



2012 Air Quality Updating and Screening Assessment for Stratford-on-Avon District Council

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

August 2012

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Executive Summary

This report presents the findings of Stratford-on-Avon District Council's Updating and Screening Assessment (USA) of air quality within the Borough. The USA evaluates new and changed sources since the 2009 Updating and Screening Assessment to identify those that may give rise to a risk of an exceedance of an air quality objective. Results from monitoring within the Borough are also presented and evaluated in relation to the objectives. Where a risk of an exceedance is identified at a relevant location, the Council will 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. Air Quality Management Areas (AQMAs) have however been declared at two locations for exceedances of the annual mean nitrogen dioxide objective.

Long-term monitoring data shows that there have been significant improvements in air quality across the District over the last five years. Monitoring data for 2011 indicates that there are no longer any measured exceedances within the Stratford-upon-Avon AQMA; only two monitoring sites, both within the Studley AQMA, exceeded the annual mean objective in 2011.

The USA has not identified any significant increases in measured concentrations, or any significant changes in emissions sources within the Stratford-on-Avon District Council area. It will therefore not be necessary to proceed to a Detailed Assessment.

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1 Introduction

1.1 Description of Local Authority Area

Stratford-on-Avon is a mostly rural district and covers most of the southern half of Warwickshire. As well as Stratford-upon-Avon, the district also includes the towns of Alcester, Southam, and Shipston-on-Stour, and the large villages of Studley and Wellesbourne.

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 µg/m ³	Running annual mean	31.12.2003
	5.0 µg/m ³	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m ³	Running 8-hour mean	31.12.2003
Lead	0.5 µg/m ³	Annual mean	31.12.2004
	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m ³	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m ³	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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

During the first Round of Review and Assessment, Stratford-on-Avon District Council concluded that air quality across the District was good, and that there was no requirement to declare an Air Quality Management Area for any pollutant.

The 2003 Updating and Screening Assessment, prepared at the start of the second round of Review and Assessment identified one location, in Alcester Road, Studley, where the nitrogen dioxide objective may not be met. A Detailed Assessment was subsequently carried out in 2004, however, this concluded that the nitrogen dioxide objectives would not be exceeded in 2005 at any location within central Studley. An Air Quality Management Area was not therefore declared. Further monitoring in the area however confirmed that there were in fact exceedences of the annual mean objective during 2005, and an AQMA was declared in 2006 (Figure 1.1).

The 2006 Updating and Screening Assessment, prepared at the start of the third round of Review and Assessment, confirmed the findings of the second round. High nitrogen dioxide concentrations were measured in Wood Street, Stratford-upon-Avon and additional monitoring was established to investigate this.

The 2008 Progress Report considered monitoring data available since the 2006 Updating and Screening Assessment. The report concluded that there were exceedences of the annual mean nitrogen dioxide objective at relevant locations outside of the Studley AQMA. These locations were identified as Henley-in-Arden and Wood Street, Grove Road, Greenhill Street and Tiddington Road in Stratford-upon-Avon. The Council therefore proceeded to undertake a Detailed Assessment at these locations.

The 2008 Detailed Assessment concluded that AQMAs were required in both Henley-in-Arden and Stratford-upon-Avon. An AQMA was subsequently declared for Stratford-upon-Avon, and following the Further Assessment carried out in 2010, the area was expanded (Figure 1.2). An AQMA was not declared in Henley-in-Arden. The requirement for this AQMA is considered within this Updating and Screening Assessment.

The 2010 Progress Report concluded that there were no significant changes to air quality within the District, and that a Detailed Assessment was not necessary. A Progress Report was not submitted to Defra in 2011. This USA therefore takes account of the changes which have occurred since the 2010 Progress Report.

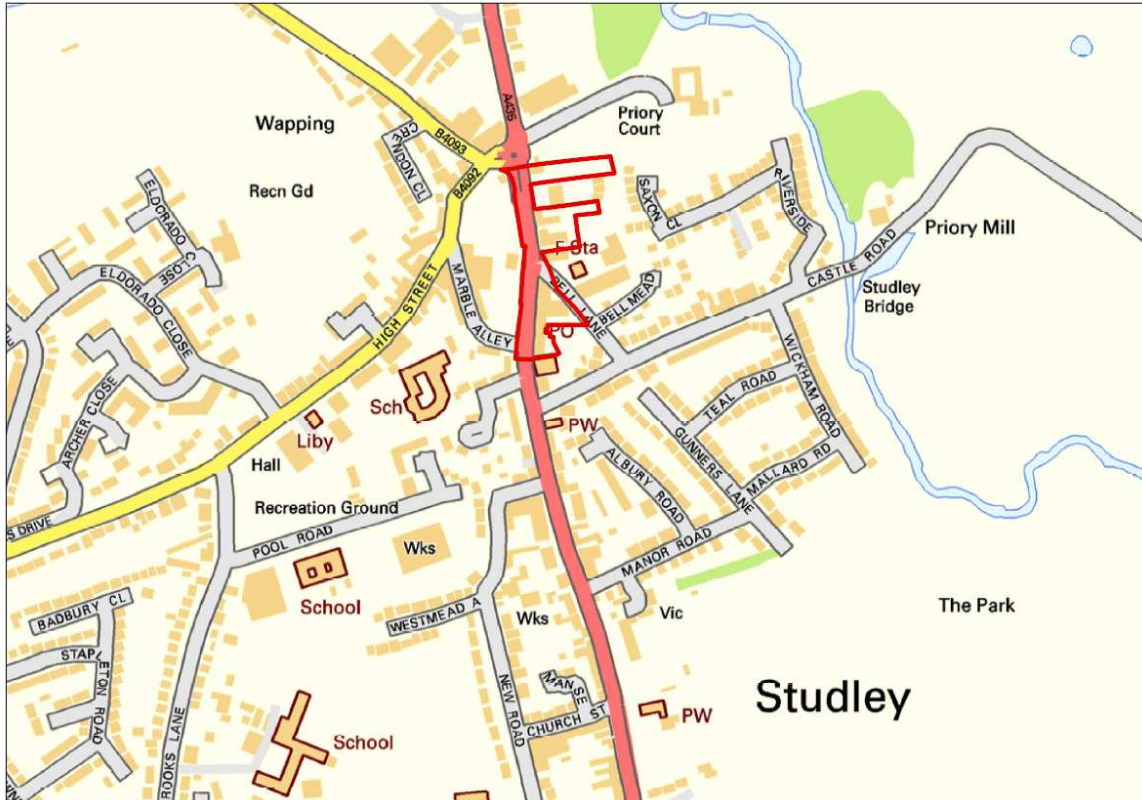


Figure 1.1 Studley AQMA Boundary Contains Ordnance Survey data © Crown copyright and database right [2012]

