



# 2015 Updating and Screening Assessment for **West Dunbartonshire Council**

In fulfillment of Part IV of the  
Environment Act 1995  
Local Air Quality Management  
**April 2015**

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## **Executive Summary**

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act 1995, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. It represents West Dunbartonshire Council's latest Update and Screening Assessment

Results from monitoring in the Council area are presented and any potentially significant sources of air pollution are identified. The Update and Screening Assessment evaluates those changes since the last assessment which could lead to the risk of an air quality objective being exceeded.

Monitoring carried out in the area during 2014 has not identified any exceedences of Nitrogen Dioxide (NO<sub>2</sub>) objectives. The Update and Screening Assessment has not identified any significant changes in emission sources within the Council area. There have been no new relevant industrial installations and no new or substantially altered roads within the Council area. There are no new significant commercial, domestic or fugitive sources of emissions.

The main findings of the 2015 Update and Screening Assessment are summarised below.

### **Nitrogen Dioxide (NO<sub>2</sub>)**

#### **Real Time Monitoring**

West Dunbartonshire Council has two automatic monitoring stations. The location of these units has not changed since the 2012 Update and Screening Assessment.

##### **1. Dumbarton Roadside**

This unit was affiliated into the national network (AURN) in 2010.

The ratified data from Ricardo-AEA confirms a 2014 annual mean of 17µg/m<sup>3</sup>. There were no exceedences of the hourly mean.

##### **2. West Dunbartonshire, Clydebank**

The ratified data from Ricardo-AEA confirms a 2014 annual mean of .21 µg/m<sup>3</sup>.

There were no exceedences of the hourly mean.

#### **NO<sub>2</sub> Diffusion Tubes**

There were 25 NO<sub>2</sub> diffusion tubes (excluding co-located triplicates) at various sites within the West Dunbartonshire Council area during 2014.

An additional NO<sub>2</sub> tube was located at Riddell Street in Clydebank in January 2014 as a result of a new housing development on the site of a former college. The bias adjusted annual mean for the Riddell Street tube was 16.2µg/m<sup>3</sup>.

The tube designated Milton 1 reached the National Air Quality Objective of 40µg/m<sup>3</sup> NO<sub>2</sub> (bias adjusted) in 2014. This is a significant reduction for this tube and is discussed further in the report.

No other diffusion tube breached the National Air Quality Objective for NO<sub>2</sub>.

**West Dunbartonshire Council concludes that there is no need to proceed to Detailed Assessment in respect of Nitrogen Dioxide**

**PM<sub>10</sub>**

West Dunbartonshire Council recently purchased a new FIDAS PM<sub>10</sub> monitor which is located at West Dunbartonshire, Clydebank air quality monitoring station. The unit was installed at the end of March 2015. The results will be reported in next year's Progress Report.

**Conclusion**

**National Air Quality Objectives were not exceeded in 2014 in the West Dunbartonshire Council area. There is therefore no need to proceed to Detailed Assessment for any objective.**

**West Dunbartonshire Council will complete a further report on local air quality in 2016.**

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# 1 Introduction

## 1.1 Description of Local Authority Area

West Dunbartonshire Council is the 4th smallest Scottish Council in terms of land area covering 17,792 hectares. Population is mid placed in the table of 32 Councils at approximately 96,000 in 43,000 households. The Authority comprises two main areas:

**Clydebank** situated on the north of the River Clyde. Almost half the population of West Dunbartonshire Council lives in the Clydebank area giving it a population density level similar to large cities;

**Dumbarton and the Vale of Leven** are less densely populated areas extending along the banks of the River Leven to Loch Lomond.

The dominant landscape is moorland alongside rolling farmlands and rugged hills and ridges. West Dunbartonshire is widely recognised as containing some of the finest lowland countryside in Scotland. Although West Dunbartonshire is not a particularly agricultural area, a high proportion of the area is classed as open countryside. Contrastingly the level of urban development is significantly higher than the Scottish average. The area has the highest proportion of fresh water in Scotland, much of it of very high quality.

## 1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), 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 exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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

### 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in **Scotland** are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) Amendment Regulations 2002 (Scottish SI 2002 No 297), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrammes per cubic metre,  $\text{mg}/\text{m}^3$  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 LAQM in Scotland**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 µg/m <sup>3</sup> , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m <sup>3</sup>	Annual mean	31.12.2010
<b>Sulphur dioxide</b>	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , 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	Date	Outcome
Stage 1	1999	Proceed to Stage 2
Stage 2	2002	Continue monitoring until 2003 and report further
Update And Screening Assessment	2003	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2004	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2005	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Update And Screening Assessment	2006	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2007	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2008	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment

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Report	Date	Outcome
Update And Screening Assessment	2009	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2010	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2011	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Update and Screening Assessment	2012	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2013	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment
Progress Report	2014	National Air Quality Objectives continued to be met therefore no need to proceed to detailed assessment

No exceedences of the National Air Quality Objectives were identified during previous rounds of review and assessment in the West Dunbartonshire Council area.

West Dunbartonshire Council has not declared an Air Quality Management Area.

## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **Automatic Monitoring Sites**

West Dunbartonshire Council has two automatic monitoring stations. Their location remains unchanged since the 2014 Progress Report. Location maps are included as Appendices B & C. Details of the automatic monitoring stations are provided in table 2.1.

#### **1. West Dunbartonshire, Glasgow Road.**

This unit, which contains a real time Casella ML2041 NO<sub>x</sub> analyser, has been located here since April 2007. This is an AURN site.

#### **2. West Dunbartonshire, Clydebank**

This unit houses a real time chemiluminescent Horiba NO<sub>x</sub> analyser. This unit is located at Kilbowie Roundabout which is the busiest junction in the West Dunbartonshire Council area. This unit has been located here since February 2007. Details of QA/QC procedures for both automatic monitors are included as Appendix A in this report

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

See Appendices B and C.

Table 2.1: Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
West Dunbartonshire, Glasgow Road	Roadside	240238	675193	NOx	No	Chemiluminescent ML2014	Y*(2.5)	5.0	N
West Dunbartonshire, Clydebank	Roadside	249723	672044	NOx	No	Chemiluminescent Analyser	N(18)	4.5	N

- This unit sits 5 metres back from the kerb due to location difficulties. Nearest relevant exposure are residential properties 2.5 metres from the kerb.

### **2.1.1 Non-Automatic Monitoring Sites**

West Dunbartonshire Council had 25 NO<sub>2</sub> diffusion tubes distributed throughout the Council area during 2014 (excluding co-located triplicates). This is unchanged since the 2014 Progress Report. Details of the diffusion tube locations are provided in Table 2.2.

NO<sub>2</sub> tubes are supplied and analysed by Glasgow Scientific Services (GSS).

The tube preparation method used by GSS is 20% triethanolamine (TEA) in water.

The tubes are used in accordance with the report "Diffusion Tube for Ambient NO<sub>2</sub> Monitoring: Practical Guidance for Laboratories and Users: Report to DEFRA and the Devolved Administrations: ED48673043: Issue 1a: February 2008.

Full QA/QC procedures for GSS are included in Appendix A. GSS participates in the Workplace Analysis Scheme.

#### **Bias Adjustment Factor**

All NO<sub>2</sub> diffusion tube results have been bias adjusted using the 2014 factor of 0.83 obtained from the Review and Assessment website.

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

See Appendices D, E and F.

