



2016 Air Quality Annual Status Report (ASR)

Weymouth and Portland Borough Council

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

December 2016

Weymouth & Portland Borough Council

Local Authority Officer	Coralie McGown Susan Ashford
Department	Community Protection
Address	Weymouth & Portland Borough Council Commercial Road Weymouth Dorset DT4 8NG
Telephone	01305 838000
E-mail	envhealth@weymouth.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in Weymouth and Portland

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

Actions to Improve Air Quality

Local Priorities and Challenges

Weymouth and Portland Borough Council are working proactively with Development Control, local businesses by way of the permitting regime and Dorset County Council to ensure that air quality is continually reviewed. In addition, Weymouth and Portland Borough Council are involved with plans for a pan-Dorset PM_{2.5} project with Dorset Public Health.

How to Get Involved

Dorset For You website <https://www.dorsetforyou.com/409048> includes measures the public can actively use to improve air quality within the area, these include matters such as interactive cycle maps, adult cycle training and walking routes and trails.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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1 Local Air Quality Management

This report provides an overview of air quality in Weymouth and Portland during 2015. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 an exceedance is considered likely the local authority must 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. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Weymouth and Portland Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of the objectives.

Weymouth and Portland Borough Council currently does not have any AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in Weymouth and Portland

The following Strategies that will have a beneficial impact upon air quality are outlined below:

Air Quality Planning Policies

West Dorset District Council and Weymouth & Portland Borough Council have prepared a joint Local Plan. The adopted Local Plan forms the main basis for making decisions on planning applications. It was adopted by Weymouth & Portland Borough Council on 15 October 2015 and by West Dorset District Council on 22 October 2015.

The Local Plan sets out a long term planning strategy for the area from 2011 - 2031 and includes detailed policies and site proposals for housing, employment, leisure and infrastructure and can be accessed via the following link:

<https://www.dorsetforyou.gov.uk/jointlocalplan/west/weymouth>

Local Transport Plan 3 2011 – 2026

The Local Transport Plan 3 (LTP3) is a statutory document, which sets out a strategy for the management, maintenance and development of the County's transport system. It sets out a way forward to deliver transport needs through short, medium and long term transport solutions and how transport can improve safety and health, support the local economy, protect the environment and reduce carbon emissions and pollution. The LTP3 came into effect in April 2011 and has been produced for the whole of Bournemouth, Poole and Dorset. It covers the period from 2011 to 2026

and is based on a longer term strategy (2011 – 2026) and shorter term implementation plan(s) (3 years), further details can be found at

<https://www.dorsetforyou.gov.uk/travel-dorset/roads-and-driving/road-information/road-and-transport-improvement-schemes/local-transport-plan-3>

Travel Choice

This is a County wide initiative to raise awareness about the impacts of travel behaviour and to encourage people to make an informed decision about journeys they make. For example Cycle West, a project to promote our area as a destination for cross channel cycle tourism, promoting cycling events and cycle routes and providing training for adults wanting to get back on their bikes. This initiative also promotes Car Share Dorset, an online tool to encourage and facilitate car sharing by matching journeys, run jointly by Dorset County Council and Bournemouth and Poole Borough Councils. More information can be found

<https://www.dorsetforyou.com/409048>

Local Sustainable Transport Fund

Dorset County Council received £2.409m in 2012 from the Department for Transport through its Local Sustainable Transport Fund to provide sustainable alternatives for people to travel in Weymouth and Dorchester for the period 2012 – 2015.

<https://www.dorsetforyou.com/402591>

Industrial Installations

Industrial sources are controlled by the Environment Agency (EA) and by local authorities under the Pollution Prevention and Control regulations and through the Clean Air Act. A list of Permitted Processes in Weymouth and Portland is provided in Appendix G. Emissions to air are monitored for Part B processes by WPBC under the LAPPC regime. WPBC do not have any Part A Processes.

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Weymouth and Portland Borough Council do not currently monitor for PM_{2.5}. The closest AURN Monitoring Stations are located within Bournemouth Borough Council, approximately 61km and, Christchurch Borough Council 66km.

Defra's national background maps have been used to identify the modelled PM_{2.5} concentrations for the calendar year 2015.

The average of Total PM_{2.5} of all 63 locations (centre point of 1 km x1 km grids) was 8.48µg/m³ (Min 7.62 µg/m³ and Max 9.41µg/m³).

PM_{2.5} concentrations are considered to be well below the EU Limit Value of 25 µg/m³. However, all Dorset Local Authorities and Dorset Public Health are looking at the possibility of a joint project to establish the actual levels of PM_{2.5}. Work will continue with this possible pan-Dorset air quality project, and the outcome / progress will be reported in the next ASR.

In addition, the Council is taking the following measures to address PM_{2.5}:

- Inspection of processes under the LAPPC Regime.
- Liaise with Dorset County Council (the Highway Authority) with regards to improvements schemes on the road infrastructure as and when necessary
- The AQAP in place in our adjacent local authority (WDDC) looks at measures to reduce the exposure of residents within the AQMAs to NO₂, however, these initiatives will have a positive effect on PM_{2.5} levels within our local authority.
- Travel choices as detailed above.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Weymouth and Portland Borough Council undertook automatic (continuous) monitoring at one site during 2015. Table A.1 in Appendix A shows the details of this site.

Rodwell Road was an area of concern for a number of years for traffic related nitrogen dioxide. As there was thought to be a correlation between nitrogen dioxide and particulate matter, a grant application was put to Defra to enable to purchase of a TEOM FDMS analyser for this location. Dorset County Council assisted WPBC with purchasing a chemiluminescent analyser to be placed at this location. The site was installed in February 2010.

The analyser at Rodwell Road is not located within an AQMA. The Rodwell Road station is considered to be representative of relevant public exposure, as there are facades of residential properties located at approximately the same distance from the road in that area.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Weymouth and Portland Borough Council undertook non- automatic (passive) monitoring of NO₂ at 15 sites during 2015. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for “annualisation” and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full dataset of monthly mean values from 2010 is provided in Appendix B.

Due to a fault with the air conditioning unit and to the analyser in 2015 there were only intermittent results available. WPBC therefore decided to discount the continuous monitoring data for this year. As a result, the national bias adjustment factor was applied to the diffusion tubes for 2015. Since 2012, the national adjustment figure has been higher than the local factor. Applying the national factor to the 2015 diffusion tubes has resulted in higher results. Further details can be found in Appendix B.

There are two diffusion tubes that exceeded the objective in 2015, diffusion tubes 10 and 52. Diffusion tube 52 is on the façade of a residential dwelling. Diffusion tube 10 is 2.5m from relevant exposure, when distance corrected the concentration falls below the objective (see Appendix B for calculations).

There were no annual means greater than 60µg/m³, which indicates that an exceedance of the 1-hour mean objective is likely at these sites.

Dorset County Council have recently altered the sequencing to the traffic lights to the Boot Hill area. WPBC therefore plan to monitor the effect of these changes. This course of action has been agreed by DEFRA. Further details can be found in Appendix B.

WPBC have reviewed the diffusion tube monitoring locations. Two locations have been consistently below the objective so WPBC are no longer monitoring at sites 29 Fire Station and 42 King Street CCTV.

Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites (Areas of Previous Concern Only)

