



2019 Air Quality Annual Status Report (ASR)

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

August 2019

Weymouth & Portland Borough Council

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Executive Summary: Air Quality in Our Area

Air Quality in Weymouth & 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.

The air quality issues in Weymouth and Portland have been identified as traffic related Nitrogen Dioxide.

The current area of concern is Boot Hill (Rodwell Road) in Weymouth. Historically, King Street in Weymouth identified high levels of NO₂, however now falls under the objective. The council has recently increased monitoring to Fortuneswell, Portland due to a possible increase in road use due to housing developments within the area.

The council monitor for NO₂ in these locations using diffusion tubes and undertake automatic (continuous) monitoring at Boot Hill.

All other sources of air pollution have been examined through the historic LAQM historical reporting system and not identified to be an issue.

In February 2018, Government approved plans to create two new unitary councils in Dorset. On 1 April 2019 the former borough, county and district councils in Dorset ceased to exist and were replaced by two new unitary authorities. Each authority delivers all local government services in their respective areas. One covers Bournemouth, Christchurch and Poole and is called Bournemouth, Christchurch and Poole Council. The other covers the rest of Dorset and is called Dorset Council.

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

Therefore, Weymouth and Portland Borough Council, Purbeck District Council, North Dorset District Council, East Dorset District Council and West Dorset District Council will submit one Annual Status Report form 2020 onwards.

Weymouth and Portland Borough Council is working proactively with Development Control, The Environment Agency and local businesses by way of the permitting regime and the other former local authority areas within the new Dorset Council to ensure that air quality is continually reviewed. In addition Weymouth and Portland Borough Council is involved with a pan-Dorset PM_{2.5} project with Dorset Public Health.

Actions to Improve Air Quality

W&PBC are working alongside colleagues within the Highways department of the new Dorset Council and are consulted with regards to any road infrastructure alterations which may be necessary, especially when they could affect the Boot Hill Corridor.

No AQMA has previously been declared and no Action Plans have previously been required.

It is therefore proposed to submit this ASR; the next step will be to undertake monitoring as described above and report the results in the 2020 ASR.

Conclusions and Priorities

The 2018 monitoring demonstrates all locations are within the air quality objectives set for NO₂ and PM₁₀. Monitoring will continue for PM₁₀ and NO₂. There is an intention to increase the monitoring in an area known as 'Old Wyke' due to concerns residents have brought to our attention with regards to traffic congestion. Dorset Council will report on these results in the ASR 2020.

Local Engagement and How to get Involved

The Dorset for you website <https://www.dorsetforyou.gov.uk/travel/travel.aspx> includes measures that the public can actively use to improve air quality within the area, these includes matters such as interactive cycle maps, adult cycle training and walking routes and trails.

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1 Local Air Quality Management

This report provides an overview of air quality in Weymouth and Portland during 2018. 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 W&PBC 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 compliance with the objectives.

W&PBC does not have any AQMAs. For reference, maps of Weymouth and Portland Borough Council's monitoring locations is available in Appendix D.

There is no intention for an AQMA to be declared within the former WPBC area.

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

Defra's appraisal of last year's ASR concluded:

The Report sets out the Annual Status Report, which forms part of the Review & Assessment process required under the Environment Act 1995 and subsequent regulations.

Weymouth and Portland Borough Council does not have any declared air quality management areas (AQMA), as such there is no formal requirement for the Council to publish an air quality action plan (AQAP). The Council monitors via a network of 14 NO₂ diffusion tubes, and 1 automatic monitor for NO₂ and PM₁₀. During 2017 there were no recorded exceedances of any monitored pollutant. The maximum NO₂ annual mean concentration was 36.0µg/m³. The maximum PM₁₀ annual mean concentration was 17.4µg/m³. Although NO₂ concentrations are below objective levels there concentrations have generally increased over the last 5 years. However, while concentrations are higher than 2013 levels, there were significant reductions compared to 2016 data. Furthermore concentrations are generally far below objective limits. Vehicle traffic is the predominant source of emissions in the Borough.

QA/QC procedures have been applied for bias adjustments (using a locally derived factor) only. No other corrections are required. The report provides good discussion of PM_{2.5} issues, with reference to the Public Health Outcomes Framework. The Council is taking part in a pan-Dorset study on PM_{2.5} emissions and has installed an

AQMesh monitor earlier this year. The study brings together a number of local authorities and Southampton University. However, currently the Council do not have any direct measures to tackle PM_{2.5} concentrations, although these are estimated to be far below EU objective levels. The report does not provide discussion of any large developments or planning applications that may impact future air quality.

On the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants, with the provisos listed in the commentary below. The Council should continue to implement their air quality strategy, and continue monitoring, paying close attention to the recently identified hotspots. Following the completion of this report, Weymouth and Portland Borough Council should submit an Annual Status Report in 2019.