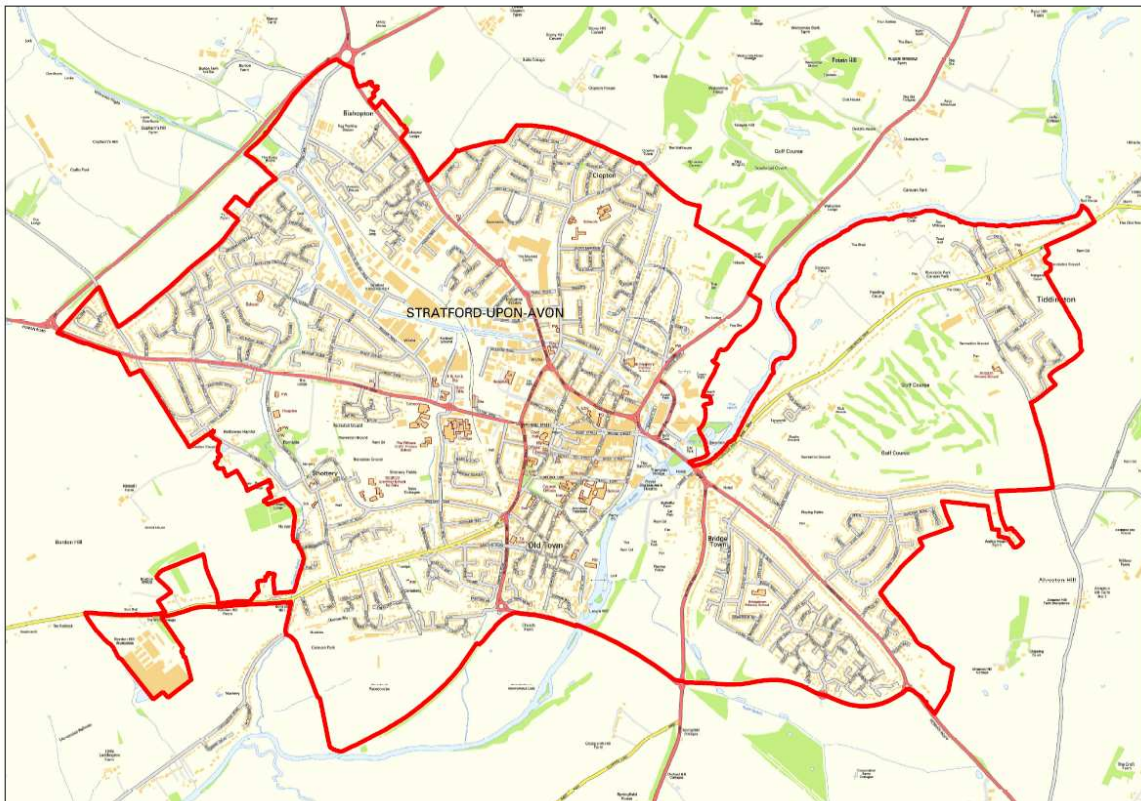


Figure 1.2 Stratford-upon-Avon AQMA Boundary Contains Ordnance Survey data © Crown copyright and database right [2012]

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Stratford-on-Avon District Council does not carry out any automatic monitoring.

2.1.2 Non-Automatic Monitoring Sites

This report presents monitoring data collected since 2007 for twenty-nine monitoring locations. During 2010 and 2011, Stratford-on-Avon District Council monitored annual mean nitrogen dioxide concentrations using passive diffusion tubes at twenty-three locations across its area (Figures 2.1 – 2.4). Table 2.1 provides details of each of the monitoring sites. Maps of decommissioned monitoring sites are provided in Appendix B.

The diffusion tubes are prepared and analysed by Kent Scientific Services 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.

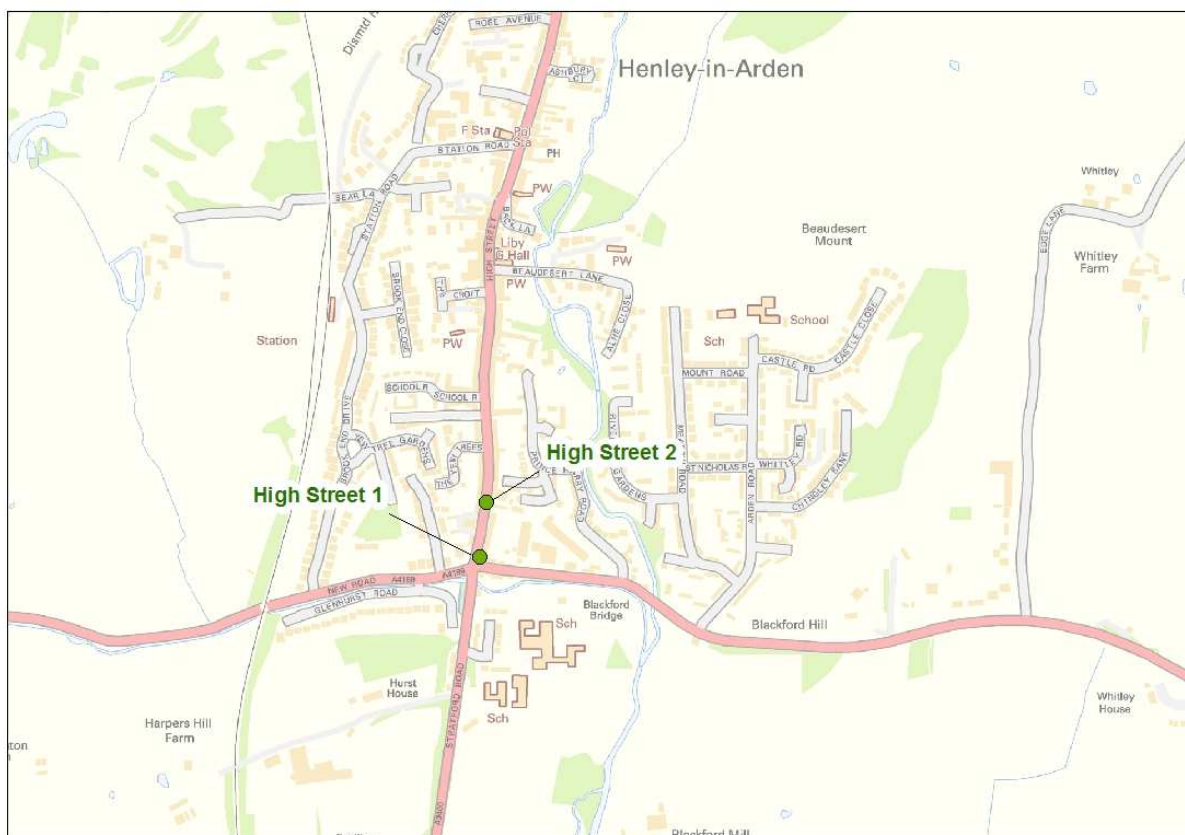


Figure 2.1 Diffusion Tube Monitoring Sites in Henley Contains Ordnance Survey data © Crown copyright and database right [2012]

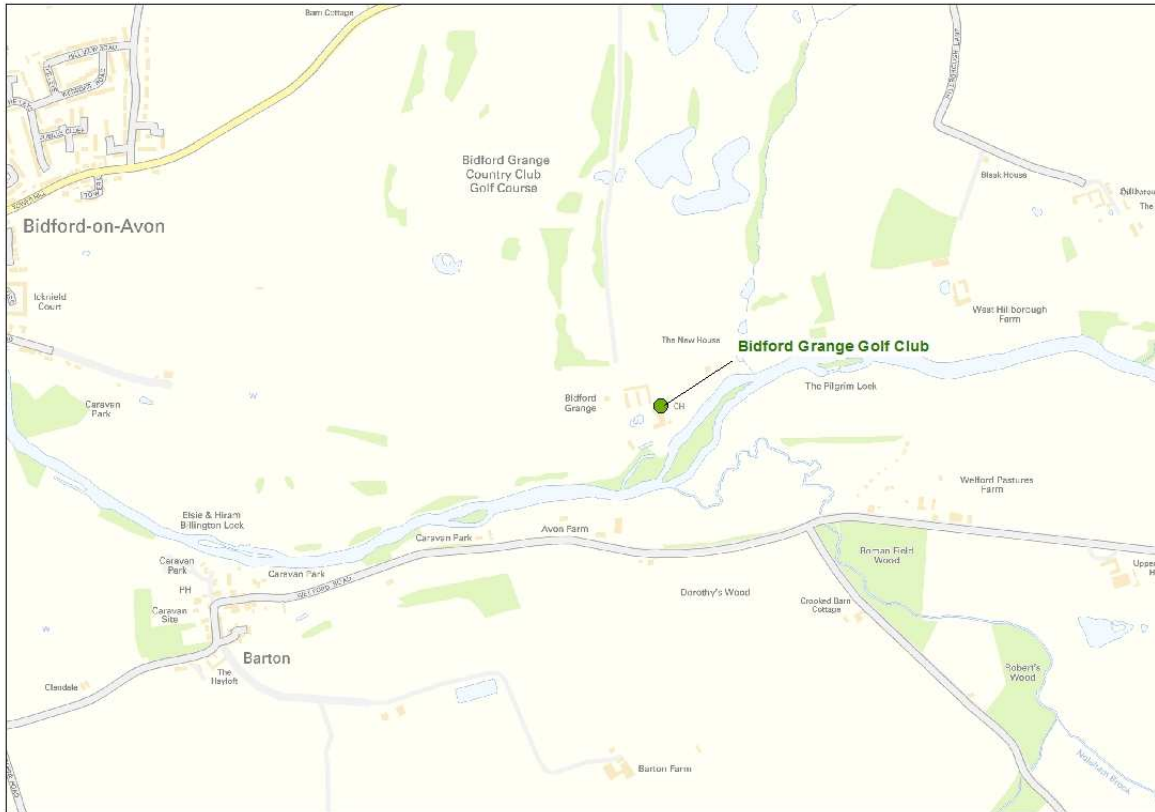


Figure 2.2 Diffusion Tube Monitoring Sites in Bidford-on-Avon Contains Ordnance Survey data © Crown copyright and database right [2012]



