



*2011 Air Quality Progress Report  
for  
West Dorset District Council  
and  
Detailed Assessments for  
Nitrogen Dioxide in Chideock and  
in Bridport*

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

July 2011

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## Executive Summary

This Progress Report and combined Detailed Assessment has been produced by West Dorset District Council (WDDC) to satisfy the requirements of Part IV of the Environment Act 1995. This Act requires local authorities to review and assess the air quality within their area and to take account of Government guidance when undertaking such work.

### Progress Report

The Progress Report shows that monitoring results for 2010 continue to exceed the annual objective for nitrogen dioxide in High East Street, Dorchester; East Road, Bridport; and Main Street, Chideock. There are unlikely to be exceedences of any air quality objectives in any other areas in West Dorset. There is no need for a Detailed Assessment of air quality outside these areas.

Areas that exceed the annual objective for nitrogen dioxide in Dorchester and Chideock are already within an air quality management area (AQMA). However, as exceedence areas in Bridport are not within an AQMA it is recommended that a Detailed Assessment is undertaken here. It is also recommended that a Detailed Assessment is undertaken in Chideock as concentrations of nitrogen dioxide are well below the annual objective at many relevant locations within the AQMA and there is a need to review the AQMA boundary.

The Detailed Assessments have been completed within this report.

### Detailed Assessment of Nitrogen Dioxide in Bridport

It is not proposed to declare an AQMA for nitrogen dioxide in Bridport given only one property is affected, limited staff resources and the fact that there is limited action that the council can take to resolve the problem, the Highways Agency is responsible for the A35 Trunk Road.

### Detailed Assessment of Nitrogen Dioxide in Chideock

Levels of nitrogen dioxide are well below the annual objective at many relevant locations within the AQMA. There is a need to reduce the size of the AQMA to reflect the actual exceedence areas south of the A35 along the steep incline going west out of the village.

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# **1 Introduction**

## **1.1 Description of Local Authority Area**

West Dorset is the largest District Council within the County of Dorset, covering 42% of the county area at 418 square miles. The District is predominately rural in character with small market towns, and has a relatively low population density, with a total population of just over 96000. Almost half of the population live in villages/rural areas.

Seventy one percent of the district is designated as an area of outstanding natural beauty and the majority of the Coast in West Dorset is within the Jurassic Coast World Heritage site. The major role of tourism in the area results in significant peak seasonal increases in traffic and congestion, particularly on coastal routes.

The major roads in the District consist of the A35 and the A37. The A35 is a trunk road that runs east to west through the district and cuts through Bridport and Chideock. The A37 is also a major road in that runs through West Dorset from Dorchester through to Yeovil.

Air quality in West Dorset has been assessed and has been found to be broadly very good due to the predominantly rural environment. However, in certain locations - parts of Chideock, Dorchester and Bridport - air quality has been found to be close to, or exceeding the annual objective level for nitrogen dioxide, the main source of pollution being from road traffic. This is due to vehicle emissions and other factors including type and number of vehicles; their speed; congestion and local topographical circumstances. As a result of this, an Air Quality Management Area, (AQMA), was declared in Chideock in 2007 and High East Street, Dorchester in 2009.

## **1.2 Purpose of Progress Reports and Detailed Assessments**

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence

of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

The aim of a Detailed Assessment, is to determine whether or not there is likelihood of the objectives not being achieved, the data needs to be robust and quality assured to a high standard in order for the authority to have confidence in the decision to declare, not to declare, or to revoke or amend and AQMA.

### 1.3 Air Quality Objectives

The air quality objectives (AQO) applicable to Local Air Quality Management (LAQM) in England are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (for carbon monoxide the units used are milligrammes per cubic metre,  $\text{mg}/\text{m}^3$ ). Table 1.1 includes the number of permitted exceedences in any given year (where applicable).

**Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.**

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 $\text{mg}/\text{m}^3$	Maximum daily running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005



<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
<b>Sulphur dioxide</b>	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

West Dorset District Council completed its first round of Review and Assessment in 2001. The review of the local air quality concluded that the objectives for all the seven regulatory pollutants were being met and did not require any further assessment.

The second round of Review and Assessment began with an Updating and Screening Assessment (USA) in 2003. The USA, completed in 2004, concluded that a Detailed Assessment was required for some areas in Chideock, Bridport and Dorchester having the potential to exceed the AQO for nitrogen dioxide (NO<sub>2</sub>). This was completed in 2006. Based on the findings of the assessment and comments by Defra, it was concluded to declare an AQMA in Chideock and increase monitoring in Bridport and Dorchester to confirm if an AQMA was required in these areas. An AQMA was declared in Chideock in 2007 (Figure 1.1).

In the third round of Review and Assessment the Council submitted a Progress Report in May 2007. Based on new monitoring data for NO<sub>2</sub>, the report concluded that a Detailed Assessment was required for NO<sub>2</sub> due to road traffic emissions in Bridport and Dorchester. The Detailed Assessment was produced in 2008 based on new monitoring data collected during 2007. Based on the findings of the Detailed Assessment and comments by Defra, it was concluded to declare an AQMA in High East Street, Dorchester and undertake modelling and further monitoring of NO<sub>2</sub> in East Street, Bridport. An AQMA was declared in Dorchester in 2009 (Figure 1.1).

A Further Assessment was also published in 2008 for Chideock. This concluded that based on future year projections the annual average AQO for NO<sub>2</sub> would be achieved in 2010 but that an Action Plan would be drafted and implemented should the projected future year annual predictions not be met. The predictions were not met and WDDC have produced and implemented an Action Plan. Progress on the actions taken is regularly reviewed at stakeholder meetings.

A fourth round of review and assessment commenced with an Updating & Screening Assessment in 2009. The USA concluded that two areas, High East Street Dorchester and Chideock, exceeded the national objective for NO<sub>2</sub> and both are already designated Air Quality Management Areas. A Further Assessment of air quality was required in High East Street Dorchester by 2010 and an air quality action plan had been produced for Chideock.

The report also concluded that new monitoring data showed that NO<sub>2</sub> targets had been exceeded in East Road, Bridport but that as the sites were not representative of relevant exposure, it was recommended additional diffusion tubes to be placed in more representative locations.

A Progress report was submitted in 2010 and concluded that three areas, High East Street Dorchester (designated an AQMA in 2009), Main Street, Chideock (designated AQMA in 2007) and East Road Bridport, exceeded the national annual objective for NO<sub>2</sub>. A Detailed Assessment for NO<sub>2</sub> was recommended for East Road, Bridport as a result of Defra's review of WDDC's Updating & Screening Assessment 2009.

A Further Assessment was also published in 2010 for High East Street, Dorchester that confirmed the existing AQMA boundary. WDDC have also drafted an action plan in 2011 in pursuit of the annual average AQO for NO<sub>2</sub> in High East Street, and are awaiting comments from Defra on the plan.

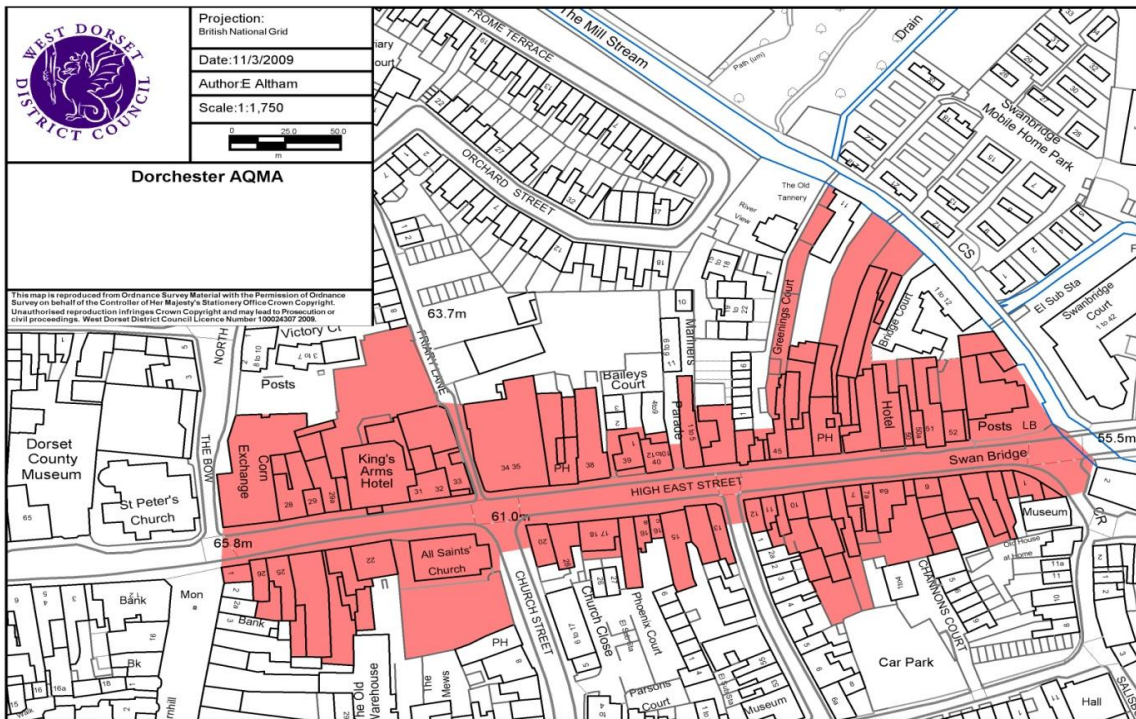
WDDC have an outstanding Detailed Assessment for East Road, Bridport and this has been included in this report in Chapter 11 and Appendix D.

**Figure 1.1 Maps of AQMA Boundaries**

**Chideock**



# High East Street Dorchester



## 2 New Monitoring Data

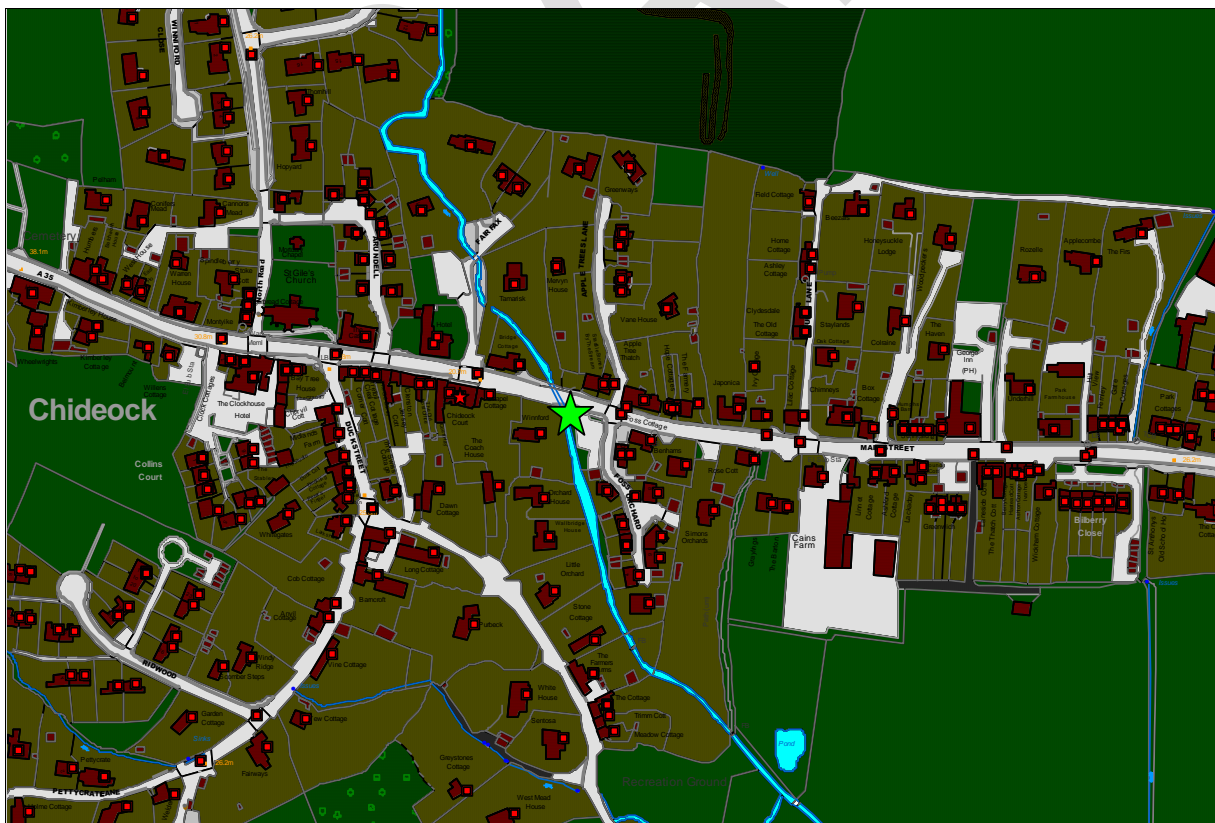
### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

West Dorset District Council has a continuous air quality monitoring station located in Main Street, Chideock, next to the A35 trunk road, details of which are shown in Table 2.1. There is one monitor to measure NO<sub>2</sub>. A map showing the location of this monitoring station can be seen in Figure 2.1. Monitoring commenced in January 2010.