Commentary

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. The report provides example calculations/screenshots which are useful and encouraged for all future reports.
2. The Council has a small number of sites that have recorded consistently low concentrations. The Council may wish to redeploy these resources to identify new hotspots.
3. Aside from the project collaborating with neighbouring authorities and Southampton University, the Council has only a few indirect measures in place to minimise PM_{2.5} emissions. The Council are encouraged to develop PM_{2.5} specific measures. For further guidance please refer to LAQM Technical Guidance 16 (TG16).
4. Despite lower concentrations in 2017 compared to 2016 (at the majority of sites), concentrations remain higher than in 2013 for most sites. The Council should keep this in perspective and ensure, as far as possible, that future emissions do not continue to exceed AQOs.
5. The report does not discuss local developments or planning applications that may impact future air quality. While there may not be any significant local plans please ensure some relevant discussion is drawn where possible.
6. Generally the report is very good, concise, and satisfies the criteria specified in the guidance. The Council should continue to implement their monitoring programme and mitigation measures.

Weymouth and Portland Borough Council has taken forward a number of direct measures during the current reporting year of 2018 in pursuit of improving local air quality:

Low Carbon Dorset Programme

The programme is run by Dorset Council and the Dorset Area of Outstanding Natural Beauty (AONB). It aims to help improve energy efficiency, increase the use of renewable energy, and aid the development of new low carbon products. Dorset based businesses, public sector and community organisations can access free support and a fund pot of over £2.15m to help improve energy efficiency and develop renewable energy projects. <https://www.lowcarbondorset.org.uk/>

Climate Emergency

On the 16th May 2019, Dorset Council declared a Climate Emergency & have introduced a Policy Development Panel that will set carbon reduction targets and will focus on three key areas:

- Direct action – reducing our own greenhouse gas emissions
- Indirect action- influence and leadership through our wider services
- Partnership working

The Dorset Council Climate Change Panel will look to build on this and will work in partnership with organisations across Dorset to develop its climate emergency plan. <https://news.dorsetforyou.gov.uk/2019/06/04/dorset-council-makes-statement-on-climate-emergency/>

Planning Applications

The Environmental Protection Team review all validated planning applications for their air quality impact. Relevant guidance is followed when reviewing these applications, i.e. Land-Use Planning and Development Control: Planning for Air Quality, January 2017 (EPUK and IAQM). Where there is a potential adverse impact, or the development introduces new sensitive receptors within an AQMA, an air quality impact assessment is required. Where this identifies a significant adverse impact on air quality or human health then mitigation measures are required. There have been a number of new residential developments within the area, each of which,

where necessary have included submission of air quality assessments. None have been considered to be adversely affecting the air quality within the former Borough.

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 information can be found at <https://www.dorsetcouncil.gov.uk/roads-highways-maintenance/transport-planning/local-transport-plan/local-transport-plan-3.aspx>

Air Quality Planning Policies

West Dorset District Council ("WDDC") and W&PBC have prepared a joint Local Plan. The adopted Local Plan forms the main basis for making decisions on planning applications. It was adopted by W&PBC on 15 October 2015 and by WDDC 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>

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 information is provided on interactive cycle maps, adult cycle training and walking routes and trails. 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.dorsetcouncil.gov.uk/travel/travel.aspx> and <https://liftshare.com/uk/community/dorset>

Industrial Installations

Certain industrial processes and activities which have the potential to cause pollution are required to have an Environmental Permit to operate. The Environmental Permitting (England and Wales) Regulations 2016 were made under the Pollution Prevention and Control Act 1999 and prescribe those processes and activities which require a permit. These processes are split into three categories: Part A(1), Part A(2) and Part B and are regulated by the Environment Agency and local authorities. A list of Permitted Processes in Weymouth & Portland is provided in Appendix C. Emissions to air are monitored for Part B processes by W&PBC.

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 continued with the Dorset-wide project led by Public Health Dorset with regards to PM_{2.5}.

Public Health Dorset use data from Defra background maps to create a number of dashboards. These are found at

https://public.tableau.com/profile/public.health.dorset#!/vizhome/AirPollution_10/AirPollutionStory users are able to display either PM_{2.5} or NO₂ data for the county, the 'former' local authority area, or by ward:

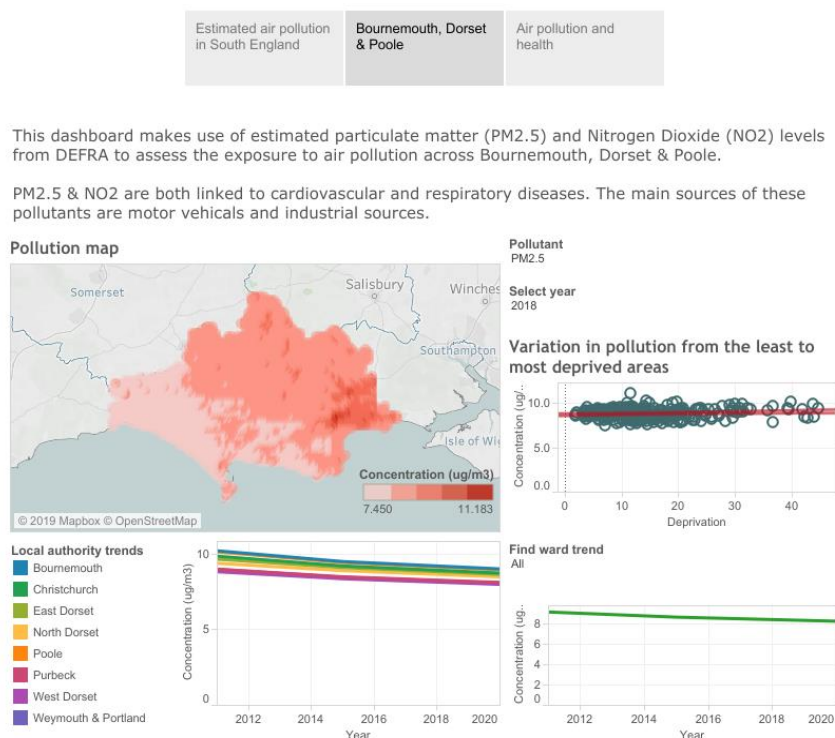


Figure 1 - Example of PM_{2.5} concentrations at county level

Weymouth & Portland Borough Council

Estimated air pollution in South England	Bournemouth, Dorset & Poole	Air pollution and health
------------------------------------------	----------------------------------------	--------------------------

This dashboard makes use of estimated particulate matter (PM2.5) and Nitrogen Dioxide (NO2) levels from DEFRA to assess the exposure to air pollution across Bournemouth, Dorset & Poole.

PM2.5 & NO2 are both linked to cardiovascular and respiratory diseases. The main sources of these pollutants are motor vehicles and industrial sources.

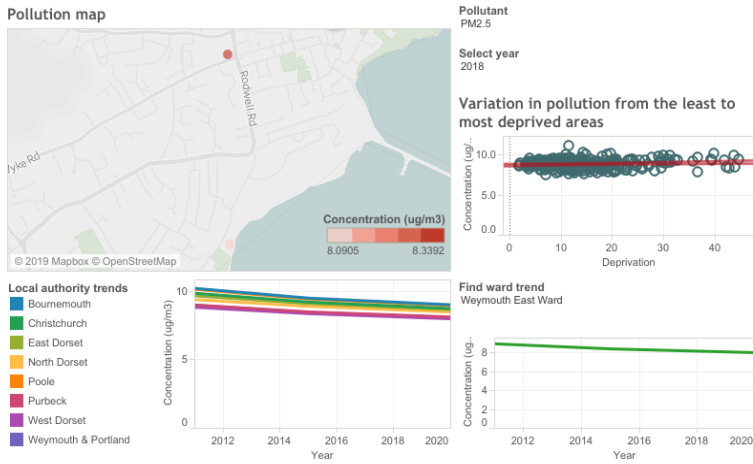


Figure 2 - Example of PM2.5 concentrations at ward level

Public Health Dorset also link data regarding hospital admissions for heart and lung disease to pollution episodes for PM2.5 and NO2 so patterns can be identified.

These data are displayed as:

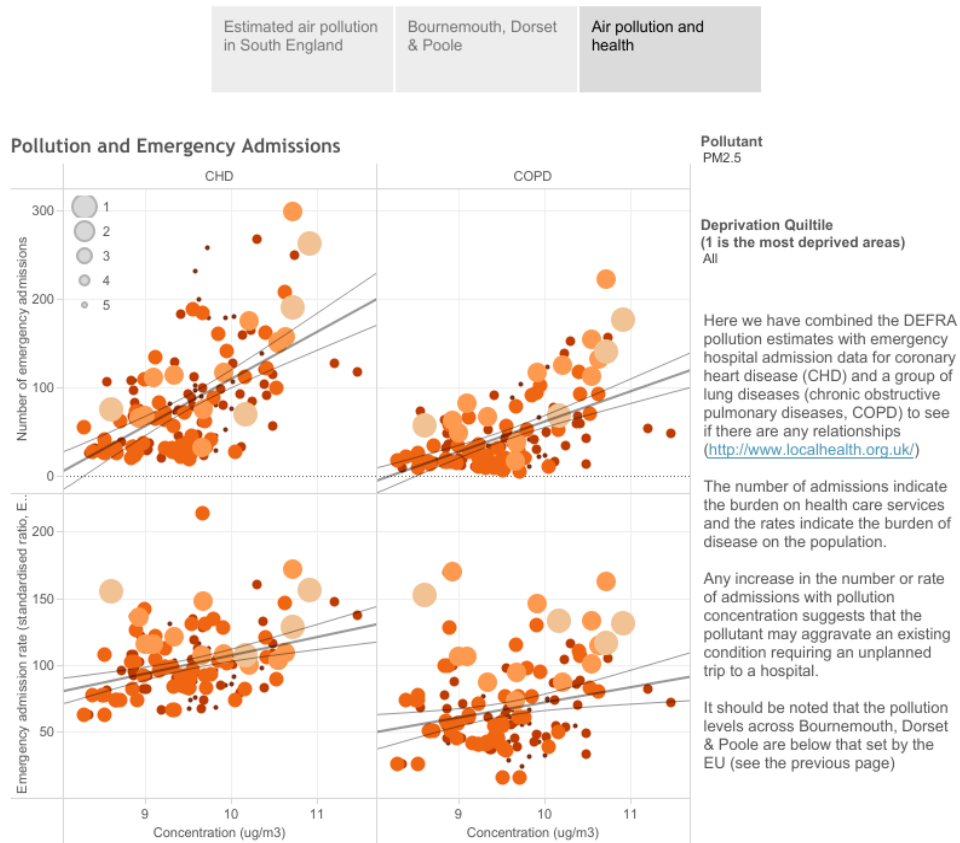


Figure 3 – Example of pollution and emergency admissions

At the time of producing this ASR, Public Health Dorset were upgrading the Dashboard which uses the data from the AQMesh network. An example of the way in which the data will be available is provided below:

Air Monitors update

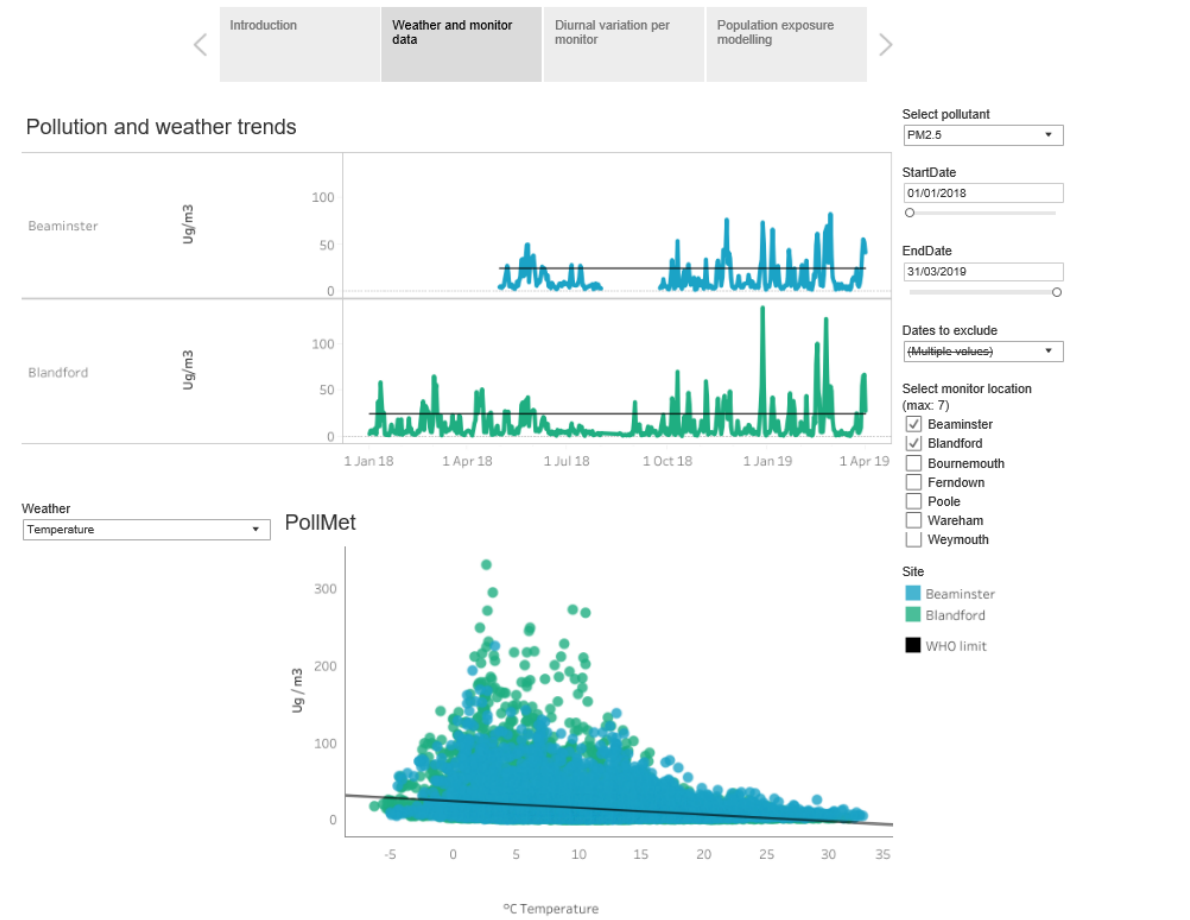


Figure 4 – Example of Public Health Dorset’s Dashboard Data

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.

W&PBC undertook automatic (continuous) monitoring at one site during 2018. Table A.1 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 how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

W&PBC undertook non- automatic (passive) monitoring of NO₂ at 12 sites during 2018. 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) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. 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 is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

There are no exceedances of the air quality objectives for NO₂.

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.6 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.

There are no exceedances of the air quality objectives for PM₁₀.

3.2.3 Particulate Matter (PM_{2.5})

Please see section 2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations.

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	NO	Chemiluminescent	N/A	3.5	1.5
Boot Hill	Boot Hill	Roadside	367541	78471	PM ₁₀	NO	TEOM FDMS	N/A	3.5	2

Notes:

(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.