Figure 2.3 Diffusion Tube Monitoring Sites in Stratford-upon-Avon Contains Ordnance Survey data © Crown copyright and database right [2012]

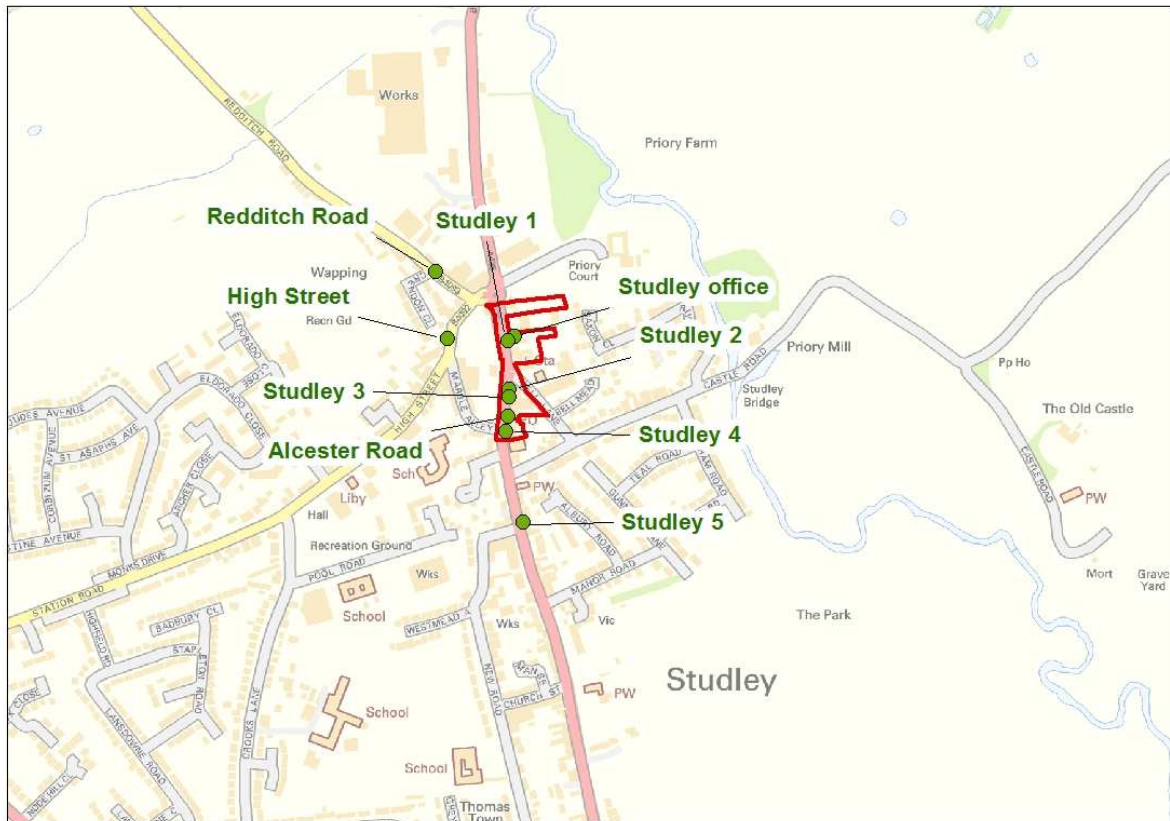


Figure 2.4 Diffusion Tube Monitoring Sites in Studley Contains Ordnance Survey data © Crown copyright and database right [2012]

Table 2.1 Details of Nitrogen Dioxide Diffusion Tube Monitoring Sites

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	In AQMA?	Relevant Exposure?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
Henley							
High Street 1	Roadside (façade)	415078	265542	N	Y	4.0	Y
High Street 2	Kerbside (façade)	415089	265631	N	Y	1.5	N
Bidford-on-Avon							
Bidford Grange Golf Club	Background	411719	251629	N	N	n/a	n/a
Stratford-upon-Avon							
Elizabeth House Garden	Urban Background	419931	254693	Y	N	59.7	n/a
Shipston Road	Roadside	420683	254421	Y	Y	6.0	N
Brewery Street	Urban Background	419948	255342	Y	Y	43.5	n/a
Guild Street	Roadside	420066	255172	Y	Y	1.6	Y
Tiddington Road	Kerbside	420710	254818	Y	Y	1.0	Y
Wood Street 1	Roadside	420059	254978	Y	Y	2.3	N
Ely Street	Roadside	419972	254869	Y	Y	1.8	N
Grove Road 1	Roadside	419759	254917	Y	Y	1.4	Y
Greenhill Street	Roadside	419768	255016	Y	Y	2.7	Y
Grove Road 2	Roadside	419758	254931	Y	Y	1.4	Y
Wood Street 2	Roadside	420127	254990	Y	Y	3.1	Y
Studley							
High Street	Roadside	407210	263988	N	Y	2.6	Y
Alcester Road	Roadside	407300	263873	Y	Y	2.7	Y
Studley office	Roadside	407309	263991	Y	Y	14.4	N
Studley 1	Roadside	407300	263986	Y	Y	3.5	Y
Studley 2	Roadside	407302	263913	Y	Y	2.5	Y
Studley 3	Roadside	407301	263901	Y	Y	2.3	Y
Studley 4	Roadside	407297	263850	Y	Y	1.5	Y
Studley 5	Roadside	407322	263716	N	Y	3.0	Y
Redditch Road	Roadside	407193	264088	N	Y	2.0	Y
Decommissioned							
Alcester High Street	Roadside	408957	257364	N	Y	1.5	N
Shipston on Stour	Roadside	425896	240530	N	Y	1.5	Y
Wellesbourne	Roadside	427988	255437	N	Y	8.1	N
Bidford on Avon	Rural	409915	251807	N	Y	n/a	n/a
Southam	Roadside	441839	261770	N	Y	9.5	N
Bridgefoot Multistorey Car Park	Other	420435	255054	N	N	58.3	n/a

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Stratford-on-Avon District Council does not carry out any automatic monitoring.

Diffusion Tube Monitoring Data

Measured concentrations at the 23 diffusion tube monitoring sites which were operational in 2010 and 2011 are presented in Tables 2.2 and 2.3. Concentrations since 2007, at all sites where monitoring data are available, are presented in Table 2.4.

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 eight sites during 2010, and two sites in 2011. All measured exceedences were within existing AQMAs. In 2011, the only exceedences were within the Studley AQMA. There were no measured exceedences of the annual mean nitrogen dioxide objective within the Stratford-upon-Avon AQMA in 2011.

Between 2009 and 2010, concentrations remained fairly stable, with some sites experiencing a slight increase in concentrations. Between 2010 and 2011, however, concentrations reduced at all sites. Figures 2.5 - 2.6 present data for those sites where at least five years of data are available. Between 2007 and 2011, concentrations have decreased by, on average, 24% (ranging from 15%-40%).