The monitoring station is situated approximately 2m from the A35. Due to a lack of space and limited access to utilities in Chideock, the monitor is not situated in the worst case location which is adjacent to the steep incline, south of the A35 going towards Lyme Regis. However the monitor is located south of the A35, a similar distance from the road as many receptors are from the road.

**Figure 2.1 Map of Automatic Monitoring Site**



The monitoring equipment is subjected to fortnightly calibrations undertaken by experienced and trained officers from Environmental Health, following guidelines used by Local Site Operators in Defra's Automatic Urban and Rural Network (AURN). The monitoring period runs from January 2010 until December 2010 and data validation and ratification procedures can be found in Appendix A.

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**Table 2.1 Details of Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	Monitoring Technique	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Post Office, Main Street, Chideock	Roadside	X 342,301	Y 92,817	NO <sub>2</sub>	Chemoluminescent analyser	Y	Y (1m)	2m	N

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### 2.1.2 Non-Automatic Monitoring Sites

Continuous monitoring is a very expensive way of assessing air quality. The main pollutant of concern in the district is nitrogen dioxide and there is a way of monitoring this at a low cost. Passive diffusion tubes are relatively inexpensive and provide a monthly average of NO<sub>2</sub> concentrations. Because of the low cost, they allow the Council to monitor NO<sub>2</sub> widely across the district.

Diffusion tubes are exposed for 4/5 week periods throughout the year at each monitoring site and are deployed using a holder and rubber collar method. They are located at a variety of sites, including kerbside sites, roadside sites or background sites and placed between 1.5m and 2m above ground level and positioned at locations representative of public exposure.

The tubes are supplied and analysed by Gradko International Ltd, and the preparation method used is 50% TEA in water Information on Gradkos' QA/QC is shown in Appendix A.

In January 2010, following a review of historical monitoring results; it was decided to concentrate on 3 areas in the district where there were elevated levels of NO<sub>2</sub>. Monitoring was discontinued in Sherborne, Lyme Regis and Abbotsbury as there had been no exceedences of the annual objective for the past 8 years. The tubes were relocated to sites in the 3 areas with known exceedences:

**Chideock** - A small village in West Dorset, dwellings are situated either side of the A35 (trunk road) going through the village with dwellings immediately adjacent to a steep incline leaving the village going west. An AQMA for NO<sub>2</sub> was declared along the A35 in May 2007 as NO<sub>2</sub> concentrations here exceed the annual objective concentration. Tubes have been relocated along both sides of the trunk road in Chideock to assess the extent of the elevated levels within Chideock.

**Dorchester** –The County Town of Dorset, with a population of approximately 18,000. WDDC have been monitoring NO<sub>2</sub> within the town centre, predominantly along the B3150 High East and High West Street where some exceedences of the AQO have been observed. Due to these exceedences an AQMA was declared in May 2009 along High East Street. It was decided to extend the monitoring survey along High East street and High West Street, and along routes potentially affected by the Dorchester Transport & Environment Plan (DTEP) transport improvements.

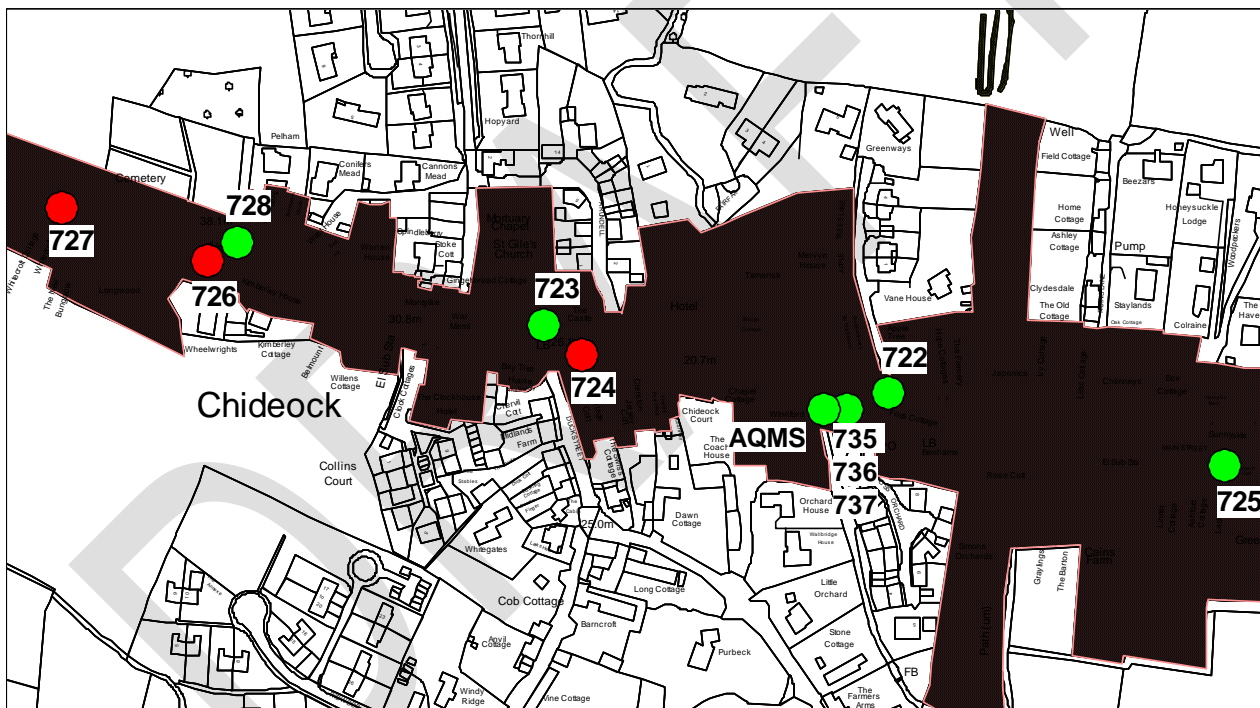


**Bridport** - A market town located approximately 1km from the coast and 20km west of Dorchester. Annual average NO<sub>2</sub> concentrations adjacent to the A35 (trunk road) along East Road are monitored by WDDC and have been found to exceed the annual objective concentration at one dwelling located very close to the kerbside. The study area in Bridport consists of the A35 along East Road on the eastern side of Bridport

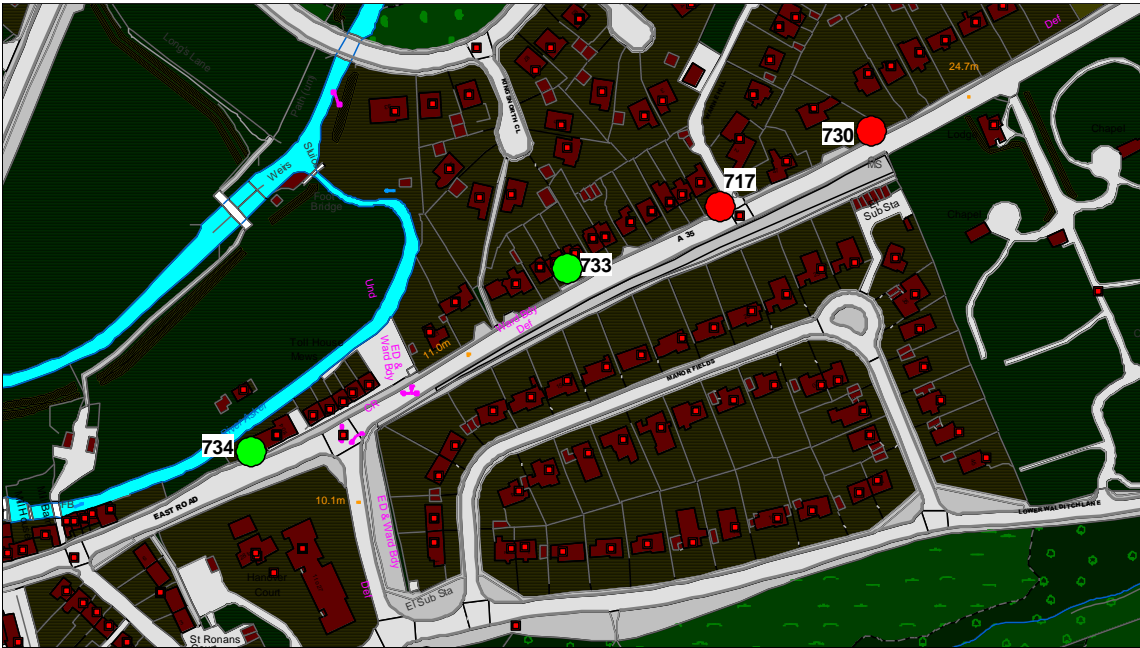
There are 25 diffusion tubes located at 22 sites within these three areas, details of these sites are shown in Table 2.3, and the locations of the monitoring sites are shown on the maps in Figure 2.2 below.

**Figure 2.2 Maps of Non-Automatic Monitoring Sites**  
(Red = exceedence of objective in 2010)

**Chideock Monitoring Locations**



## Bridport Monitoring Locations



## Dorchester Monitoring Locations



**Table 2.2 Details of Non- Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
<b>711</b> <b>Dorchester</b> High West St 1	Roadside	X369121	Y90739	NO <sub>2</sub>	N	N	2m	Y
<b>712</b> <b>Dorchester</b> Trinity Street	Roadside	X369171	Y90711	NO <sub>2</sub>	Y	Y – on façade	2m	Y
<b>713</b> <b>Dorchester</b> High East St 2	Roadside	X369484	Y90759	NO <sub>2</sub>	Y	Y – on facade	2m	Y
<b>714</b> <b>Dorchester</b> High East St 1	Roadside	X369387	Y90742	NO <sub>2</sub>	Y	Y – on façade	2m	Y
<b>715</b> <b>Dorchester</b> The Grove	Roadside	X368907	Y90739	NO <sub>2</sub>	N	Y (1m)	2m	Y
<b>716</b> <b>Dorchester</b> Maumbury Road	Roadside	X368948	Y90089	NO <sub>2</sub>	N	Y – on façade	2m	Y
<b>718</b> <b>Dorchester</b> Church Street	Roadside	X369381	Y90698	NO <sub>2</sub>	N	Y -on façade	2m	Y
<b>719</b> <b>Dorchester</b> Bridport Road	Roadside	X368815	Y90636	NO <sub>2</sub>	N	Y (2m)	2m	Y
<b>720</b> <b>Dorchester</b> Borough Gardens	Background	X368982	Y90453	NO <sub>2</sub>	N	5m	N/A	N
<b>721</b> <b>Dorchester</b> High West St 2	Roadside	X368982	Y90706	NO <sub>2</sub>	N	Y – on façade	3m	Y

<b>717</b> <b>Bridport</b> East Road 1	Roadside	X347557	Y93023	NO <sub>2</sub>	N	N	2m	Y
<b>730</b> <b>Bridport</b> East Road 2	Roadside	X347612	Y93050	NO <sub>2</sub>	N	N	2m	Y
<b>733</b> <b>Bridport</b> East Road 3	Roadside	X347508	Y93009	NO <sub>2</sub>	N	Y – on façade	9m	Y
<b>734</b> <b>Bridport</b> East Road 4	Roadside	X347489	Y92989	NO <sub>2</sub>	N	Y (1m)	2m	Y
<b>722</b> <b>Chideock</b> Main Street	Roadside	X342364	Y92814	NO <sub>2</sub>	Y	Y (2m)	2m	Y
<b>723</b> <b>Chideock</b> St Giles Church	Roadside	X342151	Y92869	NO <sub>2</sub>	Y	N	2m	Y
<b>724</b> <b>Chideock</b> Duck Street	Roadside	X342190	Y92840	NO <sub>2</sub>	Y	Y – on façade	1m	Y
<b>725</b> <b>Chideock</b> George Inn	Roadside	X342486	Y92791	NO <sub>2</sub>	Y	Y (1m)	1m	Y
<b>726</b> <b>Chideock</b> Village Hall	Roadside	X342015	Y92887	NO <sub>2</sub>	Y	N	1m	N
<b>727</b> <b>Chideock</b> Main Street	Roadside	X341946	Y92908	NO <sub>2</sub>	Y	Y (1m)	1m	Y
<b>728</b> <b>Chideock</b> Main Street	Roadside	X342025	Y92894	NO <sub>2</sub>	Y	Y (1m)	1m	Y
<b>735</b> <b>Chideock</b> Triplicate	Roadside	X342301	Y92817	NO <sub>2</sub>	Y	N	2m	N

<b>736</b> Chideock Triplicate	Roadside	X342301	Y92817	NO <sub>2</sub>	Y	N	2m	N
<b>737</b> Chideock Triplicate	Roadside	X342301	Y92817	NO <sub>2</sub>	Y	N	2m	N

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## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

The two air quality objectives that ambient concentrations of NO<sub>2</sub> need to be assessed against are as follows:

- An annual mean of 40µg/m<sup>3</sup>; and
- A 1 hour mean of 200µg/m<sup>3</sup> not to be exceeded more than 18 times a year.

