banbridge District Council to proceed to a detailed assessment for any of the pollutants. (see above)

4.2 Recommendations

Passive sampling by diffusion tubes are a simple cost effective method of monitoring and checking air quality in an area. It is recommended that the NO_2 monitoring should be continued, targeting likely problem areas. The diffusion tube survey will comply with the objectives and sampling methods as set out in LAQM TG(03). It is recommended that the NO_2 diffusion tube network be extended where necessary in light of future screening.

Banbridge District Council currently has its Air Quality Management Strategy in place and is working to fulfil the objectives that were initiated as part of the Strategy. The Strategy is currently at the end of its first year since being launched in March 2006 and the council has been involved in a successful 'Walk to School' campaign to highlight the issues of air pollution and road traffic caused by the school run. The council is also registered on the DOE Travelwise 'Car-share' scheme. Since local air quality management work by the council has to date indicated that the District enjoys a relatively good standard of air quality, it is anticipated that the strategy will focus on protecting this position for the future.

APPENDIX A

BANBRIDGE DISTRICT COUNCIL

Local Air Quality Monitoring Maps

Insert Map 1

Insert Map 2

Insert Map 3

APPENDIX B

NO_2 DIFFUSION TUBE DATA

BANBRIDGE DISTRICT COUNCIL
2001 to 2006

Table 1: NO2 Diffusion Tube Results 2006

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2006 - DECEMBER 2006

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	13	37	23	21
February	11	12	17	35
March	5	11	18	62
April	10	9	38	21
May	9	10	21	24
June	8	9	34	30
July	7	8	23	27
August	4	8	19	25
September	10	9	28	25
October	14	19	36	43
November	12	11	13	45
December	14	13	30	15
Mean	10	13	25	31
Ratified Mean	13	17	34	42
BIAS FACTOR 2006 - 1.34 (Cm/Dm)				

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

NS - No Sample

Table 2: NO2 Diffusion Tube Results 2005

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2005 - DECEMBER 2005

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	14	8	25	19
February	13	13	20	29
March	15	14	32	35
April	12	10	28	31
May	26	28	34	39
June	18	25	40	32
July	20	21	14	19
August	7	6	18	30
September	7	10	20	26
October	15	17	31	41
November	15	9	27	39
December	19	10	36	35
Mean	15	14	27	31.25
Ratified Mean	17	16	31	35
BIAS FACTOR 2005 - 1,13 (Cm/Dm)				

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

NS - No Sample

Table 3: NO2 Diffusion Tube Results 2004

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2004 - DECEMBER 2004

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	14	16	45	38
February	19	NS	39	30
March	11	NS	27	22
April	15	10	NS	33
May	17	22	31	57
June	22	NS	11	14
July	6	8	29	41
August	12	17	19	42
September	10	9	28	11
October	15	13	26	28
November	13	16	32	6
December	14	11	12	23
Ratified Mean	14	13	27	29

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

NS - No Sample

BIAS FACTOR 2004 - 1.08 (Cm/Dm)

Table 4: NO2 Diffusion Tube Results 2003

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2003 - DECEMBER 2003

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	37	NS	62	51
February	11	NS	37	25
March	8	15	37	12
April	14	15	32	33
May	5	NS	26	21
June	11	NS	NS	44
July	6	NS	32	43
August	8	5.3	16	35
September	11	13.7	37	35
October	15	NS	26	22
November	19	22	50	54
December	24	25	43	39
Ratified Mean	14	16	36	34

BIAS CORRECTION 2003 - 1.05 (Cm/Dm)

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample

Table 5: NO2 Diffusion Tube Results 2002

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2002 - DECEMBER 2002

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	22	28	NS	43
February	17	15	45	44
March	3	13	40	21
April	15	23	20	31
May	5	NS	31	39
June	17	17	25	10
July	31	23	66	30
August	NS	NS	NS	NS
September	31	NS	52	17
October	33	21	25	49
November	13	20	NS	36
December	15	NS	47	60
Ratified Mean	18	20	39	35

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample

BIAS CORRECTION 2002 - 1.15 (Cm/Dm)

Table 6: NO2 Diffusion Tube Results 2001

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2001 - DECEMBER 2001

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	22	3	28	29
February	15	17	21	33
March	15	17	21	33
April	45	47	37	26
May	19	17	43	46
June	9	15	23	24
July	13	5	35	39
August	12	15	19	33
September	14	13	32	37
October	26	17	37	56
November	12	8	20	23
December	20	16	22	45
Ratified Mean	18	16	28	35

BIAS CORRECTION 2001 - 1.09 (Cm/Dm)

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample