Swale BOROUGH COUNCIL

Local Air Quality Management Annual Progress Report

2014

Swale Borough Council
LAQM Progress Report 2014

Bureau Veritas

September 2014

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Document Control Sheet

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Executive Summary

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 take account of Government Guidance when undertaking such work. This Annual Progress Report is a requirement of the Fifth Round of Review and Assessment and is a requirement for all local authorities. The Report has been undertaken in accordance with Technical Guidance LAQM.TG (09) and associated.

This Annual Progress Report considers all new monitoring data and assesses the data against the Air Quality Strategy (AQS) objectives. It also considers any changes that may have an impact on air quality.

Results for 2013 indicate that the annual mean objective and the 1-hour objective were met at three automatic monitoring locations: Newington (3), Ospringe Roadside (2) and St Paul's Street. The annual mean NO_2 objective was exceeded at the Canterbury Road site.

The diffusion tube network has identified two locations outside of existing Air Quality Management Areas (AQMAs) where there has been an exceedence of the annual mean objective: SW91 – 72 London Road, Teynham and SW95 – The Mount, London Road, Faversham. The results from the monitoring site SW91 support previous report's recommendation for a Detailed Assessment to be undertaken for parts of the A2 London Road in Teynham (near London Road / Lynsted Lane junction). Extension of the Ospringe AQMA is required at the Mount, on the A2 London Road in Faversham, where the distance corrected concentration at site SW95 was exceeding 60 $\mu g/m^3$. Continued monitoring at the site is also recommended.

Swale Borough Council have received an application for the construction of demonstration gardens with associated parking. The Proposed Development site lies in the vicinity of the existing AQMA in Ospringe Street, Faversham, and near Teynham (where exceedences of the annual mean NO_2 objectives were also recorded in London Road so the area is pending a Detailed Assessment). It is therefore recommended that the impact of this development is considered during the 2015 Updating and Screening Assessment. In addition, one biomass installation has been identified as having a potential to impact air quality. Swale Borough Council will liaise with the relevant stakeholders to obtain details on the capacity of the biomass boiler in order to determine whether further assessment is required. The installation will be considered in the next Updating and Screening Assessment, if required.

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue NO_2 diffusion tube and continous monitoring in the Borough to identify future changes in pollutant concentrations;
- Extend the Ospringe AQMA to include the Mount and continue monitoring in this location;
- Proceed to a Detailed Assessment for the Teyham area;
- Gather information on the capacity of the biomass installation installed at Rhode Court Barn, Selling Road, Selling, Faversham; and
- Proceed to the 2015 Updating and Screening Assessment.

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1 Introduction

1.1 Description of Local Authority Area

Situated in the northern maritime region of Kent, in the southeast of England, Swale is comprised of three main urban areas: Sittingbourne and Faversham town centres on the mainland, which are surrounded by countryside and numerous rural villages, and Sheerness town centre on the Isle of Sheppey.

Sheerness has a seaport for freight and significant industrial heritage, including the Sheerness Steel Works. The Swale area is part of the Thames Gateway with significant regeneration planned in the area. There are major residential regeneration projects in progress in Sittingbourne, Queenborough and Faversham, including Combined Heat and Power (CHP) and biomass plants, as well as recycling and waste recovery processes at Ridham.

Swale has good road and rail networks to London and the coast. The ferry ports of Dover and Ramsgate and the Channel Tunnel terminus at Folkestone are approximately one hour away.

The main source of air pollution in the Borough is road traffic emissions from major roads, notably the M2, A2, A249 and St Pauls (B2006). An Air Quality Management Area (AQMA) was declared in March 2009 along the A2 in Newington where exceedences of the annual mean objective for nitrogen dioxide (NO_2) were predicted. Similarly an AQMA was declared in May 2011 for another part of the A2 in Ospringe near Faversham. A further two AQMAs were declared in January 2013 for areas within Sittingbourne. Other pollution sources, including industrial, commercial and domestic sources, also make a contribution to background pollution concentrations.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the AQS 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 AQMA and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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 LAQM process.

Progress Reports 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 AQS Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and 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) and The Air Quality (England) (Amendment) Regulations 2002 (SI 3043). These are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre µg/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 Objective 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
	5.00 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 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide (NO_2)	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
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
	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

Between 1998 and 2001, Swale Borough Council undertook its first round of review and assessment of air quality, which concluded that it was not necessary to declare an AQMA for any pollutant.

During the second round of review and assessment (2003 – 2005), measured exceedences of the NO_2 annual mean objective along the A2 at Ospringe resulted in a Detailed Assessment in 2005. Although dispersion modelling confirmed the risk of exceedence in the area, the report concluded that there were too many uncertainties due to lack of monitoring data. Therefore, an extensive monitoring programme was devised, including the installation of a new continuous monitoring station closer to the street canyon section, before deciding whether an AQMA was required for Ospringe.

During the third round of review and assessment, commencing in 2006 with a new Updating and Screening Assessment (USA), new exceedences of the NO_2 annual mean objective at several locations along the A2 in Newington were measured, and therefore a Detailed Assessment was carried out for this area. The Detailed Assessment, completed in 2007, recommended that an AQMA be declared in Newington based on the potential exceedences in the High Street, following a 6 month monitoring period to provide more accurate NO_2 data. Additional monitoring confirmed the need for an AQMA, which was declared in March 2009 for parts of London Road and High Street in Newington (Figure 1-1~~Figure 1-1~~). A Further Assessment, completed in 2010, confirmed the need for the AQMA and provided additional information, which was used to prepare AQAP for the Newington AQMA. The draft AQAP was completed in 2010.

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The fourth round of review and assessment commenced with the USA 2009. This identified measured exceedences of the annual mean NO_2 objective at seven locations in Swale outside the Newington AQMA, in Sittingbourne, and in Ospringe. Two of these sites were assessed in a new Detailed Assessment in 2009 focused on Canterbury Road/ East Street and St Paul's Street in Sittingbourne. The recommendation of the Detailed Assessment 2009 was to consider further AQMA designations at these locations, in addition to undertaking additional monitoring. The need for an AQMA in Ospringe was also reassessed in a new Detailed Assessment completed in 2010. The report confirmed the need for an AQMA in Ospringe, which was declared in May 2011 (Figure 1-2~~Figure 1-2~~).

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The 2010 Annual Progress report confirmed exceedences of the annual mean NO_2 objective in Sittingbourne and Ospringe. For Sittingbourne, it was decided to carry out additional monitoring before considering declaration at these locations.

Swale Borough Council has reviewed the automatic monitoring sites within the Borough and has installed an NO_2 analyser site in the Newington High Street AQMA which commenced monitoring in January 2011. Also a new continuous monitor was installed at Canterbury Road/East Street in March 2011. Further monitoring at the original Newington site was carried out for 6 months during 2010 prior to the new site becoming operational.

In addition, in 2011 an inventory of emissions in the Blue Town and Queenborough areas of Swale was completed. These findings have given a greater understanding of emission levels in Swale, will provide a baseline should any similar work be carried out in the future, and will help in any future modelling of atmospheric pollution levels in the borough. It was concluded that ships contribute the highest percentage of emissions for NO_x, PM_{10} and SO_2 in the study area. Over 93% of the SO_2 emissions are attributed to marine vessels. They also contribute over 66% of overall NO_x emissions, and 75% of PM_{10} emissions.

The 2011 Progress Report found the further monitoring of the Canterbury Road/East Street and St Paul's Street areas in 2010 confirmed the findings of the 2009 Detailed Assessment. It concluded AQMAs based on exceedences of the annual mean NO_2 concentrations should be declared for these two areas.

The 2012 Updating and Screening Assessment detailed the 2011 monitoring results which confirmed the need to declare AQMAs at the Canterbury Road/East Street and St Paul's Street areas. The report also identified a further area, diffusion tube SW80 in Teynham, which may require a detailed assessment, depending on the monitoring results in 2012. In

addition to this, the PM_{10} continuous monitoring at the Ospringe Road site recorded concentrations close to the objective levels.

Completed in 2012 was a Quantitative Appraisal of proposed AQAP measures for the Newington AQMA. The aim of the report was to provide a quantitative estimate as to what the impacts on NO_2 concentrations would be as a result of the implementation of measures detailed in the AQAP. The assessment found that no single measure on its own would be sufficient to achieve compliance with the AQS objective, however implementation of a suite of measures would result in compliance at most of the receptor locations that are currently showing exceedences.

In January 2013 a Further Assessment was undertaken for the Ospringe Road AQMA. The report confirmed that the Ospringe AQMA is still required as the annual mean objective is still likely to be exceeded at a number of relevant receptor locations. The updated model results of this assessment also identified the requirement to extend the AQMA to the east to include The Mount along London Road. This is an area Swale Borough Council are currently considering. Recent monitoring for NO_2 in 2013 confirmed that NO_2 objectives were being exceeded at the Mount. This report therefore recommends that Ospringe AQMA is extended to include this location. The proposed extension of the Ospringe AQMA is shown in Figure 1-5~~Figure 1-5~~.

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In 2013 Swale Borough Council declared two new AQMAs; these were for East Street, Sittingbourne and St Paul's Street, Sittingbourne (Figure 1-3~~Figure 1-3~~ and Figure 1-4~~Figure 1-4~~). A continuous monitor was installed on St Paul's Street in 2013 with a co-located diffusion tube monitoring site. Additional diffusion tube site was also installed on East Street with one site in Crown Quay Lane (area adjacent the East Street AQMA). Following the recommendation of the 2013 Progress Report, the Council will need to proceed to a Detailed Assessment for the Teynham area where diffusion monitoring site SW80 showed an exceedence of the annual mean NO_2 objective. Additional diffusion tube monitoring started along Canterbury Road in Teynham.

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Figure 1-1 Map of Newington AQMA

Figure 1-2 Map of Ospringe AQMA

Figure 1-3 Map of East Street AQMA

Figure 1-4 Map of St Paul's Street AQMA

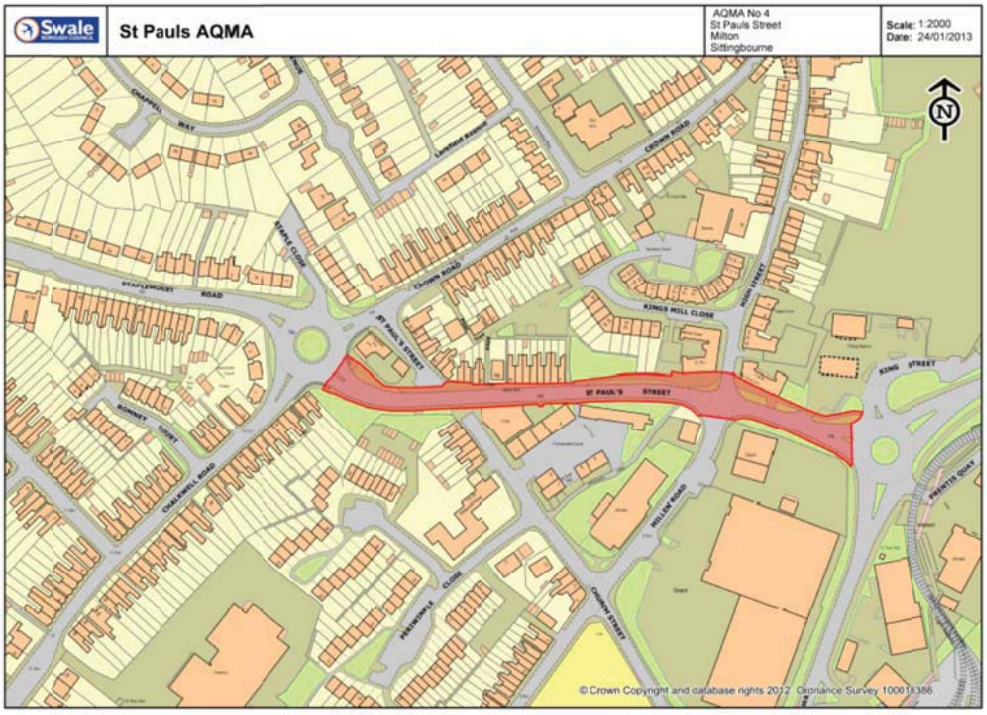
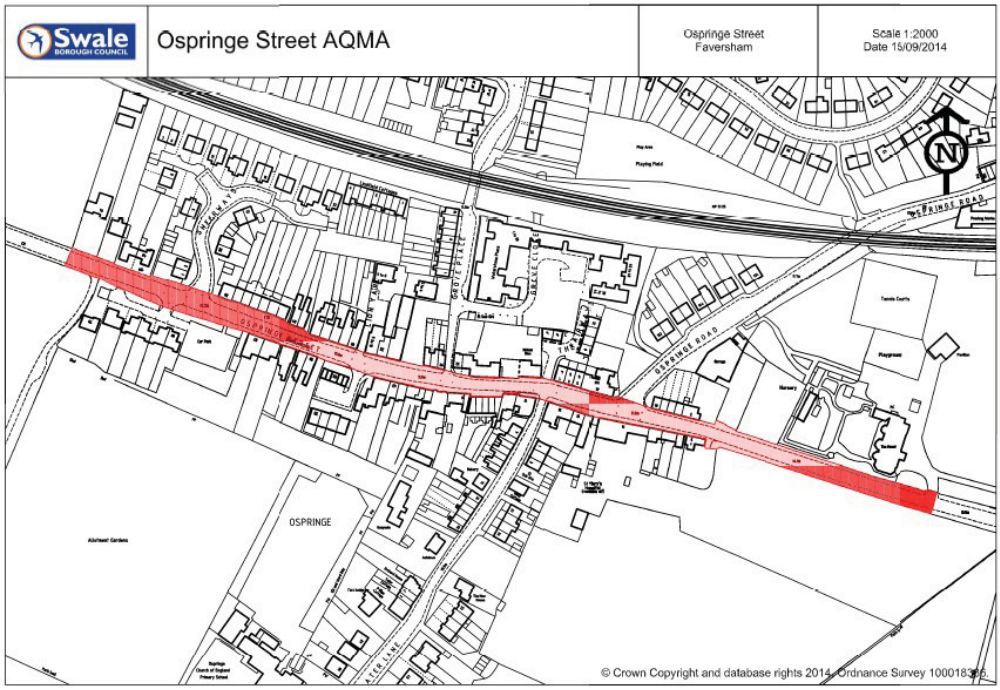


Figure 1-5 Map of Proposed Extension of Ospringe AQMA



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In 2013, automatic monitoring of NO_2 was undertaken by Swale Borough Council at four locations in the area using chemiluminescence analysers: at the Newington (3) site (High Street, Newington), the Ospringe Roadside (2) site (Water Lane, Faversham), the Canterbury Road (Canterbury Road, Sittingbourne) and the St Paul's Street (St Paul's Street, Sittingbourne). The Council calibrates the sites every two weeks. Defra approved contractors maintain all continuous monitoring sites; all are serviced every 6 months and audited annually.

During 2013, continuous monitoring of PM_{10} was undertaken by Swale Borough Council at one location in the area, Swale Ospringe Roadside (2), using a Tapered Element Oscillating Microbalance (TEOM).

Further details of these monitoring stations are provided in Table 2-1~~Table 2-1~~ and Figure 2-1~~Figure 2-1~~.

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Figure 2-1 Map of Continuous Monitoring Sites

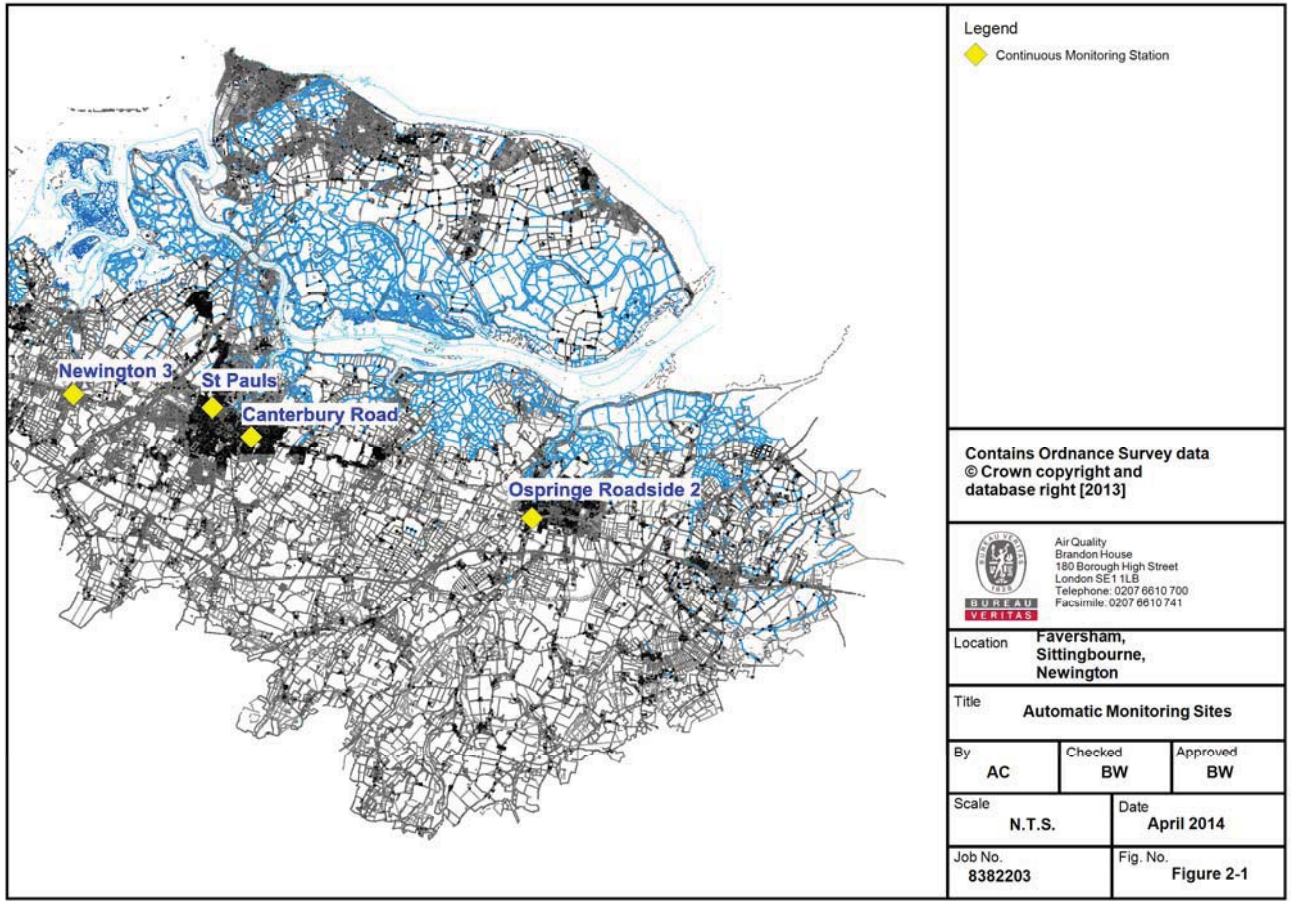

Table 2-1 Details of Automatic Monitoring Sites

Site ID	Site Details	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
Newington (3)	A2 High Street, Newington	Roadside	585861	164817	2.35	NO_2	Y	Chemiluminescence	Y(5m)	1.6	Y
Ospringe Roadside (2)	Water Lane (near A2 Ospringe Street), Faversham	Roadside	600360	160869	1.95	NO_2 PM_{10}	Y- NO_2	Chemiluminescence TEOM	Y (0m)	1.7	N
Canterbury Road	A2 Canterbury Road, Sittingbourne	Roadside	591483	163472	1.9	NO_2	Y	Chemiluminescence	Y(4m)	2	N
St Paul's Street	St Paul's Street, Sittingbourne	Roadside	590264	164396	3.2	NO_2	Y	Chemiluminescence	Y (9m)	2.5	Y

Note St Paul's monitoring station was operational from January 2013 only

2.1.2 Non-Automatic Monitoring Sites

Swale Borough Council undertook monitoring using passive NO_2 diffusion tubes at 57 sites in 2013. Details of the monitoring sites are shown in Table 2-2~~Table 2-2~~, whilst their location is provided in Figure 2-2~~Figure 2-2~~ through to Figure 2-10~~Figure 2-10~~.