Table 2.2: Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Clydebank 1	Roadside	X248479	Y671115	NO <sub>2</sub>	N	N	N	4m	Y
Clydebank 6	Kerbside	X249725	Y672069	NO <sub>2</sub>	N	N	N(40)	1m	Y
Dumbarton 1	Roadside	X240322	Y675177	NO <sub>2</sub>	N	N	N (2.5)	1m	Y
Dumbarton 11	Roadside	X240515	Y675078	NO <sub>2</sub>	N	N	N (4)	1m	Y
Balloch 1	Kerbside	X238584	Y681562	NO <sub>2</sub>	N	N	N	12m	
Alexandria 1	Kerbside	X239024	Y680206	NO <sub>2</sub>	N	N	N(5)	1m	Y
Briar Drive, Triplicate 1	Roadside	X249723	Y672044	NO <sub>2</sub>	N	N	N/A	25m	
Briar Drive, Triplicate 2	Roadside	X249723	Y672044	NO <sub>2</sub>	N	N	N/A	25m	
Briar Drive, Triplicate 3	Roadside	X249723	Y672044	NO <sub>2</sub>	N	N	N/A	25m	
Dumbarton, Triplicate 1	Roadside	X240238	X675193	NO <sub>2</sub>	N	Y	N/A	5m	
Dumbarton, Triplicate 2	Roadside	X240238	X675193	NO <sub>2</sub>	N	Y	N/A	5m	
Dumbarton, Triplicate 3	Roadside	X240238	X675193	NO <sub>2</sub>	N	Y	N/A	5m	
Milton 1	Kerbside	X242266	Y674235	NO <sub>2</sub>	N	N	N (12)	1m	Y



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Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Milton 2	Roadside	X242160	Y674299	NO <sub>2</sub>	N	N	N (2m)	12m	N
Glasgow Rd, Dumbarton 2	Roadside	X240178	Y675228	NO <sub>2</sub>	N	N	N (8)	1m	Y
Glasgow Rd, Dumbarton 3	Roadside	X240279	Y675196	NO <sub>2</sub>	N	N	N (4.5)	1m	Y
Clydebank 7	Roadside	X249913	Y669865	NO <sub>2</sub>	N	N	N (4)	1m	Y
Clydebank 9	Kerbside	X248899	Y670784	NO <sub>2</sub>	N	N	N (3)	1m	Y
Clydebank 10	Kerbside	X249759	Y671845	NO <sub>2</sub>	N	N	N (8.5)	1m	Y
Clydebank 11	Roadside	X249801	Y672288	NO <sub>2</sub>	N	N	N (22)	1m	Y
Clydebank 12	Kerbside	X249747	Y671665	NO <sub>2</sub>	N	N	N (10)	1m	Y
Clydebank 13	Kerbside	X249762	Y671790	NO <sub>2</sub>	N	N	N (8.5)	1m	Y
Clydebank 14	Kerbside	X249872	Y671854	NO <sub>2</sub>	N	N	N (>25)	1m	N
Clydebank 15	Kerbside	X249746	Y671966	NO <sub>2</sub>	N	N	N (8.5)	1m	Y
Clydebank 16	Kerbside	X249967	Y672548	NO <sub>2</sub>	N	N	N (10)	1m	Y

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<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Ref</b>	<b>Y OS Grid Ref</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is monitoring collocated with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) to relevant exposure)</b>	<b>Distance to kerb of nearest road (N/A if not applicable)</b>	<b>Does this location represent worst-case exposure?</b>
Clydebank 17	Kerbside	X249987	Y672440	NO <sub>2</sub>	N	N	N (11)	1m	Y
Clydebank 18	Kerbside	X249972	Y672351	NO <sub>2</sub>	N	N	N (12)	1m	Y
Vale of Leven 3	Roadside	X240115	X677146	NO <sub>2</sub>	N	N	N(>25)	4m	Y
Vale of Leven 4	Kerbside	X240164	Y677014	NO <sub>2</sub>	N	N	N (>25)	1m	Y
Dumbarton 12	Kerbside	X239410	Y675330	NO <sub>2</sub>	N	N	N (7)	1m	Y
Riddell Street	Kerbside	X 250002	Y671257	NO <sub>2</sub>	N	N	N(10)	1m	Y

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

### **2.2.1 NO<sub>2</sub>**

West Dunbartonshire Council monitoring results have shown that there was no exceedence of the National Air Quality Objectives for NO<sub>2</sub> during 2014.

#### **Automatic Monitoring Data**

West Dunbartonshire Council has two automatic NO<sub>x</sub> monitoring stations. During 2014 they were located as detailed below. Neither station breached the National Air Quality Objectives for NO<sub>2</sub>.

##### **West Dunbartonshire, Glasgow Road.**

This unit contains a real time Casella ML 2041NO<sub>x</sub> analyser and has been at this location since April 2007. The unit is located 5 metres from the kerbside. This unit is an AURN site.

The ratified data from Ricardo-AEA indicates that the annual average NO<sub>2</sub> level for 2014 was 17µg/m<sup>3</sup>.

There were no exceedences of the hourly mean objective during 2014.

The nearest receptors are residential properties located 2.5m from the roadside. The NO<sub>2</sub> Distance Calculator on the R&A web site was used to predict the NO<sub>2</sub> levels at the nearest receptors which are 2.5 metres closer to the roadside than the automatic monitor. The calculator predicted NO<sub>2</sub> levels at the façade of the nearest residential property of 17.9µg/m<sup>3</sup>.

##### **West Dunbartonshire, Clydebank (Kilbowie Roundabout)**

This unit houses a real time chemiluminescent NO<sub>x</sub> analyser. It has been located there since February 2007. Kilbowie Roundabout is the busiest junction within the West Dunbartonshire Council area. The unit is located approximately 25 metres from the roundabout and 4.5 metres from the nearest road. The ratified data from Ricardo-AEA indicates that the annual average NO<sub>2</sub> level for 2014 was 21µg/m<sup>3</sup>. There were no exceedences of the hourly mean objective during 2014. The nearest receptors are residential properties located just less than 20 metres from the nearest road.

Details of the results from the automatic monitoring stations are shown in Tables 2.3 and 2.4

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % <sup>a</sup>	Valid Data Capture 2014 % <sup>b</sup>	Annual Mean Concentration $\mu\text{g}/\text{m}^3$				
					2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014 <sup>c</sup>
A1	Roadside	N	98	98	26	21	24	19	17
A2	Roadside	N	89.9	89.9	27	19	22.9c	25	21