It should be noted that it is only possible to directly assess against the 1 hour objective if hourly monitoring data is available. With regards to the hourly objective regarding diffusion tubes the approach suggested in LAQM. TG(09) has been adopted. The approach, based on empirical studies suggests that where the annual mean is less than 60µg/m<sup>3</sup>, exceedences of the short term objective are unlikely.

#### Automatic Monitoring Data

The ratified monitoring results for 2010 are provided below in Table 2.3a and 2.3b.

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

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for full calendar year 2010 <sup>b</sup> %	Annual mean concentrations (µg/m <sup>3</sup> )
					2010 <sup>c</sup>
Chideock	Post Office Chideock	Y	N	97	15.4

**Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective**

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for full calendar year 2010 %	Number of Exceedences of hourly mean (200 µg/m <sup>3</sup> )		
					2008	2009	2010
Chideock	Post Office Chideock	Y	Y	97	n/a	n/a	0

The 2010 data shows that there have been no exceedences of the NO<sub>2</sub> objectives in at this location.

### Diffusion Tube Monitoring Data

The NO<sub>2</sub> diffusion tube monitoring results for 2010 are provided in Table 2.4 along with 2008 and 2009 data for comparison. The 2010 monthly means are shown in Appendix B. A locally derived bias adjustment factor of 0.93 was used in Chideock; and the national bias adjustment of 0.99 was used for the rest of the sites. Details on how and why these adjustments were used are provided in Appendix A.

**Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes**

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for full calendar year 2010 %	Annual mean concentrations (µg/m <sup>3</sup> )		
					2008	2009	2010
711	<b>Dorchester</b> High West St 1	Y	Y	100	<b>41.9</b>	<b>44.6</b>	<b>41.8</b>
712	<b>Dorchester</b> Trinity Street	N	Y	100		32.9	31.4
713	<b>Dorchester</b> High East St 2	Y	Y	100	38.2	39.6	34.1
714	<b>Dorchester</b> High East St 1	Y	Y	100	<b>43</b>	<b>46.2</b>	<b>40.6</b>
715	<b>Dorchester</b> The Grove	N	Y	66			38.3
716	<b>Dorchester</b> Maumbury Road	N	Y	90			33.4
718	<b>Dorchester</b> Church Street	N	Y	100			25.9
719	<b>Dorchester</b> Bridport Road	N	Y	90			28.2
720	<b>Dorchester</b> Borough Gardens	N	N	75			16.2
721	<b>Dorchester</b> High West St 2	N	Y	100		32.8	34.7
717	<b>Bridport</b> East Road 1	N	Y	95	<b>55.1</b>	<b>57.1</b>	<b>55.4</b>
730	<b>Bridport</b> East Road 2	N	Y	95	<b>40</b>	<b>41</b>	<b>47.7</b>
733	<b>Bridport</b> East Road 3	N	Y	95			26.5
734	<b>Bridport</b> East Road 4	N	Y	90			31.33
722	<b>Chideock</b> Main Street	Y	Y	90			20
723	<b>Chideock</b> St Giles Church	Y	N	90			26

724	<b>Chideock</b> Duck Street	Y	Y	100	<b>44.3</b>	<b>50.9</b>	<b>43</b>
725	<b>Chideock</b> George Inn	Y	Y	66	31.5	33.5	31
726	<b>Chideock</b> Village Hall	Y	N	100	<b>41.6</b>	<b>47.5</b>	<b>43</b>
727	<b>Chideock</b> Main Street	Y	Y	95			<b>50</b>
728	<b>Chideock</b> Main Street	Y	Y	100			28
735	<b>Chideock</b> Triplicate	Y	N	90			15.3
736	<b>Chideock</b> Triplicate	Y	N	95			15.4
737	<b>Chideock</b> Triplicate	Y	N	100			15.5

The 2010 diffusion tube monitoring results show 7 sites exceeding the NO<sub>2</sub> annual mean objective. Five are within designated AQMA's and two are outside and located on East Road, Bridport. The 1-hour average objective for NO<sub>2</sub> was not exceeded at any locations in 2010, based on guidance contained within TG(09). The results are explained in more detail below.

## 2.2.2 Discussion of Results for Nitrogen Dioxide

### Chideock

In 2010, further monitoring was undertaken in Chideock to further define the levels of NO<sub>2</sub> as previous monitoring was only undertaken on the south side of the village, sites 724, 725 and 726. Historical results have shown that exceedences were only found on the steep incline, south of the A35 going out of the village, west towards Lyme Regis (724 and 726).

Site 725 is located on the façade of a property that is directly on the main road with no footpath. This area is in the middle of the village with flat topography. There have been no exceedences of the objective here for the past eight years. The continuous monitor and the co-located tubes (735, 736 and 737), that are in a similar position to 725, in the middle of the village at the bottom of the hill, and were also well below the objective in 2010.

New site 727 (see Figure 2.2), is located on the steep incline going out of the village. This site has exceeded the objective but is within the existing AQMA boundary and further confirms the localised exceedence caused by the traffic climbing uphill within the 30mph zone.

New sites 722, 723 and 728 are situated on the north side of the road, with the traffic here going downhill towards the centre of the village. No exceedences were identified in these locations. Given these results, it is recommended that WDDC proceed to a Detailed Assessment to review the AQMA boundary in Chideock.



## **Dorchester**

Table 2.4 shows that the annual mean objective for NO<sub>2</sub> was exceeded in 2 locations in Dorchester, 714 and 711. Site 714 is within the AQMA and site 711 is located on the Council Offices, and therefore not considered relevant exposure. Monitoring was extended in 2010 to include locations where traffic will be diverted when the Dorchester Transport & Environment Plan is implemented in 2014. This plan aims to improve environmental quality in Dorchester, primarily through a reduction in negative traffic impacts and is included in the draft Air Quality Action Plan for Dorchester which is currently waiting comments from Defra. No other sites are above the annual objective in Dorchester.

## **Bridport**

In 2010, two new sites were added to the monitoring programme along East Road, Bridport, 733 and 734. The existing sites, 717 and 730 are located either side of a property that is situated approximately 2m from the A35 trunk road. These sites have shown a year on year increase, apart from in 2010 at 717, and are approximately 20-22% above the annual objective; see Figure. 2.3.

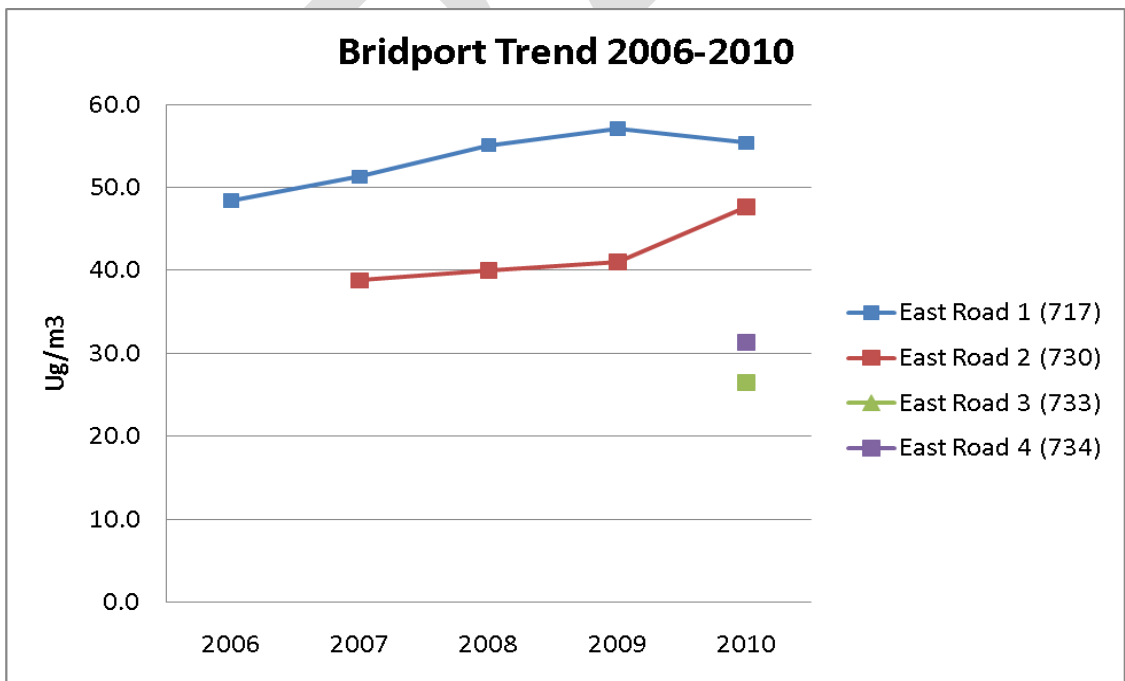
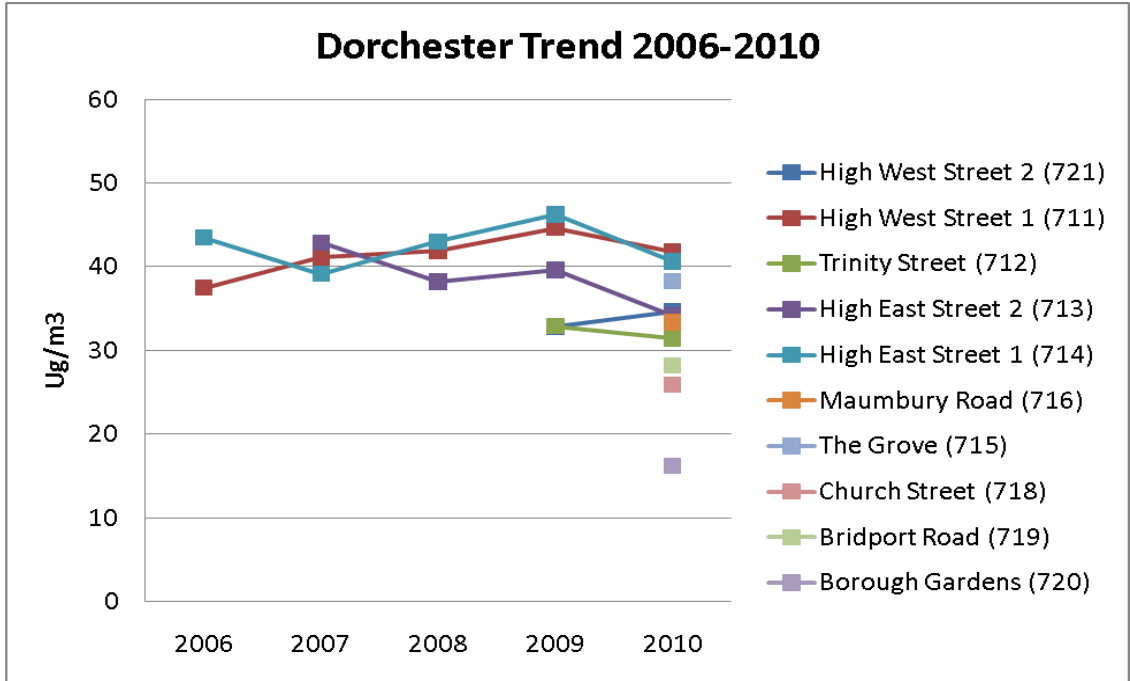
This location is again on a steep incline going eastbound out of Bridport towards Dorchester. Apart from 1 property, all other properties that front the road within this vicinity are approximately 10m back from the roadside. Tube 733 was located on the façade of one of these properties and results show that this is well within the objective.