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The diffusion tubes are supplied and analysed by Environmental Scientifics Group Didcot utilising the 50% triethanolamine (TEA) in acetone preparation method. Quality Control procedures, including bias adjustment, are discussed in Appendix A.

A number of sites closed in 2012. The (annualised) results from these sites were presented in the last year's report. These include:

- SW06 – Lower Road, Brambledown (closed in March 2012)
- SW12 – A249 Layby, Neats Court (closed in March 2012)
- SW63 – 4 Church Lane, Newington (closed in March 2012)
- SW64 – 21 Church Lane, Newington (closed in March 2012)
- SW21 – A2 London Road, Teynham (closed in March 2012)
- SW17 – Balmoral Terrace, A2 London Road (closed in March 2012)
- SW60 – 72/74 Swanstree Avenue, Sittingbourne (closed in March 2012)
- SW61 – Roundabout Wadham Place (closed in March 2012)
- SW81 – Lime Grove, Sittingbourne (closed in March 2012)
- SW50 – Church street, Milton (closed in December 2012)
- SW18 – Parsonage lane, Sittingbourne (closed in November 2012)

There were nine new sites installed in 2013 (December 2012 for SW89); these were:

- SW89 – St Paul's Air Quality Station, Milton (monitoring started in December 2012)
- SW90 - Junction Of Canterbury Road & Goodnestone Road, Sittingbourne (started in March 2013)
- SW91 - 72 London Road, Teynham (started in April 2013)
- SW92 – 64 London Road, Teynham (started in April 2013)
- SW93 - 4 Water Lane, Ospringe, Faversham (started in April 2013)
- SW94 - Water Lane R/o 15 Ospringe Street, Ospringe, Faversham (started in April 2013)
- SW95 - The Mount, London Road, Ospringe, Faversham (started in April 2013)
- SW96 - Maison Dieu, Ospringe Street, Faversham (started in April 2013)
- SW97 - Crown Quay Lane, Sittingbourne (started in April 2013)

There were 6 triplicate sites in 2013, these were:

- SW42 – High Street, Opposite Church Lane
- SW20 – Newington, Co-op (co-located)
- SW30 – ZW3 Ospringe Street (co-located)
- SW87 – Canterbury Road AQ Station (co-located)
- SW39 – Giles Young Court, Milton
- SW82 – Conservative Club, St Pauls Street
- SW89 - St Paul's Air Quality Station, Milton

Triplicate co-located NO_2 diffusion tubes are installed at the automatic monitoring sites at Newington Co-op, Newington; Ospringe Street; Canterbury Road, Sittingbourne and St Paul's Street, Sittingbourne.

