2015 Updating and Screening Assessment for Suffolk Coastal District Council

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

July 2015

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Executive Summary

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 Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the Air Quality Objectives are likely to be achieved. Where exceedances are considered likely, the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

Previous rounds of review and assessment for the district have culminated in the declaration of three AQMAs. The first was declared in 2006 and encompasses several properties on the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge (Woodbridge Junction). The second was declared in 2009 for The Dooley Inn, Ferry Lane, Felixstowe - this is a single property close to the Port of Felixstowe. The third was declared in June 2014 and encompasses the four residential properties within Long Row, Main Road, Stratford St Andrew (the A12).

This report consists of the required air quality Updating and Screening Assessment Report which covers the whole district, together with the annual Action Plan Progress Reports required for the AQMAs declared at Woodbridge and Felixstowe. There is also a separate section providing an update on the declared AQMA at Stratford St Andrew for which the Action plan is not yet in place.

This Updating and Screening Assessment Report has concluded that there is no need to proceed to a Detailed Assessment for any pollutants within the district.

There is 1 nitrogen dioxide (NO_2) **monitoring site** situated at a relevant receptor location which shows a concentration above the annual mean Air Quality Objective. This is located within the declared AQMA at Stratford St Andrew. There are 2 NO_2 monitoring sites situated at relevant receptor locations for which the results are classed as borderline (above 36µg/m^3 but below the Objective level of 40µg/m^3), these are both within the declared AQMA at Woodbridge. Monitoring sites within the Felixstowe AQMA are all within the Objective levels for 2014.

The Action Plan for the **Woodbridge junction AQMA** consists of 20 measures, 6 have been completed and one new measure has been added. A feasibility study has been completed for the 5 options which involve 'physical junction alterations'. This has shown 1 to have a negative impact and the remaining 4 to have a negligible impact on NO_2 concentrations in the AQMA. It is therefore unlikely that any of them will be implemented on air quality grounds. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA, and to trial holding back traffic a distance from the lights (therefore away from the AQMA) and pulse it through the junction. The weather station has recently been installed and the traffic trial is currently being investigated and will be implemented if possible.

A new Working Group has been set up consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council. The Group has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact and alter those which need a new focus. There are also some alternative options which have been suggested for possible inclusion in the Action Plan. **A draft updated Action Plan is currently being prepared for full Consultation.**

The **Action Plan for the Felixstowe AQMA** consists of 13 measures of which 7 have now been completed. Six of the measures are the responsibility of Suffolk Coastal District Council and 7 are the responsibility of the Port of Felixstowe. A number of additional emissions reduction measures have also been undertaken or are to be implemented by the Port of Felixstowe. The results of diffusion tube monitoring for 2014 confirm that **annual mean NO_2 concentrations within the Felixstowe AQMA continue to be below the air quality Objective at 36µg/m^3 for the third year running. A Detailed Assessment will be undertaken and submitted to Defra to look at whether this AQMA should now be revoked.**

An AQMA was declared at Long Row in **Stratford St Andrew** in June 2014. **The first draft of the required Further Assessment is currently being put together and will be sent to Defra once completed.** A Working Group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council and early discussions on possible options for reducing emissions within the AQMA have begun. These will be informed by the Further Assessment findings. **Once the results of the Further Assessment are received a draft Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.**

For further information concerning this report please contact:
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Non - Technical Summary

All Councils must assess air quality within their district on a regular basis to see whether levels set by the Government are being exceeded anywhere. If they are, there is then a set procedure to follow which ends in the declaration of an Air Quality Management Area and the production of a long term Action Plan to try and reduce these levels. An air quality report must be produced every year, but once every three years the report required is more in-depth and is known as an Updating and Screening Assessment. This report is our Updating and Screening Assessment for 2015.

Historic assessment of air quality in the district has led to 3 areas being identified which are above the levels set by the Government for the pollutant nitrogen dioxide (NO_2). These are;

- Several houses on the road junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge (Woodbridge Junction);
- The Dooley Inn, Ferry Lane, Felixstowe (a single property close to the Port of Felixstowe).
- The four residential properties within Long Row, Main Road in Stratford St Andrew

Each area has been officially declared as an Air Quality Management Area (AQMA) - Woodbridge in 2006, Felixstowe in 2009 and Stratford St Andrew in 2014. We have produced Action Plans for the Woodbridge and Felixstowe AQMAs and, included in sections 7 and 8 of this report, are the official annual 'Action Plan Progress Reports' required.

The information which needs to be provided in this Updating and Screening Assessment report is set by Government guidance and consists of;

- monitoring results collected in 2014;
- information on any new sources of pollutants from:
    - road traffic and other transport sources (rail, air, shipping)
    - industry
    - commercial and domestic sources - use of solid fuel in biomass boilers and domestic houses
    - sources where emissions cannot be controlled such as quarries, landfill sites, stockyards, major construction works and waste management sites.

Monitoring results

In 2014 nitrogen dioxide was the only pollutant measured in the district. This was undertaken using 2 different techniques; automatic analyser (1 site at the Woodbridge junction) which provides an average level every 15 minutes, and diffusion tube (47 sites) which provides an average level over a month.

In 2014, levels were measured in 9 areas within the district – Felixstowe, Kesgrave, Melton, Woodbridge, Martlesham, Little Glemham, Farnham, Stratford St. Andrew and Saxmundham. The specific locations have been chosen following assessments of air quality (past and present) which have shown they could be at risk of exceeding the Government's set level for nitrogen dioxide.

The results of monitoring show 1 location where nitrogen dioxide is above the set level and 2 where it is borderline (below the set level but within 10%). The site above the Objective level is within the Air Quality Management Area (AQMA) at Stratford St Andrew and the 2 borderline sites are within the Woodbridge AQMA. Work is on-going at Woodbridge to try and reduce the levels through the Action Plan produced. An Action Plan will soon be put in place for the Stratford St Andrew AQMA and work will then begin on trying to reduce nitrogen dioxide levels here. Levels of nitrogen dioxide within the AQMA at Felixstowe are now below the borderline level set.

Road traffic and other transport sources

There are no new or altered sources of road traffic or other transport sources (air, rail, and shipping) in the district since the 2014 air quality report that require additional assessment. Emissions from moving trains in Felixstowe, near to the Port boundary, have been investigated. This confirmed that NO_2 concentrations are below the Objectives and no further assessment is required.

Industry

There is 1 newly authorised industrial premise on the district since our last assessment. Emissions from this site have been investigated and are not large enough to cause exceedance of any of the set levels and no further investigations are needed.

There are 2 sites within the district, which could emit levels of NO_2 and Particulate Matter (PM_{10}) that could cause the Objectives to be breached. Emissions from these sites for 2014 have been studied and there are no exceedences of the Objectives.

Commercial and Domestic sources

There are no new commercial or domestic sources of pollutants (such as biomass boilers) within the Suffolk Coastal district since the 2014 Progress Report. There are no areas within the district with sufficient use of solid fuel in houses to cause any levels to be exceeded.

Uncontrolled emissions

There are no new industrial sites in the district with uncontrolled emissions (such as quarries, landfill sites) since our last assessment

Action Plan Progress Report for the Woodbridge Junction

The Action Plan for the Woodbridge Junction AQMA currently consists of 20 measures that could be undertaken at the junction to hopefully ease the congestion / reduce the overall traffic flows, and therefore in turn reduce the elevated levels of nitrogen dioxide being experienced. The measures can be split into 2 types; ‘on the ground works’ (mainly to be undertaken by Suffolk County Council with Suffolk Coastal District Council input) and more 'softer measures’ to be undertaken mainly by Suffolk Coastal District Council.

Updates on each of the measures are included in this report. Six of the measures have now been completed and one new measure has been added for investigation (remove the ability of traffic to go straight on from Melton Hill).

The 'on the ground works' started with the installation of a new computerised system (MOVA) to the traffic lights whose aim is to reduce congestion and therefore queue lengths. This has reduced the extreme queue lengths at each arm of the junction but not the average number of vehicles queuing at the junction. The MOVA system has not been successful in reducing NO_2 levels within the AQMA to below the Objective.

A feasibility study was completed for the 5 measures remaining which involve 'physical junction alterations'. This shows 1 measure to have a negative impact and the remaining 4 to have a negligible impact on NO_2 concentrations in the AQMA. It is therefore unlikely that any of them will be implemented on air quality grounds. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA, and to trial holding back traffic a distance from the lights (therefore away from the AQMA) and pulse it through. The weather station has recently been installed and the traffic trial is currently being investigated and will be undertaken if possible.

The Working Group, consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council, has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact. There are also a number of measures where the focus needs to be altered and some alternative options which have been suggested by the Working Group for possible inclusion in the Action Plan.

Individual updates for each measure in the Action Plan can be seen in the table in section 7 of this report. **A first draft of the updated Action Plan is being compiled and will be put out for full Consultation once completed.**

Action Plan Progress Report for the Dooley Inn, Ferry Lane, Felixstowe

This AQMA was declared in 2009. The Action Plan consists of 13 measures to try and reduce nitrogen dioxide levels in the area, of which seven have now been completed. Six of the measures are the responsibility of Suffolk Coastal District Council and 7 are the responsibility of the Port of Felixstowe. A number of additional emissions reduction measures have also been undertaken or are to be implemented by the Port of Felixstowe. Updates for each measure can be seen in section 8 of this report.

The results of diffusion tube monitoring for 2014 confirm that annual mean nitrogen dioxide concentrations within the Felixstowe AQMA continue to be below the air quality Objective at 36µg/m^3 for the third year running. **A Detailed Assessment will be undertaken and submitted to Defra to look at whether this AQMA should now be revoked.**

Update for Stratford St Andrew AQMA

An AQMA was declared at Long Row in Stratford St Andrew in June 2014. The Council is now legally required to produce a Further Assessment and an Action Plan. **The first draft of the required Further Assessment is currently being put together and will be sent to**

Defra once completed. A Working Group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council to begin early discussions on possible options for reducing emissions within the AQMA to include within the Action Plan. **Once the results of the Further Assessment are received a draft Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.**

For further information concerning this report please contact:
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1 Introduction

1.1 Description of Local Authority Area

Suffolk Coastal is a diverse district incorporating thirty miles of coast, expansive areas of countryside, much of which still forms a working landscape, five market towns including Woodbridge, the resort and port of Felixstowe as well as many villages. The district supports over 4,000 businesses, including large employers like the Port of Felixstowe, BT and Sizewell Power Station, as well as a high proportion of small and medium sized businesses that are vital to the local economy. Tourism is also a major driver for the local economy. Much of the district is within the Haven Gateway that is identified for significant growth.

The main source of emissions, within the majority of the district, is road traffic. Within the town of Felixstowe, emissions from and associated with the Port of Felixstowe are a large source of pollutants. While the quality of our air is generally very good and well within the limits set by Government for the protection of human health, there are now three areas within the district where levels of pollution give rise for concern. As such, three Air Quality Management Areas (AQMAs) have been declared in the District, one in Woodbridge (road traffic related), one in Felixstowe (associated with emissions from and associated with the Port of Felixstowe) and the third on a small stretch of the A12 at Stratford St Andrew.

1.2 Purpose of Report

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

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 μg/m^3	Running annual mean	31.12.2003
	5.00 μg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 μg/m^3	Annual mean	31.12.2004
	0.25 μg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 μg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 μg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 μg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Health effects

There are two pollutants, from the list of seven contained within the Air Quality Objectives, which are relevant to the Suffolk Coastal District and are detailed in the report – nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}). Information regarding the health effects of both pollutants is quite difficult to find and interpret as it is a continually developing field. There is much more information about the short term health effects of exposure to very high levels than longer term exposure to lower levels (as experienced in outdoor air).

The Department for Environment, Food and Rural Affairs (Defra) advise that generally if you are young and in a good state of health, moderate air pollution levels are unlikely to have any serious short term effects. However, elevated levels and/or long term exposure to air pollution can lead to more serious symptoms and conditions affecting human health. This mainly affects the respiratory and inflammatory systems, but can also lead to more serious conditions such as heart disease and cancer. People with lung or heart conditions may be more susceptible to the effects of air pollution.

The table below shows the types of health effects experienced with **short term elevated** levels:

Pollutant	Health effects at very high levels
Nitrogen Dioxide	These gases irritate the airways of the lungs, increasing the symptoms of those suffering from lung diseases
Particles (e.g PM_{10})	Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of heart and lung diseases

The effects of long term exposure to lower concentrations of each pollutant is less well known and knowledge is continually developing. Current information only represents the best we know at present. The World Health Organisation advises there is no safe level of exposure for PM_{10} - long-term exposure to particles (especially $PM_{2.5}$) is associated with premature mortality, especially from heart and lung conditions. Recent studies have also suggested that high levels of $PM_{2.5}$ in childhood can permanently impair lung function. High levels of particles can affect asthma sufferers.

The World Health Organisation advises that the health evidence around the long term effects of NO_2 is inconclusive as it is difficult to extricate the effects of long term exposure from those of fine particles like PM_{10}. There is growing evidence however that it does have its own health effects. It is an irritant to the respiratory system and studies have shown that symptoms of bronchitis in asthmatic children increase in

association with long-term exposure to NO_2. Reduced lung function growth is also linked to NO_2 at concentrations currently measured (or observed) in cities of Europe and North America.

There is also growing evidence that air pollution can actually cause people to develop asthma rather than merely triggering attacks.

The government Committee on the Medical Effects of Air Pollutants (COMEAP) **is due to publish a report on the number of premature deaths caused by nitrogen dioxide pollution in 2015.** When these are combined with existing $PM_{2.5}$ mortality estimates it is expected to result in a significant increase in the official overall estimate of premature deaths caused by air pollution. For further information regarding this report go to http://www.airqualitynews.com/2014/12/05/uk-nitrogen-dioxide-mortality-figures-due-next-year/

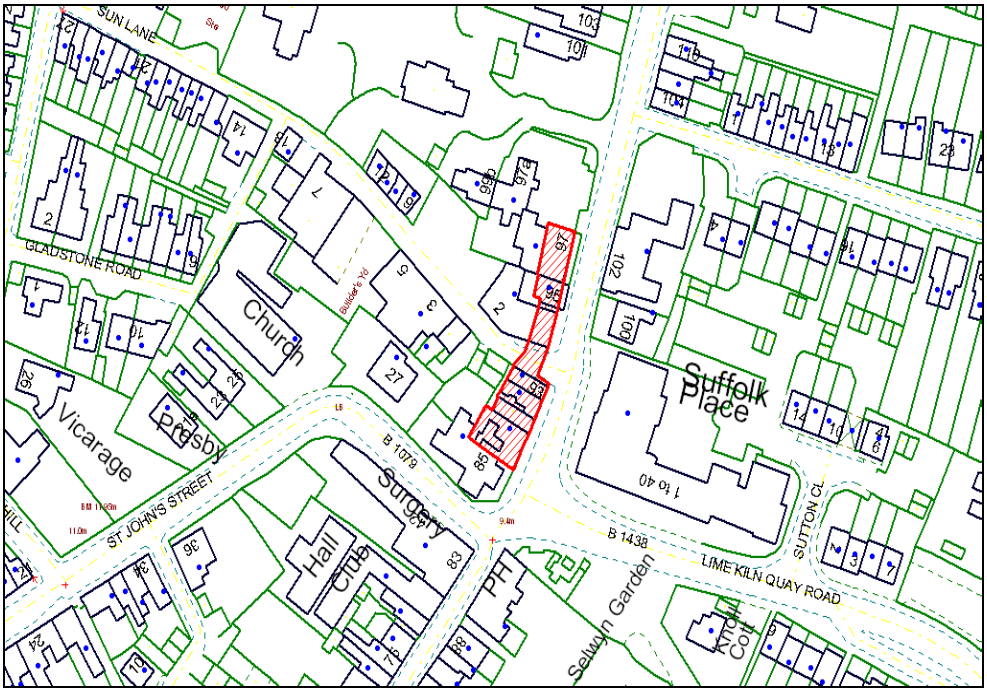
1.5 Summary of Previous Review and Assessments

Suffolk Coastal has completed five rounds of review and assessment and this report begins the sixth round. The findings of the review and assessment reports completed to date are summarised in Tables 1.2a – 1.2e and key findings are outlined below:

The first round of review and assessment was completed in 2001. No AQMAs were declared as part of the first round.

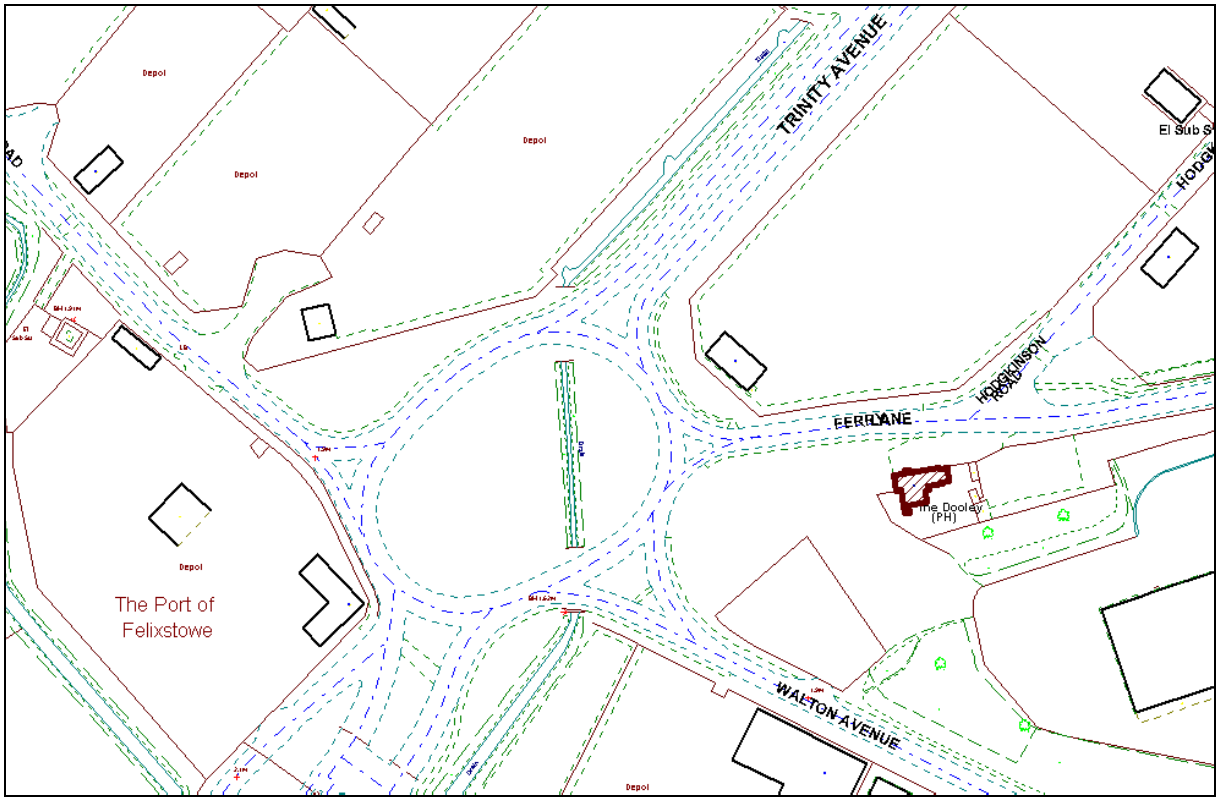
The second round of review and assessment was completed in 2005. This round concluded that there was a potential risk of the air quality objectives for nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}) and sulphur dioxide (SO_2) being exceeded within the Suffolk Coastal district. Following completion of a Detailed Assessment; no AQMA was required on the A1214 at the junction of Bell Lane in Kesgrave; an **AQMA was declared for exceedence of the annual mean NO_2 objective concentration at Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge in March 2006.** The AQMA boundary is shown in Figure 1.1 overleaf.

Figure 1.1 Map showing the boundary of the AQMA declared at the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge.



The third round of review and assessment consisted of an Updating and Screening Assessment, a Detailed Assessment, a Progress Report and a Further Assessment Report for the AQMA declared at the Woodbridge Junction. The 2006 Updating and Screening Assessment identified a potential risk of exceedence of the air quality objectives for NO_2, PM_{10} and SO_2 resulting from emissions from activities on and associated with the Port of Felixstowe. The Further Assessment for the Woodbridge Junction AQMA confirmed the boundary extent was correct, advised that a NOx reduction of 16.4% was necessary to eliminate exceedence and that the key was to reduce queuing and heavy duty vehicles. Following completion of a Detailed Assessment for Adastral Close and Ferry Lane in Felixstowe an **AQMA was declared in 2009 for exceedence of the annual mean NO_2 objective concentration in the vicinity of the Dooley Inn Public House on Ferry Lane, Felixstowe**. The AQMA boundary is shown in Figure 1.2 overleaf.

Figure 1.2 Map showing the boundary of the AQMA declared at The Dooley Inn, Ferry Lane, Felixstowe (hatched in red).

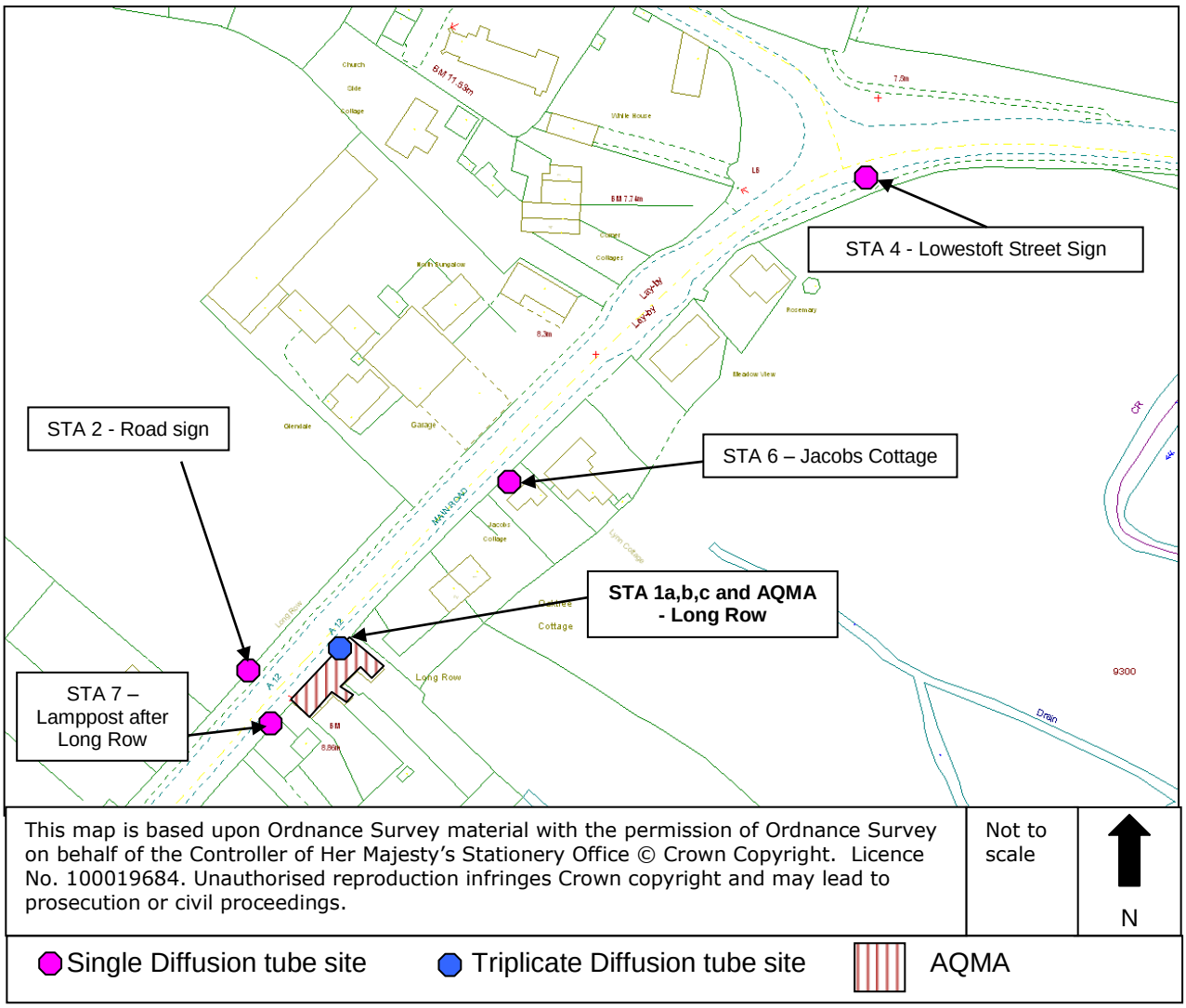


The fourth round of review and assessment consisted of an Updating and Screening Assessment, Progress Reports, and a Further Assessment and Draft Air Quality Action Plan for the Ferry Lane, Felixstowe AQMA. No new areas of concern were identified in the Progress Reports. The Further Assessment report confirmed the findings of the 2008 Detailed Assessment; with exceedence of the NO_2 annual average objective predicted at the Dooley Inn PH, and that the existing AQMA boundary is appropriate. Source apportionment found that the main NOx contribution is from container handling and vehicle activities in the Port, together with emissions from Heavy Duty Vehicles on roads outside the Port boundary. The final Action Plan was completed in 2012

The fifth round of review and assessment consisted of an Updating and Screening Assessment, Progress Reports, a Detailed Assessment for NO_2 concentrations from road traffic at Stratford St. Andrew followed by the declaration of an AQMA at Long Row, Stratford St Andrew, a Detailed Assessment for Geaters straw burner (a biomass installation), the Air Quality Action Plan for the declared AQMA at the Dooley Inn, Ferry Lane Felixstowe, and Action Plan Progress Reports for both the Woodbridge and Felixstowe AQMAs.

Following completion of a Detailed Assessment for Long Row, Main Road, Stratford St Andrew an **AQMA was declared in June 2014 for exceedence of the annual mean NO_2 objective concentration**. The AQMA boundary is shown in Figure 1.3 below. A Further Assessment has been commissioned and the findings will be reported on once received.

Figure 1.3 Map showing the boundary of the AQMA declared at Long Row, Main Road, Stratford St. Andrew.



The Action Plan Progress reports for the **Woodbridge Junction AQMA** advised that 6 of the measures have now been completed, 1 new measure has been added, and feasibility studies have been undertaken for 5 measures. The feasibility study showed 1 measure to have a negative impact on the AQMA and the remaining 4 to have a negligible impact. It is therefore unlikely that any of them will be implemented. The study had 2 recommendations; install a weather station for 3 months within the AQMA to determine the local meteorology and to run a trial to hold back the traffic from the lights (and therefore the AQMA) and pulse it through the junction. A new working group has been set up to look at the remaining measures and any other new options for the Action Plan. The Action Plan will be formally updated in light of new information.

The Final Action Plan for the **AQMA at Ferry Lane in Felixstowe** recommended 13 measures for implementation, 6 are the responsibility of Suffolk Coastal District Council and 7 the responsibility of the Port of Felixstowe. Seven of the measures have been completed. Diffusion tube monitoring results confirmed that annual mean NO_2 concentrations within the AQMA have fallen below the Air Quality Objective in 2012 and 2013 at 36µg/m^3 and 37µg/m^3 respectively.

A **Detailed Assessment** undertaken for **Geaters straw burner**, West End Nurseries, Leiston concluded that the air quality objectives are not likely to be exceeded at nearby receptor locations and no further action is required.

Table 1.2a Main findings from the first round of air quality review and assessment

Report and reference	Main outcomes
Report on the First Stage review and assessment of air quality in Suffolk Coastal (SCDC, 1999)	Negligible risk of exceedence of the air quality objectives for benzene and 1,3-butadiene, no further action needs to be taken. The risk of exceedence of the air quality objectives for lead, carbon monoxide (CO), NO_2, PM_{10} and SO_2 is such that a second stage review and assessment will need to be undertaken to determine the risk more precisely.
Report on the Second Stage review and assessment of air quality in the Suffolk Coastal District (SCDC, 2000)	Negligible risk of exceedence of the air quality objectives for lead and CO and further review and assessment is not necessary at this time. Significant risk of exceedence of the air quality objectives for NO_2, PM_{10} and SO_2 at relevant locations and further review and assessment is necessary.
Report on the Third Stage review and assessment of air quality in the Suffolk Coastal District (SCDC, 2001)	Negligible risk of exceedence of the air quality objectives and further assessment not necessary at this time for: NO_2 from traffic using the A14 trunk road and traffic using High Road West, Felixstowe. PM_{10} from: traffic using the A1152 (specifically the crossroads of the A1152 and B1438 at Melton); traffic using High Road West, Felixstowe; traffic using the Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge; and the combined emission 'footprint' of White Mountain Roadstone Limited, A12 traffic, Foxhall Four Quarry and Foxhall Landfill Site. Insufficient information to date and therefore further review and assessment required for: SO_2 and PM_{10} emissions from shipping at the Port of Felixstowe. PM_{10} emissions from the combined emission 'footprint' of Roadworks (1952) Limited and Sinks Pit Quarry. Risk of NO_2 air quality objectives being exceeded and further review and assessment required for: Emissions from traffic using the A1152 (specifically the crossroads of the A1152 and B1438 at Melton) Emissions from traffic using Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge.
Air quality review and assessment Stage 3 (AEA Technology, 2001)	Unlikely risk of exceedence of the air quality objectives for NO_2 at the Melton and Woodbridge road junctions and an AQMA is not required.