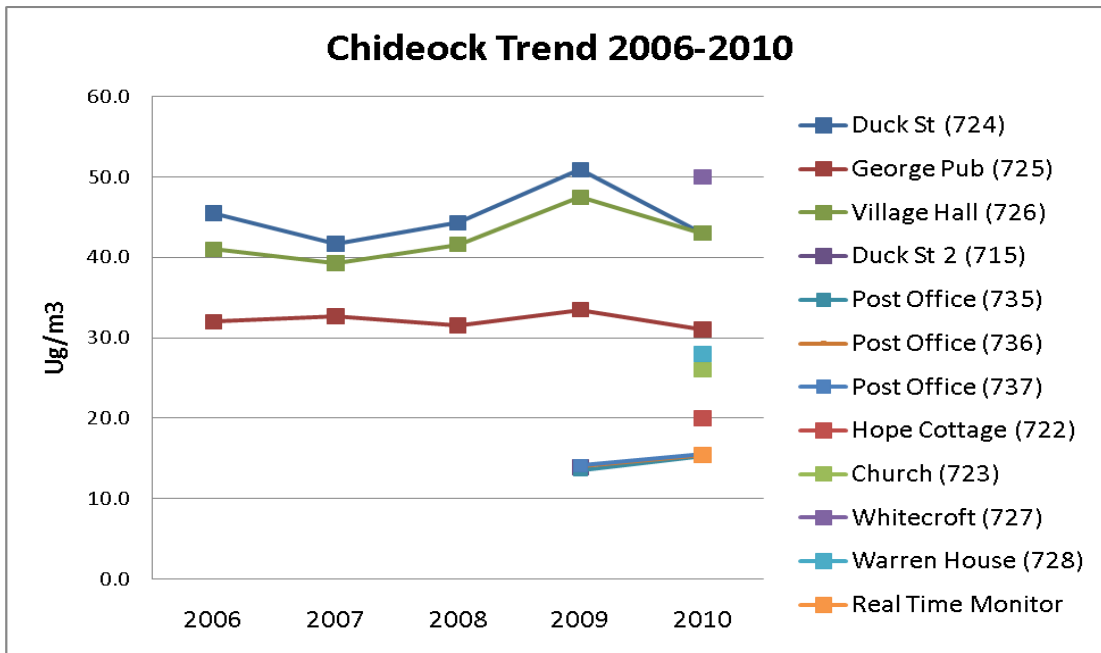
Site 734 was located at the bottom of the hill, adjacent to relevant receptors; again there were no exceedences at this site. Evidence shows that the objective is therefore only likely to exceed at one property. There is an outstanding Detailed Assessment required for this location and this has been included in Chapter 11 of this report

## **Historical trends**

The graphs in Figure 2.3 show a 5 year monitoring trend in Dorchester, Bridport and Chideock. It can be seen that a slight upward trend has continued since 2006, although this drops slightly at the majority of sites in 2010. These results do not reflect the predicted improvements of air quality year on year due to improvements in fleet emissions.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.**





### 2.2.3 PM<sub>10</sub>

No areas were identified within the district where PM<sub>10</sub> could be a problem during the last Updating and Screening Assessment. This has not changed; therefore no monitoring is currently undertaken for PM<sub>10</sub>. However concerns have been raised by residents in Chideock regarding PM<sub>10</sub> levels due to the unique topography of the area and the large percentage of HGV's that travel through the village. Given these concerns, air quality modelling has been undertaken for PM<sub>10</sub> in Chideock in 2011. The results have shown that the annual average and 24 hour AQO for PM<sub>10</sub> would not be exceeded at any locations within Chideock. See Appendix D for further details.

### 2.2.4 Sulphur Dioxide

No areas were identified within the district where sulphur dioxide could be a problem during the last Updating and Screening Assessment. This has not changed; therefore no monitoring is currently undertaken for sulphur dioxide.

### **2.2.5 Benzene**

No areas were identified within the district where benzene could be a problem during the last Updating and Screening Assessment. This has not changed; therefore no monitoring is undertaken for benzene.

### **2.2.6 Other pollutants monitored**

No other pollutants are monitored in West Dorset

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

The NO<sub>2</sub> monitoring results for 2010 have been examined.

Concentrations outside the AQMA's and the area in Bridport, the subject of the outstanding Detailed Assessment, are all below the AQO's at relevant locations. There is no need for a Detailed Assessment of air quality outside these areas.

The outstanding Bridport Detailed Assessment has been completed and is included within this report in Chapter 11 and Appendix D.

Concentrations monitored at a number of locations within the Chideock AQMA are well below the annual objective and show the objective is unlikely to be exceeded at many relevant locations within the AQMA. There is a need to reduce the size of the AQMA and a Detailed Assessment has been completed and is included within this report in Chapter 11 and Appendix D.

### **3 New Local Developments**

There are no new or newly identified local developments which may have an impact on air quality within the Local Authority area. The following have been considered –

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

## **4 Local / Regional Air Quality Strategy**

West Dorset District Council does not have a Local Air Quality Strategy. However, its Air Quality Action Plans in Chideock and Dorchester include wider measures across the district.

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## 5 Planning Applications

The table below shows the planning applications that were determined in 2010 and included an Air Quality Assessment.

**Table 5.1 Planning Applications that included an AQ Assessment**

Planning Application number	Location	Proposal	In AQMA?	Significant impact on AQ identified	Assessment Approved
1/D/10/000763	Charles Street Development Site, Charles Street, Dorchester	Demolition of existing buildings and structures and comprehensive redevelopment comprising retail units (Use Class A1), restaurants and cafes (Use Class A3), financial and professional services (Use C)	No but adjacent to High East Street Dorchester AQMA	No	Yes

## 6 Air Quality Planning Policies

### 6.1 West Dorset Local Plan 2006

The Council's adopted local plan (2006) provides the starting point for the local Community to find out what our current planning policies are for the area. Current policies in the plan that relate to air quality are:

*AH8a: DEVELOPMENT WITH POTENTIAL TO GENERATE POLLUTION, NOISE, VIBRATION, OR UNPLEASANT EMISSIONS.*

*Planning permission will not be granted for development that has potential to generate pollution, noise, vibration or unpleasant emissions unless it can be demonstrated that the effects on health, amenity and the natural environment are or can be made acceptable.*

*TRAN12 TRAVEL PLANS*

*Development likely to have significant transport implications should provide a travel plan demonstrating practical measures for achieving sustainable transport objectives.*

*TRAN8 CYCLISTS AND PEDESTRIANS*

*All new development will be expected to take account of the needs of cyclists and pedestrians either by the direct provision or by contribution to new routes or links to existing routes within or adjoining a settlement. Such routes should provide a safe, convenient, direct and attractive environment to the cyclist or pedestrian. Where conditions allow, a choice of routes should be provided to increase the trip potential.*

The local plan also aims to improve air quality through encouraging the management and planting of hedges (Chapter 11.2) and trees (Chapter 12.8)

Air quality is also a central topic of the Sustainable Construction Chapter (Chapter 12), where the reduction of emissions to air is discussed.



# 7 Local Transport Plans and Strategies

## 7.1 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. This new 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 yrs).

The key actions under the LTP3 that relate to air quality and the environment are:

- *Minimise the need to travel by supporting the planning system to build sustainable communities where people live near services, employment, education and leisure opportunities;*
- *Leading by example in the Public Sector by instigating transport carbon reduction programmes and assisting major public services (Local Authority, schooling and health) to provide their services as close to the client group as possible;*
- *Strongly encourage people to choose low carbon travel modes by improving urban centres for walking, cycling and public transport complemented by effective demand management measures;*
- *Help individuals and businesses to consider and assess the carbon impacts of meeting their transport needs and change their travel behaviour accordingly through "Smarter Choices"<sup>3</sup> measures;*
- *Facilitate walking and cycling especially for children and young people to ensure a significant increase in these modes for short trips;*
- *Significantly increase the proportion of journeys undertaken by public transport within the major urban centres and the hinterland of market towns;*
- *Promote the adoption of low carbon fuels and vehicle technologies in the domestic, business and HGV fleet;*
- *Identify and implement measures to reduce carbon emissions associated with leisure travel and tourism in Dorset;*
- *Encourage efficient and low carbon use of the car in areas of poor accessibility by walking and cycling & public transport;*
- *Maximise the efficiency of the existing Highways Network through the deployment of Intelligent Transport Systems (ITS)<sup>4</sup>;*
- *Manage and adapt the Highways network and Structures to reduce vulnerability to the direct physical impacts of climate change*

- *Monitor and report on carbon emissions from transport*

### **7.1.1 Travel Choice**

This is a County wide initiative to raise awareness about the impacts of travel behavior and to encourage people to make an informed decision about journeys they make. For example promoting European Mobility Week, 'Get (back) on your bike!', a campaign to encourage people to cycle more, promoting cycling events 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 at: [www.dorsetforyou.com/travelchoice](http://www.dorsetforyou.com/travelchoice)

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## **8 Climate Change Strategies**

WDDC launched their Climate Change Strategy in October 2009. This Strategy aims to help residents, businesses and other organisations to reduce their carbon emissions by 30% by 2020 from 2005 levels. This Strategy can be found at:

[www.dorsetforyou.com/climatechange/west](http://www.dorsetforyou.com/climatechange/west)

### **8.1 West Dorset District Council Carbon Management Plan (CMP)**

West Dorset District Council's CMP was approved in March 2010. This plan sets targets for the reduction of carbon dioxide emissions from WDDC activities and outlines the project structure enabling those targets to be achieved.

### **8.2 Nottingham Declaration**

In 2007 West Dorset District Council signed up to the Nottingham Declaration. The Nottingham Declaration is a voluntary pledge for local authorities to address the issues of climate change. It represents a high-level, broad statement of commitment for a council to make to its community. It now has over 300 councils as signatories. Under the Nottingham Declaration the council is committed to producing a strategy to reduce carbon emissions and the impact of climate change.

## **9 Implementation of Action Plans**

### **9.1 Chideock**

West Dorset District Council published its Air Quality Action Plan for Chideock in March 2009, following the declaration of the AQMA. The Action Plan includes direct and indirect measures to reduce NO<sub>2</sub> levels.

The main aims of the Air Quality Action Plan are to reduce NO<sub>2</sub> emissions and it sets out what the Council will be doing to improve air quality over the next few years and who is responsible for implementing those measures. Other actions include reducing emissions from buildings and industry and to raise public awareness of air pollution and greener travel options.

The source of the NO<sub>2</sub> pollution that resulted in the need to declare an AQMA is from traffic using the A35 Trunk Road and the direct measures are the ones that are aimed at this source. It is the responsibility of the Highways Agency to implement them.

The majority of the other measures in the Action Plan will only have an indirect effect on pollution levels and any resulting improvement will be minimal at best, and not quantifiable.

Table 9.1 below summarises the results of the progress of the action plan so far. The main action plan can be found on the Councils' website at [www.dorsetforyou.com/airquality/west](http://www.dorsetforyou.com/airquality/west)

### **9.2 Dorchester**

West Dorset District Council published its draft Air Quality Action Plan for Dorchester in April 2011, following declaration of the AQMA. It can be found on the Councils, website at: [www.dorsetforyou.com/airquality/dorchester](http://www.dorsetforyou.com/airquality/dorchester). It has not been reproduced here as it is still with Defra for their comment prior to its final implementation of the plan.

**Table 9.1 Chideock Action Plan Progress**

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
<b>Promoting Alternatives to Road Transport</b>				
A1	Publish an Action Plan to reduce road traffic by; <ul style="list-style-type: none"> <li>• Promoting local buses as commuter buses.</li> <li>• Encouraging use by travellers of the Jurassic Coast bus</li> </ul>	DCC	June 2010	<b>July 09</b> - DDC to ask Jurassic Coast working Theme Group for their current plan, or more specific Action Plan  <b>Nov 09</b> – Action completed
A2	Publish a School Travel Plan for Symmondsbury and other local schools. Include the investigation of Hell Lane as a Walking Bus route <u>Additionally November 2009</u> <i>Concern that Hell Lane still not being used as a walking bus route</i>	DCC	April 2010	<b>July 09</b> - DCC to obtain copy of Symmondsbury School Travel Plan  <b>Nov 09</b> – Travel Plan published. Action completed but DCC to investigate why Hell Lane is not being used.  <b>July 10</b> – WDDC to contact DCC for update  <b>Jan 11</b> – Hell Lane not currently suitable for a walking bus route No Further Action.
A3	Publish an Action Plan to reduce road local traffic including; <ul style="list-style-type: none"> <li>• Promoting Car pool schemes.</li> <li>• Increased promotion of the Car Share Dorset scheme</li> <li>• Discussing solutions with local caravan park</li> </ul> <u>Additionally November 2009</u> <i>No solutions have yet been proposed for alternative access to the caravan Parks in Seatown</i>	DCC	June 2010	<b>July 09</b> - DCC to obtain copy of Action Plan  <b>Nov 09</b> – Action Plan produced  <b>July 10</b> – WDDC to contact DCC for update. Any proposals should include air quality modelling.  <b>Jan 10</b> – Consultants have been appointed undertake modelling and will include predicted air quality levels in Chideock if there was an alternative access to caravan parks