Figure 2-2 Map of Non-Automatic Monitoring Sites – Swale Borough Council

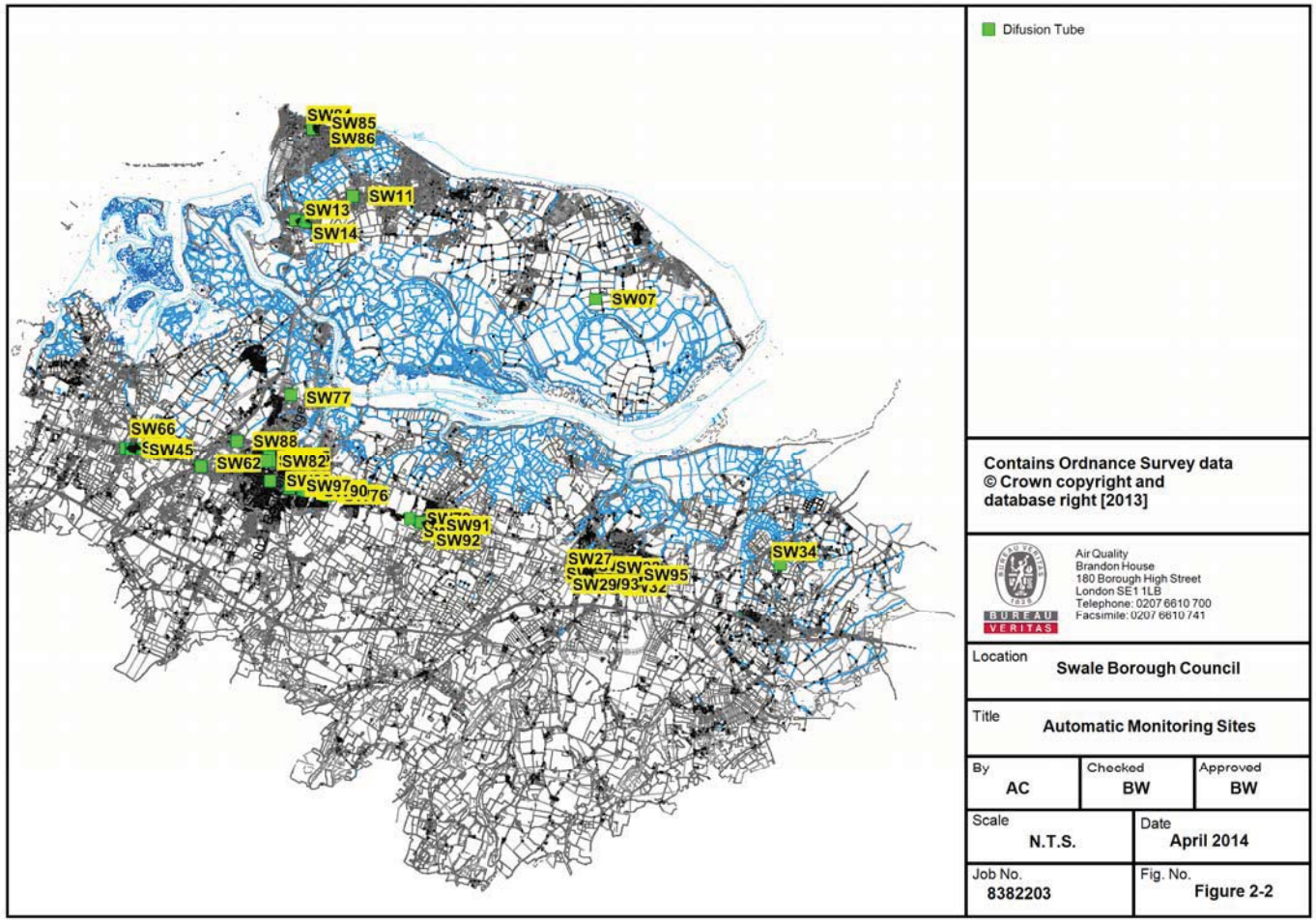

Figure 2-3 Map of Non-Automatic Monitoring Sites – Sheerness

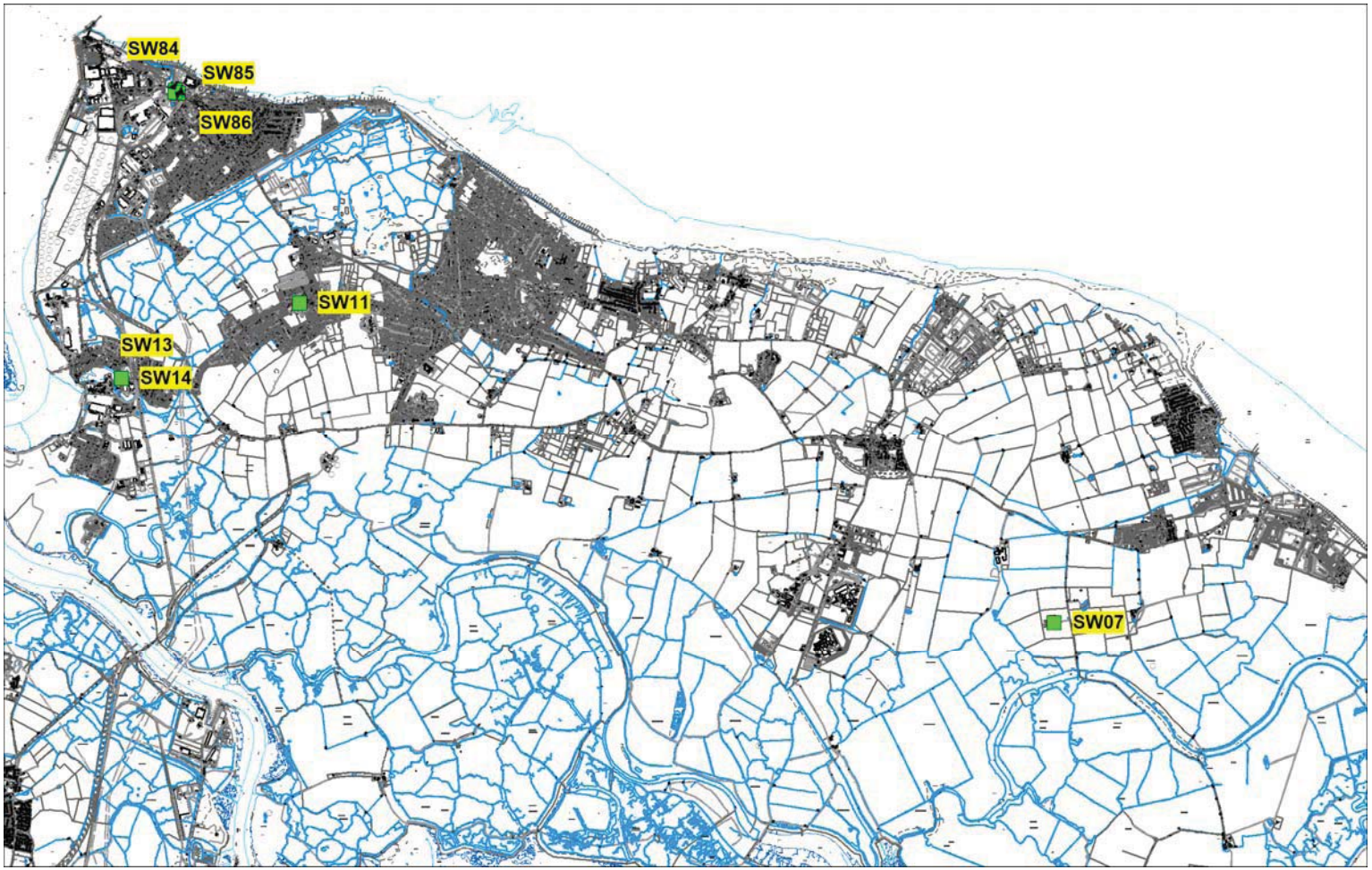

Figure 2-4 Map of Non-Automatic Monitoring Sites – Newington

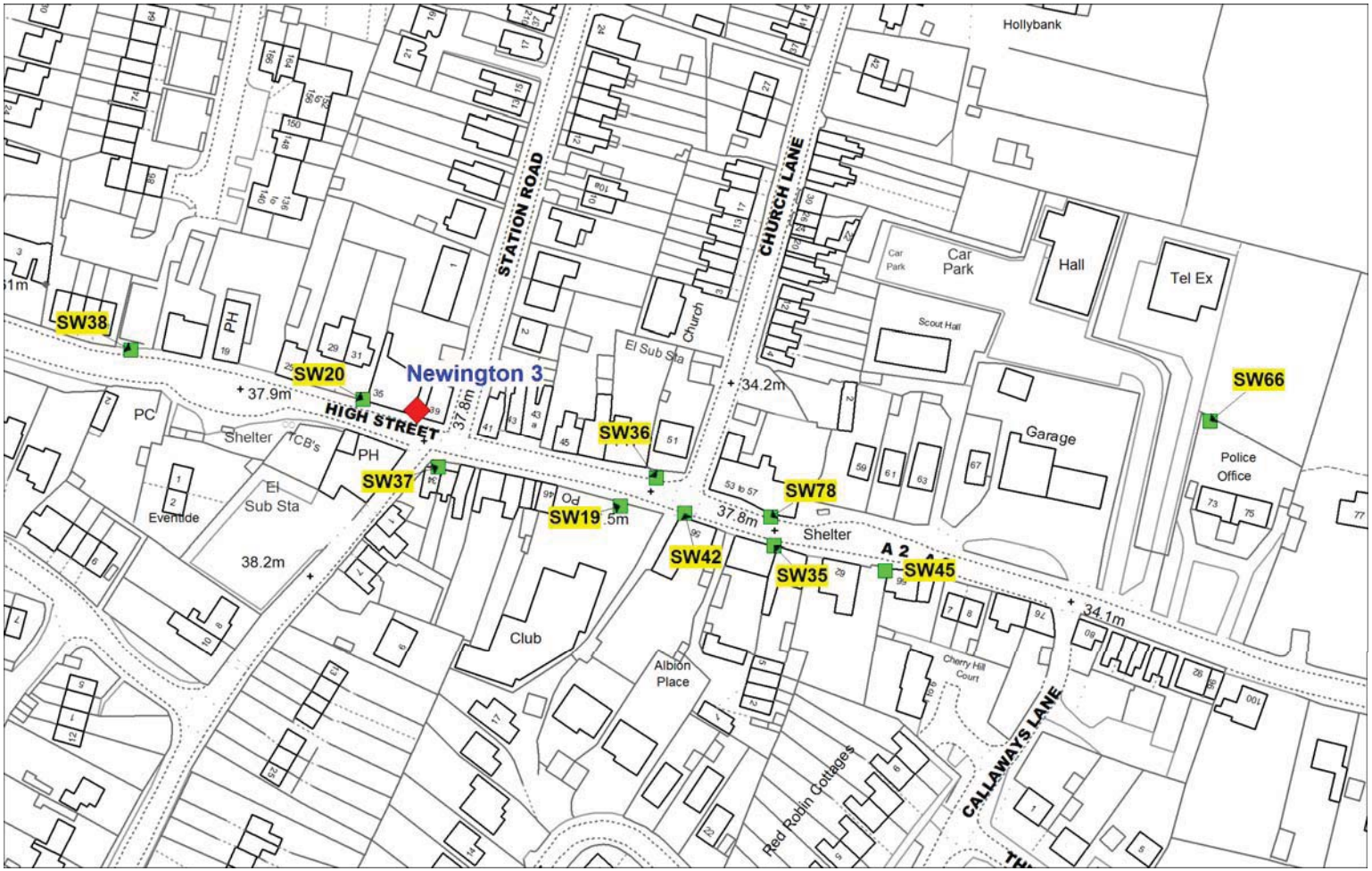

Figure 2-5 Map of Non-Automatic Monitoring Sites – Faversham and Teynham

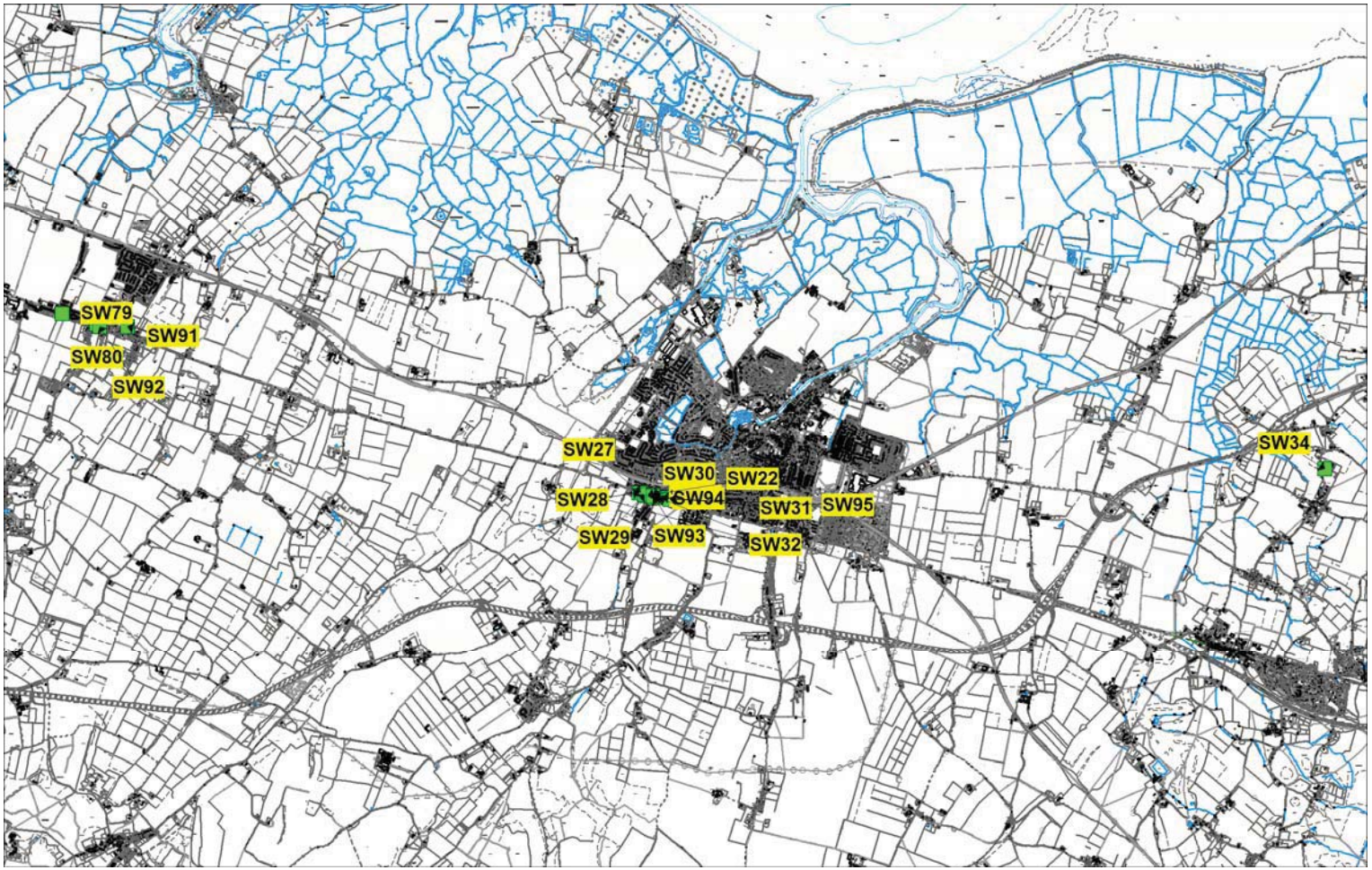

Figure 2-6 Map of Non-Automatic Monitoring Sites – Ospringe Street, Faversham

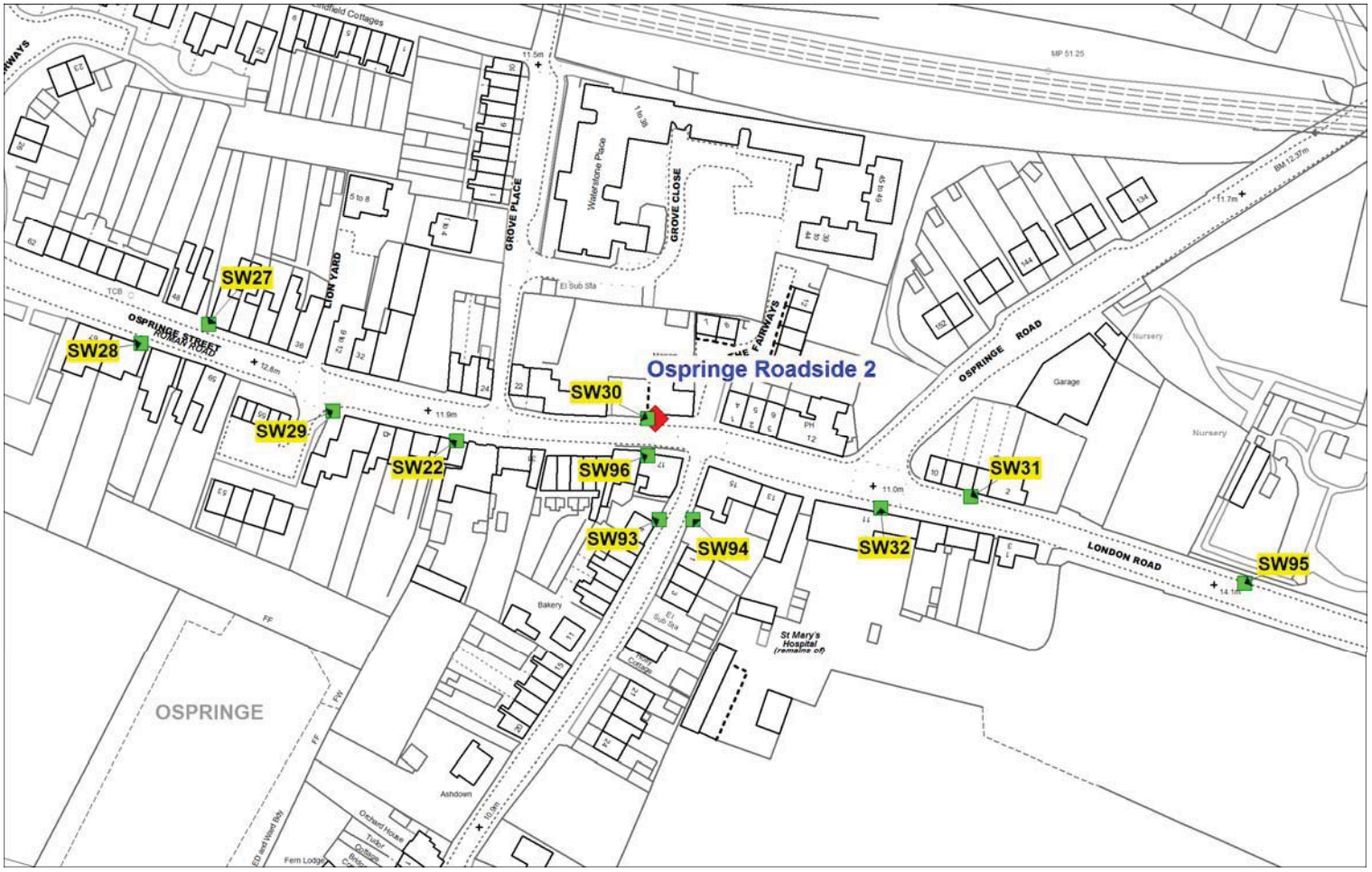

Figure 2-7 Map of Non-Automatic Monitoring Sites – Sittingbourne

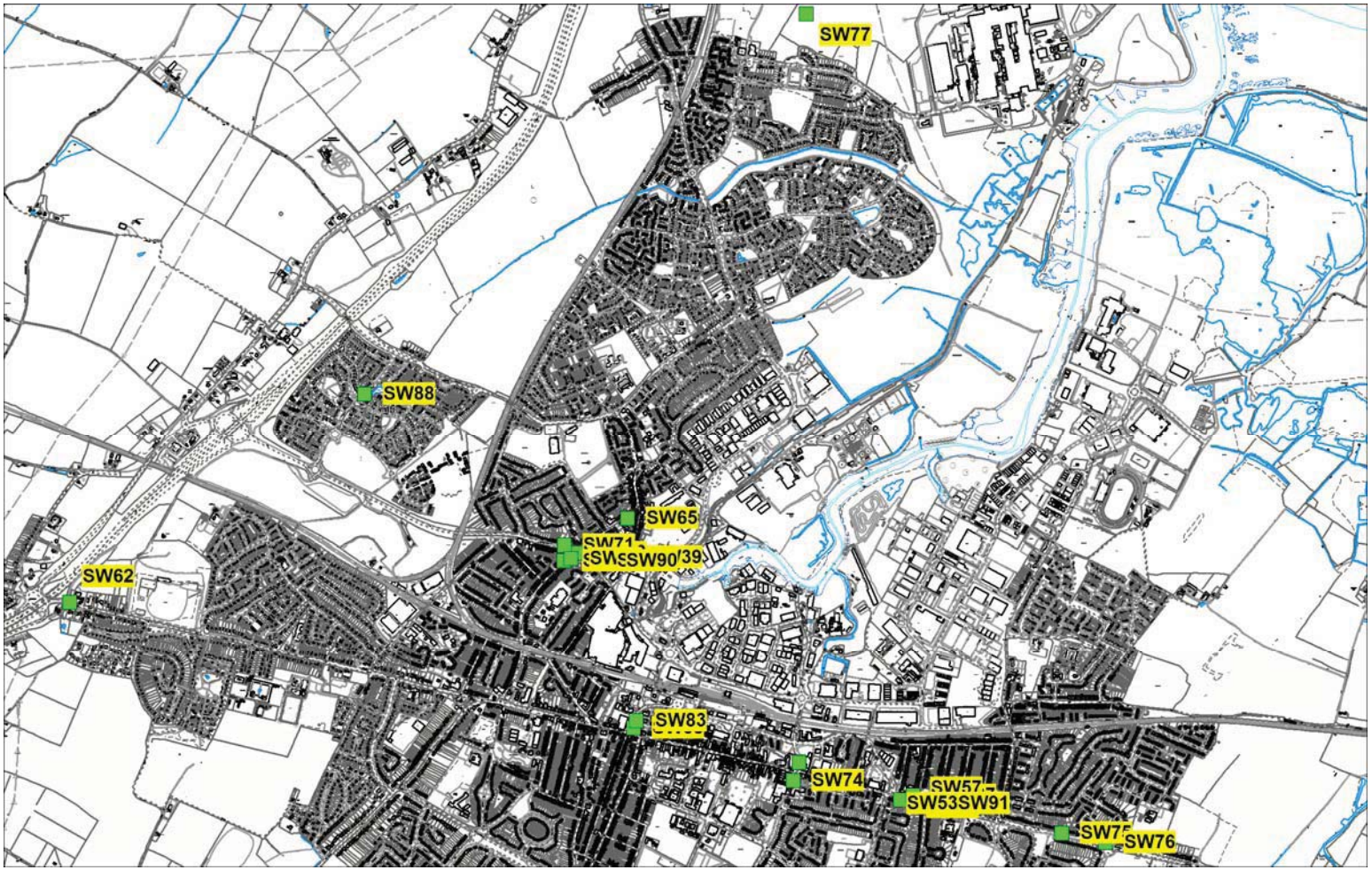

Figure 2-8 Map of Non-Automatic Monitoring Sites – East Street/Canterbury Road, Sittingbourne

Figure 2-9 Map of Non-Automatic Monitoring Sites – Canterbury Road, Sittingbourne

Figure 2-10 Map of Non-Automatic Monitoring Sites – Milton

Table 2-2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
Sheerness										
SW07	B	600745	169572	1.5	NO_2	N	N	N	N/A	N
SW11	R	593002	172853	1.75	NO_2	N	N	Y-0	5.5	N
SW13	R	591487	172048	1.9	NO2	N	N	Y-1.4	3.8	N
SW14	R	591170	172087	2.45	NO_2	N	N	Y-1.4	1.7	N
SW84	R	591725	175045	1.85	NO_2	N	N		3.5	
SW85	R	591751	175009	1.9	NO_2	N	N		2.3	
SW86	R	591723	175020	2.0	NO_2	N	N		1.6	
Newington										
SW19	R	585918	164790	2.4	NO_2	Y	Y	Y-0	2.3	N
SW20 x 3	R	585846	164820	2.3	NO_2	Y	Y	Y-0	1.6	N
SW35	R	585961	164779	2.4	NO_2	Y	Y-0.5	1.4	1.4	Y-0.5
SW36	R	585928	164798	2.2	NO_2	Y	Y-2.2	<1	3.1	Y-2.2
SW37	R	585867	164801	2.3	NO_2	Y	Y-0	4	1.7	Y-0
SW38	R	585781	164834	2.0	NO_2	Y	Y-1.7	1.6	2.4	Y-1.7
SW42 x 3	R	585936	164788	2.2	NO_2	Y	Y	Y-1.4	1.3	Y
SW45	R	585992	164772	2.3	NO_2	Y	Y	Y-0	1.2	N
SW66	R	586083	164814	1.9	NO_2	Y	N	Y – 0	1.2	Y
SW78	R	585960	164787	1.9	NO_2	Y	Y	Y – 0.9	2.2	N

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
Faversham and Teynham										
SW22	R	600307	160863	2.0	NO_2	Y	N	Y-0	2.7	N
SW27	R	600241	160894	2.0	NO_2	Y	N	Y-0	2.5	N
SW28	R	600223	160889	2.4	NO_2	Y	N	Y-0	1.5	N
SW29	R	600274	160871	2.07	NO_2	Y	Y-0	3	2.4	Y-0
SW30 x 3	R	600358	160869	1.9	NO_2	Y	Y-0	1.7	2.3	Y-0
SW31	R	600444	160848	2.4	NO_2	Y	Y-1.4	<1	1.5	Y-1.4
SW32	R	600420	160845	2.0	NO_2	Y	Y1.2	1.3	2.3	Y1.2
SW34	B	606624	161110	1.9	NO_2	N	N	N/A	N	N
SW79	R	594840	162566	1.6	NO_2	N	N	Y – 0	4.0	N
SW80	R	595160	162470	1.8	NO_2	N	N	Y – 0.6	1.5	N
SW91	UB	595149	162459	1.75	NO_2	N	N	Y- 0	2.0	N
SW92	R	595195	162446	1.9	NO_2	N	N	Y-1	3.1	N
SW93	R	600361	160842	1.8	NO_2	N	N	Y-0	1.7	N
SW94	R	600370	160842	1.8	NO_2	N	N	Y-2.0	2.2	N
SW95	R	600518	160826	1.9	NO_2	N	N	Y-3.6	1.6	N
SW96	R	600358	160859	1.9	NO_2	Y	N	Y-0	3.0	Y
Sittingbourne										
SW53	R	591401	163471	1.6	NO_2	Y	N	Y-0	5.1	N
SW56	R	591451	163465	1.85	NO_2	Y	N	Y-0	2.9	N

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
SW57	R	591449	163488	2.1	NO_2	Y	N	Y-0	4.3	N
SW58	R	590365	163748	2.4	NO_2	N	N	N	2.0	Y
SW62	R	588178	164235	2.1	NO_2	N	N	Y-15	1.9	N
SW74	R	590983	163545	1.95	NO_2	N	N	Y-2.17	1.7	N
SW75	R	592026	163342	2.0	NO_2	N	N	Y-4.0	1.3	N
SW76	R	592194	163306	2.2	NO_2	N	N	Y-3.5	1.7	N
SW77	B	591035	166521	2.0	NO_2	N	N	N	4.4	N/A
SW83	R	590375	163774	2.05	NO_2	N	N	Y	1.5	N
SW87 x 3	R	591489	163472	1.7	NO_2	Y	Y		4.8	N
SW88	UB	589320	165047	1.9	NO_2	N	N		1.8	N
SW90	R	591551	163456	1.6	NO_2	N	N	Y-2.9	2.0	N
SW97	R	591007	163614	2	NO_2	N	N	Y-1.6	2.4	N
Milton										
SW39 x 3	R	590359	164408	2.6	NO_2	Y	N	Y-0	9.0	N
SW51	R	590235	164408	2.2	NO_2	Y	N	Y-0.5	2.0	N
SW52	R	590203	164409	2.25	NO_2	Y	N	Y-0	3.0	N
SW65	R	590341	164558	1.85	NO_2	N	N	Y-0	2.4	N
SW70	R	590142	164425	2.5	NO_2	Y	N	Y-3.6	3.0	N
SW71	R	590096	164455	2.2	NO_2	N	N	Y-6.1	3.0	N
SW72	R	590094	164397	2.1	NO_2	N	N	Y-2	1.7	N

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
SW73	R	590122	164405	2.2	NO_2	Y	N	Y-2.8	3	N
SW82 x 3	R	590228	164396	2.3	NO_2	Y	N	N	1.65	N
SW89	K	590264	164396	3.1	NO_2	Y	Y	Y-9.0	4.0	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

There are two Air Quality Objectives for NO_2, namely:

- the annual mean of 40µg/m^3, and
- the 1-hour mean of 200µg/m^3 not to be exceeded more than 18 times a year.

Automatic Monitoring Data

The Council monitored NO_2 at four locations during 2013.

The monitoring data can be seen in Tables 2-3 and 2-4. Full details of the QA/QC procedure are provided in Appendix A.

As data capture was good during 2013 annualisation was not required. However, data capture was below 90% at the Canterbury Road site during 2013; as such the 99.8th percentile has also been reported for the hourly objective for this site.

Results for 2013 indicate that the annual mean objective and the 1-hour objective were met at three automatic monitoring locations: Newington (3), Ospringe Roadside (2) and St Paul's Street. The annual mean NO_2 objective was exceeded at the Canterbury Road site.

Figure 2-11~~Figure 2-11~~ shows the trend in NO_2 concentration from 2008 through to 2013 at the monitoring locations. This shows that annual mean concentrations have increased at both the Newington and Canterbury Roadside sites; the latter having exceeded the annual mean objective in 2013. The annual mean has decreased at the Ospringe Roadside location in 2012 but showed a slight increase in 2013.

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Table 2-3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Annual Mean Concentration (µg/m^3)					
					2008	2009	2010	2011	2012	2013
Ospringe Roadside (2)	Roadside	Y	95.7	95.7	34	31	38.6	38.8	34.8	36.9
Newington (3)	Roadside	Y	97.8	97.8	-	-	-	28.5	30.4	34.8
Canterbury Road	Roadside	Y	86.0	86.0	-	-	-	36.9	37.4	**42.5**
St Paul's Street	Roadside	Y	91.8	91.8	-	-	-	-	-	33.6

Figure 2-11 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

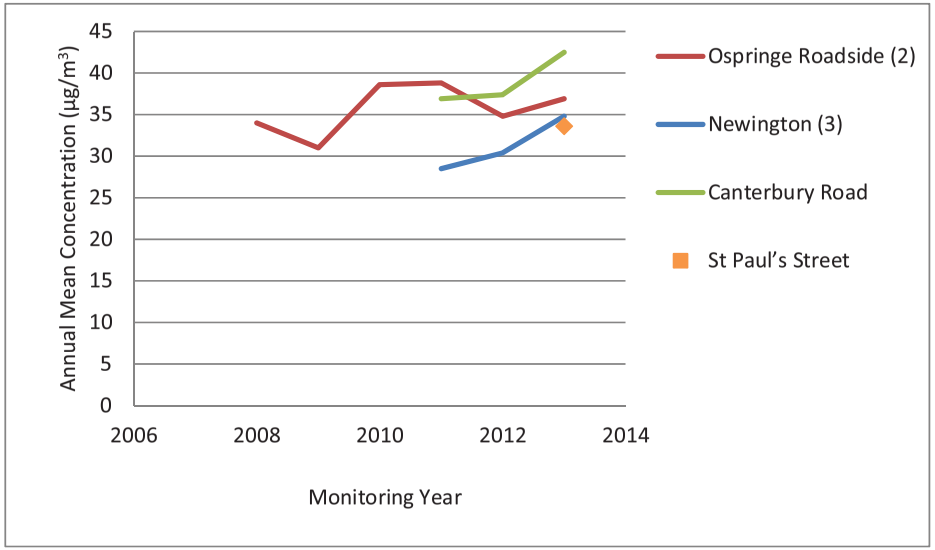

Table 2-4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Number of Hourly Means > 200µg/m^3					
					2008	2009	2010	2011	2012	2013
Ospringe Roadside (2)	Roadside	Y	95.7	95.7	0	0	0	0	0	0
Newington (3)	Roadside	Y	97.8	97.8	-	-	-	0	0	1
Canterbury Road	Roadside	Y	86.0	86.0	-	-	-	0 (107)	0	7 (175.7)
St Paul's Street	Roadside	Y	91.8	91.8	-	-	-	-	-	0

If the period of valid data is less than 90%, the 99.8th percentile of hourly means is included in brackets

Diffusion Tube Monitoring Data

The NO_2 diffusion tube data are summarised in Table 2.5. The full dataset (monthly mean values) are included in Appendix A. A number of sites had data capture of less than 75% and were annualised. The details of the annualisation can be found in Appendix A.