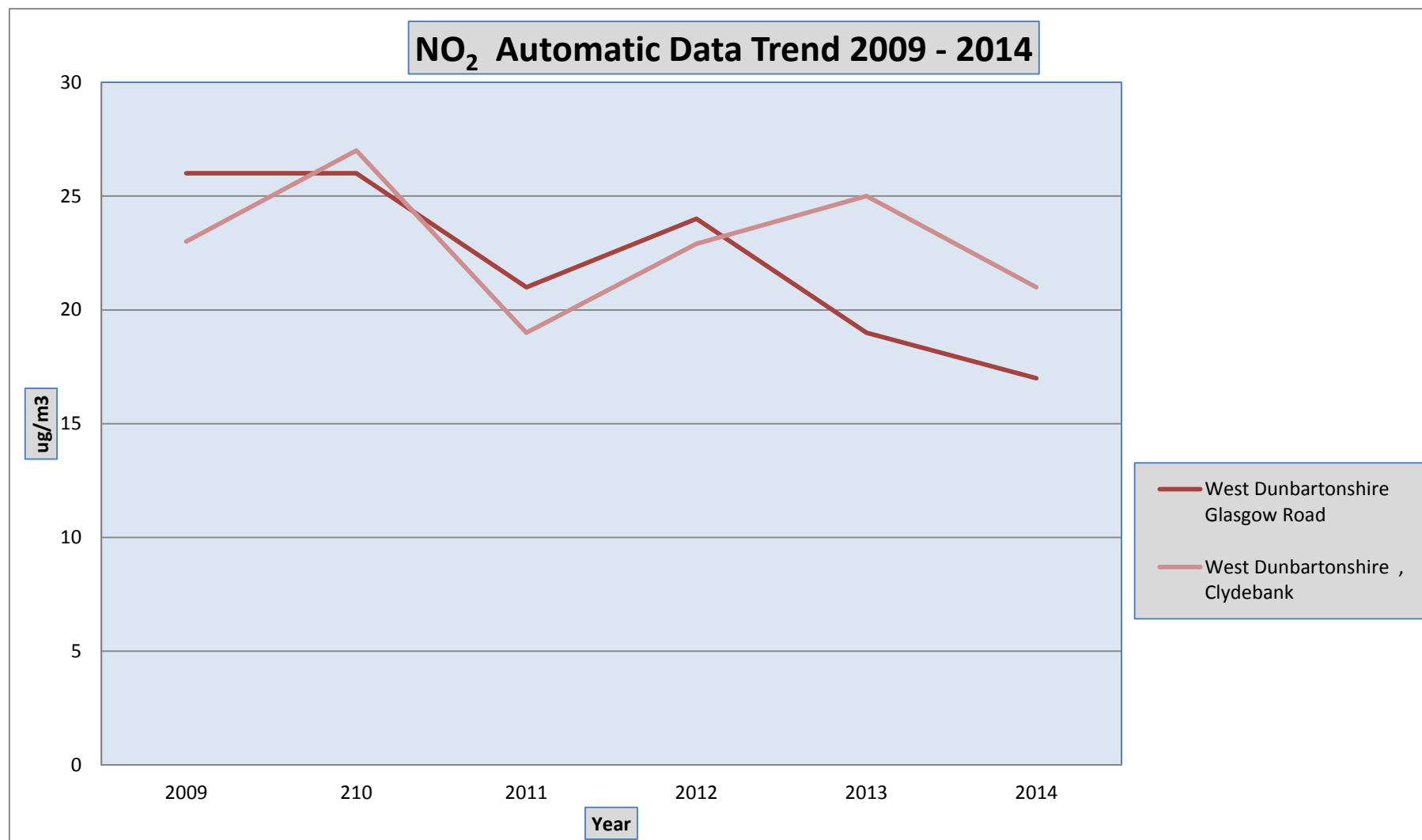
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%).

<sup>c</sup> Means should be “annualised” as in Box 3.2 of TG(09), 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 measures at Automatic Monitoring Sites



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

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % <sup>a</sup>	Valid Data Capture 2014 % <sup>b</sup>	Number of Exceedences of Hourly Mean (200 µg/m <sup>3</sup> )				
					2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013* <sup>c</sup>	2014 <sup>c</sup>
A1	Roadside	N	97	97	0	0	0	4	0
A2	Roadside	N	96.7	96.7	0	0	0	14(189)	0

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%).

<sup>c</sup> If the period of valid data is less than 90%, include the 99.8<sup>th</sup> percentile of hourly means in brackets

\*Number of exceedences for previous years are optional.

## Diffusion Tube Monitoring Data

West Dunbartonshire Council monitored NO<sub>2</sub> using diffusion tubes at 25 locations (excluding co-located triplicates) throughout the Council area during 2014.

All results have been bias adjusted using a factor of 0.83 based on information from the Review and Assessment website and are shown in Tables 2.5 and 2.6.

One of the monitored locations – Milton 1 - reached the National Air Quality Objective for NO<sub>2</sub> with a bias adjusted annual average of 40µg/m<sup>3</sup>. This result is discussed below.

### **Milton 1 – bias adjusted annual average of 40µg/m<sup>3</sup>.**

This tube is located at the Dumbuck traffic light junction on the A82. The A82 is the main trunk road access to the West of Scotland and is the busiest road within the Council area. It is not possible to locate an automatic monitor at the location as there is no suitable site.

The nearest receptors are residential properties located approximately 12 metres back from the kerb. An additional diffusion tube was placed in the front garden of one of the houses approximately 5 metres from the front façade to obtain data regarding NO<sub>2</sub> levels at the residences. The tube, designated Milton 2, has been at this site since 2008. The 2014 bias adjusted annual mean for Milton 2 was 18.6µg/m<sup>3</sup>.

The NO<sub>2</sub> Distance Calculator from the Air Quality Archive web site was used to predict NO<sub>2</sub> levels at the residences based on the results of Milton 1 diffusion tube. The calculator predicted the NO<sub>2</sub> levels at the residences to be 20.5µg/m<sup>3</sup> which although slightly higher than the Milton 2 diffusion tube result remains well within the National Air Quality Objective for NO<sub>2</sub>. There is therefore no need to proceed to Detailed Assessment at this location.

Table 2.5: Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.83)
								2014 ( $\mu\text{g}/\text{m}^3$ )
T1	Clydebank 1	Roadside	N	N	10		N	25.0
T2	Clydebank 6	Kerbside	N	N	12		N	29.3
T3	Dumbarton 1	Roadside	N	N	11		N	25.8
T4	Dumbarton 11	Roadside	N	N	11		N	28.1
T5	Balloch 1	Kerbside	N	N	12		N	19.6
T6	Alexandria 1	Kerbside	N	N	12		N	28.1
T7	Briar Drive, Triplicate 1	Roadside	N	Y	12		N	20.1
T8	Briar Drive, Triplicate 2	Roadside	N	Y	12		N	20.2
T9	Briar Drive, Triplicate 3	Roadside	N	Y	12		N	21
T10	Dumbarton, Triplicate 1	Roadside	N	Y	12		N	16.9
T11	Dumbarton, Triplicate 2	Roadside	N	Y	12		N	16.5
T12	Dumbarton, Triplicate 3	Roadside	N	Y	12		N	17.6
T13	<b>Milton 1</b>	<b>Kerbside</b>	N	N	12		N	40.0
T14	Milton 2	Roadside	N	N	11		N	18.6
T15	Glasgow Rd, Dumbarton 2	Roadside	N	N	12		N	24.1
T16	Glasgow Rd, Dumbarton 3	Roadside	N	N	12		N	28.8



West Dunbartonshire Council

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.83)
								2014 ( $\mu\text{g}/\text{m}^3$ )
T17	Clydebank 7	Roadside	N	N	10		N	27.4
T18	Clydebank 9	Kerbside	N	N	10		N	19.7
T19	Clydebank 10	Kerbside	N	N	11		N	21.7
T20	Clydebank 11	Roadside	N	N	11		N	20.1
T21	Clydebank 12	Kerbside	N	N	11		N	19
T22	Clydebank 13	Kerbside	N	N	11		N	20.9
T23	Clydebank 14	Kerbside	N	N	10		N	13.1
T24	Clydebank 15	Kerbside	N	N	12		N	22.9
T25	Clydebank 16	Kerbside	N	N	11		N	21.8
T26	Clydebank 17	Kerbside	N	N	12		N	21.3
T27	Clydebank 18	Kerbside	N	N	12		N	22.1
T28	Vale of Leven 3	Roadside	N	N	12		N	19.7
T29	Vale of Leven 4	Kerbside	N	N	11		N	20.7
T30	Dumbarton 12	Kerbside	N	N	12		N	15.3
T31	Riddell Street	Kerbside	N	N	12		N	16.2