An AQMA was proposed for Henley following the 2008 Detailed Assessment. The requirement was based on monitoring carried out in 2007. Since 2007, concentrations in Henley have reduced significantly, such that concentrations are now 10 – 20 $\mu\text{g}/\text{m}^3$ lower in 2011. At the High Street 1 tube, which represents worst-case exposure, the measured concentration was 33.9 $\mu\text{g}/\text{m}^3$ in 2011.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2010 (Bias Adjusted)

Site	Site Type	In AQMA?	Triplicate or Co-located?	Data Capture (Months)	2010 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)
Henley					
High Street 1	Roadside	N	N	12	39.4
High Street 2	Kerbside	N	N	12	35.7
Bidford-on-Avon					
Bidford Grange Golf Club	Background	N	N	8	12.2
Stratford-upon-Avon					
Elizabeth House Garden	Urban Background	Y	N	12	17.4
Shipston Road	Roadside	Y	N	12	24.1
Brewery Street	Urban Background	Y	N	12	23.4
Guild Street	Roadside	Y	N	11	31.4
Tiddington Road	Kerbside	Y	N	12	42.5
Wood Street 1	Roadside	Y	Triplicate	12	39.4
Ely Street	Roadside	Y	N	11	24.1
Grove Road 1	Roadside	Y	N	12	43.7
Greenhill Street	Roadside	Y	N	11	41.0
Grove Road 2	Roadside	Y	N	12	42.1
Wood Street 2	Roadside	Y	N	12	43.5
Studley					
High Street	Roadside	N	N	12	33.9
Alcester Road	Roadside	Y	N	12	45.1
Studley office	Roadside	Y	Duplicate	12	26.1
Studley 1	Roadside	Y	N	12	38.6
Studley 2	Roadside	Y	N	12	37.7
Studley 3	Roadside	Y	N	12	42.6
Studley 4	Roadside	Y	N	11	57.1
Studley 5	Roadside	N	N	12	33.9
Redditch Road	Roadside	N	N	11	26.1
Objective					40

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes in 2011 (Bias Adjusted)

Site	Site Type	In AQMA?	Triplicate or Co-located?	Data Capture (Months)	2011 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)
Henley					
High Street 1	Roadside	N	N	7	33.9
High Street 2	Kerbside	N	N	8	30.4
Bidford-on-Avon					
Bidford Grange Golf Club	Background	N	N	2	8.6
Stratford-upon-Avon					
Elizabeth House Garden	Urban Background	Y	N	8	12.4
Shipston Road	Roadside	Y	N	8	21.8
Brewery Street	Urban Background	Y	N	8	18.1
Guild Street	Roadside	Y	N	8	27.1
Tiddington Road	Kerbside	Y	N	8	37.7
Wood Street 1	Roadside	Y	Triplicate	8	37.7
Ely Street	Roadside	Y	N	8	18.0
Grove Road 1	Roadside	Y	N	6	36.9
Greenhill Street	Roadside	Y	N	7	34.3
Grove Road 2	Roadside	Y	N	6	36.4
Wood Street 2	Roadside	Y	N	8	36.8
Studley					
High Street	Roadside	N	N	8	28.6
Alcester Road	Roadside	Y	N	8	42.8
Studley office	Roadside	Y	Duplicate	8	20.7
Studley 1	Roadside	Y	N	3	25.0
Studley 2	Roadside	Y	N	8	35.4
Studley 3	Roadside	Y	N	7	38.2
Studley 4	Roadside	Y	N	8	49.2
Studley 5	Roadside	N	N	7	26.9
Redditch Road	Roadside	N	N	8	23.8
Objective					40

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes, 2007 to 2011 (Bias Adjusted)

Site	Site Type	In AQMA ?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)				
			2007 [1.01]	2008 [0.91]	2009 [0.83]	2010 [0.78]	2011 [0.77]
Henley							
High Street 1	Roadside	N	43.7	40.0	37.6	39.4	33.9
High Street 2	Kerbside	N	50.0	45.5	33.7	35.7	30.4
Bidford-on-Avon							
Bidford Grange Golf Club	Background	N	14.4	12.7	12.1	12.2	8.6
Stratford-upon-Avon							
Elizabeth House Garden	Urban Background	Y	14.7	15.6	13.7	17.4	12.4
Shipston Road	Roadside	Y	26.7	25.5	23.2	24.1	21.8
Brewery Street	Urban Background	Y	23.9	22.4	23.6	23.4	18.1
Guild Street	Roadside	Y	38.2	34.4	34.2	31.4	27.1
Tiddington Road	Kerbside	Y	50.2	49.6	44.5	42.5	37.7
Wood Street 1	Roadside	Y	44.6	45.2	43.3	39.4	37.7
Ely Street	Roadside	Y	24.1	25.6	23.9	24.1	18.0
Grove Road 1	Roadside	Y	47.8	47.0	44.9	43.7	36.9
Greenhill Street	Roadside	Y	47.2	40.9	43.2	41.0	34.3
Grove Road 2	Roadside	Y	42.8	44.6	43.4	42.1	36.4
Wood Street 2	Roadside	Y	45.1	44.6	41.5	43.5	36.8
Studley							
High Street	Roadside	N	-	-	-	33.9	28.6
Alcester Road	Roadside	Y	51.8	48.6	46.4	45.1	42.8
Studley office	Roadside	Y	27.9	25.0	24.0	26.1	20.7
Studley 1	Roadside	Y	-	-	-	38.6	25.0
Studley 2	Roadside	Y	-	-	-	37.7	35.4
Studley 3	Roadside	Y	-	-	-	42.6	38.2
Studley 4	Roadside	Y	-	-	-	57.1	49.2
Studley 5	Roadside	N	-	-	-	33.9	26.9
Redditch Road	Roadside	N	-	-	-	26.1	23.8
Decommissioned							
Alcester High Street	Roadside	N	29.5	27.8	26.7	-	-
Shipston on Stour	Roadside	N	28.1	27.2	27.7	-	-
Wellesbourne	Roadside	N	20.4	18.9	30.1	-	-
Bidford on Avon	Rural	N	36.8	29.8	28.5	-	-
Southam	Roadside	N	25.9	25.0	23.3	-	-
Bridgefoot Multistorey Car Park	Other	N	26.4	25.4	-	-	-
Objective			40	40	40	40	40

Figure 2.5 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites in Henley, Bidford-on-Avon and Studley