The diffusion tube annual mean results have been corrected using the bias correction factor of 0.82, as calculated from local colocation studies.

For the 2013 data set there were sixteen sites where the annual mean AQS objective was exceeded. Of those sites showing an exceedence, fourteen were located within existing AQMAs.

Those sites that were outside of existing AQMAs are listed below:

- SW91 – Adj 72 London Road, Teynham; and
- SW95 – The Mount, London Road, Faversham.

The annual mean objective was slightly below the objective (at 39.1 µg/m^3) at Site SW80, Michaels Hairdressers in Teyham, however exceedences were recorded at this site in the previous years. Following the recommendation of the 2013 Progress Report the Council started additional diffusion tube monitoring at sites SW91 and SW92 on London Road, Teynham. Site 92, located 1 m away from the façade of a residential propety, was close to the objective with the concentration being 39.9 µg/m^3. Site SW91 is located at the façade of a relevant receptor and showed an exceedence of the objective in 2013 at 41.3 µg/m^3. It is therefore recommended that a Detailed Assessment is undertaken for this area.

The Site SW95 located at the Mount, further along the A2 London Road in Faversham (area adjacent to the existing AQMA), was 70.5 µg/m^3 for 2013; this exceeds both the annual mean objective and indicates exceedences of the 1-hr mean objective. The site has been distance corrected to give an indication of what the annual mean is likely to be at relevant receptor locations. The distance corrected concentration was 62.9 µg/m^3. As 2013 Further Assessment for the Ospringe Road AQMA identified the need to extend this AQMA to the east to include The Mount, it is recommended that the Council acts on that recommendation and extends the Ospringe AQMA to include this location. The proposed extension of the Ospringe AQMA is shown in Figure 1-5~~Figure 1-5~~. Continued monitoring at the site is also recommended.

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Therefore, continued monitoring at the site is recommended and a Detailed Assessment may be required if 2014 results also show an exceedence of the objective.

The annual mean for Site SW82, The Conservative Club, St Pauls Street was 62.3 µg/m^3 for 2012, raising concern of exceedences of the 1-hour mean objective in St Paul's Street. The 2013 Progress Report recommended continued monitoring in this location, as well as installing additional diffusion tube sites along St Paul's Street, particularly in locations with relevant receptors (there is no relevant exposure at Site SW82). The exceedence of 60 µg/m^3 was not confirmed by 2013 results; Site SW82 recorded the annual mean concentration of 56.4 µg/m^3. The concentration at St Paul's Street monitoring station was 33.6 µg/m^3 and the new triplicate monitoring site SW89 showed a concentration of 44.0 µg/m^3 for 2013.

Table 2-5 Results of NO_2 Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months)	2013 Annual Mean Concentration ($\mu g/m^3$) – Bias Adjustment factor = 0.82
Sheerness						
SW07	Harty, Sheerness	B	N	N	12	14.1
SW11	Queenborough Rd, Halfway	R	N	N	12	34.1
SW13	Main Road, Q/B	R	N	N	12	23.1
SW14	Rushenden Road, Q/B	R	N	N	11	22.7
SW84	Sheerness College 1	R	N	N	11	27.6
SW85	Sheerness College 2	R	N	N	11	32.8
SW86	Swale Foyer	R	N	N	7	24.4*
Newington						
SW19	Newington Social Club	K	Y	N	9	29.8
SW20 x 3	Newington Co Op, A2, Newington	R	Y	Triplicate & co-located	12	33.4
SW35	60 High Street, Newington	K	Y	N	10	**45.9**
SW36	49 High Street, Newington	R	Y	N	10	34.1
SW37	32 High Street, Newington	K	Y	N	8	36.5*
SW38	15a High Street, Newington	R	Y	N	10	36.4
SW42 x 3	High Street, Opp Church Lane	K	Y	Triplicate	11	**48.8**
SW45	64 High Street, Newington	R	Y	N	10	**40.4**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months)	2013 Annual Mean Concentration (µg/m^3) – Bias Adjustment factor = 0.82
SW66	96/94 High Street, Newington	R	Y	N	10	**40.9**
SW78	Vari Restaurant, High Street	R	Y	N	12	**41.3**
Faversham and Teynham						
SW22	35 Ospringe Street	R	Y	N	11	**50.8**
SW27	44 Ospringe Street, Faversham	R	Y	N	11	25.0
SW28	Mayors Arms, Ospringe Street	R	Y	N	11	**47.5**
SW29	43 Ospringe Street	R	Y	N	11	**42.3**
SW30 x 3	18/19 Ospringe Street	R	Y	Triplicate & co-located	11	33.3
SW31	4 Ospringe Street	R	Y	N	11	**45.1**
SW32	11 Ospringe Street	R	Y	N	10	**41.5**
SW34	Hernehill Village Hall	B	N	N	11	11.9
SW79	Belle Friday Centre, A2 Teynham	R	N	N	11	32.8
SW80	Michaels Hairdressers A2 Teynham	R	N	N	5	39.1*
SW91	72 London Road, Teynham	B	N	N	8	**41.3***
SW92	64 London Road, Teynham	R	N	N	3	39.9*
SW93	4 Water Lane, Ospringe, Faversham	R	N	N	6	15.3*
SW94	Water Lane R/o 15 Ospringe Street, Faversham	R	N	N	7	17.9*
SW95	The Mount, London Road, Faversham	R	N	N	7	**70.5***

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months)	2013 Annual Mean Concentration (µg/m^3) – Bias Adjustment factor = 0.82
SW96	Maison Dieu, Ospringe Street, Faversham	R	Y	N	6	38.8*
Sittingbourne						
SW53	114 East Street, Sittingbourne	R	Y	N	11	33.6
SW56	126 East Street, Sittingbourne	R	Y	N	12	**42.8**
SW57	169 East Street, Sittingbourne	R	Y	N	10	34.5
SW58	Dover Street Filling Station, Dover Street	R	N	N	1	28.6*
SW62	Key Street, Sittingbourne	R	N	N	12	39.9
SW74	Bell Road Retirement Apartments	R	N	N	12	28.1
SW75	109 Canterbury Road, Sittingbourne	R	N	N	8	24.6*
SW76	155 Canterbury Road, Sittingbourne	R	N	N	11	33.8
SW77	Kemsley Fields, Swale Way	B	N	N	11	34.5
SW83	Pembury Court, Dover Street	R	N	N	12	33.3
SW87 x 3	Canterbury Road AQ Station	R	Y	Triplicate and Co-located	12	33.2
SW88	Sonara Way	UB	N	N	1	24.3*
SW90	J Of Canterbury Rd & Goodnestone Rd, Sittingbourne	R	N	N	10	31.6
SW97	Swale House, Crown Quay Lane, Sittingbourne	R	N	N	4	31.6*

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months)	2013 Annual Mean Concentration (µg/m^3) – Bias Adjustment factor = 0.82
Milton						
SW39 x 3	Giles Young Court, Milton	R	Y	Triplicate	10	30.4
SW51	14/16 St Pauls Street, Milton	R	Y	N	12	**43.7**
SW52	20/22 St Pauls Street, Milton	R	Y	N	12	38.1
SW65	5 Crown Road, Milton	R	N	N	9	27.1
SW70	Stumble Inn, St Pauls Street, Sittingbourne	R	Y	N	7	29.6*
SW71	o/s 8 Staple Close, Staplehurst Road	R	N	N	9	31.3
SW72	o/s 1 Alexander Court, Chalkwell Road	R	N	N	11	32.5
SW73	Adj to 14 Chalkwell Road, Sittingbourne	R	Y	N	12	35.9
SW82 x 3	Conservative Club, St Pauls Street	R	Y	Triplicate	12	**56.4**
SW89	St Paul's Air Quality Station, Milton	K	Y	Triplicate and Co-located	12	**44.0**

* Results were annualised.

Table 2-6 Results of NO_2 Diffusion Tubes (2008 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) – Adjusted for Bias					
			2008 (Bias Adjustment Factor = 0.78)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor =0.80)	2013 (Bias Adjustment Factor =0.82)
Sheerness								
SW07	B	N	15	15	14	13.5	13.3	14.1
SW11	R	N	25	23	26	30.3	24.3	34.1
SW13	R	N	28	27	30	25.2	24.2	23.1
SW14	R	N	31	26	32	27.6	24.4	22.7
SW84	R	N	-	-	-	37.3	30.0	27.6
SW85	R	N	-	-	-	37.4	29.5	32.8
SW86	R	N	-	-	-	24.2	28.9	24.4*
Newington								
SW19	R	Y	29	30	31	29.7	28.8	29.8
SW20	R	Y	38	39	**41**	37.3	34.2	33.4
SW35	R	Y	**49**	**56**	**53**	**47.6**	**46.1**	**45.9**
SW36	R	Y	34	36	**40**	38.9	33.4	34.1
SW37	R	Y	39	**40**	**42**	**40.7**	**41.5**	36.5*
SW38	R	Y	37	35	**40**	35.4	34.7	36.4
SW42	R	Y	**50**	**51**	**52**	**47.9**	**47.9**	**48.8**
SW45	R	Y	**41**	**50**	**49**	**44.4**	**42.0**	**40.4**
SW66	R	Y	-	**50**	**44**	**45.0**	39.2	**40.9**
SW78	R	Y	-	-	**46**	**42.1**	37.2	**41.3**
Faversham and Teynham								

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) – Adjusted for Bias					
			2008 (Bias Adjustment Factor = 0.78)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor =0.80)	2013 (Bias Adjustment Factor =0.82)
SW22	R	Y	**54**	**48**	**60**	**59.6**	**51.7**	**50.8**
SW27	R	Y	25	24	28	27.8	25.2	25.0
SW28	R	Y	**52**	**43**	**58**	**56.7**	**53.9**	**47.5**
SW29	R	Y	**50**	**45**	**54**	**55.1**	**52.8**	**42.3**
SW30	R	Y	35	30	39	**40.4**	36.4	33.3
SW31	R	Y	**46**	**41**	**55**	**46.5**	**47.5**	**45.1**
SW32	R	Y	**47**	**41**	**49**	**45.9**	**45.5**	**41.5**
SW34	B	N	12	13	13	14.9	13.1	11.9
SW79	R	N	-	-	30	**20.9**	20.2	32.8
SW80	R	N	-	-	39	45.0	**45.2**	39.1*
SW91	B	N	-	-	-	-	**-**	**41.3***
SW92	R	N	-	-	-	-	**-**	39.9*
SW93	R	N	-	-	-	-	**-**	15.3*
SW94	R	N	-	-	-	-	**-**	17.9*
SW95	R	N	-	-	-	-	**-**	**70.5***
SW96	R	Y	-	-	-	-	**-**	38.8*
Sittingbourne								
SW53	R	Y	**40**	**40**	**40**	38.8	**41.0**	33.6
SW56	R	Y	**50**	**47**	**48**	**46.5**	39.8	**42.8**
SW57	R	Y	38	36	**41**	33.9	33.8	34.5
SW58	R	N	**46**	**43**	**45**	36.8	31.1	28.6*

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) – Adjusted for Bias					
			2008 (Bias Adjustment Factor = 0.78)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor =0.80)	2013 (Bias Adjustment Factor =0.82)
SW62	R	N	**46**	**41**	**55**	**46.5**	**47.5**	39.9
SW74	R	N	-	30	33	29.5	29.2	28.1
SW75	R	N	-	27	30	26.7	26.9	24.6*
SW76	R	N	-	**41**	**43**	37.9	**40.7**	33.8
SW77	B	N	-	28	39	32.3	31.3	34.5
SW83	R	N	-	-	39	34.7	33.6	33.3
SW87	R	Y	-	-	-	-	36.0	33.2
SW88	UB	N	-	-	-	-	27.2	24.3*
SW90	R	N	-	-	-	-	-	31.6
SW97	R	N	-	-	-	-	-	31.6*
Milton								
SW52	R	Y	**40**	38	**45**	**41.5**	**41.7**	30.4
SW51	R	Y	**49**	**49**	**56**	**46.3**	**42.2**	**43.7**
SW39	R	Y	36	36	39	36.1	31.9	38.1
SW65	R	N	-	-	-	-	30.9	27.1
SW70	R	Y	-	33	38	29.7	30.8	29.6*
SW71	R	N	-	27	**40**	35.3	37.0	31.3
SW72	R	N	-	36	38	37.2	32.7	32.5
SW73	R	Y	-	39	**40**	31.6	37.2	35.9
SW82	R	Y	-	-	-	**68.2**	**62.3**	**56.4**
SW89	K	Y	-	-	-	-	-	**44.0**

Figure 2-12 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites in Sheerness

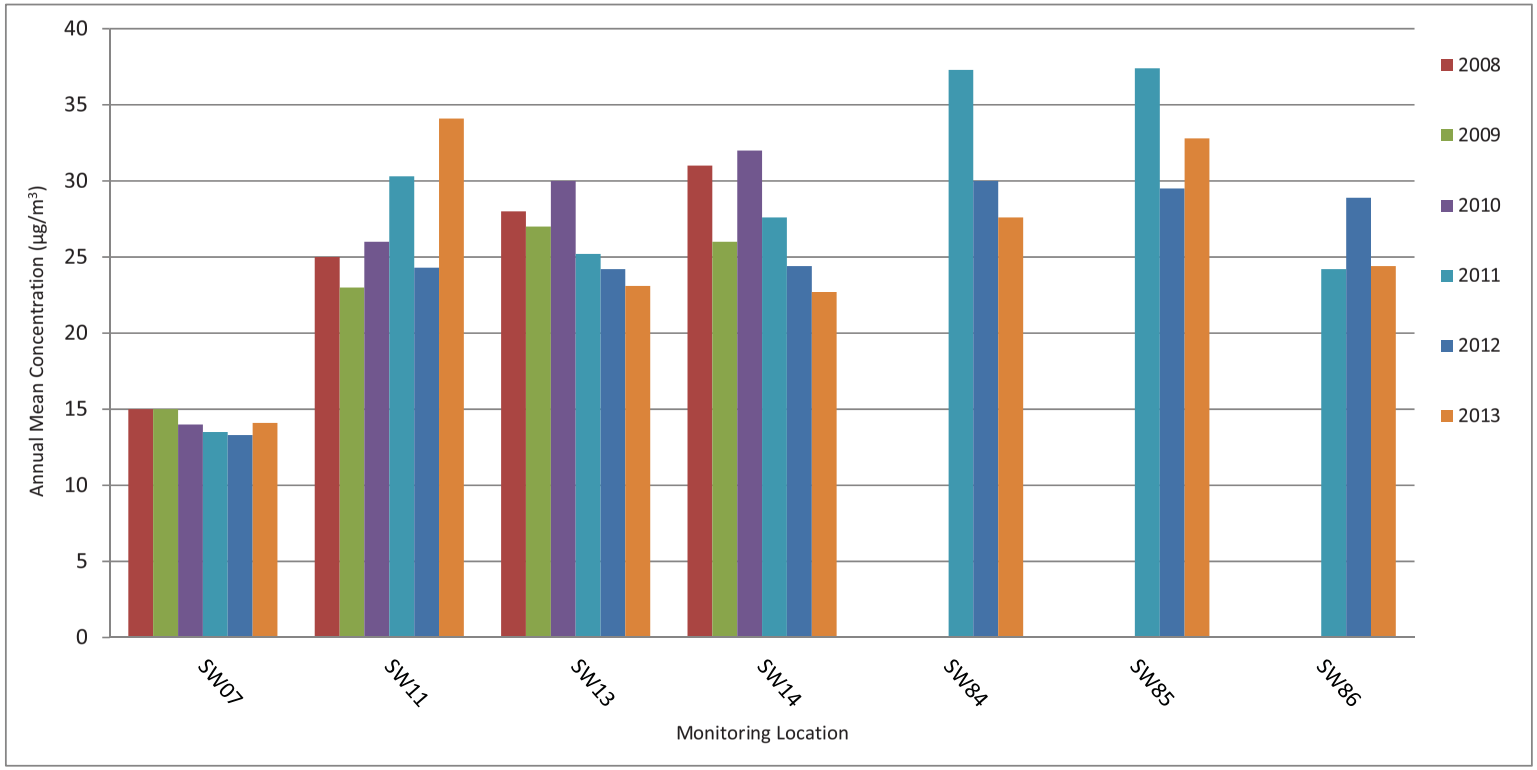

Figure 2-12~~Figure 2-12~~ shows the trend in NO_2 concentration for those sites located in Sheerness. The majority of the monitoring locations have shown a decrease from the 2011, however concentrations at some sites showed an increase from 2012. There were no monitoring locations where the annual mean objective was exceeded in 2013 in the Sheerness area.

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Figure 2-13 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites in Newington

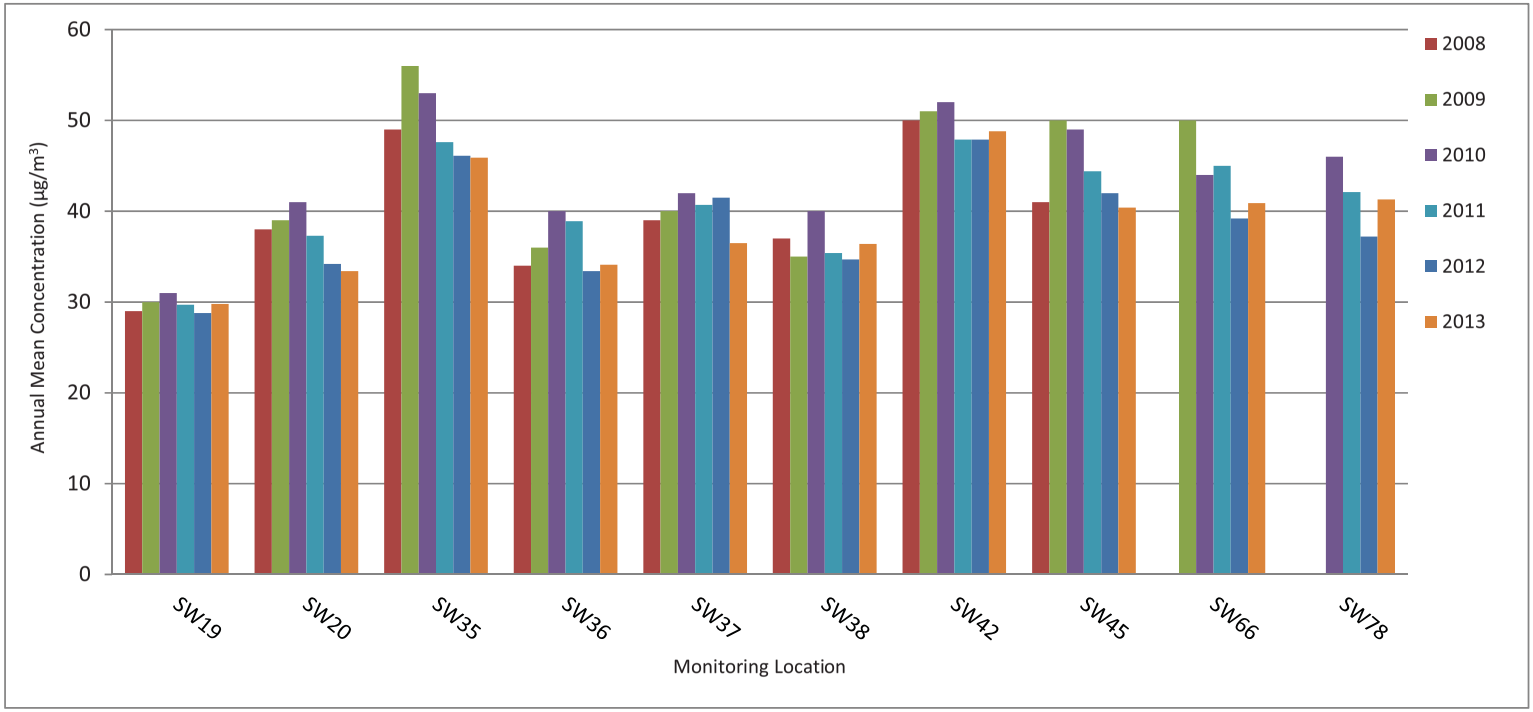

Figure 2-13~~Figure 2-13~~ shows the trend in NO_2 concentration for those sites located in Newington. The majority of the monitoring locations have shown a decrease from the 2011, however concentrations at some sites showed an increase from 2012. There were five monitoring locations where the annual mean objective was exceeded in 2013 in the Newington area; all of these sites were located within existing AQMAs.