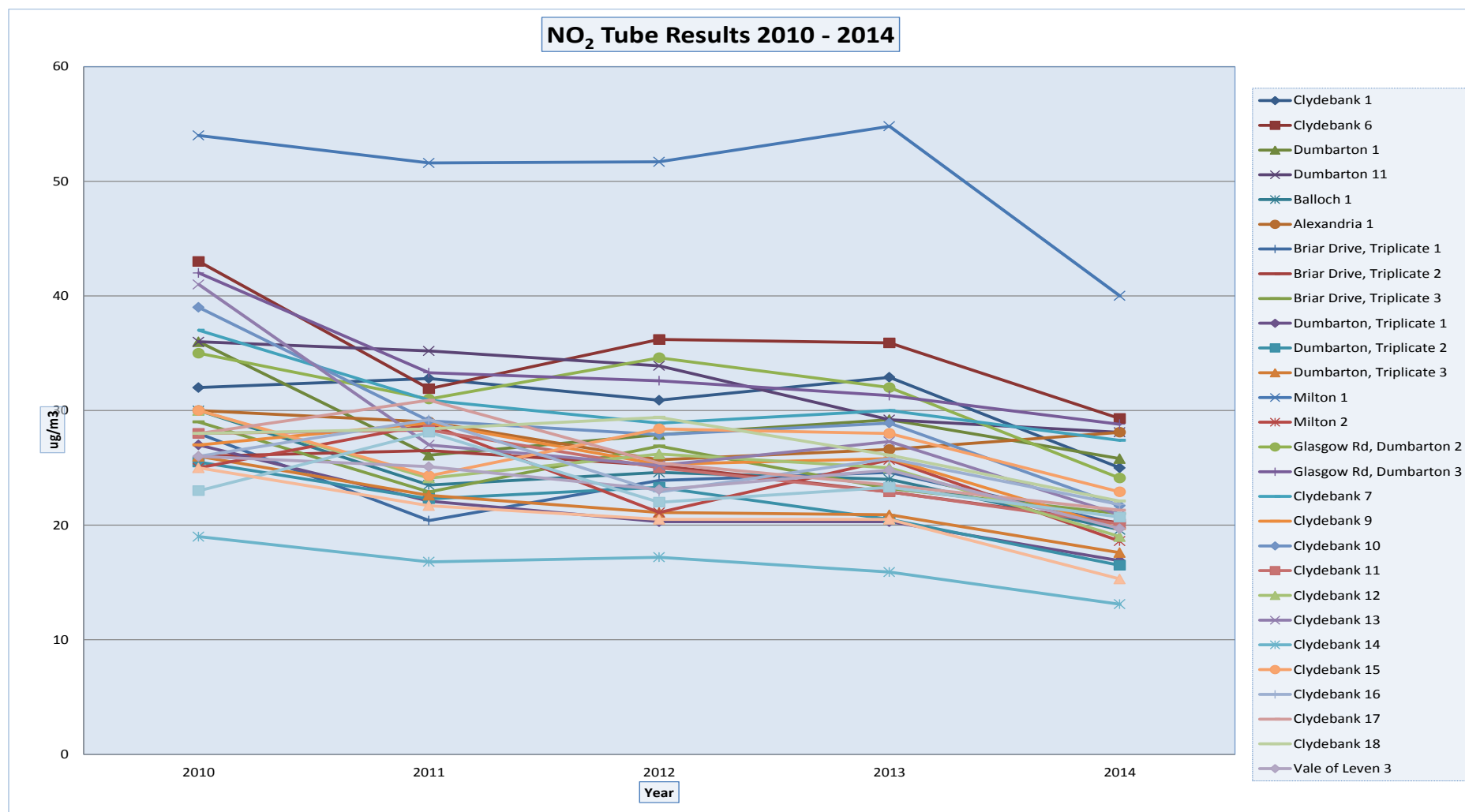
Table 2.6: Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2010* (Bias Adjustment Factor = 1.1)	2011* (Bias Adjustment Factor = 0.94)	2012* (Bias Adjustment Factor = 0.95)	2013* (Bias Adjustment Factor = 0.99)	2014 (Bias Adjustment Factor = 0.83)
T1	Roadside	N	32	32.8	30.9	32.9	25.0
T2	Kerbside	N	43	31.9	36.2	35.9	29.3
T3	Roadside	N	36	26.1	27.9	29.2	25.8
T4	Roadside	N	36	35.2	33.9	29.2	28.1
T5	Kerbside	N	30	23.5	24.6	24	19.6
T6	Kerbside	N	30	29	25.7	26.6	28.1
T7	Roadside	N	28	20.4	23.9	24.6	20.1
T8	Roadside	N	26	26.5	25.2	22.9	20.2
T9	Roadside	N	29	22.9	26.9	23.2	21
T10	Roadside	N	27	22.1	20.3	20.3	16.9
T11	Roadside	N	25.5	22.3	23.3	20.5	16.5
T12	Roadside	N	26	22.6	21.1	20.9	17.6
<b>T13</b>	<b>Kerbside</b>	<b>N</b>	<b>54</b>	<b>51.6</b>	<b>51.7</b>	<b>54.8</b>	40.0
T14	Roadside	N	25	28.8	21.1	25.7	18.6
T15	Roadside	N	35	31	34.6	32	24.1
T16	Roadside	N	42	33.3	32.6	31.3	28.8

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2010* (Bias Adjustment Factor = 1.1)	2011* (Bias Adjustment Factor = 0.94)	2012* (Bias Adjustment Factor = 0.95)	2013* (Bias Adjustment Factor = 0.99)	2014 (Bias Adjustment Factor = 0.83)
T17	Roadside	N	37	30.9	28.9	30	27.4
T18	Kerbside	N	27	28.9	25.3	25.8	19.7
T19	Kerbside	N	39	29.1	27.9	28.9	21.7
T20	Roadside	N	28	28.3	25	22.9	20.1
T21	Kerbside	N	30	24.1	26.2	25	19
T22	Kerbside	N	41	27	25.2	27.3	20.9
T23	Kerbside	N	19	16.8	17.2	15.9	13.1
T24	Kerbside	N	30	24.3	28.4	28	22.9
T25	Kerbside	N	26	29.2	22.9	25.8	21.8
T26	Kerbside	N	28	30.9	25.4	23.5	21.3
T27	Kerbside	N	28	28.4	29.4	26.1	22.1
T28	Roadside	N	26	25.1	23.1	24.8	19.7
T29	Kerbside	N	23	28.1	22	23.3	20.7
T30	Kerbside	N	25	21.7	20.5	20.5	15.3
T31	Kerbside	N	N/A	N/A	N/A	N/A	16.2

\*Optional

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



Both automatic and diffusion tube monitoring show a decrease in the NO<sub>2</sub> levels during 2014. However it is not possible to state whether this decrease indicates a downward trend which will be sustained over the coming years

#### **2.2.2 PM<sub>10</sub>**

West Dunbartonshire Council did not monitor particulate matter in 2014. We have recently purchased a FIDAS particulate monitor which was commissioned in late March 2015. The results from this unit will be included in our 2016 Progress Report.

#### **2.2.3 Sulphur Dioxide**

West Dunbartonshire Council does not carry out monitoring for sulphur dioxide.

#### **2.2.4 Benzene**

West Dunbartonshire Council does not carry out monitoring for benzene.

#### **2.2.5 Other pollutants monitored**

West Dunbartonshire Council does not monitor for any other pollutant.