Table 1.2b Main findings from second round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2003)	Unlikely risk of exceedence of the air quality objectives for CO, benzene and 1,3-butadiene. No further assessment necessary. Potential risk of exceedence of the air quality objectives for lead, NO_2, PM_{10} and SO_2. Further investigation is necessary.
Report on the Detailed Assessment and Continued Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2004)	Unlikely risk of exceedence of the air quality objectives for lead and no further assessment is necessary. Unlikely risk of exceedence of the air quality objectives for NO_2 on the A1214 at the Bell Lane junction in Kesgrave confirmed by Detailed Assessment – no AQMA required. Potential risk of exceedence of the air quality objectives for NO_2, PM_{10} and SO_2 at receptor locations. Further investigation of: Emissions of NO_2 from traffic using the junction of Lime Kiln Quay Road/Thoroughfare/St John's Street junction, Woodbridge. Emissions of NO_2, PM_{10} and SO_2 from activities on and associated with the Port of Felixstowe, incorporating assessment of emissions generated by Bathside Bay and FSR
Progress Report: Air Quality in the Suffolk Coastal District (SCDC, 2005)	Outlines the findings of detailed modelling undertaken for the Felixstowe South Reconfiguration (FSR) planning application: No risk of exceedence of the air quality objective for PM_{10} at receptors from emissions resulting from activities on and associated with the Port of Felixstowe. No further review and assessment necessary. Exceedence of the air quality objective for annual average NO_2 in 2005 at receptor locations situated in The Downs (close to the Port of Felixstowe Road) and Spriteshall Lane (close to Dock Spur roundabout). *NO_2 diffusion tube monitoring undertaken in 2004 does not correspond with the above modelling results. Seven new diffusion tube sites established at the start of 2005 to obtain further information for receptor locations close to the Port of Felixstowe and along the A14.* Exceedence of the air quality objective for annual average NO_2 predicted for the end of 2005 at the Dooley Inn, Ferry Lane. Two new NO_2 diffusion tube sites established on the building. At the end of 2005, SCDC to determine if declaration of an AQMA is necessary for receptor locations near to the Port of Felixstowe and/or along the A14 based on 12 months of monitoring information from the new NO_2 diffusion tube sites in Felixstowe and the Trimleys. The findings to be reported in the next updating and screening assessment.
Detailed Assessment of the Woodbridge Junction (AEA Technology, 2005)	**Declaration of an AQMA for the annual average objective for NO_2 is required for Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge.**

Declaration of AQMA at the Woodbridge Junction (SCDC, 2006)	**AQMA declared for Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge in March 2006.** Copy of AQMA boundary included in Figure 1.1.

Table 1.2c Main findings from the third round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2006)	Unlikely risk of exceedence of the air quality objectives for CO, benzene, 1,3-butadiene and lead, no further assessment necessary. Potential risk of exceedence of the air quality objectives for NO_2, PM_{10} and SO_2 at receptor locations resulting from emissions from activities on and associated with the Port of Felixstowe. A Detailed Assessment is required to investigate these emissions.
Further Assessment Report for Woodbridge Junction AQMA (AEA Technology, 2007)	Confirmed AQMA boundary is correct. Reduction of NOx by 16.4% necessary to eliminate exceedences. Source apportionment concludes that queuing and Heavy Duty Vehicle reductions will be key to improve air quality.
Air quality review and assessment: Detailed Assessment for Adastral Close and Ferry Lane, Felixstowe (SCDC, 2008a)	AQMA declaration for SO_2 not required. AQMA declaration for PM_{10} not required. Exceedence of the annual average objective for NO_2 at the Dooley Inn, Ferry Lane, Felixstowe (modelling indicated that this the only relevant receptor location at which the objective was not met). Risk of exceedence of the annual average objective for NO_2 at fifteen properties at the west end of Adastral Close in 2010 and beyond following the FSR. Source apportionment studies indicated that container handling operations by rubber tyred gantry (RTG) crane and internal movement vehicles (IMVs) will potentially make the greatest contribution to oxides of nitrogen (NO_X) concentrations in 2010 both at Adastral Close and the Dooley Inn, Ferry Lane. Declaration of an AQMA for the annual average objective for NO_2 is required for the Dooley Inn, Ferry Lane, Felixstowe.
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2008b)	Work on production of the draft Action Plan for the Lime Kiln Quay Road/Thoroughfare/St John's Street junction, Woodbridge is continuing. Public consultation will be undertaken following Defra's approval of the completed draft. Public Consultation on the findings of the 2008 Detailed Assessment (SCDC, 2008a) for Ferry Lane, Felixstowe is to be undertaken following approval of the report by Defra. No new areas of concern identified.
Declaration of AQMA at Ferry Lane, Felixstowe (SCDC, 2009)	**AQMA declared for the Dooley Inn PH, Ferry Lane, Felixstowe in March 2009.** Copy of AQMA boundary included in Figure 1.2.

Table 1.2d Main findings from the fourth round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2009)	No new areas of concern identified within the district, no Detailed Assessment required. Work continuing to obtain information on biomass combustion plant within the district. Work ongoing on Woodbridge AQMA Action Plan and Further Assessment for AQMA declared at Ferry Lane, Felixstowe.
Draft Air Quality Action Plan for Woodbridge Junction (AEA Technology, 2009)	Draft Action Plan produced for full Public Consultation. Action Plan considered 79 options to improve air quality and recommends 20 of these for implementation.
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2010)	No new areas of concern identified within the district, no Detailed Assessment required. Work continuing to obtain information on biomass combustion plant within the district. Work ongoing on Woodbridge AQMA Final Action Plan and Further Assessment for AQMA declared at Ferry Lane, Felixstowe.
Further Assessment Report for Ferry Lane, Felixstowe AQMA (TRL, 2010)	Confirmed the findings of the 2008 Detailed Assessment, with exceedence of the NO_2 annual average objective predicted at the Dooley Inn public house. No further concern regarding Adastral Close properties – monitoring is ongoing there. A modelling assessment concluded that the existing AQMA boundary is appropriate. Source apportionment found main contribution from container handling and vehicle activities in the Port together with emissions from Heavy Duty Vehicles on roads outside the Port boundary.
Final Air Quality Action Plan for Woodbridge Junction (AEA Technology, 2011)	Includes results of Public Consultation which initiated changes to 5 of the 20 measures. Implementation Plan included for all 20 measures adopted.
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2011)	No new areas of concern identified within the district, no Detailed Assessment required. Assessment still required for 4 pieces of biomass combustion plant within the district. Air Quality Action Plan Progress Report included for the AQMA declared at the Woodbridge Junction.
Draft Air Quality Action Plan for Ferry Lane, Felixstowe (TRL, 2011)	Draft Action Plan produced for full Public Consultation. Action Plan considered 26 options to improve air quality and recommends 13 of these for implementation.
Final Air Quality Action Plan for Ferry Lane, Felixstowe (TRL, 2012)	Includes results of Public Consultation which has not initiated any changes to the 13 measures for implementation.

Table 1.2e Main findings from the fifth round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2012)	No new areas of concern identified within the district, no Detailed Assessment required. NO_2 concentrations on the A12 at Stratford St. Andrew are above the Objective level, a further year of data to be collected to determine whether Detailed Assessment is required. Work continuing to obtain information on 2 biomass combustion installations within the district. Work ongoing on Woodbridge AQMA Action Plan. Final Action Plan for AQMA declared at Ferry Lane, Felixstowe now completed and approved by Defra.
2013 Air Quality Progress Report for Suffolk Coastal District Council	No new areas of concern identified within the district. NO_2 concentrations on the A12 at Stratford St. Andrew continue to be above the Objective level. Detailed Assessment undertaken confirming Air Quality Management Area required. Results awaiting Defra approval. Assessment of 2 biomass combustion installations on the district confirms no further action required. Woodbridge AQMA Action Plan -1 measure has been removed, 4 completed, and 1 new measure added. Traffic surveys undertaken and results of Drive Cycle Analysis and computer modelling awaited. Work on-going. Felixstowe AQMA Action Plan – consists of 13 measures, 7 of which completed. Work on-going.
2014 Air Quality Progress Report for Suffolk Coastal District Council	No new areas of concern identified within the district. Defra confirm requirement to declare AQMA at Long Row, Main Road, Stratford St. Andrew. June 2014 - AQMA declared for 1-5 Long Row. Further Assessment commissioned and findings to be reported once received. Woodbridge AQMA Action Plan - 6 measures completed, and 1 new measure added. Feasibility studies undertaken for 5 measures - 1 has negative impact and the other 4 a negligible impact on the AQMA, unlikely to implement any. The study had 2 recommendations; install a weather station for 3 months within the AQMA and run a trial to hold back the traffic from the lights and pulse through the junction. A new working group has been set up to look at the remaining measures and any other new options for the Action Plan. Action Plan to be formally updated in light of new information. Felixstowe AQMA Action Plan - Seven of the measures have been completed. Diffusion tube monitoring results confirmed that annual mean NO_2 concentrations within the AQMA have fallen below the Air Quality Objective in 2012 and 2013 at 36µg/m^3 and 37µg/m^3 respectively. Once 2014 results are received we will investigate whether the AQMA can be revoked.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In 2014 an automatic analyser measuring oxides of nitrogen continued monitoring at the junction of Lime Kiln Quay Road, Thoroughfare, St. John's Street and Melton Hill in Woodbridge (Woodbridge Junction) within the declared Air Quality Management Area.

Further detail regarding the site is provided in Table 2.1 overleaf. The location of the analyser is shown in Figure 2.1 below. Details of Quality Assurance/ Quality Control carried out for the analyser is provided in Appendix A.

Figure 2.1 Location of the Automatic NOx analyser, AQMA, and NO_2 diffusion tubes sited at the Woodbridge Junction

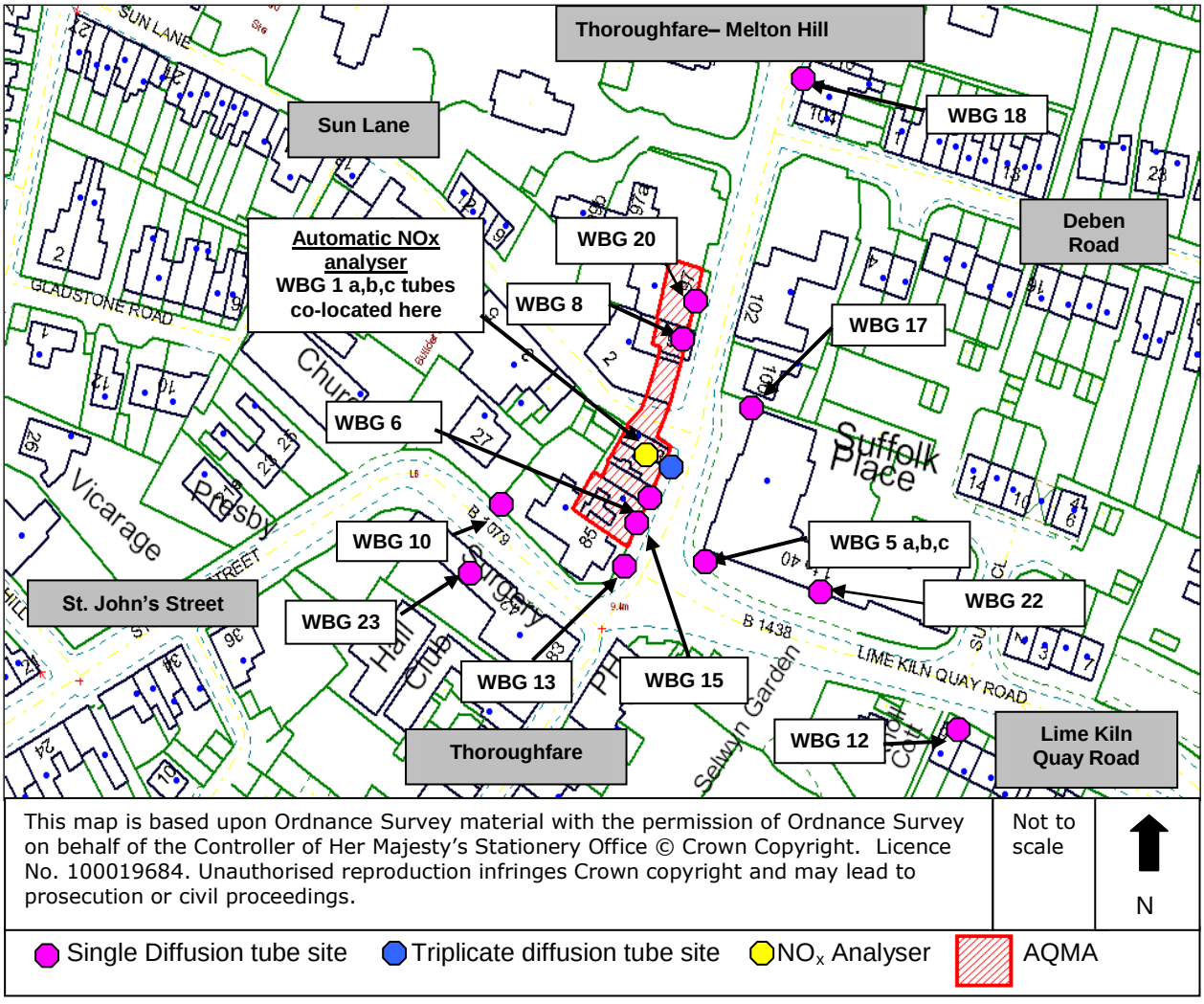


Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
WBG	Woodbridge Junction	Kerbside	X 62759	Y 24926	2.6	Nitrogen dioxide (NO_2)	Yes	ozone chemi.-luminescence	Yes (0.1m)	1m	Yes

2.1.2 Non-Automatic Monitoring Sites

During 2014 there were 2 new monitoring sites added within the district, bringing the total number of sites to 47. All sites measure concentrations of NO_2 using passive diffusion tubes which are exposed on a monthly basis. Further details regarding each monitoring site are provided in Table 2.2 below and their locations can be seen on the maps in Appendix B.

The 2 new monitoring sites were located as follows;

- **Martlesham 2** – Manor Road, Martlesham. This site was located due to a number of new developments which have increased the amount of traffic using the A12/Anson road roundabout, together with concerns raised by the Parish Council. The site is located on a residential property which is closest to this roundabout and the A12 at this point.

- **Saxmundham 1** – Church Street, Saxmundham. This site was located due to a number of new developments which have increased traffic using Church Street and resulted in additional congestion at its traffic lit junction with High Street, South Entrance and Chantry Road. In addition there are also proposals looking at additional housing which would also use this road and the above junction. This site is located at a residential property in close proximity to the junction and in the area experiencing congestion. The façade of the property opens directly onto the pavement.

Diffusion tubes can over or under read and the annual average obtained needs to be corrected to take account of laboratory bias thus improving accuracy. This can be done either by using a combined 'national' bias adjustment factor for the laboratory, or calculated from a co-location study with a continuous analyser carried out locally by the authority. For this reason diffusion tubes are co-located in triplicate alongside the automatic monitoring site in Woodbridge so that a local bias adjustment factor can be obtained for this location.

Information regarding the analytical laboratory, Quality Assurance/ Quality Control and bias adjustment factors are provided in Appendix A. Maps showing all diffusion tube sites are provided in Appendix B.

Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	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? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
FLX 12 a,b,c	Felixstowe 12	Roadside	630363	234890	2.30	NO_2	No	N	Y (0m)	5m	Yes
FLX 14	Felixstowe 14	Industrial Site	628604	232847	2.00	NO_2	No	N	Y (0m)	n/a	No
FLX 17	Felixstowe 17	Roadside	628817	236323	2.00	NO_2	No	N	Y (0m)	31m	Yes
FLX 20	Felixstowe 20	Industrial / Roadside	628669	233979	2.00	NO_2	No	N	Y (10m)	54m	Yes
FLX 21	Felixstowe 21	Urban Background	629253	234431	2.30	NO_2	No	N	N	n/a	n/a
FLX 22	Felixstowe 22	Industrial	629172	233446	1.80	NO_2	No	N	Y (0m)	n/a	Yes
FLX 23	Felixstowe 23	Roadside	628542	236592	2.00	NO_2	No	N	Y (0m)	25m	Yes
FLX 24	Felixstowe 24	Roadside	628358	234634	2.50	NO_2	No	N	Y (2.5m)	32m	Yes
FLX 26 a,b,c	Felixstowe 26	Industrial / Roadside	627959	234246	3.40	NO_2	Yes	N	Y (0m)	75m from roundabout	Yes
FLX 27 a,b,c	Felixstowe 27	Industrial / Roadside	627960	234238	2.80	NO_2	Yes	N	Y (0m)	75m from roundabout	No
FLX 29	Felixstowe 29	Industrial	628712	232892	2.00	NO_2	No	N	Y (0m)	n/a	No
FLX 31 a,b,c	Felixstowe 31	Industrial	628640	232795	2.00	NO_2	No	N	Y (0m)	n/a	Yes
FLX 32 a,b,c	Felixstowe 32	Industrial	627971	234242	2.00	NO_2	Yes	N	Y	75m from roundabout	No
FLX 33	Felixstowe 33	Roadside	627884	234238	1.74	NO_2	No	N	N	5m from roundabout	n/a
FLX 34	Felixstowe 34	Industrial / Roadside	627934	234257	1.93	NO_2	No	N	N	25m from roundabout	n/a
FLX 35	Felixstowe 35	Industrial / Roadside	627959	234258	1.82	NO_2	Yes	N	N	77m from roundabout	No
FLX 36	Felixstowe 36	Industrial / Roadside	627989	234279	1.90	NO_2	No	N	N	110m from roundabout	n/a
FLX 37	Felixstowe 37	Industrial / Roadside	628012	234272	1.66	NO_2	No	N	N	133m from roundabout	n/a
FLX 38	Felixstowe 38	Industrial / Roadside	628130	234280	1.65	NO_2	No	N	N	220m from roundabout	n/a

Site ID	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? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
FLX 39	Felixstowe 39	Roadside	628760	236071	1.60	NO_2	No	N	Y (0m)	11m	Yes
MEL 5	Melton 5	Roadside	628614	250417	1.90	NO_2	No	N	Y (1m)	3.6m	Yes
KSG 9	Kesgrave 9	Roadside	621680	245796	1.90	NO_2	No	N	Y (27m)	2.6m	Yes
WBG 1 a,b,c	Woodbridge 1	Kerbside	627596	249261	2.35	NO_2	Yes	Y	Y (0m)	1.3m	Yes
WBG 3	Woodbridge 3	Urban Background	626997	248488	1.90	NO_2	No	N	N	1.5m	n/a
WBG 5	Woodbridge 5	Roadside	627604	249243	2.30	NO_2	No	N	Y (0m)	2.5m	Yes
WBG 6	Woodbridge 6	Roadside	627593	249255	2.20	NO_2	Yes	N	Y (0m)	2m	Yes
WBG 8	Woodbridge 8	Roadside	627601	249283	2.35	NO_2	Yes	N	Y (0m)	3m	Yes
WBG 10	Woodbridge 10	Roadside	627570	249240	2.10	NO_2	No	N	Y (1m)	2m	Yes
WBG 12	Woodbridge 12	Roadside	627664	249203	1.80	NO_2	No	N	Y (0m)	5m	Yes
WBG 13	Woodbridge 13	Roadside	627585	249239	1.90	NO_2	No	N	Y (5m)	2.5m	Yes
WBG 15	Woodbridge 15	Roadside	627590	249249	2.50	NO_2	Yes	N	Y (0m)	2m	Yes
WBG 17	Woodbridge 17	Roadside	627614	249271	1.85	NO_2	No	N	Y (0m)	7m	Yes
WBG 18	Woodbridge 18	Roadside	627627	249339	2.15	NO_2	Yes	N	Y (0m)	1.5m	Yes
WBG 20	Woodbridge 20	Roadside	627604	249295	1.5	NO_2	No	N	Y (0m)	1.5m	Yes
WBG 22	Woodbridge 22	Roadside	627633	249233	2.15	NO_2	No	N	Y (0m)	8	Yes
WBG 23	Woodbridge 23	Kerbside	627562	249235	2.10	NO_2	No	N	Y (1m)	1	Yes

Site ID	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? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
MRT 1 a,b,c	Martlesham 1	Roadside	624633	245447	1.65	NO_2	No	N	Y (0m)	21	Yes
MRT 2	Martlesham 2	Roadside	624499	245777	1.60	NO_2	No	N	Y (0m)	65	Yes
LGM 1 a,b,c	Little Glemham 1	Roadside	634203	258820	1.45	NO_2	No	N	Y (0m)	19	Yes
FAR 1 a,b,c	Farnham 1	Roadside	636273	260134	1.75	NO_2	No	N	Y (0m)	3	Yes
FAR 2 a,b,c	Farnham 2	Roadside	636274	260120	1.90	NO_2	No	N	Y (0m)	2	Yes
STA 1 a,b,c	Stratford St. Andrew 1	Roadside	635753	260002	1.60	NO_2	No	N	Y (0m)	2	Yes
STA 2	Stratford St. Andrew 2	Roadside	635732	259995	1.80	NO_2	No	N	N	1.7	Yes
STA 4	Stratford St. Andrew 4	Roadside	635878	260117	1.80	NO_2	No	N	N	3.8	Yes
STA 6	Stratford St. Andrew 6	Roadside	635794	260042	1.30	NO_2	No	N	Y (0m)	7	Yes
STA 7	Stratford St Andrew 7	Roadside	635736	259984	1.65	NO_2	No	N	Y (14m)	1.9	Yes
SAX 1	Saxmundham 1	Roadside	638683	263014	1.80	NO_2	No	N	Y (0m)	1	Yes

2.2 Comparison of Monitoring Results with Air Quality Objectives

Within the Suffolk Coastal district in 2014 monitoring was undertaken for nitrogen dioxide using both an automatic analyser and diffusion tubes. No other pollutants were monitored.

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

A summary of the results of automatic monitoring of NO_2 at the Woodbridge Junction can be seen in tables 2.3 and 2.4. Table 2.3 presents results comparable with the annual mean Objective of 40µg/m^3 and Table 2.4 presents results comparable with the 1-hour mean Objective of 200µg/m^3. In addition to the most recent monitoring, results for 2009 - 2013 have also been included in the tables for comparison purposes. Detailed summary tables and graphs of the 2014 monitoring results are presented in Appendix C.

The automatic analyser at Woodbridge is sited within a declared Air Quality Management Area (AQMA) and shows that the annual mean concentration, at 39µg/m^3, to be just below the Air Quality Objective (Table 2.3). Data capture was low across November (30.7%) and December (24.1%) due to an analyser fault. This has brought the data capture for the year down to 85.3%.

Table 2.3 shows that the annual mean concentration has fluctuated in the period 2009 to 2013 between 44/45µg/m^3 and 42µg/m^3 and has then decreased in 2014 to 39µg/m^3. The low data capture during November and December 2014 is likely to have been the cause of this reduction as these are months when concentrations recorded are generally higher. The lack of data for these months will therefore bring the annual mean down for the year. The fluctuations seen between 2009 and 2013 do not appear to correspond with any particular Action Plan measures implemented. More detailed discussion regarding the trends in NO_2 levels seen at the junction and the Action Plan implementation can be seen in Section 7 of this report.

The 1-hour mean Objective is set at 200µg/m^3 not to be exceeded more than 18 times per year. The limit of 200µg/m^3 was not exceeded in 2014 (see Table 2.4). Exceedences may have occurred during November and December as these months tend to show higher concentrations. The maximum number of exceedences of the 1-hour mean Objective has been steady between 2009 and 2014 with a maximum of 1 exceedence in any year which indicates that the information for 2014 is consistent with historic data.

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 % [a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration (µg/m^3)					
					2009 [c]	2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]
Woodbridge	Kerbside	Yes	85.3%	85.3%	**45**	**45**	**42**	**44**	**42**	**39**

In bold, exceedence of the relevant NO_2 objective (annual mean AQS objective of 40 µg/m^3 and 1-hour mean AQS objective of 200 µg/m^3)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

[d] If the data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

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 % [a]	Valid Data Capture 2013 % [b]	Number of Hourly Means > 200µg/m^3					
					2009 [d]	2010 [d]	2011 [d]	2012 [d]	2013 [d]	2014 [d]
Woodbridge	Kerbside	Yes	85.3%	85.3%	1	0	0	1	0	0

Diffusion Tube Monitoring Data

A summary of the results of diffusion tube monitoring for NO_2 at sites within the district can be seen in Table 2.5 overleaf. Detailed tables showing the monthly monitoring results for all sites in 2014 are presented in Appendix D.

The annual mean NO_2 concentrations shown in Table 2.5 have had a bias adjustment factor applied. The choice of bias adjustment factor is explained in Appendix A and the bias adjustment factor used at each site is presented in Appendix D.

After bias adjustment, 5 sites had annual mean NO_2 concentrations above the Objective of 40µg/m^3 in 2014 and 2 sites were borderline (any site above 36µg/m^3), these were:

FLX 33 - lamppost at Dock Gate 2 Roundabout - **not a relevant receptor**.
FLX 34 – lamppost in Ferry Lane, midway between roundabout and Dooley Inn PH - **not a relevant receptor**.
FLX 35 - The Dooley Inn Signpost at front of building, Ferry Lane – **not a relevant receptor.**
FLX 37 - lamppost in Ferry Lane on corner of Hodgkinson Road - **not a relevant receptor.**
WBG 1 - 93 Thoroughfare, Woodbridge - co-located with the Woodbridge automatic monitoring site and within the declared AQMA **(borderline result – 39µg/m^3)**.
WBG 15 – top guttering of 87 Thoroughfare, Woodbridge (middle of house) **(borderline result – 37µg/m^3).**
STA 1 - 1 Long Row, Main Road, Stratford St. Andrew.

Felixstowe

All sites within the AQMA declared at Felixstowe - Felixstowe 26, 27 and 32 are now within the Air Quality Objective – at 36µg/m^3, 32µg/m^3 and 29µg/m^3 respectively.

The four sites at Felixstowe which are above the Objective level (Felixstowe 33, 34, 35 and 37) are not situated at relevant receptors. These sites are located to help ascertain NO_2 levels around the declared AQMA at the Dooley Inn PH; whether the local road network (Ferry Lane and Hodgkinson Road) is producing more emissions than originally estimated, and whether there is a gradient from Dock Gate 2 roundabout up to The Dooley Inn. For this reason the NO_2 fall-off with distance calculator has not been used for these sites as they were not located to represent receptor locations.

Further discussions regarding the Felixstowe AQMA and the 2014 monitoring results can be seen in Section 8 of this report.

Woodbridge

The Woodbridge sites (1 and 15) are both within the declared AQMA and are within the Objective level but classed as borderline at 39µg/m^3 and 35µg/m^3 respectively. As discussed earlier, the analyser situated within this AQMA, which is used to bias adjust the diffusion tubes, had very low data capture in November and December which would affect the annual mean used to perform the bias correction. This may have an impact on the levels recorded for Woodbridge, although the bias correction factor used is still conservative when compared with the national laboratory bias (0.85 versus 0.81). Further discussions regarding the Woodbridge AQMA and the 2014 monitoring results can be seen in Section 7 of this report.

Stratford St Andrew

The Stratford St. Andrew site (STA 1) is within the declared AQMA and the level recorded, at 42µg/m^3, is slightly higher than for 2013. All other sites are within the Objective level. Further discussions regarding the Stratford St. Andrew AQMA and the 2014 monitoring results can be seen in Section 9 of this report.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2014 (Number of Months or %) [a]	2014 Annual Mean Concentration (µg/m^3) Bias Adjustment factors: Woodbridge: 0.85 All other sites: 0.81 [b]
FLX 12	Hamilton Rd	Roadside	N	Triplicate	12	25
FLX 14	1 Adastral Close	Industrial	N	~	12	22
FLX 17	Spriteshall Lane	Roadside	N	~	12	23
FLX 20	Glemsford Close	Industrial / Roadside	N	~	11	21
FLX 21	Kingsfleet Road	Urban Background	N	~	12	19
FLX 22	Levington Road	Industrial	N	~	12	20
FLX 23	Heathgate Piece, Trimley	Roadside	N	~	12	27
FLX 24	Brandon Road	Roadside	N	~	12	27
FLX 26 a,b,c	The Dooley Inn (front), Ferry Road	Industrial / Roadside	Y	Triplicate	12	36
FLX 27 a,b,c	The Dooley Inn (side), Ferry Road	Industrial / Roadside	Y	Triplicate	12	32
FLX 29	18 Adastral Close	Industrial	N	~	12	20
FLX 31 a,b,c	44 Adastral Close	Industrial	N	Triplicate	12	23
FLX 32a,b,c	Dooley Inn (rear), Ferry Lane	Industrial	Y	Triplicate	12	29
FLX 33	Dock Gate 2 Roundabout	Roadside	N	~	11	**55**
FLX 34	Ferry Lane towards roundabout	Industrial / Roadside	Y	~	12	**45**
FLX 35	Dooley Inn (signpost) Ferry Lane.	Industrial / Roadside	N	~	12	**43**
FLX 36	Street Sign Hodgkinson Road.	Industrial / Roadside	N	~	12	36
FLX 37	Lamppost, corner of Hodgkinson Rd.	Industrial / Roadside	N	~	12	**42**
FLX 38	Lamppost on Ferry Lane, past PH	Industrial / Roadside	N	~	12	33
FLX 39	424 High Road, Trimley	Roadside	N	~	12	28
KSG 9	118 Main Road	Roadside	N	~	12	29
WBG 1 a,b,c	93 Thoroughfare	Kerbside	Y	Triplicate + Co-located	12	39
WBG 3	8 Kingston Farm Road	Urban Background	N	~	12	13
WBG 5	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	12	22
WBG 6	87 Thoroughfare	Roadside	Y	~	11	35

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2014 (Number of Months or %) [a]	2014 Annual Mean Concentration (µg/m^3) Bias Adjustment factors: Woodbridge: 0.85 All other sites: 0.81 [b]
WBG 8	95 Thoroughfare	Roadside	Y	~	12	33
WBG 10	St John's Street signpost	Roadside	N	~	12	29
WBG 12	8 Lime Kiln Quay Road	Roadside	N	~	12	21
WBG 13	Traffic lights at 85 Thoroughfare	Roadside	N	~	12	31
WBG 15	87 Thoroughfare	Roadside	Y	~	12	37
WBG 17	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	12	25
WBG 18	106/108 Thoroughfare	Roadside	Y	~	12	34
WBG 20	97 Thoroughfare	Roadside	N	~	12	32
WBG 22	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	11	20
WBG 23	Lamppost at 50 St. John's Street	Kerbside	N	~	12	25
MEL 5	6 The Street	Roadside	N	~	11	28
MRT 1 a,b,c	Horseman Court, Eagle Way	Roadside	N	Triplicate	12	22
MRT 2	Manor Road	Roadside	N	~	11	16
LGM 1 a,b,c	Pear Tree House, Main Rd, Glemham	Roadside	N	Triplicate	12	14
FAR 1 a,b,c	Turret House, The Street, Farnham	Roadside	N	Triplicate	12	27
FAR 2 a,b,c	Post Office Stores, The St, Farnham,	Roadside	N	Triplicate	12	29
STA 1 a,b,c	Long Row, Main Road, Stratford	Roadside	N	Triplicate	12	**42**
STA 2	Sign opp. Long Row, Stratford	Roadside	Y	~	12	25
STA 4	Lowestoft Street Sign, Main Rd, Stratford	Roadside	N	~	12	15
STA 6	Jacobs Cottage, Main Road Stratford	Roadside	N	~	12	23
STA 7	30mph sign, 5 Long Row, Stratford	Roadside	N	~	12	30
SAX 1	Church Street	Roadside	N	~	10	27

In bold and shaded grey, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] Means should be "annualised" as in Box 3.2 of TG(09)(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

[b] If an exceedence is measured at a monitoring site not representative of public exposure, NO_2 concentration at the nearest relevant exposure should be estimated based on the "NO_2 fall-off with distance" calculator (http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30

Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

In addition to the most recent monitoring, historic diffusion tube results for 2010 to 2014 at all sites are presented in Table 2.6 overleaf for comparison purposes. For each of the 5 years presented the relevant different bias correction factors have been used and described.