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
A4	Bring a feasible scheme providing alternatives to local car travel into the Capital Programme from 2010/11 onwards	DCC	April 2010	<p><b>July 09</b> - DCC to secure an update</p> <p><b>Nov 09</b> – Waiting for update</p> <p><b>July 10</b> – WDDC to contact DCC for update</p> <p><b>Jan 11</b> – DCC currently consulting on LTP3</p>
A5	Lobby at regional level and through the LTP process for an improved Exeter/Weymouth railway route	DCC	July 2010	<p><b>July 09</b> - DCC currently lobbying for better rail links</p> <p><b>Nov 09</b> – DCC continue to lobby</p> <p><b>July 10</b> – Ongoing</p> <p><b>Jan 11</b> – Ongoing and included in LTP3</p>
A6	Maintain the national concessionary bus scheme for concessionary users	WDDC	Ongoing	<p><b>July 09</b> - WDDC advises that the concessionary bus scheme is ongoing but may transfer to DCC</p> <p><b>Nov 09</b> –Ongoing</p> <p><b>July 10</b> – Ongoing</p> <p><b>Jan 11</b> - Ongoing</p>
A7	Encourage any proposals for new or improved footways or cycleways, in order to provide safe alternatives to car travel for local people and tourists.	WDDC DCC	Ongoing	<p><b>July 09</b> - WDDC (Planning Policy) advise that such proposals continue to be encouraged when opportunities arise</p> <p><b>Nov 09</b> – Ongoing</p> <p><b>July 10</b> - Application for footpath to connect Broadmead to Frogmore farm discussed, funding and ownership problems noted. HA to update.</p> <p><b>Jan 11</b> – Problems with land ownership and monies originally identified for scheme are no longer available. Scheme unlikely to go ahead.</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
<b>Road Traffic Management</b>				
B1	Clarify the Governments current and likely future position on building a by-pass	WDDC	Dec 08	<p><b>July 09</b> - Response back from Government Office for the South West, "It is for the region to identify its priorities." The scheme does not sit high in regional priorities given the significant obstacles it faces.</p> <p><b>Nov 09</b> – Action completed</p>
B2	Maintain a programme of improvements to assist traffic flows on the A30/A35, specifically including bus stop facilities.	HA	Ongoing	<p><b>July 09</b> - A programme of measures are in place, including Dedicated Incident Support Unit to maintain and improve traffic flow</p>
B4	Reduce road blockages via the Journey Time Reliability initiative, which ensures road works minimise delay. Contractors and statutory undertakers carry out the majority of their work at night to minimise congestion.	HA	Ongoing	<p><b>Nov 09</b> – HA informed that Bus Stops and proposed pedestrian crossing to be installed by end of March 2010</p> <p><b>July 10</b> - Upgrade of bus stops (including two shelters) completed. Highways Agency (HA) also has a National Vehicle Recovery Service to recover broken down vehicles on trunk roads to help respond to any congestion problems that develop on trunk roads.</p> <p><b>Jan 11</b> – Action completed</p>
B5	Prompt Dorset Road Safe (the camera partnership) to review options to smooth traffic flows, such as; <ul style="list-style-type: none"> <li>• Remove speed limit and speed camera</li> <li>• Introduce "Average Speed" cameras</li> <li>• Point speed cameras up hill</li> <li>• Introduce a variable speed limit</li> <li>• Extend speed regulated zone</li> </ul>	HA DCC	April 2009	<p><b>July 09</b> - DCC to advise of outcome of Dorset Road Safe discussions of camera positioning and use</p> <p><b>Nov 09</b> – This is a low priority as the partnership's priority is safety, not air quality, however still waiting outcome of speed limit review.</p> <p><b>July 10</b> - Air quality modelling should consider scenario to extend the speed regulated zone.</p> <p><b>Jan 11</b> – Consultants appointed to do modelling. Speed Watch scheme now operating. Replacement of damaged camera unlikely as previously replaced due to vandalism and DCC now moving towards mobile cameras.</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
B6	Work with Somerset CC and other councils to amend SatNav systems to warn motorists (particularly HGV drivers) of steep hills at Chideock	DCC	April 2010	<b>July 09</b> - Not achievable within current legislation <b>Nov 09</b> – Completed, not feasible
B7	Complete a feasibility study to smooth flows of Seatown traffic turning onto and off the A35 and reduce pollution from queuing traffic, to deal with the seasonal traffic in particular. Submit proposal for inclusion in LTP	HA	Dec 09	<b>July 09</b> - HA to prepare brief for DCC to commission a high-level study <b>Nov 09</b> –study commissioned. Draft sent to DCC for approval. Report recommended that a mini roundabout be installed at the Duck Street junction. Concerns that this would not improve air quality levels in this area. AQ modelling may be required. <b>July 10</b> - Feasibility study drafted and still with DCC for comments. Will need to undertake air quality modelling before final report is produced. HA & WDDC to meet to discuss requirements for air quality modelling and to look at air quality / traffic data. <b>Jan 11</b> – Consultants appointed to undertake modelling. Good correlation between monthly traffic levels and NO <sub>2</sub> average concentrations.
B8	Work with local businesses and delivery companies to voluntarily re-schedule deliveries that currently cause problems	WDDC	March 09	<b>July 09</b> -Complete. The 3 or 4 local businesses all have car parks and delivery vehicles do not park on the road. Does not have a major impact on traffic flow <b>Nov 09</b> – Action complete
B9	Investigate the possibility of re-scheduling refuse collection round to avoid creating additional road congestion	WDDC	March 09	<b>July 09</b> -WDDC to explore with flow data <b>Nov 09</b> – Collection does not impede on traffic flow due to very early and mid afternoon collections, not seen as a major concern to air pollution.
B10	Explore the effectiveness of products such as such TiO <sub>2</sub> nano-coatings that claim to absorb pollutants when applied to road surface	HA	Dependant on trial findings	<b>July 09</b> - HA to supply copy of Interim report when available. Not looking promising <b>Nov 09</b> –Trials showed that AQ levels did not show a difference in AQ levels when compared to areas without the coating. Not



NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
				feasible due to cost and study findings.
<b>Reduce Vehicle Emissions</b>				
C1	Ensure that contracts involving new buses (including school buses on Chideock routes) meet an appropriate fuel and quality specification	DCC	Nov 2009	<p><b>July 09</b> - X53 buses on Chideock routes are new and meet the latest European emission specification.</p> <p><b>Nov 09</b> – Action completed</p>
C2	<p>Ensure that air pollution from DCC's own activities is reduced by</p> <ul style="list-style-type: none"> <li>• Expansion of the use of bio-diesel by County Council Fleet vehicles.</li> <li>• Promoting carbon reduction measures within Dorset schools as part of the development of the school travel plan process.</li> <li>• Encouraging the uptake of clean, low carbon vehicles and fuels, including increasing the availability of low carbon fuels locally.</li> <li>• Development of a safer driving policy for County Council staff, including fleet and lease drivers, that teaches and promotes safer eco-driving techniques.</li> <li>• Awarding of Street Lighting PF1 contract - This is expected to show significant CO2 savings within coming years from the use of new technologies.</li> </ul> <p><i>Additionally July 2010</i></p>	DCC	Ongoing	<p><b>July 09</b> - DCC to obtain copy of Action Plan</p> <p><b>Nov 09</b> – DCC confirm that this is ongoing and actions are in the plan</p> <p><b>July 10</b> - Ongoing.</p> <p><b>Jan 11</b> - Ongoing</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
	<ul style="list-style-type: none"> <li>Hybrid Vehicles</li> </ul>			
C3	<p>Ensure that air pollution from WDDC's own activities is reduced by</p> <ul style="list-style-type: none"> <li>Continuing drive to better fuel efficiency, engine emission standards and emission controls on council owned and leased vehicles</li> <li>Monitoring the implementation of the Corporate Travel Plan to reduce emissions resulting from both business travel and travel to work. Actions include the use of pool cars and bicycles for staff, encouragement of car sharing, and flexible working practices.</li> </ul> <p><u>Additionally July 2010</u></p> <ul style="list-style-type: none"> <li>Hybrid vehicles</li> </ul>	WDDC	Ongoing	<p><b>July 09</b> - WDDC Travel Plan is published</p> <p><b>Nov 09</b> – WDDC confirm that this is still ongoing</p> <p><b>July 10</b> - Ongoing.</p> <p><b>Jan 11</b> - Ongoing</p>
C4	<p>Workplace Travel Plans - Encourage local employers to develop and implement workplace travel plans, in order to reduce the emissions resulting from both business travel and travel to work. Actions may include initiatives such as the use of pool cars and bicycles for staff, encouragement of car sharing, and flexible working practices.</p>	WDDC	Ongoing	<p><b>July 09</b> - WDDC seek to reduce pollution from local business vehicles by supporting their development of Travel Plans</p> <p><b>Nov 09</b> – Confirm that this is ongoing</p> <p><b>July 10</b> – Ongoing</p> <p><b>Jan 11</b> - Ongoing</p>
C5	<p>Investigate differential licence fee for private hire vehicles &amp; hackney carriages using 'greener' fuels</p>	WDDC	March 2009	<p><b>July 2009</b> - Investigated and rejected for reasons of viability. Separate report available</p> <p><b>Nov 09</b> – Action completed</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
C6	Organise a voluntary free emissions testing service for local residents  <i>Additionally November 2009</i> <i>WDDC to explore powers available Under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 (Statutory Instrument Number 1808).</i>	WDDC	June 2009	<b>July 09</b> - WDDC exploring the feasibility of an event in late September 2009  <b>Nov 09</b> – Noted that emission testing is part of the MOT. Not considered that it would have an impact on non-compliant vehicles.  <b>July 10</b> - VOSA roadside emission testing is more appropriate. HA to contact VOSA for any information they can provide on what they currently do. HA to feedback to WDDC.
C7	Investigate the feasibility of VOSA (Vehicle & Operator Services Agency) testing roadside weight, brakes and emissions of light and heavy goods vehicles at a nearby site on the A35  <i>Additionally November 2009</i> <i>Concerns raised that width and weight restrictions are not in the action plan</i>	CPC  HA	October 09  July 11	<b>July 09</b> - VOSA have written in response to CPC enquiry to reject the proposal  <b>Nov 09</b> – Update from CPC. VOSA have now written to say that if the capital for the layby was found, £350,000, VOSA would be happy to operate the site  <b>July 10</b> – Any proposals will be included in the air quality modelling.  <b>Jan 11</b> – Consultants appointed to do modelling
<b>Use Statutory and Other Powers to Limit Impact of Air Pollution</b>				
D1	Take account of air quality issues in tendering process (where relevant)	DCC WDDC	Ongoing	<b>July 2009</b> - WDDC includes environmental performance in their procurement policy and practices. Separate report available. WDDC to check the situation with DCC  <b>Nov 2009</b> – WDDC confirmed that this is part of the procurement procedure  <b>July 10</b> – Ongoing  <b>Jan 11</b> - Ongoing

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
D2	Use existing environmental protection powers to reduce and control emissions from industrial processes, commercial & residential activities	WDDC	Ongoing	<p><b>July 09</b> - WDDC continue to use a range of powers to reduce air pollution from industrial, commercial and residential activities</p> <p><b>Nov 09</b> – Ongoing</p> <p><b>July 10</b> - Ongoing. Parish Council have distributed leaflets on bonfires several times recently.</p> <p><b>Jan 11</b> - Ongoing</p>
D3	Provide up to date / real-time air quality information on Dorsetforyou website. Investigate the potential for automatic alerts to vulnerable people (e.g. text alerts)	WDDC	June 2009	<p><b>July 09</b> - Work underway to provide real time air quality information by October 2009</p> <p><b>Nov 09</b> – Following complete installation of NO<sub>2</sub> monitor in Sept 09, WDDC now investigating options for access to AQ data via website and text alerts</p> <p><b>July 10</b> - Grant application made to publish real time data on the web.</p> <p><b>Jan 11</b> – Grant application not successful, currently no other funding options available. However average monthly results from the real time monitor and diffusion tubes are on the web. Action completed</p>
D4	Use information from the continuous air pollution monitor and correlate with traffic management data to identify impacts and trends	WDDC	Dec 2009	<p><b>July 09</b> - Work underway to correlate air quality with traffic flow by December 2009</p> <p><b>Nov 09</b> – Not feasible until good quality long term ( 6-12 months) data is available</p> <p><b>July 10</b> – HA &amp; WDDC to meet to look at air quality / traffic data.</p> <p><b>Jul 11</b> – Action completed. Good correlation between monthly traffic levels and NO<sub>2</sub> average concentrations.</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
D5	Investigate the desirability of declaring a smoke control area	WDDC	June 2009	<p><b>July 09</b> – Discussed, to investigate when outcome of PM<sub>10</sub> measurement is known.</p> <p><b>Nov 09</b> – WDDC confirmed that a PM<sub>10</sub> monitoring study is likely to go ahead next year</p> <p><b>July 10</b> - Declaration unlikely but will review after PM<sub>10</sub> study completed, grant application made to fund study.</p> <p><b>Jan 11</b> – Consultants appointed to do modelling</p>
D6	Continue to implement the Home Energy Conservation Act policy for residential properties	WDDC	Ongoing	<p><b>July 09</b> - WDDC continue to use a range of measures to improve home insulation, and reduce domestic energy use</p> <p><b>Nov 09</b> – No change</p> <p><b>July 10</b> – Ongoing</p> <p><b>Jan 11</b> - Ongoing</p>
D7	Subject to funding, monitor for relevant particulates and assess against air quality objectives. Research brake pad and clutch components as contributory factors	WDDC	March 2010	<p><b>July 09</b> - WDDC investigating methods of measuring PM10 by March 2010</p> <p><b>Nov 09</b> - Currently obtaining quotes for study</p> <p><b>July 10</b> - Grant application made to fund study.</p> <p><b>Jan 11</b> - Funding received and consultants now appointed to do modelling.</p>
D8	Limit further development within the AQMA by continuing not to identify a Defined Development Boundary for the village within the local development framework. Ensure that the AQMA is taken into account as a material consideration in development control.	WDDC	Ongoing	<p><b>Jul 09</b> - WDDC continue to use a range of planning measures to control development with the potential for increased air pollution</p> <p><b>Nov 09</b> – WDDC confirm ongoing</p> <p><b>July 10</b> – Ongoing</p>
D9	Refer to AQMA as an issue in developing the Local Development Framework and in	WDDC	Ongoing	<p><b>Jan 11</b> - Ongoing</p>

NO	Action Required By Plan	Lead Agency	By...	Action Taken/Planned
	bringing forward Local Transport Plan improvement schemes			
<b>KEY</b>	<b>WDDC</b> = West Dorset District Council, <b>DCC</b> = Dorset County Council <b>CPC</b> = Chideock Parish Council <b>HA</b> = Highways Agency			

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# 10 Progress Report Conclusions and Recommendations

## 10.1 Conclusions from New Monitoring Data

Monitoring data for 2010 continues to show exceedences of the annual average NO<sub>2</sub> objective along East Road, Bridport. This highlights the need to complete the outstanding Detailed Assessment for East Road, Bridport.

