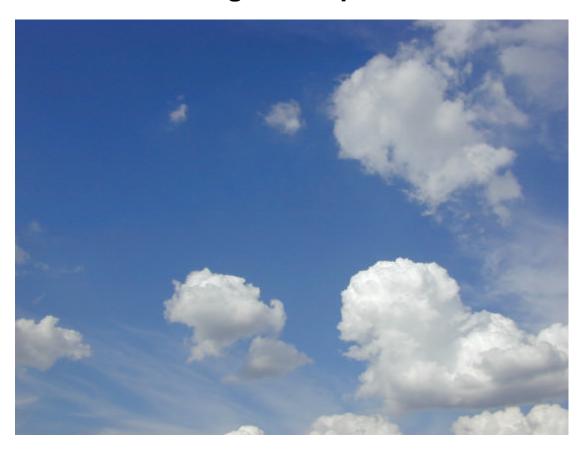


### Local Air Quality Management Environment Act 1995

### **Progress Report**



North Devon Council Environmental Health and Housing Services Prepared March 2013



# 2013 Air Quality Progress Report for North Devon Council

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management

**March 2013** 

Local	Andy Cole
Authority	
Officer	

Department	Environmental Health and Housing Services
Address	North Devon Council Civic Centre North Walk Barnstaple North Devon EX31 1EA
Telephone	01271 388870
E-mail	Andrew.cole@northdevon.gov.uk

Report	
Reference Number	
Date	March 2013

### **Executive Summary**

This report concludes that:-

- 1. The findings in the Progress Report prepared in 2009 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM<sub>10</sub> remain valid.
- 2. The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2012 is below the threshold limit for all sites, except for site 13 and close to the threshold at site 12. These sites are located in a recently declared Air Quality Management Area (AQMA).
- 3. The draft Air Quality Action Plan in relation to this AQMA is presently the subject of an extensive consultation exercise.

The final Action Plan is hoped to be submitted to Defra in mid - late 2013.

### **Table of Contents**

				Page
1.	Intr	oduction		1
	1.1	Descript	tion of Local Authority Area	1
	1.2		e of Progress Report	2 2
	1.3		lity Objectives	2
	1.4	Summar	ry of Previous Review and Assessments	3
		1.4.1	First Round of Review and Assessment	3
		1.4.2	Updating and Screening Assessment	4
		1.4.3	Progress Report	4
		1.4.4	Updating and Screening Assessment	4
		1.4.5	Progress Report	4
		1.4.6	Progress Report	5
		1.4.7	Updating and Screening Assessment	5
		1.4.8	Progress Report	5
		1.4.9	Detailed Assessment of Nitrogen Dioxide at Rolle Street Barnstaple and Braunton	6
		1.4.10	Progress Report	6
		1.4.11	Updating and Screening Assessment	7
		1.4.12	Further Assessment	8
_				
2.	New	<b>Monitor</b>	ing Data	8
	2.1	Summai	ry of Monitoring Undertaken	8
		2.1.1	Automatic Monitoring Sites	8
		2.1.2	Non-Automatic Monitoring	8
	2.2	Compari	ison of Monitoring Results with Air Quality Objectives	9
		2.2.1	Nitrogen Dioxide Diffusion Tube Monitoring Data	9
		2.2.2	Summary of Compliance with AQS Objectives	12
3.	Nev	v Local D	evelopments	12
4.	Con	clusions	and Proposed Actions	12
	4.1	Conclus	ions from New Monitoring Data	12
	4.2		ions relating to New Local Developments	13
	4.3		onclusions	13
	4.4	Propose	ed Actions	13