Trend graphs have also been drawn, see Figures 2.3 a-c, showing annual mean NO_2 trends over time for diffusion tube sites with five or more years of data in the district. Where local bias correction factors are available for Woodbridge and Felixstowe, these have been used for diffusion tubes in those particular areas. The national laboratory bias has been used for all other sites. For all other years the national laboratory bias has been used for all locations.

Each of the areas monitored (Felixstowe, Kesgrave, Woodbridge, Melton, Martlesham and the A12 villages) are very different. The majority of the Felixstowe sites are in place to measure concentrations around and associated with the Port of Felixstowe including both road traffic and Port equipment emissions. Kesgrave, Woodbridge and Melton are all at road junctions controlled by traffic lights, but again each is very different in terms of layout and the amount of congestion experienced. The sites at Kesgrave and Woodbridge are much more enclosed than that at Melton. The Martlesham sites are set back from the A12 near to one of its roundabouts. The villages along the A12 have free flowing traffic with houses very close to the kerbside in places. The sites at Woodbridge, Felixstowe and Stratford St Andrew also have AQMAs declared, although Action Plans are only in place for Woodbridge and Felixstowe which will be working towards trying to reduce concentrations in these areas.

The trend graphs show that, over the longer term, concentrations recorded in Felixstowe, Kesgrave, Woodbridge (sites outside the AQMA), Melton and Martlesham have decreased over time, obviously with some fluctuations over the time period. Concentrations recorded at sites in the Woodbridge AQMA have fluctuated over the time period.

In Felixstowe (Figure 2.2a), the Urban Background site (FLX 21) has fluctuated slightly between 2005 and 2014 with the overall trend being a reduction in levels. This trend is also seen in all of the other Felixstowe sites. All sites close to the Port boundary (FLX 14, 20, 22, 26, 27, 29, 31 and 32), have shown a steady reduction over time confirming that emissions on and associated with the Port have reduced following extensive emission reduction works by the Port of Felixstowe. The only site with an unusual peak is that of Hamilton Road in 2009, the reason for this was thought to be road works that occurred throughout most of that year causing congestion at the monitoring site. More detailed discussions regarding the more recent trends seen at sites associated with the AQMA are presented in Section 8 of this report.

In Woodbridge (Figure 2.2b), the Urban Background site has fluctuated slightly with an overall reduction between 2000 and 2014. The other sites also show a reduction in levels over the monitoring period, the amount of reduction varying between sites.

More detailed discussions regarding the more recent trends seen in Woodbridge are presented in Section 7 of this report.

Trends over time for both **Melton** and **Kesgrave** (Figure 2.2c) fluctuate but both show an overall decrease over time.

The monitoring site at **Martlesham** shows low, steady levels well below the Objectives, with an overall reduction over the monitoring period.

The **A12 villages monitoring sites** have been in place for 4 years and the results are presented in Table 2.6. All sites show slight fluctuations with the overall trend being a slight reduction in concentrations. More detailed discussions regarding the trend seen at the AQMA site are presented in Section 9 of this report.

Summary of Compliance with AQS Objectives

Suffolk Coastal District Council has examined the results from monitoring in the district.

Concentrations within the AQMA in Woodbridge are slightly below the NO_2 annual mean objective for the first time. This could be due to low data capture by the automatic analyser during November and December 2014, and the AQMA should remain.

Concentrations within the AQMA in Felixstowe have not exceeded the annual mean objective for NO_2 since 2012. Suffolk Coastal District Council will be undertaking a Detailed Assessment to determine whether to revoke this AQMA, further details in Section 9 of this report. Monitoring will continue in order to allow us to confirm future levels.

Concentrations within the new AQMA at Stratford St Andrew have fluctuated over time but are still slightly above the Objective level. A Further Assessment is being finalised and an Action Plan will be completed for this AQMA. Both will be submitted to Defra once completed.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2010 Bias Adjustment Woodbridge: 0.89 All others: 0.85	2011 Bias Adjustment Woodbridge: 0.84 All others: 0.84	2012 Bias Adjustment Woodbridge: 0.88 All others: 0.79	2013 Bias Adjustment Woodbridge: 0.89 All others: 0.81	2014 Bias Adjustment Woodbridge: 0.85 All others: 0.81
FLX 12 a,b,c	Roadside	N	31	33	30	28	25
FLX 14	Industrial Site	N	27	25	25	25	22
FLX 17	Roadside	N	26	28	24	25	23
FLX 20	Industrial / Roadside	N	24	26	23	22	21
FLX 21	Urban Background	N	24	25	22	22	19
FLX 22	Industrial	N	25	25	23	22	20
FLX 23	Roadside	N	31	29	26	28	27
FLX 24	Roadside	N	31	31	28	28	27
FLX 26 a,b,c	Industrial / Roadside	Y	**43**	**40**	36	37	36
FLX 27 a,b,c	Industrial / Roadside	Y	33	36	33	32	32
FLX 29	Industrial	N	27	25	23	22	20
FLX 31 a,b,c	Industrial	N	30	27	26	25	23
FLX 32a,b,c	Industrial	Y	~	37	34	32	29
FLX 33	Roadside	N	~	**66**	**60**	**58**	**55**
FLX 34	Industrial / Roadside	N	~	**51**	**46**	**42**	**45**
FLX 35	Industrial / Roadside	N	~	**48**	**44**	**41**	**43**
FLX 36	Industrial / Roadside	N	~	**41**	37	36	36
FLX 37	Industrial / Roadside	N	~	**48**	**43**	**41**	**42**
FLX 38	Industrial / Roadside	N	~	39	34	32	33
FLX 39	Roadside	N	~	~	~	21	28
KSG 9	Roadside	N	29	34	31	28	29
WBG 1 a,b,c	Roadside	Y	**42**	**42**	**44**	**41**	39
WBG 3	Kerbside	N	18	16	15	14	13
WBG 5	Roadside	N	29	25	26	26	22

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2010 Bias Adjustment Woodbridge: 0.89 All others: 0.85	2011 Bias Adjustment Woodbridge: 0.84 All others: 0.84	2012 Bias Adjustment Woodbridge: 0.88 All others: 0.79	2013 Bias Adjustment Woodbridge: 0.89 All others: 0.81	2014 Bias Adjustment Woodbridge: 0.85 All others: 0.81
WBG 6	Roadside	Y	**41**	37	**40**	38	35
WBG 8	Roadside	Y	**41**	38	**43**	30	33
WBG 10	Roadside	N	34	31	31	30	29
WBG 12	Roadside	N	26	24	25	23	21
WBG 13	Roadside	N	36	33	36	35	31
WBG 15	Roadside	Y	38	39	**42**	**41**	37
WBG 17	Roadside	N	30	28	28	27	25
WBG 18	Roadside	Y	38	32	34	35	34
WBG 20	Roadside	Y	43	~	~	31	32
WBG 22	Roadside	N	23	21	22	22	20
WBG 23	Kerbside	N	27	28	26	25	25
MEL 5	Roadside	N	28	31	31	29	28
MRT 1 a,b,c	Roadside	N	24	24	21	21	22
MRT 2	Roadside	N	~	~	~	~	16
LGM 1 a,b,c	Roadside	N	~	17	14	15	14
FAR 1 a,b,c	Roadside	N	~	29	26	29	27
FAR 2 a,b,c	Roadside	N	~	33	31	31	29
STA 1 a,b,c	Roadside	N	~	**43**	**42**	**41**	**42**
STA 2	Roadside	Y	~	~	~	27	25
STA 4	Roadside	N	~	~	~	17	15
STA 6	Roadside	N	~	~	~	24	23
STA 7	Roadside	N	~	~	~	34	30
SAX 1	Roadside	N	~	~	~	~	27

In bold and shaded grey, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%.

Figure 2.2 a Trend Graphs

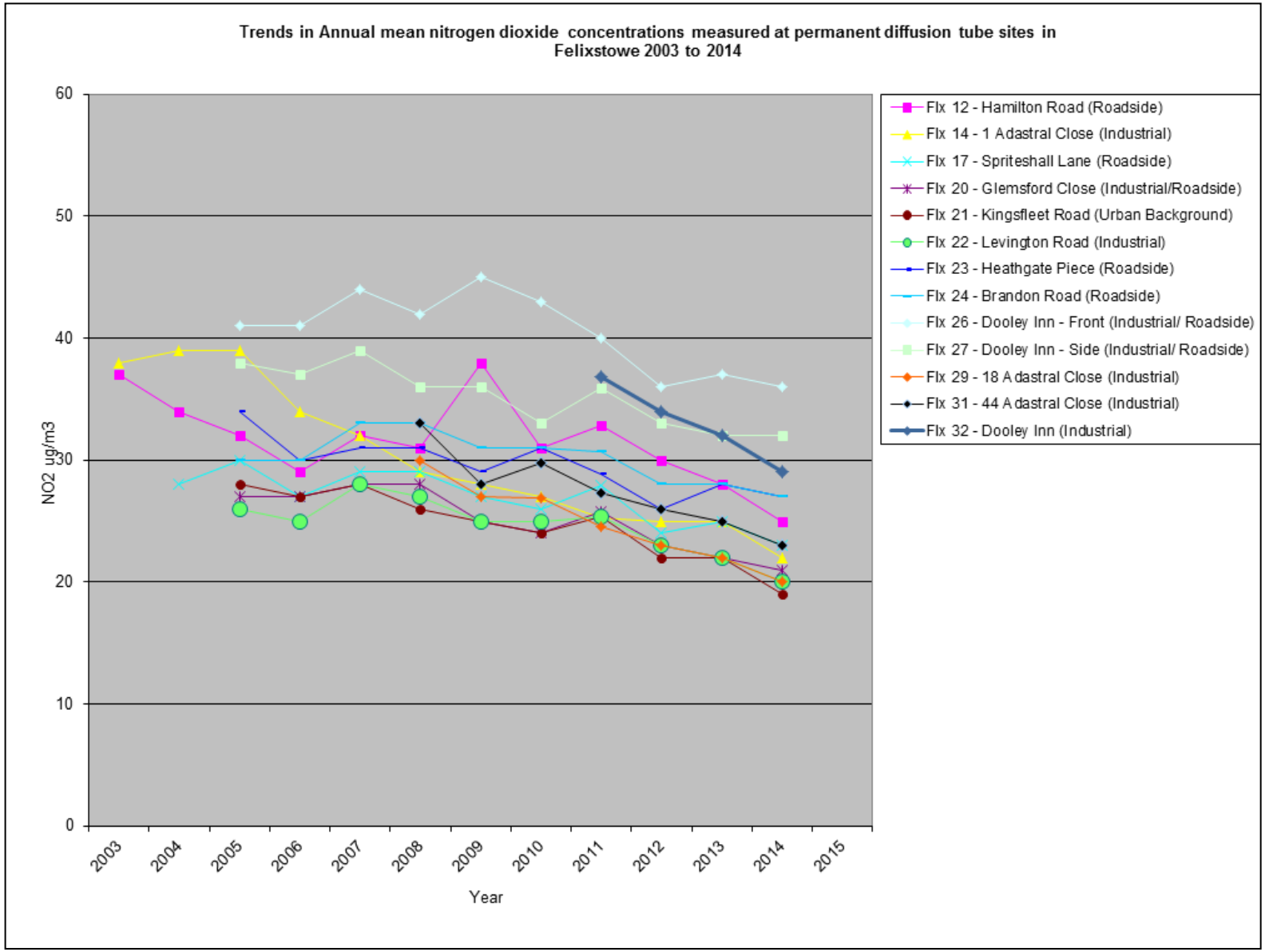


Figure 2.2b Trend Graphs

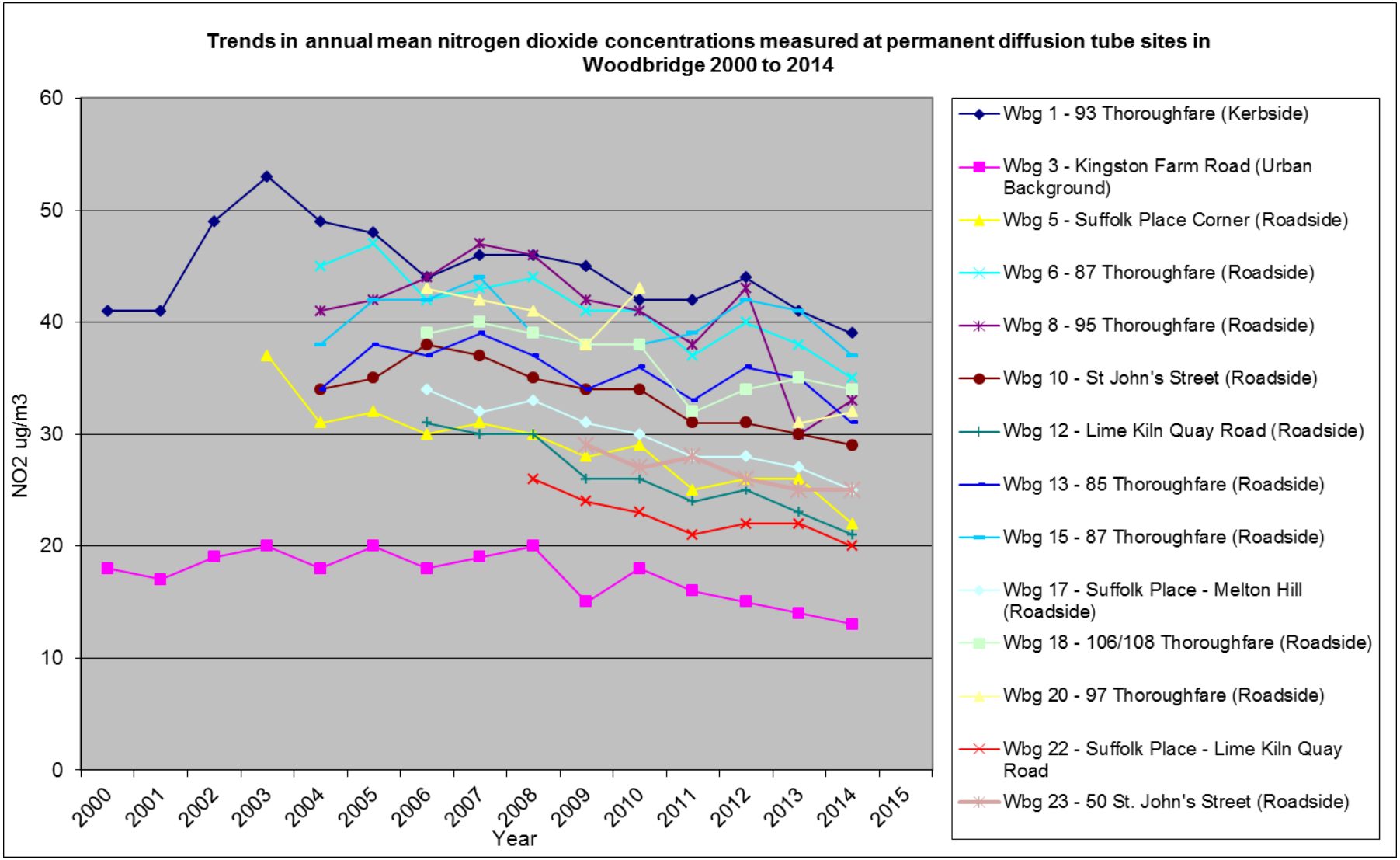
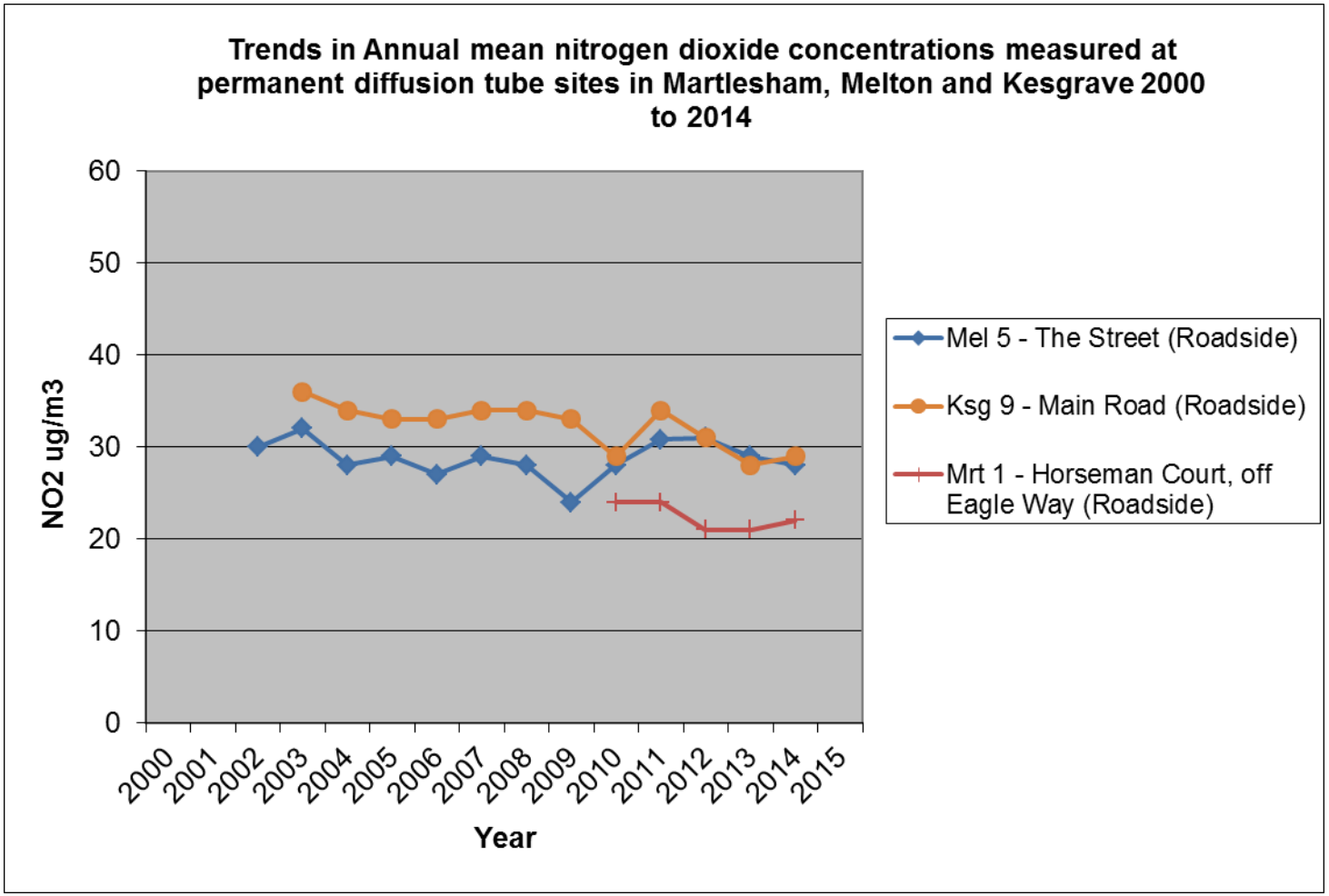


Figure 2.2c Trend Graphs



3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Pollutant concentrations are often higher where traffic is slow moving, with stop/start driving, and where buildings on either side reduce dispersion. In these situations there is the possibility that the objectives for nitrogen dioxide (NO_2) could be exceeded.

The technical guidance LAQM.TG (09) advises that a Detailed Assessment will be required for any streets where:

- The Annual Average Daily Traffic Flow is around 5,000 vehicles per day or more
- The street is congested – it has slow moving traffic that is frequently stopping and starting due to pedestrian crossings, parked vehicles etc. throughout much of the day (not just during rush hours). The average speed is likely to be less than 25 km/h (15mph).
- The street is narrow – it will have residential properties within 2 m of the kerb, and buildings both sides of the road (the buildings on the other side of the road can be further from the road than 2 m).

The technical guidance LAQM.TG (09) advises that this assessment does not need to consider locations within existing Air Quality Management Areas (AQMAs) declared for NO_2. A section of the Thoroughfare (Melton Hill) at the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge was declared as an AQMA in 2006. This would fall within this category but does not require any further assessment in this section of the report.

Using local knowledge of Council Officers and traffic count information provided by Suffolk County Council it has been determined that there are no new/newly identified streets which would fall into these categories.

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

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

Defra have examined the results from previous Review and Assessment, which have shown that there will be some locations where members of the public may regularly spend one hour or more, e.g. streets with many shops or outside cafes/bars. At these locations the 1-hour objective for NO_2 will apply.

The technical guidance LAQM.TG(09) advises that if these types of location were specifically included during previous rounds of review and assessment and if there is no new/newly identified locations that fall into this category, then there is no need to proceed further.

In the previous rounds of review and assessment these types of location were fully investigated, and no further investigation will be necessary.

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

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

Defra have found from previous rounds of review and assessment that there will be some street locations where traffic flows are not necessarily high (less than 20,000 vehicles per day) but there is an unusually high proportion of buses and/or heavy goods vehicles (greater than 20%) and relevant exposure within 10 metres which could lead to exceedence of both the nitrogen dioxide (NO_2) and particulate matter (PM_{10}) objectives.

The technical guidance LAQM.TG (09) advises that if these types of location were specifically included during previous rounds of review and assessment then there is no need to proceed further.

In previous rounds of review and assessment these types of location were fully investigated. There is only one road with a proportion of heavy duty vehicles (HDVs) greater than 20% and totalling more than 2,500 vehicles per day within the Suffolk Coastal district, which is the A14 trunk road from the Haven Exchange roundabout at the Port of Felixstowe to the Ipswich Borough boundary. Emissions from traffic using the A14 trunk road do not come within the scope of this section of the report, however, as there are no relevant receptor locations within 10 metres of the road. No further investigation will be necessary.

Suffolk Coastal District Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

This assessment needs to consider both NO_2 and PM_{10}. Concentrations of both pollutants are usually higher closer to junctions, due to the combined impact of traffic emissions from two roads and the higher emissions due to stop-start driving. Any junctions with a traffic flow greater than 10,000 vehicles per day and relevant exposure within 10m of the kerb should be investigated.

The technical guidance LAQM.TG (09) update advises that if road junctions were specifically included during previous rounds then there is no need to proceed further.

In the previous rounds of review and assessment these types of location were fully investigated and there are no new/newly identified busy junction which fall into this category.

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

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

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

3.6 Roads with Significantly Changed Traffic Flows

The technical guidance LAQM.TG(09) update advises that any roads with traffic flows greater than 10,000 vehicles per day which have experienced a 'large' increase in traffic flow, taken to be 25% or more, since the previous round of review and assessment should be considered in this Updating and Screening Assessment. This assessment needs to consider both NO_2 and PM_{10}.

The most recent available traffic flow data (for 2014) was obtained from Suffolk County Council Environment and Transport Department. The traffic data obtained is presented in Appendix E. For roads with a flow greater than 10,000 vehicles per day the percentage traffic increase between 2011 (data set used in the previous updating and screening assessment) and 2014 was calculated. Where data was not available for the years 2011 and 2014 data was used from the nearest year to each date.

There is one road with a traffic flow greater than 10,000 vehicles per day which has experienced a traffic increase of more than 25% or more since the previous review and assessment. The A12 South of Yoxford had an Annual Average Daily Traffic flow of 8,759 in 2011 which rose to 11,177 in 2014 – an increase of 27.6%.

The Design Manual for Roads and Bridges (DMRB) screening method was run for the closest receptor to the road in this location (8m from the centre of the road). The results calculated NO_2 concentrations of 13µg/m^3 and PM_{10} concentrations of 17µg/m^3 with only 0.75 days with a PM_{10} concentrations >50µg/m^3 at the receptor location. These results are all within the relevant Air Quality Objectives and **no further investigation is required.**

Suffolk Coastal District Council has assessed one newly identified road with a significantly changed traffic flow, and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.7 Bus and Coach Stations

The technical guidance LAQM.TG (09) advises that concentrations of NO_2 may be elevated in the vicinity of bus/coach stations where there are large numbers of vehicle movements per day. This only applies to bus/coach stations that are not enclosed, have a flow of buses/coaches greater than 2,500 movements per day, and that have relevant exposure within 10 metres of the bus/coach station.

Using local knowledge of the district, there are no bus/coach stations within the Suffolk Coastal district with a flow of buses/coaches greater than 2,500 movements per day.

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

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

The technical guidance LAQM.TG (09) advises that stationary locomotives, both diesel and coal-fired, can give rise to high levels of sulphur dioxide (SO_2) close to the point of emission. Recent evidence suggests that moving diesel locomotives, in sufficient numbers, can also give rise to high nitrogen dioxide (NO_2) concentrations close to the track. LAQM.TG (09) advises that these two issues should be assessed separately.

4.2.1 Stationary Trains

The technical guidance LAQM.TG(09) advises that further investigation of SO_2 concentrations is needed if there are any areas where diesel or steam locomotives are regularly stationary (3 or more times per day) for periods of 15 minutes or more, and where there is the potential for regular outdoor exposure of members of the public within 15 metres.

In the previous rounds of review and assessment these types of location were fully investigated, and at all of the sites the objectives were not likely to be exceeded. There are no areas we are aware of where there is any new relevant exposure. No further investigation is therefore required for stationary trains.

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

4.2.2 Moving Trains

There is evidence that nitrogen dioxide (NO_2) concentrations are elevated alongside rail lines with a large number of diesel locomotive movements – the emissions can be equivalent to those from a busy road. Rail lines only need be considered where the background annual mean NO_2 concentration is above 25µg/m^3 and where there is long term exposure within 30m from the tracks. A list of local authorities where the criteria might be met is provided on the Review and Assessment Helpdesk website, however this list only includes information on passenger trains. Within the Suffolk

Coastal district there is freight train movement to and from the Port of Felixstowe on the Ipswich to Felixstowe line which must be considered and the Helpdesk have advised that freight trains will cause 2.5 times the emissions as passenger trains. The Helpdesk do not have information as to the numbers of passenger trains used to decide which rail routes required assessment however and so we have undertaken this assessment via another route.
Rail lines only need to be considered where the background annual mean NO_2 concentration is above 25µg/m^3, (and this information is readily available from the national background maps at www.airquality.co.uk/archive/laqm/tools.php), and so this aspect has been investigated first.

The updated background NO_2 concentration maps for 2015 confirm that along the Ipswich to Felixstowe rail line within the Suffolk Coastal district there is one grid square where NO_2 levels are just above 25µg/m^3 (at 25.3µg/m^3). This Grid Square is within Felixstowe and contains the railway line leaving Southern area of the Port of Felixstowe as it runs parallel with Langer Road up to the junction with Undercliff Road West. Beyond this point the background map levels are reduced to 22.6µg/m^3.

There are is one receptor location in Levington Road and a block of flats in Beach Station Road within 30m of the railway line. The receptor in Levington Road is approximately 26m from the railway line and the flats within Beach Station Road are 21m from the line.

The receptor location within Levington Road is a long term NO_2 diffusion tube monitoring site which has been recording levels since 2005, the results of which are shown below:
2005 – 27 µg/m^3
2006 – 29 µg/m^3
2007 – 29 µg/m^3
2008 – 28 µg/m^3
2009 – 25 µg/m^3
2010 – 25 µg/m^3
2011 – 25 µg/m^3
2012 – 23 µg/m^3
2013 – 22 µg/m^3
2014 – 20 µg/m^3

The results confirm that NO2 concentrations are well below the annual mean Objective and have in fact been reducing since 2011. This monitoring location is to be kept in place for the foreseeable future. There is no need therefore to proceed to a Detailed Assessment.

Suffolk Coastal District Council has undertaken the screening assessment for moving locomotives, there are two specific locations with a number of movements of diesel freight locomotives, a background NO_2 concentration slightly above 25µg/m^3, and potential long-term relevant exposure within 30m. Long term diffusion tube monitoring for NO_2 has been undertaken at one of the receptor locations which confirms that levels are well below the Objective and have been slowly reducing since 2011. A Detailed assessment is therefore not required.

The Felixstowe Branch Line and Ipswich Yard Improvement Order 2009

In connection with the grant of planning permission for the Felixstowe South Reconfiguration at the Port of Felixstowe, Felixstowe Dock and Railway Company entered into a deed under section 106 of the 1990 Act with Suffolk County Council and Suffolk Coastal District Council. The deed contains an obligation to undertake improvement works to the rail infrastructure. In order to undertake these works, the Felixstowe Branch Line and Ipswich Yard Improvement Order 2009 was made. This authorises the Felixstowe Dock and Railway Company, amongst other things, to dual a section of the Felixstowe Branch Railway Line.