Continuous and diffusion tube monitoring within Chideock AQMA boundary has shown that a large part of the AQMA does not exceed the annual mean objective for NO<sub>2</sub> and a Detailed Assessment is required to reduce the size of the existing AQMA in Chideock.

Monitoring in Dorchester shows that outside the AQMA, one site in High West Street, 711 exceeds the AQO. However a Detailed Assessment is not required in this location as the monitoring location is on the façade of an office building and there are no relevant receptors nearby. Monitoring will continue along High West Street and the proposed route for DTEP and will be reported in the 2012 Updating and Screening Assessment.

## 10.2 Conclusions relating to New Local Developments

There are no new roads, other transport sources or industrial sources of pollution in 2010.

## 10.3 Recommendations

Recommendations arising from this progress report are as follows:

- To undertake a Detailed Assessment for NO<sub>2</sub> along East Road, Bridport
- To undertake a Detailed Assessment for NO<sub>2</sub> in Chideock to reduce the size of the AQMA.
- To continue with WDDC's monitoring programme in Bridport, Chideock and Dorchester.
- To undertake an Updating & Screening Assessment by April 2012.

**The Detailed Assessments recommended in this Progress Report have been included in Chapter 11 and Appendix D.**

# 11 Detailed Assessment of Nitrogen Dioxide in Chideock and in Bridport

## 11.1 Purpose of a Detailed Assessment

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and to take account of Government guidance when undertaking such work.

This Detailed Assessment follows on from the above 2011 Progress Report, which concluded that a Detailed Assessment was required for NO<sub>2</sub> along East Road in Bridport and in Chideock to reduce the size of the AQMA. In order to complete this Detailed Assessment the Council commissioned White Young Green to undertake a Detailed Air Quality Assessment of NO<sub>2</sub>, including the necessary modelling work in Bridport and Chideock. This report can be found at Appendix C and needs to be read in conjunction with this chapter.

## 11.2 Bridport

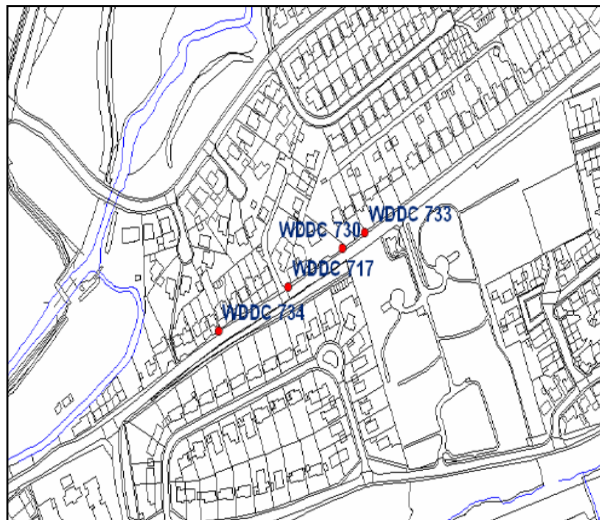
WDDC commissioned White Young Green Sustainably and Environment, (WYG), to undertake a Detailed Assessment for Bridport, specifically to:

- Determine with reasonable certainty whether air quality standards and objectives for NO<sub>2</sub> and particulates are being achieved in Bridport
- Determine the source apportionment of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> at key receptors within Bridport where the Air Quality Objectives (AQO's) are not met.
- Determine the year in which the AQOs will be met within Bridport taking account of predicted changes in traffic growth and predicted changes in emissions based the most recent emissions factors published by DfT
- Provide modelling evidence to WDDC to aid determination on whether to designate an Air Quality Management Area (AQMA) in Bridport.

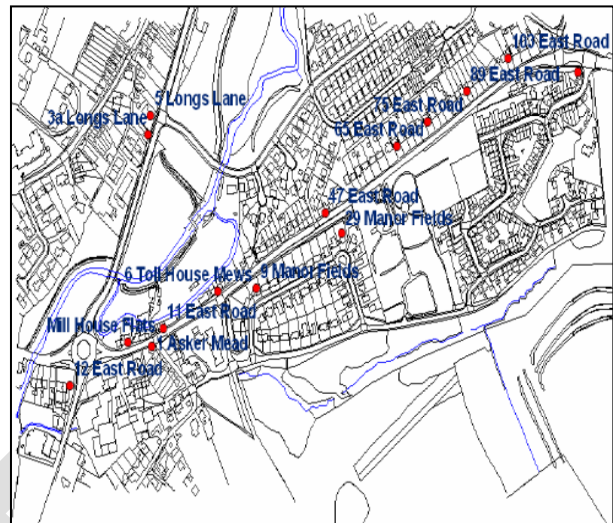
Monitoring data for 2009 was used in this assessment and modelling was undertaken at key receptors along East Road, see Figure 11.2.1.



**Figure 11.2.1 Monitored and Modelled Sites in Bridport**  
**Monitored Sites (2009)**



**Modelled Sites**



The final model produced data at the monitoring locations to within 25% of the monitoring results.

The modelling predicted that in 2009 the annual average objective for NO<sub>2</sub> was exceeded at all WDDC monitoring locations on East Road, Bridport. Additionally the model identified exceedences of the AQO for NO<sub>2</sub> at 4 residential receptors to the east of the East Road/East Street Roundabout. Where the exceedences of the annual average objective for NO<sub>2</sub> were modelled, a source apportionment study concluded that HGV emissions accounted for the greatest proportion of pollutant concentrations. At existing WDDC monitoring locations on East Road this contribution was found to be approximately 60% due to the significant gradient of the section of road adjacent to these monitoring sites.

At residential receptors to the west of WDDC's monitoring sites, the contribution of HGV emissions to total pollutant concentrations was slightly less significant as the gradient played a less influential role in causing exceedences and instead, slowing traffic and meteorological conditions were accountable.

Modelled predictions for future years indicated that the annual Air Quality Objective for NO<sub>2</sub> would be met in Bridport, at the worst effected receptor, without the need for additional measures to reduce concentrations, in 2015.

The report concluded that the 24 hour and annual average AQO for PM<sub>10</sub> would not be exceeded at any locations within the Bridport study area in 2009 or in any future years.

### **11.2.1 Discussion**

In 2009 there were monitored exceedences of the annual AQO for NO<sub>2</sub> along East Road, Bridport. Modelled results also predict exceedences along East Road at 4 receptors, 1 Askers Mead, Mill House flats, 11 East Road and 47 East Road, (monitored as 717).

Following a review of the monitoring survey, diffusion tubes 733 and 734 were relocated on the facades of residential properties in 2010. Diffusion tube 733 was sited on the façade of 37 East Road, located approximately 10m back from the roadside and diffusion tube 734 adjacent to Toll House Mews, East Road, sited approximately 2m back from the roadside. Measured NO<sub>2</sub> concentrations in these 2 locations in 2010 were well below the annual AQO.

At present monitoring results show that there is an exceedence of the annual average AQO at receptor 1, 47 East Road. This property is on a steep incline and is adjacent (2m from the roadside) to the A35 trunk road.

Modelling predicts exceedences at other locations, however given monitoring results in 2010, it is considered unlikely that levels of NO<sub>2</sub> in these locations will exceed the AQO. However, additional diffusion tubes have been located adjacent to 1 Askers Mead and 11 East Road to check NO<sub>2</sub> levels here in 2011.

It is normal practise to declare an AQMA whenever an AQO is exceeded at a relevant location. However, notwithstanding this guidance, consideration needs to be given to whether it is appropriate to do so given only one property is affected, limited staff resources and the fact that there is limited action that the Council can take to actually resolve this problem. The A35 is a trunk road for which the Highways Agency is responsible. It is considered that a declaration of an AQMA in these circumstances is prohibitive.

### **11.2.2 Recommendations**

- It is not proposed to declare an AQMA for nitrogen dioxide in Bridport at this time.
- The monitoring survey continues to check levels of nitrogen dioxide along East Road.

## 11.3 Chideock

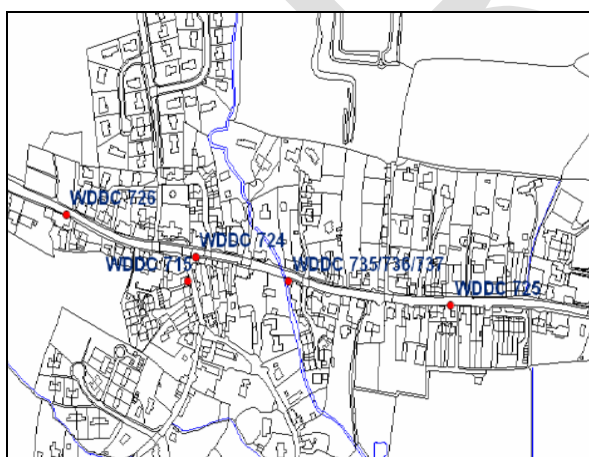
WYG were asked to also undertake a detailed assessment for Chideock, specifically to:

- Determine with reasonable certainty whether air quality standards and objectives for NO<sub>2</sub> and respirable particulates are being achieved in Chideock for the last year in which full monitoring data is available (2009).
- Determine the source apportionment of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> at key receptors within Chideock where the AQOs are not met.
- Determine the year in which the AQOs will be met within Chideock taking account of predicted changes in traffic growth and predicted changes in emissions based on 2009 emissions factors published by DfT
- Predict the changes in exposure to NO<sub>2</sub> and PM<sub>10</sub> at key receptors in Chideock as a result of the implementation of key measures in the Action Plan (these are discussed in Chapter 9).

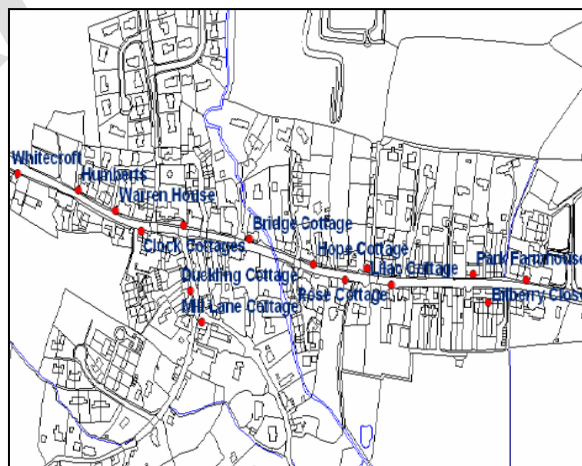
Data for 2009 was used in this assessment and modelling was undertaken at key receptors along the A35. See Figure 11.3.1.

**Figure 11.3.1 Monitored and Modelled Sites in Chideock**

### Monitored Sites (2009)



### Modelled Sites



The modelling predicted that in 2009 the annual average objective for NO<sub>2</sub> was exceeded at WDDC monitoring site 724, Duck Street. The model did not predict exceedences of the AQO for NO<sub>2</sub> at any other locations within Chideock, although it was shown to be underestimating pollutant exposure at WDDC 726 by around 20%. This is south of the A35 adjacent to the steep incline going west out of the village.

Modelled predictions for future years indicated that the annual AQO for NO<sub>2</sub> would be met in Chideock, at the worst effected receptor, without the need for additional measures to reduce concentrations, in 2016.

