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2012 Air Quality Updating and Screening Assessment for Wychavon District Council

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

June 2012

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Executive Summary

This report presents the findings of Wychavon District Council's Updating and Screening Assessment (USA) of air quality within the district. The USA evaluates new and changed sources to identify those that may give rise to a risk of an exceedence of an air quality objective. Results from monitoring within the district are also presented and evaluated in relation to the objectives; the likelihood of an exceedence at relevant locations is discussed, as is the requirement to proceed to a Detailed Assessment.

Previous Review and Assessments have concluded that concentrations of carbon monoxide, benzene, 1,3-butadiene, lead, sulphur dioxide and PM₁₀ are compliant with the relevant objectives. An Air Quality Management Area (AQMA) has however been declared within Port Street, Evesham for exceedences of the annual mean nitrogen dioxide objective.

Monitoring data for 2011 confirm that there are no locations of relevant exposure where concentrations exceed the annual mean nitrogen dioxide objective, even within the AQMA. Consequently, there is no requirement to proceed to a Detailed Assessment.

The USA has not identified any significant changes in emissions sources within the Wychavon District Council area.

Table of contents

1	Introduction	1
1.1	Description of Local Authority Area	1
1.2	Purpose of Report.....	1
1.3	Air Quality Objectives	1
1.4	Summary of Previous Review and Assessments.....	3
2	New Monitoring Data	5
2.1	Summary of Monitoring Undertaken.....	5
2.1.1	Automatic Monitoring Sites	5
2.1.2	Non-Automatic Monitoring Sites	5
2.2	Comparison of Monitoring Results with AQ Objectives.....	10
2.2.1	Nitrogen Dioxide	10
2.2.1	PM ₁₀	17
2.2.2	Sulphur Dioxide.....	17
2.2.3	Benzene.....	17
2.2.4	Other pollutants monitored	17
2.2.5	Summary of Compliance with AQS Objectives	18
3	Road Traffic Sources	19
3.1	Narrow Congested Streets with Residential Properties Close to the Kerb	19
3.2	Busy Streets Where People May Spend 1-hour or More Close to Traffic.....	19
3.3	Roads with a High Flow of Buses and/or HGVs.	19
3.4	Junctions.....	20
3.5	New Roads Constructed or Proposed Since the Last Round of Review and Assessment 20	
3.6	Roads with Significantly Changed Traffic Flows.....	20
3.7	Bus and Coach Stations	20
4	Other Transport Sources.....	22
4.1	Airports.....	22
4.2	Railways (Diesel and Steam Trains)	22
4.2.1	Stationary Trains.....	22
4.2.2	Moving Trains	22
4.3	Ports (Shipping)	23
5	Industrial Sources.....	24
5.1	Industrial Installations	24
5.1.1	New or Proposed Installations for which an Air Quality Assessment has been Carried Out	24
5.1.2	Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced	24
5.1.3	New or Significantly Changed Installations with No Previous Air Quality Assessment...	25

5.2	Major Fuel (Petrol) Storage Depots	25
5.3	Petrol Stations.....	25
5.4	Poultry Farms.....	25
6	Commercial and Domestic Sources	27
6.1	Biomass Combustion – Individual Installations	27
6.2	Biomass Combustion – Combined Impacts.....	27
6.3	Domestic Solid-Fuel Burning	27
7	Fugitive or Uncontrolled Sources.....	29
8	Conclusions and Proposed Actions.....	30
8.1	Conclusions from New Monitoring Data	30
8.2	Conclusions from Assessment of Sources	30
8.3	Proposed Actions.....	30
9	References.....	31

List of Tables

- Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England
- Table 2.1 Details of Nitrogen Dioxide Diffusion Tube Monitoring Sites
- Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2011 (Bias Adjusted)
- Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes, 2006 to 2011 (Bias Adjusted)

List of Figures

- Figure 1.1 Port Street, Evesham AQMA Boundary
- Figure 2.1 Non-Automatic Monitoring Sites in Evesham
- Figure 2.2 Non-Automatic Monitoring Sites in Pershore
- Figure 2.3 Non-Automatic Monitoring Sites in Whittington and Norton
- Figure 2.4 Non-Automatic Monitoring Sites in Droitwich
- Figure 2.5 Non-Automatic Monitoring Sites in Wychbold
- Figure 2.6 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites in Outside Evesham
- Figure 2.7 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites around Swan Lane, Evesham
- Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites around Port Street, Evesham

Appendices

- Appendix A: QA/QC of Diffusion Tube Data

1 Introduction

1.1 Description of Local Authority Area

Wychavon District Council lies on the river plain of the Avon between the Cotswold Hills to the south and the Birmingham plateau to the north. The District covers 260 square miles, with a population of 116,900 living in the towns of Droitwich, Evesham, Pershore and nearly 100 villages and hamlets. The district is relatively flat having isolated hills, most notably, Bredon Hill, 6km south of Pershore.

Wychavon has boundaries with Worcester City, Redditch Borough, Tewkesbury, Wyre Forest, Bromsgrove, Stratford-on-Avon, Cotswold and Malvern Hills District Councils.

The M5 motorway runs north/south on the western side of the district, generally through rural areas away from residential properties, with the exception of a section adjacent to Droitwich and Wychbold.

In the District there are four A2 permitted installations, 2 brickworks, 2 printers and 61 Part B installations. None give rise to exceedences of any of the objectives.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the

objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	$16.25\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	$5.0\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	$2.25\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	$10.0\text{mg}/\text{m}^3$	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
Particles (PM_{10}) (gravimetric)	$50\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	$40\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	$350\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	$125\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	$266\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Wychavon District Council's concluded during the first and second rounds of Review and Assessment that it was unlikely there would be any exceedences of any of the objectives, and it was not necessary for a Detailed Assessment to be carried out.

The Updating and Screening Assessment (USA) completed in April 2006, found that it was necessary to proceed to a Detailed Assessment for nitrogen dioxide at two locations in Evesham (Port Street and Swan Street), and for PM₁₀ at Walton Lane, Hartlebury.

The Detailed Assessment concluded that an AQMA was not required in Swan Lane, but that monitoring should continue to identify any changes. An AQMA was however required for exceedences of the annual mean nitrogen dioxide objective in Port Street, Evesham, and consequently, this was declared for an area along the length of Port Street, between Waterside and Shor Street (Figure 1.1). Concentrations of PM₁₀ in Hartlebury were found not to exceed the daily or annual mean objectives, and an AQMA was not required.

The Further Assessment carried out for Port Street confirmed that the AQMA was required and an Action Plan was subsequently prepared.

The Progress Reports prepared in 2007 and 2008 did not identify any significant changes, or the requirement for a Detailed Assessment, however, a decision was made to carry out Detailed Assessments for hotspots in Whittington and Wychbold. Additional monitoring was established on the façades of worst-case properties within Whittington and Wychbold, and this confirmed that concentrations are below the annual mean nitrogen dioxide objective. The Detailed Assessment confirmed that no further AQMAs were required, however monitoring continued.

The fourth round and Review and Assessment did not identify any new locations or sources of pollutants requiring Detailed Assessment, and no new AQMAs were declared.

Copies of Review and Assessment Reports are available on the Wychavon DC website¹.