#### **2.2.6 Summary of Compliance with AQS Objectives**

West Dunbartonshire Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

### **3 Road Traffic Sources**

#### **3.1 Narrow Congested Streets with Residential Properties Close to the Kerb**

West Dunbartonshire 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**

West Dunbartonshire 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.**

West Dunbartonshire Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

#### **3.4 Junctions**

West Dunbartonshire 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**

West Dunbartonshire Council confirms that there are no new/proposed roads.

#### **3.6 Roads with Significantly Changed Traffic Flows**

West Dunbartonshire Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

### **3.7 Bus and Coach Stations**

West Dunbartonshire Council confirms that there are no relevant bus stations in the Local Authority area.

## **4 Other Transport Sources**

### **4.1 Airports**

West Dunbartonshire Council confirms that there are no airports in the Local Authority area.

### **4.2 Railways (Diesel and Steam Trains)**

#### **4.2.1 Stationary Trains**

West Dunbartonshire 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**

West Dunbartonshire Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

### **4.3 Ports (Shipping)**

West Dunbartonshire 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**

West Dunbartonshire Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

#### **5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been introduced**

West Dunbartonshire 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**

West Dunbartonshire Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

### **5.2 Major Fuel (Petrol) Storage Depots**

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

### **5.3 Petrol Stations**

West Dunbartonshire Council confirms that there are no petrol stations meeting the specified criteria.

### **5.4 Poultry Farms**

West Dunbartonshire Council confirms that there are no poultry farms meeting the specified criteria.

## **6 Commercial and Domestic Sources**

### **6.1 Biomass Combustion – Individual Installations**

A biomass boiler (STU Wood Pellet Boiler) was installed in a new school at Crosslet Road in Dumbarton in 2013. To date the boiler has not been used due to issues sourcing the appropriate fuel and lack of operator training. The boiler has been assessed in accordance with the guidance laid down in TG(09). The assessment revealed that it was not necessary to proceed to Detailed Assessment.

West Dunbartonshire Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

### **6.2 Biomass Combustion – Combined Impacts**

We are aware of only two biomass boilers within the West Dunbartonshire Council area. The first is located in Balloch and was assessed in our 2009 Update and Screening Assessment. The second is referred to above. The two are over three miles apart.

West Dunbartonshire Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

### **6.3 Domestic Solid-Fuel Burning**

West Dunbartonshire Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

## **7 Fugitive or Uncontrolled Sources**

West Dunbartonshire 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**

There have been no exceedences of the National Air Quality Objectives within the West Dunbartonshire Council area. There is no need therefore for West Dunbartonshire Council to proceed to Detailed Assessment.

### **8.2 Conclusions from Assessment of Sources**

This Update and Screening Assessment has not identified any new or significantly changed sources within the West Dunbartonshire Council area which would result in an exceedence of the National Air Quality Objectives

### **8.3 Proposed Actions**

This Update and Screening Assessment has not identified any need to proceed to Detailed Assessment for any pollutant.

No need for additional monitoring or changes to the present monitoring programme has been identified.

West Dunbartonshire Council will submit a Progress Report in 2016.

## 9 References

Local Air Quality Management Technical Guidance (TG09)  
The Environment Act 1995  
The Air Quality (Scotland) Regulations 2000  
The Air Quality (Scotland) (Amendment) Regulations 2002  
West Dunbartonshire Council Progress Report 2014  
West Dunbartonshire Council Progress Report 2013  
West Dunbartonshire Council Update and Screening Assessment 2012  
West Dunbartonshire Council Air Quality Progress Report 2011  
West Dunbartonshire Council Air Quality Progress Report 2010  
West Dunbartonshire Council Update and Screening Assessment 2009  
West Dunbartonshire Council Air Quality Progress Report 2008  
West Dunbartonshire Council Air Quality Progress Report 2007  
West Dunbartonshire Council Update and Screening Assessment 2006  
West Dunbartonshire Council Air Quality Progress Report 2005  
West Dunbartonshire Council Air Quality Progress Report 2004

# Appendices

Appendix A - QA/QC Data

Appendix B – Dumbarton Roadside Automatic Monitor

Appendix C – West Dunbartonshire Clydebank Automatic Monitor

Appendix D – Clydebank NO<sub>2</sub> Diffusion Tube Locations

Appendix E – Dumbarton NO<sub>2</sub> Diffusion Tube Monitoring Locations

Appendix F – Vale of Leven Diffusion Tube Locations

Appendix G – Key for NO<sub>2</sub> diffusion tube monitoring locations

Appendix H - AEA Pollution Report for Glasgow Road, Dumbarton/ Dumbarton Roadside

Appendix I - AEA Pollution Report for West Dunbartonshire, Clydebank

Appendix J - 2010 Monthly NO<sub>2</sub> diffusion tube results

## **APPENDIX A: QA/QC DATA**

### **Automatic monitors**

Data from West Dunbartonshire Council automatic monitors is downloaded daily by AEA. The data is screened, scaled and ratified by AEA and a full report is provided for each calendar year.

Additionally AEA carry out an audit of all automatic monitors twice yearly. Both the Glasgow Road, Dumbarton and the West Dunbartonshire, Clydebank air quality units have a comprehensive service contract and are serviced by Enviro Technology Services plc and Horiba respectively at 6 monthly intervals.

West Dunbartonshire Council staff change filters and carry out manual calibration of the NO<sub>x</sub> analysers on a fortnightly basis. The calibration data is forwarded to AEA for QA/QC purposes.

The West Dunbartonshire, Clydebank unit is remotely checked by West Dunbartonshire Council staff each working day to ensure that data capture is optimal. Since the installation of the Casella unit in Dumbarton, Glasgow Road we are unable to carry out this daily check on that unit as we do not have the required software. We therefore rely on Ricardo/AEA informing us of any problems at the unit.

### **NO<sub>2</sub> Tubes**

West Dunbartonshire Council use Glasgow Scientific Services (GSS) for NO<sub>2</sub> tube analysis. Tubes are provided and analysed by GSS.

The NO<sub>2</sub> tube preparation method used is 20% triethanolamine (TEA) in water.

Glasgow Scientific Services participate in the WASP/AIR NO<sub>2</sub> Proficiency Testing Scheme. In 2014 100% of the results the lab submitted to the scheme were determined to be satisfactory based on a z-score of  $\leq \pm 2$ .

### **Factor from Local Co-location Studies (if available)**

West Dunbartonshire Council applied the 2014 bias adjustment figure of 0.83 obtained from the LAQM website. Due to operational issues within the Council it was not possible this year to carry out a co-location exercise.

**Short-term to Long-term Data Adjustment**

It was not necessary to carry out any short to long term bias adjustment for the 2014 figures.