Figure 2.4.a King Street Locations

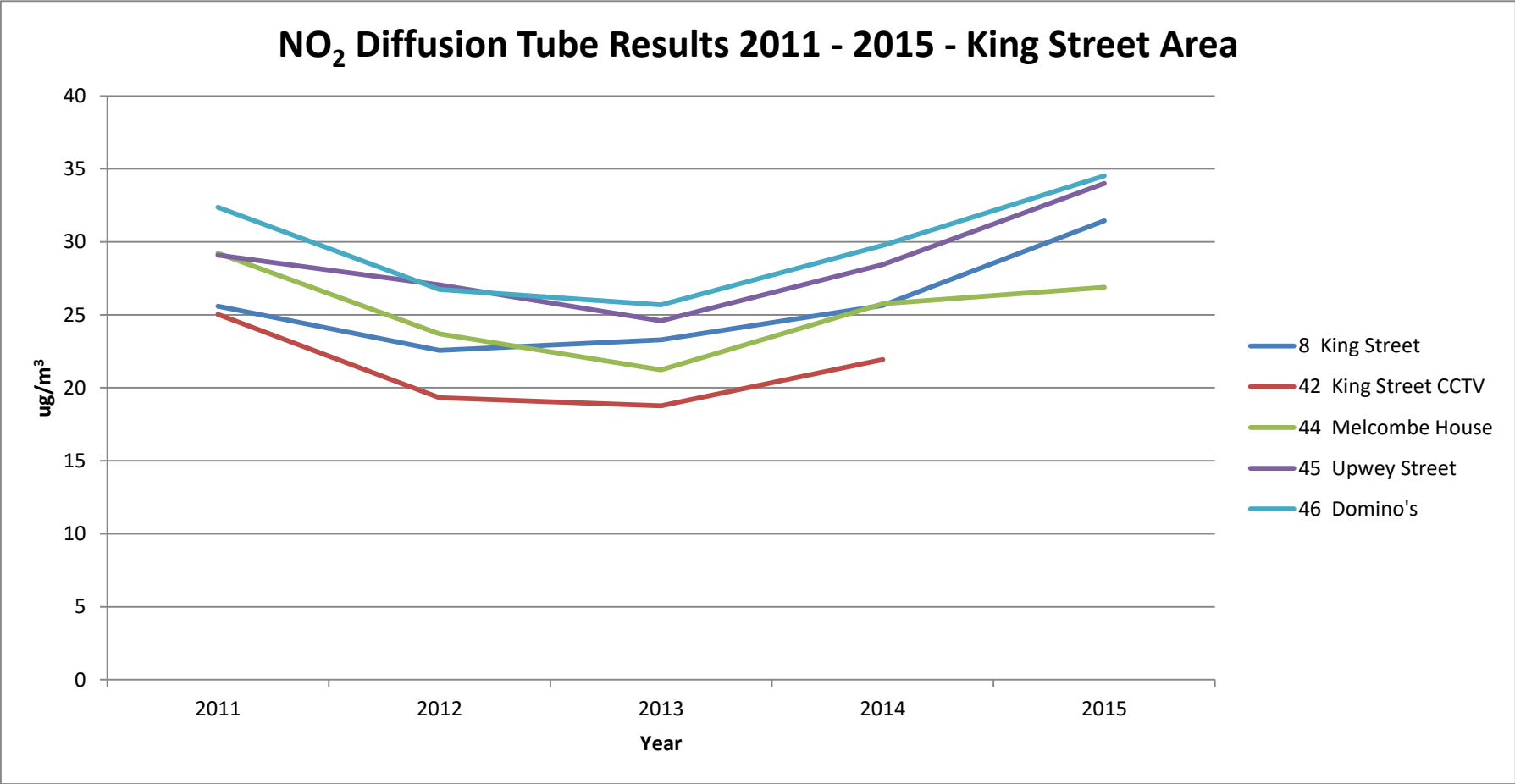
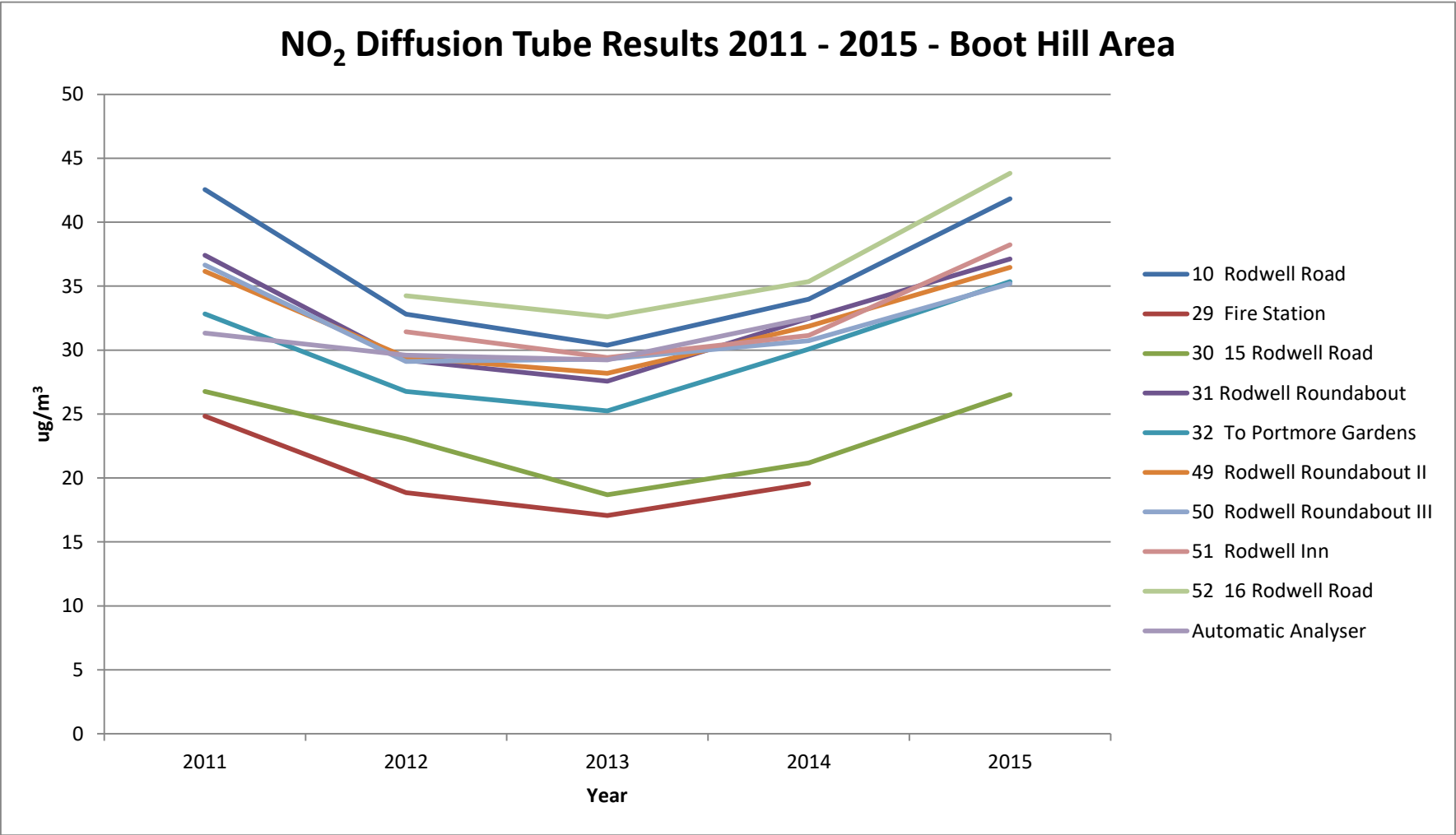


Figure 2.4.b Boot Hill Locations



3.2.2 Particulate Matter (PM₁₀)

Table A.5 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

Table A.4 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

Due to a fault with the air conditioning unit and to the analyser in 2015 there were only intermittent results available. WPBC therefore decided to discount the continuous monitoring data for this year. However, due to previous results, exceedance of these objectives is considered to be unlikely.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
Boot Hill	Boot Hill	Roadside	367541	78471	NO ₂	N	Chemiluminescent	N/A	3.5	2
Boot Hill	Boot Hill	Roadside	367541	78471	PM ₁₀	N	TEOM FDMS	N/A	3.5	2

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

The location of the automatic analyser on Boot Hill is representative of relevant exposure i.e. the distance of the inlet from the source is the same distance as the façade of residential dwellings.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
4	St Georges Estate	Urban Background	368779	71706	NO ₂	N	1	2	N	2.5
8	King Street	Kerbside	368003	79527	NO ₂	N	0.5	2	N	2.5
10	Rodwell Road	Kerbside	367542	78548	NO ₂	N	2.5	2.5	N	3
29	Fire Station	Roadside	367514	78631	NO ₂	N	2.5	1.5	N	N/A
30	15 Rodwell Road	Roadside (on façade of dwelling)	367545	78550	NO ₂	N	0	2.5	N	2.5

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
31	Rodwell Roundabout	Roadside	367540	78471	NO ₂	N	Representative of façade	3.5	Y	3
32	To Portmore Gardens	Roadside	367528	78554	NO ₂	N	Representative of façade	2	N	3
49	Rodwell Roundabout II	Roadside	367540	78471	NO ₂	N	Representative of façade	3.5	Y	3
50	Rodwell Roundabout III	Roadside	367540	78471	NO ₂	N	Representative of façade	3.5	Y	3
51	Rodwell Inn	Roadside	367550	78485	NO ₂	N	0.5	2	N	3
52	16 Rodwell	Kerbside	367533	78531	NO ₂	N	0	2	N	3

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
	Road									
42	King Street CCTV	Roadside	367948	79557	NO ₂	N	N/A	3	N	N/A
44	Melcombe House	Kerbside	367830	78595	NO ₂	N	13	3	N	3
45	Upwey Street	Kerbside (on façade of dwelling)	367879	78567	NO ₂	N	0	1.5	N	3
46	Dominoes	Kerbside (on façade of dwelling)	367995	79528	NO ₂	N	0	2.5	N	3

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture 2015 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2011	2012	2013	2014	2015
Boot Hill	Roadside	Automatic	N/A	31.32	29.61	29.23	32.53	-
4	Urban Background	Diffusion Tube	83.33	9.59	7.44	5.77	5.82	7.60
8	Kerbside	Diffusion Tube	100	25.58	22.57	23.29	25.65	31.44
10	Kerbside	Diffusion Tube	100	42.56	32.80	30.38	33.99	41.83
29	Roadside	Diffusion Tube	N/A	24.84	18.86	17.07	19.57	
30	Roadside (on façade of dwelling)	Diffusion Tube	100	26.76	23.06	18.69	21.17	26.53
31	Roadside	Diffusion Tube	83.33	37.41	29.21	27.57	32.49	37.13
32	Roadside	Diffusion Tube	83.33	32.82	26.77	25.25	30.07	35.36
49	Roadside	Diffusion Tube	100	36.17	29.44	28.19	31.87	36.46
50	Roadside	Diffusion Tube	100	36.66	29.11	29.30	30.73	35.19
51	Roadside	Diffusion Tube	100		31.43	29.42	31.15	38.24
52	Kerbside	Diffusion Tube	83.33		34.24	32.60	35.35	43.82
42	Roadside	Diffusion Tube	N/A	25.04	19.32	18.76	21.93	
44	Kerbside	Diffusion Tube	100	29.22	23.69	21.24	25.75	26.89
45	Kerbside (on façade of dwelling)	Diffusion Tube	100	29.10	27.05	24.58	28.45	34.01
46	Kerbside (on façade of dwelling)	Diffusion Tube	100	32.38	26.74	25.68	29.76	34.52

Notes: Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Technical Guidance LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2015 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2011	2012	2013	2014	2015
Boot Hill	Roadside	Automatic	-	-	-	-	0	0	-

Notes: Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 90%, the 99.8th percentile of 1-hour means is provided in brackets.