A section of the branch line some 7 km in length eastwards from a point near Potter's Hole, east of the village of Nacton, to the western end of the existing two-track section through Trimley Station would be dualled by laying a second track to the south of the existing track. The doubling of this section of the line would increase its theoretical capacity from 25 to 38 freight trains per day in each direction, whilst retaining the passenger service between Ipswich and Felixstowe Town. This will significantly reduce the number of occasions when trains are held at signals along the branch line, thereby having a positive effect on the assessment made regarding stationary trains. The increased number of trains could impact on the moving trains assessment which will be assessed through the continued deployment of diffusion tubes at Levington Road.

Work has not yet begun to dual the railway line, but it is still the intention of the Felixstowe Dock and Railway Company to undertake this work in the future.

4.3 Ports (Shipping)

The technical guidance LAQM.TG (09) advises that the assessment for shipping needs to consider sulphur dioxide (SO_2) only. Large ships generally burn oils with high sulphur content in their main engines (bunker oils). If there are sufficient movements in a port they can give rise to sufficient number of 15-minute periods above 266 to exceed the 15-minute objective. Auxiliary engines used while berthed (hotelling) usually use a lower sulphur fuel, and are unlikely to be significant. If the shipping is using fuel with a sulphur content of less than 1% then it will not be necessary to take the assessment further. An authority will only need to proceed to Detailed Assessment where:

- there are 5,000 – 15,000 ship movements per year and relevant exposure within 250m of the emissions sources or
- There are more than 15,000 ship movements per year and relevant exposure within 1km of the emission sources.

LAQM.TG (09) advises that when determining the number of shipping movements at a port this should be confined to large ships such as cross-channel ferries, Ro-Ro, container ships and cruise liners. Every visit from a ship will generate 2 movements.

Harwich Haven Authority has advised that the total number of ship arrivals at the Port of Felixstowe was 2,782 in 2014. The number of shipping movements in 2014

was therefore 5,564 (2,782 x 2 = ship movements). The Port of Felixstowe therefore falls within the category of 5,000 – 15,000 ship movements per year. If we also take into consideration shipping movements for Harwich – 4,048 in 2014 (based on 2,024 ship arrivals in 2014) and for Ipswich Port – 1,196 (based on 598 ship arrivals in 2014) **the total ship movements in this area were 10,808 in 2014.** This falls within the category of 5,000 – 15,000 ship movements per year.

The closest area of public exposure to the ship emissions is the viewing area at Landguard Point in Felixstowe, approximately 600m away from the main ship berthing area. The closest residential receptors are at Adastral close in Felixstowe, approximately 700m away from the main ship berthing area.

Under the guidance provided in LAQM.TG (09), as there are no public receptor locations within 250m of the emission source, we do not need to proceed to Detailed Assessment for SO_2 from shipping.

This conclusion is borne out in the findings of the 'Detailed Assessment for Adastral Close and Ferry Lane, Felixstowe May 2008'. This determined that modelled SO_2 concentrations are below the air quality objectives for all locations outside the port boundary. The modelling covered a number of scenarios including the baseline in 2007 and future years with Felixstowe South and Bathside Bay developments in place. The report is available for viewing at;
www.suffolkcoastal.gov.uk/yourdistrict/envprotection/airquality/reports/

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

5 Industrial Sources

5.1 Industrial Installations

Any new / newly identified industrial sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment must be identified, this includes;

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** existing installations where emissions have increased substantially (greater than 30%) or new relevant exposure has been introduced.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.
- Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

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

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

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

Appendix F shows a list of all industrial processes within the district permitted under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council and the Environment Agency. Within the Suffolk Coastal district there are two existing industrial installations, permitted under the Environmental Permitting Regulations 2010, with the potential to emit significant quantities of PM_{10} or NO_2;

- Eurovia Limited (previously Ringway Infrastructure Services), Foxhall Four Quarry, Foxhall Road, Brightwell (PM_{10})
- Novera Energy, Foxhall Generation Plant, Foxhall Landfill Site, Foxhall Road, Brightwell (NO_2)

LAQM.TG (09) advises that it should be determined whether any of the installations have either experienced substantially increased emissions (greater than 30%) or have received new relevant exposure in their vicinity since the last review and assessment.

None of the installations have received any new relevant exposure. Recent emission testing reports (2014/15) for the installations have been obtained for comparison with previous emissions.

Eurovia

Annual emissions of Total Particulate Matter - TPM (assumed to all be PM_{10} for this assessment) recorded from the road stone coating plant at Eurovia Limited in the last 6 emission testing reports are detailed below:

March 2012	0.2 tonnes TPM per annum
October 2012	0.4 tonnes TPM per annum
May 2013	0.5 tonnes TPM per annum
December 2013	4.1 tonnes TPM per annum
June 2014	5.0 tonnes TPM per annum
March 2015	5.9 tonnes TPM per annum

Although emissions only increased by 18% between June 2014 and March 2015, the March 2012 figure was used in the last 2012 Updating and Screening Assessment Report to review the emissions from this site. Emissions have increased by 2,850% between March 2012 and March 2015.

LAQM.TG(09) provides a calculation method for PM_{10} emissions, in the form of nomograms, to estimate the emission rate (in tonnes per annum) that would produce a 1 µg/m^3 contribution to the 90th percentile of 24-hour mean concentrations (for assessment against the 2004 objective). If the actual emission rate from the installation exceeds these thresholds then it will be necessary to proceed to a Detailed Assessment.

The following information was obtained for the chimney at Eurovia Limited:

- Actual stack height = 16.5m
- Effective stack height (as situated in a quarry) = 16.5m minus 7m (height of quarry face) x 1.66 = 15.77m
- Exit temperature (March 2015) = 80^{o}C
- Stack diameter = 0.9m x 0.65m (rectangular stack). Advice obtained from the Defra emissions helpdesk calculated the stack diameter as 0.86m.

As the exit temperature from the stack is less than 100^{o}C and the effective stack height is greater than 10m, LAQM.TG(09) advises to use the nomogram in Figure 5.5 for the assessment (pg. 5-34). Using this nomogram, the emission rate that would produce a 1 µg/m^3 contribution to the 90th percentile of 24-hour mean concentrations would be 0.37 tonnes per annum.

LAQM.TG (09) advises that for PM_{10} emissions the impact will be largely dependant on the background concentrations in the locality. A precautionary method of taking the background concentration into account is to multiply the allowed emission by 32 minus the background. This will give a background-adjusted permitted emission for the installation.

- Grid reference for site – (6)24 (2)43
- The estimated annual mean background PM_{10} concentration for 2014 at this location is 18.1µg/m^3.

This calculation can be undertaken using a screening tool provided by Defra for low temperature stacks (<100^{o}C) with stack heights >10m. The calculator estimates that the background permitted emission for Eurovia Limited is 6.3 tonnes PM_{10} per

annum. As the rate of emission in June 2014 for the installation was lower than this at 5.9 tonnes per annum a **Detailed Assessment is not required**.

Due to the high emissions seen in their last test, Eurovia found that one of their bag filters had split and so they will be installing permanent monitoring equipment to their plant in order to know immediately whether there are any problems with emissions from the plant. This is to be welcomed.

Novera Energy

This is permitted by the Environment Agency under the Environmental Permitting Regulations 2007 as a Combustion Activity (under Section 1.1A (1) (b) (iii) of the Regulations). An Air Quality Assessment was undertaken for this process prior to its installation, which predicted no exceedences of the objectives at relevant receptor locations with annual NO_2 emissions of 29.2 Tonnes. Annual emissions testing of the Landfill Engine was undertaken for 2014 which showed the annual NO_2 emissions to be 10.0 Tonnes (compared with 17.3 Tonnes in 2012 and 9.2 Tonnes in 2013). This is a decrease in emissions compared with that seen in 2012 and is well below the 29.2 Tonnes from the original modelling**. No further investigation is necessary for this installation.**

Suffolk Coastal District Council has assessed industrial installations with substantially increased emissions, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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

Appendix F shows a list of all industrial processes within the district permitted under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council and the Environment Agency. Since the 2014 Progress Report, there has been 1 new industrial installation permitted by Suffolk Coastal District Council for which an air quality assessment was not required:

Tippers R Us Ltd., Sinks Pit, Main Road, Kesgrave IP5 2PE
Other Mineral activities Section 3.5 – Crushing, grinding, or size reduction of bricks, tiles or concrete (mobile)

This installation is a mobile concrete crusher that is situated permanently at this location. This process does not emit significant quantities of any of the pollutants of concern. **No further assessment is required.**

Suffolk Coastal District Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Suffolk Coastal district area.

5.3 Petrol Stations

The technical guidance LAQM.TG (09) advises that there is some evidence that petrol stations could emit sufficient benzene to put the 2010 objective at risk of being exceeded, especially if combined with higher levels from nearby busy roads.

All petrol stations with an annual throughput of more than 2,000 cubic metres of petrol and a busy road nearby that have not been covered by previous review and assessment reports should be identified. A busy road is classified as having a traffic flow greater than 30,000 vehicles per day.

There are no new petrol stations within the Suffolk Coastal district since the Updating and Screening Assessment in 2012.

Suffolk Coastal District Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

The technical guidance LAQM.TG (09) advises that a small number of local authorities have identified potential exceedences of the PM_{10} objectives associated with emissions from poultry farms (defined as chickens (laying hens and broilers), turkeys, ducks and guinea fowl).

Any farms housing in excess of: 400,000 birds if mechanically ventilated; 200,000 birds if naturally ventilated; and 100,000 birds if a turkey unit should be identified. Those farms identified (if any) with relevant exposure within 100m of the poultry units will require a Detailed Assessment.

Poultry farms within the Suffolk Coastal District were assessed in previous rounds of review and assessment, and there were none that meet the criteria for requiring a Detailed Assessment. There are no new units that we are aware of since this time and no further investigation is necessary.

Suffolk Coastal District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

LAQM.TG (09) advises that consideration needs to be given to biomass installations in the range 50kW to 20MW thermal, to see if there is potential for the air quality objectives to be exceeded. Both PM_{10} and NO_2 should be considered.

Detailed investigation has been undertaken in previous rounds of review and assessment culminating in a list of biomass installations within the district. Screening and/or Detailed assessments have been undertaken for each, confirming that individually the impact of each of the boilers is acceptable and they will also not have any significant combined impact, no further assessment is therefore required.

It is now procedure that planning applications with biomass boilers above 50kW thermal have a screening assessment undertaken in order to confirm that they will not cause any exceedences of the Air Quality Regulations.

Suffolk Coastal District Council has assessed the biomass combustion plant within the district, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

There is the potential that many small biomass combustion installations (including domestic solid-fuel burning), whilst individually acceptable, could in combination lead to unacceptably high PM_{10} concentrations, particularly in areas where PM_{10} concentrations are close to or above the objectives. The Technical Guidance LAQM.TG (09) advises that areas (in 500m x 500m squares) with the highest densities of houses and service sector biomass combustion appliances should be identified.

A full investigation has been undertaken in previous Review and Assessments which looked at both commercial and domestic usage within the district and confirmed that there were no areas of concern.

There is no new information since this time which would cause us concern regarding any other areas within the district. In conclusion, there are no areas within the district that would trigger a Detailed Assessment for combined impacts of biomass use.

Suffolk Coastal District Council has assessed the biomass combustion plant within the district, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

The previous rounds of Review and Assessment have identified areas where domestic solid fuel burning gives rise to exceedences of the objectives for SO_2. Areas (500m x 500m) where significant coal burning (more than 50 houses) takes place should be identified. Smokeless fuel has a similar sulphur content to coal and so should be treated in the same way.

Detailed information has been obtained in previous Review and Assessments regarding domestic solid fuel usage within the Suffolk Coastal district. Investigations concluded that there are no areas within the district that would trigger a Detailed Assessment for domestic solid-fuel burning.

There is no new information since this time which would cause us concern for any areas within the district and no further review and assessment is required.

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

7 Fugitive or Uncontrolled Sources

Dust emissions from a number of fugitive and uncontrolled sources can give rise to elevated PM_{10} concentrations. These sources include, but are not limited to:

- Quarrying and mineral extraction
- Landfill sites
- Coal and material stockyards or materials handling
- Major construction works
- Waste management sites

Only locations not covered by previous rounds of review and assessment, or where there is new relevant exposure, should be covered in this section.

In the previous rounds of review and assessment these locations were fully investigated, and at all of the sites within the district the objectives were not likely to be exceeded. The details regarding each location have been checked and no significant changes have occurred at any of the sites since the last assessment. No dust complaints have been received relating to any of the above sources since the last updating and screening assessment. No further assessment is needed.

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

8 Action Plan Progress Report for the Woodbridge AQMA

Junction of Lime Kiln Quay Road, Thoroughfare, Melton Hill and St. John's Street in Woodbridge, Suffolk (Woodbridge Junction)

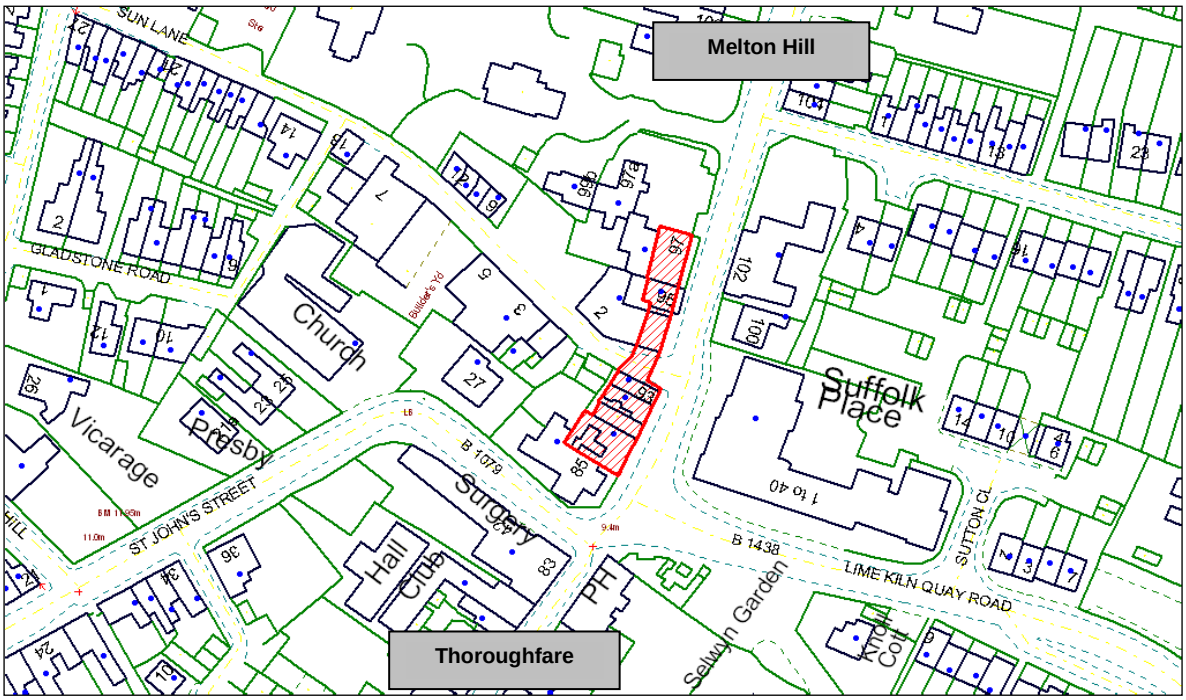
8.1 Introduction

On 3 April 2006 an Air Quality Management Area (AQMA) Order made for an area of the Woodbridge Junction with regard to the annual mean NO_2 concentration came into effect. The designated area incorporates properties on the Western side of the Melton Hill arm of the junction. A location map is provided in Figure 7.1 below.

The Action Plan for the AQMA was accepted by Defra in 2011. This confirms the likely source of NO_2 is from road transport. Evidence suggests that a 16% reduction in traffic emissions of oxides of nitrogen (NOx), a precursor to NO_2, is necessary (based on 2006 figures) to achieve the air quality standard. The Action Plan considers 79 options to improve air quality and recommends 20 of these for implementation.

Table 7.3 contains an updated summary of progress made on each of the measures within the Action Plan. Additional details regarding some of the measures are provided in the main text following the table.

Figure 7.1 Location of AQMA declared at the Woodbridge Junction (hatched in red)



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Licence No. 100019684. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.

Not to scale

N

8.2 Updated Monitoring Data

A summary of the monitoring data from the continuous analyser and diffusion tubes at the junction for 2014 is presented below in Table 7.1 and 7.2. In addition to the most recent monitoring, results for 2008 - 2013 have also been included in the tables for comparison purposes. More detailed results are presented in Section 2 of this report and also Appendix C and D.

Table 7.1 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean and 1-hour mean Objectives

Year	2008	2009	2010	2011	2012	2013	2014
Annual Mean Concentration (μg/m^3)	**45**	**45**	**45**	**42**	**44**	**42**	39
Number of exceedences of hourly mean (200 μg/m^3)	2	1	0	0	1	0	0

Table 7.2 Results of Nitrogen dioxide diffusion tube monitoring

Site ID	Location	Within AQMA	Annual mean concentration (μg/m^3)						
		Yes / No	2008	2009	2010	2011	2012	2013	2014
WBG 1	93 Thoroughfare	Yes	**46**	**45**	**42**	**42**	**44**	**41**	39
WBG 3	8 Kingston Farm Road	No	20	15	18	16	15	14	13
WBG 5	Suffolk Place, Lime Kiln Quay Rd	No	30	28	29	25	26	26	22
WBG 6	87 Thoroughfare	Yes	**44**	**41**	**41**	37	**40**	38	35
WBG 8	95 Thoroughfare	Yes	**46**	**42**	**41**	38	**43**	30	33
WBG 10	St John's Street signpost	No	35	34	34	31	31	30	29
WBG 12	8 Lime Kiln Quay Road	No	30	26	26	24	25	23	21
WBG 13	85 Thoroughfare	No	37	34	36	33	36	35	31
WBG 15	87 Thoroughfare	Yes	39	38	38	39	**42**	**41**	37
WBG 17	Suffolk Place, Lime Kiln Quay Rd	No	33	31	30	28	28	27	25
WBG 18	106/108 Thoroughfare	Yes	39	38	38	32	34	35	34
WBG 20	97 Thoroughfare	Yes	41	38	43	~	~	31	32
WBG 22	Suffolk Place, Lime Kiln Quay Rd	No	26	24	23	21	22	22	20
WBG 23	50 St. John's Street	No	~	29	27	28	26	25	25

The automatic analyser is sited within the declared AQMA and provides the most accurate measurement for NO_2 at this location, and shows that the 2014 annual mean concentration is just below the Air Quality Objective at 39μg/m^3 (Table 7.1). Data capture was low across November (30.7%) and December (24.1%) due to an analyser fault. The low data capture during November and December 2014 is likely

to have been the cause of this reduction as these are months when concentrations recorded are generally higher. The lack of data for these months will therefore bring the annual mean down for the year. It is not thought that this is a 'real' reduction in concentrations. The analyser is still in place and data obtained for 2015 will confirm concentrations within the AQMA.

The 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times per year) was not exceeded in 2014 (see Table 7.1); this is consistent with trends seen since 2008.

Table 7.2 shows the diffusion tube results for 2008 – 2014 in Woodbridge. Concentrations at the majority of sites have decreased or remained stable between 2013 and 2014. Concentrations at Woodbridge 8 and 20 (sited at 95 and 97 Thoroughfare respectively and within the AQMA) increased slightly but continue to be below the annual mean Objective. Concentrations at Woodbridge 1 and 15 (sited within the AQMA at 93 and 87 Thoroughfare respectively), although below the Objectives, continue to show the highest concentrations at this junction. As discussed earlier, the analyser situated within this AQMA, which is used to bias adjust the diffusion tubes, had very low data capture in November and December which would affect the annual mean used to perform the bias correction. This may have an impact on final concentrations, although the bias correction factor used is still conservative when compared with the national laboratory bias (0.85 versus 0.81). Again, it is not thought that this is a 'real' reduction in concentrations. All monitoring locations have been kept in place for 2015 and the results will be reported in the Air Quality Report due in 2016.

Data recorded from permanent traffic counters located on Melton Hill and Lime Kiln Quay Road close to the junction show that the volume of traffic has been fairly stable between 2009 and 2014. Heavy Duty Vehicle percentages were stable between 2010 and 2012, they then increased in 2013 and 2014 on Lime Kiln Quay Road (from 5% to 7.0%-7.1%) but have remained stable on Melton Hill at 4.1 - 4.4%. As the NO_2 concentrations recorded at the junction have generally decreased between 2012 and 2014 the fluctuations cannot be related to either traffic flows or HGVs as neither has decreased. Another variable at this junction is Meteorological conditions (mainly wind speed and direction) which may explain the fluctuations seen in recent years. This is discussed in more detail later in this section of the report. Alternatively, if the decreases are shown to be 'real' they could be as a result of cleaner vehicles on the roads.

8.3 Action Plan Update for 2014/15

During 2014 the results from the feasibility study undertaken were finalised. This study investigated 5 Action Plan measures (numbers 3, 4, 5, 6 and 21 – see Table 7.3) which involve 'works on the ground,' and 3 additional scenarios in order to determine what impact each would have on NO_2 concentrations within the AQMA. The additional 3 scenarios were looking at the impact of measures 3 and 4 in combination, removing the traffic signals at the junction and installation of a mini-roundabout.

The computer modelling undertaken for the study was based on results of a Drive Cycle analysis undertaken at the junction. This recorded an emission profile

associated with each different scenario/manoeuvre undertaken at the junction. The relevant emissions profiles were then used when looking at each of the measures to be modelled.

The study showed that the modelling undertaken was not able to fully represent the NO_2 concentrations that are measured at the junction, even using the detailed Drive Cycle outputs. The underestimate was by an average factor of 5. This difficulty has been encountered in the past and so the feasibility study was expanded to try and identify what may be causing the discrepancies. The study concluded that a greater understanding of local weather conditions may provide the key and help inform what could be achieved regarding actual NO_2 concentrations at the junction. The geography and topography of the junction could mean that weather conditions experienced at street level differ from those elsewhere, even a few metres higher above the roof line. The Meteorological data used for the modelling was from Wattisham, which is the closest available site but is a distance away. The study recommends siting of a weather station for 3 months at the junction to monitor conditions at a height of 2m and also above roof ridge height at approximately 10m. This must be on the same side of the road as the AQMA. We have now obtained the funding and the necessary permissions to site the station within the AQMA and it has recently been installed.

Due to the inability to model NO_2 concentrations accurately at the junction, changes in emission rates were instead calculated for each of the different measures/scenarios to inform us as to the effectiveness of each. Action Plan measure 5 resulted in an increase in NO_2 concentrations within the AQMA and all other measures/scenarios resulted in a negligible impact. However, the report does hypothesise that if free flowing conditions were achieved this may in turn increase air turbulence/movement at the junction which could aid in improving dispersion and therefore reducing NO_2 concentrations by a greater amount than that predicted by the model.

An additional sensitivity test was undertaken to determine what level of traffic reduction at the junction would be required to result in a reduction of 1 $\mu g/m^3$ within the AQMA. To achieve this, the traffic flow across the junction and roads would need to reduce by 25% (from approximately 850 vehicles per hour to 640). This is a significant reduction in traffic.

There were 2 recommendations from the report;

- Install a local weather station - the study recommends siting of a weather station for 3 months at the junction to monitor conditions at a height of 2m and also above roof ridge height at approximately 10m. This must be on the same side of the road as the AQMA. The site has very recently been installed.

- Instigate a pilot programme to hold traffic further away from the junction by installing temporary traffic lights thus pulsing the traffic through the junction under free flow conditions. This would remove stationary idling traffic from the area of the AQMA itself and create the free flowing conditions discussed above. Investigations with Suffolk County Council as to the viability of this trial are on-going; the current thinking is possibly to ‘trial a trial’ for a week in order that observations can be made as to the impact on traffic flows in the area before deciding whether a longer trial is appropriate. One of the issues which needs is whether the parking opposite the Melton Hill Council Offices

would need to be temporarily removed in order to allow enough space for traffic to queue in this area. This is a current Action Plan measure which is to be removed following the feasibility study findings and the many concerns raised by local residents whom it would effect. Investigations by Suffolk County Council are on-going.

Table 7.3 below provides an update on each of the original Action Plan measures together with information as to their future status.

Updated Action Plan

Suffolk Coastal District Council has decided to review the existing Air Quality Action Plan for Woodbridge and produce an updated one. The existing Plan is now 6 years old, some of the measures have been completed and, following the results of the feasibility studies, many have been shown to have a negligible impact and so are no longer relevant. A draft will be agreed by the Working Group and sent to Defra hopefully by the end of 2015. The Council will then undertake a Public Consultation on the contents.

Table 7.3 Woodbridge Junction Action Plan Progress Summary Table 2014/15

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	Install queue detectors (MOVA) on traffic signals to reduce queuing at the junction	Reduce queuing traffic at the lights	Suffolk County Council	2009	2011	Reduction in peak queue lengths	10%	Queue length survey undertaken 2009. MOVA not functional until June 2011. Post MOVA queue length survey undertaken 2013. Results discussed in 2013 Progress Report	n/a	**Completed 2013** **REMOVE FROM ACTION PLAN**	Monitoring results 2010 – 2014 show NO_2 concentrations have fluctuated at the junction so MOVA has not caused a sustained reduction. No significant changes in traffic flow or % HDV reductions so not to do with that. Possibly Meteorological conditions causing fluctuating readings. Post MOVA queue survey shows average queue lengths have increased on all arms of the junction but that the extremes of queues have been reduced.
2	Install right hand turning lane at lights on Melton Hill arm of junction – This measures was investigated and there appeared not to be enough room at the junction so it was to be removed from the Action Plan. **Suffolk County Council has advised now that this should be left in the Action Plan as it could be looked at again in more detail in the future if there are no other alternatives. MEASURE TO BE LEFT WITHIN THE UPDATED ACTION PLAN.**										
3	Extension of restrictions to Thoroughfare (8am-6pm)	Reduce queuing traffic at the lights	Suffolk County Council	2013-2014	2014-2015	Reduction in peak queue lengths on Melton Hill	Air quality modelling shows max reduction of 0.1µg/m^3	Preliminary discussions with new team at SCC show this option to	Feasibility study undertaken. Negligible impact on	**To be kept within the updated Action Plan in a slightly**	This could be one way of partly implementing the new Measure 21 (remove ability of traffic to go straight over from Melton

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
							in AQMA.	be supported. Drive cycle and traffic surveys undertaken. See also Measure 21	AQMA NO_2 conc. So no further work from SCDC on this. Woodbridge Town Council investigating options for Thoroughfare traffic ban which may have same impact.	**different format** due to work being done by Woodbridge Town Council – see notes in Main text.	Hill to Thoroughfare). Feasibility study shows reduction of only 0.1µg/m^3 in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of 0.5µg/m^3
4	Remove ability to turn right from direction of Melton Hill	Reduce queuing traffic at the lights	Suffolk County Council	2013 – 2014	2014-2015	Reduction in peak queue lengths on Melton Hill	Air quality modelling shows max reduction of 0.1µg/m^3 in AQMA.	Defra agreed to use of their funding for computer modelling feasibility study. Traffic data collected, Drive Cycle undertaken	Feasibility study undertaken. Negligible impact on AQMA NO_2 concentration Working Group confirms due to negligible impact this measure would not be undertaken.	**REMOVE FROM ACTION PLAN**	Feasibility study shows reduction of only 0.1µg/m^3 in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of 0.5µg/m^3
5	Relocate the on street parking currently in	Reduce queuing traffic in AQMA	Suffolk County Council	2012-2013	Originally 2013 now 2014/15	Reduction in peak queue lengths.	5%	Preliminary design prepared. Traffic data	Feasibility study undertaken. Negative	**REMOVE FROM ACTION PLAN**	Computer modelling shows an **increase** in NO_2 concentrations within the AQMA of 0.5µg/m^3.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	Melton Hill to the opposite side of carriageway.				If study and consultation shows this is feasible.	Only traffic heading away from junction along Melton Hill		collected and Drive Cycle undertaken.	impact on AQMA so this measure would not be undertaken		
6	Remove the on street parking currently in Melton Hill.	Reduce queuing traffic in AQMA	Suffolk County Council	2012-2013	2014 Only for consideration if measure 5 is not successful.	Reduction in peak queue lengths Would only be traffic heading away from junction along Melton Hill	5%	Preliminary design prepared. Traffic data collected, Drive Cycle undertaken.	Feasibility study modelling undertaken. Negligible impact on AQMA NO_2 concentration Local opposition to measure. Working Group confirms removal from Action Plan.	**REMOVE FROM ACTION PLAN** See notes in main text as could become part of wider scheme if traffic held back from lights.	Computer modelling shows negligible impact on air quality concentrations anywhere at the junction.
7	Investigate Satellite Navigation (SatNav) system routes around town and lorry/HGV delivery routes	Reduce traffic flows through AQMA	SCDC	N/A	2013 for SatNav 2014 for lorry/HGV routes		1%	Most popular SatNav systems tested, some routes are via the junction but majority sent via the bypass. **Completed 2010.** Video cordon	SCC does not think lorry ban would have any impact so this is to be removed from the Action Plan. Working Group	**SATNAV STUDIES TO BE REMOVED FROM ACTION PLAN** 2015 to look at local shop delivery routes.	Unsure whether any emission reductions can be gained from the delivery route investigations but will report back findings