### References

### **Appendices**

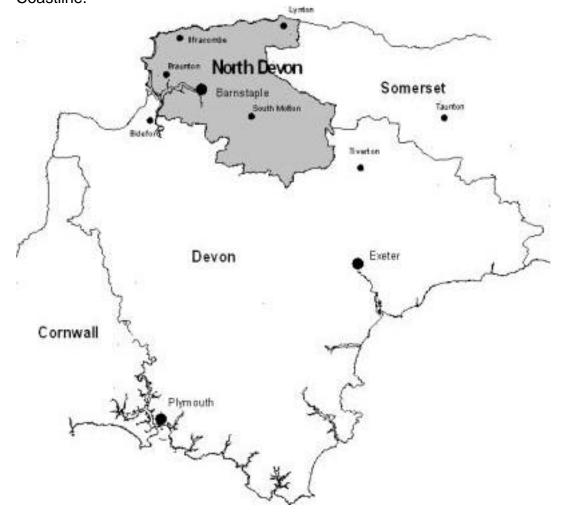
Appendix A - QA/QC Data

Appendix B - Map Showing Approximate Diffusion Tube Locations Appendix C - Short Term Adjustment Factor Calculations Appendix D – AQMA Order and Map

### 1. INTRODUCTION

### 1.1 Description of Local Authority Area

The North Devon district occupies the northern most part of the county of Devon and borders the western borders of Somerset and the Bristol Channel, covering an area approximately 1,085 square kilometres (419 sq miles). The area is characterised by a rugged northern Bristol Channel coast, the sandy beaches of the West Coast, the estuarine and valley landscapes of the River Taw and the open moorland and farmland of the Exmoor fringes. The district includes approximately one-third of the area of Exmoor National Park. The character of the North Devon district is inextricably linked to its natural landscape, which is its most prized asset. The landscape is highly valued by residents and tourists alike, and incorporates numerous Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty and Heritage Coastline.



The population of the area in 2000 was approximately 91,800, with approximately half the residents living in the four main settlements of Ilfracombe, Braunton, South Molton and Barnstaple, which is also the regional centre for northern Devon. The remainder of the population lives in the open countryside or in one of the numerous villages and hamlets of the area.

The area has an extensive rural road network and is connected to the rest of the region by the A39, A361 and A377 roads. There is also a regional rail connection between Barnstaple and Exeter, which runs along the valley of the River Taw.

Employment in the district is concentrated in the main settlements. There is a strong dependence on the service industry, especially tourism related in the summer and also in the public administration, health and finance sectors, reflecting Barnstaple's role as a regional centre. There is also a healthy industrial base in the area and this is reflected in the 48 prescribed processes regulated under the Pollution Prevention and Control Regulations 2000, which are currently in operation within the administrative area of North Devon Council.

### 1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the threeyearly 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 exceedance of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately and not wait until the next round of Review and Assessment.

### 1.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) in England are set out in the Air Quality (England) Regulations 2000 (SI 928) and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1. This table shows the objectives in units of microgrammes per cubic meter  $\mu g/m^3$  (for carbon monoxide the units used are milligrammes per cubic metre,  $mg/m^3$ ). Table 1 includes the number of permitted exceedances in any given year (where applicable).

Table 1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England

Pollutant	Concentration	Measured as	Date to be Achieved by
Benzene	16.25 <i>µ</i> g/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 μg/m <sup>3</sup>	Running annual mean	31.12.2010
1, 3-Butadiene	2.25 <i>µ</i> g/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10.0 <i>µ</i> g/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.5 <i>µ</i> g/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 μg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 <i>μ</i> g/m <sup>3</sup>	Annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric)	50 µg/m³ not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 <i>μ</i> g/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m³ not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m³ not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m³ not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

### 1.4 Summary of Previous Review and Assessments

### 1.4.1 First Round of Review and Assessment

The first round of review and assessment (carried out in 2000) concluded that:-

- 1. The risk of exceeding the air quality objectives for Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide, PM10 and Nitrogen Dioxide was negligible.
- 2. On this occasion, these conclusions were dependent on a proposed gas fired power station in Yelland not being constructed. If constructed, a

third stage review would have been required to consider localised exceedances of *Sulphur Dioxide* and *Nitrogen Dioxide*.