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 Road	Urban Background	368779	71706	NO2	NO	Representative of façade	2	NO	2.5
8	King Street	Roadside	368003	79527	NO2	NO	N/A	2	NO	2.5
10	Rodwell Road	Roadside	367542	78548	NO2	NO	2.5	2.5	NO	3
30	15 Rodwell Road	Roadside	367545	78550	NO2	NO	0	6	NO	2.5
31	Rodwell Roundabout I	Roadside	367540	78471	NO2	NO	Representative of façade	3.5	YES	3
32	To Portmore Gardens	Roadside	367528	78554	NO2	NO	Representative of façade	2	NO	3
44	Melcombe House	Roadside	367830	78595	NO2	NO	N/A	3	NO	3
45	Upway Street	Roadside	367879	78567	NO2	NO	0	1.5	NO	3
46	Dominoes	Roadside	367995	79528	NO2	NO	N/A	2.5	NO	3
49	Rodwell Roundabout II	Roadside	367540	78471	NO2	NO	Representative of façade	3.5	YES	3
50	Rodwell Roundabout III	Roadside	367540	78471	NO2	NO	Representative of façade	3.5	YES	3
51	Rodwell Inn	Roadside	367550	78485	NO2	NO	Representative of façade	2	NO	3
52	16 Rodwell Road	Roadside	367533	78531	NO2	NO	0	2	NO	3
58	Fortuneswell	Roadside	368540	73593	NO2	NO	0.9	1.5	NO	2.5

Notes:

(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 for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2014	2015	2016	2017	2018
Boot Hill	Roadside	Automatic		99.16	32.53	-	38.64	32.52	39.6
4	Urban Background	Diffusion Tube		100	5.82	7.6	8.53	6.13	8.22
8	Roadside	Diffusion Tube		91.7	25.65	31.44	34.87	27.11	27.97
10	Roadside	Diffusion Tube		100	33.99	35.9	37.6	27.9	32.8
29	Roadside	Diffusion Tube		n/a	19.57				
30	Roadside	Diffusion Tube		100	21.17	26.53	27.7	20.73	24.87
31	Roadside	Diffusion Tube		100	32.49	37.13	38.45	31.68	33.70
32	Roadside	Diffusion Tube		100	30.07	35.36	36.81	28.14	31.78
49	Roadside	Diffusion Tube		100	31.87	36.46	38.4	31.42	34.20
50	Roadside	Diffusion Tube		100	30.73	35.19	38.57	30.86	34.51
51	Roadside	Diffusion Tube		100	31.15	38.24	39.96	32.32	36.29
52	Roadside	Diffusion Tube		100	35.35	43.82	46.36	36.02	38.59
42	Roadside	Diffusion Tube		n/a	21.93				
44	Roadside	Diffusion Tube		91.7	25.75	26.89	30.26	24.13	25.70
45	Roadside	Diffusion Tube		91.7	28.45	34.01	37.24	30.75	30.77
46	Roadside	Diffusion Tube		91.7	29.76	34.52	38.32	31.09	32.45
58	Roadside	Diffusion Tube		91.7				27.3	31.2

Diffusion tube data has been bias corrected

Annualisation has been conducted where data capture is <75%

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 Boxes 7.9 and 7.10 in 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 2018 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2014	2015	2016	2017	2018
Boot Hill	Roadside	Automatic		99.19	0	-	0	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 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – PM₁₀ Annual Mean Concentration

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
Boot Hill	Roadside		99.19	30.02	-	18.87	17.41	21.17

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 Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.5 – 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2014	2015	2016	2017	2018
Boot Hill	Roadside		99.19	-	-	0	0	0

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 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2018

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 (0.82) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
4 St Georges Estate Road	12.5	11.4	12.2	11.4	10.4	9.4	9.9	6.2	7.6	10.1	10.9	8.5	10.0	8.22	
8 King Street	30.8	39.3		37.6	42.4	34.1	33.0	33.4	34.5	33.1	26.0	31.0	34.1	27.97	
10 Rodwell Road	35.52	43.1	45.48	51.78	58.36	49.28	43.57	38.29	42.09	50.16	55.9	41.11	46.2	37.90	32.8
30 15 Rodwell Road	28.42	31.13	30.04	30.88	35.38	27.28	33.48	25.8	33.13	33.58	28.04	26.78	30.3	24.87	
31 Rodwell Roundabout I	32.66	44.33	41.36	43.95	38.06	45.01	47.49	36.9	41.08	42.16	40.98	39.18	41.1	33.70	
32 To Portmore Gardens	31.76	34.4	40.32	41.92	46.74	39.18	49.09	37.39	38.57	32.41	40.1	33.25	38.8	31.78	
44 Melcombe House	28.03	33.41		33.58	32.51	26.87	37.84	29.93	29.97	29.44	31.73	31.51	31.3	34.20	
45 Upway Street	31.51	32.93	37.74	38.85	40.5	39.3	51	40.11	36.67	31.16		32.97	37.5	34.51	