The report concluded that the 24 hour and annual average AQO's for PM<sub>10</sub> would not be exceeded at any locations within the Chideock study area in 2009 or in any future years.

### **11.3.1 Discussion**

Modelling did not predict any exceedences of the annual AQO at any relevant receptors in Chideock. The only predicted exceedence was at the Duck Street monitoring site (diffusion tube, 724).

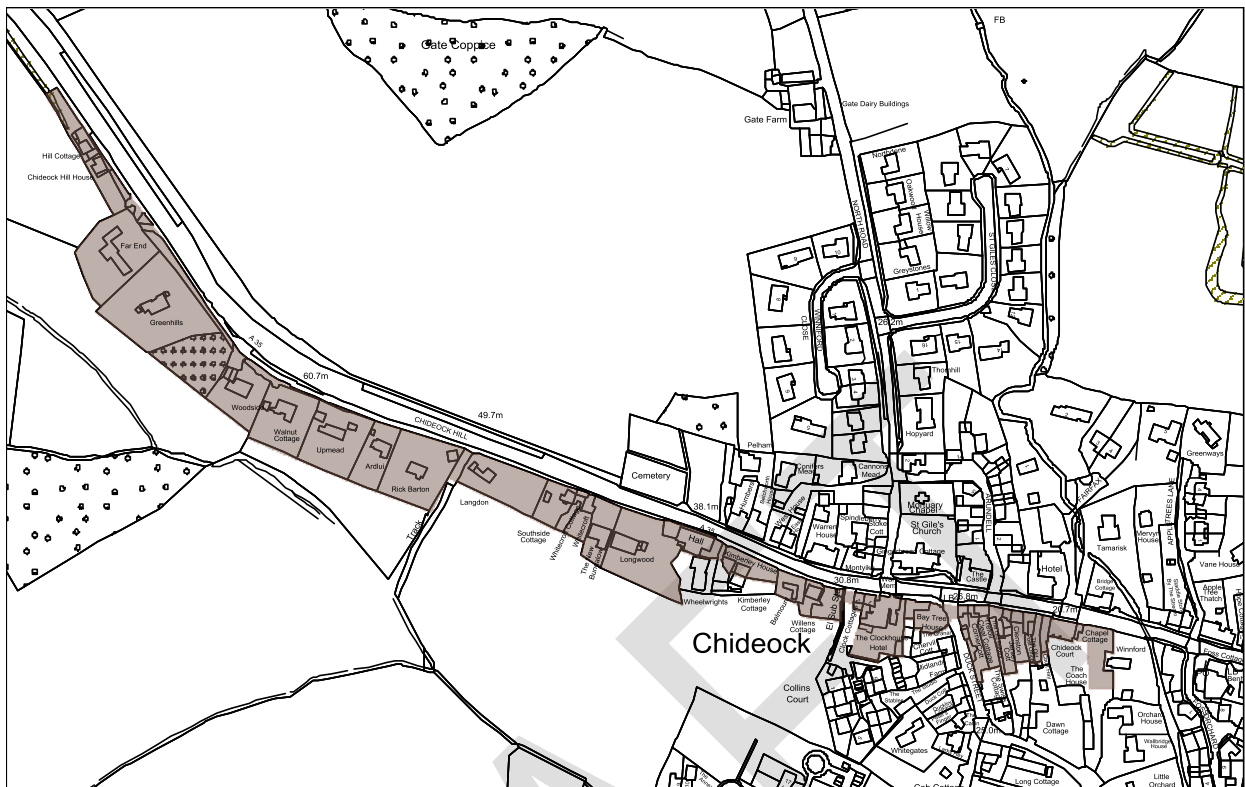
Monitoring results for 2009 and 2010 show that the annual AQO is only exceeded on the south side of the A35 adjacent to the steep incline, going west out of the village towards Lyme Regis.

The current AQMA (Figure 1.1) covers a large area of Chideock where levels of NO<sub>2</sub> do not exceed the annual AQO. It is considered the boundaries of the AQMA should be amended so only those relevant locations to the south of the A35 west of Winnford remain within the AQMA as shown in Figure 11.3.2.

### **11.3.2 Recommendations**

- The AQMA boundaries are amended as shown in Figure 11.3.2.
- The monitoring survey continues to check levels of nitrogen dioxide along the A35.

Figure 11.3.2 Proposed Chideock AQMA Boundary 2011



## 12 References

- Local Air Quality Management Policy Guidance LAQM.PG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Technical Guidance LAQM.TG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- The Local Transport Plan 3 2011- 2026, Dorset County Council
- Travel Choice – [www.dorsetforyou.com/travelchoice](http://www.dorsetforyou.com/travelchoice)
- West Dorset Climate Change Strategy
- West Dorset District Council Carbon Management Plan (CMP)
- West Dorset District Council Chideock Air Quality Action Plan 2009
- West Dorset District Council Progress Report 2010.
- West Dorset District Council Updating and Screening Assessment 2009.
- West Dorset in Profile – Key facts & figures about the community – Dorset County Council
- West Dorset Local Plan 2006

## 13 Glossary

<b>AQMA</b>	Air Quality Management Area
<b>AQO</b>	Air Quality Objective
<b>AURN</b>	Automatic Urban and Rural Network
<b>CPC</b>	Chideock Parish Council
<b>DCC</b>	Dorset County Council
<b>Defra</b>	Department of environment, food & rural affairs
<b>DfT</b>	Department of Transport
<b>DTEP</b>	Dorchester Transport & Environment Plan
<b>HA</b>	Highways Agency
<b>LA</b>	Local Authority
<b>LAQM</b>	Local Air Quality Management
<b>LPT3</b>	Local Transport Plan 3
<b>NO<sub>2</sub></b>	Nitrogen Dioxide
<b>NO<sub>x</sub></b>	Nitrogen Oxides
<b>PG(09)</b>	Policy Guidance 2009
<b>PM<sub>10</sub></b>	Particulate Matter <=10 µm
<b>PM<sub>2.5</sub></b>	Particulate Matter <=2.5 µm
<b>TG09</b>	Technical Guidance 2009
<b>USA</b>	Updating and Screening Assessment
<b>WDDC</b>	West Dorset District Council
<b>µg/m<sup>3</sup></b>	Microgrammes per cubic metre

# 14 Appendices

## Appendix A: QA: QC Data

### Diffusion Tube Bias Adjustment Factors

Gradko International Limited supply and analyse the diffusion tubes, which are a preparation of 50% TEA (triethanolamine) / Acetone. To improve the accuracy of the diffusion tube results and to minimise any potential errors, West Dorset co-locate three diffusion tubes (coded 735, 736, 737) with the inlet of the continuous monitoring equipment at the A35 Roadside site in Chideock. The results of these tubes can be assessed against the ratified data from the continuous NO<sub>x</sub> analyser and a local bias-adjustment factor calculated which is then applied to the annual diffusion tube results. The calculation is summarised in Table A.1.

**Table A.1 – Summary of Bias Adjustment - Roadside**

A35 Roadside (based on 12 periods of data)	
<b>Bias factor A</b>	0.93 (0.8 - 1.02)
<b>Bias B</b>	8% (-2% - 26%)
<b>Diffusion Tubes Mean:</b>	17 µgm <sup>-3</sup>
<b>Mean CV (Precision):</b>	7
<b>Automatic Mean:</b>	15µgm <sup>-3</sup>
<b>Data Capture for periods used:</b>	97%
<b>Adjusted Tubes Mean:</b>	15 (14-17) µgm <sup>-3</sup>

### Checking Precision and Accuracy of Triplicate Tubes



Diffusion Tubes Measurements									
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm <sup>-3</sup>	Tube 2 µgm <sup>-3</sup>	Tube 3 µgm <sup>-3</sup>	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	08/01/2010	04/02/2010	19.9	22.0	23.3	22	1.7	8	4.3
2	04/02/2010	03/03/2010	20.1		18.6	19	1.1	6	9.8
3	03/03/2010	31/03/2010		18.2	15.7	17	1.8	11	16.3
4	31/03/2010	27/04/2010	16.0	16.4	15.4	16	0.5	3	1.2
5	27/04/2010	03/06/2010	15.3	12.3	14.0	14	1.5	11	3.7
6	03/06/2010	02/07/2010		14.0	14.3	14	0.3	2	2.4
7	03/07/2010	06/08/2010	12.3	12.5	11.7	12	0.4	3	1.0
8	06/08/2010	02/09/2010	15.3	17.0	15.3	16	1.0	6	2.5
9	02/09/2010	01/10/2010	13.2	15.4	13.5	14	1.2	9	3.0
10	01/10/2010	04/11/2010	15.0	17.3	15.8	16	1.2	7	2.9
11	04/11/2010	30/11/2010	17.7	18.5	20.1	19	1.3	7	3.1
12	30/11/2010	05/01/2011	19.5	18.9	22.2	20	1.7	9	4.3
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
18.1	99.9	Good	Good
15.08	99.5	Good	Good
14.6	98.6	Good	Good
15.8	99.4	Good	Good
13	99.2	Good	Good
13	98.1	Good	Good
12	97.5	Good	Good
13	97.2	Good	Good
12	86.4	Good	Good
15	66.2	Good	or Data Capture
18.5	97.5	Good	Good
24.8	97.9	Good	Good
Overall survey -->		Good precision	Good Overall DC

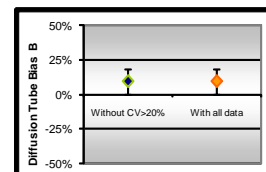
(Check average CV & DC from Accuracy calculations)

Site Name/ID: **Chideock Post Office**

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	0.93 (0.86 - 1.02)
Bias B	8% (-2% - 17%)
Diffusion Tubes Mean:	17 µgm <sup>-3</sup>
Mean CV (Precision):	7
Automatic Mean:	15 µgm <sup>-3</sup>
Data Capture for periods used:	97%
Adjusted Tubes Mean:	15 (14 - 17) µgm <sup>-3</sup>

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	0.93 (0.86 - 1.02)
Bias B	8% (-2% - 17%)
Diffusion Tubes Mean:	17 µgm <sup>-3</sup>
Mean CV (Precision):	7
Automatic Mean:	15 µgm <sup>-3</sup>
Data Capture for periods used:	97%
Adjusted Tubes Mean:	15 (14 - 17) µgm <sup>-3</sup>



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Version 03 - November 2006



The default national bias adjustment factor (version April 2011) taken from the LAQM Helpdesk website, is 0.99 see table A2.

**Table A2: National Bias Adjustment**

National Diffusion Tube Bias Adjustment Factor Spreadsheet							Spreadsheet Version Number: 04/11			
Follow the steps below in the correct order to show the results of relevant co-location studies							This spreadsheet will be updated in late June 2011 on the LAQM Helpdesk Website			
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods							Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet			
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.							The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.			
Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.										
Step 1:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>3</sup> shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data.	If you have your own co-location study then see footnote <sup>4</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953							
Analysed By <sup>1</sup>	Method To undo your selection, choose (All) from the pop-up list	Year <sup>2</sup> To undo your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ( $\mu\text{g}/\text{m}^3$ )	Automatic Monitor Mean Conc. (Cm) ( $\mu\text{g}/\text{m}^3$ )	Bias (B)	Tube Precision <sup>5</sup>	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2010	R	Reading BC	12	40	46	-13.2%	G	1.15
Gradko	50% TEA in Acetone	2010	R	East Hampshire DC	11	27	25	6.5%	G	0.94
Gradko	50% TEA in Acetone	2010	R	Wolverhampton CC	12	42	41	4.1%	G	0.96
Gradko	50% TEA in Acetone	2010	R	Wolverhampton CC	12	38	38	0.8%	G	0.99
Gradko	50% TEA in Acetone	2010	R	Exeter CC	12	42	40	5.6%	G	0.95
Gradko	50% TEA in Acetone	2010	R	Lewisham Council	10	74	51	46.0%	G	0.69
Gradko	50% TEA in Acetone	2010	B	LB Brent	10	28	28	-1.5%	G	1.01
Gradko	50% TEA in Acetone	2010	R	Worthing BC	10	44	42	6.0%	G	0.94
Gradko	50% TEA in Acetone	2010	R	Boston BC	10	57	33	74.1%	G	0.57
Gradko	50% TEA in Acetone	2010	B	LB Brent	10	28	28	-1.5%	G	1.01
Gradko	50% TEA in Acetone	2010	R	LB Richmond	12	39	41	-5.7%	G	1.06
Gradko	50% TEA in Acetone	2010	B	LB Richmond	12	28	26	4.8%	G	0.95
Gradko	50% TEA in Acetone	2010	UB	Reading BC	9	20	26	-20.5%	G	1.26
Gradko	50% TEA in Acetone	2010	UB	Sandwell MBC	12	27	30	-10.2%	G	1.11
Gradko	50% TEA in Acetone	2010	R	Sandwell MBC	12	43	47	-7.3%	G	1.08
Gradko	50% TEA in Acetone	2010	R	Sandwell MBC	12	32	40	-18.6%	na	1.23
Gradko	50% TEA in Acetone	2010	UB	Sandwell MBC	11	19	23	-15.9%	na	1.19
Gradko	50% TEA in Acetone	2010	Overall Factor <sup>3</sup> (17 studies)						Use	0.99

## Discussion of Choice of Factor to Use

The national correction factor of 0.99 was used for this monitoring period for 2010 for areas other than Chideock, where a local co-location study gave a correction factor of 0.93. Although this is slightly less conservative than the national adjustment factor it was considered to be more representative due to the unique location and topography of Chideock.