### 1.4.2 Updating and Screening Assessment (USA)

The Updating and Screening Assessment (produced in 2002/03) concluded that:-

- 1. The risk of exceeding the air quality objectives for Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide, PM10 and Nitrogen Dioxide was negligible.
- A detailed assessment was required for the 15 minute Sulphur Dioxide only arising from public exposure to idling trains at Barnstaple Railway Station.
- 3. Monitoring results for Nitrogen Dioxide identified potential exceedances of the annual mean objective at several locations in Barnstaple, however these locations were likely to see significant reductions in road traffic numbers should the proposed Western Bypass and downstream bridge be constructed. As this was scheduled for completion by early 2006, it was considered that a detailed assessment for Nitrogen Dioxide was not necessary.

### 1.4.3 Progress Report

The Progress Report (produced in 2005, reporting 2004 data) concluded that:-

- 1. The findings of the 2003 Updating and Screening Assessment remain valid for Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead and PM<sub>10</sub>.
- 2. A detailed Assessment is not required for the 15-minute Sulphur Dioxide objective, due to changes in the timetable for trains operating from Barnstaple Station.
- 3. Construction of the Barnstaple Western Bypass has now commenced. The predicted reductions in road traffic in central Barnstaple are still expected to be achieved, however compliance with the annual mean objective for Nitrogen Dioxide at Rolle Street is expected to be approximately 12 months later than stated in the 2003 USA.
- 4. There are no new industrial processes or planned developments in the North Devon District with the potential to significantly impact upon achievement of the National Air Quality Standards.

### 1.4.4 Updating and Screening Assessment

The Updating and Screening Assessment (produced in 2006, reporting 2005 data) concluded that:-

1. Monitoring results for Nitrogen Dioxide identified potential exceedances of the annual mean objective at several locations in Barnstaple, however

**Progress Report** 

these locations were likely to see significant reductions in road traffic numbers should the proposed Western Bypass and downstream bridge be constructed. As this was scheduled for completion by May 2007, it was considered that a detailed assessment for Nitrogen Dioxide was not necessary.

### 1.4.5 Progress Report

The Progress Report (produced in 2007, reporting 2006 data) concluded that:-

- 1. The findings in the Progress Report prepared in 2007 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM<sub>10</sub> remain valid.
- 2. It was determined that whilst 2 of the 16 sites monitored in 2006 were equal to the threshold limit for Nitrogen Dioxide and one site exceeded the limit, a detailed assessment of Nitrogen Dioxide at these locations was not necessary at that time. The Western Bypass and downstream bridge project was completed in May 2007 and was forecast to have a significant effect on traffic flows in and around Barnstaple. It was stated that the effects of the completion of this project on the Nitrogen Dioxide levels at these sites would be able to be assessed during this year's LAQM Progress Report.

### 1.4.6 Progress Report

The Progress Report (produced in 2008, reporting 2007 data) concluded that:-

- 1. The findings in the Progress Report prepared in 2007 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM<sub>10</sub> remain valid.
- It was determined that 3 of the 16 sites monitored in 2007 exceeded the threshold limit for Nitrogen Dioxide. It was therefore determined that a detailed assessment of Nitrogen Dioxide should be undertaken at the following sites:-
  - Site 3 Rolle Street 2, Barnstaple
    Site 12 The Square, Braunton
    Site 13 The London Inn, Braunton

### 1.4.7 Updating and Screening Assessment

The Updating and Screening Assessment (produced in 2009, reporting 2008 data) concluded that:-

- 1. The findings in the Progress Report prepared in 2008 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM<sub>10</sub> remain valid.
- 2. The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2008 is greater than the threshold of 40  $\mu g/m^3$  at sites 12 and

13. The results of previous monitoring undertaken resulted in a detailed assessment being commenced at these sites in March 2009, the results of which shall be reported in April 2010.