Unable to provide 2015 data due to a fault with the analyser therefore, the results have been discounted.

Table A.5 – Annual Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2015 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2011	2012	2013	2014	2015
Boot Hill	Roadside	-	-	19.8	23.8	30.91	30.02	-

Notes: Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Technical Guidance LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Unable to provide 2015 data due to a fault with the analyser therefore, the results have been discounted.

Table A.6 – 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	PM ₁₀ 24-Hour Means > 50µg/m ³ (3)				
				2011	2012	2013	2014	2015
Boot Hill	Roadside	-	-	15	8	-	-	-

Notes: Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 90%, the 90.4th percentile of 24-hour means is provided in brackets.

Unable to provide 2015 data due to a fault with the analyser therefore, the results have been discounted.

Appendix B: Full Monthly Diffusion Tube Results for 2015

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2015

Site ID	NO ₂ Mean Concentrations (µg/m ³)													Annual Mean	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted ⁽¹⁾	
	4 St Georges Estate	9.26		9.57		6.34	6.88	6.18	7.98	9.14	11.34	7.06			5.38
8 King Street	29.53	32.05	33.77	39.55	27.30	31.27	27.67	42.08	40.90	43.30	27.17	18.46	32.75	31.44	
10 Rodwell Road	44.31	36.02	46.13	54.25	34.59	44.69	38.06	48.32	54.30	56.76	34.41	30.98	43.57	41.83	
29 Fire Station	26.45	29.68	28.06												
30 15 Rodwell Road	33.16	29.04	29.98	26.04	22.93	28.01	24.04	29.77	28.49	39.89	21.66	18.6	27.63	26.53	
31 Rodwell Roundabout	38.29			38.47	33.54	33.53	35.26	47.36	40.41	53.10	35.12	31.65	38.67	37.13	
32 To Portmore Gardens	30.21	32.92	36.23	42.64	34.75			44.78	33.76	41.82	32.92	38.25	36.83	35.36	
49 Rodwell Roundabout II	39.21	38.88	41.40	38.65	37.67	32.43	35.54	40.55	39.04	48.05	33.02	31.31	37.98	36.46	
50 Rodwell Roundabout III	38.83	35.60	36.64	39.77	36.28	37.85	35.64	38.76	37.43	45.01	32.29	25.76	36.66	35.19	
51 Rodwell Inn	33.94	35.60	41.70	55.68	35.39	37.01	37.32	45.15	45.71	49.79	33.14	27.55	39.83	38.24	

Site ID	NO ₂ Mean Concentrations (µg/m ³)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted ⁽¹⁾
52 16 Rodwell Road	46.84	46.96	44.24	46.10	40.06	48.99			43.83	52.77	45.18	41.48	45.64	43.82
42 King Street CCTV	25.11	23.05												
44 Melcombe House	22.32	25.98	26.23	29.26	29.32	27.95	29.87	34.96	28.64	28.60	28.46	24.59	28.02	26.89
45 Upwey Street	27.80	28.88	36.03	38.60	34.17	36.85	41.41	44.96	34.95	35.03	32.83	33.61	35.43	34.01
46 Dominoes	32.26	29.28	32.59	43.26	37.65	38.06	39.03	41.94	34.89	38.09	32.87	31.53	35.95	34.52



(1) See Appendix C for details on bias adjustment

Anomalous results for tube 32 (June and July) and tube 52 (July and August) have been removed. See below for explanation.

NO₂ Fall-Off With Distance Calculator (Version 4.1) – Diffusion Tube 10

The annual mean for diffusion tube number 10, for 2015 was 41.8µg/m³. This diffusion tube is located on a lamppost, 2.5m from the façade of the nearest residential property. The Bureau Veritas NO₂ Fall-Off With Distance Calculator has been used to predict the annual mean at the façade of the nearest residential property at this location, where the objective applies. The predicted annual mean NO₂ concentration at the façade at this location is 35.9µg/m³. See Figure B.1 below for calculations.

Figure B.1 Diffusion Tube 10, NO₂ Fall-Off With Distance Calculator (Version 4.1)

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	5	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	7.59	µg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	41.8	µg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	35.9	µg/m ³

Table B.2 – NO₂ Monthly Diffusion Tube Results – 2015 including anomalous results

Site ID	NO ₂ Mean Concentrations (µg/m ³)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted ⁽¹⁾
4 St Georges Estate	9.26		9.57		6.34	6.88	6.18	7.98	9.14	11.34	7.06	5.38	7.91	7.60
8 King Street	29.53	32.05	33.77	39.55	27.30	31.27	27.67	42.08	40.90	43.30	27.17	18.46	32.75	31.44
10 Rodwell Road	44.31	36.02	46.13	54.25	34.59	44.69	38.06	48.32	54.30	56.76	34.41	30.98	43.57	41.83
29 Fire Station	26.45	29.68	28.06											
30 15 Rodwell Road	33.16	29.04	29.98	26.04	22.93	28.01	24.04	29.77	28.49	39.89	21.66	18.6	27.63	26.53
31 Rodwell Roundabout	38.29			38.47	33.54	33.53	35.26	47.36	40.41	53.10	35.12	31.65	38.67	37.13
32 To Portmore Gardens	30.21	32.92	36.23	42.64	34.75	0.73	0.46	44.78	33.76	41.82	32.92	38.25	30.79	29.56
49 Rodwell Roundabout II	39.21	38.88	41.40	38.65	37.67	32.43	35.54	40.55	39.04	48.05	33.02	31.31	37.98	36.46
50 Rodwell Roundabout III	38.83	35.60	36.64	39.77	36.28	37.85	35.64	38.76	37.43	45.01	32.29	25.76	36.66	35.19
51 Rodwell Inn	33.94	35.60	41.70	55.68	35.39	37.01	37.32	45.15	45.71	49.79	33.14	27.55	39.83	38.24
52 16 Rodwell Road	46.84	46.96	44.24	46.10	40.06	48.99	76.52	107.87	43.83	52.77	45.18	41.48	53.40	51.27

Site ID	NO ₂ Mean Concentrations (µg/m ³)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted ⁽¹⁾
42 King Street CCTV	25.11	23.05												
44 Melcombe House	22.32	25.98	26.23	29.26	29.32	27.95	29.87	34.96	28.64	28.60	28.46	24.59	28.02	26.89
45 Upwey Street	27.80	28.88	36.03	38.60	34.17	36.85	41.41	44.96	34.95	35.03	32.83	33.61	35.43	34.01
46 Dominoes	32.26	29.28	32.59	43.26	37.65	38.06	39.03	41.94	34.89	38.09	32.87	31.53	35.95	34.52

Data from the diffusion tubes for 2015 have been reviewed and four anomalous results have been identified.

Diffusion tubes are labelled using bar codes with identification numbers. Reviewing the bar codes for the diffusion tubes at location 32 for June and July indicates that these diffusion tubes were returned to the laboratory unexposed. Reviewing the bar codes for the diffusion tubes at location 52 indicates that these diffusion tubes were exposed for a longer period than advised by DEFRA.

Advice has been sought from the LAQM Helpline and the laboratory that analyses the diffusion tubes, see below for their response. Therefore WPBC has decided to remove the anomalous data. Table B.2 above shows all of the data collected in 2015. Table B.1 shows the data which that has been submitted in the 2016 Annual Status Report to DEFRA, with the anomalies removed.

Due to a fault with the air conditioning unit and to the analyser in 2015 there were only intermittent results available. WPBC therefore decided to discount the continuous monitoring data for this year. As a result, the national bias adjustment factor was applied to the

diffusion tubes for 2015. Since 2012, the national adjustment figure has been higher than the local factor. Applying the national factor to the 2015 diffusion tubes has resulted in higher results. DCC have since altered the sequencing to the traffic lights to the Boot Hill area. WPBC plan to monitor the effect of these changes. This course of action has been agreed by DEFRA.