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								survey undertaken. SCC has tried to liaise with SatNav companies in general but we do not have the buy-in locally to influence them.	decision to replace this measure with looking at local shop delivery routes. – nothing further done to date on this.		
8	Bus operators to use cleanest fleet in Woodbridge – contact them to request.	Reduce emissions from HDVs through the AQMA junction	SCDC	2010	Originally 2013 Now 2014	Number of Euro IV buses operating in Wood-bridge.	2%	List of 8 bus operators compiled. 3 bus operators contacted. Of operators contacted none willing so far to alter fleet as only very small service operates in Woodbridge.	Investigate option of applying for Clean Bus Technology Grant in the future if any companies are willing.	**2015** to investigate the Grant and see if any bus companies would be willing to apply for it. **RE-WORD ACTION PLAN MEASURE**	Of companies contacted, all buses maintained regularly so no emission reductions to be gained.
9	Demand Responsive Transport	Reduce traffic flows through AQMA junction	Suffolk County Council	N/A	2009	None	2%	Scheme in place as of 2009. Scheme doing really well and will be retained until at least 2016.	n/a	**Completed** **REMOVE FROM ACTION PLAN**	SCC has been able to provide patronage info for 2012/13 which shows that there were 8,425 individual passenger journeys using Demand Responsive Transport for the Wilford Area and

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
											4,435 for the Alde Area. This will have a positive effect to reduce car usage in the area and hopefully at the junction.
10	Simplified Ticket Scheme	Reduce traffic flows through AQMA junction	Suffolk County Council	2013	2014	None	1%	Working group set up 2009 to investigate option. The Endeavour Card went live in October 2013 for 16-19 year olds.	Business case submitted to roll out adult's smart card. Working to offer online top up facility. First buses rolling out 'm tickets'.	2015 for adult smart cards. **Measures 9-13 relating to buses to be rolled into one new Action Plan measure**	Will have a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target will be reached.
11	Improve accessibility to bus timetable	Reduce traffic flows through AQMA junction	Suffolk County Council	2009	2009	None	1%	Website launched. New leaflets delivered. New style of timetable developed – more accessible and 'stick' style timetables - easier to read.	Real time information is being rolled out in 2014/15 and already available for some services on smart phone apps.	**Completed** **REMOVE FROM ACTION PLAN**	Will have had a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target has been reached.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
12	Turban Centre new bus station/ interchange Now withdrawn as no funding.	Reduce traffic flows through AQMA junction	Suffolk County Council	2010 /2011	2012	Opening of new bus shelter.	2%	Design not agreed in time for budget cuts. Funding withdrawn. Bus shelters upgraded December 2012.	n/a	**Completed** **REMOVE FROM ACTION PLAN**	May be some positive influence on bus patronage due to new bus shelters. Not possible to predict what reduction in emissions this may give.
13	Procurement of bus contracts to include fleet upgrade	Reduce emission from HDVs through AQMA junction	Suffolk County Council	2009	2009 2015	Quality assess-ment process in place. Buses to be Euro III standard	2%	Quality assessment process in place as of 2009. New Quality Scoring System Jan 2013. First Buses introduced newer buses to meet 2015 accessibility Regulations, mainly EURO III standard.	First buses - major refurbishment - engines not upgraded but can carry more people and new style should encourage people onto buses. Replaced many older buses with newer.	**Measures 9-13 relating to buses to be removed from the Action Plan. One new Action Plan measure to be developed relating to buses.**	New low emission vehicles added to SCC's fleet are compliant for the London Low Emission Zone and the London 2012 Olympics. However, impacts on AQMA likely to be very small. Newer vehicles used by First Buses will have reduced emissions.
14	Car sharing scheme	Reduce car trips	SCDC	N/A	2010 and on-going	Increase in registered users of scheme	2%	No. site users: 2010 = 1,599. 2011 = 1,831. 2012 = 2,334 2013 = 2,338 2014 = 2,396 SCDC website updated.	Nothing further undertaken. Working Group decision to remove from Action Plan	**REMOVE FROM ACTION PLAN**	Increased number of users can only have a positive effect.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								Articles published.	as very little else to be gained in Woodbridge.		
15 a	Business Travel Plans	Reduce reliance on car and queuing time in AQMA	Suffolk County Council / SCDC	N/A	2010 - 2011	Businesses contacted. Number of Travel Plans adopted by businesses	2% for 15a,b and c combined	List of businesses in Woodbridge with > 20 employees sent to SCC to contact. SCC funding has now been cut and so this will no longer be possible.	Working Group has discussed – unlikely to be progressed due to lack of funding. Commercial Travel Plans to be requested through the Planning System where possible.	**REMOVE FROM ACTION PLAN**	Investigations show there are not really any large businesses within Woodbridge. Potential to adopt Travel Plans much smaller and any impact from them within Woodbridge also minimal.
15 b	School Travel Plans	Reduce reliance on car and reduce queuing time in AQMA	Suffolk County Council / SCDC	N/A	2010	Contact schools to remind them about Travel Plan. Contact Wood-bridge School re adopting a Travel	2% for 15a,b and c combined	All schools in Woodbridge have a Travel Plan in place. Exception is Woodbridge School who may produce one in future – provided information about bus services they	Working Group has discussed. Postcode plots to be undertaken to identify any schools which may put significant traffic through AQMA. These can	**RE-WORD THIS MEASURE.** **Investigate whether any schools have a significant impact on the AQMA junction and work**	All schools historically adopted a Travel Plan but these may no longer be in use. Will have a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target will be reached. Woodbridge School has identified families who could use the AQMA

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						Plan.		run and pupil locations. New footpath on Pytches Road and 30mph 'reduce your speed sign' for Woodbridge CPS users.	then be targeted. Currently awaiting postcode plot breakdown.	**with those to look at reducing car usage.**	junction to travel to school. Postcode plots will identify any schools which could potentially be putting significant traffic through the AQMA due to the locations of their students. Specific schools could then be targeted for further work.
15 c	Travel Plan for the District Council offices	Reduce reliance on car and reduce queuing time in AQMA	SCDC	N/A	2009	Travel Plan adopted Key actions completed	2% for 15a,b and c combined	Travel Plan adopted 2009 Key actions complete 2010. Travel Plan now in Joint Environmental Sustainability and Action Plan (JESPAP).	The Council will move offices to Melton. Likely the current site will be used for housing. Investigations beginning - try to ensure overall impact on the junction is positive. Traffic survey of Council Offices undertaken to determine impact on AQMA.	**RE-WORD THIS MEASURE** **Investigate options to reduce Council's impact on AQMA after the Office move**	The Council offices are to be moved to Melton. We need to determine what the Council's future impact would be on the AQMA together with impacts from the new use of our current site for housing.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
16	Promotion of cycling and walking in Woodbridge	Reduce traffic flows through AQMA	Suffolk County Council	2010	2011/2012	None currently.	1%	Cycling and walking in Woodbridge reviewed. Wish list drawn up by SCC, see main text below. New footpath on Pytches Road and 30mph lit sign to calm traffic and aid walking to school. 5 cycle racks now behind Café Nero and 3 on Market Hill. Sandy Lane cycle scheme implemented.	Discussed by Working Group – SCC to investigate drawing up a list of possible schemes should funding become available. Funding could be sought from the Community Infrastructure Levy (CIL) as air quality has been put onto the 'Shopping List'.	**2015** Draw up a list of schemes	Cycle rack increases and Sandy Lane cycle scheme can only have a positive impact to increase the number of people cycling and reduce the number of vehicles on the road. Once we have a list of potential schemes any funding which can be accessed (via Planning system or other) can be used.
17	Integration with Planning System	Avoid worse-ning air quality and open S106 funding stream	SCDC	2010/ 2011	2011	Produce Supple-mentary Planning Document for Suffolk and consult	1%	Document produced and consultation undertaken. Document finalised. Not adopted formally but used as	No planning applications received related to this AQMA where S106 funding would be appropriate. Working	2012 / 2013 Supplement ary Guidance produced and in use as a guidance document.	Document will ensure air quality reports are produced for planning applications when they require one. Unsure how we can measure emission reductions due to this unless application is closely associated with

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								guidance for planning applications.	Group joined by member of Planning. Numerous ideas to more fully integrate with planning at various stages of completion – see Main Text.	S106 and Community Infra-structure Levy (CIL) funding On-going	AQMA. Assess as and when relevant application(s) received.
18	Raise air quality awareness	Reduce traffic flows in AQMA	SCDC	N/A	On-going	Promotion of air quality and reports on website	N/A	Articles published in local magazines and papers. Air quality reports on the SCDC website.	As for previous column	On-going	No emission reduction targets possible for this measure although it can only have a positive effect To try and reduce car usage and emissions in the AQMA.
19	Monitor air quality	To report progress	SCDC	N/A	On-going	Continue monitoring	N/A	Monitoring on-going. Not really an Action Plan measure so Working Group have decided to remove it.	As previous column	**REMOVE FROM ACTION PLAN**	Monitoring is main way to inform us whether Measures are being successful.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
20	Undertake identified feasibility studies	To fully understa nd impact of identified measure	SCDC / Suffolk County Council	N/A	2013	Feasibility studies for measures 3, 4, 5, 6 and 21 undertaken	N/A	Measure 2 no longer feasible. Feasibility studies for measures 3, 4, 5, 6 and 21 completed. None with any impact on AQMA which would lead to their being undertaken.	Feasibility study received. Conclusions detailed in main text under each of the individual measures.	**2013/2014 planned feasibility studied completed.** **2015/16 2 new studies identified. (see next column for details)** **REMOVE FROM ACTION PLAN NEW STUDIES CAN BE ADDED AS INDIVIDUAL MEASURES**	Feasibility study indicates that Measure 5 will have a negative impact within the AQMA, Measures 3,4, 6 and 21 will have negligible impact within the AQMA. None of the measures will be put forward for completion. Recommendations from report are to site a weather station for 3 months to monitor wind speed and direction and trial holding back of the traffic away from the lights and the AQMA on both Melton Hill and Lime Kiln Quay Road and pulse it through. Weather station now installed. Investigations on-going into the traffic trial.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
21	Remove the ability of traffic to go straight on from Melton Hill to Thoroughfare	Reduce queuing traffic at the lights	Suffolk County Council	2013-2014	2014-2015 Now to be considered as measure 1 has not been successful on its own	Reduction in peak queue lengths on Melton Hill.	Not known Air quality modelling will enable us to put a figure to this.	Defra approved request to use grant funding for this project. Traffic data collected, Drive Cycle undertaken. Awaiting results of computer modelling.	Feasibility study undertaken. Negligible impact on AQMA NO_2 conc. So no further work from SCDC on this. Woodbridge Town Council investigating options for Thoroughfare traffic ban which may have same impact. Amalgamate this measure with measure 3.	**REMOVE FROM ACTION PLAN – TIE IN WITH MEASURE 3**	Feasibility study shows reduction of only 0.1µg/m^3 in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of 0.5µg/m^3

Measure 3 - Extension of the Thoroughfare restrictions (SCC) – Feasibility study modelling of this option has shown a small decrease in NO_2 concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m^3 - so small as to be considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay Road was 0.5µg/m^3.

The Working Group has discussed this measure and we do not believe that it would be put in place on air quality grounds alone as it has been shown to have a negligible impact. The Chairman of Woodbridge Town Council, a member of the Working Group, has advised that the Town Council will be looking at the Thoroughfare with an initial remit to close it to traffic. This option will be investigated by the Town Council and they will keep us informed of their progress. Although this would only have a negligible impact on the AQMA it would still be a positive one and so is to be encouraged.

This measure will therefore be kept in the Action Plan in a slightly altered form, with Woodbridge Town Council as the lead authority and we will provide our support.

Measure 6 - Remove parking - to be considered if Measure 5 is not successful (SCC) – The feasibility study modelling of this option has shown a negligible impact on NO_2 concentrations at any of the monitoring sites, including within the AQMA. There has been strong local opposition to this measure.

The Working Group has discussed this measure and it will be removed from the updated Action Plan as it has been shown to have a negligible impact and there is local opposition. Although this measure is to be removed it may come into play again in the future as part of a wider scheme. The feasibility study recommendations include running a trial to hold back the traffic from the traffic lights on both Melton Hill and Lime Kiln Quay Road which would remove queueing vehicles from the AQMA and also send traffic through the AQMA under free flowing conditions. The monitoring results during the trail would then advise us as to whether it is likely to be successful. One of the concerns from Suffolk County Council, should the trial go ahead, is that as traffic queues will be held further back along the Melton Hill arm of the junction opposite the current area of parking they may impede the traffic flow for larger vehicles. If this does prove to be the case and if the trial were successful, the option of removing the parking would need to be investigated as part of the final decision.

Measure 7 - Investigate Satellite Navigation (SatNav) system routes around town (SCDC) – Working Group discussions revealed that officers within SCC have historically undertaken a lot of research into influencing SatNav companies with the findings that we do not have the buy-in locally to be able to influence the mapping companies. This can only be done at a National level and so is to be removed from our Action Plan.

SCC previously suggested looking at Tesco delivery routes and contacting the Chamber of Commerce to see if they know anything about business delivery routes. SCDC will investigate this and the new Action Plan measure will be worded to this effect.

The Working Group has discussed the option of a lorry ban for Woodbridge. SCC experience is that it will be difficult to get the police to enforce the ban and so the signs are then ignored and the lorry ban is useless. SCC are not behind this measure and as they are the relevant authority to put it in place we will not be taking it forward.

Measures 9-13 – Bus Measures (SCC) – measures 9, 11 and 12 have been completed and the others are to be undertaken without any air quality input. They can only have a positive effect as they are trying to encourage bus patronage and provide cleaner emissions from the buses themselves. We can have very little influence on any of these measures and the Working Group has decided to remove them from the Action Plan.

In their place will be one new measure to promote bus services in Woodbridge – this will have greater relevance to, and therefore hopefully impact upon, the AQMA declared.

Measure 15a - Business Travel Plans (SCDC and SCC) – The Working Group has discussed this measure. SCC does not have the resources to approach the list of businesses that were sent through to them. Travel Plans will be requested, where relevant, for larger commercial planning applications as a way of helping to reduce vehicle trips and associated emissions. Conditions could possibly state that the development should have a Travel Plan and that this must be implemented and monitored. This would then provide the funding and if they wanted SCC could then undertake the work as the costs would be covered. This will now become part of the Action Plan measure 'integration with the planning system'.

Measure 15b - School Travel Plans (SCDC and SCC) – Post Code plots have been undertaken by SCC for a number of the relevant schools to try and determine where the students come from for each, and therefore the approximate number which may travel through the AQMA. The data has been gathered but needs to be processed so that we can answer the above question more accurately. We will then be able to identify any particular schools with a significant volume of traffic travelling through the AQMA. These can be targeted so we can best use our limited resources. The Working Group will discuss what the next step would be once any schools are identified. It may be that an information campaign regarding air quality and our AQMA for the students and their parents would be appropriate if the school is willing. This measure will be re-worded to reflect this change in focus.

Measure 15c - Travel Plan for the District Council offices (SCDC) –SCDC will be moving the Council Offices in 2016 to the Riduna Park site in Melton (originally the Girdlestones site). Traffic counts in the council car park were undertaken in April 2015 to determine the number of vehicles entering and exiting each day and the directions of these movements. This will allow us to compare our current impact with future uses of the site which is thought to be 60-70 houses at this stage although no Planning Application has been received to date.

The results of the traffic counts showed that the average weekday total volume of vehicles using the Council Offices is 620, of which 58% (359 vehicles) travel via the AQMA.

This measure will be re-worded to reflect our new focus – reduction of the new office's impacts on traffic in the area, specifically on the Woodbridge AQMA.

Measure 16 - cycling and walking (SCC) – The Working Group has discussed the need for a list of potential schemes to be formally put in place so that we have a list for any funding which can be accessed. The County Councillor for the Woodbridge division has a number of schemes which she can add to the list. List to be drawn up in 2015. Once we have a scheme, or a list of schemes, money could be bid for from the Community Infrastructure Levy or any other funding pots available.

Measure 17 - Integration with Planning System (SCDC) – The Working Group has been joined by 2 members of the Planning team, one from Planning Policy and one from Development Control. A number of suggestions have been made to better integrate air quality and Planning, and work is underway to investigate each:

- **Neighbourhood Plans** – feed into these where relevant. Melton, Woodbridge and Martlesham are all to have a Neighbourhood Plan and as each can impact on traffic within Woodbridge this is important. Air quality section to be drafted for the SCDC Neighbourhood Plan website to help inform those producing Neighbourhood Plans.
- **Member training** on air quality for the Development Control committee and any other Planning training that seems useful.
- **Air quality alerts for Parishes** where required – further investigation needed.
- **Site specific position statements** – Consultation to be undertaken summer 2015, add air quality position statements to any sites of concern.
- **Travel Plans and Car Sharing –** Planning Conditions to be placed on any commercial developments, schools and residential homes where possible. It is not felt that they can be put onto residential applications as Planning do not see how they can be enforceable.
- Planning have required developers in some instances to provide information to all of the houses on public transport, cycle paths – investigate this option with Planning.
- **Electric vehicle charging points** – investigate the possibilities to require these in new developments.
- **CIL funding** – air quality on the CIL 'shopping list'. Specific schemes drawn up with costings are needed in order to bid for any funding from here.
- **Cycling and Walking** – Policies are currently in place to identify key links for pedestrians, cyclists and public transport where viable via the Planning System.

The individual briefings of Planning Officers on air quality has increased the number of applications that have been assessed for air quality, and air quality assessments are now being provided much earlier on in the process.

In the main, Section 106 agreements have been replaced by the Community Infrastructure Levy (CIL) which is a charge placed on all planning applications, the money from which can then be bid for to fund a specific project. Air quality has been placed on the CIL 'shopping list' which has recently been finalised. This means that we can bid for funding related to the Woodbridge AQMA from the CIL but we need a specific project in order to do so.

Measure 21 – Remove ability of traffic to go straight on from Melton Hill (SCC) – Feasibility study modelling of this option has shown a small decrease in NO_2 concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m^3 - so small as to be

considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay Road was 0.5µg/m^3 and this was due to the assumed increase in traffic using Lime Kiln Quay Road in place of St John's Street or Thoroughfare.

The Working Group has discussed this measure and we do not believe that it would be put in place on air quality grounds alone as it has been shown to have a negligible impact. The Chairman of Woodbridge Town Council, a member of the Working Group, has advised that the Town Council will be looking at the Thoroughfare with an initial remit to close it to traffic. This option will be investigated by the Town Council and they will keep us informed of their progress. Although this would only have a negligible impact on the AQMA it would still be a positive one and so is to be encouraged.

This measure will be amalgamated with Measure 3 and removed from the Action Plan.

Additional work undertaken

Several Consultation responses were received from members of the Public making reference to the visibility of left hand filter light on Melton Hill. Particularly in sunny weather the left hand arrow is very difficult to see and some vehicles do not realise that they can move off. The bulb type has now been altered and the visibility is much improved. This will not impact upon air quality within the AQMA to any great extent but can only serve to have a positive impact as is assists with obtaining the optimum traffic flow at the junction.

Similarly, Consultation responses have been received regarding the slight delay on the left hand green filter light on the Melton Hill arm of the lights. Once Lime Kiln Quay Road vehicles move off there is a delay before the Melton Hill left filter comes on and this sometimes leads to the vehicle in the front of the queue missing it and not moving off when the green arrow appears. As above, this could assist with obtaining the optimum traffic flow at the junction. A member of the Suffolk County Council Highways team is investigating this issue and will report bac with their findings.

8.4 Joint Environmental Policy 2013 (JEP)

The Council's JEP combines and replaces a number of Policies and Documents including the Council's Climate Change Strategy and the Green Travel Plan. In relation to LAQM it states the following:

- The Council will fulfil its duties under the Environment Act 1995 to produce and implement Action Plans for any declared Air Quality Management Areas within the districts.

The Council has already undertaken measures under the original Climate Change Strategy and Green Travel Plan which would have a positive impact on emissions within our AQMA as it is located very close to the Council Offices at Melton Hill;

- Improvements to the Council's fleet vehicles

- Video conferencing facilities installed at the Council Offices to reduce need to travel.
- The Suffolk Coastal Business Advice Service has undertaken 146 energy audits of local small and medium sized enterprises offering suggestions to reduce energy use. Travel is one of the criteria looked at for some businesses.

The JEP includes a number of measures which will assist with emission reduction within the district and therefore aid with work within our AQMA;

- Support and facilitate the Councils' Officer Greenest County Steering Group and Green Team action to engage staff and encourage a shift towards reducing energy and water use, homeworking, teleconferencing, videoconferencing, online training, car sharing, use of trains and cycles and more fuel efficient driving.
- Extend the Waveney Cycle to Work scheme to cover Suffolk Coastal. To increase the numbers of staff cycling to and from work.
- Encourage a shift to more sustainable travel patterns.
- With the Suffolk Sustainable Travel Forum, endeavour to facilitate major investment in public transport to improve existing services and develop new ones.
- Amend the Suffolk Coastal Lift Home Scheme as appropriate and to include cyclists and adopt across the two Councils.
- Ensure delivery of the sustainable transport initiatives as set out in Suffolk's Local Transport Plan 2011-2031.

As the Woodbridge AQMA is located close to the Council Offices any actions which will reduce vehicle emissions from the Council itself will aid in emission reduction within the AQMA as many Council journeys will travel through the junction.

8.5 Planning Applications

There have been no new Planning Applications received since the previous Action Plan Progress Report (2014) which would be likely to impact on this AQMA.

As discussed above, the Council Offices are to move onto Riduna Park in Melton (Girdlestones site) in 2016. The planning application for this site has been mentioned in previous reports (C09/0584) as having a negligible impact on the AQMA. It is our aim to minimise any impact that our new offices have on the AQMA and we will be working towards the move having an overall positive impact upon the junction and AQMA in terms of traffic flows.

8.6 List of Relevant Stakeholders

- Secretary of State
- Members of Parliament for the Suffolk Coastal district (Dr Daniel Poulter MP and Therese Coffey MP).
- All District Councillors for Suffolk Coastal
- All County Councillors covering the Suffolk Coastal district
- All Town and Parish Clerks

- Woodbridge Town Council
- Suffolk County Council
- Environment Agency
- Highways Agency
- East Suffolk and Ipswich Clinical Commissioning Group
- All Suffolk Local Authorities
- Neighbouring County Councils
- All Suffolk Coastal employees - the Suffolk Coastal Planning Department specifically.
- Suffolk Coastal Business Associations
- Suffolk Chamber of Commerce
- The Greenprint Forum members – local group covering environmental issues
- Suffolk Coasts and Heaths
- All residents within the AQMA
- Residents local to the AQMA junction
- Residents within the district who have diffusion tube monitoring undertaken at their properties
- The Choose Woodbridge Partnership
- Other local interested residents (who have contacted us requesting to be included as stakeholders)
- Local Press releases to cover residents and businesses within the Suffolk Coastal district

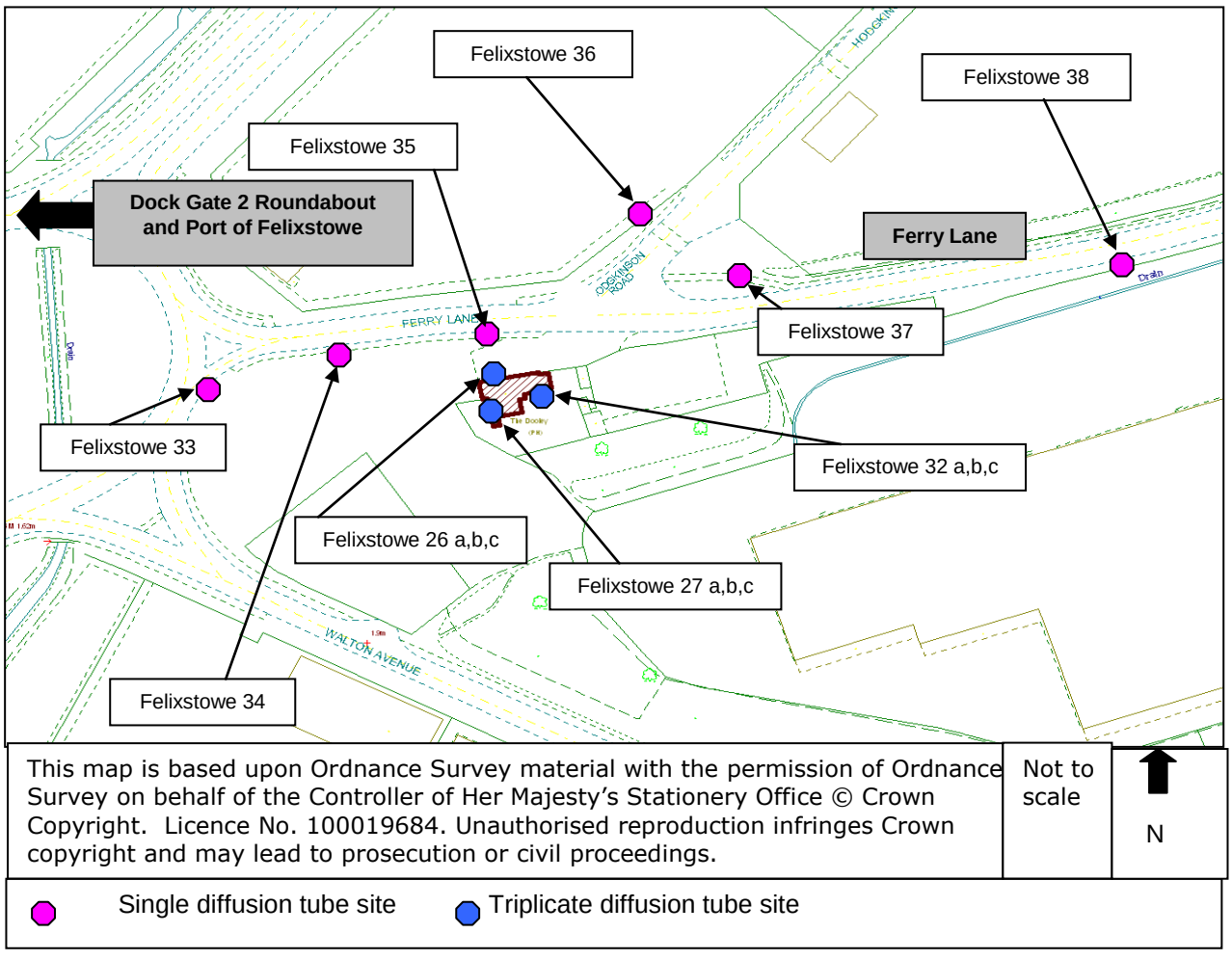
9 Action Plan Progress Report for The Dooley Inn, Ferry Lane, Felixstowe AQMA

9.1 Introduction

On 1 May 2009 an Air Quality Management Area Order was made by Suffolk Coastal District Council for the Dooley Inn, Ferry Lane, Felixstowe with regard to the annual mean NO_2 concentration. A location map is provided below as Figure 8.1.

The Further Assessment was produced in April 2010 and included a source apportionment exercise to identify the sources of NOx and their impact on the AQMA. The results showed there are two main contributors to the NOx concentrations at the AQMA; container handling operations (including vehicles on roads within the Port boundary) (36.9%), and emissions from heavy duty vehicles (HDVs) on roads outside the Port boundary (28.5%).

Figure 8.1 AQMA declared at The Dooley Inn, Ferry Lane, Felixstowe (hatched in dark red) and locations of diffusion tube monitoring



The Final Action Plan was completed in 2012, it identifies 13 measures to be adopted and details as to how each will be implemented and monitored. The Action Plan can be viewed at:
http://www.suffolkcoastal.gov.uk/assets/Documents/District/Airquality/FelixstoweFerryLaneAQAPSeptember2012.pdf

9.2 Monitoring Data

A summary of monitoring data from the diffusion tubes in the vicinity of the AQMA, together with the Urban Background site for this area (FLX 21), for 2014 is presented overleaf in Table 8.1. In addition, results for 2008 - 2013 have also been included in the table for comparison purposes. Concentrations above the objective at sites which are relevant (residential dwellings) are highlighted in grey. Detailed results for 2014 are presented in Appendix D.

There are 9 monitoring locations in the vicinity of the AQMA, three of which (FLX 26, 27 and 32) are within the AQMA itself. The additional sites (FLX 33, 34, 35, 36, 37 and 38) are not situated at relevant receptors (residential dwellings). These sites were put in place to help ascertain NO_2 levels in the locality of the declared AQMA in order to provide additional information on sources of NOx more local to the Dooley Inn.

In 2014, annual mean NO_2 concentrations at all of the 3 monitoring locations within the AQMA continue to be below the air quality objective level of 40µg/m^3. Historically FLX 26, situated on the front façade of the Dooley Inn facing Ferry Lane, is the only site where the annual mean NO_2 objective was exceeded and this continues to be the site with the highest concentrations in 2014 at 36µg/m^3. Since the Action Plan was finalised in 2012/13 the results of diffusion tube monitoring show that annual mean NO_2 concentrations within the AQMA have fallen below the Air Quality Objective, with the highest recording site (FLX 26) now holding at 36-37µg/m^3.

Included in Table 8.1 are records for FLX 21 which is an Urban Background site for the Felixstowe and Trimley area, this site provides data for a nearby area not affected by emissions related to the Port of Felixstowe or any other significant nearby source. This site shows fairly stable levels between 2009 and 2011 with a reduction seen 2012 - 2014.

The additional monitoring sites FLX 33-38 show the highest concentration of NO_2 to be at Dock Gate 2 roundabout (FLX 33), concentrations reduce as you travel away from Dock Gate 2 roundabout towards The Dooley Inn (FLX 34 and 35) and past it, to FLX 38, confirming that there is a NO_2 gradient from Dock Gate 2 roundabout to The Dooley inn and that emissions from this location play a part in the concentrations seen within the AQMA.

All monitoring locations have been kept in place for 2015 and the results will be reported in the 2016 air quality report.