Whilst sites 12 and 13 are the only sites to exceed 40  $\mu$ g/m³ for 2008, it is interesting to note that as a result of previous monitoring undertaken, a detailed assessment was also commenced in March 2009 for site 3. The results for monitoring undertaken in 2008 does not suggest an exceedance of the threshold at this site, however the detailed assessment shall be completed and the subsequent results reported in April 2010.

### 1.4.8 Progress Report

The Progress Report (produced in April 2010, reporting 2009 data) concluded that:

- The findings in the Progress Report prepared in 2009 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM<sub>10</sub> remain valid.
- The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2009 below the threshold limit value, except for sites 12 and 13.

The results of previous monitoring led to a detailed assessment being undertaken for Nitrogen Dioxide at sites 2, 3, 12 and 13. The results of this detailed assessment are summarised below.

### 1.4.9 Detailed Assessment of Nitrogen Dioxide at Rolle Street, Barnstaple and Braunton

The Detailed Assessment (produced in April 2010) concluded that:

- North Devon Council do not intend to declare an AQMA for Rolle Street (sites 2 and 3),
- 2 North Devon Council do intend to declare an AQMA in Braunton (sites 12 and 13).

### 1.4.10 Progress Report

The Progress Report (produced in 2011, reporting 2010 data) concluded that:

- 1. The findings in the Progress Report for 2009 in relation to Carbon Monoxide, Benzene, 1, 3-Butadiene, Lead, Sulphur Dioxide and PM10 remain valid.
- 2. The Environmental Health and Housing Services department of NDC had recently received confirmation that the twin towns of Lynmouth and Lynton have no mains gas supply. The implications of domestic solid fuel burning in relation to compliance with the relevant Air Quality

Objectives would therefore be assessed, and reported in the Updating and Screening Assessment 2012.

- 3. The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2010 is below the threshold limit value, except for site 12.
- 4. NDC was in the process of declaring an AQMA in Braunton (site 12). The diffusion tube-monitoring network in Braunton had recently been expanded. The results from this additional monitoring were scheduled to be reported in 2012, and used to inform the Further Assessment.

### 1.4.11 Updating and Screening Assessment

The Updating and Screening Assessment (produced in 2012, reporting 2011 data) concluded that:-

- 1. The findings in the Progress Report prepared in 2010 in relation to Carbon Monoxide, Benzene, 1,3 Butadiene, Lead, Sulphur Dioxide and PM10 remain valid.
- 2. The results of the assessment on air quality of the implications of domestic solid fuel burning in the twin towns of Lynton and Lynmouth, confirmed that an exceedance of the Air Quality Objectives for PM10 was not considered to be likely.
- 3. The measured bias adjusted annual means concentration for 2011 was greater than the threshold limit value for Nitrogen Dioxide at site 3. As the results of the detailed assessment undertaken in 2009 in this location did not result in an Air Quality Management Area (AQMA) being declared, North Devon Council do not intend to either undertake another detailed assessment, or re-consider the declaration of an AQMA in this location at this moment in time.

The situation shall however be reviewed in the next Progress Report – which will report data for 2012. If a potential exceedance still exists, NDC shall then consider either undertaking another detailed assessment, or declaring an AQMA.

- 4. The measured bias adjusted annual mean concentration for 2011 was greater than the threshold limit value for Nitrogen Dioxide at sites 12 and 13. These sites are located in the recently declared AQMA. This data shall therefore be analysed and discussed in detail in the Further Assessment, and the Local Air Quality Action Plan which were in the process of being prepared.
- 5. Nitrogen Dioxide is currently measured by diffusion tube at an additional 11 location surrounding the recently declared AQMA. This data shall be reported and discussed in detail in the Further Assessment, and the Local Air Quality Action Plan.
- 6. The Further Assessment and the Local Air Quality Action Plan were currently scheduled to be submitted in 2012 and 2013 respectively.