¹ www.wychavon.gov.uk/cms/business/pollution/air-quality.aspx

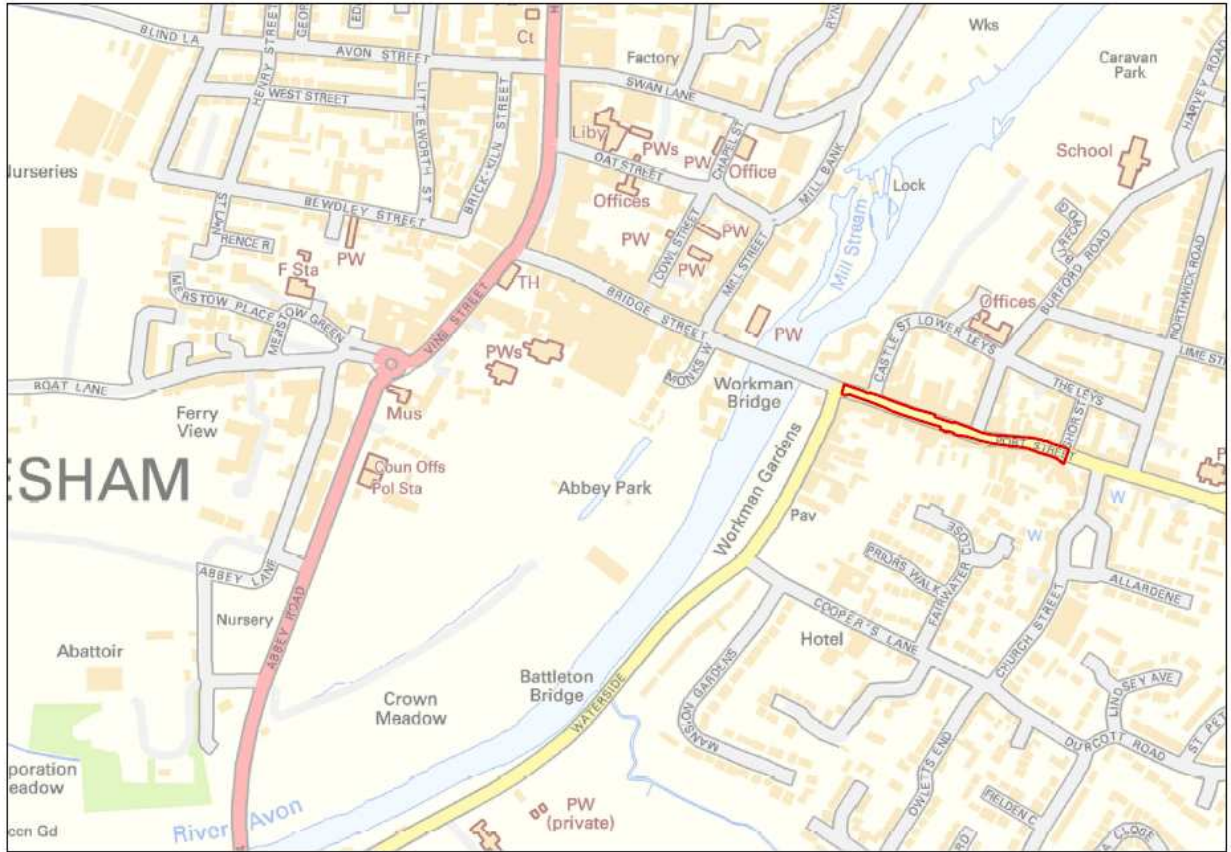


Figure 1.1 Port Street, Evesham AQMA Boundary Contains Ordnance Survey data © Crown copyright and database right [2012]

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Wychavon District Council does not carry out any automatic monitoring.

2.1.2 Non-Automatic Monitoring Sites

During 2011, Wychavon District Council monitored annual mean nitrogen dioxide concentrations using passive diffusion tubes at forty-one locations across its area (Figures 2.1 – 2.5). Table 2.1 provides details of each of the monitoring sites.

The diffusion tubes are prepared and analysed by Gradko using the 20% TEA in water method. Tubes are changed on a monthly basis. Further details of the diffusion tube QA/QC is presented in Appendix A.

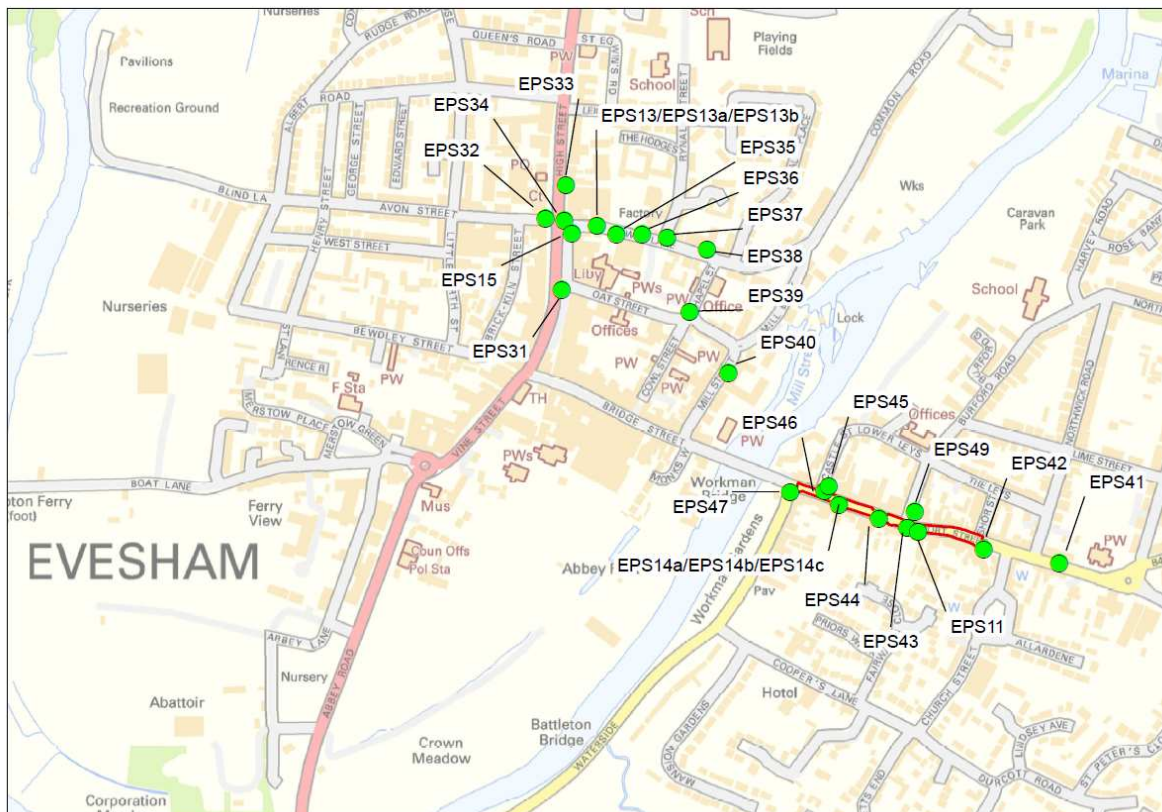


Figure 2.1 Non-Automatic Monitoring Sites in Evesham

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Figure 2.2 Non-Automatic Monitoring Sites in Pershore