Emails with the LAQM Helpdesk:

From: LAQMHelpdesk@uk.bureauveritas.com
Sent: 04 April 2016 12:04
To: Coralie McGown
Subject: Re: 3242 NO2 results queries

On Behalf Of

Hello Coralie

Thank you for contacting the LAQM Helpdesk. Your query has been allocated the unique reference code: 3242 and you should use this as a reference for any further follow up regarding the following response.

In direct response to your various queries:

1) There is not usually a straightforward answer in choosing the bias correction factor. I assume your challenge on using a local factor has come in previous years where data capture was more consistent? Using a local factor is perfectly legitimate where you can be confident QA/QC of the data has been conducted to the necessary standard and you feel this factor is more representative of local conditions (i.e. if there are particular features of your monitoring locations that you feel nationally averaged factor would not capture). However, for 2015, given you have taken the decision to discount your continuous monitoring data as unreliable, you will need to use the national factor to adjust 2015 results, that much seems clear. This will mean a stepped change in your results, but one that is explainable by your choice of bias factor. Whilst not ideal, it is the best course of action in this case and can be explained and caveated in supporting text.

With regard to exceedence, for the first site (assuming this to be 10 Rodwell Road) the fact you have distance-corrected to appropriate receptors will negate need to consider this particular area at this stage. For the second (assuming to be 52 16 Rodwell Road), concentrations are markedly reduced when removing the anomalous results you've highlighted in red (see point 2). However, I would think carefully about this area as you note the site has been close to exceedence previously. I would suggest this site might be worth further consideration, particularly if this has been within 10% of the annual mean objective in previous years, though it could certainly be argued that the new exceedence is introduced by use of the national factor.

2) For 32 Portmore Gardens, the red values certainly look to be anomalous and I would discount these.

For 52 16 Rodwell Road, the red values are very high indeed. Whilst indications are that these are anomalous as well, you need to be very careful when removing what you consider to be erroneous data, as you may face a challenge later on. I would check with your diffusion tube lab to confirm if these particular tubes were exposed/analysed incorrectly, as you will need a robust evidence base for discounting the concentrations, particularly given this is now potentially an area of exceedence.

That considered, if you find reasonable grounds to discount the red data, in both instances you will not need to annualise given data capture will still be above the necessary threshold. Simply remove the results and report a reduced data capture, with justifications as to why those particular months were removed.

3) Monitoring the impact of these changes would certainly seem to be an appropriate course of action

Hope the above is of assistance

Kind Regards

LAQM Helpdesk Team
Email: LAQMHelpdesk@uk.bureauveritas.com
Website: <http://laqm.defra.gov.uk/>
FAQs: <http://laqm.defra.gov.uk/laqm-faqs/>
What's New: <http://laqm.defra.gov.uk/whatsnew.html>
Telephone: 0800 032 7953

Weymouth & Portland Borough Council

To: LAQMHelpdesk@mail@VERITAS
cc: Susan Ashford <SAshford@dorset.gov.uk>

Attn:

Subject: 3242 NO2 results queries

Hallo,

Please may we ask for some advice on our 2015 Diffusion Tube data for NO2, as we have a few issues to go through.

1. Bias Adjustment.

We usually use our own co-location study to calculate a local bias adjustment factor. We had a fault with the A/C unit & to the analyser in 2015, We needed to have that repaired & a new enclosure, so we only had intermittent results so decided to discount the analyser's data for the year.

The BA for the last few years are as follows, and our BA is usually lower than the National one. :

Year	National Factor	Local Factor
2012	1.02	0.81
2013	1.01	0.68
2014	0.98	0.76

Which factor would Defra prefer to be used on our Diffusion Tube data? (we collocate with triplicate tubes). We have used our own, as the analyser is located within the same area as the diffusion tubes, but have been asked why we are using a factor that reduces all our results, and not the one issues by Defra.

In light of the difference in National & Local factors, our results are seen to have increased and exceed at two locations. One is a kerbside location, and calculating back from the road, this then falls within the AQO, however the other result is exceeding the AQO, significantly. This results is always close to the AQO, but has not exceeded. Would you advise as to whether we can undertake another 12months worth of monitoring to check this result?

2. Error with exposing tubes.

A couple of our tubes have either been mislabelled, returned unexposed, or double exposed. Should we discount these data and annualise the mean? (Please see the attached spreadsheet, with anomalies marked in red).

3. Change in the traffic signalling.

Dorset County Council have altered the sequencing of the lights to the Boot Hill area, where our levels of NO2 are highest. Would we be better looking at how the signalling has impacted upon the congestion, and consequently, the pollution levels to that area over the following 12 months?

Many thanks, and apologies for the amount of queries.
Coralie

Coralie McGown
Team Leader - Public Health

Dorset Councils Partnership serving:
North Dorset District Council, West Dorset District Council and Weymouth & Portland Borough Council
01305 838000
cmcgown@dorset.gov.uk
www.dorsetforyou.com/contactus

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Emails with Gradko International

From: Diffusion
Sent: 17 May 2016 16:14
To: Susan Ashford
Subject: RE: Diffusion tube data, WPBC 2015

Hi Susan,

I've looked through the reports we issued and I think there were mix ups involving which tubes were returned when and labelling on the tubes.

In the June report we didn't receive back tube 540037 which was marked on the paperwork as 32 To Portmore Gardens but we did receive tube 557668 which wasn't on the paperwork but the tube was labelled 32 – To Portmore Gardens any way. All the other tubes have numbers between 540032-540045 so it looks like 557668 which we did receive back was from the July batch and was returned without being changed over. Do you agree?

Then tube 540037 which was marked on the June paperwork we received with July's tubes. We marked this as "Not on Sheet" on the report but this result (76.52) appears as your July result for 16 Rodwell Road. Then the July result of 0.46 for 32 To Portmore Gardens is taken from tube number 574537 which is also out of sequence with the other tubes on the report which are between 557677 and 577676. I suspect that this was also returned without being exposed when it should have been part of the July batch.

This would then fit with tube 557670 being returned as part of the August batch and being exposed for two months which gives your result in August for 52 16 Rodwell Road.

Does this help? If you have any queries please let me know.

Kind regards,

Technical Adviser

Gradko International Ltd
St. Martins House
77 Wales Street
Winchester
SO23 0RH

+44 1962 860 331 (ph)

+44 1962 841 339 (fx)

Weymouth & Portland Borough Council

From: Susan Ashford [mailto:SAshford@dorset.gov.uk]

Sent: 13 May 2016 10:03

To: Diffusion

Subject: Diffusion tube data, WPBC 2015

Hello

We are currently reviewing the diffusion tube data for 2015 for Weymouth and Portland Borough Council and there appears to be some anomalous results. A couple of the tubes have either been mislabelled, returned unexposed, or double exposed. Please see the attached spreadsheet with the anomalies marked in red. Please could you have a look at the results for these months and confirm if these particular tubes were exposed/analysed incorrectly. We have asked for advice from the LAQM helpdesk who advised us to check with the laboratory as we need a robust evidence base for discounting any data.

Kind regards

Susan

Susan Ashford

Environmental Health Officer

Dorset Councils Partnership serving:

North Dorset District Council, West Dorset District Council and Weymouth & Portland Borough Council

01305 252322

sashford@dorset.gov.uk

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Table B.3 2014 Diffusion Tube Data

Monitoring Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	Bias Adjustment Factor	Annual Mean corrected for bias
4 St Georges Estate	6.66	5.99	11.05	8.6	8.75	7.77	6.08	4.23	7.25	5.3	13.65	6.61	7.66	0.76	5.82
8 King Street	28.13	24.74	33.3	36.76	40.25	35.38	44.18	32.91	40.23	24.66	30.78		33.76	0.76	25.65
10 Rodwell Road	53.19	31.59	52.8	57.48	28.63	53.72	46.1	32.41	60.35	35.7	56.55	28.23	44.73	0.76	33.99
29 Fire Station			31.77	27.95	28.63	27.87	24.98	16.21	31.57	14	31.04	23.53	25.76	0.76	19.57
30 15 Rodwell Road	28.37	22.1	29.69	32.31	26.96	26.26	30.01	24.82	28.62	26.72	31.07	27.4	27.86	0.76	21.17
31 Rodwell Roundabout		31.2	47.18	45.69	44.32	41.66	45.48	35.46	43	33.59	69.58	33.13	42.75	0.76	32.49
32 To Portmore Garden5	40.32	35.12	41.02	46.57	43.11	40.68	39.1	41.19	39.23	37.09	43.07	28.22	39.56	0.76	30.07
49 Rodwell Roundabout II	42.32	36.57	40.54	41.73	40.98	38.91	46.78	34.31	42.56	37.17	71.48	29.83	41.93	0.76	31.87
50 Rodwell Roundabout III	35.75	33.3	31.19		67.79	42.25	42.84	36.73	44.33	36.59	43.08	30.86	40.43	0.76	30.73
51 Rodwell Inn	41.94	32.49	44.73	46	28.64	45.64	42.23	41	58.62	36.47	44.42	29.61	40.98	0.76	31.15
52 16 Rodwell Road	58.81		39.64	51.15	47.38	51.94	51.53	49.87	44.77	45.85	24.85	45.85	46.51	0.76	35.35
42 King Street CCTV	31.62	23.53	32.38	31.78	33.53	28.46	27.77	26.36	32.46	23.55	31.06	23.8	28.86	0.76	21.93
44 Melcombe House	38.75	26.08	35.32	40.03	45.36			32.85	31.4	25.35	38.07	25.63	33.88	0.76	25.75
45 Upwey Street	37.44	33.26	35.52	42.68	41.11	40.87	42.74	42.67	38.73	31.65	34.5	28.01	37.43	0.76	28.45
46 Dominoes	39.32	33.25	35.48	42.4	44.29	44.45	41.98	42.1	38.41	43.07	34.89	30.28	39.16	0.76	29.76