### 1.4.12 Further Assessment

The Further Assessment, in relation to the AQMA, was produced in 2012. The report concluded that:

- the findings of the Detailed Assessment undertaken in 2009 were correct.
- 2. the declaration of AQMA #1 was correct.
- 3. 91 % of total NOx present at the worst case site in the AQMA (site 12) is attributable to road sources i.e. traffic.
- 4. an estimated 22 % reduction in Road NOx would be required to achieve the AQ Objective for N02

### 2. **NEW MONITORING DATA**

### 2.1 Summary of Monitoring Undertaken

### 2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites in North Devon.

### 2.1.2 Non-Automatic Monitoring

Nitrogen Dioxide is measured by diffusion tube at 16 locations in the North Devon District. The monitoring programme has been in place since 2000, and the monitoring sites are identified in Table 2.

**Table 2: Details of Non-Automatic Monitoring Sites** 

Site	Site Type	OS Grid Ref	Pollutants	In AQMA?	Relevant	Distance	Worst
Name	Cito Typo	oo ona no	Monitored	, ( ), ( )	Exposure?	to kerb of	Case
					(Y/N with	nearest	Location?
					distance	road	
					(m) to	(N/A if not	
					relevant	applicable)	
					exposure)		
1	Kerbside	SS 55756	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 33720	110		N//4	0.5	V
2	Kerbside	SS 55533	NO <sub>2</sub>	N	Y (1m)	0.5m	Y
3	Kerbside	BNG 33615	NO <sub>2</sub>	N	V (4 m)	0.5m	Y
3	Kerbside	SS 5421 BNG 33652	$NO_2$	IN	Y (1m)	0.5111	Y
4	Kerbside	SS 55658	NO <sub>2</sub>	N	Y (1m)	0.5m	Y
4	Kerbside	BNG 32828	INO <sub>2</sub>	IN	1 (1111)	0.5111	ī
5	Urban	SS 54230	NO <sub>2</sub>	N	N (100m)	N/A	Y
	Background	BNG 32526	1402	14	14 (100111)	14/73	'
6	Kerbside	SS 53936	$NO_2$	N	Y (1m)	0.5m	Υ
		BNG 32409			. ()		
7	Kerbside	SS 56717	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 32203					
8	Kerbside	SS 56671	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 32088					
9	Kerbside	SS 55559	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 33298					
10	Kerbside	SS 56130	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
	IZ - ob - i d -	BNG 33181	NO	N.	)/ (4 m)	0.5	Υ
11	Kerbside	SS 55764 BNG 33702	NO <sub>2</sub>	N	Y (1m)	0.5m	Y
12	Kerbside	SS 48896	NO <sub>2</sub>	Y	Y (1m)	0.5m	Y
12	Keibside	BNG 36714	1402	'	1 (1111)	0.5111	'
13	Kerbside	SS 48731	NO <sub>2</sub>	Y	Y (1m)	0.5m	Y
		BNG 36642		•	. (,	0.0	·
14	Kerbside	SS 51544	NO <sub>2</sub>	N	Y (1m)	0.5m	Y
		BNG 47330			, ,		
15	Kerbside	SS 55704	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 33169					
16	Kerbside	SS 71426	NO <sub>2</sub>	N	Y (1m)	0.5m	Υ
		BNG 25877					

### 2.2 Comparison of Monitoring Results with Air Quality Objectives

Air quality monitoring is currently undertaken for Nitrogen Dioxide only, using diffusion tubes – there is no monitoring programme for  $PM_{10}$ , Sulphur Dioxide or Benzene. As such, Nitrogen Dioxide is the only pollutant to be considered for the purpose of this section of the report.

### 2.2.1 Nitrogen Dioxide Diffusion Tube Monitoring Data

The results of the diffusion tube monitoring undertaken in 2012, are shown in Table 3.