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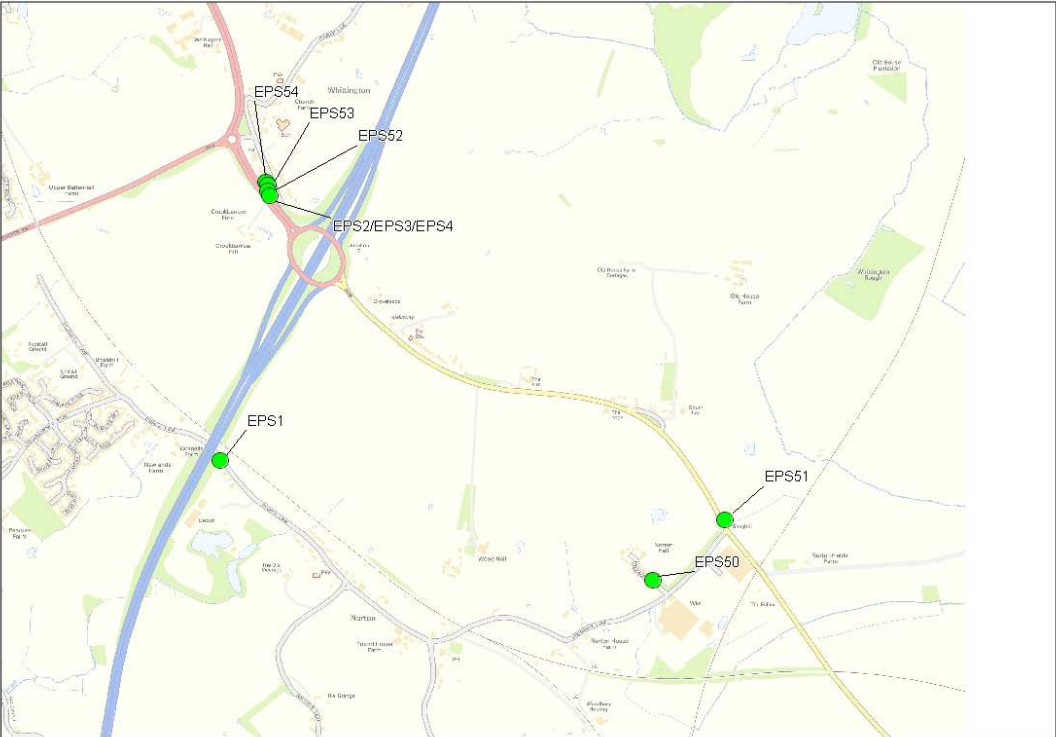


Figure 2.3 Non-Automatic Monitoring Sites in Whittington and Norton

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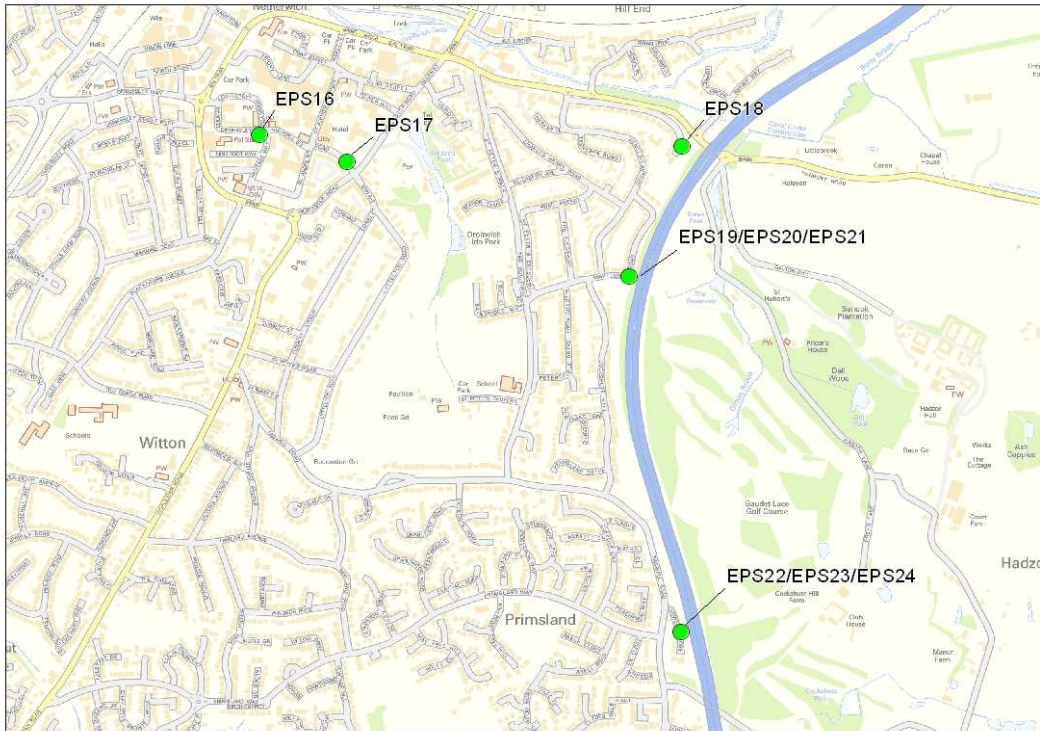


Figure 2.4 Non-Automatic Monitoring Sites in Droitwich

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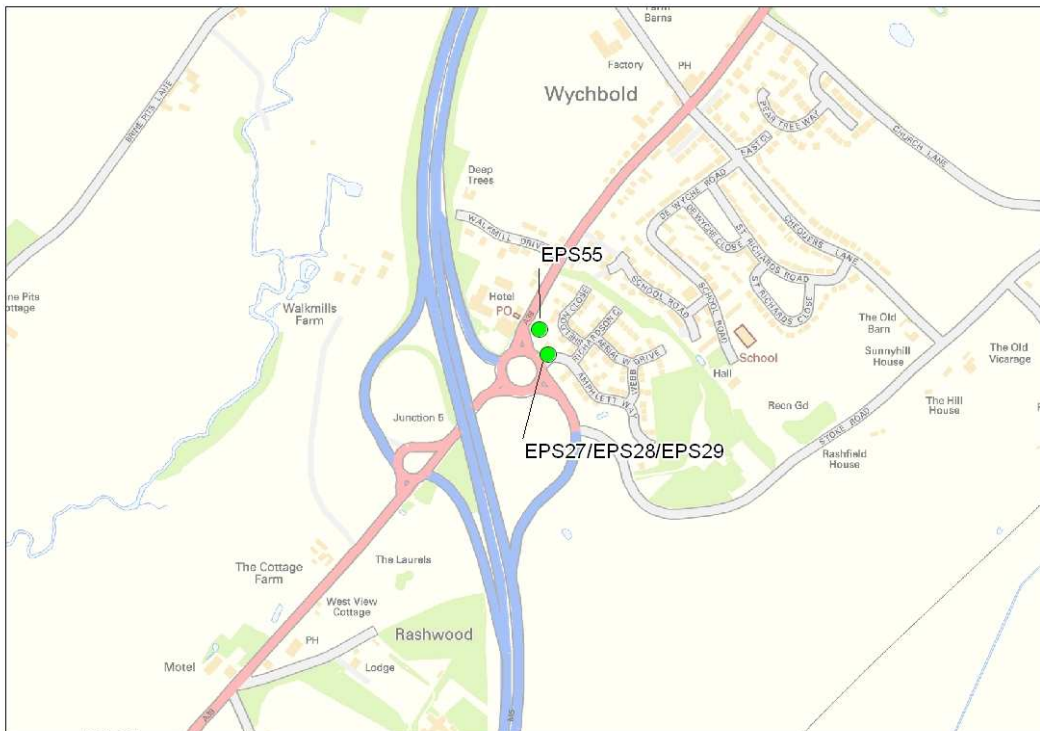