**APPENDIX B : DUMBARTON ROADSIDE AUTOMATIC MONITOR LOCATION (A1)**



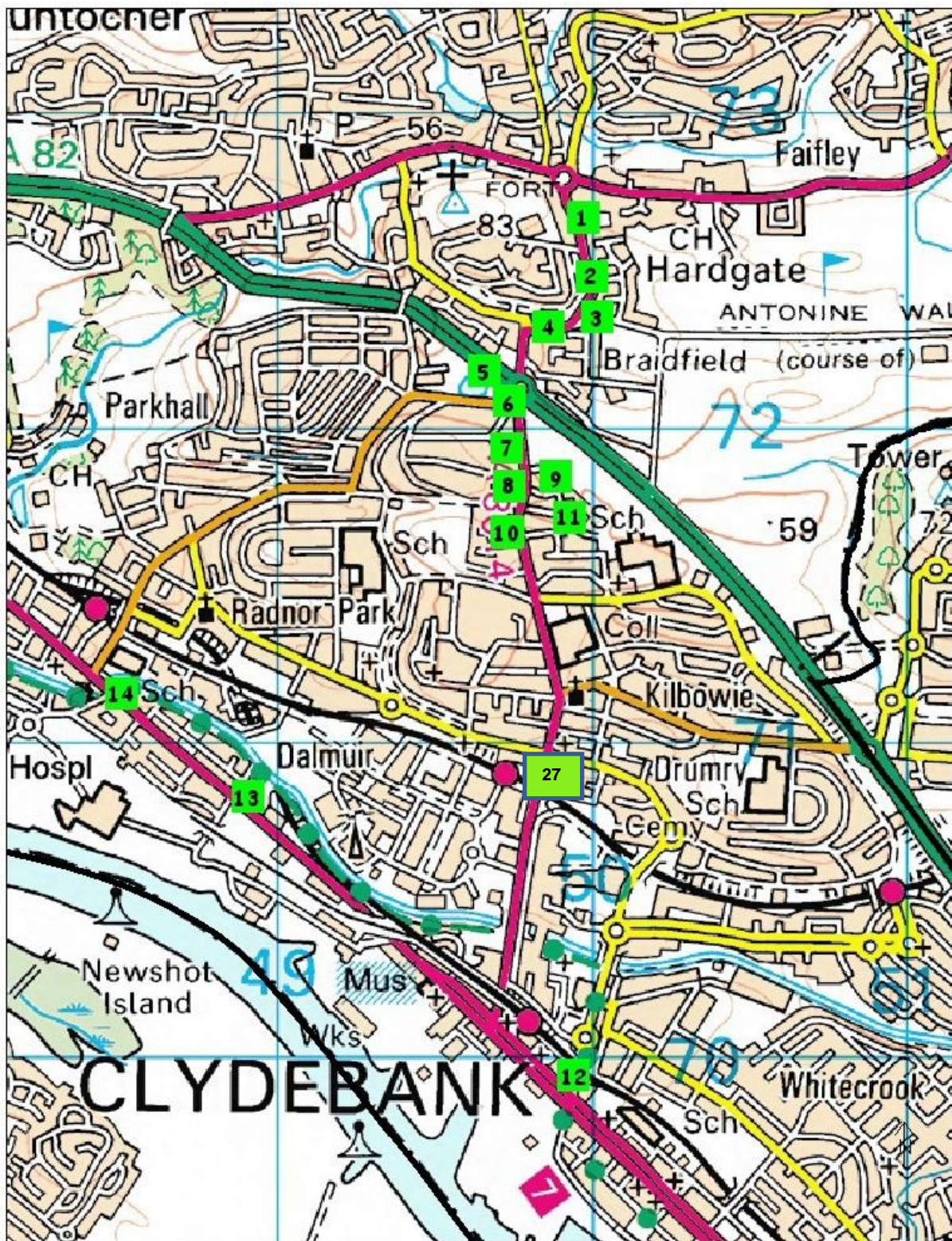


**APPENDIX C : WEST DUNBARTONSHIRE CLYDEBANK AUTOMATIC MONITOR LOCATION (A2)**



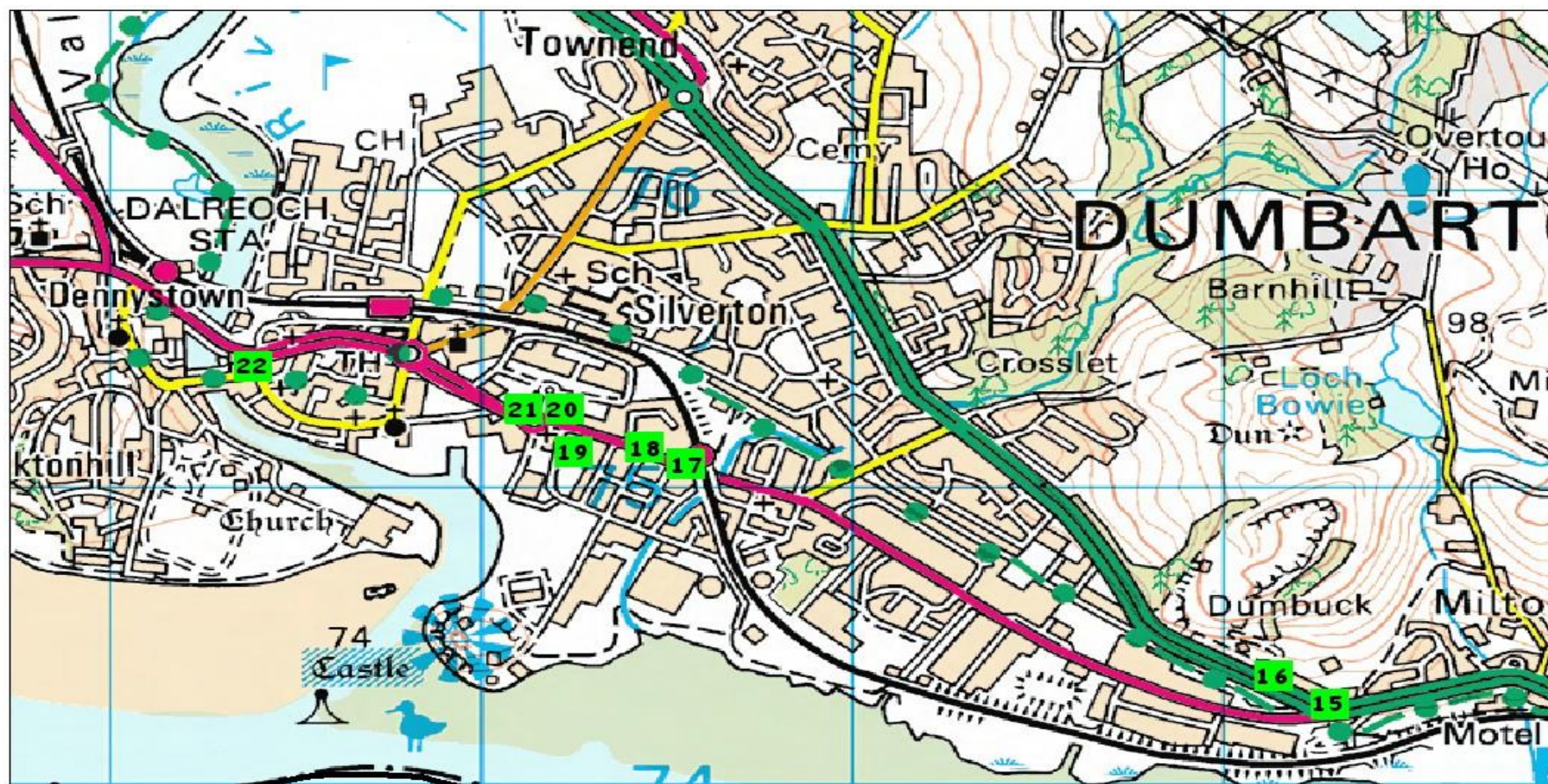


**APPENDIX D : CLYDEBANK NO<sub>2</sub> DIFFUSION TUBE LOCATION**





# **APPENDIX E : DUMBARTON NO<sub>2</sub> DIFFUSION TUBE MONITORING LOCATIONS**



West Dunbartonshire Council

Title : - N02 Map - Dumbarton

Date : 05/04/2012

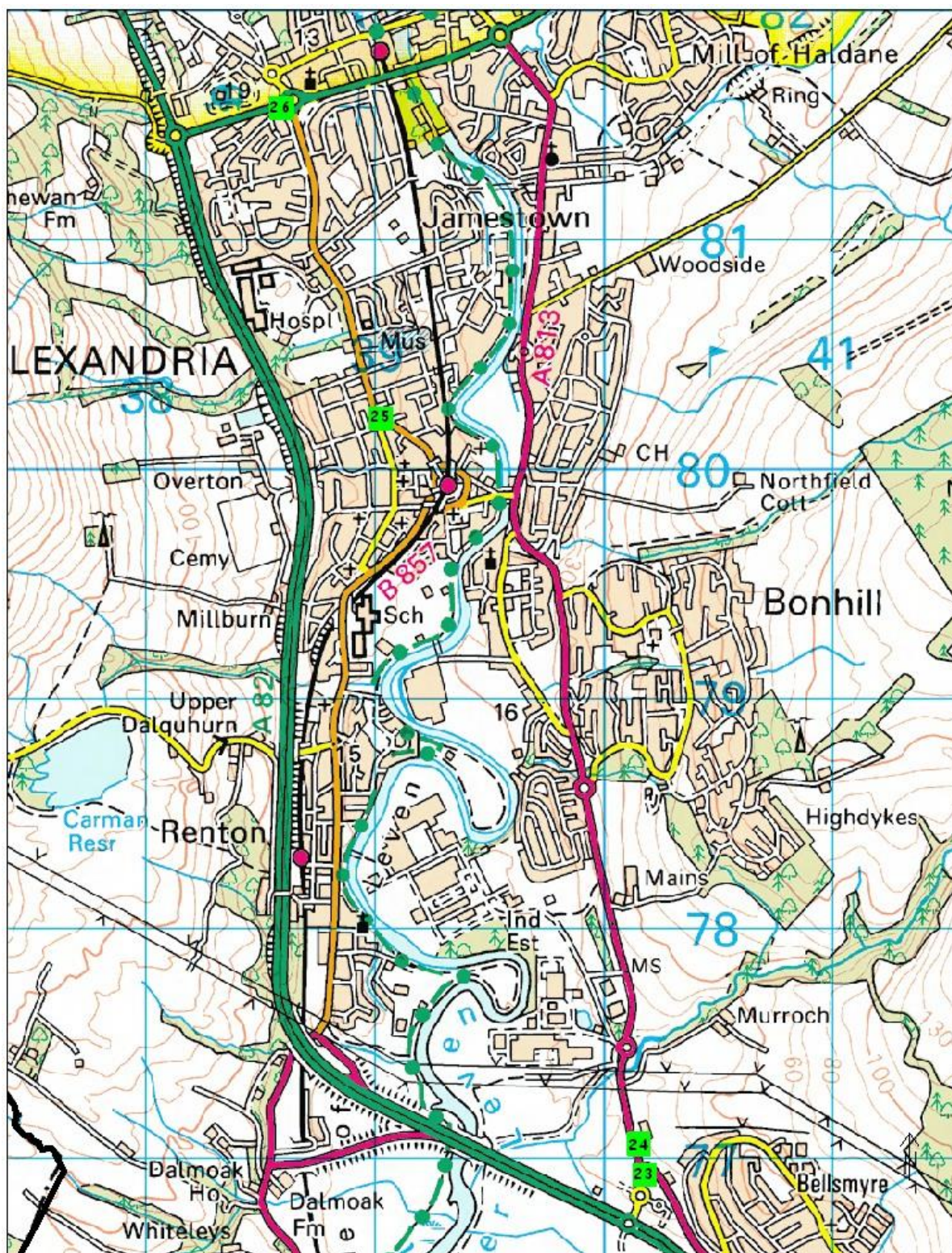
Scale : 1:15000

Map Reference : NS4075

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# **APPENDIX F : VALE OF LEVEN DIFFUSION TUBE LOCATIONS**



**Title : N02 Map - Vale of Leven**

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Map No.  
Map Reference : NS3979  
Scale : 1:20672  
Date : 05/04/2012

**APPENDIX G : KEY FOR NO<sub>2</sub> DIFFUSION TUBE MONITORING LOCATIONS**

Map Number	Name of site
1	Clydebank 16
2	Clydebank 17
3	Clydebank 18
4	Clydebank 11
5	Clydebank 6
6	West Dunbartonshire Clydebank Co-located
7	Clydebank 15
8	Clydebank 13
9	Clydebank 10
10	Clydebank 12
11	Clydebank 14
12	Clydebank 7
13	Clydebank 9
14	Clydebank 1
15	Milton 1
16	Milton 2
17	Dumbarton 11
18	Glasgow Road Dumbarton 3
19	West Dunbartonshire Glasgow Road. Co-located
20	Glasgow Road, Dumbarton 2
21	Dumbarton 1
22	Dumbarton 12
23	Vale of Leven 4
24	Vale of Leven 3
25	Alexandria 1
26	Balloch 1
27	Riddell Street

**APPENDIX H : RICARDO-AEA POLLUTION REPORT FOR WEST****DUNBARTONSHIRE GLASGOW ROAD**

Produced by RICARDO-AEA on behalf of the Scottish Government and Defra