Table 8.1 Results of Nitrogen dioxide diffusion tube monitoring at sites near to the Dooley Inn, Ferry Lane, Felixstowe AQMA (2008-2014)

Site ID	Location	Within AQMA?	Annual mean concentration bias adjusted (μg/m^3) *(Adjustment factor used for 2014 = 0.81)*						
			2008	2009	2010	2011	2012	2013	2014
FLX 21	4 Kingsfleet Road, Trimley St. Mary (Urban Background)	No	27	25	24	25	22	22	19
FLX 26a,b,c	Front of The Dooley Inn at first floor window height	**Yes**	**42**	**45**	**43**	**40**	36	37	36
FLX 27a,b,c	Side of The Dooley Inn facing the Port of Felixstowe	**Yes**	36	38	33	36	33	32	32
FLX 32a,b,c	Guttering at rear of Dooley Inn facing the rear garden	**Yes**	~	~	~	37	34	32	29
FLX 33	Dock Gate 2 Roundabout. Not relevant receptor	No	~	~	~	66	60	58	55
FLX 34	Ferry Lane, Midway between roundabout and Dooley Inn. Not relevant receptor	No	~	~	~	51	46	42	45
FLX 35	Dooley Inn signpost at front. Not relevant receptor	No	~	~	~	48	44	41	43
FLX 36	Street Sign in Hodgkinson Road. Not relevant receptor	No	~	~	~	41	37	36	36
FLX 37	Lamppost at Ferry Lane on corner of Hodgkinson Rd. Not a relevant receptor	No	~	~	~	48	43	41	42
FLX 38	Lamppost on Ferry Lane, past Hodgkinson Rd. Not a relevant receptor	No	~	~	~	39	34	32	33

9.3 Action Plan Measures update

Of the 13 measures set out In the Action Plan, 7 have already been completed - 3 by Suffolk Coastal District Council and 4 by the Port of Felixstowe. All other measures which are the responsibility of the port of Felixstowe have been started and are on-going.

Table 8.2 overleaf contains an updated summary of progress made on each of the measures within the Action Plan. Further details regarding the on-going measures are also provided in the main text following the table, together with additional measures/work being undertaken by the Port of Felixstowe which will cause emission reductions from the site.

Table 8.2 Action Plan Progress Summary Table 2014/15

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
1a	Air Quality awareness campaign	Target local businesses using major roads in the area e.g A14. Reduce unnecessary traffic and emissions in AQMA and local area.	Suffolk Coastal District Council	To be considered if the NO_2 conc. increases back above the objectives	n/a	Measured conc. at the Dooley Inn public house	n/a	Air quality consultations continue to increase awareness in the area amongst businesses and members of the public.	Concentrations at the Dooley Inn public House have been below the Objective since 2012.	n/a currently	This measure will only be undertaken if NO_2 concentrations in the AQMA increase above the objectives.
1b	Implement an Environmental Management System (EMS) at the Port	Reduction of emissions from port activities. Includes employee and tenant education in best practice which will encompass emission reduction.	Port of Felixstowe	2005	2007-2011	No direct indicator Continued certification to ISO 14001	n/a	EMS Implemented and certified to Port Environmental Review System (PERS) in 2006. Developed to full ISO14001 certification from 2011. Delivered training on EMS and individual responsibilities to approx. 200 employees in 2011/12. All new employees given Environmental awareness training. Energy Management system implemented (EnMS) – certified to ISO 50001	**Completed** and now on-going	**Completed** and now on-going	-

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
2a	Engage National / EU / international governments to develop policies which influence port activities to improve air quality.	Reduction in NOx emissions from Port activities countrywide	Suffolk Coastal District Council	To be considered if the NO_2 conc. rises back above objectives	n/a	No direct indicator	n/a	None	None	n/a currently	Port of Felixstowe agreed; acknowledged that all ports should consider adopting a strategy to overcome competition issues.
2b	Develop Port action plan re emissions from processes over a longer term (5 years)	Reduction in NOx emissions from Port processes	Port of Felixstowe		2011 and on-going	Emissions monitoring of NO_2 and SO_2 at the Port (including CO2 emissions)	n/a	Estimates from the Port's five year carbon reduction plan is an annual reduction of approximately 4000 tonnes CO_2. Plan reviewed annually and now part of energy management system, (EnMS).	NO_2 concentrations monitored since 2007 and SO2 since 2009 at a number of locations, see Appendix G. Significant and sustained improvements in this time.	**Completed** and on-going	Table showing NO_2 and SO_2 monitoring results included in main text below.

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
2c	Identify Section 106 planning gain opportunities to balance any future air quality impact caused by local development	Mitigate any increases in emissions from future development	Suffolk Coastal District Council	On-going	On-going	Uptake/ implementation of Section 106 agreements.	n/a	There have been no Planning applications in the area where S106 agreement could be implemented	Work beginning on Community Infrastructure Levy (CIL) and incorporating air quality into the 'shopping list'. Bids can then be made in the future for air quality projects relating to AQMAs.	On-going	Potential to mitigate increase in emissions. Measures might involve providing sustainable transport options and could include installing long term air quality monitoring.
3a	Evaluate and implement efficient power technologies (e.g. hybrid-electric) for cargo handling equipment (rubber tyre gantry (RTG) cranes) and internal movement vehicles (IMVs) in the Port	Reduction of NOx emissions from Port equipment	Port of Felixstowe	On-going	On-going	Power use at the Port	n/a	The Port has purchased 22 ECO-RTGs – 40% reduction in fuel use and therefore emissions. The Port is planning to convert two sections of the Trinity Terminal to accommodate four fully electric RTGs. 2014 – first 4 diesel/electric RTGs converted to electric (ERTG) Initial indication is that the trial has been successful.	Diesel/electric RTG trial successful. Infrastructure being put in place to add a further 14 later in 2015. Will add up to 50 over the next few years. Will increase Ports power usage - many projects being undertaken to generate solar power and reduce power usage elsewhere.	On-going Plan to convert more RTGs over the coming years up to 2020	Information on power use at the Port included in main text below. Has decreased since 2008. Will have led to reduced emissions. If roll out of electric RTGs continues the use of diesel in RTGs is expected to fall significantly to 2020.

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
3b	Retro-fitting fuel saving controls to existing Rubber Tyred Gantry (RTG) cranes in the Port.	Reduction of NOx emissions from Port equipment	Port of Felixstowe	2011	2011	Power use at the Port	n/a	The Port has carried out retro-fit of 22 RTGs - greater than 25% of the fleet. Total of 41 RTGs have had these systems fitted (2014)	**Completed**	**Completed**	Reduction in fuel use of approximately 25% compared to original RTGs.
3c	Investigate feasibility to convert IMVs in the Port from diesel fuel to liquefied natural gas (LNG).	Reduction of NOx emissions from Port equipment	Port of Felixstowe	On-going	On-going	No direct indicator	n/a	Port is investigating this – issues with net emission savings owing to the practicalities of storing LNG - to be considered further. At present no plans to convert to LNG/CNG but the Port continues to monitor developments	Nothing further to date	On-going	Possible reductions in NO_X, PM_{10} and CO_2. Difficult to quantity.

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
3d	Adopt NO_X abatement technologies on Internal Movement Vehicles (IMVs) in the Port.	Reduction of NOx emissions from Port equipment	Port of Felixstowe	2010	2011 (ongoing replacement plan)	Emissions monitoring of NO_2 and SO_2 at the Port (including CO2 emissions)	n/a	Originally the Port was going to fit Adblue (selective catalytic reduction) to their IMVs. This has not been undertaken, instead 34 IMVs were replaced in 2011/ 2012 and a further 22 in 2014. All new IMVs will use Adblue. Any more planned for 2015?	Further 22 IMVs replaced in 2014.	On-going	Table showing NO_2 and SO_2 monitoring results included in main text below Replacement IMVs comply with Euro IIIa Emission standards instead of Euro I standards which means they have reduced emissions.

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
4	Use of a Vehicle Booking System (VBS) to manage access to the Port.	Spread HGV flows more evenly throughout 24 hour period to reduce congestion.	Port of Felixstowe	~		Traffic flows (HGVs).	n/a	System implemented, all vehicles now book a time slot to arrive. If they arrive out of their time slot, they are not allowed on to the Port and required to re-book. Strictly enforced.	**Completed**	**Completed** Continues to reduce peak traffic flows	At night (midnight to 7am) can arrive anytime - encourages more deliveries during this quieter period. Traffic flows in and around the Port have changed significantly reducing peak HGV flows.
5a	Review of air pollution mitigation options being considered in UK, European and non-European ports	Investigate other potential measures for reduction of emissions from Port activities.	Suffolk Coastal District Council	2012	2013	No direct indicator Report completed	n/a	TRL commissioned to produce report. Report produced, sent to the port of Felixstowe and their comments received and detailed in 2013 Progress Report	**Completed**	**Completed**	Comments from the Port of Felixstowe regarding each option confirmed that some are being undertaken and researched already and others are not currently viable. Noted for the future if needed.

No.	Measure	Focus	Lead Authority	Planning Phase	Impleme-ntation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
5b	Vehicle number plate surveys	Gain clear understanding of vehicle fleet - age and type of HGVs at specific locations.	Suffolk Coastal District Council	2011	2011/12	No direct indicator. Can assist in quantifying the impact from articulated HGVs over time if repeated	n/a	Report commissioned and produced 2011/12. Results show activity from the goods yard does not appear to be affecting air quality concentrations at the Dooley Inn to any greater extent than previously thought. Confirms findings of our earlier reports.	**Completed**	**Completed**	
5c	Develop a Supplementary Planning Document (SPD) – Air Quality.	Ensure that emission impacts from proposed developments are fully assessed.	Suffolk Coastal District Council	2010/11	2012	No direct indicator	N/A	Report completed in 2012, not formally adopted by SCDC but being used as guidance	This guidance is in use for planning applications on the district. Improved links with Planning to ensure all relevant applications assessed for air quality implications.	**Completed and in use**	Establishes planning control mechanism to appraise potential air quality impacts of proposed development, especially within or near to existing AQMAs.

Measure 1a – Awareness Campaign (SCDC)
We have moved the Planning and Implementation dates for this measure further into the future and these dates will be reassessed year on year in light of monitoring results. Consultations undertaken on our annual air quality reports will themselves increase awareness for the public and within the business sector. Consultations are usually published within the local press, on the Hauliers Association website and with any other publications that are due at the time.

Measure 2c – Identify Section 106 Planning gain opportunities (SCDC)
All relevant planning applications for the district are assessed for their impacts on air quality, particularly with respect to declared AQMAs. There were no planning applications received for this area which would require Section 106 agreements to be made in 2013/14.
Suffolk Coastal District Council is currently putting the Community Infrastructure Levy (CIL) in place. As part of this a draft '1,2,3 Shopping List' has been drawn up – this is the list of projects for which funding from the CIL can be used. One of the items on the list is 'Strategic air quality improvements' so that we would be able to bid for funding from the CIL in the future for specific projects relating to our AQMA.

Measure 3a – Evaluate and implement efficient power technologies (PoF)
The Port has invested in a number of environmental projects and will continue to do so, where practicable. They have purchased 22 eco-Rubber Tyred Gantry Cranes (RTGs), these have smaller engines which allow them to run at maximum efficiency - leading to reductions in emission. Sections of the Trinity Terminal were converted in 2014 to accommodate four fully electric RTGs (eRTGS). The trial has been successful and the infrastructure is currently being put in place to add a further 14 eRTGs in 2015. The Port also has an ongoing commitment to increase the eRTGs over the next few years up to 50. The ERTG programme has the potential to reduce total diesel use at the port by up to 30%. To mitigate the increase in electricity demand the port has been progressing energy efficiency projects and renewable energy generation (Solar PV) and are now able to generate 0.5MW of energy from solar power.

Measure 3d – Adopt NOx abatement technologies on Internal Movement Vehicles (IMVs) (PoF)
The Port has purchased 55 new IMVs in the last 2 years and all will be fitted with Adblue systems - Diesel Exhaust Fluid used in selective catalytic reduction to decrease NOx concentrations in exhaust emissions. This should show reductions in NOx emissions from all IMVs. The emissions standards they comply with are Euro IIIa which is a significant improvement over the ones replaced, which had Euro I emission requirements.

The Port monitors how effective the replacement vehicles are through their NO_2 and SO_2 monitoring undertaken on the Port. NO_2 has been monitored since 2007 and SO_2 since 2009 which gives an indication of trends over time. All SO_2 locations are on the rear legs of the quay cranes, NO_2 monitoring points are in two main areas; near to the Dooley Inn AQMA and near to the Adastral Close residential area. A map showing their locations can be seen in Appendix G.

As of 2014, the Port of Felixstowe's monitoring sites have been rationalised, taking a risk based approach. A number were quite close to each other and had been

consistently below levels of concern and so have now been removed. The remaining monitoring sites are around areas of higher activity and/or boundary areas such as Dock Gate 2 roundabout and Adastral Close. The results of monitoring are detailed in Tables 8.3 and 8.4.

The results of NO_2 monitoring show a reduction in levels from 2007, there was a spike in 2010 at all locations but NO_2 concentrations have all decreased again since this time. The results for the majority of sites in 2014 have again decreased and all are below the annual mean Air Quality Objective of 40µg/m^3.

The results of SO_2 monitoring show a reduction at all locations year on year from 2009 to 2012. In 2013 and 2014 SO_2 levels have increased slightly at Berths 1&2, 3&4 and 5 but are still well below those levels seen 2009-2011.

These results indicate that emissions of NO_2 and SO_2 from the Port of Felixstowe site have reduced over time. NO_2 emissions in the present day are continuing to decrease. SO_2 emissions have increased slightly in recent years at some locations but overall are still greatly reduced from 2009 measurements.

Table 8.3 Port of Felixstowe NO_2 Monitoring Results 2007-2014

Site ID	Annual Mean Concentration (µg/m^3) Adjusted for Bias							
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Mallard House (Site 2)	**50.1**	**47.2**	**45.8**	**47.2**	**45.3**	**41.8**	37.8	35.5
Central Eng. / Stores Car Park (Site 3)	**49.3**	**47.7**	**42.8**	**45.2**	**41.8**	39.1	38.2	35.3
Pier House LT7113 (Site 4)	~	34.8	31.0	36.2	32.1	33.6	31.5	~
Pier House LT7120 (Site 5)	~	33.7	29.8	34.5	29.2	33.7	31.9	23.5
Landguard Eng LT7404 (Site 6)	~	36.4	29.2	31.4	27.9	29.0	26.0	24.1
90 Park LT7403 (Site 7)	~	31.9	30.4	31.5	29.4	28.9	27.1	23.7
90 Park LT7410 (Site 8)	~	30.2	27.5	28.4	27.5	25.1	25.4	21.4
75 Park LT7402 (Site 9)	~	37.1	34.7	**40.2**	33.2	31.4	28.1	~
75 Park LT7507 (Site 10)	34.7	30.2	30.3	31.2	27.2	28.2	29.6	~

Table 8.4 Port of Felixstowe SO_2 Monitoring Results 2007-2014

Site ID	Annual Mean Concentration (µg/m^3)							
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
QC5 - Berth 1 & 2	~	~	13.0	7.4	5.9	2.4	2.0	2.9
QC10 - Berth 3 & 4	~	~	14.3	8.8	7.2	2.9	2.9	4.1
QC15 - Berth 5	~	~	15.6	6.9	5.2	2.3	2.8	~
QC20 - Berth 6	~	~	16.8	7.3	5.9	2.6	2.2	2.8
QC25 - Berth 6 & 7	~	~	14.7	5.1	4.4	2.9	2.7	~
QC29 - Berth 7	~	~	12.6	6.0	5.2	2.1	2.2	2.1
QC1 - Berth 8	~	~	~	~	6.7	2.9	3.0	~
QC 4 - Berth 9	~	~	~	~	3.6	2.9	3.8	3.0

Measure 5c – Develop Supplementary Planning Document (SCDC)
The Supplementary Planning Document for Suffolk Local Authorities was completed in 2012. It has not been formally adopted by SCDC but is being used by the Environmental Health Department for planning applications as guidance for air quality matters.

We are also continuing to work very hard to improve the links between our Planning Team and Environmental Health to ensure that any new, relevant, planning applications are received and commented on with regard to air quality. We will be working with the Planning Policy Team later in 2015 to add comments relating to air quality with respect to the draft Area Allocations Document – allowing us to comment on specific sites in relation to air quality.

Additional measures implemented by the Port of Felixstowe

- The Port of Felixstowe released a mobile phone app in 2014 to give customers up-to-date container status information. The app alerts customers with updates on a specific vessel or container. Notification emails can be requested when a named ship arrives in the port and when the container is discharged, cleared and ready for collection. Using a container number, users can track the status of a container through the port in real time and be notified when a container is ready for collection. In addition to allowing users to track containers or specific vessels, the latest 5-day weather forecast for the port and details of freight train arrivals and departures are easily accessible. Over 1,000 of the Ports customers have now downloaded this app.
- In 2015 the first ever Ultra Large Container Ship designed to run on LNG made its maiden call at the Port of Felixstowe. This is the first of 17 of the World's most eco-efficient vessels planned to be built by mid-2016. The vessels are highly efficient which reduces significantly the amount of fuel they use, and therefore emissions they create, per container.
- 190m extension to Berth 9 will open in 2015 with 3 giant electric Rubber Tyred Gantry cranes (RTGs) delivered mid-2015 for this extension. This will help allow the Port to berth several of the World's largest container ships at once. Due to the amount of containers that these larger ships can carry, and improved technology making emission cleaner, the amount of emissions to air per container is much reduced. In addition the stack height for the larger ships is approximately 50m which greater aids dispersion of any emissions. By the end of April 2015 Felixstowe had handled more than 130 calls by ships over 13,000 TEU capacity (more than 1 per day).
- Felixstowe Logistics Park – latest warehousing and logistics development for 1.45 million ft^2 of warehousing on a 68-acre site. The site will be located within the Port's perimeter and accessed from internal roads and is less than 100m from Berths 8&9 where they handle the largest container ships and only 500m from Trinity terminal. It is located adjacent to Dock Gate number 1 which is where it will be accessed from.
- Work is continuing in order to dual the Felixstowe Branch Line which should be open by 2019. This will increase the number of trains that can run each

day from 30 currently up to approximately 48 thereby helping to increase the amount of freight moved by rail to and from the Port.

- The Port has recently commissioned two new Rail Mounted Gantry cranes (RMGs) at its North Rail Terminal to help increase the volume of freight it can move by rail. In total, Felixstowe has nine rail cranes and 16 tracks at its three terminals making it the largest intermodal rail facility in the UK. In 2014 the Port handled 890,000 TEU at the three rail terminals and volumes are continuing to grow. Regular rail services are run from Felixstowe to Birmingham, Manchester, Trafford Park, Scunthorpe, Hams Hall, Daventry, Wakefield, Bristol, Doncaster, Ditton, Liverpool, Selby, Leeds, Tilbury, Teesport, Burton-on-Trent and Coatbridge.
- The first ever Ultra Large Container Ship designed to run on Liquid Nitrogen Gas (LNG) made its maiden call to Felixstowe in 2015. This is the first of 17 of these ships which will be built. They can carry 15,000 twenty-foot equivalent units (TEUs), are highly efficient, and the amount of fuel used per container carried is greatly reduced.
- The Port is starting investigations to look at the possibility of using LNG to run ships whilst they are in berth (for those which are able).

9.4 Joint Environmental Policy 2013 (JEP)

The Council's JEP combines and replaces a number of Policies and Documents including the Council's Climate Change Strategy and the Green Travel Plan. In relation to LAQM it states the following:

- Fulfil its duties under the Environment Act 1995 to produce and implement Action Plans for any declared Air Quality Management Areas within the districts.

The JEP includes a number of measures which will assist with emission reduction within the district and therefore aid with work within our AQMA;

- Support and facilitate the Councils' Officer Greenest County Steering Group and Green Team action to engage staff and encourage a shift towards reducing energy and water use, homeworking, teleconferencing, videoconferencing, online training, car sharing, and use of trains and cycles and more fuel efficient driving.
- Extend the Waveney Cycle to Work scheme to cover Suffolk Coastal. To increase the numbers of staff cycling to and from work.
- Encourage a shift to more sustainable travel patterns.
- With the Suffolk Sustainable Travel Forum endeavour to facilitate major investment in public transport to improve existing services and develop new ones.
- Amend the Suffolk Coastal Lift Home Scheme as appropriate and to include cyclists and adopt across the two Councils.
- Ensure delivery of the sustainable transport initiatives as set out in Suffolk's Local Transport Plan 2011-2031.

As the AQMA is located close to Dock Gate 2 roundabout, and the access route for the Council's Port Health team based within the port of Felixstowe perimeter, any actions which will reduce vehicle emissions from the Council itself will aid in emission reduction in the locality of the AQMA.

9.5 Planning Applications

There is one Planning application with planning consent, mentioned in the 2014 Progress Report, which will have an impact on the AQMA declared at Ferry Lane. This is planning application DC/13/3656/FUL for a high bay distribution centre at Clickett Hill, Trimley St Mary which obtained planning consent but for which work has not yet started.

The distribution centre will take bulk containerised goods from the Port of Felixstowe and reprocess them for onward distribution. Onward distribution will be via container back to the Port or onto a Heavy Goods Vehicle (HGV) for onward road distribution. It will have 369 car parking spaces and 168 spaces for HGV parking and will operate 24 hours a day.

An Air Quality Assessment was submitted which modelled air quality at receptor locations on the road network including the declared AQMA at The Dooley Inn PH. The distribution centre will add to the HGV traffic using Dock Gate 2 roundabout near to the AQMA. The assessment predicted increases of 0.2µg/m^3 NO_2 and 0.02µg/m^3 PM_{10} at the site of the AQMA with the development in place. These increases were considered not to be a significant air quality impact. Results for other receptor locations modelled showed similar minor increases with the development in place and so were also considered to not be significantly impacted. The air quality assessment and its findings were investigated by this Department and approved.

As mentioned previously in this section of the report the Port of Felixstowe will be submitting an application for a 1.45 million ft^2 logistics park (warehousing) within the Port perimeter during 2015. This will allow businesses to deal with their freight before moving it on either by ship, rail or road. Access from the berths to the warehousing will all be via internal roads and the logistics park's main external access will be via Dock Gate 1. The air quality assessment prepared for this application and any implications for the Ferry Road AQMA will be assessed at that time.

9.6 AQMA Revocation

From the outset of our discovery that annual mean NO_2 concentrations at the Dooley Inn were above the Air Quality Objective level, the Port of Felixstowe came on board. Discussions began regarding what was possible in order to try and reduce emissions from and associated with the Port. Source apportionment of emissions received at the Dooley Inn advised that container handling operations at the Port (including vehicles on the road within the Port boundary) are the largest contributor to the NOx concentrations, with emissions from HDVs on roads outside the Port boundary being the second largest contributor.

The Port have been committed to reducing their emissions and have undertaken a vast, and costly, amount of work covering the main sources of emissions from their site, and from Dock Gate 2 roundabout, as can be seen from the information provided in the section above. There are also included above a number of additional projects that have been conceived since the publication of the Action Plan which will also help to continue reducing emissions from the site in the future.

Annual mean NO_2 concentrations within the AQMA and at other sites around the Port of Felixstowe boundary have decreased between 2008 and 2014, see Table 8.5 below. Results collected for the last 3 years within the AQMA are now within the annual mean Objective with the highest recording locations showing 36-37µg/m^3.

Productivity data obtained from the Port of Felixstowe since 2008 is summarised in Table 8.6 and shows that productivity has been increasing steadily since 2009 at the same time that the NO_2 concentrations have been reducing.

Table 8.5 Results of Nitrogen dioxide diffusion tube monitoring at relevant receptors near to the Port of Felixstowe (2008-2014)

Site ID	Annual Mean Concentration (µg/m^3) adjusted for Bias						
	2008	2009	2010	2011	2012	2013	2014
FLX 14 – 1 Adastral Close	29	28	27	25	25	25	22
FLX 22 – 13 Levington Road	28	25	25	25	23	22	20
FLX 24 – 22 Brandon road	34	31	31	31	28	28	27
FLX 26 – Dooley Inn (front)	**42**	**45**	**43**	**40**	36	37	36
FLX 27 – Dooley Inn (side)	36	38	33	36	33	32	32
FLX 29 – 18 Adastral Close	30	27	27	25	23	22	20
FLX 31 – 44 Adastral Close	33	28	30	27	26	25	23
FLX 32 – Dooley Inn (rear)	-	-	**-**	37	34	32	29

Table 8.6 Port of Felixstowe throughput (TEU millions) 2008-2014

2008 – 3.2
2009 – 3.1
2010 – 3.4
2011 – 3.4
2012 – 3.7
2013 – 3.7
2014 – 4.1

These figures confirm that even with increased productivity at the Port of Felixstowe during the last 3 years, the NO_2 concentrations within the AQMA have held at 36-37µg/m^3.

We will therefore be undertaking a Detailed Assessment to confirm whether the AQMA should be revoked at this time and this will be sent to Defra for appraisal. Monitoring at relevant receptor locations in and around the AQMA will continue in the future in order that we can keep ourselves apprised of NO_2 concentrations.

9.7 List of relevant stakeholders

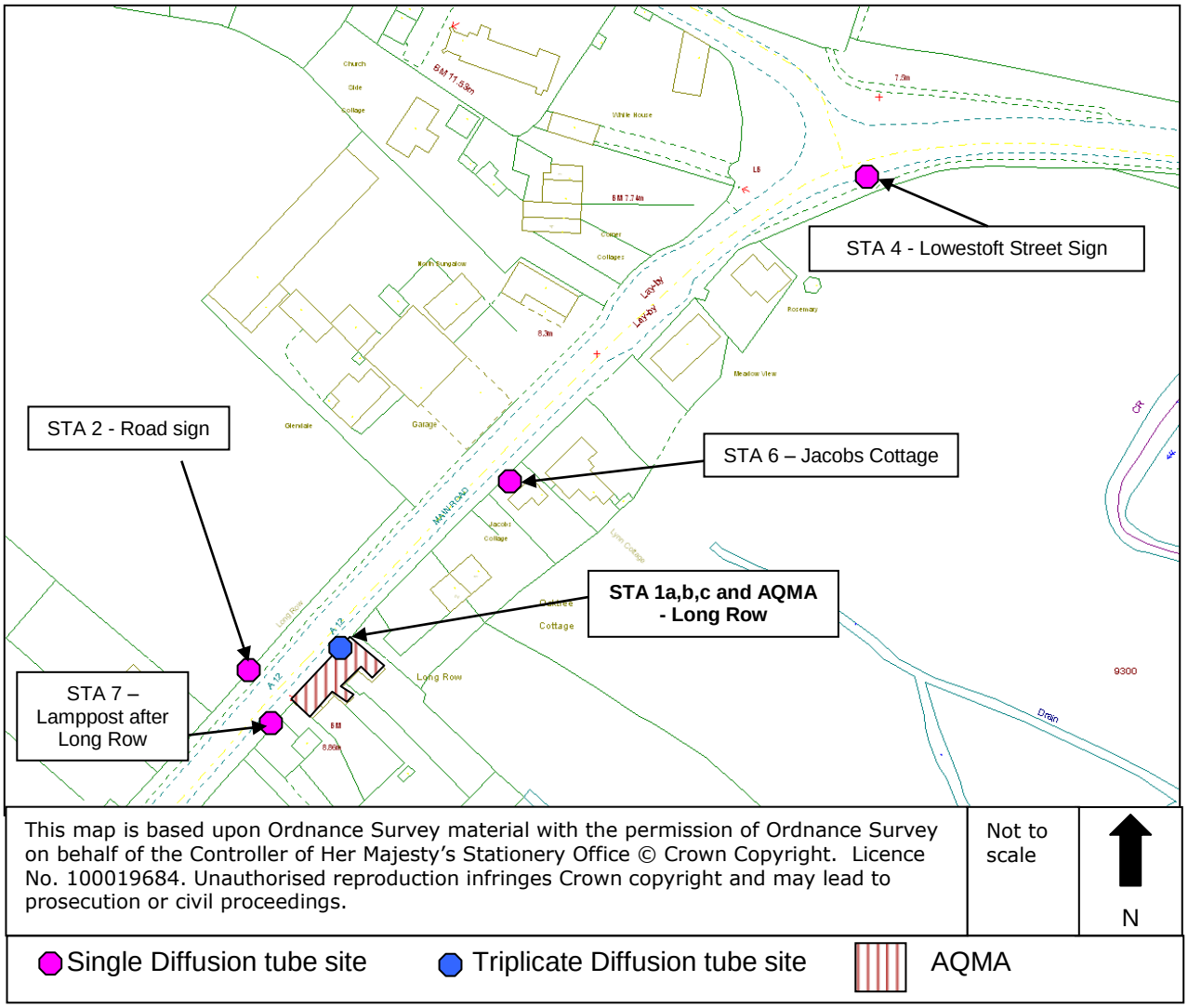
- Secretary of State
- Members of Parliament for the Suffolk Coastal district (Dr Daniel Poulter MP and Therese Coffey MP).
- All District Councillors for Suffolk Coastal
- All County Councillors covering the Suffolk Coastal district
- All Town and Parish Clerks
- Woodbridge Town Council
- Suffolk County Council
- Environment Agency
- Highways Agency
- East Suffolk and Ipswich Clinical Commissioning Group
- All Suffolk Local Authorities
- Neighbouring County Councils
- All Suffolk Coastal employees - the Suffolk Coastal Planning Department specifically.
- Suffolk Coastal Business Associations
- Suffolk Chamber of Commerce
- The Greenprint Forum members – local group covering environmental issues
- Suffolk Coasts and Heaths
- All residents within the AQMA
- Residents within the district who have diffusion tube monitoring undertaken at their properties
- The Port of Felixstowe
- Harwich haven and Bathside Bay
- Felixstowe Port Users Association
- List of Port hauliers
- Orwell Housing Association and residents of their properties within Adastral Close
- Local Press releases to cover residents and businesses within the Suffolk Coastal district

10 Stratford St. Andrew AQMA update

Monitoring for annual mean nitrogen dioxide (NO_2) has been undertaken since 2011 at several sites along the A12 as part of the pre-planning application scoping exercise for Sizewell C. Monitoring sites are present at locations in Little Glemham, Farnham and Stratford St Andrew.

At one of the monitoring locations, Long Row in Stratford St Andrew (STA 1), the annual mean NO_2 concentration has been shown to be slightly above the annual mean Air Quality Objective. The Objective level is 40 µg/m^3 and concentrations recorded at Long Row were 43, 42, 41 and 42 µg/m^3 from 2011-2014 (see Table 11.1 overleaf). The site is located on the drainpipe of a group of four houses which open directly onto the pavement of the A12. There is approximately 1 metre between the building façade and the kerb. This location is the only site with NO_2 concentrations above the annual mean objective and can be seen in Figure 11.1.