## QA/QC of automatic monitoring

The analyser is maintained by the local authority, by way of fortnightly manual calibrations, in accordance with the manufacturer's instructions. Additionally, a service contract ensures that full calibration and reference checks are carried out on a six monthly basis.

Data collected by the analyser is downloaded three times a day. Daily checks are made to ensure that the analyser is not showing any faults. These are dealt with straight away, and logged for the engineer's information when a full calibration is undertaken.

Once the manual calibrations are carried out, the calibration factors are applied to the previous two weeks worth of data. At this time, the data are screened to ensure that any spurious data are accounted for, or excluded. This provides a method to establish whether the analyser is working correctly, or high pollution episodes can be identified.

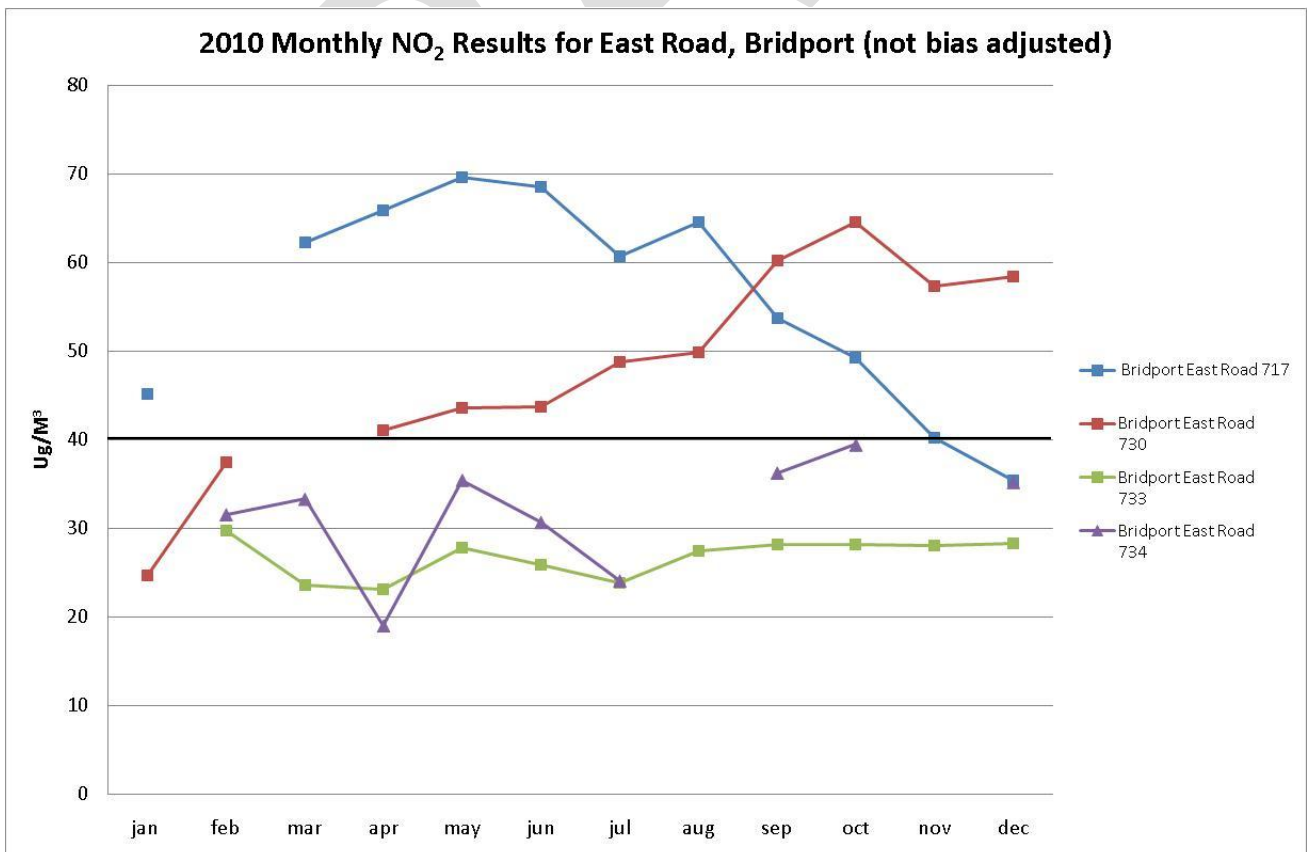
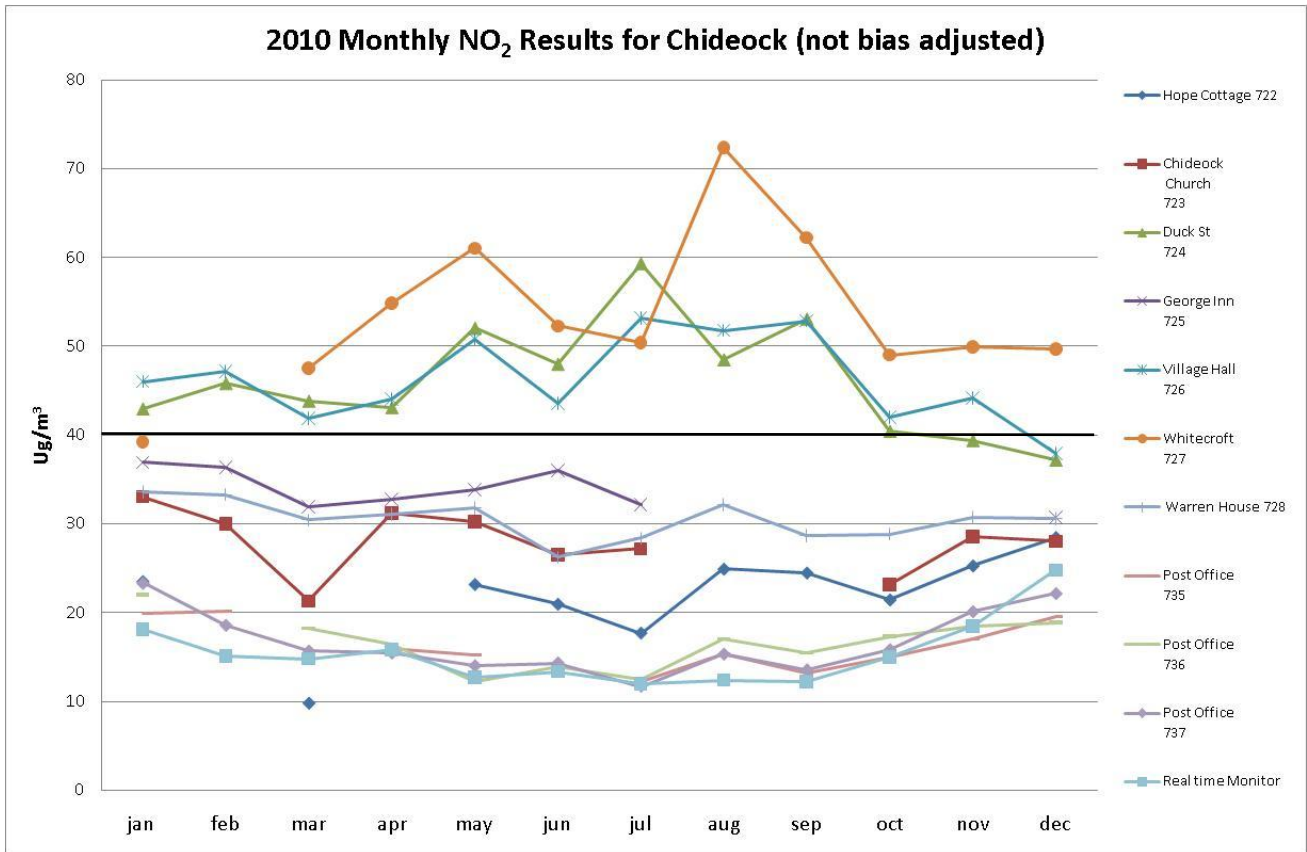
Once this validation is carried out the data are ratified, at approximately six months intervals. Any possible drift in the analyser's daily calibration can be identified and adjusted and correction factors applied if they are needed.

### **QA/QC of diffusion tube monitoring**

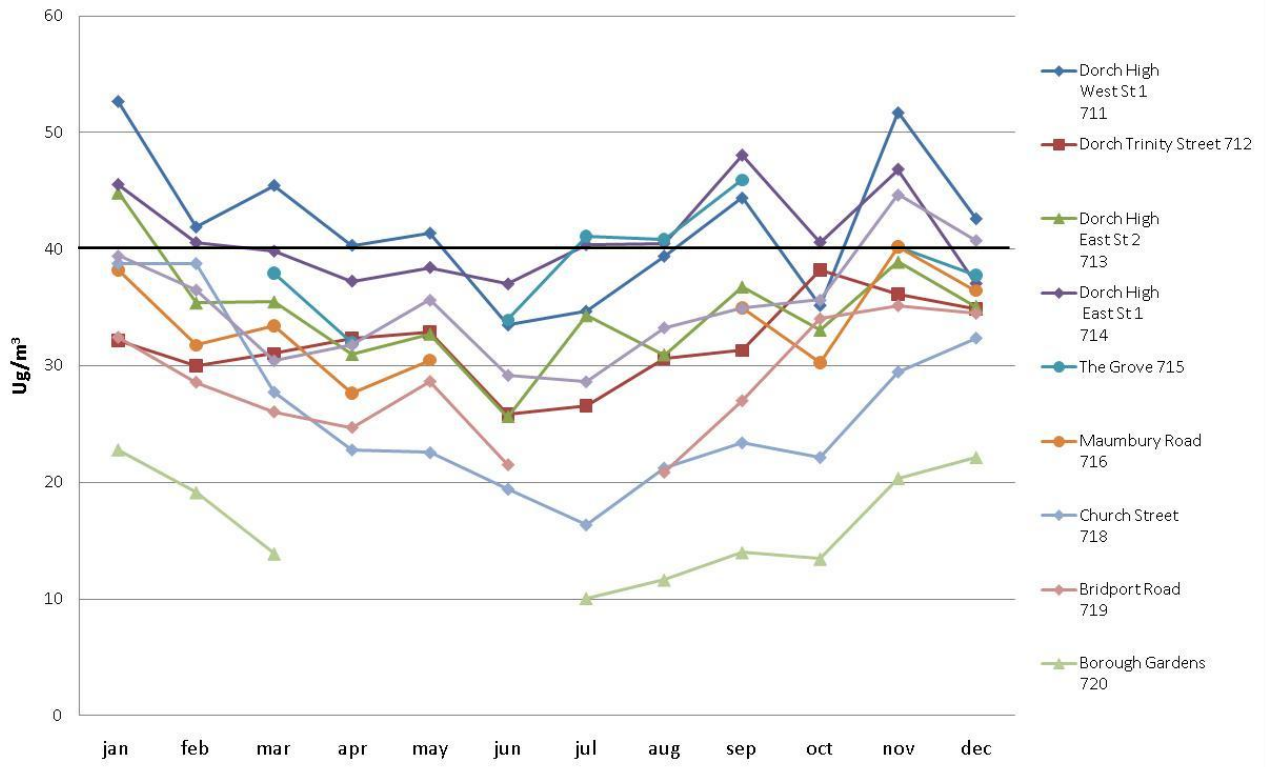
The diffusion tube monitoring programme follows the NETCEN methodology. Diffusion Tubes are supplied and analysed by Gradko International Limited, who are UKAS accredited. Gradko International Limited, supply and analyse the diffusion tubes, which are a preparation of 50% TEA (triethanolamine) / Acetone. The tubes are handled in accordance with the instructions within Technical Guidance LAQM.TG (09) Box A1.7.

Gradko International demonstrated a satisfactory performance, rating good, in the Workplace Analysis Scheme for Proficiency (WASP) for analysis of NO<sub>2</sub> diffusion tubes, October 2009 – October 2010.

## Appendix B: 2010 Monthly NO<sub>2</sub> Diffusion Tube Results



2010 Monthly NO<sub>2</sub> Results for Dorchester (not bias adjusted)



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## Appendix C: Detailed Assessment for Bridport & Chideock

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