**WEST DUNBARTONSHIRE GLASGOW ROAD  
1<sup>st</sup> January to 31<sup>st</sup> December 2014**

These data have been fully ratified by RICARDO-AEA

<b>POLLUTANT</b>	<b>NO<sub>2</sub></b>	<b>NO<sub>x</sub></b>
Maximum hourly mean	100 µg m <sup>-3</sup>	419 µg m <sup>-3</sup>
Average	17 µg m <sup>-3</sup>	35 µg m <sup>-3</sup>
Data capture	97 %	97 %

All gaseous pollutant mass units are at 20°C and 1013 mb.

NO<sub>x</sub> mass units are NO<sub>x</sub> as NO<sub>2</sub> µg m<sup>-3</sup>

<b>Pollutant</b>	<b>Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002</b>	<b>Exceedences</b>	<b>Days</b>
Nitrogen Dioxide	Annual mean > 40 µg m <sup>-3</sup>	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m <sup>-3</sup>	0	0

Note: For a strict comparison against the objectives there must be a data capture of >90% throughout the calendar year

**APPENDIX I : RICARDO-AEA POLLUTION REPORT FOR WEST**  
**DUNBARTONSHIRE, CLYDEBANK**

**Produced by Ricardo-AEA on behalf of Scottish Government**

**WEST DUNBARTONSHIRE CLYDEBANK**  
**1<sup>st</sup> January to 31<sup>st</sup> December 2014**

**These data have been fully ratified by Ricardo-AEA**

POLLUTANT	NO <sub>2</sub>	NO <sub>x</sub>
Maximum hourly mean	176 µg m <sup>-3</sup>	721 µg m <sup>-3</sup>
Maximum daily mean	82 µg m <sup>-3</sup>	295 µg m <sup>-3</sup>
Average	21 µg m <sup>-3</sup>	48 µg m <sup>-3</sup>
Data capture	96.7 %	96.7 %

All gaseous pollutant mass units are at 20°C and 1013mb.