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46 Dominoes		36.5	35.79	41.6	44.51	40.37	50.64	39.99	38	33.97	36.95	36.92	39.6	36.29	
49 Rodwell Roundabout II	35.51	40.29	41.31	45.16	52.89	39.79	47.81	38.69	39.72	41.11	41.69	36.54	41.7	38.59	
50 Rodwell Roundabout III	40.15	43.18	40.21	47.62	42.73	44.18	48.52	37.09	41.89	40.31	42	37.17	42.1	25.70	
51 Rodwell Inn	33.59	40.47	45.29	46.4	55.78	51.62	48.71	42.22	43.97	39.23	43.41	40.31	44.3	30.77	
52 16 Rodwell Road	41.94	42.75	42.87	47.67	50.1	43.02	59.66	50.35	49.09	44.04	49.6	43.7	47.1	32.45	
58	32.04	39.49	41	42.21	49.78	37.24	39.32	37.47	41.93	39.8		38.48	39.9	32.71	30.2

Local bias adjustment factor used

National bias adjustment factor used

Annualisation has been conducted where data capture is <75%

Where applicable, data has been distance corrected for relevant exposure

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**.

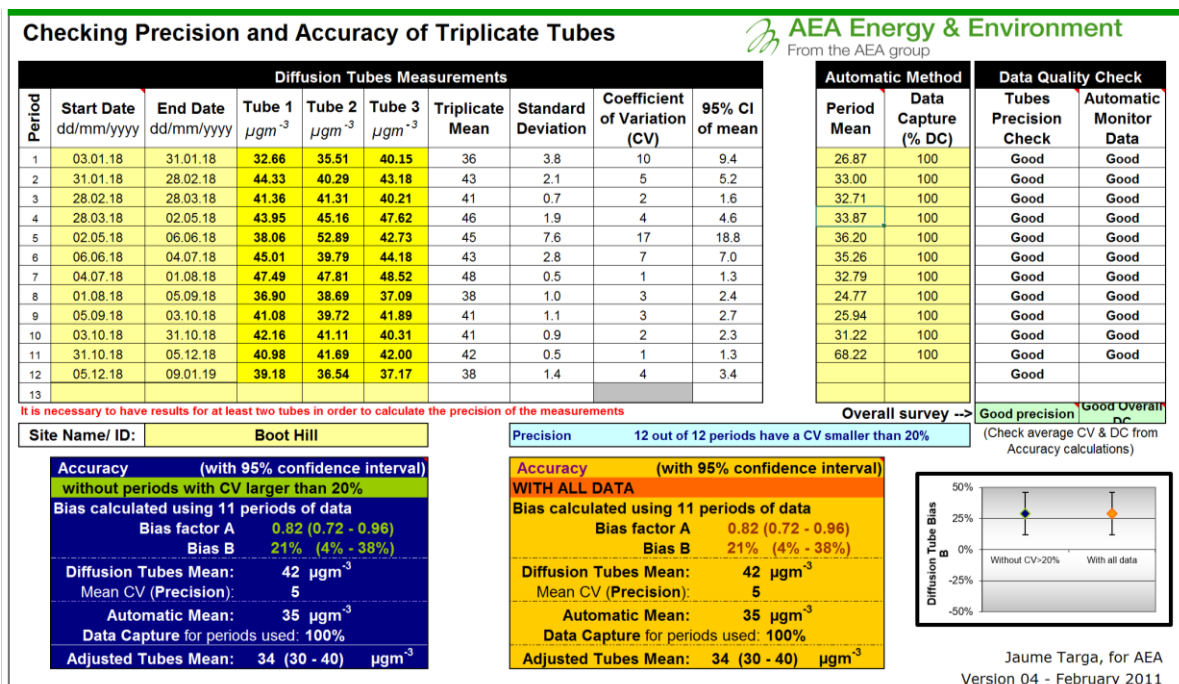
(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

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

The AEA Energy and Environment Precision and Accuracy Spreadsheets were used to ascertain a locally derived bias adjustment factor and if this was suitable for use on the results. Data from the 24 hour average for the automatic monitor has been used. The spreadsheets for 2018 is supplied in Figure C.1 and shows a factor of 0.82. As the overall survey was deemed to be of good precision and good data capture, and the diffusion tubes at Boot Hill are exposed in the same area as the co-location site, this local bias adjustment factor was chosen to be applied to all of the diffusion tube results.

Figure C.1 AEA Energy and Environment Precision and Accuracy Spreadsheet – Boot Hill 2018



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), 7.186.

Gradko International participate in the AIR/WASP NO₂ Proficiency Testing Scheme. In the four periods assessed in 2018 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 8 out of 8 studies for 2018. <http://laqm.defra.gov.uk/diffusion-tubes/precision.html>

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

The annual mean (bias adjusted) for diffusion tube number 10, for 2018 was 37.90µg/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 32.8µg/m³. See Figure C.2 below for calculations.

NO₂ Fall-Off With Distance Calculator (Version 4.1) – Diffusion Tube 58

The annual mean (bias adjusted) for diffusion tube number 58, for 2018 was 32.71µg/m³. This diffusion tube is located on a lamppost, 0.9m 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 30.2µg/m³. See Figure C.2 below for calculations.