Figure 9.1 Main Road, Stratford St Andrew showing the location of the AQMA at Long Row and diffusion tube monitoring points



During 2011, Long Row (STA 1) was monitored using a single diffusion tube, and so for increased accuracy in 2012 the site was triplicated. The continued exceedence of the Objectives seen in 2012 confirmed the need to proceed to a Detailed Assessment. A number of additional sites were put in place in the locality to provide additional spatial monitoring information (Figure 11.1 shows those in place during 2014), levels at these sites are all within the air quality objectives.

Table 9.1 Results of nitrogen dioxide diffusion tube monitoring at sites along the A12 (2011-2014)

Site ID	Location	Within AQMA?	Annual mean concentration bias adjusted ($\mu g/m^3$) *(Adjustment factor used for 2014 = 0.81)*			
			2011	2012	2013	2014
LGM 1	Pear Tree House, Main Rd, Little Glemham	No	17	14	15	14
FAR 1	Turret House, The Street, Farnham	No	29	26	29	27
FAR 2	Post Office Stores, The Street, Farnham,	No	33	31	31	29
STA 1	Long Row, Main Road, Stratford	**Yes**	**43**	**42**	**41**	**42**
STA 2	Road sign opposite Long Row, Main Road, Stratford	No	~	~	27	25
STA 4	Lowestoft Street Sign bend, Main Road, Stratford	No	~	~	17	15
STA 6	Jacobs Cottage, Main Road Stratford	No	~	~	24	23
STA 7	30mph sign past 5 Long Row, Main Road, Stratford	No	~	~	34	30

A Detailed Assessment was undertaken on the Council's behalf by Transport Research Laboratory (TRL) for the A12 at Stratford in July 2013. The Detailed Assessment concluded that an Air Quality Management Area (AQMA) should be declared and the Council determined that the extent of the AQMA would encompass the four houses at 1-5 Long Row, Main Road, Stratford St Andrew.

Both properties monitored at Farnham are at the same distance from the road as Long Row in Stratford St Andrew, and these show NO_2 concentrations below the Air Quality Objectives. This would suggest that the elevated concentrations at Long Row are localised (see Table 11.1 above). Local knowledge suggests that the levels at Stratford St Andrew may be related to traffic movements associated with the petrol filling station and the change of speed limit close to Long Row.

The Detailed Assessment report, and the Council's Cabinet recommendation to declare an AQMA covering the boundary of the four houses at 1-5 Long Row, was approved by Defra in early 2014. The AQMA Order was made on 18th June 2014 and the location is shown hatched in red on Figure 11.1.

The Council is required to produce a Further Assessment within 12 months of the AQMA Order, investigating source apportionment of emissions within the AQMA, followed by an Action Plan within 18 months of the AQMA Order. The Action Plan will provide information on what measures can be taken to try and reduce NO_2 concentrations within the AQMA.

The Council has employed Transport Research Laboratory (TRL) to produce the required Further Assessment for this AQMA. To help inform the Further Assessment, TRL undertook a Drive Cycle in this area of the A12 at the end of 2014. This consisted of a specialised vehicle which travelled on the A12 in and around the AQMA from both directions, at different speeds and covering different scenarios (for example travelling at the set speed limit of 30mph within the AQMA with no acceleration and then travelling at different speeds with and without acceleration). The vehicle had an on-board emission recording device to record each emission profile associated with each different scenario/manoeuvre undertaken. The results from the Drive Cycle will help to calculate source apportionment of emissions affecting the AQMA, and also with suggestions for possible measures which could be taken to reduce emissions for the Action Plan.

The Further Assessment is currently being finalised and will be sent to Defra as soon as it is complete. There has unfortunately been a delay in its completion due to staffing issues within the Consultancy firm employed. Defra have been made aware of this and it is hoped that the Council will receive the first draft of the Further Assessment in July 2015.

A working group is already in place with representatives from Suffolk Coastal District Council and Suffolk County Council, and early discussions are occurring to look at possible options for reducing emissions within the AQMA. This group will be informed by the results of the Further Assessment when completed and can move forward at that stage to determine the measures to be included in the draft Action Plan for the AQMA.

11 Conclusions and Proposed Actions

11.1 Conclusions from New Monitoring Data

Monitoring undertaken in 2014 by the automatic NO_X analyser and diffusion tubes situated within the AQMA at Woodbridge showed concentrations below the annual mean NO_2 objective at all sites for the first time. This, however, is likely to be due to the poor data capture achieved in November and December due to an analyser fault as these are months when concentrations recorded are generally higher. The lack of data for these months will therefore bring the annual mean down for the year. It is not thought that this is a 'real' reduction in concentrations. The analyser is still in place and data obtained for 2015 will confirm concentrations within the AQMA. The 1–hour objective was again not exceeded during 2014.

Concentrations recorded by diffusion tubes within the AQMA at Felixstowe continue to be below the Air Quality Objective in 2014, the highest recorded concentration being 36µg/m^3.

Concentrations recorded by diffusion tubes within the AQMA at Stratford St Andrew continue to be above the Air Quality Objective at 42µg/m^3.

The results of NO_2 monitoring undertaken across the district in 2014 at relevant receptor locations using diffusion tubes show only 1 site, within the declared AQMA at Stratford St Andrew, where the annual mean NO_2 objective is exceeded.

11.2 Conclusions from Assessment of Sources

There are no new or altered sources of road traffic or other transport sources (air, rail, shipping) in the district since the 2014 air quality report that require assessment. Emissions of NO_2 from moving trains in Felixstowe, near to the Port boundary, have been investigated. This confirmed that annual mean concentrations are below the Objectives and no further assessment is required.

There has been 1 new industrial installation within the district, under the Environmental Permitting Regulations 2010, since the 2014 air quality report. There are no significant emissions associated with this installation and Detailed Assessment is not required.

Assessment of commercial and domestic sources of pollutants has confirmed that there are no new commercial or domestic sources of pollutants (such as biomass boilers) within the Suffolk Coastal district since the 2014 Progress Report. There are no areas within the district with sufficient use of solid fuel in houses to cause any levels to be exceeded.

11.3 Woodbridge AQMA Conclusions

The Action Plan for the Woodbridge junction AQMA consists of 20 measures that could be undertaken at the junction to hopefully ease the congestion / reduce the overall traffic flows and therefore in turn reduce the elevated levels of nitrogen dioxide being experienced. The measures can be split into 2 types; 'physical junction alterations' (mainly to be undertaken by SCC with SCDC input) and more 'softer measures' to be undertaken mainly by SCDC.

Six of the Actions have now been completed, and one new measure has been added. A feasibility study has been completed for the 5 remaining options which involve 'physical junction alterations'. This has shown 1 to have a negative impact and the remaining 4 to have a negligible impact on NO_2 concentrations in the AQMA. It is therefore unlikely that any of them will be implemented on air quality grounds. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA, and to trial holding back traffic a distance from the lights (therefore away from the AQMA) and pulse it through the junction. The weather station has very recently been installed and the County Council are currently investigating the traffic trial, this will be implemented if possible.

The Working Group, consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council, has determined that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact and alter those which need a new focus. There are also some alternative options which have been suggested for possible inclusion in the Action Plan. **A draft updated Action Plan is currently being prepared for full Consultation.**

11.4 Felixstowe AQMA Conclusions

The diffusion tube monitoring results indicate that levels within the AQMA have fallen to be now at, or below, the annual mean objective level of 40µg/m^3. All monitoring locations have been kept in place for 2012 and will also be retained in 2013. The results for 2012 will be reported in the first Progress Report due for this AQMA (in 2013).

The Action Plan for the Felixstowe AQMA consists of 13 measures of which 7 have now been completed. Six of the measures are the responsibility of Suffolk Coastal District Council and 7 are the responsibility of the Port of Felixstowe. A number of additional emissions reduction measures have also been undertaken or are to be implemented by the Port of Felixstowe.

The results of diffusion tube monitoring for 2014 confirm that annual mean NO_2 concentrations within the Felixstowe AQMA continue to be below the air quality Objective, at 36µg/m^3, for the third year running. **A Detailed Assessment will be undertaken and submitted to Defra to look at whether this AQMA should now be revoked.**

11.5 Stratford St. Andrew AQMA Conclusions

An AQMA was declared at Long Row in Stratford St Andrew in June 2014. **The first draft of the required Further Assessment is currently being put together and will be sent to Defra once completed.**

A Working Group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council and early discussions on possible options for reducing emissions within the AQMA have begun. These will be informed by the Further Assessment findings. **Once the results of the Further Assessment are received a draft Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.**

11.6 Proposed Actions

- There are no new areas within the Suffolk Coastal district that have been identified as requiring any additional assessment.

- The traffic trial recommendation from the Woodbridge AQMA feasibility study will be investigated by Suffolk County Council and implemented if they are in agreement.

- The Woodbridge Air Quality Action Plan will be updated. A draft will be sent to Defra and put out for Public Consultation.

- A Detailed Assessment will be undertaken for the Felixstowe AQMA to determine whether to revoke it at this time and sent to Defra.

- The Further Assessment will be completed in July 2015 and sent to Defra. The findings from this will then inform the production of the Action Plan for this AQMA.

12 References

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10. *2013 Air Quality Progress Report for Suffolk Coastal District Council.* Produced by Suffolk Coastal District Council, December 2013.

11. *2014 Air Quality Progress Report for Suffolk Coastal District Council.* Produced by Suffolk Coastal District Council, December 2014.

12. *Suffolk Coastal District Council Air Quality Action Plan for Woodbridge.* Prepared by AEA Technology plc under contract to Suffolk Coastal District Council, August 2009.

13. *Further Assessment for the Air Quality Management Areas at Ferry Lane, Felixstowe.* Prepared by Transport Research Laboratories under contract to Suffolk Coastal District Council, April 2010

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17. *Supplementary Guidance – Air Quality Management and New Development 2011 – Suffolk Local Authorities.* Suffolk Air Quality Management Group, 2011.

Appendices

Appendix A	**QA:QC Data**
Appendix B	**Maps showing NO_2 diffusion tube locations**
Appendix C	**NOx analyser results summary**
Appendix D	**Diffusion tube results for 2014**
Appendix E	**Traffic Count Information**
Appendix F	**Permitted Processes**
Appendix G	**Port of Felixstowe monitoring locations for nitrogen dioxide and sulphur dioxide**

Appendix A: QA/QC Data

NO_2 Diffusion Tube Bias Adjustment Factors

The analytical laboratory used for supply and analysis of NO_2 diffusion tubes is Environmental Scientifics Group (ESG) based in Didcot. The monitoring is undertaken using Palmes passive diffusion tubes exposed on a monthly basis. The tubes are prepared by spiking acetone:triethanloamine (TEA) (50:50) onto the grids prior to the tubes being assembled. The tubes are then desorbed with distilled water and the extract analysed using a segmented flow auto-analyser with ultraviolet detection. The laboratory is formally accredited under the United Kingdom Accreditation Scheme (UKAS).

Combined "national" bias adjustment factors for UK diffusion tube laboratories, based upon Local Authority co-location studies throughout the UK, are provided on behalf of Defra and the Devolved Administrations. A database of these bias adjustment factors is available at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. The national bias adjustment factor given for ESG, Didcot in 2014, in the March 2015 edition of 'National Spreadsheet of Bias Adjustment Factors' was 0.81, using results from 22 different studies.

Factor from Local Co-location Studies (if available)

There is a kerbside automatic monitoring site recording NO_2 concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, Thoroughfare, and St. John's Street in Woodbridge. The site is approximately 1 metre from the kerb and 14 metres from the traffic lights at the junction. This area of the junction is very narrow and enclosed by tall buildings, creating a canyon effect.

The bias adjustment factor was calculated using the Precision and Accuracy Spreadsheet available for download from http://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html .

Based on 10 months for which there was a valid diffusion tube mean and a valid automatic mean (data capture was too low in November and December) -
Automatic analyser annual mean (2014) = 39 µg m^{-3} with 98% data capture.
Triplicate diffusion tube mean (2014) = 46 µg m^{-3} with a mean precision (expressed as the coefficient of variation) of 6.
Bias adjustment factor (2014) = 0.85 based on 10 months' data.

Discussion of Choice of Factor to Use

Historically, the local bias adjustment factor obtained from the Woodbridge co-location study has been used to adjust annual mean NO_2 concentrations from diffusion tube sites within Woodbridge only. This location is unusual, being a street canyon: it is considered representative of the other diffusion tube monitoring sites within Woodbridge, but not of diffusion tube locations elsewhere within the district. **The 2014 bias adjustment factor of 0.85 obtained at Woodbridge has been applied to the other sites within Woodbridge only.**

All diffusion tube monitoring sites elsewhere on the district have been adjusted for bias using the combined or "national" bias adjustment factor of 0.81 from the March 2015 version of the National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Bias adjustment of the annual mean diffusion tube result for all sites is shown in Appendix D.

QA/QC of automatic monitoring

NO_2 concentrations were monitored by ozone chemiluminescence. Quality assurance of the data from the continuous monitoring station was carried out by Ricardo-AEA following the same procedures used for sites within the Government's Automatic Urban and Rural Network. Calibrations were undertaken fortnightly by a Council Officer, the procedures adopted for the calibrations were modelled on those developed by AEA Energy & Environment for use in the national monitoring networks. The calibrations were undertaken using certified calibration gas provided by BOC with traceability to National Metrology Standards obtained via regular UKAS Quality Control Audits carried out by Ricardo-AEA. The audits provide a range of information that is utilised within the data management process for the data sets.

Audit tests are undertaken once a year by Ricardo-AEA. They include accredited audit zero and span calibrations, linearity, NO_x converter efficiency, flow and leak checks as well as checks of the instruments sampling system. Data presented in this report have been fully ratified by Ricardo-AEA. The ratified data summary reports are included in Appendix C.

The data set was screened, scaled and validated using all available routine site calibrations, audit results and service engineer records. This was an ongoing process with checks made daily to ensure high data capture is achieved. A final process of data ratification ensures that the data provide the most accurate record of the pollution concentrations across the measurement period. The data management process adopted is that evolved and implemented by Ricardo-AEA within the data management programme of the AURN UK national monitoring network. This process is expected to deliver data sets that meet the EU Data Quality Objective of a measurement uncertainty of better than 15%.

QA/QC of diffusion tube monitoring

The analysis of NO_2 diffusion tubes by Environmental Scientifics Group, Didcot meets the guidelines set out in Defra's 'Diffusion tubes for Ambient NO_2 Monitoring: Practical Guidance'. They participate in the Workplace Analysis Scheme for Proficiency (WASP) for analysis of diffusion tubes.

This is an independent proficiency testing study designed to assess the analytical performance of laboratories supplying diffusion tubes to Local Authorities for use in the context of air quality management. Defra advise that diffusion tubes should only be obtained from laboratories demonstrating a WASP classification of 'Satisfactory'.

A statistical Z-score test is used to identify any deviation of participant results from reference results. The results indicated in the latest Defra WASP Summary show that in 2014 Environmental Services Group achieved a Z-score within the required limits of the 'Satisfactory' classification (see table below).

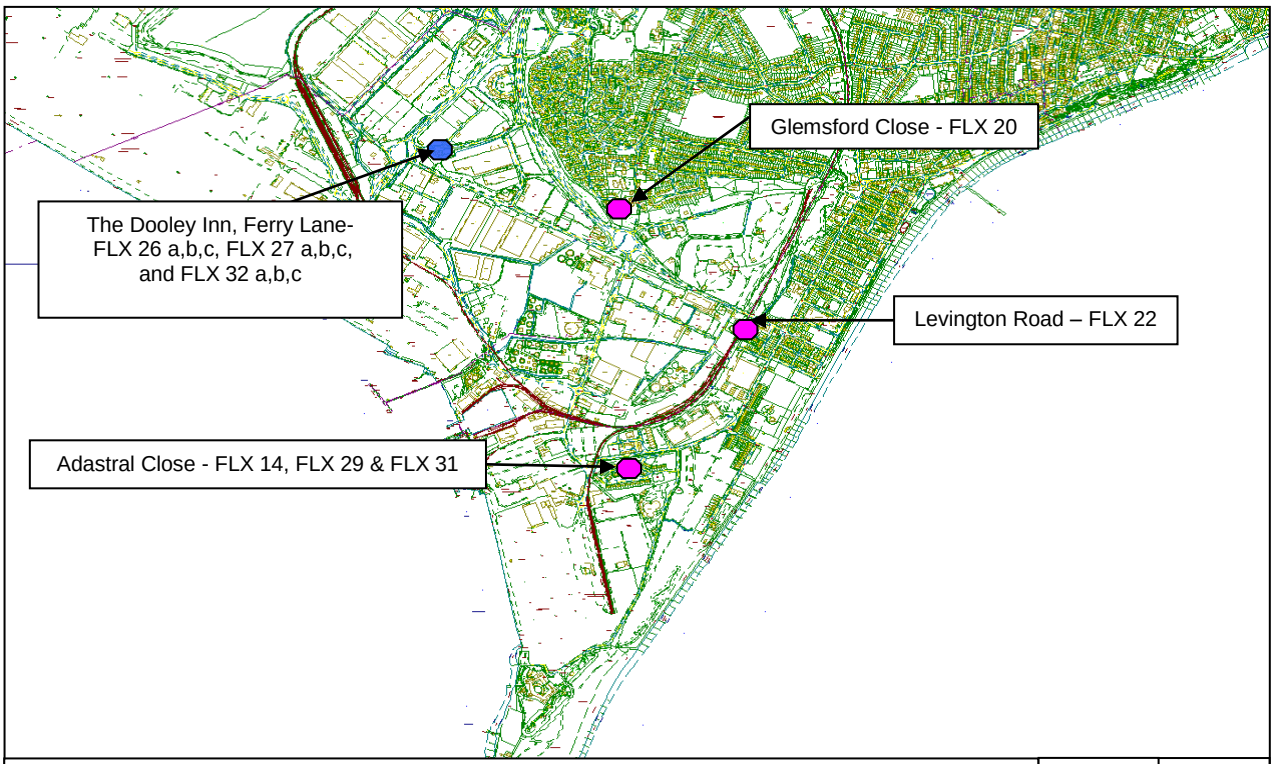
WASP Rankings

Z –Score	Classification
<2	Satisfactory
2-3	Questionable
>3	Unsatisfactory laboratory result

Appendix B: Maps showing NO_2 diffusion tube locations

Felixstowe Maps

Map 1: Map of diffusion tube locations at Adastral Park, Levington Road, Glemsford Close and The Dooley Inn



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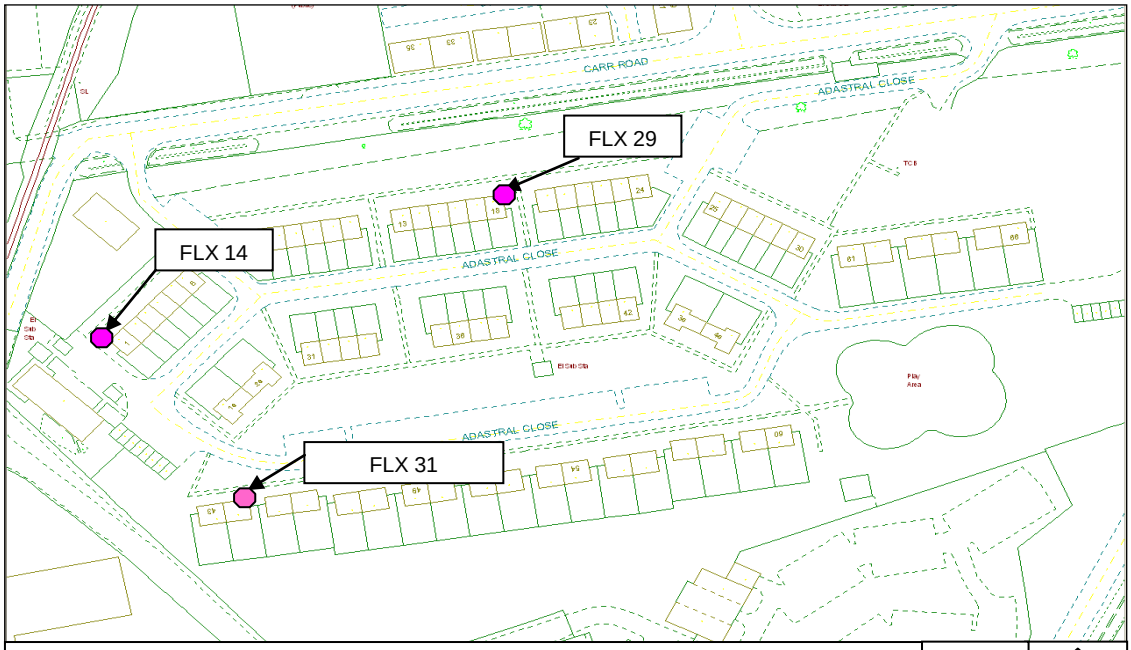
Single Diffusion tube site Triplicate diffusion tube site

Map 2 Detailed map of diffusion tube locations at Adastral Close



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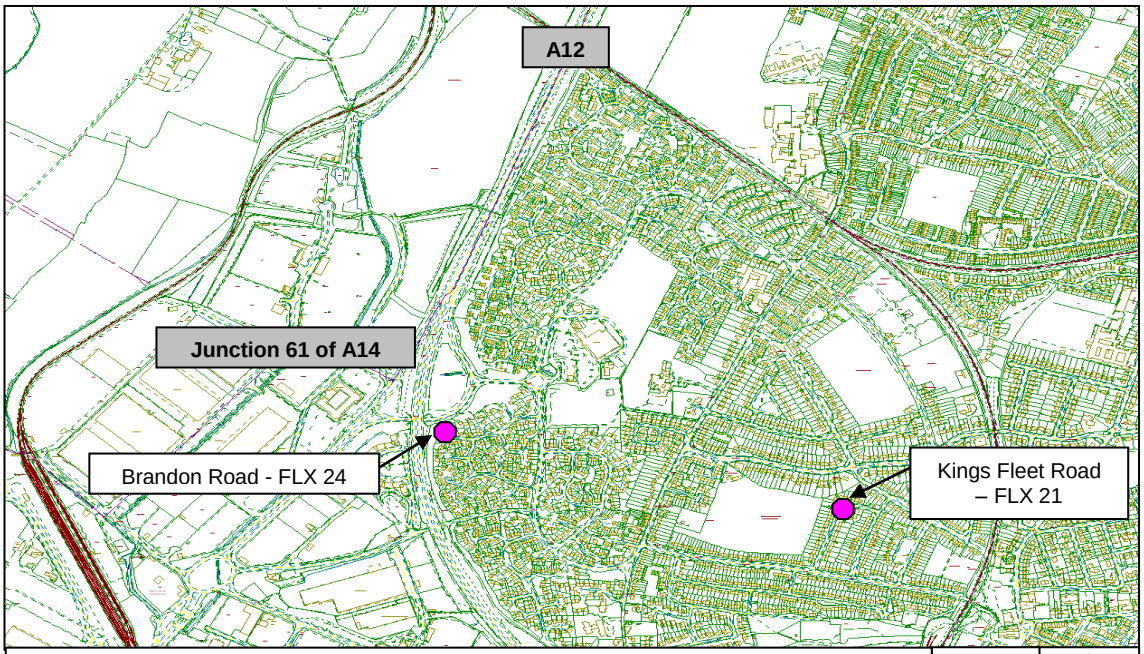
Single Diffusion tube site



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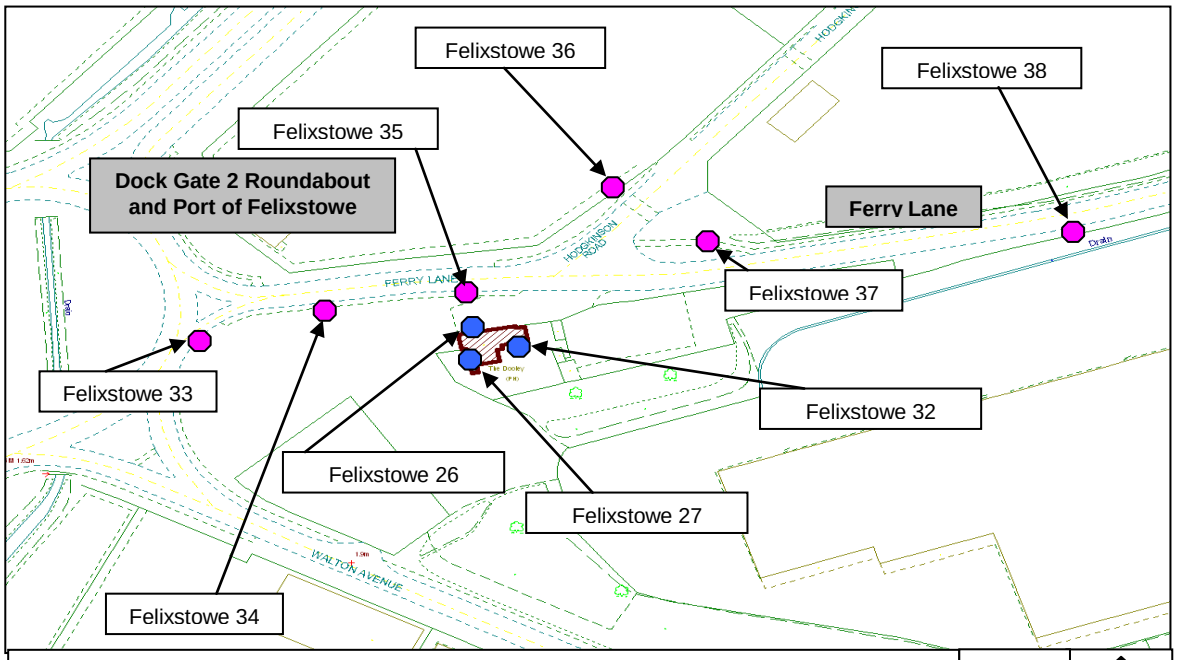
Single Diffusion tube site

Map 3 Map of diffusion tube locations at Kingsfleet Road and Brandon Road

Map 4 Map of diffusion tube locations around the Dooley Inn



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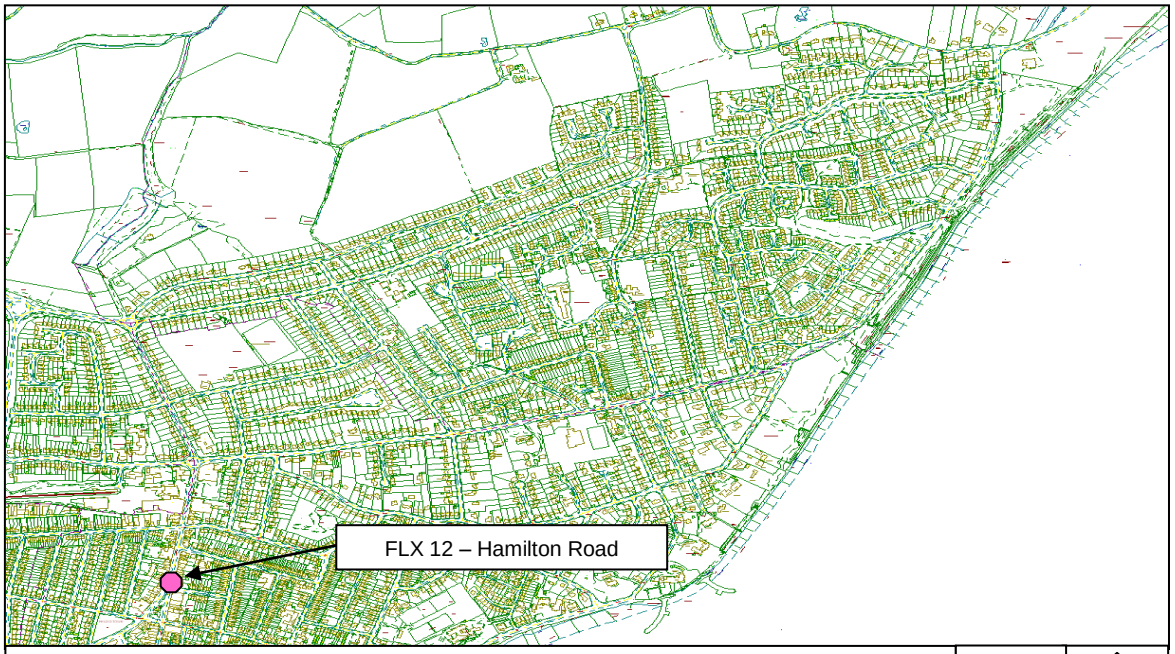
Single Diffusion tube site Triplicate diffusion tube site