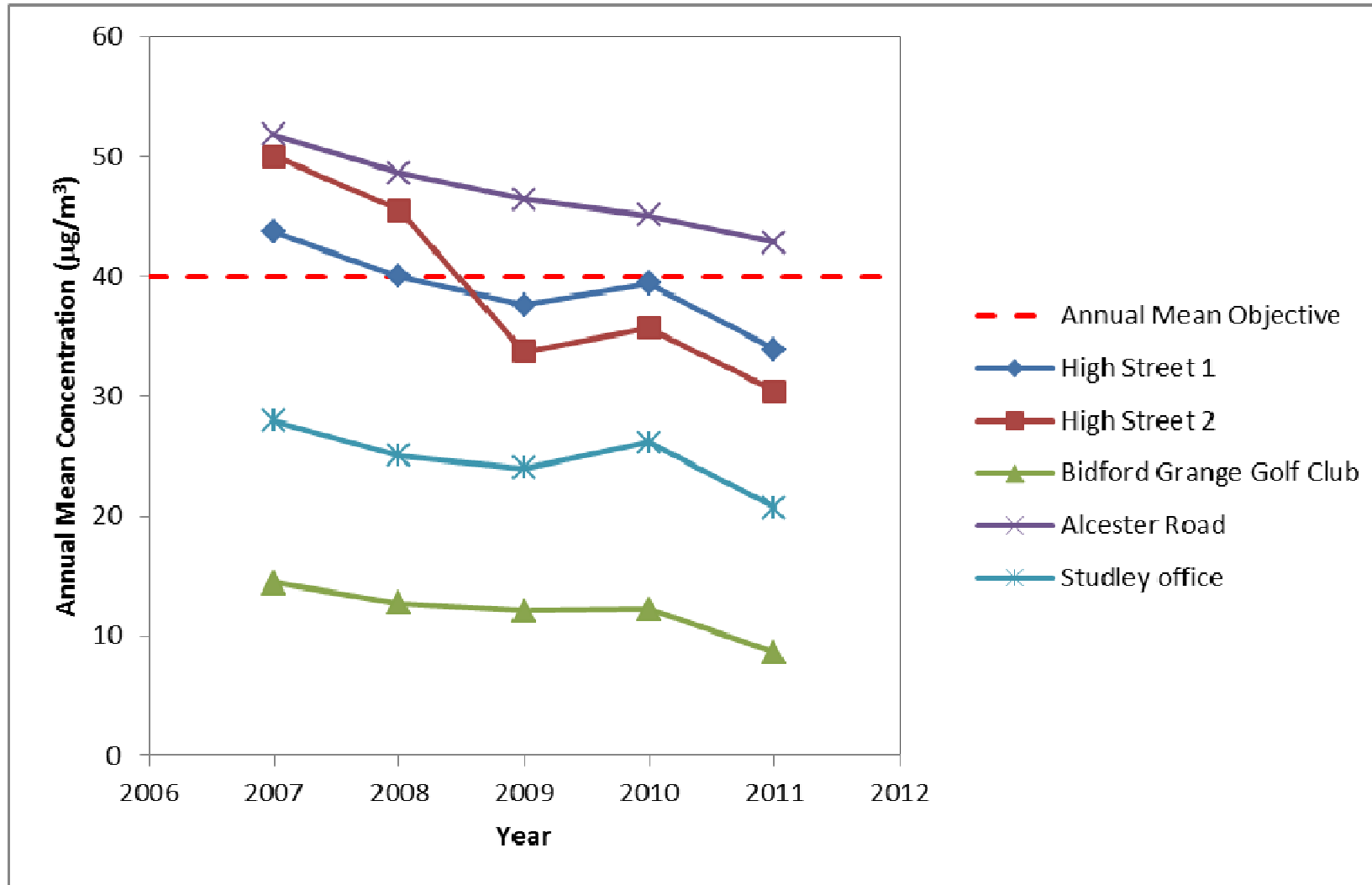
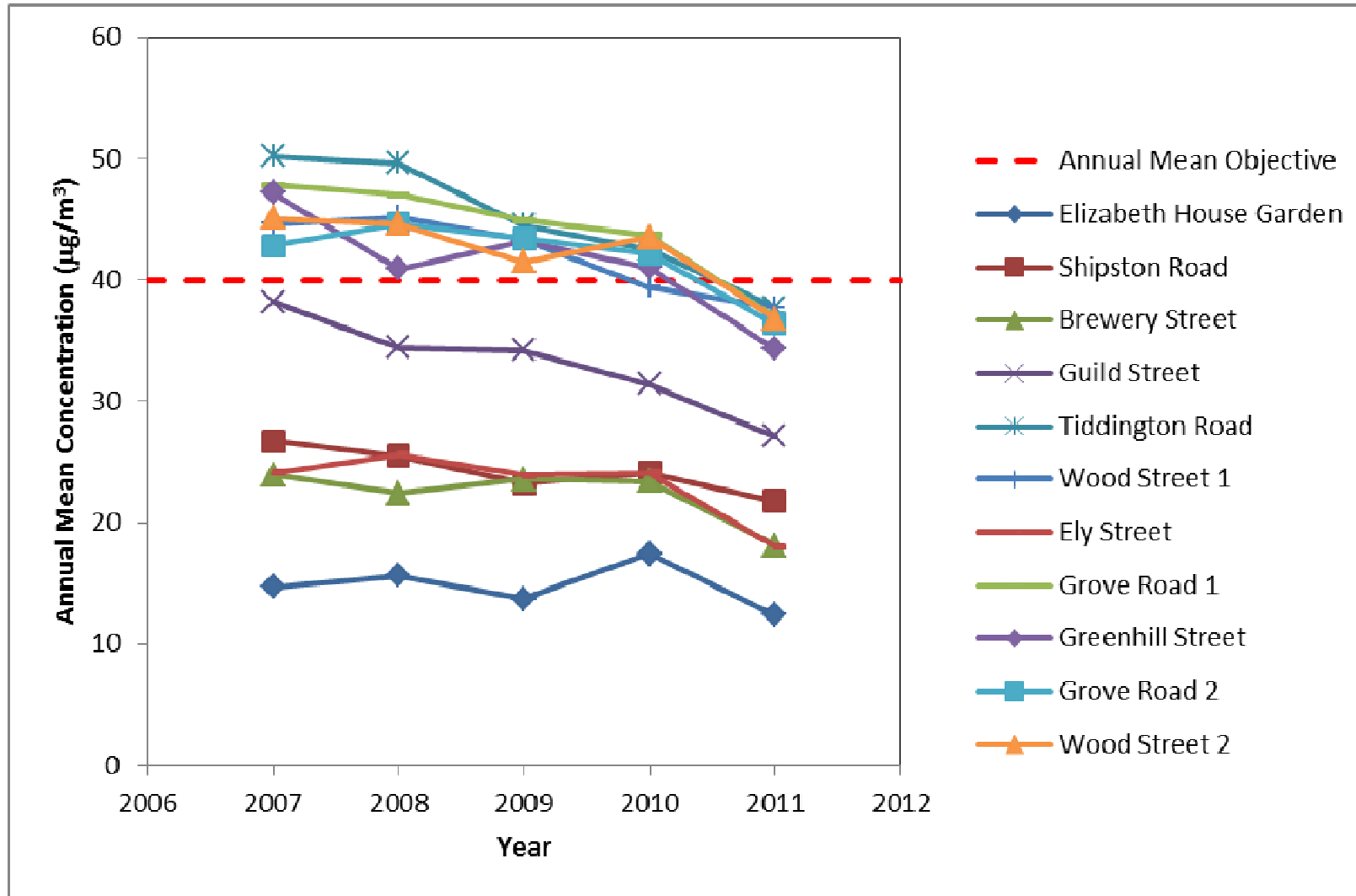


Figure 2.6 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites in Stratford-upon-Avon



2.2.1 PM₁₀

PM₁₀ is not monitored within the Stratford-on-Avon District Council area.

2.2.2 Sulphur Dioxide

Sulphur Dioxide is not monitored within the Stratford-on-Avon District Council area.

2.2.3 Benzene

Benzene is not monitored within the Stratford-on-Avon District Council area.

2.2.4 Other pollutants monitored

No other pollutants are monitored within the Stratford-on-Avon District Council area.

2.2.5 Summary of Compliance with AQS Objectives

Stratford-on-Avon District Council has examined the results from monitoring in the District. Concentrations are below the objectives at all but two locations, which lie within the existing Studley 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). A street in Henley was identified in the 2009 Updating and Screening Assessment; monitoring here confirms that concentrations are below the air quality objectives. No additional narrow congested streets have been identified or created within the Stratford-on-Avon DC area.

Stratford-on-Avon 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. Two new locations have been identified within Wood Street, Stratford-upon-Avon. Monitoring carried out in close proximity shows that concentrations are well below $60\mu\text{g}/\text{m}^3$, and therefore it is unlikely that the hourly mean objective is exceeded at these locations.

Stratford-on-Avon District Council has assessed new locations within a busy street where people may spend 1 hour or more close to traffic that were not assessed in previous rounds of Review and Assessment, and has concluded that it will not be necessary to proceed to a Detailed Assessment.

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.

Stratford-on-Avon 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.

Stratford-on-Avon 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. Stratford-on-Avon District Council has confirmed that there have been no major new roads constructed or proposed since the 2009 Updating and Screening Assessment.

Stratford-on-Avon 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. Stratford-on-Avon District Council has confirmed that there have been no significant changes to traffic flows on existing roads in the district.

Stratford-on-Avon 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

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that there are no bus stations within the District with more than 2,500 daily movements or with relevant exposure within 10m. Stratford-on-Avon District Council has confirmed that there have been no significant changes.

Stratford-on-Avon 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 Stratford-on-Avon District.