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Figure 2-14 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites in Faversham

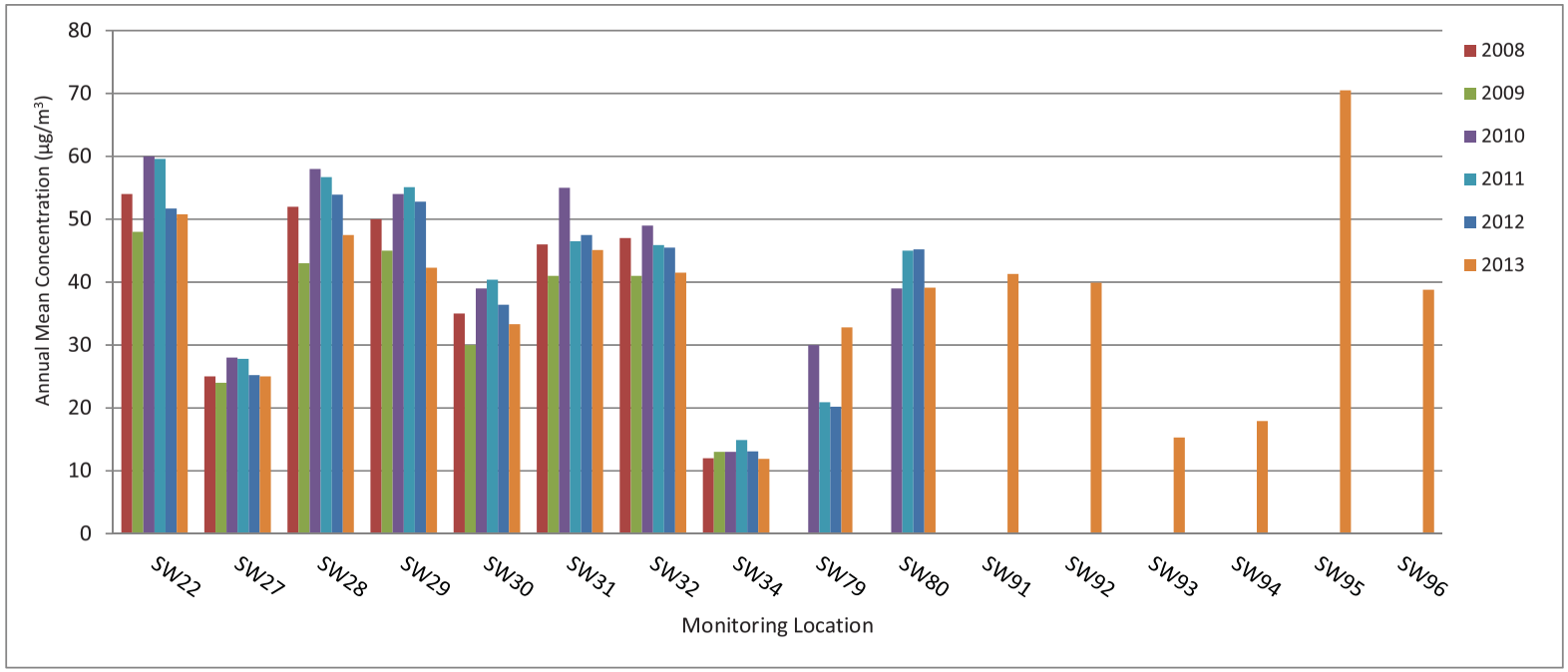

Figure 2-14~~Figure 2-14~~ shows the trend in NO_2 concentration for those sites located in Faversham. The majority of the monitoring locations have shown a decrease from the 2011 concentrations, however concentrations at some sites showed an increase from 2012. Six new sites were installed in 2013, four of which are located in areas adjacent to the existing AQMA. Two sites were added in Teynham (near Faversham). There were seven monitoring locations where the annual mean objective was exceeded in 2013 in the Faversham area, of these five are located within existing AQMAs.

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Figure 2-15 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites in Sittingbourne

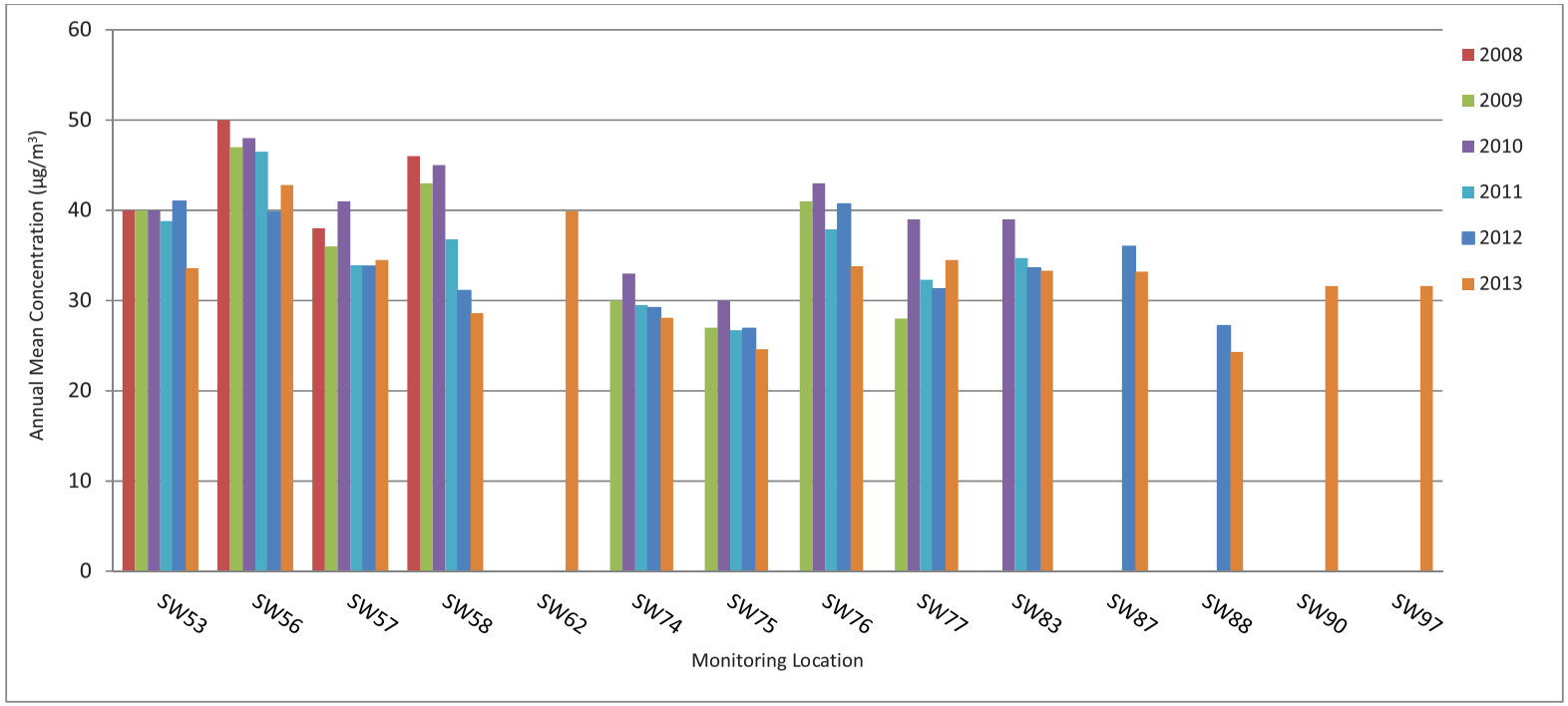

Figure 2-15~~Figure 2-15~~ shows the trend in NO_2 concentration for those sites located in Sittingbourne. The majority of the monitoring locations have shown a decrease from the 2011, however concentrations at some sites showed an increase from 2012. Two new monitoring sites were added in areas adjacent to the AQMA. There was one monitoring location within the existing AQMA where the annual mean objective was reached in 2013.

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Figure 2-16 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites in Milton

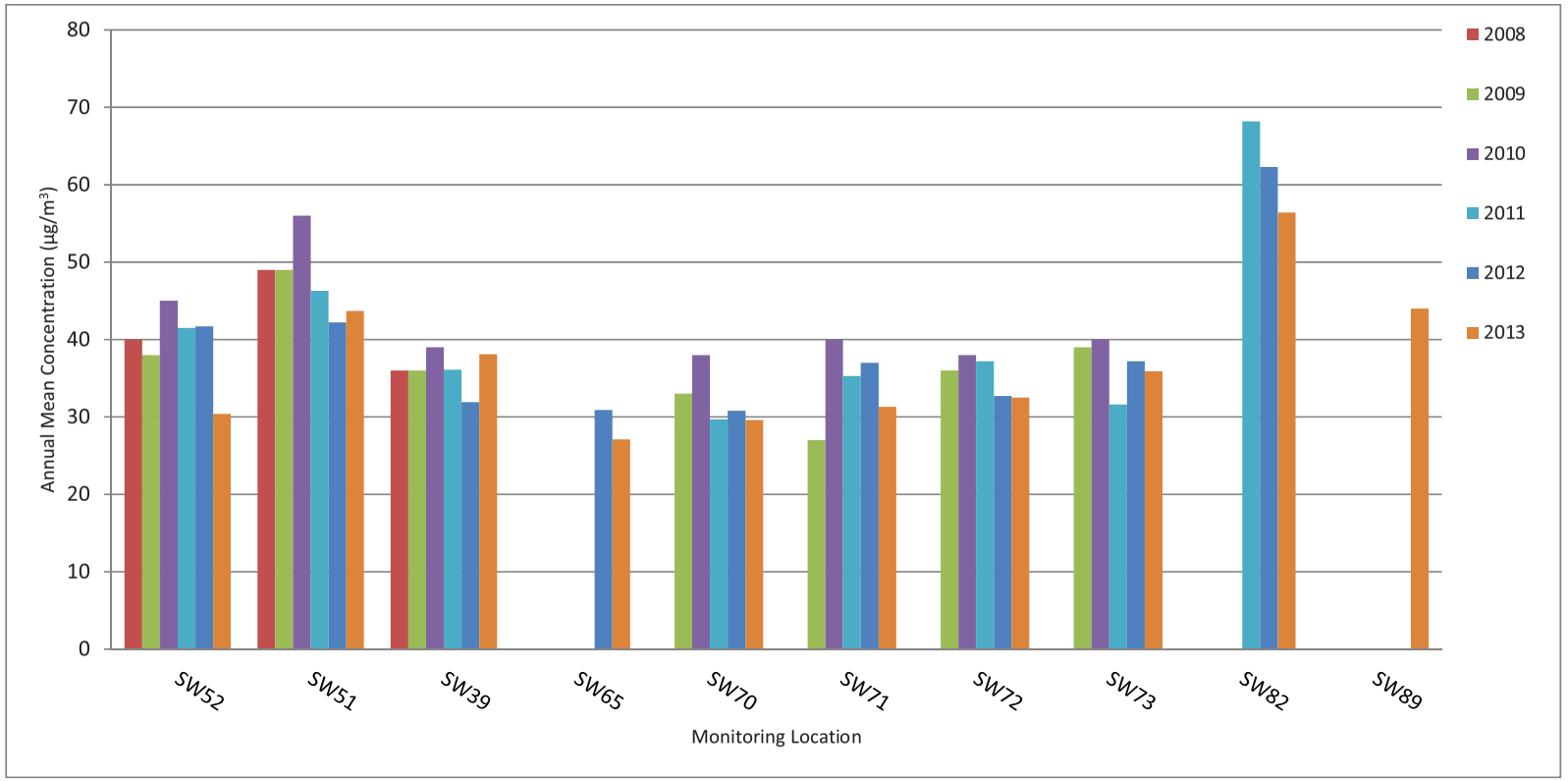

Figure 2-16~~Figure 2-16~~ shows the trend in NO_2 concentration for those sites located in Milton. Half of the monitoring locations have shown a decrease from the 2011, and for some sites this is the continuation of a decreasing trend observed over the past three years. There was one new (triplicate and co-located) site added in St Paul's Street. There were three monitoring locations where the annual mean objective was exceeded in 2013 in the Milton area. All of the sites are within an existing AQMA.

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2.2.2 Particulate Matter (PM_{10})

There are two Air Quality Objectives for PM_{10}, namely:

- the annual mean of 40µg/m^3; and
- the 24-hour mean of 50µg/m^3 not to be exceeded more than 35 times a year.

The Council undertook monitoring of PM_{10} using TEOM analysers at one location during 2013: at the Ospringe Roadside site. The monitoring data are presented in Tables 2.7 and 2.8 below.

As data capture was good during 2013 annualisation was not required. The results presented are gravimetric equivalent. Ricardo-AEA undertake the QA/QC and data management for the Council, further details of this are presented in Appendix A.

The 2013 results show that the annual mean and the 24-hour mean continue to be met at the monitoring location within the borough. The 2013 concentrations showed an increase from 2012 returning to 2011 levels and the number of daily means greater than 50 µg/m^3 nearly doubled when compared to 2012.

Figure 2-17~~Figure 2-17~~ shows the trend in PM_{10} concentrations at the monitoring location. The graph shows that PM_{10} concentrations have varied over the four year period, with decreases observed in 2010 and 2012. The concentrations in 2013 showed an increase from 2012 and returned to the 2011 levels. Annual mean concentrations have remained below the annual mean objective for this period.

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Table 2-7 Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)					
						2008	2009	2010	2011	2012	2013
Ospringe Roadside 2	Roadside	Y	95.2	95.2	Y	-	28	22	29	26.4	29.4

Figure 2-17 Trends in Annual Mean PM_{10} Concentrations

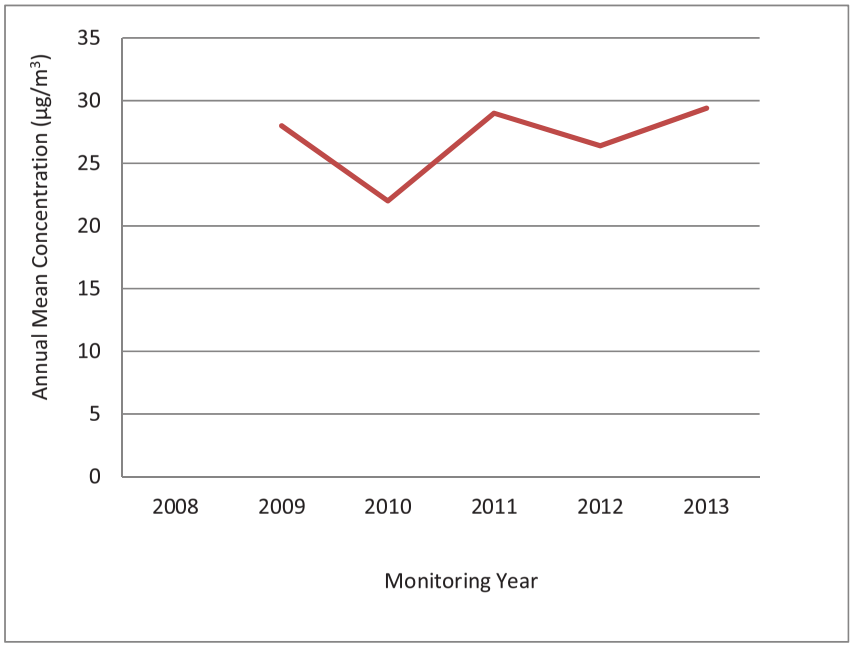

Table 2-8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3					
						2008	2009	2010	2011	2012	2013
Ospringe Roadside 2	Roadside	Y	95.2	95.2	Y	-	1 (34)	3 (33)	34	12	21

If data capture is less than 90%, include the 90th percentile of 24-hour means in brackets

2.2.3 Sulphur Dioxide (SO_2)

There is currently no sulphur dioxide monitoring undertaken by Swale Borough Council.

2.2.4 Benzene

There is currently no benzene monitoring undertaken by Swale Borough Council.

2.2.5 Summary of Compliance with AQS Objectives

In 2013, the annual mean NO_2 objective was met at three automatic monitoring locations: Newington (3), Ospringe Roadside (2) and St Paul's Street. The annual mean NO_2 objective was exceeded at the Canterbury Road site (in AQMA). All continuous monitoring locations met the 1-hour NO_2 objective.

The annual mean and the 24-hour mean objectives for PM_{10} continue to be met at the Ospringe monitoring location in Faversham.

The diffusion tube network identified sixteen sites within the Borough where the annual mean NO_2 objective was exceeded; fourteen of those locations were within existing AQMAs.

Outside of the AQMAs, the annual mean NO_2 objective was exceeded at the new diffusion tube monitoring site SW92 on London Road, Teynham. SW80 (Michael's Hairdressers, London Road, Teynham) was slightly below the objective in 2013 but exceeded the objective in previous years. Therefore, it is recommended that a Detailed Assessment is undertaken for this area.

The other site showing an exceedence of the annual mean NO_2 objective in 2013 was SW95, located at the Mount, further along the A2 London Road in Faversham. The site showed a concentration above 60 µg/$m^3$when distance corrected to estimate concentration at relevant receptor façade. Therefore, it is recommended that the Council extends the Ospringe AQMA to include the Mount. Continued monitoring at the site is also recommended.