The bias adjustment factor applied to the annual mean concentration was 0.90.

This was determined from row 13 of the table at

as accessed on 26th February 2013.

In accordance with advice issued by the air quality helpdesk, all sites with a collection efficiency of >75% have been bias adjusted only.

**Progress Report** 

Sites with a collection efficiency of <75% have had a short-term adjustment factor applied prior to the bias adjustment factor.

A short term adjustment factor has also been applied to all sites which have a collection efficiency of <100% and an annual mean concentration of >36  $\mu g/m^3$ .

The calculations associated with determining the appropriate short-term correction factor are included as Appendix C to this report.

The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2012 is below the threshold limit for all sites, except for site 13 – and close to the threshold at site 12.

The diffusion tube monitoring network surrounding this area, in Braunton, was expanded as a result of an AQMA being declared in July 2011.

The results of this additional monitoring are not included in this report, but shall be presented in future Action Plan Progress Reports.

The Order and associated map of the AQMA are included as Appendix D to this report.

The Further Assessment in relation to the AQMA has been completed, and the draft Air Quality Action Plan is currently the subject of an extensive consultation exercise.

The final Action Plan is scheduled to be submitted to Defra in 2013.

**Table 3: Results of Nitrogen Dioxide Diffusion Tubes – 2012** 

Site ID	Location	Within AQMA?	Data Capture 2012 %	Annual Mean Concentrations 2012 (µg/m³) Adjusted for Bias
1	Pilton Causeway, Barnstaple	N	83	26.35
2	Rolle Street 1, Barnstaple	N	92	27.93
3	Rolle Street 2, Barnstaple	N	100	34.88
4	Lower Sticklepath Roundabout, Barnstaple	N	100	21.85
5	Sticklepath School, Barnstaple	N	75	7.70
6	Cedars Roundabout, Barnstaple	N	100	18.33
7	Newport Road, Barnstaple	N	100	27.68
8	South Street, Newport, Barnstaple	N	92	23.94
9	Castle Street, Barnstaple	N	100	15.28
10	Alexandra Road, Barnstaple	N	100	27.37
11	Belle Meadow Road, Barnstaple	N	100	25.02
12	The Square, Braunton	Υ	92	38.84
13	The London Inn, Braunton	Υ	83	42.32
14	Church Street, Ilfracombe	N	100	20.97
15	High Street, Ilfracombe	N	100	18.70
16	Broad Street, South Molton	N	92	22.65

Table 4: Results of Nitrogen Dioxide Diffusion Tubes 2009 - 2011

Site ID	Location	Within AQMA?	Annual Mean Concentrations (μg/m³) Adjusted for Bias				
			2009	2010*	2011		
1	Pilton Causeway, Barnstaple	N	30.51	35.07	30.47		
2	Rolle Street 1, Barnstaple	N	30.60	36.94	30.46		
3	Rolle Street 2, Barnstaple	N	35.08	35.99	40.28		
4	Lower Sticklepath Roundabout, Barnstaple	N	21.15	23.52	23.89		
5	Sticklepath School, Barnstaple	N	8.40	9.89	8.47		
6	Cedars Restaurant, Barnstaple	N	20.54	20.28	24.21		
7	Newport Road, Barnstaple	N	31.16	35.39	30.43		
8	South Street, Newport, Barnstaple	N	22.95	29.53	25.22		
9	Castle Street, Barnstaple	N	15.37	19.66	17.35		
10	Alexandra Road, Barnstaple	N	29.80	32.11	29.97		
11	Belle Meadow Road, Barnstaple	N	25.17	29.12	27.23		
12	The Square, Braunton	Υ	39.68	46.48	44.35		
13	The London Inn, Braunton	Υ	40.81	36.20	41.57		
14	Church Street, Ilfracombe	N	20.43	22.30	24.72		
15	High Street, Ilfracombe	N	20.29	21.04	20.89		
16	Broad Street, South Molton	N	21.54	25.84	28.85		

### 2.2.2 Summary of Compliance with AQS Objectives

As mentioned in Section 2.2.1, North Devon Council has examined the results from monitoring in the district.