Stratford-on-Avon 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.

Stratford-on-Avon 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 Stratford-on-Avon area.

Stratford-on-Avon 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). Stratford-on-Avon is located inland and there is therefore no significant shipping to consider.

Stratford-on-Avon 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 Stratford-on-Avon District Council area since the 2009 USA was completed, and there are currently no proposals for any significant installations.

Stratford-on-Avon 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 the Blue Moon Farm at Barn Cottage, Wimpstone, was permitted to release total particulate matter emissions of up to 51,530kg per year in 2011. For previous years no data are presented. There are no residential properties within 100m of this farm, and therefore this potential increase does not require further consideration. Stratford-on-Avon 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.

Stratford-on-Avon 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 Stratford-on-Avon District Council area since the 2009 USA was completed, and there are currently no proposals for any significant installations.

Stratford-on-Avon 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; Stratford-on-Avon District Council has confirmed that this continues to be the case.

Stratford-on-Avon 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. Stratford-on-Avon 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.

Stratford-on-Avon 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 Assessment. The 2009 USA stated that there were no poultry farms meeting the criteria requiring an assessment. Whilst an application has been received for a 20,000 bird poultry farm, it does not meet the criteria requiring assessment.

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Stratford-on-Avon District Council confirms that there are no poultry farms which meet the specified criteria.

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.

Stratford-on-Avon 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 Stratford-on-Avon in 2012 is 14.7µg/m³ (range 13.4 – 20.2µg/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, is considered highly unlikely that there are any areas of biomass combustion exceeding these criteria.

Stratford-on-Avon 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

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

Stratford-on-Avon 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 the waste recycling site at Napton-on-Hill as having the potential to impact on one dwelling. Subsequently, further control measures have been implemented, and no complaints have been made relating to the operation of the site.

No additional potential fugitive or uncontrolled sources have been identified within 250m of relevant exposure.

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

8 Local / Regional Air Quality Strategy

Stratford-on-Avon District Council does not have a Local Air Quality Strategy; however, Warwickshire County Council included a county-wide Air Quality Strategy within the Local Transport Plan 2011-2026.

The objectives of the Air Quality Strategy are:

- To address air quality issues that have, or will arise, due to transport-related issues;
- To inform and complement the County Council's wider policies on transport contained in the LTP;
- To take a proactive, rather than a reactive approach, to dealing with future air quality issues and taking measures to minimise them before they occur;
- To create a realistic, deliverable Action Plan with schemes and initiatives for improving air quality related to transport issues within the County; and
- To integrate the Strategy fully within the Local Transport Plan, complementing the schemes and objectives contained in other parts of the document.

9 Air Quality Planning Policies

There have been no significant changes to air quality planning policies within Stratford-on-Avon. The Development Plan for Stratford-on-Avon District continues to comprise the West Midlands Regional Spatial Strategy, saved policies from Warwickshire Structure Plan (relevant policies relate to transport) and the Local Plan (saved policies).

A revised version of the Core Strategy, which will set out the strategic context for new developments in the District until 2028, was recently consulted upon; the hope is that this will be adopted by late Spring 2013.

10 Climate Change Strategies

There have been no changes to the Stratford-on-Avon DC climate change policy, or the Warwickshire Climate Change Strategy.

11 Implementation of Action Plans

There has been no further progress made with the Studley Air Quality Action Plan, and the Stratford-upon-Avon AQAP process has not been started. The monitoring data presented in this report suggest that air quality has improved significantly within each AQMA without any intervention.

In 2011, measured concentrations within the Stratford-upon-Avon AQMA were below the annual mean objective at all locations. Consequently, a meaningful Action Plan is not warranted. An Action Plan for this area will be considered should concentrations increase in future.

Many of the required measures for the Studley AQMA are the responsibility of the County Council and are outwith the control of the District Council. Efforts will be made to re-engage the County Council.

12 Conclusions and Proposed Actions

12.1 Conclusions from New Monitoring Data

Measured concentrations have decreased significantly over the last five years. In 2011, only two monitoring sites, both within the existing Studley AQMA, measured exceedences of the annual mean objective. There is no need to proceed to a Detailed Assessment based on the results of monitoring within the Stratford-on-Avon DC area.

12.2 Conclusions from Assessment of Sources

The Updating and Screening Assessment has not identified any significant changes to emissions sources within the Stratford-on-Avon 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.

12.3 Proposed Actions

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

13 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 B: Maps of Decommissioned Diffusion Tube Monitoring Sites

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 Kent Scientific Service, 20% TEA in water for 2010 is 0.78, and for 2011 is 0.77. These factors are taken from spreadsheet version 06/12. These factors have been applied to all 2010 and 2011 diffusion tube data, respectively, presented in this report.

WASP

Kent SS take part in the Workplace Analysis Scheme for Proficiency (WASP), operated by the Health and Safety Laboratory (HSL). During 2011, on average, 81.25% of samples were determined to have been satisfactory (1st quarter: 50%; 2nd quarter: 100%; 3rd quarter: 100%, 4th quarter: 75%).

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 2010 or 2011 calendar year. This has utilised data from four or five background sites operated as part of the Automatic Urban and Rural Network (AURN) where long-term data are available (with data capture >90%).

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

Jan – Feb, May – June, Sept – Dec 2010

Site	Site Type	2010 Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	37.3	41.5	0.899
Coventry Memorial Park	Urban Background	21.2	24.5	0.868
Leamington Spa	Urban Background	28.3	31.8	0.891
Sandwell West Bromwich	Urban Background	31.1	34.9	0.889
			Average	0.887

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Jan – August 2011

Site	Site Type	2011 Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	35.6	0.964
Coventry Memorial Park	Urban Background	17.2	16.5	1.042
Leamington Spa	Urban Background	21.1	20.1	1.048
Leominster	Suburban Background	9.6	9.9	0.964
Sandwell West Bromwich	Urban Background	27.7	26.5	1.043
			Average	1.012

Jan – July 2011

Site	Site Type	2011 Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	37.3	0.922
Coventry Memorial Park	Urban Background	17.2	17.0	1.008
Leamington Spa	Urban Background	21.1	20.7	1.016
Leominster	Suburban Background	9.6	10.5	0.911
Sandwell West Bromwich	Urban Background	27.7	27.5	1.006
			Average	0.972

Jan and June 2011

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	41.4	0.831
Coventry Memorial Park	Urban Background	17.2	18.9	0.911
Leamington Spa	Urban Background	21.1	25.2	0.834
Leominster	Suburban Background	9.6	11.0	0.868
Sandwell West Bromwich	Urban Background	27.7	28.5	0.972
			Average	

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Jan – March 2011

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	54.3	0.633
Coventry Memorial Park	Urban Background	17.2	26.1	0.659
Leamington Spa	Urban Background	21.1	28.9	0.729
Leominster	Suburban Background	9.6	16.3	0.587
Sandwell West Bromwich	Urban Background	27.7	37.6	0.737
			Average	0.669

Jan – Feb, Apr - Aug 2011

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	33.2	1.033
Coventry Memorial Park	Urban Background	17.2	14.7	1.170
Leamington Spa	Urban Background	21.1	19.7	1.070
Leominster	Suburban Background	9.6	8.8	1.081
Sandwell West Bromwich	Urban Background	27.7	24.6	1.124
			Average	1.096