Swale Borough Council has measured concentrations of NO_2 above the annual mean objective at relevant locations outside of the existing AQMAs, and **will need to proceed to a Detailed Assessment**, for the area of London Road/Lynsted Lane junction in Teynham.

Exceedence of the annual mean NO_2 objective was also recorded at the Mount on London Road in Faversham (area adjacent to the existing AQMA). It is recommended that the Council extends the Ospringe AQMA to include this location. Continued monitoring at the site is also recommended.

3 New Local Developments

3.1 Road Traffic Sources

LAQM requires local authorities to consider the following:

- Narrow congested streets with residential properties close to the kerb;
- Busy streets where people may spend one hour or more close to traffic;
- Roads with a high flow of buses and/or HGVs;
- Junctions;
- New roads constructed since the last Updating and Screening Assessment;
- Roads with significantly changed traffic flows; and
- Bus or coach stations.

Swale Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.2 Other Transport Sources

LAQM requires local authorities to consider the following:

- Airports;
- Locations where diesel or stream trains are regularly stationary for periods of 15 minutes or more, with relevant exposure within 15m;
- Locations with a large number of movements of diesel locomotives and long term relevant exposure within 30m; and
- Shipping ports.

Swale Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.3 Industrial Sources

LAQM requires local authorities to consider the following:

- Industrial Installations: new or proposed;
- Industrial installations: existing where emissions have increased substantially or relevant exposure introduced;
- Major fuel storage depots;
- Petrol stations; and
- Poultry farms.

Swale Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.4 Commercial and Domestic Sources

LAQM requires local authorities to consider the following:

- Biomass combustion plant – individual installations;
- Areas where the combined impact of several biomass combustion sources may be relevant; and
- Areas where domestic solid fuel burning may be relevant.

LAQM requires local authorities to consider the following:

- Biomass combustion plant – individual installations;
- Areas where the combined impact of several biomass combustion sources may be relevant; and
- Areas where domestic solid fuel burning may be relevant.

Swale Borough Council has identified one biomass installation which may have an impact upon air quality:

- Planning ref. SW/13/0814, Rhode Court Barn, Selling Road, Selling, Faversham

No details of the installation are currently available. Swale Borough Council will liaise with the relevant stakeholders to obtain details on the capacity of the biomass boiler in order to determine whether further assessment is required.

Comment [AC1]: Only installations above 50kW need to be considered.

3.5 New Developments with Fugitive or Uncontrolled Sources

LAQM requires local authorities to consider the following:

- Landfill sites;
- Quarries;
- Unmade haulage roads on industrial sites;
- Waste transfer stations; and
- Any other potential sources of fugitive particulate emissions.

Swale Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

Swale Borough Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- Biomass installation at Rhode Court Barn, Selling Road, Selling, Faversham - planning ref. SW/13/0814

This will be taken into consideration in the next Updating and Screening Assessment.

4 Local / Regional Air Quality Strategy

Swale Borough Council does not have a Local Air Quality Strategy. The Air Quality Action Plan for the declared AQMAs includes Borough-wide air quality measures in addition to specific AQMA measures.

Swale Borough Council were successful in obtaining a Defra grant fund to work on the Swale Borough Council Freight Management Plan. Following this, 22 schools in Swales signed up to Walk on Wednesday (WOW) and Active Bug projects.

Swale Borough Council have arranged meetings for the steering groups for Newington and Ospringe in the autumn of 2013. There already exists an air quality steering group in Sittingbourne.

KENT ENVIRONMENT STRATEGY

Kent County Council, in partnership with Kent local authorities, has produced a Regional Environment Strategy[1], completed in July 2011. The Strategy considers air quality issues county-wide and includes the following actions relevant to air quality:

- Action EF 2.2: Ensure that 'smart mobility', including easy access to local services, public transport and broadband is at the core of all new developments, where feasible, to improve air quality, reduce congestion and improve marketability.
    - The implementation of this Action is on-going, with main targets to be met by 2013 – 2014.
- Action CC5.2: Keep traffic moving and reduce the need to travel through encouraging and enabling smarter working and sustainable travel choices.
    - The implementation of this Action is on-going, with main targets to be met by 2016.

The Kent Environment Strategy Progress Report (2013) provides an update with respect to progress with targets and actions relating to air quality, as shown below.

Overall progress towards targets[2]:

- Local air quality targets (these align to Actions EF2.2 and CC5.2): Apart from few exceptions with NO_2 and ground level O_3 local air quality targets have been met.

[1] http://www.kent.gov.uk/environment_and_planning/environment_and_climate_change/kent_environment_strategy.aspx
[2] Kent County Council (2013) *KENT ENVIRONMENT STRATEGY IMPLEMENTATION PLAN. Monitoring Progress July 2013*

- Successful grant applications for electric vehicle charging points leading to the proportion of electric and alternative fuelled vehicles in Kent being above comparable local authority areas elsewhere in the UK (this aligns to Action CC5.2):

KCC has been successful in winning a grant of £237,000 for 2013/2014 period and a further £36,000 for 2014/2015 to provide 75% of the costs to install electric and hybrid vehicle points.

Overall progress towards actions[3]:

Action EF 2.2	Progress
Develop guidance and update Kent Design to include recommendations from the Integrated Transport Strategy and supporting delivery of Growth without Gridlock.	A review of this action is planned for the next period.
Ensure that smart mobility is fully integrated within the development planning process, working collaboratively with developers to maximise opportunities for walking, cycling, public transport and other sustainable choices.	Travel plans are required to be produced by all developments that generate significant amounts of movement according to the National Planning Framework (NPPF).
Improve integration between Highways and Transportation and Public Health to ensure that active travel and smart mobility is integral to scheme design.	A review of new development proposals and local plans is planned to be undertaken over the next period.
Where feasible, future proof new developments for climate resilience and new technologies (e.g. flooding, electric vehicles etc.).	Energy efficiency of buildings is considered in all new developments, all new developments must mitigate against the risk of flooding. Electric vehicle charging infrastructure is not necessarily explicit in local plans. A recent public consultation has ended on Sevenoaks District Council's Allocations and Development Management Plan (ADMP). This includes requirements that new developments include infrastructure that complements modern information technology needs, and restricts the need for future retrofitting. The plan is scheduled to be adopted over the next six months.

Action CC5.2	Progress
Pro-actively support the development of high quality walking, cycling and public transport routes through the Local Sustainable Transport Fund, Local Transport Plan and Growth Without Gridlock.	Monitoring of business miles across Kent will be based on District GHG Reporting. Currently only two district reports are available and so these will be reported on at the next period. In KCC over the 2012/2013 period there was a reduction of over 9% in business miles compared to the previous 2011/2012 period. A proposal has been developed to implement a car/hire pool system in KCC. A review is planned for the next period that will look at the Local sustainable transport fund deliverables, which will contribute towards the action on fuel sources.
Review of gas fuel infrastructure and potential for	Kent partners will receive £237,000 for the 2013/2014

[3] As above

anaerobic digestion as a fuel source. Participate in further bidding opportunities to support smart mobility and greener travel choices e.g. OLEV Electric Vehicle infrastructure grants and Better Bus Area Fund.	period and another £36,000 for 2014/2015 to provide 75% of the costs of installing electric and hybrid vehicle points. Dartford Borough Council was successful in bidding for £125,000. The South East Coast Ambulance service (SECAmb) also secured funding with £60,000 for this year and £37,500 the following year. There is currently no progress on anaerobic digestion.
Establish a network of electric charging points in Kent.	EST carried out a review of EV charging points across whole estate for KCC and other local authorities have also implemented charging points including Canterbury City Council at park and ride sites. Kent partners are working together to establish further opportunities for EV charging.
Increase use of tele- and video conferencing facilities.	KCC is currently awaiting the roll out of a unified communications system which will allow all members of staff to use tele- and video conferencing from each computer workstation. Further public sector reporting will be picked up in the next round once GHG reports are available.
Develop policies for staff commuting.	No action to date although under review.
Ensure that the 'Doing Things Differently' programme of works address sustainable transport and enable smarter working.	Doing Things Differently will require more flexible and remote working. Services are aligning people to local clients to help reduce or avoid car travel.
Delivery of Cycling Strategies in Kent.	On-going.

5 Planning Applications

The following planning applications were considered in 2013 which have the potential to impact upon air quality (details in the text and table below):

Planning application ref. SW/13/0215 - Construction of business park up to a maximum of 43,000sqm

Development was permitted with conditions pertaining to energy efficiency and transport arrangements. A Travel Plan needs to be submitted prior to the commencement of the development in order to encourage sustainable travel.

Planning application ref. SW/13/0431- Variation of condition to allow for inert, commercial and municipal waste to be brought to the site

The application was supported with a qualitative air quality assessment of dust and odour impacts associated with the development. The conclusions of the assessment were that the potential magnitude of dust and odour emissions associated with the proposed baling of residual, non-recyclable dry waste is very low and the risk of any impact on sensitive receptors can be considered negligible.

Planning application ref. SW/13/0660 - Change of use as demonstration gardens

Swale Borough Council received an application for the construction of demonstration gardens with associated parking (198 spaces plus 5 new coach spaces) in June 2013. The Proposed Development site lies in the vicinity of the existing AQMA in Ospringe Street, Faversham, and near Teynham (where exceedences of the annual mean NO_2 objectives were also recorded in London Road so the area is pending a Detailed Assessment). Traffic levels for the development site (including the festivals) are forecast to rise from about 7,400 vehicles per year to over 27,000, but visitor trips will predominantly occur at off-peak times[4]. The Planning Committee report[5] emphasised that *in terms of air quality the Transport Statement shows that 10% of traffic, amounting to a maximum of 3 vehicles per hour, will go in the Ospringe direction which is an Air Quality Management Area. None of the vehicles would be HGVs and this level of traffic would not give rise to pollution significant to health*. However, some additional traffic is bound to go through Teynham, possibly further increasing the existing pollutant levels. It is therefore recommended that the impact of this development is considered during the 2015 Updating and Screening Assessment.

[4] Swale Borough Council (2013) Planning Committee Report. PLANNING COMMITTEE – 26 September 2013.
[5] As above.

Planning application ref. SW/13/1511- Extension comprising lecture hall to existing Sixth Form Centre.

Development was permitted with conditions pertaining to energy efficiency and sustainable construction.

Planning application ref. SW/13/1573 - Extension to warehouse, service yard and HVG tractor unit parking area, alteration to loading bays; amendments to parking.

The development may add to traffic on the A2 London Road / Canterbury Road, along which two of AQMAs have been declared. The applicant acknowledged the AQMAs in Ospringe and Sittingbourne through at least one of which all HGV traffic would have to pass. However, the air quality impacts were assessed by the applicant as minor adverse, with negligible increase in pollutants - not requiring mitigation measures. The application was subsequently refused and is now under appeal.

Planning application ref. SW/13/1576 - Redevelopment of the site to provide a new food hall.

The development may add to traffic on the A2 London Road / Canterbury Road, along which two of AQMAs have been declared. Development was permitted with conditions requiring that a programme for suppression of dust during demolition and construction phases of the development has to be submitted and approved before the works are commenced.

A summary of these applications is provided below.

Planning Reference /Decision	Location	Grid Reference	Description	Additional Information
SW/13/0215 Permitted with conditions	Eurolink V / Land East Of Swale Way, Sittingbourne, ME9 9AR	593416 164105	Construction of business park up to a maximum of 43,000sqm	Application received in February 2013.
SW/13/0431 Permitted	Countrystyle Recycling, Ridham Dock, Iwade, Sittingbourne, ME9 8SR	591946 168172	Variation of condition 16 of planning permission SW/12/0445 to allow for inert, commercial and municipal waste to be brought to the site.	Application received in April 2013.
SW/13/0660 Permitted	Brogdale Farm, Brogdale Road, Ospringe, Nr Faversham,	415683 313494	Change of use as demonstration gardens with incidental buildings and associated parking.	Application received in May 2013. Development has not been constructed yet.

	ME13 8XU			
SW/13/1511 Permitted with conditions	Queen Elizabeth School, Abbey Place, Faversham, ME13 7BQ	601922 161599	Extension comprising lecture hall to existing Sixth Form Centre	Application received in December 2013.
SW/13/1573 Pending Consideration	Fowler Welch Coolchain, London Road, Tonge, Sittingbourne, ME9 9PR	594337 162757	Extension to warehouse, decommissioning and alteration to loading bays; extension to service yard and HVG tractor unit parking area; amendments to parking.	Application received in December 2013.
SW/13/1576 Permitted with conditions	Macknade Fine Foods, Selling Road, Faversham, ME13 8XF	602385 160210	Redevelopment of the site to provide a new extended food hall.	Application received in December 2013.

6 Air Quality Planning Policies

As reported previously, The Kent and Medway Air Quality Partnership have produced an Air Quality and Planning Guidance (July 2011). The document gives advice to developers, consultants and local authorities regarding air quality issues with respect to development proposals in Kent.

With regard to Air Quality Assessments the guidance recommends that all assessments within Kent should follow similar methodologies. The Guidance includes an Air Quality Assessment Toolkit, which sets out the methodology for producing an air quality assessment and contains details regarding:

- Local Developments that would generally require an air quality assessment;
- Information required for the local authority officer to determine the need for an air quality assessment;
- Information to be agreed with the local authority prior to an assessment taking place;
- Basic requirements for an air quality assessment;
- Determining significance and whether mitigation/compensation is required;
- Checklist for reviewing air quality assessments.

With regard to sustainable transport and travel plans, the guidance recommends that all new developments should make provisions to encourage cycling and walking, and development should be supported by Travel Plans. Car parking should be minimised where developments are located within AQMAs and those close to public transport links. The Guidance also recommends the use of appropriate design measures to reduce exposure and minimise emissions of carbon dioxide.

New development mitigation measures should also include promoting the provision for refuelling of alternative fuels together with installing electric vehicle charging points in car parks, with the aim of increasing the use of cleaner-fuelled vehicles.

The Guidance recommends that local authorities seek appropriate funds through Community Infrastructure Levy (CIL) or Section 106 agreements to help to improve air quality.

The Air Quality Planning Guidance aims to promote the provision for refuelling of alternative fuels together with installing electric vehicle charging points in car parks, with the aim of promoting the use of cleaner-fuelled vehicles.

The guidance also recommends that local authorities seek appropriate funds through Section 106 agreements to help to improve air quality.

Swale Borough Council also uses the guidance in the National Planning Policy Framework. The aim of this document is to ensure that development is sustainable. The document states that the planning system should contribute and enhance the natural and local environment by preventing new and existing development from contributing to or being put at an unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution. It also states that planning decisions should take into account the presence of AQMAs, and that any new development is consistent with the air quality action plan.

In addition to these documents Swale Borough Council are producing Development Plan Documents as part of the Local Development Framework[6]. The Draft Core Strategy has been produced and was available for consultation in 2012. Once adopted, this will guide development up to 2031.

The following policies are relevant to air quality within the Borough:

Policy CP5 – Transport Infrastructure

- Locating new development in a way which minimises the need to travel, ensuring that it is well located in relation to public transport links and to promote its use through improved access to existing or new services.
- Working in partnership with Kent County Council, transport operators and other partners to establish a Quality Bus Partnership for Swale which will deliver improved bus stop infrastructure and expansion of the bus network.

[6] Swale Borough Council, Bearing Fruits, Draft Core Strategy, March 2012

- Working in partnership with Kent County Council, Network Rail and Network South East (or other rail franchise operators) and developers to maximise use of rail services for passenger and commercial traffic. Improvement of station forecourts and bus interchange facilities especially at Sittingbourne as part of the wider town centre regeneration initiatives.
- At Sheerness improvements to accessibility and use of this branch line will be supported.
- Working in partnership with Kent County Council, developers and cycling groups to develop integrated walking and cycling routes to link existing and new communities with local services and facilities, public transport and the Green Grid network of recreation routes.
- Working with the Port of Sheerness and other bodies to facilitate greater use of waterways for commercial traffic where this would not have an unacceptable adverse environmental impact which could not be satisfactorily mitigated.

Policy DM15 – Managing Transport Demand and Impact

- Development proposals generating a significant amount of transport movements will be required to support their proposal with the preparation of a Transport Assessment (including a Travel Plan), which will be based on the Council's strategic modelling work.
- Proposals should integrate air quality management and environmental quality into the location and design of and access to development, and demonstrate that proposals do not worsen air quality to an unacceptable degree.

Policy DM20 – Pollution

All development proposals will minimise and mitigate pollution impacts. Development proposals will not be permitted that would, individually or cumulatively, give rise to pollution leading to a significantly adverse effect.

7 Local Transport Plans and Strategies

Swale Borough Council were successful in securing a clean bus grant which was awarded in October 2013 for 5 buses to install Selective Catalytic Reduction (SCR) technology and economiser systems and a further award was given in the following months for further 10 buses to be fitted with SCR. However, unfortunately the grant had to be returned after bus operators withdrew from the scheme.

KENT LOCAL TRANSPORT PLAN

As reported in previous LAQM reports, Kent County Council adopted its 3rd Local Transport Plan, covering the period 2011 to 2016[7], which sets out Kent County Council's (KCC) Transport Strategy and Implementation Plans for local transport investment.

The LTP objectives related to *A Safer and Healthier County* "*prioritise spending to tackle Countywide problem sites including Air Quality Management Areas, crash cluster sites, and areas with high levels of health deprivation*". The report also states that "*KCC will continue to work with the districts to assist in the development of Air Quality Action Plans (AQAPs) and consider appropriate mitigation measures which will then be put forward for inclusion in the annual Integrated Transport Programme*".

The Plan details the below themes and objectives:

Theme: Growth Without Gridlock

Objectives: Tackling congestions, supporting regeneration, access to jobs and services and a resilient network.

Transport Objectives: Reduce journey times, reduce disruption to the network, locate developments near to transport hubs, improve access to jobs and services by walking, cycling and public transport routes.

Theme: Safer and Healthier County

Objectives: Safer roads, protecting communities, active transport, secure network.

Transport Objectives: reduce the number of casualties on the transport network, encourage more physically active transport, reduce crime and fear of anti-social behaviour on the transport network.

Theme: Supporting Independence

[7] Kent County Council (2011) *Local Transport Plan for Kent 2011-16.*

Objective: improve access by an integrate public transport, walking and cycling, reduce the barriers to transport.

Theme: Tackling Climate Change

Objective: Reducing emissions, smarter travel.

Transport Objective: reduce traffic levels, improve carbon efficiency of current forms of transport, reduce the need to travel, encourage the use of more sustainable transport.

Theme: Enjoying Life in Kent

Objective: access, enjoying the journey, sociable streets.

Transport Objectives: improve the journey experience; reduce the level of pollution from traffic, enhance well-being and sense of community.