Figure 2.5 Non-Automatic Monitoring Sites in Wychbold

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Table 2.1 Details of Nitrogen Dioxide Diffusion Tube Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	In AQMA?	Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
Whittington									
EPS2/3/4	Nr Swan Whittington	Roadside	387602	252494	N	N	Y (11m)	2.0m	Y
EPS52	The Bungalow Whittington	Façade	387598	252511	N	N	Y	12m	Y
EPS53	Hillview Cottage Whittington	Façade	387595	252533	N	N	Y	22m	Y
EPS54	Green Rise Whittington	Façade	387591	252541	N	N	Y	24m	Y
Pershore									
EPS6	Civic Centre Pershore	Urban Background	394703	246308	N	N	N	2.0m	N
EPS7	High St Pershore	Roadside	394850	246065	N	N	N	2.0m	Y
EPS8	40 High St Pershore	Roadside	395048	245527	N	N	Y (2m)	0.5m	Y
EPS9	St Andrews Rd Pershore	Urban Background	394571	245377	N	N	Y (6m)	1.5m	N
EPS10	Broad St Pershore	Roadside	394981	245735	N	N	N	3.0m	Y
Droitwich									
EPS16	Ombersley St Droitwich	Roadside	389739	263219	N	N	N	2.0m	Y
EPS17	St Andrews Road Droitwich	Roadside	389970	263149	N	N	N	2.0m	Y
EPS18	Hanbury Road Droitwich	Kerbside	390854	263188	N	N	Y (7m) 40m M5	0.5m	Y
EPS19/20/21	Mayflower Rd Droitwich	Roadside	390715	262846	N	N	Y (14m) 36m M5	1.0m	Y
EPS22/23/24	Tagwell Cl Droitwich	Roadside	390853	261909	N	N	Y (15m) 36m M5	1.0m	Y
Wychbold									
EPS27/28/29	Worcester Rd Wychbold	Roadside	392031	265624	N	N	Y (15.5m) 140m M5	2.5m	Y
EPS55	6 Sheldon Close Wychbold	Façade	392017	265665	N	N	Y	17m 145m M5	Y
Norton									
EPS1	Church Lane Norton	Kerbside	387433	251583	N	N	Y (10m) 69m M5	0.5m	Y
EPS50	Merryfields House Norton	Façade	388924	251173	N	N	Y (0m)	76m	Y
EPS51	Sangia Norton	Façade	389171	251380	N	N	Y (0m)	13m	Y

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Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	In AQMA?	Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
Evesham									
EPS13/a/b	Swan Lane Evesham	Kerbside	403796	244013	N	N	Y (1m)	0.3m	Y
EPS15	High Street Evesham	Kerbside	403761	244002	N	N	N	1.0m	Y
EPS31	High Street Evesham	Kerbside	403747	243925	N	N	N	1.5m	Y
EPS32	Avon Street Evesham	Kerbside	403725	244023	N	N	Y (1m)	0.5m	Y
EPS33	High Street Evesham	Roadside	403753	244068	N	N	Y (2m)	1.0m	Y
EPS34	High Street Evesham	Roadside	403751	244020	N	N	N	2.0m	Y
EPS35	Swan Lane Evesham	Roadside	403822	244001	N	N	N	1.5m	Y
EPS36	Swan Lane Evesham	Roadside	403858	244001	N	N	N	1.5m	Y
EPS37	Cowl St Evesham	Roadside	403892	243996	N	N	Y (3m)	1.5m	Y
EPS38	Swan Lane Evesham	Roadside	403947	243980	N	N	Y (4m)	1.5m	Y
EPS39	Chapel St Evesham	Roadside	403923	243894	N	N	N	1.5m	Y
EPS40	Mill St Evesham	Roadside	403976	243811	N	N	Y (3.0m)	2.0m	Y
EPS11	Port St Evesham	Roadside	404237	243593	Y	N	Y (0m)	1.5m	Y
EPS14a/b/c	Port St Evesham	Kerbside	404128	243630	N	N	Y (1.7m)	0.3m	Y
EPS41	Port St Evesham	Roadside	404431	243550	Y	N	Y (2.7m)	1.5m	Y
EPS42	Port St Evesham	Roadside	404327	243569	Y	N	Y (3m)	2.0m	Y
EPS43	Port St Evesham	Roadside	404222	243598	Y	N	Y (0m)	1.5m	Y
EPS44	Port St Evesham	Roadside	404183	243611	Y	N	Y (2.6m)	1.5m	Y
EPS45	Castle St Evesham	Roadside	404114	243655	N	N	Y (6.5m)	1.5m	Y
EPS46	Castle St Evesham	Roadside	404108	243648	N	N	Y (3m)	1.5m	Y
EPS47	Waterside Evesham	Roadside	404061	243647	N	N	Y (11m)	0.5m	Y
EPS49	Burford Rd Evesham	Roadside	404232	243621	N	N	Y (0m)	1.5m	Y

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Wychavon District Council does not carry out any automatic monitoring.

Diffusion Tube Monitoring Data

Measured concentrations at the 41 diffusion tube monitoring sites in 2011 are presented in Table 2.2. Concentrations since 2006, at all sites where monitoring data are available, are presented in Table 2.3.

Data capture for a number of the diffusion tube sites was below 75%, and these data have been annualised following guidance in LAQM.TG(09). Further details are presented in Appendix A. The national bias adjustment factor has been applied to the diffusion tube data. Further details are provided in Appendix A.

Exceedences of the annual mean objective were measured at two sites during 2011, both of which lie outside of the existing AQMA. However, neither monitoring site is representative of relevant exposure; monitoring carried out in both locations on the façade of the closest relevant exposure confirms that the objective continues to be met.

In 2011, there were no measured exceedences within the AQMA, although concentrations approached the objective at a kerbside monitoring site in Port Street (EPS14a/b/c).

Between 2010 and 2011, concentrations have increased at all monitoring sites in Whittington and Wychbold. Concentrations in Pershore, Droitwich and Norton reduced at all but one of the monitoring sites. Within Evesham, concentrations in the Swan Lane area remained similar, whilst in the Port Street area and within the AQMA, concentrations reduced, with some significant reductions at a number of sites.