The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2012 is below the threshold limit for all sites, except for site 13 – and close to the threshold at site 12.

It should also be acknowledged that whilst the measured bias adjusted annual mean concentration of Nitrogen Dioxide at Site 3 remains close to the threshold limit value, it is actually lower than in 2011.

The results of the detailed assessment referred to in Section 1.4.9 of this report concluded that NDC did not intend to declare an AQMA for this location at that time. On review of the current data, NDC confirm that this remains to be the case.

If a potential exceedance exists in future, North Devon Council shall then reconsider either undertaking another detailed assessment, or declaring an AQMA for this location.

### 3. NEW LOCAL DEVELOPMENTS

North Devon 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.

### 4. CONCLUSIONS AND PROPOSED ACTIONS

### 4.1 Conclusions from New Monitoring Data

The measured bias adjusted annual mean concentration of Nitrogen Dioxide for 2012 is below the threshold limit for all sites, except for site 13 – and close to the threshold at site 12.

An AQMA was declared in this location in July 2011.

The results for this additional monitoring are not included in this report, but shall be presented in future Action Plan Progress Reports.

There has been a reduction in the measured bias adjusted annual mean concentration of Nitrogen Dioxide at Site 3.

NDC do not intend to either undertake another detailed assessment, or reconsider the declaration of an AQMA in this location at this moment in time.

If a potential exceedance exists in future in this or any other location, North Devon Council shall then re-consider either undertaking another detailed assessment, or declaring an AQMA.

### 4.2 Conclusions relating to New Local Developments

North Devon 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 – as identified in Section 3 of this report.

### 4.3 Other Conclusions

There are no further conclusions to be drawn from the review of this data.

### 4.4 Proposed Actions

The draft Air Quality Action Plan in relation to the AQMA is presently the subject of an extensive consultation exercise.

The final Action Plan is scheduled to be submitted to Defra in 2013.

The results of the additional monitoring around the AQMA are not included in this report, but shall be presented in future Action Plan Progress Reports.

If North Devon Council has any reason to believe that the threshold limit value will be exceeded at any of the other monitoring sites in future, it will consider a further detailed assessment of the appropriate sites at that time.

### References

"Local Air Quality Management – Technical Guidance LAQM.TG(09)", Department for Environment, Food and Rural Affairs, London, 2009.

### **Appendices**

Appendix A: QA/QC Data

Appendix B: Map showing Diffusion Tube Locations

Appendix C: Short-term Adjustment Factor Calculations

Appendix D: AQMA Order and Map

### Appendix A

### QA/QC Data

Diffusion Tubes are supplied and analysed by Gradko Laboratories, using a 20% TEA in water preparation.

The bias adjustment factor applied to the annual mean concentration was 0.90.

This was determined from row 13 of the table at

as accessed on 26<sup>th</sup> February 2013.

Calculation of the short-term adjustment factors is included separately as Appendix C to this report.