INTEGRATED TRANSPORT STRATEGY FOR KENT

Produced in 2009, the Kent Transport Strategy *Growth without Gridlock* was redrafted in 2010 in order to take account of the emerging Environment and Housing Strategies, and developed into a 20 year Transport Delivery Plan for Kent, *Growth without Gridlock*.

The document provides strategies for the whole of Kent, but also some which are directly aimed at transport improvement in the Gravesham Borough.

Kent wide policies from the Integrated Transport Strategy include the following options for controlling local roads:

- Reallocation of Road Space – to allow more sustainable travel road space to be reallocated to car sharers and bus transit systems.
- Red Routes – status assigned to certain roads during peak periods to reduce loading and parking. The aim of this is to minimise delays on such routes.

Together with improving the road network Kent County Council have suggested schemes which aim to reduce the travel demand. Such schemes included in the Integrated Transport Strategy include:

- Land-use planning
- Mixed use developments
- Park and ride schemes
- Variable parking charges

- Teleworking and broadband access
- Promotion of travel plans for both schools and workplaces
- Improvements to public rights of way and walking/cycling routes
- Improvements in interchanges and travel information

To reduce the pollution from vehicles KCC have suggested the following schemes:

- Low emission zones – this strategy includes charging high emission vehicles during peak periods in urban centres.
- KCC have proposed that they will work with bus operators and taxi firms to bring forward the use of fuel efficient and low emission buses.

Kent County Council has proposed several improvements to the current bus network in order to improve connectivity and promote the use of public transport. The following improvements have been outlined:

- Fastrack bus networks to improve longer bus journeys across the county
- Inter-urban coach service – to give all towns direct access to public transport
- Local Bus Services – these will operate into the local communities with links to the inter-urban and the Fastrack systems
- Improvement to the rural bus network through rural interchange system

INTEGRATED TRANSPORT PROGRAMME FOR SWALE

The major proposals include:

- Securing infrastructure to encourage development of the area for housing and employment,
- Delivering capacity improvements on the strategic road network, and
- Regeneration of Sittingbourne town centre.

Kent County Council have proposed major road infrastructure improvements including Sittingbourne Northern Relief Road and extension to the A2, A2/M2 Junction 5 capacity improvement, A249 Grovehurst Interchange and Rushenden Relief Road. Expansion of Kent Science Park with possible new link to the M2 (south) and A2 (north) is also proposed.

THAMES GATEWAY KENT

Improvements to Transport Infrastructure within Thames Gateway Kent:

The new Sheppey Crossing has improved journey times to and from the Island and will be complemented by the Rushenden Relief Road to help the regeneration of Queenborough and Rushenden.

The second phase of the Sittingbourne Northern Relief Road is under construction to provide direct access from the Eurolink Business Park to the A249. This scheme will reduce journey times for freight traffic and reduce congestion within Sittingbourne town centre. It will also improve access to adjacent business parks.

8 Climate Change Strategies

Climate Local Kent, the Low Carbon Framework for Kent was launched in 2012. The Kent Forum signed up to the commitment in September 2012 and partners take the commitment and targets through their internal processes where applicable. In addition to the Kent Forum, Swale Borough Council has developed a Swale adaptation of Climate Local and has been adopted by Swale Borough Council's Locality Board and Cabinet on the 5th December 2012.

The following are details of where Swale Borough Council are working towards energy efficiency improvements:

- Supporting and promoting insulation measures through the Cold Busters Scheme – January 2013 onwards
- Leading the Sustainable Sheppey project to support the local community make greener choices and identify renewable energy sources
- Providing 'Green Doctors' to provide energy advice to local residents
- Swale Borough Council are a partner within the Kent and Medway Green Deal Partnership

Kent County Council have produced the Kent Environment Strategy. This is a three year strategy produced in 2011 representing the major challenges and opportunities facing Kent over the next 10-20 years.

Many of the priorities are linked to climate change, these include:

Under the **Living Well** theme:
EF 1 – Energy and water efficient homes and public buildings
Maximising energy and water efficiency of existing buildings, retrofit homes for energy and water efficiency and ensuring new buildings are energy and water efficient
EF 2 – Low carbon, resource efficient new developments
Ensure new development is resource efficient and has access to local services and public transport
EF3 – Turn Kent's waste into new resources
Reduce waste going to landfill

Under the **Climate Change** theme
CC5 – Reduce future carbon emissions
Pilot low carbon framework for Kent, smart working and transport modal shift and support of renewable energy

CC6 – Manage the impacts of Climate Change
Actions plans for top risk priorities and integrate climate change into support services
CC7 – Green jobs and business in Kent

The implementation plan for the strategy is currently under review; however the following is an example of the progress to January 2013 with regards to climate change:

- Feasibility study completed June 2012 for oil to gas or biomass boilers covering 20 buildings (mainly schools).
- £370k of potential street lighting projects expected during 12/13 with a further £2.9m + schemes being discussed for implementation in the next 2 years.
- Projects are widespread across partner organisations – further information is contained within the District Briefings.
- Solar PV – three projects on KCC estate completed in 2012.
- Biomass boilers -Feasibility study completed June 2012, now progressing to a pilot to include approximately 7 buildings (schools and non-schools sites) – procurement route still being investigated.
- £240k of low energy lamp street lighting projects delivered during 12/13. A further £3m+ schemes being discussed for implementation in the next 2 years.
- A key feature of FM contract about to be tendered is to ensure efficient energy use in buildings. Where appropriate it is intended to build sustainability targets into the contract.
- A Kent wide renewable energy study was completed in April 2012. Recommendations from the study have been prioritised and a draft action plan prepared and consulted on in September 2012. Following on from consultation the action plan will be finalised by March 2012. The final plan will form the basis of a delivery strategy for renewable energy in Kent.
- Continued development of the Kent Wind Energy Network to create links between offshore wind developers and Kent companies to expand local supply chain. Now over 350 members. Two networking events held in 2012.

In addition to this Swale Borough Council are producing Development Plan Documents as part of the Local Development Framework. The Draft Core Strategy has been produced and was available for consultation in 2012.

The following policy is related to addressing Climate Change:

Policy DM1 – Sustainable Design and Construction

All new developments should maximise opportunities to reduce carbon emissions and adapt to climate change, examples include use of district heating, efficient use of water, building orientation and promotion of recycling.

9 Implementation of Action Plans

Swale Borough Council has drafted an Action Plan for the Newington AQMA which has been submitted to Defra for approval. Following comments from Defra an amended Action Plan is being produced. A Quantitative appraisal was undertaken in 2012 for the measures in the action plan. The measures modelled and the outcomes are listed below:

- Reducing HGV traffic by 20% on the A2 due to diversion at Key Street would result in an average decrease of 0.6mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be slight beneficial.
- Reducing HGV traffic by 40% on the A2 due to diversion at Key Street would result in an average decrease of 1.2mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be slight to moderate beneficial.
- Reducing traffic by 10% on the A2 due to a bypass would result in an average decrease of 0.9mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be slight beneficial.
- Reducing traffic by 20% on the A2 due to a bypass would result in an average decrease of 1.9mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be slight to moderate beneficial.
- Reducing traffic by 30% on the A2 due to a bypass would result in an average decrease of 2.9mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be moderate to substantial beneficial. This measure shows the largest beneficial impacts among the modelled scenarios.
- Removing the pedestrian crossing from congested part of the High Street near Playstool Road would result in an average decrease of 0.4mg/m^3 annual mean NO_2 concentration. The overall impact of this measure would be slight beneficial.

In addition the draft Ospringe Action Plan is also being amended to take account of the changes to legislation and comments by steering group members. A Further Assessment was completed in 2012 for this AQMA. The recommendation was that actions targeting HGVs would help reduce the NO_2 concentrations to a level below the AQS objective level, as they are the main contributors in overall NOx/NO_2 levels.

The following pages contain the current Action Plans in progress by Swale Borough Council.

Newington Air Quality Action Plan

Monitoring

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost **£** low <£10K **££** medium £10K-50K **£££** high >£50K	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Temporary continuous Monitoring location in Post Office, High Street	SBC	In place 2010. There have been practical difficulties with the location for this during 2009 - 10	Provides the most accurate baseline information regarding pollutants from traffic, daily and hourly information. Annual costs in calibration and servicing. Limited life as owner only given temporary permission.	On-going 2010-11	£	☺ ☺ ☺
Data analysis from the existing and new NOx diffusion tube monitoring locations	SBC	Completed. New monitoring tubes installed in 2009. Results reported in Further Assessment 2010	New Information about level of pollutants on roads adjacent to the declared AQMA. Tube data not as accurate as continuous monitoring	On-going 2010-2011	£	☺ ☺
Siting a new permanent continuous monitoring location at Co-op High Street Newington	SBC	Quotes obtained for Monitoring Cabinet New location found permission granted	Dependant on successful funding application to Defra and staff for LSO duties and budgets for 2010-11 for running costs	Winter 2010-Spring 2011 providing funding is available	££	☺ ☺ ☺

Traffic Reduction

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Discussions with the Co-op re lorry deliveries and emissions and use of parking behind the store as well as community schemes and food miles	SBC	Informal discussions held with staff at the Co-op. Emails sent to head office and Transport Manager. Corporate support for siting outdoor monitoring station agreed in principle. Operations Manager invited to Steering Group	The Co-op is environmentally aware. They have a community grant scheme, offer locally sourced produce and food miles policies as well as offering a site for the Swale BC a permanent monitoring station. They have improved the parking and vehicle delivery system in response to the requests for mitigation.	Commenced 2009- 2010 and On-going support	£	☺ ☺
Promotion of public transport alternatives with quality bus and train services at enhanced frequencies	SBC	A local bus company has been approached and they are considering improvements to the vehicle fleet. Local train operator has been contacted but insufficient officer time to pursue this option.	The Further Assessment report considers the contribution from buses is far less than cars and HGVs. Action here both in Newington and in adjacent areas can reduce numbers of people driving through Newington	Summer 2011	£	☺ ☺
Car hire /share schemes	SBC	Preliminary investigation of beacon authority examples	No time to pursue yet. Dependant on funding being nationally available	Summer 2011	£	☺ ☺

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Investigation of impact from additional traffic from any proposed planning applications re housing and industry	SBC	Comments fed into Local Development Framework documents and representations provided on applications for planning permission.	Government planning guidance provides stronger influence over developments affecting an AQMA. The Planning Department will continue to liaise with Environmental Health colleagues on applications for planning permission that may affect air quality in the AQMA	Winter 2010-Spring 2011	£	☺ ☺ ☺
Church Lane Residents Parking Survey	SBC				£	☺
Pay car park at Newington Station	Railways				£	☺

Traffic Management

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Reclassification of A2 through Newington	KCC	This has been considered, but Medway Unitary Authority object to this	All funding for traffic schemes is awaiting prioritisation in line with the transport strategy	Not yet known	££	☺ ☺
Diversion of HGV traffic (time/weight or other restriction)	KCC	Considered and unlikely at present	Ditto		££	☺ ☺
Work with Satellite Navigation companies to amend appropriate (HGV) routes	KCC	In progress by KCC	The intention is to ensure the desirable route for through traffic is the M2, though this will not be used by local companies	2010-11	£	☺ ☺
Amended signage to direct traffic away from Newington	KCC	In progress by KCC	All funding for traffic schemes is awaiting prioritisation in line with the transport strategy		££	☺ ☺

Traffic Flow

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Average speed cameras in village (replacing single fixed camera)	KCC and K & M Road Safety Partnership	Government has stated that they will not fund new fixed safety cameras. Kent has decided that no new cameras will be installed until a review of all sites has taken place and this is in progress.	Residents are concerned drivers slow up for the camera and speed up again once passed	Dependant on funding	££	☺
Redirection of traffic options • **Close Bull Lane to vehicles** • **Diversion of HGV traffic at Key Street**	KCC	Traffic counts have been undertaken in 2010 and were reported in the Further Assessment and Action Plan above.	Information to assess sources of pollutants and times of peak traffic NB the comment was made that this may impact on The Bull public house But redirection of traffic is dependant upon prioritisation criteria for funding from KCC	Dependant on funding	£££	☺ ☺
Low emission zones (LEZ)	SBC / KCC	Completed as far as possible. Principles of the LEZ scheme in London were investigated in 2009	The CCTV would need to be upgraded and there are currently no funds for this. Newington is essentially a through route not an area. LEZs work best in towns and cities.	Funding potential for LEZ to be investigated 2011-12	£££	☺ ☺ ☺

Local

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Ideas such as NOx absorbing paint, tarmac, roofing etc	SBC	Pilot projects in the UK reported results are successful thus far but NO_X paint is only temporary. Note: Canterbury CC applied for Defra grant for this in 2009 but were unsuccessful so will be reapplying in 2010. May not be available for conservation area buildings	May be useful if funding is available from Defra or HCA. Could be used to match fund community project fund application, the community would need to apply. Housing could be encouraged to include this in their policy for private housing grants and loans as a cross cutting environmental issue. Costs and potential short term benefits	2011	££	☺ ☺
Community trees and planting projects	Parish Council and some steering group members	Community led and funded jointly	Community Funding £600 agreed for the Parish Council and project started	On-going 2010 - 2012	£	☺
Co-op: Encourage improvements to car park, delivery off A2, etc	SBC/ Co-op	The co-op were approached and pledged support see 2a above		2009 -2011 On-going	££	☺ ☺ ☺

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Industry: Encourage consideration of alternative routes/times for traffic	SBC	Letters were sent to invite industries to the public meeting before the AQMA was declared and contact with the businesses via the SBC newsletter	No staff time to develop this yet. It will be essential to address traffic issues	Summer 2011-2012 depending on staff time and resources	£	☺ ☺ ☺
School: Promote alternative routes for access and journeys. Work with school's School Travel Plan OPAL project-NO**x** monitoring involvement Stagger school times.	KCC / SBC	Contact made with the Head Master and Chair of School Governors (latter attends the AQMA Steering Group) and they have taken part in the OPAL project and KCC "change your world" campaigns during 2009-10. Working with Amicus for permanent solution to access through Vicarage Court site.	Parents did not want a walking bus when this was trialled before "*Walk on Wednesday Project* " Will need community development time. School involvement in AQMA project work links with education. Changing school times is unlikely to be easy, dependant on parental cooperation	2009-2012 On-going	£	☺ ☺
Promotion of public transport e.g. Ride on the train, green taxis and bus schemes	SBC / SE rail	Discussions with South East Rail needed but due to High Speed rail link the trains will now only be stopping hourly. Railway Representative was invited to attend the steering group but has not done so yet	Only applicable to residents who are able to travel by train. Limited parking at the station and also any cars would need to travel through the AQMA to get to the station	2012-2013	£	☺ ☺

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
Working through the planning process to require and encourage action to minimise impact of new developments affecting the High Street :	SBC	Comments fed into Local Development Framework documents and representations provided on applications for planning permission	Future development in the High Street could have an adverse effect on local air quality because of narrowing of road to form a street canyon, reported in Further Assessment 2010. The Planning Department will continue to liaise with Environmental Health colleagues on applications for planning permission that may affect air quality in the AQMA	On-going	£	☺ ☺
Reduction of Traffic	KCC	Road signage and classification being considered	Unlikely to be agreed as the route is part of the A2 Advantages are wider implications climate change as well as air quality however alternative routes may be much longer and so still impact on actual emissions to air although not in Newington	On-going by KCC	££	☺ ☺ ☺
Supporting reduction in traffic impact **Promotion of more efficient vehicles** (especially Council owned or supported bus services) **Tyre inflation and smart driving campaigns** **Plug in points for electric**	KCC	National and Local campaign involvement	National campaigns may provide funding opportunities for these in the future		££	☺ ☺ ☺

Action	Who is leading or could lead?	Progress	Comments re Advantages & Benefits/Versus Disadvantages	Suggested Timescales	Relative Cost £ low ££ medium £££ high	Relative Environmental benefit ☺ low ☺☺ medium ☺☺☺ high
cars and bikes in village car parks, local employers and at the station						
Bypass/Diversion	KCC	Funding priorities are elsewhere so this is unlikely to happen however not ruled out at this stage	Costs are likely to be prohibitive	Unlikely to be an option without government funding	£££	☺ ☺ ☺
Experiment with one way traffic in 30 mph zone and Church Lane Breech Lane, Lower Halstow	KCC		Feasibility study and modelling needed		£	☺
Average speed camera in 30 mph zone	KCC	Government has stated that they will not fund new fixed safety cameras. Kent has decided that no new cameras will be installed until a review of all sites has taken place and this is in progress.			££	☺

Ospringe Draft Action Plan

Option Proposal	Comments of steering group 2012	Further Action By	Relative cost	Realistic	Timescale
Diversion of HGV traffic to avoid Ospringe	KCC need to look at signage. The M2 is shorter route but it will depend on the time of day. Junction 5 can be congested. A Junction 5A proposal or the Southern Relief Road at Sittingbourne are not in the current LDF but likely to be in a future one. Junction 5A may be dependent on the expansion of the Kent Science Park.	Highways to follow up this suggestion re better signage for HGVs	LOW	YES	?
Work with Satellite Navigation companies to amend appropriate HGV routes. To ensure the desirable route for through traffic is the M2	There is a 'Lorry Officer' being employed at KCC who will need to work with the Satellite Navigation companies.	Highways to Liaise with KCC Officer who deals with this county wide	LOW	YES	?
Divert Western Link traffic more evenly east and west	KCC to look at signage with respect to encourage using the Western Link for West Faversham traffic	Highways to follow this up			
Bypass/Diversion	See comments above				
Reduce traffic at peak times initiatives by Highways and other agencies	Could consider a congestion charge, but would need an alternative route	None			
Traffic count and modeling at junction with Water Lane, Ospringe Street and Ospringe Road	Compares with count and modeling published in Swale Borough Council's Detailed Assessment on air quality 2007. However we need to look at the daily levels at the same	Need to look at daily trends – previous traffic counts were in 2008 -9. Cost of doing more being	LOW	YES	

Option Proposal	Comments of steering group 2012	Further Action By	Relative cost	Realistic	Timescale
	time.	considered. AQ assessments submitted with planning applications for development proposals could inform			
20 mph speed limit through Ospringe Street to ease traffic flow	If people already do 30-35 mph motorists are unlikely to stick to 20. A lot of additional measures would be required such as humps etc, but the Highway Authority would not do that on the A2. Any speed limit needs to be self-enforcing.	Highways to follow this up			
	A roundabout by the Ship was suggested, as a new item to be investigated by KCC.	Highways to investigate			
Promote Park and Stride Walk to school and Healthy Schools	This has been tried but there are safety issues. The School has concerns as there have been problems with lorries going to the pallet site.	Started in partnership with New KM schools education projects now called BUG and WOW schools in Swale participating	LOW	YES	2013 On-going
Promote Swale in Bloom for Ospringe	Fine to promote	Officer at Swale contacted – could invite to steering group	LOW	YES	2013
Explore Abbey School bus scheme	They use the Freedom Pass which gives a big discount on fares (some £100 over a year) so could encourage wider use. Pointed out that bus times are not always helpful e.g. the bus through Oare is not until 9.20am and other rural routes may be similar.	Needs further investigation and discussions with bus companies	MEDIUM	YES	

Option Proposal	Comments of steering group 2012	Further Action By	Relative cost	Realistic	Timescale
Connect Western Link to Lower Road for use by local traffic	This would reduce A2 traffic however, it could upset local residents on that road. Perceived that it would help the A2 but could create a problem elsewhere. It could be used as a bus link and Highways will check with the local bus companies.	Highways to follow this up			
Roundabout at A251/A2 to reduce bottleneck there	There is some KCC funding to explore a traffic light system for this junction which would include The Mall.	Highways to follow this up	MEDIUM	YES	
Traffic lights on Western Link / A2 roundabout	The idea to send traffic through Ospringe in batches to clear quicker	On hold			
Controlled Parking Zone in Water Lane	The problem is residents parking. CPZ's are best used for no-residents. The school tries to enforce parking by parents. It was agreed to look at putting parking restrictions closer to the junction where two cars cannot pass each other	highways to follow this up	LOW	YES	
Put a yellow box on the junction of Water Lane and Ospringe Street	To aid traffic flow when pedestrian lights at red. It was agreed to keep this in although there was doubt as to how well it will be used	On hold	LOW		
Change the school hours	The School is looking into this for 2013/14 as the school is expanding. With the expansion, they will have to draw up a Travel Plan	Await action / information by school	LOW	YES	
Car sharing schemes	There are signs erected for the Kent Wide Scheme and it is thought that it is best to promote the scheme. It was felt that it could work for schools	Highways to follow this up	NIL	YES	

Option Proposal	Comments of steering group 2012	Further Action By	Relative cost	Realistic	Timescale
Community trees and planting projects	Groundwork have a target to plant a batch of trees in the area. There is one Green wall at the flats. All the buildings in the AQMA are privately owned.	Contact Groundwork	LOW	YES	

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Results for 2013 indicate that the annual mean objective and the 1-hour objective were met at three automatic monitoring locations: Newington (3), Ospringe Roadside (2) and St Paul's Street. The annual mean NO_2 objective was exceeded at the Canterbury Road site.