Jan – March, June - Aug 2011

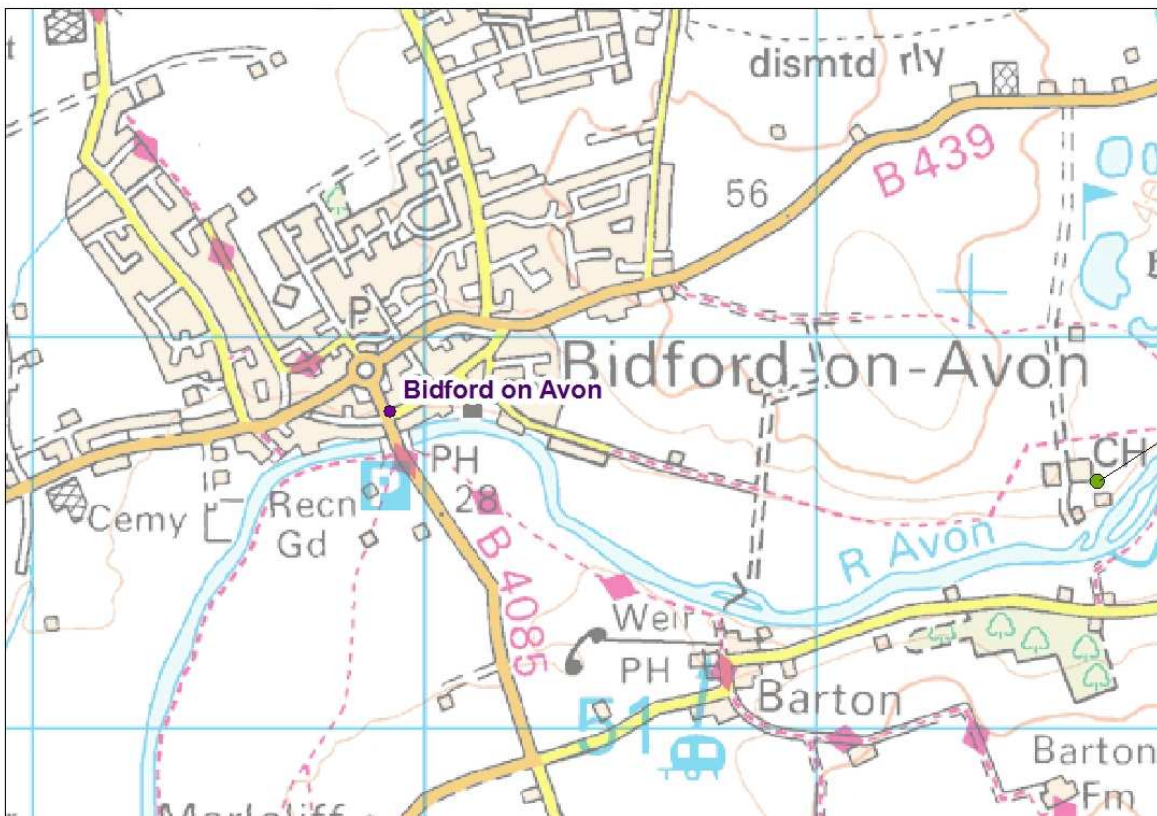
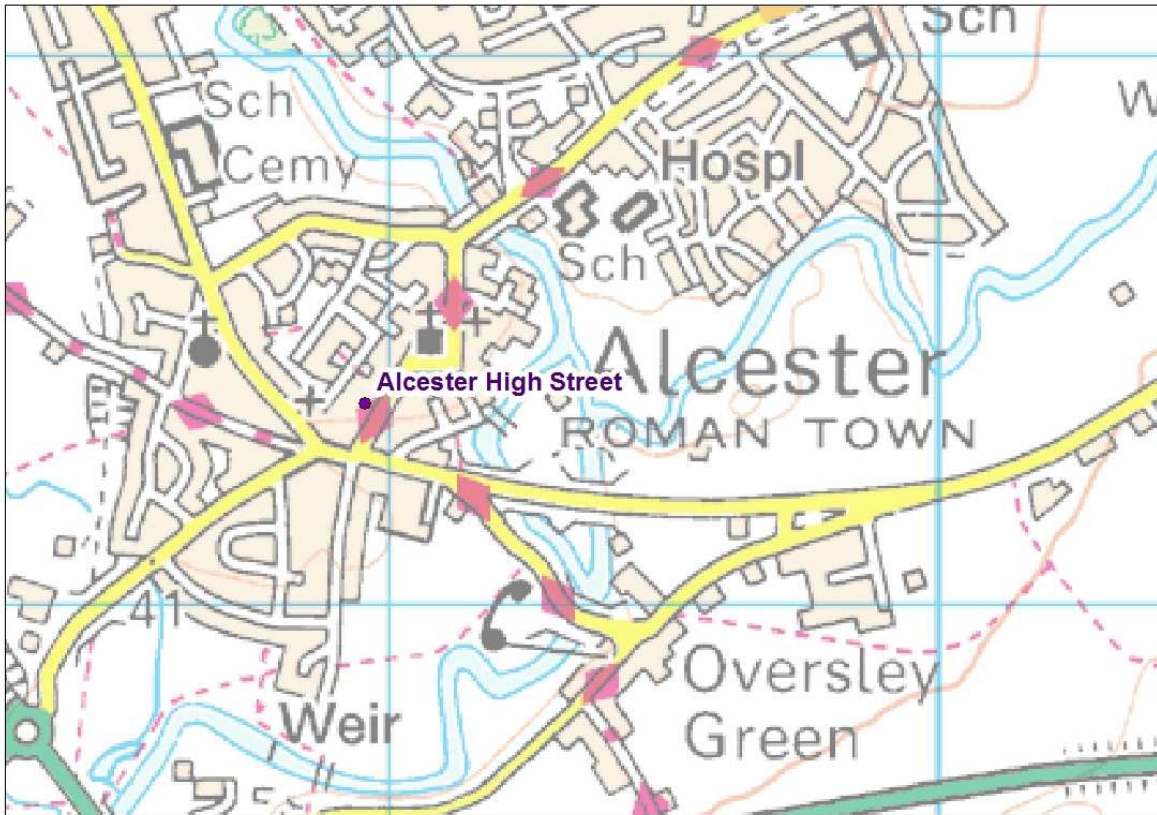
Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	38.9	0.884
Coventry Memorial Park	Urban Background	17.2	18.1	0.952
Leamington Spa	Urban Background	21.1	21.9	0.961
Leominster	Suburban Background	9.6	10.8	0.884
Sandwell West Bromwich	Urban Background	27.7	28.2	0.983
			Average	0.933

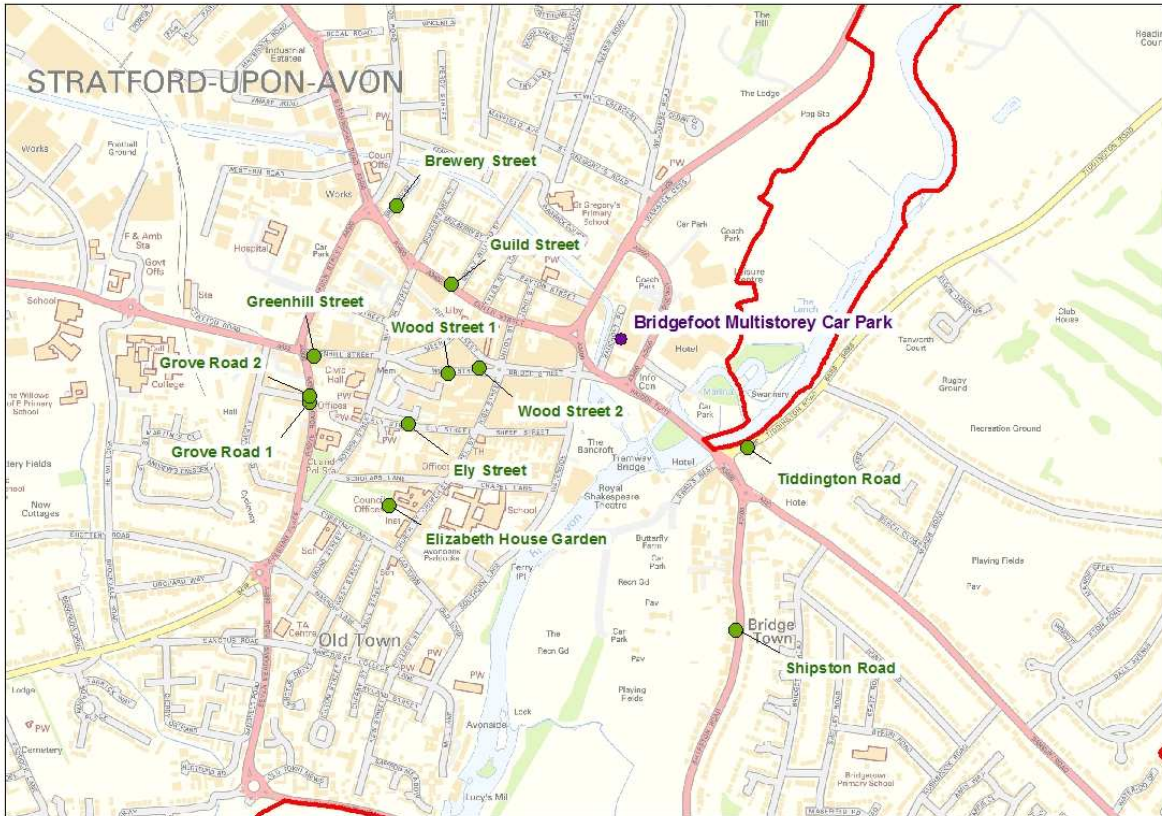
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Jan – June, Aug 2011