Table B.4 2013 Diffusion Tube Data

Monitoring Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	Bias Adjustment Factor	Annual Mean corrected for bias
4 St Georges Estate	11.97	13.24			4.92	7.28	7.56	7.82	7.7	6.45	11.78	6.17	8.49	0.68	5.77
5 Fortuneswell	21.6	23.03			14.73								19.79	0.68	13.45
8 King Street	32.64	39.14			37.29	30.27	39.96	37.3	33.61	28.34	35.86	28.03	34.24	0.68	23.29
10 Rodwell Road	51.4	58.04			41.06	43.46	57.3	42.94	42.21	38.17	38.57	33.62	44.68	0.68	30.38
12 Portland Road	27.24	M			9.39								18.32	0.68	12.45
14 Lanehouse Rocks Road	18.78	22.1			6.42								15.77	0.68	10.72
17 Colocation	22.64	17.63			14.13								18.13	0.68	12.33
20 Colocation II	22.57	16.58			14.14								17.76	0.68	12.08
21 Colocation III	24.1	15.01			7.92								15.68	0.68	10.66
29 Fire Station	28.05	33.13			21.59	22.73	26.64	22.99	24.65	20.58	29.88	20.82	25.11	0.68	17.07
30 15 Rodwell Road	30.63	39.01			7.49	26.7	28.51	32.69	23.26	26.46	36.46	23.61	27.48	0.68	18.69
31 Rodwell Roundabout	46.12	40.58			41.88	36.68	41.13	47.37	32.06	36.08	46.87	36.69	40.55	0.68	27.57
32 To Portmore Gardens	38.91	28.61			42.99	34.27	45.61	37.54	32.36	37.25	29.63	44.15	37.13	0.68	25.25
49 Rodwell Roundabout II	M	38.08			39.77	38.35	41.96		42.46	37.8	44.35	40.31	40.39	0.68	28.19
50 Rodwell Roundabout III	44.66	M			43.18	37.73	43.88	47.08	38.29	39.44	54.64	38.83	43.08	0.68	29.30
51 Rodwell Inn	46.29	45.73			41.37	34.1	57.06	42.52	42.19	43.39	44.75	35.19	43.26	0.68	29.42
52 16 Rodwell Road	60.45	44.3			41.39	42.18	59.73	44.21	43.68	48.91	47.18	47.37	47.94	0.68	32.60
53 Wyke Road	33.2	31.6			25.86								30.22	0.68	20.55
34 Wyke Juniors	20.61	19.74			7.17								15.84	0.68	10.77
35 Cockles Lane	31.15	31.56			25.52								29.41	0.68	20.00
36 60 Lanehouse Rocks Road	20.75	20.59			15.29								18.88	0.68	12.84

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37 Wyke Rd / Cross Rd Junc	19.42	16.22			13.88								16.51	0.68	11.22
38 Buxton Rd / Cross Rd Junc	13.87	15.07			7.57								12.17	0.68	8.28
39 Wyke Rd / Lanehouse Rocks Rd	M	M												0.68	
42 King Street CCTV	28.25	24.12			26.23	23.29	34.88	33.05	26.82	25.95	26.75	26.52	27.59	0.68	18.76
44 Melcombe House	31.79	24.43			25.21	27.12	36.21	40.53	29.51	31.36	33.77	32.36	31.23	0.68	21.24
45 Upwey Street	35.55	30.44			30.45	30.27	54.56	44.19	33.69	33.9	33.83	34.59	36.15	0.68	24.58
46 Dominoes	34.05	27.45			31.21	33.38	57.07	46.05	34.21	37.52	37.79	38.97	37.77	0.68	25.68

Due to a laboratory error, diffusion tubes for March 2013 were exposed for 8 weeks. Following advice from the LAQM Helpline, these results were discounted.

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Table B.5 2012 Diffusion Tube Data

Monitoring Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	Adjustment Factor Bias	Annual Mean corrected for bias
2 Newstead Road	16.85	19.79	24.41	11	13.45	11.81	9.87	14.97					15.27	0.81	12.37
4 St Georges Estate	9.34	14.53	18.98	5.1	7.43	6.39	5.22	6.76	4.92	11.69	10.94	8.87	9.18	0.81	7.44
5 Fortuneswell	17.06	24.03	23.1	11.18	15.63	11.42	9.96	15.23	10.16	20.66	18.71	15.9	16.09	0.81	13.03
7 Littlemoor Road	19.88	22.33	25.72	14.23	17.72								19.98	0.81	16.18
8 King Street	27.6	30.25	41.4	22.81	28.96	21.7	17.56	20.91	27.12	30.4	44.27	21.34	27.86	0.81	22.57
9 St Mary Street	13.57	17.05	20.68	7.82	9.84	9.6	9.05	15.66	9.04	11.95			12.43	0.81	10.07
10 Rodwell Road	37.92	40.03	53.89	30.2	40.36	39.45	30.68	41.05	29.9	53.3	47.61	41.49	40.49	0.81	32.80
11 Preston Road	19.84	22.31	26.9	14.17	20.16								20.68	0.81	16.75
12 Portland Road	19.98	22.78	25.06	11.4	13.19	11.47	10.66	12.97	10.92	22.87			16.13	0.81	13.07
13 St Thomas Street	21.56	25.69	23.42	12.49	14.32	17.38	13.87	13.96	19.3	19.26			18.13	0.81	14.68
14 Lanehouse Rocks Road	14.13	19.66	25	8.72	12.37	11.79	7.73	11.67			20.14	8.66	13.99	0.81	11.33
15 Manor Roundabout	34.46	34.71	42.55	24.02	23.03	20.19	19.41	23.7					27.76	0.81	22.48
16 Kestrel View	17.01	19.18	17.36	9.48	10.01								14.61	0.81	11.83
17 Colocation	21.21	18.85	22.75	11.45	15.32	14.68	13.48	18.54	17.53	14.03	23.09	15.64	17.21	0.81	13.94
20 Colocation II	20.41	19.34	24.45	11.85	14.58	15.54	13	17.99	17.79	15.01	21.45	16.33	17.31	0.81	14.02
21 Colocation III	20.72	19.95	22.4	11.34	17.56	14.91	13.15	17.73	18.57	14.43	22.17	17.34	17.52	0.81	14.19
29 Fire Station	28.36	33.53	34.03	18.51	21.54	18.73	12.53	15.28	24.26	21.63	27.04	23.92	23.28	0.81	18.86
30 15 Rodwell Road	31.72	34.54	35.46	26.66	30.94	22.01	17.6	23.52	27.09	32.05	30.5	29.54	28.47	0.81	23.06
31 Rodwell Roundabout	32.58	39.03	45.13	29.22	34.76	34.77	25.98	28.54	33.83	50.39	45.23	33.21	36.06	0.81	29.21
32 To Portmore Gardens	31.63	32.42	37.88	24.47	31.33	34.42	24.36	38.64	30.44	36.91	41.07	33.02	33.05	0.81	26.77