For the 2013 data set there were sixteen sites where the annual mean AQS objective was exceeded. Of those sites showing an exceedence, fourteen were located within existing AQMAs. The sites which exceeded the objective outside of AQMAs were SW91 – 72 London Road, Teynham and SW95 – The Mount, London Road, Faversham.

The results from the monitoring site SW91 support previous report's recommendation for a Detailed Assessment to be undertaken for parts of the A2 London Road in Teynham (near London Road / Lynsted Lane junction).

Extension of the Ospringe AQMA is required at the Mount, on the A2 London Road in Faversham, where the distance corrected concentration at site SW95 was exceeding 60 $\mu g/m^3$. Continued monitoring at the site is also recommended.

10.2 Conclusions relating to New Local Developments

Six planning applications were considered in 2013 which have the potential to impact upon air quality including one that may impact upon air quality in Teynham. The application to construct demonstration gardens with associated parking in the vicinity of the existing AQMA in Ospringe Street, Faversham, has the potential to impact upon air quality in the London Road area of Teynham, where exceedences of the annual mean NO_2 objectives were recorded in 2013 and previous years). It is therefore recommended that the impact of this development is considered during the 2015 Updating and Screening Assessment.

In addition, one biomass installation has been identified as having a potential to impact air quality. The installation is located at Rhode Court Barn, Selling Road, Selling, Faversham. Swale Borough Council will liaise with the relevant stakeholders to obtain details on the capacity of the biomass boiler in order to determine whether further assessment is required.

The installation will be considered in the next Updating and Screening Assessment if required.

10.3 Proposed Actions

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue NO_2 diffusion tube and continous monitoring in the Borough to identify future changes in pollutant concentrations;
- Extend the Ospringe AQMA to include the Mount and continue monitoring in this location;
- Proceed to a Detailed Assessment for the Teyham area;
- Gather information on the capacity of the biomass installation installed at Rhode Court Barn, Selling Road, Selling, Faversham; and
- Proceed to the 2015 Updating and Screening Assessment.

11 Glossary

Abbreviations	Full Name
APR	Annual Progress Report
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AURN	Automatic urban and rural network
DEFRA	Department for Environment, Food and Rural Affairs
KCC	Kent County Council
K&MAQMN	Kent and Medway Air Quality Monitoring Network
LA	Local Authority
LAQM	Local Air Quality Management
NAQS	National Air Quality Strategy
NO_2	Nitrogen dioxide
PM_{10}	Fine particle matter less than 10µm diameter
QA/QC	Quality assurance/quality control
SBC	Swale Borough Council
SO_2	Sulphur dioxide
TEA	Triethanolamine
TEOM	Tapered element oscillating microbalance
$\mu g/m^3$	Micrograms per cubic metre
UKAS	United Kingdom Accreditation Service
USA	Updating and Screening Assessment
VCM	Volatile Correction Model
WASP	Workplace Analysis Scheme for Proficiency

12 References

- AEA (2008) *Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance for Laboratories and Users.* Report to Defra and the Devolved Administrations.
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- Growing the Garden of England (2011) *A strategy for Environment and Economy in Kent*.
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- Highways Agency (2007) *Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1 Air Quality, HA207/07.*
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- Swale Borough Council (2012) *Updating and Screening Assessment.*
- Swale Borough Council (2013) *Annual Progress Report.*
- Swale Borough Council (2012) *Bearing Fruits. Draft Core Strategy.*

13 Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Environmental Scientifics Group (ESG) Didcot utilising the 50% Triethanolamine (TEA) in acetone preparation method. A bias adjustment of 0.80 for the year 2013 (based on 28 studies) has been obtained from the national bias adjustment calculator[8].

Factor from Local Co-location Studies

There are four co-location studies in Swale Borough Council. The local bias correction factor is presented below.

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Ratio
Newington (3)	81%	97%	43	34	0.80

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Ratio
Ospringe Roadside (2)	100%	96%	41	40	0.96

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Ratio
Canterbury Road	100%	96%	45	41	0.91

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Ratio
St Paul's Street	100%	97%	53	34	0.65

[8] National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 03/14 published in March 2014.

Discussion of Choice of Factor to Use

Data have been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG (09) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (09) and LAQM Helpdesk[9] recommends the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

Swale Borough Council has four colocation studies. Data capture in 2013 was good at all three sites regarding the continuous and diffusion tube monitoring data. The overall bias adjustment factor of 0.82 has been calculated from the orthogonal regression of three bias factors, from the Ospringe Roadside (2), the Canterbury Road and the St Paul's Street locations. It has been decided not to use the Newington co-location data as the diffusion tubes are positioned some distance from the inlet, therefore there is concern that the result is not representative.

For comparison, the national bias adjustment factor for the laboratory and tube preparation method was 0.80 based on 28 studies.

For previous years' data 2008 to 2012, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.78 (2008), 0.81 (2009), 0.85 (2010), 0.89 (2011) and 0.80 (2012).

PM Monitoring Adjustment

The PM_{10} results have been gravimetrically corrected by Ricardo-AEA who undertake the data management of the continuous monitoring location.

Short to Long Term Adjustment

Data capture was good for all the continuous monitoring locations and no annualisation was required.

[9] laqm.defra.gocv.uk

There were however a number of diffusion tube monitoring sites where annualisation was required, this is detailed in the below table.

Diffusion Tube Site	Canterbury Annualisation Factor	Rochester Stoke Annualisation Factor	Thurrock Annualisation Factor	London Bexley Annualisation Factor	Average Annualisation Factor
SW37	1.052	1.009	1.019	1.032	1.028
SW58	0.556	0.586	0.728	0.741	0.653
SW70	0.984		0.978	0.986	0.983
SW75	1.034		1.043	1.045	1.041
SW80	0.906	0.919	0.990	1.004	0.955
SW86	0.870	0.884	0.899	0.924	0.894
SW88	0.556	0.586	0.728	0.741	0.653
SW91	1.180	1.104	1.065	1.063	1.103
SW92	1.300	1.268	1.141	1.138	1.212
SW93	1.156	1.067	1.048	1.033	1.076
SW94	1.155	1.079	1.050	1.059	1.086
SW95	1.136	1.071	1.037	1.049	1.073
SW96	1.125	1.044	1.041	1.037	1.062
SW97	1.028	0.952	0.938	0.947	0.966

QA/QC of Automatic Monitoring

Swale Borough Council calibrates the monitoring sites every two weeks and ETi services the stations twice per year.

Further QA/QC AQMS Network Manager

Ricardo-AEA have proven systems of Quality Assurance and Quality Control (QA/QC) for ambient air quality measurements. Ricardo-AEA designed and evolved many of the QA/QC procedures adopted within UK monitoring networks and currently carry out all QA/QC functions for the UK AURN monitoring network.

Ricardo-AEA undertake Initial screening of data this allows rapid fault identification and resolution is a key aspect of ensuring high data capture and quality levels.

Quality Assurance Measures

QA relates to the process of monitoring, whilst QC is primarily concerned with the checking of outputs and is the control of operational factors affecting data quality. In the context of the KMAQMN, these include:

- Provide a clear LSO manual
- Ensuring LSOs are suitably trained
- Undertake accredited audit procedures and calibration gas standards

Quality Control Measures

QA stage – this is quality control. Within the context of the KMAQMN, QC includes:

- Data ratification and review by more senior ratifiers
- Information management

Ricardo-AEA's data ratification approach follows practices used in the AURN, this approach assumes all data are correct unless there is good evidence to suggest otherwise, preventing erroneously removing any important air pollution episode data.

QC Audits

Ricardo-AEA is accredited to ISO17025 for the field calibration of ambient air quality analysers. The Ricardo-AEA auditors carry out the annual audits to rigorously evaluate analysers to obtain an assessment of performance level. This information, in conjunction with the full analyser data set and calibration and service records, help ensure data quality specifications have been met during the preceding period. Additionally an assessment of the station calibration cylinder concentrations provide an indication that the cylinder concentrations remain stable and therefore suitable for data scaling purposes.

Annual audits provide essential input to the data management process, ensuring data from the network are harmonised, consistent in quality and traceable to a recognised gas calibration standard.

QA/QC of Diffusion Tube Monitoring

Environmental Scientifics Group (ESG) is a UKAS accredited laboratory and participates in the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 diffusion tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest available WASP results, rounds 120 through to 123 (January to December 2013) ESG have scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$. The tube precision for the NO_2 Annual Field Inter-comparison at Marylebone Road was rated as 'Good'.

Results of Distance Correction of Diffusion Tubes Showing an Exceedence outside of Existing AQMAs

Site ID	Distance to Kerb from Monitoring Location [m]	Distance from Kerb to Receptor [m]	Annual Mean Background	Measured Annual Mean Concentration	Predicted Annual Mean at Receptor
SW95	2.0	3.6	15.2	70.5	62.9

Monthly Diffusion Tube Results 2013

Site Ref	NO_2 Concentrations µg/m^3														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	COUNT	% CAPTURE	AVERAGE
SW07	27.9	20.0	17.5	15.0	10.1	9.5	9.4	11.7	42.0	11.8	19.5	13.8	12	100.0	17.4
SW11	40.1	38.9	30.0	27.0	23.5	25.0	22.4	26.7	172.3	25.3	41.0	29.4	12	100.0	41.8
SW13	39.7	32.8	29.5	23.3	22.1	20.4	18.9	23.3	36.4	25.3	38.8	29.6	12	100.0	28.3
SW14	44.2	35.0	31.1	22.0	23.0	19.4	18.5	23.9	33.4	28.5		27.2	11	91.7	27.8
SW19			40.8	33.0		28.8	30.1	31.5	56.1	32.0	46.9	30.2	9	75.0	36.6
SW20	48.8	53.0	56.7	41.0	33.9	36.0	33.1	40.3	58.9	37.5	15.0	38.1	12	100.0	41.0
SW22	86.9	63.8		51.5	62.3	23.7	52.9	69.7	70.9	65.6	71.8	66.6	11	91.7	62.3
SW27	48.0	28.1		25.0	26.1	11.4	37.7	31.0	32.2	27.9	39.5	30.3	11	91.7	30.7
SW28	80.4	60.8		57.8	60.5	27.6	37.1	68.9	64.9	57.1	71.8	54.4	11	91.7	58.3
SW29	70.2	46.5		51.7	58.4	23.6	50.5	70.4	65.8	2.5	70.9	59.7	11	91.7	51.8
SW30	60.5	44.6		41.5	38.6	17.4	30.4	42.4	45.7	38.4	51.3	38.2	11	91.7	40.8
SW31	65.4	71.4		56.3	51.6	27.6	49.6	52.2	66.5	50.0	75.9	42.6	11	91.7	55.4
SW32	70.0			49.9	48.8	18.9	41.2	49.8	52.1	62.1	63.6	52.8	10	83.3	50.9
SW34	24.3	19.6		12.5	12.5	5.3	10.1	12.3	17.1	13.2	20.5	13.0	11	91.7	14.6
SW35	70.8	55.7	50.9	46.8	51.8	40.5			62.4	57.3	69.8	57.1	10	83.3	56.3
SW36	65.0	69.4	47.7	35.9	31.7	33.9	29.9	40.2		37.1		27.2	10	83.3	41.8
SW37	57.4			36.4	39.1	32.9	41.2	43.1			57.8	40.3	8	66.7	43.5
SW38		52.2	54.5	39.8	33.4		35.2	40.4	54.2	40.0	58.8	37.6	10	83.3	44.6
SW39	51.2		40.3	34.4	30.3	33.2	26.1		36.9	33.9	50.5	35.8	10	83.3	37.3
SW42	77.6	56.5	64.3	50.3	50.5	49.2	54.6		71.4	63.5	66.7	53.7	11	91.7	59.8
SW45	65.0	57.8	55.9	37.1	41.3	34.8			57.6	44.9	57.1	44.4	10	83.3	49.6
SW51	66.3	63.6	64.6	53.8	45.9	47.3	44.0	45.5	58.5	42.7	68.3	42.4	12	100.0	53.6
SW52	56.7	60.2	59.7	44.3	38.8	36.5	34.2	41.3	50.7	42.1	59.9	35.8	12	100.0	46.7
SW53	51.9		40.5	41.2	36.4	31.8	35.9	41.5	39.2	39.9	51.0	44.2	11	91.7	41.2
SW56	64.8	68.0	51.1	48.3	44.7	38.7	43.1	49.4	56.2	49.0	58.5	58.3	12	100.0	52.5
SW57	49.1	47.0	50.1	43.7	35.3	35.3	38.5	39.8	50.7	34.1			10	83.3	42.4
SW58	53.8												1	8.3	53.8
SW62	72.7	60.6	45.1	37.8	39.9	36.0	28.7	46.8	53.8	47.1	69.7	48.4	12	100.0	48.9
SW66	64.0		49.3	44.2	44.0	40.3		50.0	57.9	48.8	57.3	45.7	10	83.3	50.2
SW65	50.6	47.9	41.6	30.9		25.6	27.0			2.3	38.4	34.5	9	75.0	33.2
SW70		44.2	41.3	33.2	28.6		25.7			35.6	49.9		7	58.3	36.9
SW71	56.6	46.0	39.5	30.2	36.3	36.1	25.2		39.5	36.4			9	75.0	38.4

SW72	57.3	48.9	41.2	32.4	28.7	34.5		33.0	42.8	35.0	48.8	36.1	11	91.7	39.9
SW73	60.3	63.4	47.9	39.6	36.7	32.1	31.9	36.7	45.7	41.1	51.7	41.9	12	100.0	44.1
SW74	46.2	37.3	39.2	33.5	27.0	22.5	25.1	29.5	43.1	31.4	45.7	33.0	12	100.0	34.5
SW75	41.0		35.4	25.4	21.8	24.3	19.7		36.6			27.3	8	66.7	28.9
SW76	55.9	44.4	41.1	33.4	27.1	29.6	27.6	41.3	50.2		59.0	46.1	11	91.7	41.4
SW77	47.2	53.6	49.2	33.5	37.4	39.0	35.4	36.0	51.4	32.7	50.0		11	91.7	42.3
SW78	67.1	48.2	63.2	50.9	33.3	44.6	46.4	44.2	59.3	45.4	66.7	38.5	12	100.0	50.7
SW79	33.1	27.5		22.3	33.5	9.9	39.7	24.5	180.9	19.0	32.8	19.5	11	91.7	40.2
SW80	75.6	67.0		50.3		24.5						34.0	5	41.7	50.3
SW82	74.1	82.1	66.1	60.9	60.5	58.8	65.6	65.0	77.3	66.9	84.1	68.3	12	100.0	69.1
SW83	56.9	62.2	45.9	37.1	32.9	30.5	32.9	34.2	44.3	34.9	41.2	37.3	12	100.0	40.9
SW84	51.2	35.1	33.1	28.9	26.8	23.4	22.6		41.0	36.0	42.6	31.7	11	91.7	33.9
SW85	51.4	36.7	41.7	38.5	34.4		34.3	35.2	53.2	38.0	42.5	36.1	11	91.7	40.2
SW86	17.8	36.0	47.7		21.0					32.9	49.1	29.8	7	58.3	33.5
SW87	54.9	51.2	44.3	36.7	37.9	32.9	29.4	35.7	51.6	34.4	51.9	36.9	12	100.0	41.5
SW88	45.7												1	8.3	45.7
SW89	64.7	62.5	54.7	46.8	48.3	38.7	44.0	52.6	60.2	56.3	64.3	55.0	12	100.0	54.0
SW90			46.8	37.2	30.5	29.0	33.1	37.2	47.3	36.8	50.0	39.5	10	83.3	38.7
SW91					36.6	16.4	62.0	49.5	50.9	51.2	54.3	46.8	8	66.7	46.0
SW92					33.2			43.7		44.2			3	25.0	40.4
SW93						9.5	15.8	22.0	5.2		32.6	19.5	6	50.0	17.4
SW94					22.5	9.3	16.6		24.8	22.1	27.9	18.7	7	58.3	20.3
SW95					86.1	40.3		96.4	97.4	85.0	91.0	68.0	7	58.3	80.6
SW96						19.3	40.9		47.3	52.2	53.9	55.6	6	50.0	44.9
SW97								32.7	44.0		47.8	35.8	4	33.3	40.1

Contacting Swale Borough Council

The **Customer Services Centre** deals with all enquiries across the Council; it should be your first stop when contacting us.

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