Figure C.2 Diffusion Tube 10 and 58, NO₂ Fall-Off With Distance Calculator (Version 4.1)

Enter data into the pink cells

Site Name/ID	Distance (m)		NO ₂ Annual Mean Concentration (µg/m ³)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
10- Boot Hill	2.5	5.0	8.2	37.9	32.8	
58- Fortuneswell	1.5	2.4	8.2	32.7	30.2	

Navigation tabs: Introduction | Limitations | Calculator - Single Tube | Graphical Representation | **Calculator - Multiple Tubes**

Diffusion tube numbers 44 (roadside site on pavement on the opposite side of the road to residential dwellings), 8 (roadside site on the façade of a commercial premises), 46 (roadside site on the façade of a commercial premises) and 51 (roadside site on the façade of a commercial premises) are not at a relevant exposure location and the annual bias adjusted mean for these locations is below the objective.

Appendix D: Map(s) of Monitoring Locations and AQMAs

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

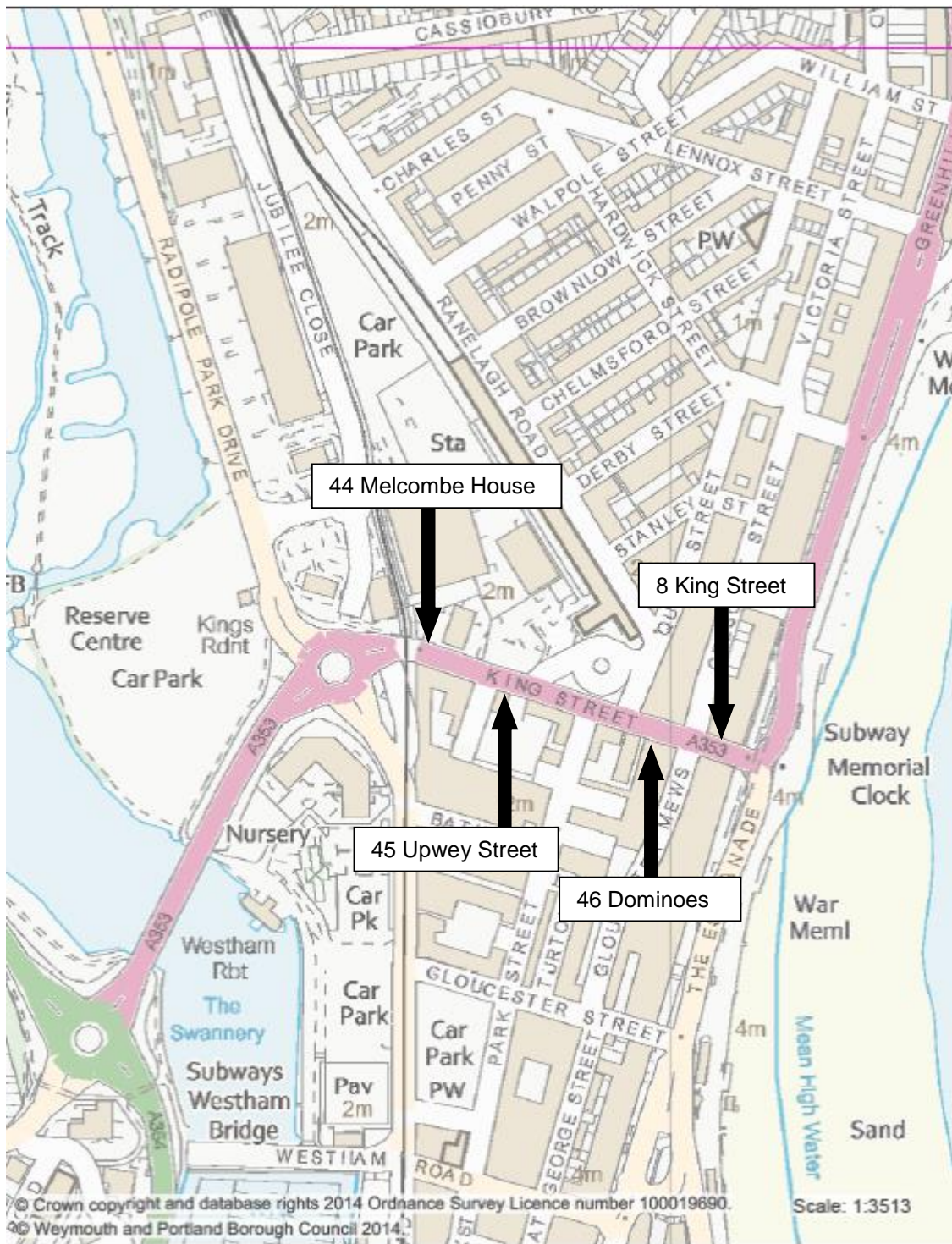
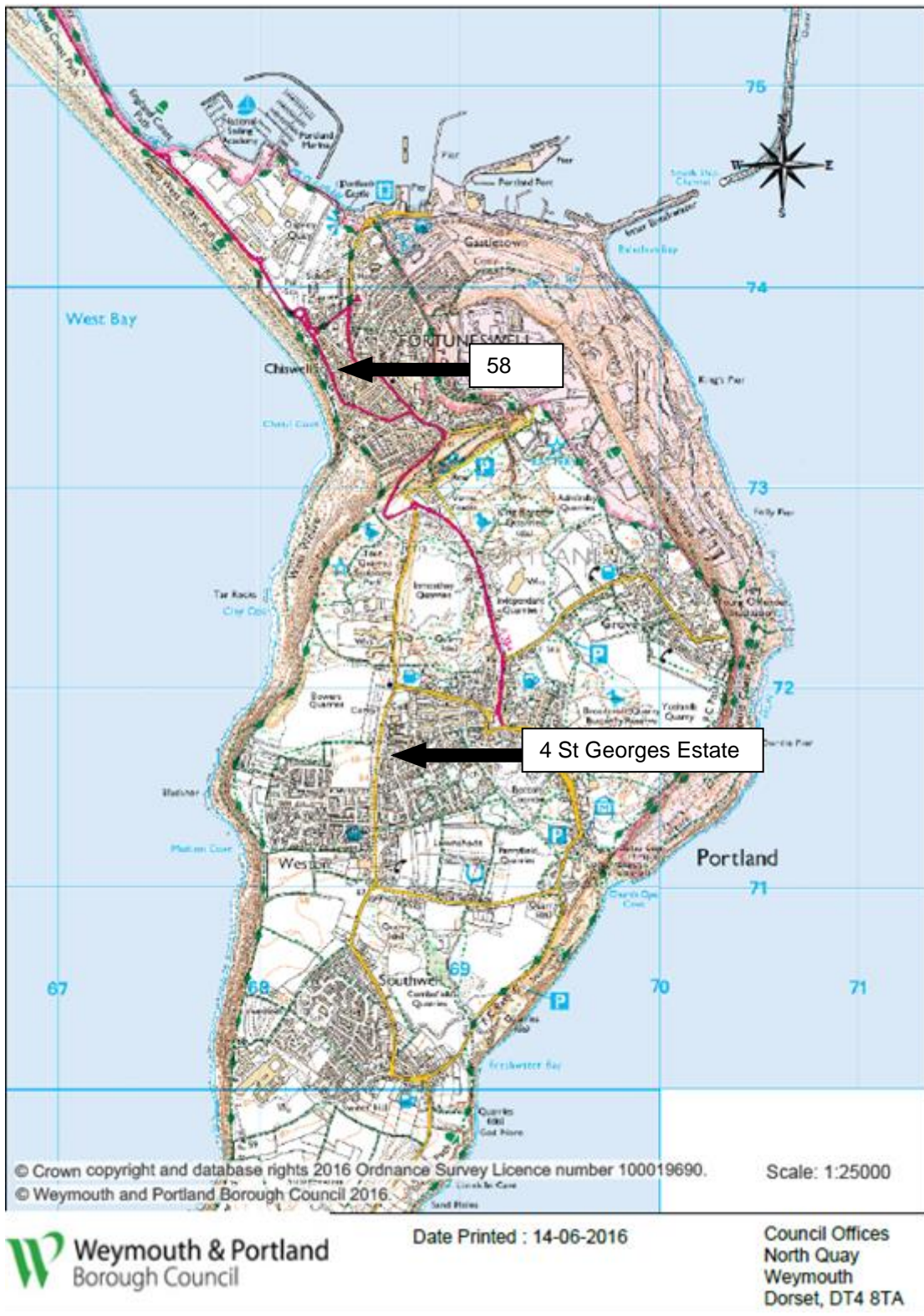