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49 Rodwell Roundabout II	32.12	37.67	44.31	27.89	39.08	35.4	24.43	36.88	35.18	43.87	44.24	35.13	36.35	0.81	29.44
50 Rodwell Roundabout III	32.76	38.03	38.21	31.49	35.99	35.73	27.77	38.99	33.4	48.17	41.77	28.88	35.93	0.81	29.11
51 Rodwell Inn	32.41	38.74	52.91	28.19	40.21	37.39	29.16	37.29	46.3	46.18	43.92	32.94	38.80	0.81	31.43
52 16 Rodwell Road	41.69	45.57	50	32.7	38.31	38.86	32.83	43.63	41.18	42.91	57.39	42.13	42.27	0.81	34.24
53 Wyke Road	29.24	31.68	40.17	20.84	26.13	29.46	17.56		28.65	34.84	34.63	26.9	29.10	0.81	23.57
54 Chickerell Road	23.65	25.72	32.19	15.23	19.03	14.13	9.96	14.18					19.26	0.81	15.60
33 Buxton Road	16.07	21.13	23.75	10.71	13.66								17.06	0.81	13.82
34 Wyke Juniors	12.94	20.18	23.1	9.21	13.3	10.69	9.33	15.51	7.57	22.45	14.19	14.26	14.39	0.81	11.66
35 Cockles Lane	25.68	31.15	42.06	20.21	26.75	23.16	17.74	25.66	19.5	34.29	29.18	27.77	26.93	0.81	21.81
36 60 Lanehouse Rocks Road	16.44	23.88	28.42	11.63	14.74	12.14	9.99	17.04	9.69	22.7	17.5	15.45	16.64	0.81	13.47
37 Wyke Rd / Cross Rd Junc	16.63	21.2	22.97	8.37	13.76	10.65	10.57	13.05		18.71	15.12	14.11	15.01	0.81	12.16
38 Buxton Rd / Cross Rd Junc	15.27	19.82	23.96	9.13	12.94	14.7	10.2	16.46	10.67	19.39	14.49	15.23	15.19	0.81	12.30
39 Wyke Rd / Lanehouse Rocks Rd	17.79	21.95	24.08	10.13	15.58	11.36	9.61	13.25	11.63	18.97	16.57	18.49	15.78	0.81	12.79
40 St Edmund St	19.18	23.55	23.55	13.7	16.33	15.52	13.39						17.89	0.81	14.49
41 Commercial Road	16.71	19.77	27.93	13.12									19.38	0.81	15.70
42 King Street CCTV	25.47	26.99	34.27	17.14	19.13	20.72	18.28	23.64	24.91	21.94	34.11	19.6	23.85	0.81	19.32
43 Queen Street	17.79	19.13	26.08	12.88	14.87								18.15	0.81	14.70
44 Melcombe House	38.92	30.66	37.18	19.78	21.69	29.2	20.28	29.33	28.74	24.38	36.77	34	29.24	0.81	23.69
45 Upwey Street	33.33	36.3	46.19	26.82	28.94	30.36	30.82	39.15	34.3	29.88	39.02	25.7	33.40	0.81	27.05
46 Dominoes	31.04	35.48	43.77	26.54	30.24	32.8	30.43	34.19	35.22	27.27	42.02	27.22	33.02	0.81	26.74

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Table B.6 2011 Diffusion Tube Data

Monitoring Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN	2011 BA Figure of 0.95
2 Newstead Road	23.85	25.04	26.33	24.62	10.65	14.74	17.53	14.43	16.34	21.49	27.19	9.53	19.31	18.35
4 St Georges Est	14.86	13.94	15.15	12.38	5.96	8	7.57	7.78	6.67	10.12	14.54	4.19	10.10	9.59
5 Fortuneswell	25.51	20.95	26.74	22.37	9.24	12.24	13.01	12.49	8.48	16.72	25.59	10.81	17.01	16.16
7 Littlemoor Road	36.83	40.19	28.91	25.73		10.07	21.1	23.08	21.25	19.59	22.26	14.14	23.92	22.73
8 King St	38.88	26.33	35.83	28.37	16.71	20.19	25.9	28.79	22.67	27.03	32.31	20.11	26.93	25.58
9 St Mary Street	18.49	17.59	19.86	17.95	7.67	10.93	12.28	12.37	10.77	16.29	17.89	8.52	14.22	13.51
10 Boot Hill	53.32	57.27	61.32	62.05	29.24	37.82	41.06	37.10	35.13	49.71	54.34	19.18	44.80	42.56
11 Preston Road	24.9	26.6	26.99	28.48	17.9	21.42	26.21	28.17	23.55	28.6	28.62	15	24.70	23.47
12 Portland Road	22.56	20.75	29.03	20.02	10.35	12.61	14.79	14.62	10.93	17.58	22.58		17.80	16.91
13 St Thomas Street	30.55	29.05	27.64	24.68	17.62	22.4	23.57	25.14	21.81	24.57	24.86	20.03	24.33	23.11
14 Lanehouse Rocks Road	23.83	18.92	31.82	24.58	7.65	11.98	17.66	12.84	10.83	17.48	23.14	5.29	17.17	16.31
15 Manor Roundabout	30.75	30.83	32.27	34.3	21.23	30.83	27.32	31.24	25.72	31.58	29.12	24.05	29.10	27.65
16 Kestrel View	17.03	10.59	16.6	13.09	7.5	9.97	10.22	12.06	10.67	15.46	16.81	9.78	12.48	11.86
17 Collocation Site	29.14	35.67	32.39	21.79	14.91	17.96	18.92	20.39	20.6	24.9	27.64	14.2	23.21	22.05
18 719 Dorchester Rd	38.25	33.27	31.90	16.82	7.47	12.24	12.58	20.25	12.53	15.72	19	9.99	19.17	18.21
19 Dorchester Road	53.71	43.32	41.03	26.96	12.22	19.02	22.62	18.67	15.89		26.74	11.84	26.55	25.22
20 Co-location II	28.36	35.54	32.35	21.51	14.33	18.8	19.21	17.2	19.84	24.24	27.85	15.94	22.93	21.78
21 Co-location III	30.88	35.36	31.49	24.52	14.91	19.41	19.07	17.55	20.23	24.7	27.68	12.79	23.22	22.06
22 Wey Valley School	18.39	15.7	16.38	11.91	5.5	7.8	7.22	6.29	8.56	9.17	14.99	5.83	10.65	10.11
23 Jubilee Sidings	22.48	22.3	23.42	20.93	8.73		15.35	16.95	13.49	18.15	26.58		18.84	17.90
29 Fire Station	37.16	28.38	35.63	33.17	14.51	20.09	25.52	21.81	21.74	27.58	31.45	16.77	26.15	24.84
30 15 Rodwell Road	36.22	31.18	33.17	32.46	18.05	27.21	29.01	29.77	21.97	26.21	30.02	22.77	28.17	26.76
31 Rodwell Roundabout	56.51	41.42	31.04	47.67	26.01	39.97	43.68	41.03	36.81	42.06	40.95	25.37	39.38	37.41
32 To Portmore Gardens	34.46	45.23	39.39	39.85	21.62	31.31	M	31.41	32.8	38.59	43.49	21.83	34.54	32.82

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47 Fire Station II	34.6	27.29	37.22										33.04	31.38
48 Fire III	35.32	28.48	40.38										34.73	32.99
33 Buxton Road	22.48	19.29	23.38	12.69	9.6	14.03	14.32	12.47	11.08	13.73	19.14	9.66	15.16	14.40
34 Wyke Juniors	20.15	11.88	24.65	19.93	7.31	10.95	15.05	9.42	9.19	14.84	24.41	4.06	14.32	13.60
35 Cockles Lane	34.75	33.44	42.34	41.52	16.9	23.83	18.12	21.81	19.72	18.08	33.91	16.94	26.78	25.44
36 60 Lanehouse Rocks Rd	25.1	27.17	29.28	26.54	9.29	13.86	18.51	11.94	12.02	19.43	26.82	8.6	19.05	18.09
37 Junction Wyke Rd / Cross Rd	20.88	18.3	22.75	13.43	8.14	11.96	13.55	10.13	11.24	14.1	20.99	7.98	14.45	13.73
38 Junction Buxton Rd / Cross Rd	17.46	16.87	19.31	18.62	10.16	9.81	17.4	13.82	15.27	13.22	22.93	7.5	15.20	14.44
39 Junction Wyke Rd, LHRocks Rd	25.49	19.25	24.94	19.54	9.66	11.98	17.22	12.53	12.1	16.87	23.01	9.86	16.87	16.03
40 St Edmund Street	24.28	25.82	34.56	20.03	13.69	19.7	21.03	17.89	17.79	24.67	26.33	16.04	21.82	20.73
41 Commercial Rd	23.5	22.75	25.88	24.06	10.27	14.05	18.02	12.65	11.96	17.31	24.61	10.86	17.99	17.09
42 King St CCTV Column	28.4	30.63	28.42	31.15	15.45	20.27	23.21		22.69	29.88	38.53	21.29	26.36	25.04
43 Queen Street	24.43	21.15	24.24	24.19	10.25	14.03	16.18	14.8	14.5	16.71	24.94	11.68	18.09	17.19
44 Melcombe House	35.11	37.22	31.86	32.94		23.1	26.54	30.3	29.14	29.68	36.49	25.9	30.75	29.22
45 Upway Street	36.44	42.44	35.99	29.79	22.03	28.26	28.55	37.55	34.68	0	43.04	28.76	30.63	29.10
46 Dominoes	38.76	41.15	31.12	35.72	23	29.59		33.91	35.54	37.79	39.19	29.16	34.08	32.38
49 Rodwell Roundabout II				52.28	32.46	36.87	43.5	40.91	28.11	41.34	41.85	25.37	38.08	36.17
50 Rodwell Roundabout III				52.22	28.7	38	46.91	36.28	36.08	41.18	43.37	24.55	38.59	36.66

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Table B.7 2010 Diffusion Tube Data