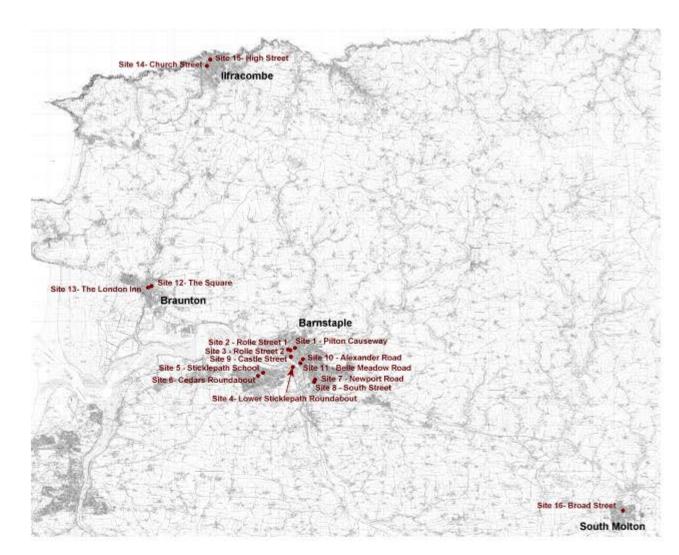
### QA/QC of diffusion tube monitoring

Gradko Laboratories' internal analysis procedures are assessed annually by UKAS to confirm compliance with ISO 17025.

Furthermore, Gradko's NO<sub>2</sub> diffusion tube procedures have been amended to follow the guidelines of the DEFRA Harmonisation document related to the preparation, extraction, analysis and calculation procedures for NO<sub>2</sub> passive diffusion tubes.

### Appendix B

### **Map Showing Approximate Diffusion Tube Locations**



### Appendix C

### **Short Term Adjustment Factor Calculations**

Site 5																
	Monthly Mean NO <sub>2</sub> 2012															
Site Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Units	Annual Average	Period Mean	Correction Factor
Bournemouth	18.17	24.56	26.81	14.37	12.65	8.03	10.97	8.17	11.50	14.68	20.93	16.87	µgm <sup>-3</sup>	15.64	14.41	1.09
Bristol St Paul's	32.11	44.66	44.97	31.23	24.87	18.63	18.83	22.13	25.10	33.13	41.57	39.06	µgm <sup>-3</sup>	31.36	29.00	1.08
														Average correction factor	-	1.08
										5	Site 1	2			_	
				Mon	thly N	lean N	1O <sub>2</sub> 20	12								
Site Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Units	Annual Average	Period Mean	Correction Factor
Bournemouth	18.17	24.56	26.81	14.37	12.65	8.03	10.97	8.17	11.50	14.68	20.93	16.87	µgm <sup>-3</sup>	15.64	16.07	0.97
Bristol St Paul's	32.11	44.66	44.97	31.23	24.87	18.63	18.83	22.13	25.10	33.13	41.57	39.06	µgm <sup>-3</sup>	31.36	32.50	0.96
														Average correction factor		0.97
										5	Site 1	3				
				Mon	thly N	lean N	1O <sub>2</sub> 20	12								
Site Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Units	Annual Average	Period Mean	Correction Factor
Bournemouth	18.17	24.56	26.81	14.37	12.65	8.03	10.97	8.17	11.50	14.68	20.93	16.87	µgm <sup>-3</sup>	15.64	14.99	1.04
Bristol St Paul's	32.11	44.66	44.97	31.23	24.87	18.63	18.83	22.13	25.10	33.13	41.57	39.06	µgm <sup>-3</sup>	31.36	31.25	1.00
														Average correction factor		1.02

# Appendix D AQMA Order and Map



### Air Quality Management Area Order

## Environment Act 1995 Part IV Section 83(1) North Devon Council AQMA Order

North Devon Council, in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order:

This Order may be cited/referred to as the North Devon Council Air Quality Management Area No.1 and shall come into effect on 11<sup>th</sup> July 2011.

The area shown on the attached map in red is to be designated as an air quality management area (the designated area).

The designated area incorporates the area encompassing the B3231 in Braunton, in between the junction known as "The Square" in the middle of the village, and the Village Green.

The map may also be viewed at the Council Offices.

This Area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations 2000.

This Order shall remain in force until it is varied or revoked by a subsequent order.

The Common Seal of North Devon Council was hereto affixed on 11th July 2011 and signed by:

Jeremy Mann

Head of Environmental Health and Housing Services

North Devon Council.



# Map Showing Boundary of North Devon Council Air Quality Management Area No.1 - in Braunton, North Devon

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