Figures 2.6 - 2.8 present data for those sites where at least five years of data are available. Overall, between 2006 and 2011, concentrations have remained fairly stable at the majority of long-term sites. In Droitwich, concentrations have increased slightly overall, whilst in Evesham there has been a slight decrease overall.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2011 (Bias Adjusted)

Site ID	Site Type	In AQMA?	Triplicate or Co-located?	Data Capture (Months)	2011 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)
Whittington					
EPS2/3/4	Roadside	N	Triplicate	12	52.1
EPS52	Façade	N	N	12	37.4
EPS53	Façade	N	N	12	32.6
EPS54	Façade	N	N	12	36.0
Pershore					
EPS6	Urban Background	N	N	12	18.2
EPS7	Roadside	N	N	11	25.6
EPS8	Roadside	N	N	12	27.3
EPS9	Urban Background	N	N	12	16.5
EPS10	Roadside	N	N	12	26.3
Droitwich					
EPS16	Roadside	N	N	4	23.4
EPS17	Roadside	N	N	12	27.1
EPS18	Kerbside	N	N	10	31.8
EPS19/20/21	Roadside	N	Triplicate	12	39.2
EPS22/23/24	Roadside	N	Triplicate	12	32.6
Wychbold					
EPS27/28/29	Roadside	N	Triplicate	12	52.2
EPS55	Façade	N	N	11	32.1
Norton					
EPS1	Kerbside	N	N	11	28.8
EPS50	Façade	N	N	12	15.9
EPS51	Façade	N	N	12	19.4
Evesham					
EPS13/a/b	Kerbside	N	Triplicate	12	34.4
EPS15	Kerbside	N	N	11	29.9
EPS31	Kerbside	N	N	4	23.6
EPS32	Kerbside	N	N	11	36.7
EPS33	Roadside	N	N	12	29.8
EPS34	Roadside	N	N	12	33.6
EPS35	Roadside	N	N	10	31.4
EPS36	Roadside	N	N	12	23.6
EPS37	Roadside	N	N	11	23.9
EPS38	Roadside	N	N	12	24.7
EPS39	Roadside	N	N	11	22.4
EPS40	Roadside	N	N	12	23.6
EPS11	Roadside	Y	N	6	34.7
EPS14a/b/c	Kerbside	Y	Triplicate	12	39.4
EPS41	Roadside	Y	N	11	29.7
EPS42	Roadside	Y	N	10	26.6
EPS43	Roadside	Y	N	12	32.9
EPS44	Roadside	Y	N	12	31.6
EPS45	Roadside	N	N	12	26.1
EPS46	Roadside	N	N	12	30.8
EPS47	Roadside	N	N	12	32.3
EPS49	Roadside	N	N	6	24.4
Objective					40

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes, 2006 to 2011 (Bias Adjusted)

Site ID	Site Type	In AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)					
			2006 [0.98]	2007 [0.89]	2008 [0.92]	2009 [0.90]	2010 [0.95]	2011 [0.89]
Whittington								
EPS2/3/4	Roadside	N	-	52.5	54.2	48.6	52.1	52.1
EPS52	Façade	N	-	-	-	34.3	23.4	37.4
EPS53	Façade	N	-	-	-	25.4	30.1	32.6
EPS54	Façade	N	-	-	-	30.8	31.0	36.0
Pershore								
EPS6	Urban Background	N	-	21.8	22.5	19.7	23.4	18.2
EPS7	Roadside	N	-	27.9	28.5	27.8	30.1	25.6
EPS8	Roadside	N	-	32.8	31.4	23.2	31.0	27.3
EPS9	Urban Background	N	-	17.2	16.9	17.0	36.1	16.5
EPS10	Roadside	N	-	26.9	30.3	27.7	19.7	26.3
Droitwich								
EPS16	Roadside	N	-	31.0	31.1	28.9	31.1	23.4
EPS17	Roadside	N	-	25.6	30.5	27.8	29.0	27.1
EPS18	Kerbside	N	-	29.4	30.1	28.7	36.1	31.8
EPS19/20/21	Roadside	N	-	33.6	38.9	36.5	39.5	39.2
EPS22/23/24	Roadside	N	-	30.8	32.8	34.6	35.7	32.6
Wychbold								
EPS27/28/29	Roadside	N	-	51.4	54.5	46.3	48.5	52.2
EPS55	Façade	N	-	-	-	29.3	33.4	32.1
Norton								
EPS1	Kerbside	N	-	33.2	31.7	26.5	34.3	28.8
EPS50	Façade	N	-	-	19.2	19.4	22.9	15.9
EPS51	Façade	N	-	-	21.8	18.4	26.9	19.4
Evesham								
EPS13/a/b	Kerbside	N	39.6	39.5	33.8	32.1	32.1	34.4
EPS15	Kerbside	N	43.3	38.0	26.9	24.6	24.6	29.9
EPS31	Kerbside	N	37.5	38.0	23.7	22.8	22.8	23.6
EPS32	Kerbside	N	30.6	30.9	24.9	24.6	24.6	36.7
EPS33	Roadside	N	36.3	33.4	22.7	21.6	21.6	29.8
EPS34	Roadside	N	34.9	34.8	37.5	33.8	33.8	33.6
EPS35	Roadside	N	31.0	30.6	30.5	30.5	30.5	31.4
EPS36	Roadside	N	24.8	28.0	26.9	24.6	24.6	23.6
EPS37	Roadside	N	23.7	23.8	23.7	22.8	22.8	23.9
EPS38	Roadside	N	26.0	27.9	24.9	24.6	24.6	24.7
EPS39	Roadside	N	24.9	22.8	22.7	21.6	21.6	22.4
EPS40	Roadside	N	26.9	25.4	26.9	23.7	23.7	23.6
EPS11	Roadside	Y	-	37.0	38.1	34.3	46.9	34.7
EPS14a/b/c	Kerbside	Y	44.3	39.5	41.8	41.5	42.4	39.4

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EPS41	Roadside	Y	31.8	34.7	36.1	30.7	38.4	29.7
EPS42	Roadside	Y	32.7	30.7	38.2	27.8	32.5	26.6
EPS43	Roadside	Y	40.0	34.5	36.8	34.9	42.4	32.9
EPS44	Roadside	Y	40.0	36.8	36.7	34.1	38.0	31.6
EPS45	Roadside	N	26.9	27.7	27.3	25.7	28.8	26.1
EPS46	Roadside	N	29.1	28.5	28.6	28.4	30.8	30.8
EPS47	Roadside	N	35.9	31.4	30.0	30.0	38.1	32.3
EPS49	Roadside	N	29.2	29.9	21.8	29.3	33.6	24.4
Objective			40	40	40	40	40	40

Figure 2.6 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites Outside Evesham