LOCATION	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	MEAN	Bias Adj Mean 1.03
NEWSTEAD RD	29.16	21.52	23.05	22.38	22.08	20.5	15.88	15.44	16.95	17.71	16.93	22.96	20.38	20.99
ST GEORGES EST	14.84	12.35	12.67	9.38	8.76	9.36	7.41	6.16	8.5	8.73	12.04	15.82	10.50	10.82
FORTUNESWELL	28.76	24.12	22.01	21.13	19.1	16.13	10.39	12.71	16.58	16.41	23.22	29.29	19.99	20.59
LITTLEMOOR RD	31.61	33.15	27.68	30.43	36.59	33.54		5.61		32.04	25.96	27.88	28.45	29.30
KING ST	38.1	35.97	34.15	39.17	47.26	37.51	26.91	30.94	32.55	31.65	30.79	34.53	34.96	36.01
ST MARY ST	24.86	18.18	17.51	15.58	13.46	13.92	14.52	12.16	29.59	14.48	19.96	19.36	17.80	18.33
BOOT HILL	64.5	57.19	52.87	51.19	54.71	40.25	24.72	29.40	14.09	34.07	39.29	43.93	42.18	43.45
PRESTON RD	19.69	25.16	26.04	24.24	27.26	25.27	26.73	25.96	39.56	23.55	22.81	22.44	25.73	26.50
PORTLAND RD	24.8	22.11	21.67	22.01	16.74	15.36	11.38	13.45	25.61	18.23	17.77	24.24	19.45	20.03
ST THOMAS ST	29.19	28.79	30.96	28.56	26.76	25.84	29.12	23.75	15.11	26.86	18.63	25.09	25.72	26.49
LANEHOUSE ROCKS RD	25.22	20.5	20.64	17.61	19.17	19.14	12.63	12.65	28.95	18.57	21.15	22.1	19.86	20.46
MANOR ROUNDABOUT	34.53	24.69	22.67	22.62	21.62	16.38		24.14	18.63	26.37	30.45	32.56	24.97	25.72
KESTREL VIEW	17.77	13.55	12.69	9.89	9.91	9.15	6.54	8.46	27.58	11.07	13.27	17.67	13.13	13.52
COLLOCATION SITE	29.06	33.01	27.76	28.69	30.86	27.85	32.17	26.25	11.36	28.86	27.68	27.03	27.55	28.37
719 Dorchester Rd	38.56	38.06	18.63	26.64	33.25	34.15	33.39	33.37	33.23	33.97	36.61	29.12	32.42	33.39
DORCHESTER	42.23	44.16	40.01	44.02	44.23	42.63	36.3	39.07	33.39	33.22	42.01	42.37	40.30	41.51
CO-LOCATION II	29.09	32.82	28.99	25.63	28.73	27.56	30.7	26.86	45.19	30.5	31.33	27.96	30.45	31.36
COLLOCATION III	28.27	28.87	31.98	28.17	31.91	25.88	31.77	25.35	32.84	30.63	27.07	30.96	29.48	30.36
WEY-VALLEY	13.48	13.7	13.72	10.42	11.55	11.94	11.15	9.66	34.03	12.6	14.6	17.64	14.54	14.98

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JUBILEE SIDINGS	23.26	20.54	23.26	19.23	16.97	16.95	14.47	14.82	12.84	17.23	17.4	21.77	18.23	18.78
FIRE STATION	39.48	35.56	36.04	27.76	31.55	26.41	20.86	24.67		31.68	38.86	35.22	31.64	32.59
15 RODWELL ROAD	37.84	37.63	31.69	29.48	31.45	28.3	20.57	25.12	22.79	26.63	36.08	35.49	30.26	31.16
RODWELL RDBT	45.31	49.55	48.93	39.56	34.79	40.95	38.01	34.79	45.49	49.12	38.92	50.78	43.02	44.31
TO PORTMORE GDNS	31.61	39.72	41.2	35.03	38.53	35.34	39.47	31.76	32.47	43.54	39.54	30.68	36.57	37.67
Fire Station II					37.08	24	26.74	23.38		35.58	39.64	36.99	31.92	32.87
Fire III					37.58	24.04	24.08	23.2		32.14	33.7	34.38	29.87	30.77
Buxton Road	26.11	20.74	17.94	16.75	16.04	12.92	10.02	13.98	14.6	17.31	17.81	24.91	17.43	17.95
Wyke Juniors	23.49	20.74	19.66	20.97	17.8	16.11	9.53	11.28	15.34	M	19.49	21.33	17.79	18.33
Cockles Lane	33.81	32.76	28.26	35.34	30.96	32.82	23.22	27.89	36.71	30.3	34.34	35.99	31.87	32.82
60 Lanehouse Rocks Rd	23.19	22.91	22.05	19.53	18.54	18.26	15.71	14.72	22.26	20.08	24.14	25.49	20.57	21.19
Junction Wyke Rd / Cross Rd	22.54	17.81	18.2	16.28	13.81	15.38	15.63	8.95	13.8	15.4	20.15	23.57	16.79	17.30
Junction Buxton Rd / Cross Rd	18.38	17.32	17.06	14.21	17.33	14.11	14.13	10.48	36.36	11.74	15.81	18.95	17.16	17.67
Junction Wyke Rd, LHRocks Rd	25.75	20.23	19.74	16.99	16.35	18.08	12.34	19.68	23.98	18.48	22.52	23.64	19.82	20.41
St Edmund Street	27.58	25.55	22.28	25.27	23.13	20.68	18.36	21.11	25.55	21.82	20.68	26.13	23.18	23.87
Commercial Rd	26.8	24.04	23.46	20.33	17.4	17.34	14.11	14.5	18.18	15.66	19.08	22.98	19.49	20.07
King St CCTV Column	31.38	28.81	33.5	35.01	26.73	27.8	25.49	23.03	27.99	23.59	27.44	27.49	28.19	29.03
Queen Street	23.49	23.2	28.05	22.89	21.26	18.57	16.56	17.71	18.92	20.05	18.55	23.73	21.08	21.71
Melcombe House	32.6	33.15	32.55	30.73	32.69	35.22	33.18	32.25	M	26.8	28.87	33.74	31.98	32.94
Upway Street	38.39	38.23	47.01	41.44	44.29	40.91	45.16	40.11	38.68	32.33	33.09	25.11	38.73	39.89
Dominoes	46.68	47.28	49.18	47.58	54.32	42.1	48.88	39.64	43.32	37.94	40.09	35.07	44.34	43.90

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Due to problems encountered with the automatic analyser in 2015, these data have been discounted. As a result, the National Bias adjustment factor of 0.96 was used (September 2016). <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

QA/QC of Diffusion Tube Monitoring

The UKAS accredited laboratory, Gradko International Limited supply and analyse the diffusion tubes, which are a preparation of 50% TEA (triethanolamin) / Acetone. Tubes are handled in accordance with the instruction within LAQM.TG(16), 7.185.

Gradko International participate in the AIR/WASP NO₂ Proficiency Testing Scheme. In the four periods assessed in 2015 the laboratory received a score of 100%. <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

For the purposes of Local Air Quality Management, tube precision is separated into two categories, “Good” or “Poor”, tubes are considered to have good precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20% and the average CV of all monitoring periods is less than 10%.

The results of precision testing show that Gradko International had “Good” precision for 2015. <http://laqm.defra.gov.uk/diffusion-tubes/precision.html>