NO<sub>x</sub> mass units are NO<sub>x</sub> as NO<sub>2</sub> µg m<sup>-3</sup>

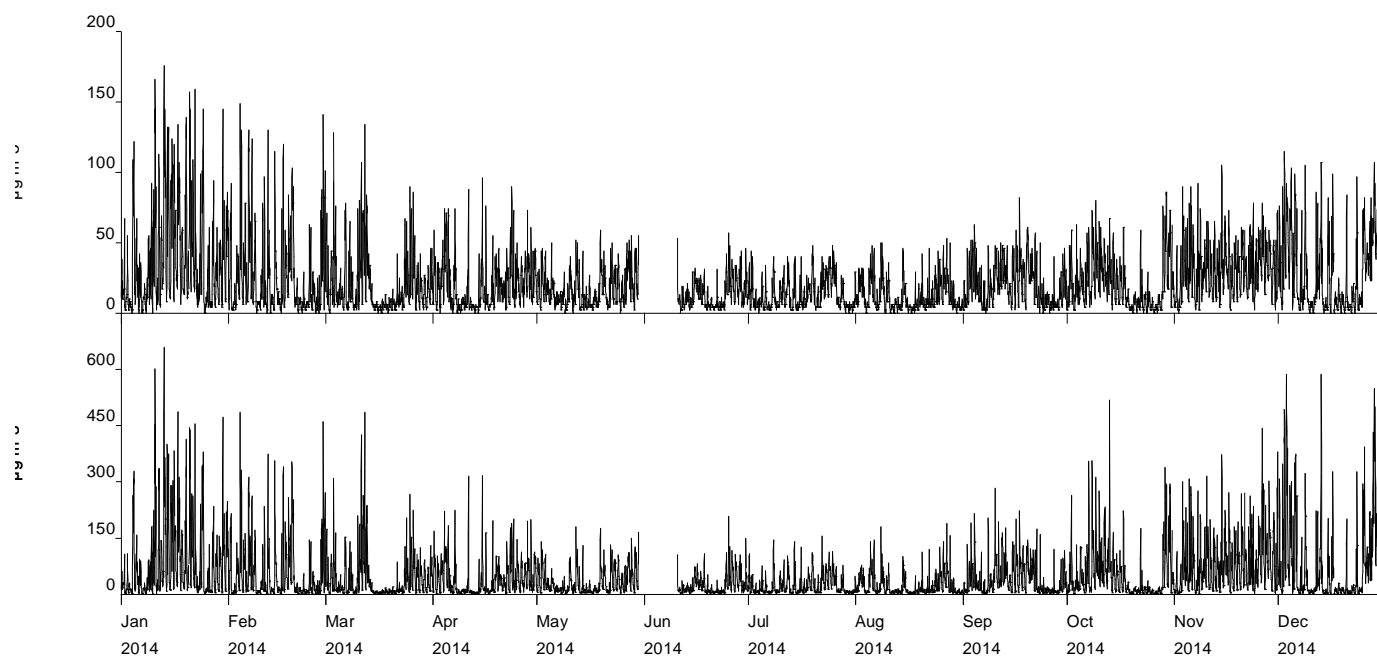
Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
Nitrogen Dioxide	Annual mean > 40 µg m <sup>-3</sup>	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m <sup>-3</sup>	0	0

Note: For a strict comparison against the objectives there must be a data capture of >90% throughout the calendar year



Produced by Ricardo-AEA on behalf of Scottish Government

**West Dunbartonshire Clydebank**  
**Hourly Mean Data for 1<sup>st</sup> January to 31<sup>st</sup> December 2014**



Date Created: 17/04/2015

**APPENDIX J : 2014 MONTHLY DIFFUSION TUBE RESULTS**

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Clydebank 1	36.9	39.5	36.1	29	29.5	24.7	20.8		16	31.4		37
Clydebank 6	49.3	46.6	21	40.3	31.4	28.2	29.4	19.4	31.6	36.9	55.9	34.3
Clydebank 7	37.6	36.5	28.4	46	23.5		52.4	27.8	18.3		30.6	29.6
Clydebank 9		35.1	29.7	22.2	25.9		21.9	19.7	1.6	12.1	42.3	26.8
Clydebank 10		38.6	27.5	21.3	25.5	20.8	17.9	24.3	23.7	26.9	25.4	35.5
Clydebank 11	28.2	36.3	22.3	28.9	20.8	17.8	15.8	16.3	26.4	24		29.7
Clydebank 12	33.4	33.1	21.4	28	21	18.2		13.8	18.9	25.3	20.2	31
Clydebank 13	36.8	31.5	21.7	27.6	20.2	22.7	17.7	19.8	19.6	24.8		34.6
Clydebank 14	21.7	25.5	14.4	16.2	10.1	10	10.6	9.4	26.3	13.2		
Clydebank 15	38.9	36.2	25	29.3	26.8	22.6	19.6	16.3	15.1	30.2	38.5	33.1
Clydebank 16	39.2	36	28.5	22	19.7	15	18.6	22.2		25.9	26.8	35.3
Clydebank 17	31.4	29.5	21.1	23.9	20.2	19.1	18.2	18.8	28.3	25.8	26.1	45.2
Clydebank 18	31.5	34	26.3	24	20.1	21.1	17.4	23.4	19.9	26.7	39.3	35.3
Riddell Street	29.7	10.9	21.6	21.1	15.3	13.7	14.8	11.1	27.5	17.9	28.5	22.1
Dumbarton 1	27.9	35.4	18.6	32	24.1	36.3	25.8	37.5		23.9	42.2	37.8
Dumbarton 11	35.2	66	28.2	24.1	22.4	18.8	16.2		28.1	54.5	37.3	41.3
Dumbarton 12		19.2	13.8	17.8	19.6	13.8	14.1	12	14.7	17.8	37.4	22.9
Glasgow Rd, D'ton 2	28.3	35.2	11.2	29.6	36.3	20	21.1	24	24.2	35.9	41.8	41.5
Glasgow Rd, D'ton 3	42.4	43.4	29.8	41.7	42	29.4	38.2	30.6	38.5	31.2	17	31.5
<b>Milton 1</b>	<b>65.8</b>	<b>32.1</b>	<b>53.3</b>	<b>26.3</b>	<b>72.4</b>	<b>39.4</b>	<b>50.9</b>	<b>50.3</b>	<b>23.6</b>	<b>64.3</b>	<b>52.6</b>	<b>46.9</b>
Milton 2	19.5	25.5	23.5		19.1	14.4	14.9	15.6	31.9	16.7	46.2	19.2
Alexandria 1	40.4	35.2	28	56.7	28.5	22.6	22.3	20.6	60.2	27.3	30.8	33
Balloch 1	29	20.9	12	29.1	26.5	22.6	20	20.4	28.8	19	32.3	22.6
Vale of Leven 3	30.5	34.8	13.8	23.7	23.3	16.1	20.5	20.9	18.5	21.9	31.9	29.2
Vale of Leven 4	30.3	39	14	23.7	22.8	19.9	24.6	20.8	26.9	22.1	30.4	
Briar Drive 1	42.6	35.8	22.1	23.2	17.2	18.6	16.1	12.4	22.1	24.2	31.8	24.4
Briar Drive 2	34.5	33.9	17.7	22.3	21.5	15.4	19	12.6	21.4	20.1	47.3	26.4
Briar Drive 3	34	31	24	28	33.7	19.4	17.6	13	21.3	21.2	31.6	28.1
Dumbarton triplicate 1	23.4	15.8	14.6	27.3	19.8	14.9	13.3	17.6	25.6	16.8	29.9	25.7
Dumbarton triplicate 2	24.4	21.2	13.7	25.5	19.1	15.6	14	15.6	22.5	16.2	28.2	22.3
Dumbarton triplicate 3	26.4	21.2	12.7	24.3	20.9	14.2	14.3	17.1	21.6	21	39.9	