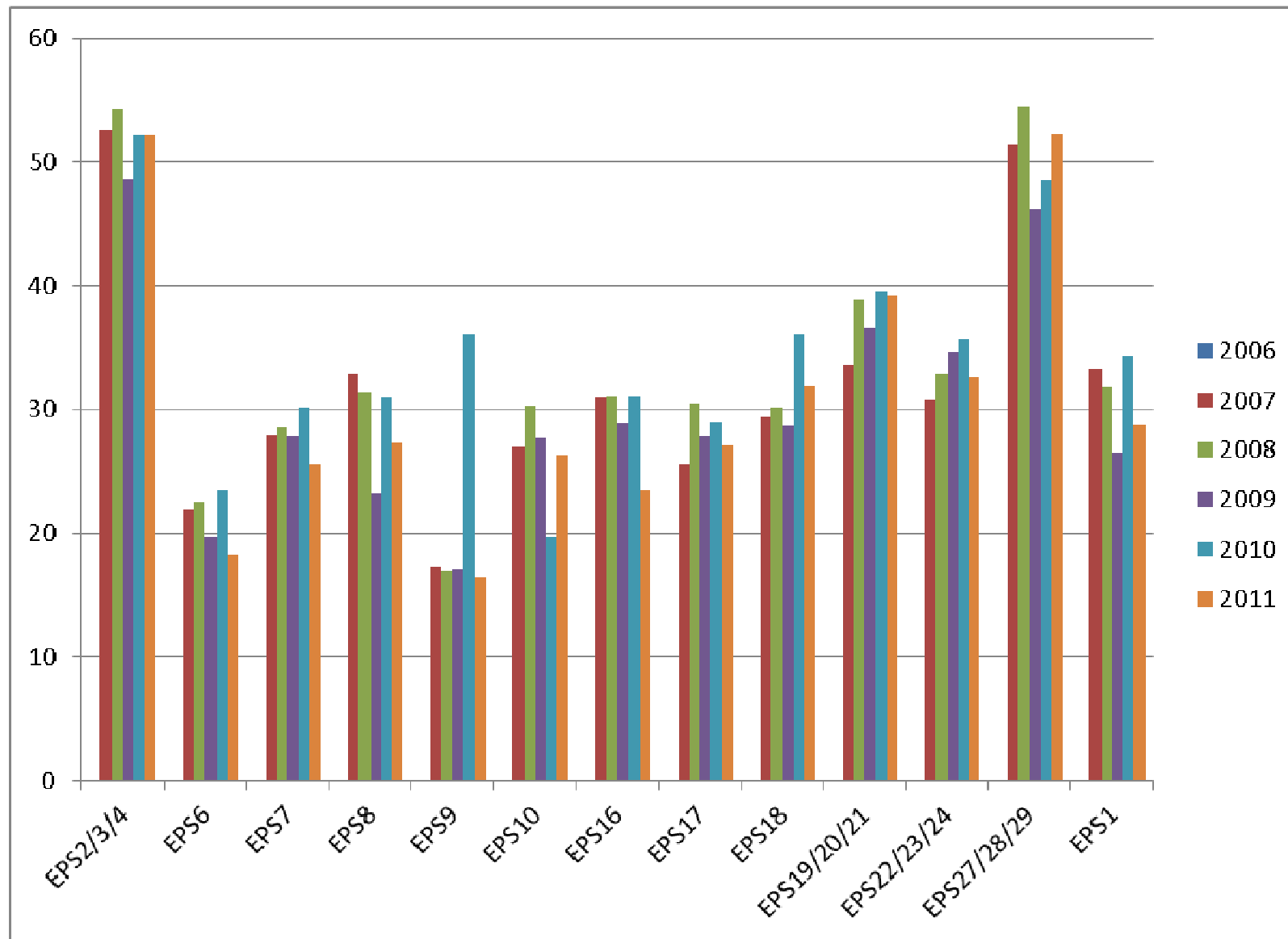


Figure 2.7 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites around Swan Lane, Evesham

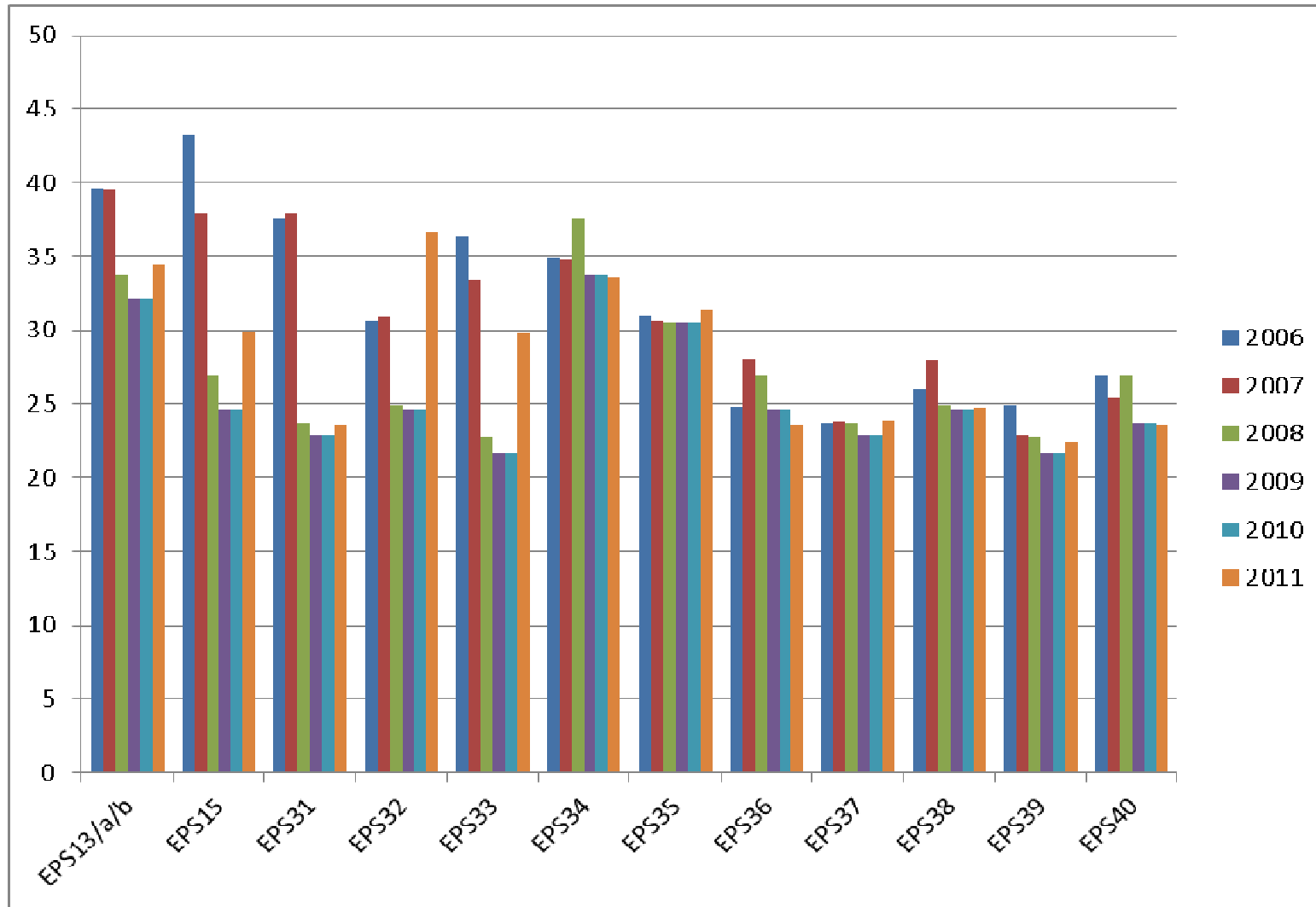
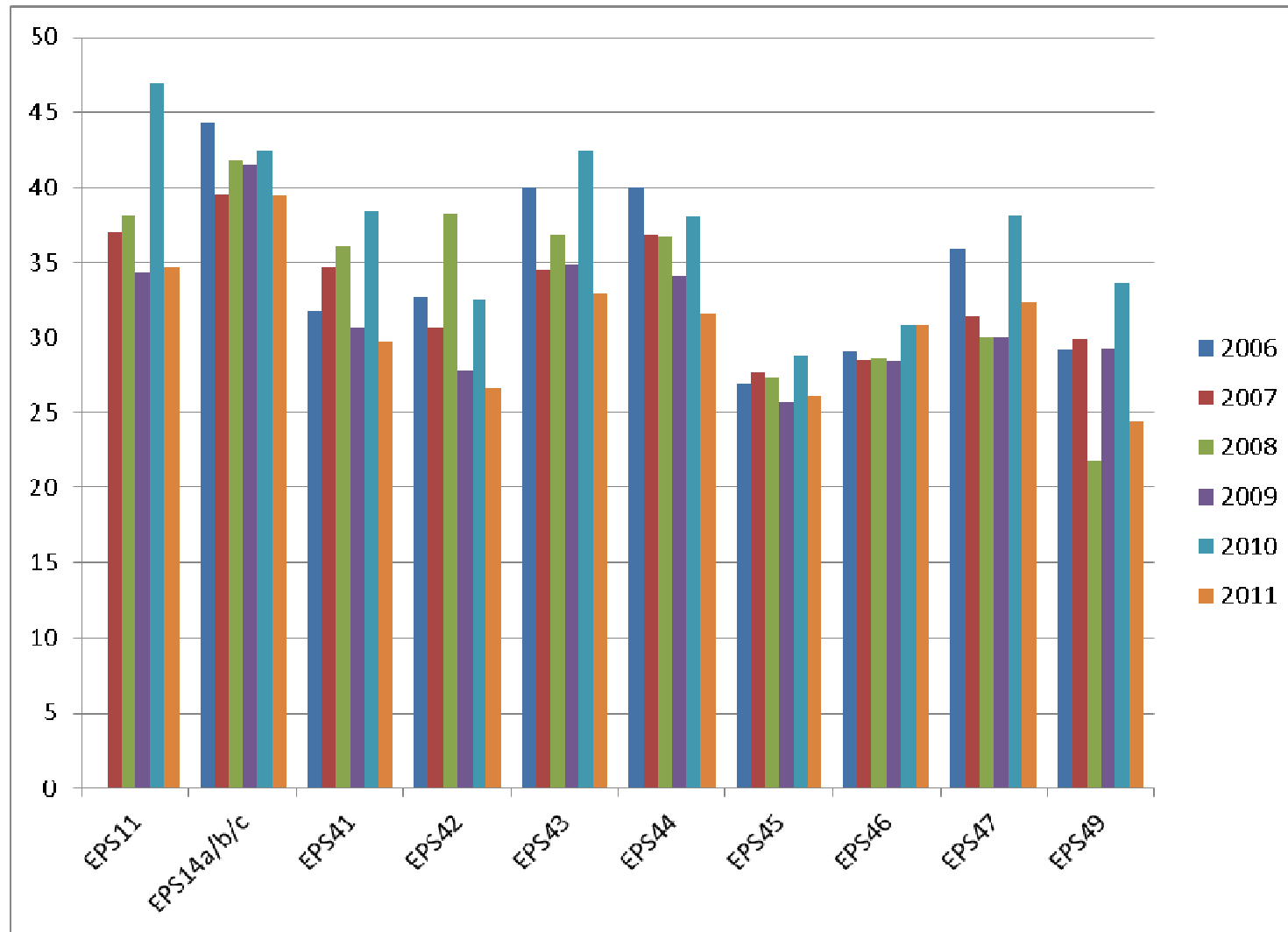


Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites around Port Street, Evesham



2.2.1 PM₁₀

PM₁₀ is not monitored within the Wychavon District Council area.

2.2.2 Sulphur Dioxide

Sulphur Dioxide is not monitored within the Wychavon District Council area.

2.2.3 Benzene

Benzene is not monitored within the Wychavon District Council area.

2.2.4 Other pollutants monitored

No other pollutants are monitored within the Wychavon District Council area.

2.2.5 Summary of Compliance with AQS Objectives

Wychavon District Council has examined the results from monitoring within the district. Concentrations at relevant locations are below the objectives, including within the AQMA. There is therefore no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

The criteria for assessing narrow congested streets are set out in Section A.1 of Box 5.3, LAQM.TG(09). Port Street, Evesham was identified in previous rounds of Review and Assessment, and lies within the AQMA declared. No additional narrow congested streets have been identified or created within the Wychavon DC area.

Wychavon District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

The criteria for assessing busy streets relevant for the hourly nitrogen dioxide objective are set out in Section A.2 of Box 5.3, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. Busy streets where people may spend 1-hour or more close to traffic were considered in previous Updating and Screening Assessments, and no new locations have subsequently been identified.

Wychavon District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

The criteria for assessing roads with high flows of buses and/ or HGVs are set out in Section A.3 of Box 5.3, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. Roads with high flows of buses and/ or HGVs were considered in previous Updating and Screening Assessments, and no new locations have subsequently been identified.

Wychavon District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

The criteria for assessing junctions are set out in Section A.4 of Box 5.3, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. The 2009 Updating and Screening Assessment did not identify any junctions requiring assessment. No new busy junctions have subsequently been identified.

Wychavon District Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

The criteria for assessing new roads are set out in Section A.5 of Box 5.3, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. A consultation with Worcestershire County Council Highways has confirmed that there have been no major new roads constructed or proposed since the 2009 Updating and Screening Assessment.

Wychavon District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

The criteria for assessing roads with significant increases in traffic flows are set out in Section A.6 of Box 5.3, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. A consultation with Worcestershire County Council Highways has confirmed that there have been no significant changes to traffic flows on existing roads in the district.

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

3.7 Bus and Coach Stations

The criteria for assessing bus and coach stations are set out in Section A.7 of Box 5.3, LAQM.TG(09). Previous Updating and Screening Assessments have concluded that there are no bus stations within the District with more than 2,500 daily

Wychavon District Council

movements or with relevant exposure within 10m. Wychavon District Council has confirmed that there have been no significant changes.

Wychavon District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

The criteria for assessing airports are set out in Section B.1 of Box 5.4, LAQM.TG(09). There are no airports within the Wychavon District.

Wychavon District Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

The criteria for assessing railways (diesel and steam trains) are set out in Section B.2 of Box 5.4, LAQM.TG(09).

4.2.1 Stationary Trains

The 2009 Updating and Screening Assessment did not identify any locations where diesel locomotives were stationary for more than 15 minutes on a regular basis. There has been no change to this position. Two developments, in Offenham Road, Evesham and Chawson Lane, Salwarpe will need to be considered in future reports.

Wychavon District Council confirms that there are no existing locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

None of the rail lines identified in Table 5.1 of LAQM.TG(09) as carrying large numbers of movements of diesel locomotives travel through the Wychavon area.

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

4.3 Ports (Shipping)

The criteria for assessing ports (shipping) are set out in Section B.3 of Box 5.4, LAQM.TG(09). Wychavon is located inland and there is therefore no significant shipping to consider.

Wychavon District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

The criteria for assessing industrial installations are set out in Section C.1 of Box 5.5, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. There have been no new industrial installations within the Wychavon District Council area since the 2009 USA was completed, and there are currently no proposals for any significant installations.

Wychavon Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Data provided by the Environment Agency show that Pershore Poultry Farm, Long Lane, Throckmorton, was permitted to increase PM₁₀ emissions by over 100% in 2009 relative to previous years. The farm is now permitted to release over 12,000kg PM₁₀ per year. There are no residential properties within 100m of this farm, and therefore the increase does not require further consideration. The data for the period 2008 to 2010 confirms that there were no other significant changes to emissions from Part A installations which they regulate within the Worcestershire area. Wychavon District Council is not aware of any other industrial installations which have significantly increased their emissions, and no new exposure has been introduced nearby to any existing installations.