Figure D.5 Portland Diffusion Tube Locations



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 a 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
Annual Status Report	Dec 2016	Accepted by Defra
Annual Status Report	Jan 2018	Accepted by Defra
Annual Status Report	Sept 2018	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
Paisley Plant Hire Ltd	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
...	...

References

1. AEA Energy and Environment Precision and Accuracy Spreadsheets
2. Local Air Quality Management Technical Guidance (TG09)
3. Local Air Quality Management Technical Guidance (TG16)
4. Weymouth and Portland Borough Council Annual Status Report 2018
5. Travel Dorset <https://www.dorsetcouncil.gov.uk/travel/travel.aspx>
6. Low Carbon Dorset <https://www.lowcarbondorset.org.uk/>
7. Climate Emergency <https://news.dorsetforyou.gov.uk/2019/06/04/dorset-council-makes-statement-on-climate-emergency/>
8. Local Transport Plan 3 <https://www.dorsetcouncil.gov.uk/roads-highways-maintenance/transport-planning/local-transport-plan/local-transport-plan-3.aspx>
9. Car Share Dorset <https://liftshare.com/uk/community/dorset>
10. Public Health Dorset Profile (Tableau) https://public.tableau.com/profile/public.health.dorset#!/vizhome/AirPollution_10/AirPollutionStory
11. ARUN and Public Health Dorset Network <https://public.tableau.com/profile/public.health.dorset#!/vizhome/ARUNandPHDnetwork/ARUNandPHDnetwork>
12. QAQC framework <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>
13. Nitrogen Dioxide fall off with distance calculator <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>