Appendix D: Map(s) of Monitoring Locations

Figure D.1 Map of Weymouth detailing automatic analysers location

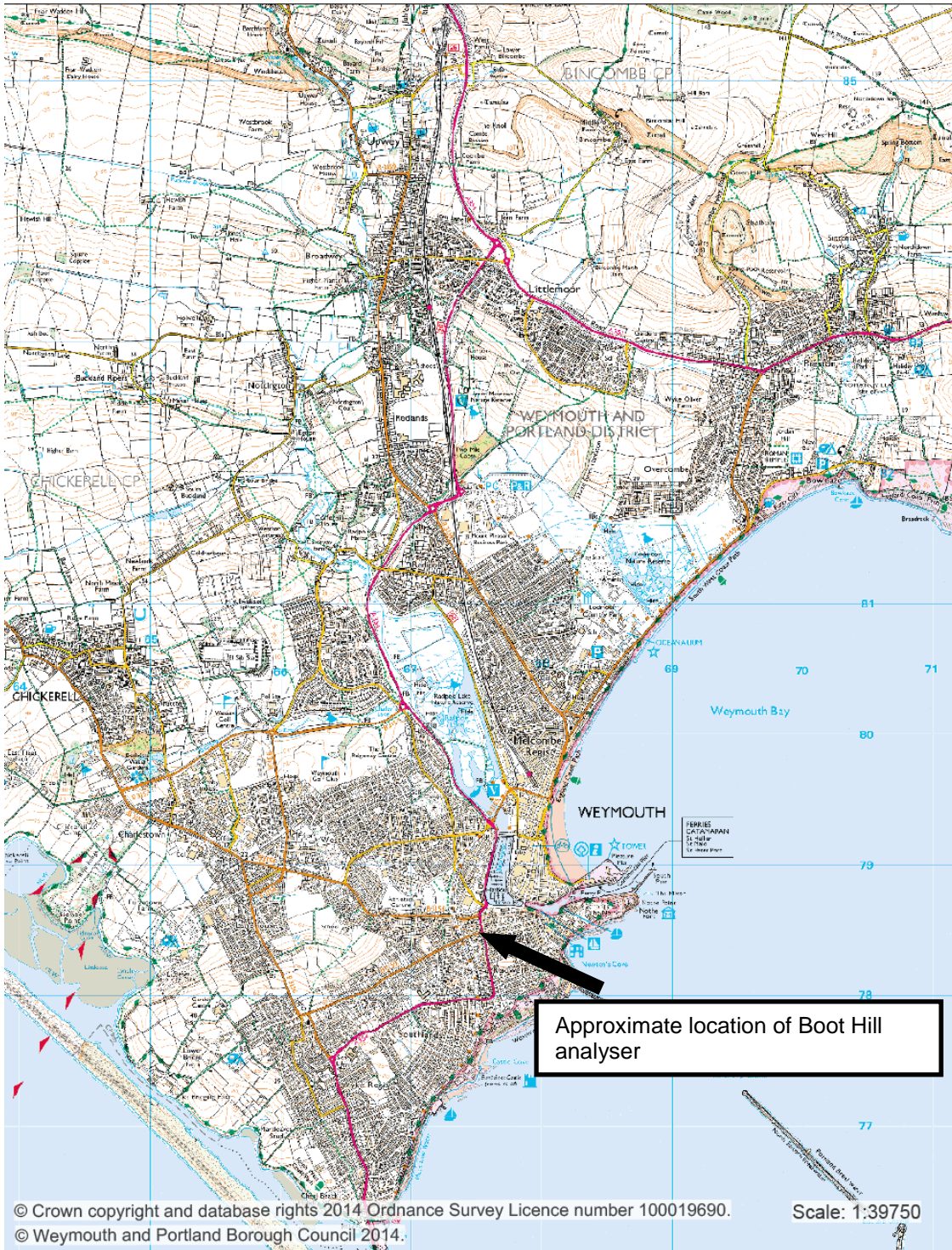


Figure D.2 Map of Rodwell Road Automatic Monitoring Site



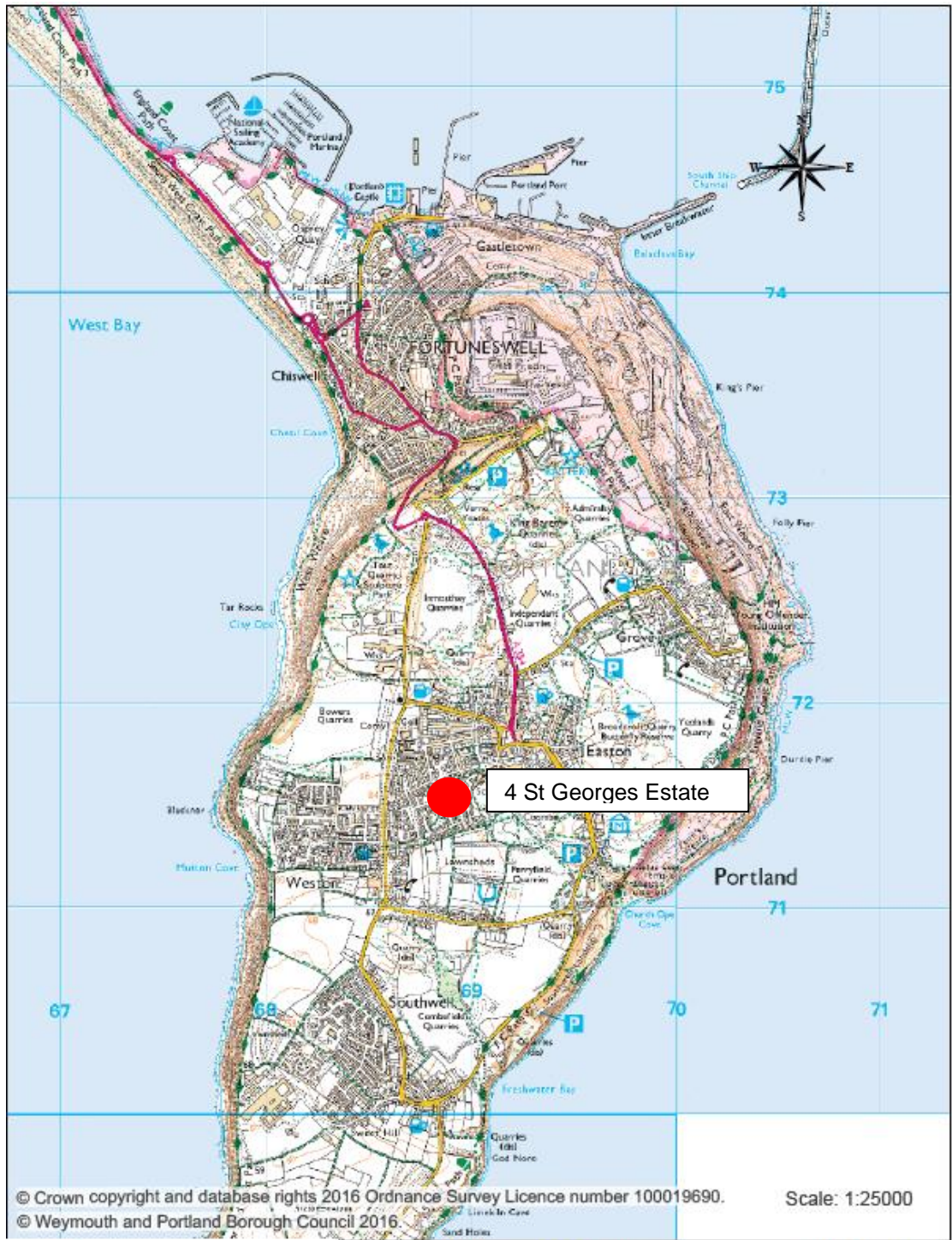
Figure D.3 Map of Non-Automatic Monitoring Sites – Rodwell Road (Boot Hill)



Figure D.4 Map of Non-Automatic Monitoring Sites – King Street



Figure D.5 Other Diffusion Tube Location



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁴ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Summary of Previous Review and Assessment

Title of Report	Date Produced	Outcome
Updating and Screening Assessment	Nov 2003	Accepted by Defra
Progress Report	May 2004	Accepted by Defra - To proceed to a Detailed Assessment for NO ₂
Detailed Assessment	Sept 2004	Accepted by Defra – No requirement to proceed to declare an AQMA
Progress Report	June 2005	Accepted by Defra
Updating and Screening Assessment	2006	Accepted by Defra – To proceed to a Detailed Assessment for NO ₂
Detailed Assessment	June 2007	Accepted by Defra – No requirement to proceed to declare an AQMA
Progress Report	May 2008	Accepted by Defra
Updating and Screening Assessment	June 2009	Accepted by Defra – To proceed to an Detailed Assessment for NO ₂ 'Boot Hill'
Progress Report	June 2013	Accepted by Defra no requirement to proceed to declare an AQMA
Incorporating Air Quality Updating and Screening Assessment and Detailed Assessment, for 'Boot Hill', Weymouth.		
Progress Report and Updating and Screening Assessment	Dec 2015	Accepted by Defra

Appendix G: Part B Permitted Installations in Weymouth and Portland

Name and Address	Process type
Weymouth Service Station, King Street, Weymouth	Petrol Vapour Recovery
Malthurt Retail Ltd, Easton Lane, Portland, DT5 1BW	Petrol Vapour Recovery
Morrisons, Dorchester Road, Weymouth	Petrol Vapour Recovery
Esso, Lanehouse Rocks Road, Weymouth	Petrol Vapour Recovery
BP, Dorchester Road, Weymouth	Petrol Vapour Recovery
Sainsbury, Mercery Road, Weymouth	Petrol Vapour Recovery
Hi Tech, Lanehouse Rocks Road, Weymouth	Dry Cleaners
Park Laundry, Brownlow Street, Weymouth	Dry Cleaners
Morrisons, Dorchester Road, Weymouth	Dry Cleaners
Portland Stone Limited, 26 Tradecroft Industrial Estate, Wide Street, Portland	Mobile Crushing Plant
Weymouth Crematorium, Quibo Lane, Weymouth	Crematorium
Dragon Portland Cement Facility, Portland Port, Castletown, Portland	Bulk Cement

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
WPBC	Weymouth and Portland Borough Council

References

1. Local Air Quality Management Technical Guidance LAQM.TG(16).
2. 2014 Air Quality Progress Report and 2015 Updating and Screening Assessment for Weymouth and Portland Borough Council
3. AEA Energy and Environment Precision and Accuracy Spreadsheets.
4. www.laqmsupport.org.uk