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Tyburn	Urban Background	34.4	37.3	0.922
Coventry Memorial Park	Urban Background	17.2	17.4	0.985
Leamington Spa	Urban Background	21.1	20.7	1.016
Leominster	Suburban Background	9.6	10.5	0.913
Sandwell West Bromwich	Urban Background	27.7	27.6	1.004
			Average	0.968

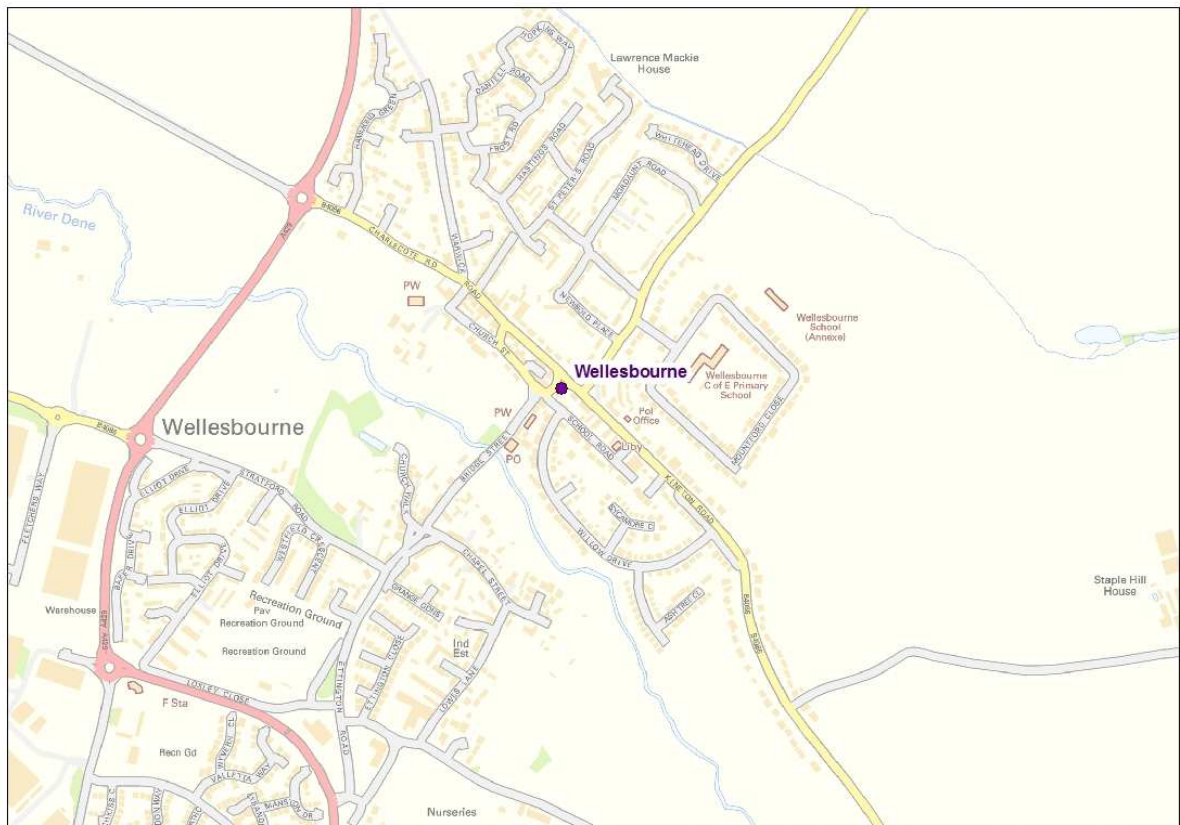
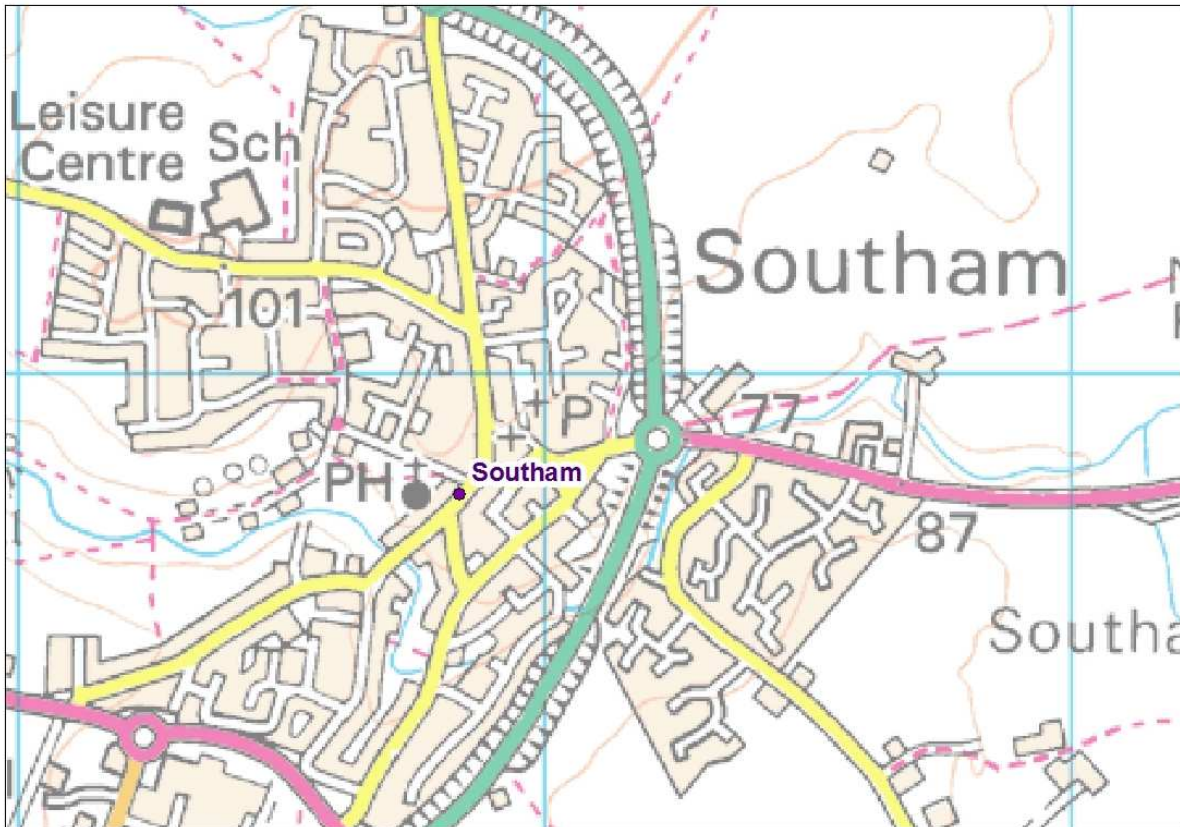
Appendix B: Maps of Decommissioned Diffusion Tube Monitoring Sites





(Includes existing sites in green)





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