Wychavon District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

There have been no new industrial installations within the Wychavon District Council area since the 2009 USA was completed, and there are currently no proposals for any significant installations.

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

5.2 Major Fuel (Petrol) Storage Depots

The criteria for assessing major fuel (petrol) storage depots are set out in Section C.2 of Box 5.5, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. Previous Review and Assessment reports have not identified any major fuel storage depots; Wychavon District Council has confirmed that this continues to be the case.

Wychavon District Council confirms that there are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

The criteria for assessing petrol stations are set out in Section C.3 of Box 5.5, LAQM.TG(09) and are unchanged from previous rounds of Review and Assessment. Wychavon District Council confirmed in the 2009 USA that there are no petrol stations meeting the criteria requiring assessment. Since then, no new petrol stations have been installed.

Wychavon District Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

The criteria for assessing poultry farms are set out in Section C.4 of Box 5.5, LAQM.TG(09); this was a new consideration for the 2009 Updating and Screening

Wychavon District Council

Assessment. The 2009 USA stated that there were no poultry farms meeting the criteria requiring an assessment; this position remains unchanged.

Wychavon District Council confirms that there are no poultry farms within the Wychavon District area.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

The criteria for assessing biomass combustion (individual installations) are set out in Section D.1a of Box 5.8, LAQM.TG(09). The 2009 USA did not identify any biomass boilers within the district. Since the 2009 USA, no biomass boilers have been installed.

Wychavon District Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

The criteria for assessing biomass combustion (combined impacts) are set out in Section D.1b of Box 5.8, LAQM.TG(09). The estimated average PM₁₀ background concentration in Wychavon in 2012 is 14.6µg/m³ (range 12.8 – 20.8µg/m³).

Using the nomograms provided in TG(09) and data provided in Table 5.3, and assuming a worst-case background of 21µg/m³ in a small town, emissions of at least 5000 kg PM₁₀ per year would be required in a square 500m by 500m in order for this type of emission source to be likely to lead to exceedence of the UK daily mean objective for PM₁₀. This is equivalent to over 180 households within a 500m by 500m grid square all burning wood in fireplaces as their primary fuel. Alternatively, there would need to be a minimum of 21,950m² of commercial floorspace (approximately equivalent to 9 large supermarkets) heated by biomass boilers within a 500m by 500m grid square all using wood as their primary fuel. Using this fact, and the findings of previous Review and Assessment reports, it is considered highly unlikely that there are any areas of biomass combustion exceeding these criteria.

Wychavon District Council confirms that there are unlikely to be combined impacts from biomass combustion in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

The criteria for assessing domestic solid-fuel burning are set out in Section D.2 of Box 5.8, LAQM.TG(09) and are unchanged from previous Review and Assessments. The 2009 USA concluded that there were no areas of significant domestic coal or

Wychavon District Council

smokeless fuel burning. There has not been a significant increase in domestic solid-fuel burning.

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

7 Fugitive or Uncontrolled Sources

The criteria for assessing fugitive or uncontrolled sources are set out in Section E.1 of Box 5.10, LAQM.TG(09) and are unchanged from previous Review and Assessments. The 2009 USA identified a proposed landfill site at the former Hartlebury quarry. This landfill site is now operational; there have been no dust complaints relating to its operation.

No additional potential fugitive or uncontrolled sources have been identified.

Wychavon District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Measured concentrations at all locations representative of relevant exposure were below the objectives in 2011, including within the Port Street AQMA. There is no need to proceed to a Detailed Assessment based on the results of monitoring within the Wychavon DC area.

A rationalisation of monitoring sites within the area was carried out in early 2012, and a number of locations were decommissioned. Twenty monitoring locations, where low results have been measured in recent years, the monitor was not representative of relevant exposure, the street furniture to which the monitor was attached has been removed, or where the site was one of a number in close proximity, were discontinued. Further details will be provided in the 2013 Progress Report.

8.2 Conclusions from Assessment of Sources

The Updating and Screening Assessment has not identified any significant changes to emissions sources within the Wychavon District Council area that will lead to a deterioration in air quality. There have been no new or significantly altered industrial processes, road, transport, commercial, domestic or fugitive sources of emissions for which more Detailed Assessment is required.

8.3 Proposed Actions

A Progress Report will be submitted to Defra in April 2013.

9 References

Defra (2009) Review & Assessment: Technical Guidance LAQM.TG(09), available at: <http://archive.defra.gov.uk/environment/quality/air/airquality/local/guidance/documents/tech-guidance-laqm-tg-09.pdf>

Defra (2012) Data Archive, available at: <http://uk-air.defra.gov.uk/data/>

Appendices

Appendix A: QA/QC of Diffusion Tube Data

Appendix A: QA/QC of Diffusion Tube Data

Diffusion Tube Bias Adjustment Factor

The national bias adjustment factor for diffusion tubes supplied and analysed by Gradko, 20% TEA in water for 2011 is 0.89. This factor is taken from spreadsheet version 03/12, and is based on 26 studies. This factor has been applied to all 2011 diffusion tube data presented in this report.

WASP

Gradko take part in the Workplace Analysis Scheme for Proficiency (WASP), operated by the Health and Safety Laboratory (HSL). During 2011, on average, 84.4% of samples were determined to have been satisfactory (1st quarter: 100%; 2nd quarter: 100%; 3rd quarter: 100%, 4th quarter: 37.5%).

Short-term to Long-term Data Adjustment (Annualisation)

Where diffusion tubes were lost during the year, resulting in less than 9 months of data, the resulting period mean is not directly comparable to the objective. Therefore, in accordance with the guidance set out in Box 3.2 of LAQM.TG(09), the data have been adjusted to an annual mean, based on the ratio of concentrations during the short-term monitoring period to those over the 2011 calendar year. This has utilised data from five background sites operated as part of the Automatic Urban and Rural Network (AURN) where long-term data are available.

The annual mean nitrogen dioxide concentrations and the period means for each of the five monitoring sites from which adjustment factors have been calculated are presented in the tables below, along with the Ratio applied.

Jan – April (EPS16, EPS31)

Site	Site Type	Annual Mean	Period Mean	Ratio
Aston Hill	Rural Background	5.2	7.3	0.712
Birmingham Tyburn	Urban Background	34.4	48.5	0.708
Coventry Memorial Park	Urban Background	17.2	23.7	0.726
Leamington Spa	Urban Background	21.1	26.0	0.810
Leominster	Suburban Background	9.6	14.8	0.645
			Average	0.720

Wychavon District Council

Jan – Feb, July, Sept – Nov (EPS11)

Site	Site Type	Annual Mean	Period Mean	Ratio
Aston Hill	Rural Background	5.2	5.5	0.946
Birmingham Tyburn	Urban Background	34.4	38.0	0.903
Coventry Memorial Park	Urban Background	17.2	19.6	0.878
Leamington Spa	Urban Background	21.1	24.3	0.868
Leominster	Suburban Background	9.6	11.2	0.856
			Average	0.890

Jan - June (EPS49)

Site	Site Type	Annual Mean	Period Mean	Ratio
Aston Hill	Rural Background	5.2	6.1	0.857
Birmingham Tyburn	Urban Background	34.4	39.5	0.871
Coventry Memorial Park	Urban Background	17.2	18.3	0.941
Leamington Spa	Urban Background	21.1	21.6	0.976
Leominster	Suburban Background	9.6	11.2	0.851
			Average	0.899