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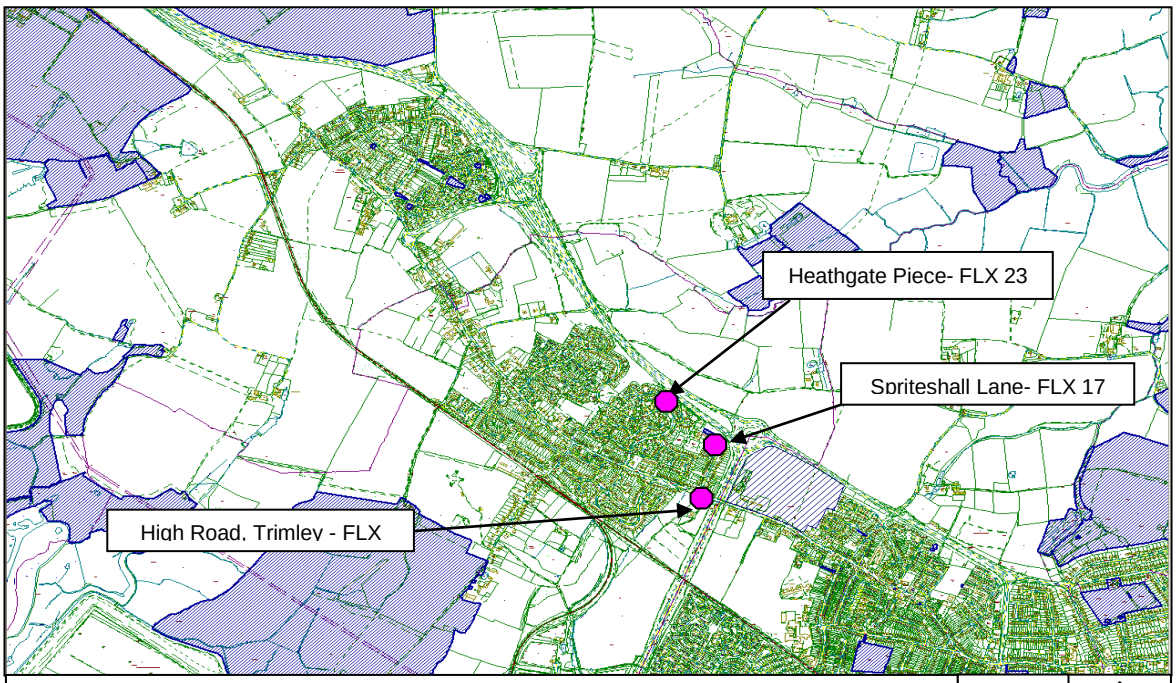
Single Diffusion tube site

Map 5 Map of diffusion tube location at Hamilton Road

Map 6 Map of diffusion tube locations at Heathgate Piece, Spriteshall Lane and High Road, Trimley



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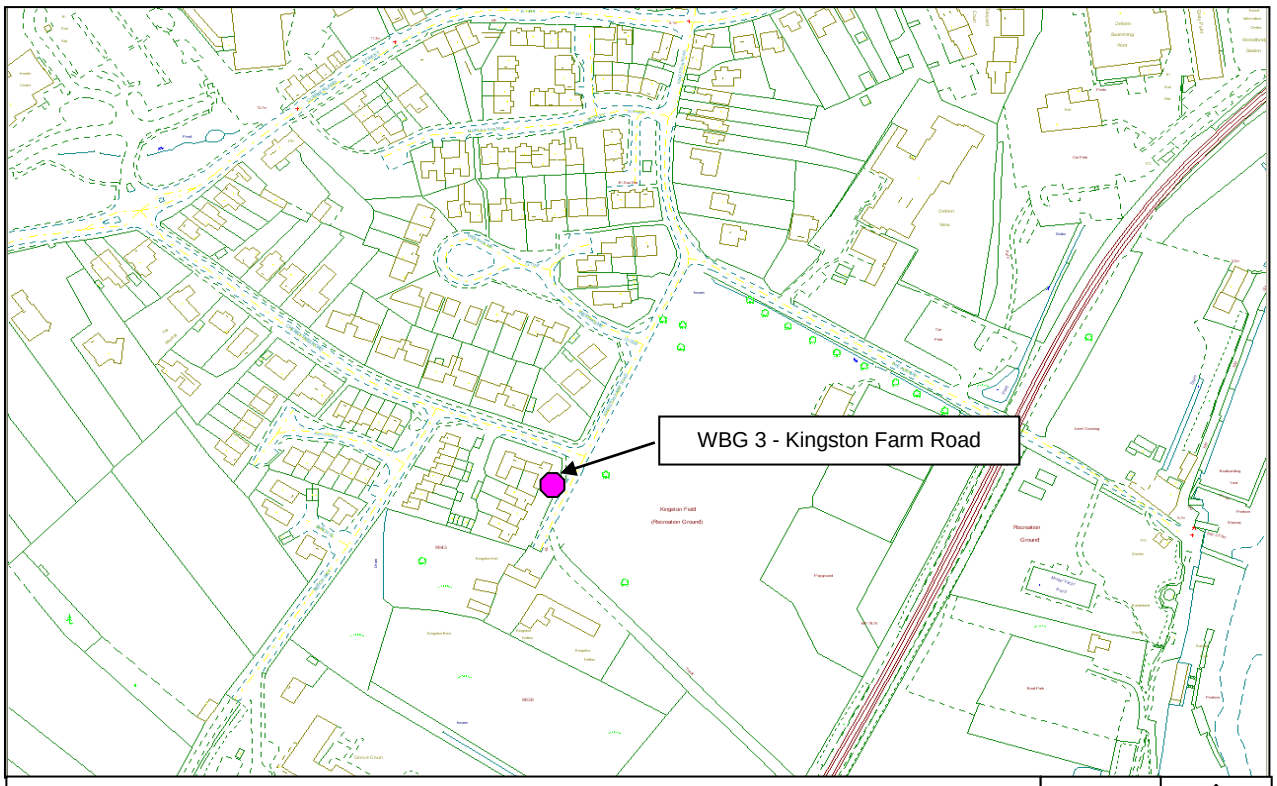
Single diffusion tube site

Woodbridge Maps

Map 7 **Map showing diffusion tube location at Kingston Farm Road.**



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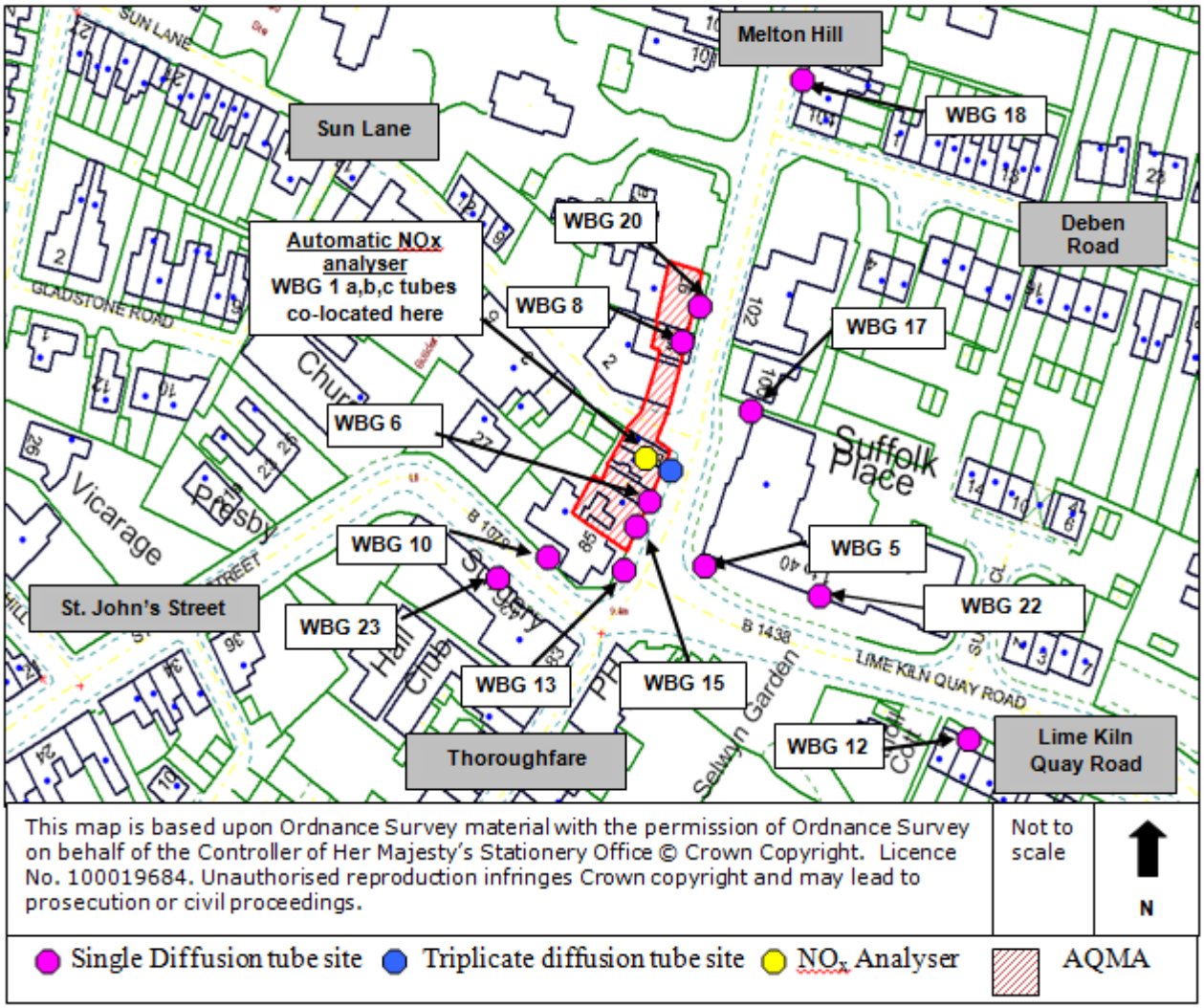
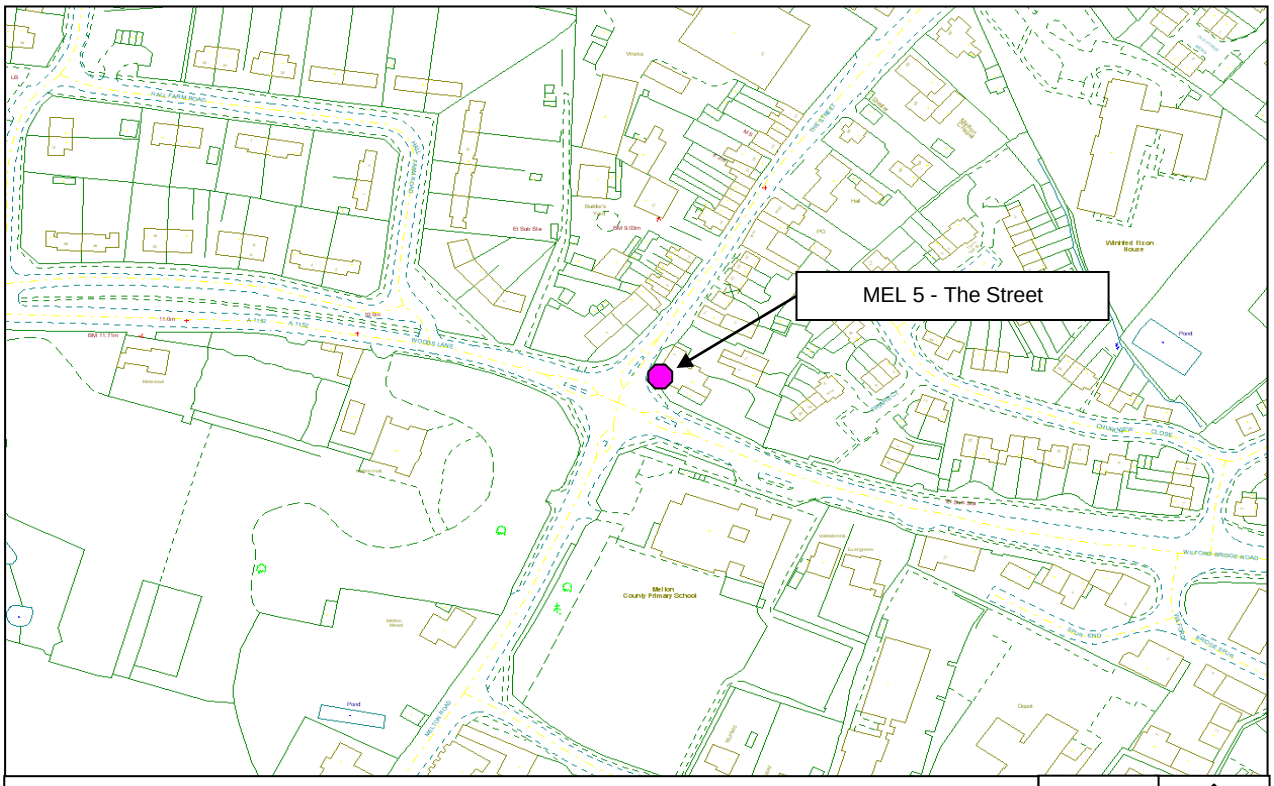
Single Diffusion tube site

Map 8 **Map showing diffusion tube locations around the AQMA**



Melton Map

Map 9 Map showing location of the diffusion tube at Melton



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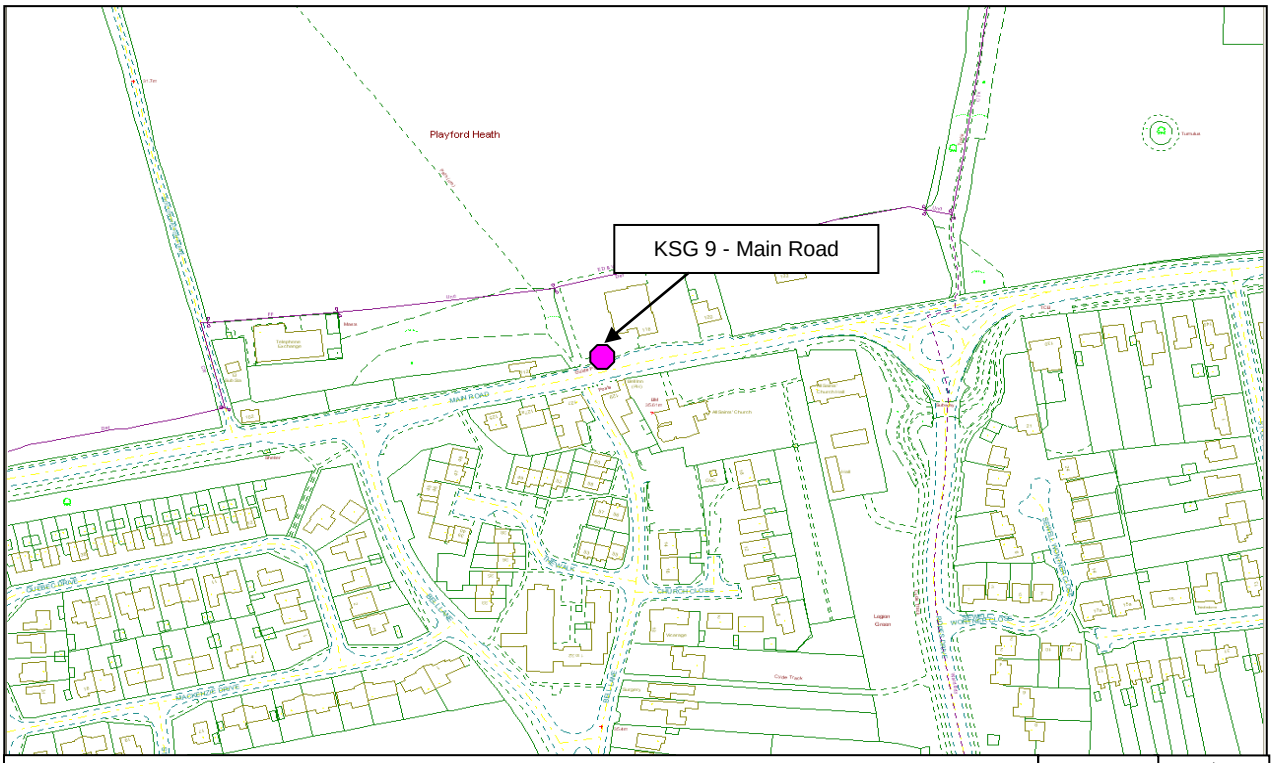
Single Diffusion tube site

Kesgrave Map

Map 10 Map showing location of the diffusion tube at Kesgrave



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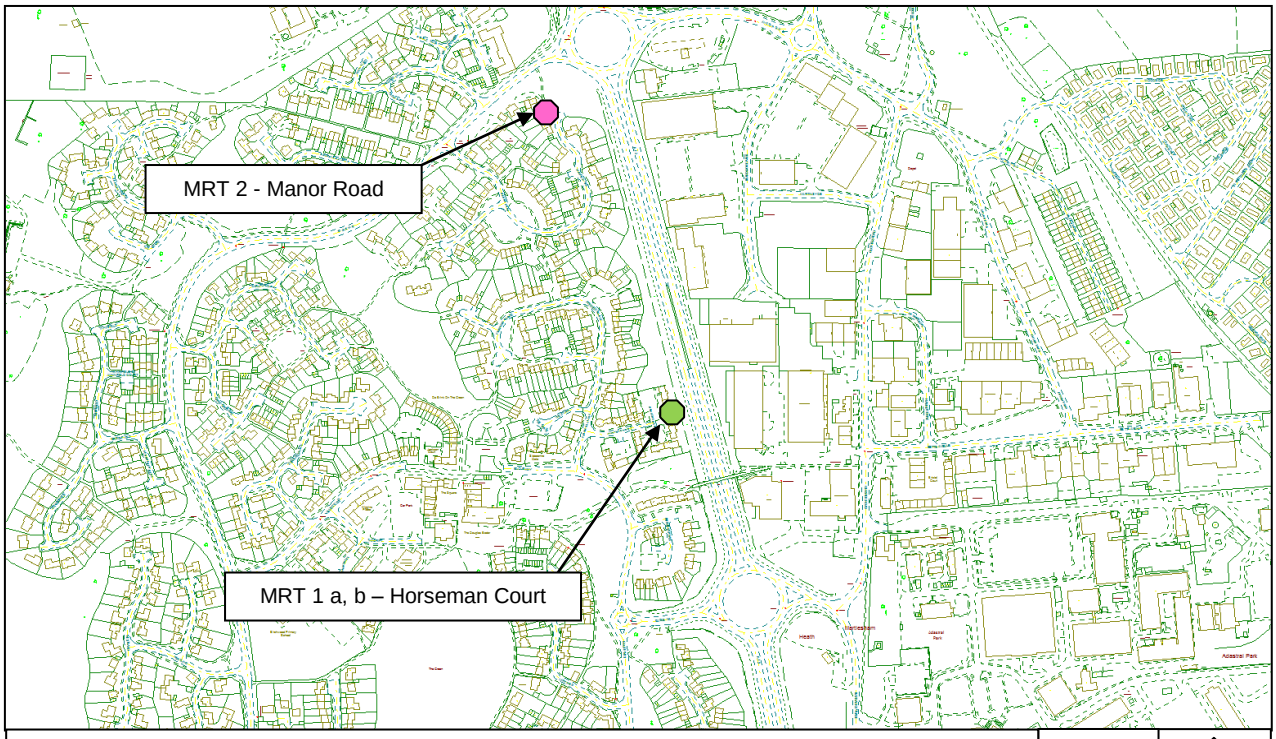
Single Diffusion tube site

Martlesham Map

Map 11 Map of diffusion tube location at Martlesham



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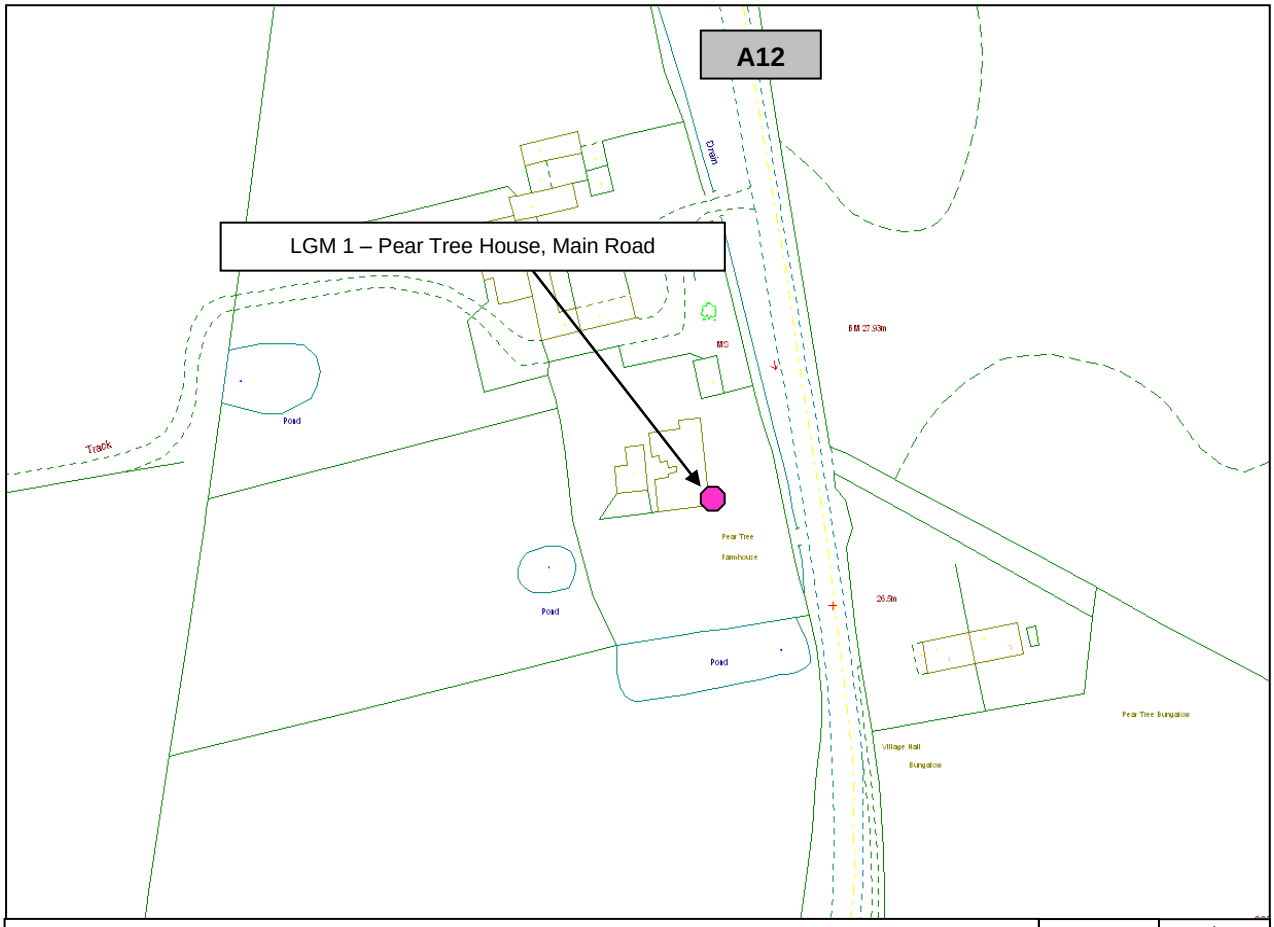
Duplicate diffusion tube site

Single Diffusion tube site

Little Glemham Map

Map 12 Map of diffusion tube locations at Little Glemham



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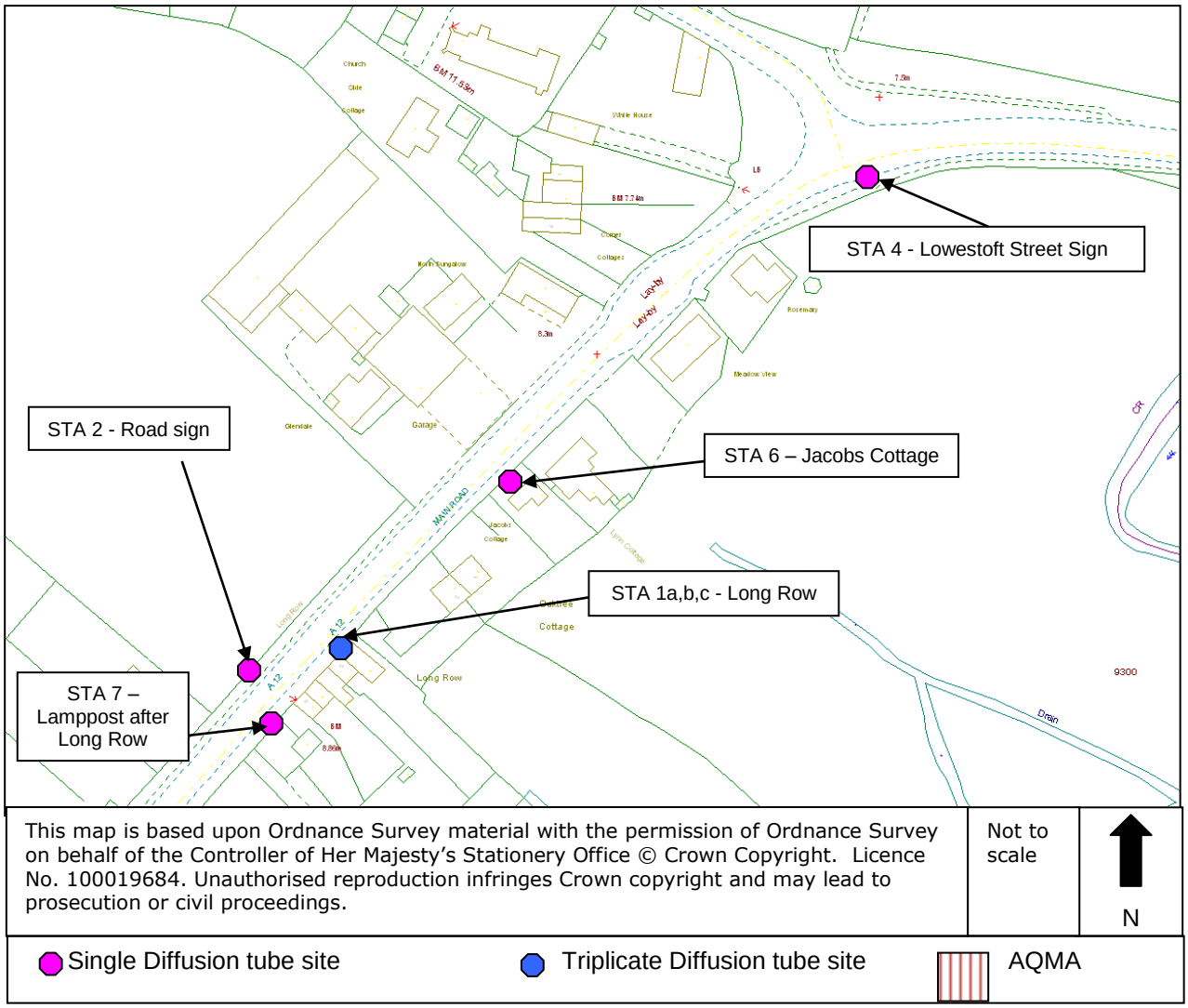
Single Diffusion tube site

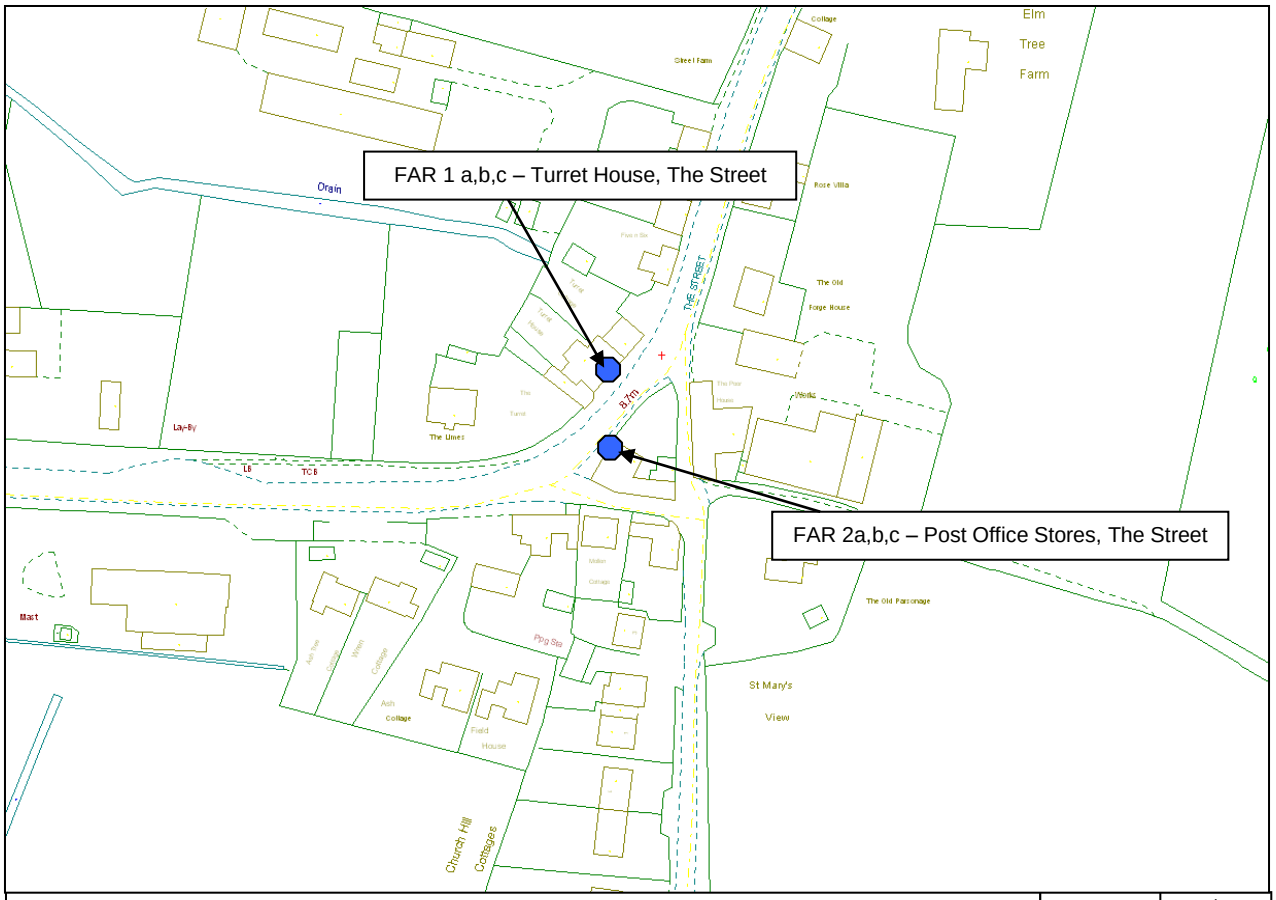
Stratford St Andrew Map

Map 13 Map showing diffusion tube locations at Stratford St Andrew



Farnham Map

Map 14 Map showing diffusion tube locations at Farnham



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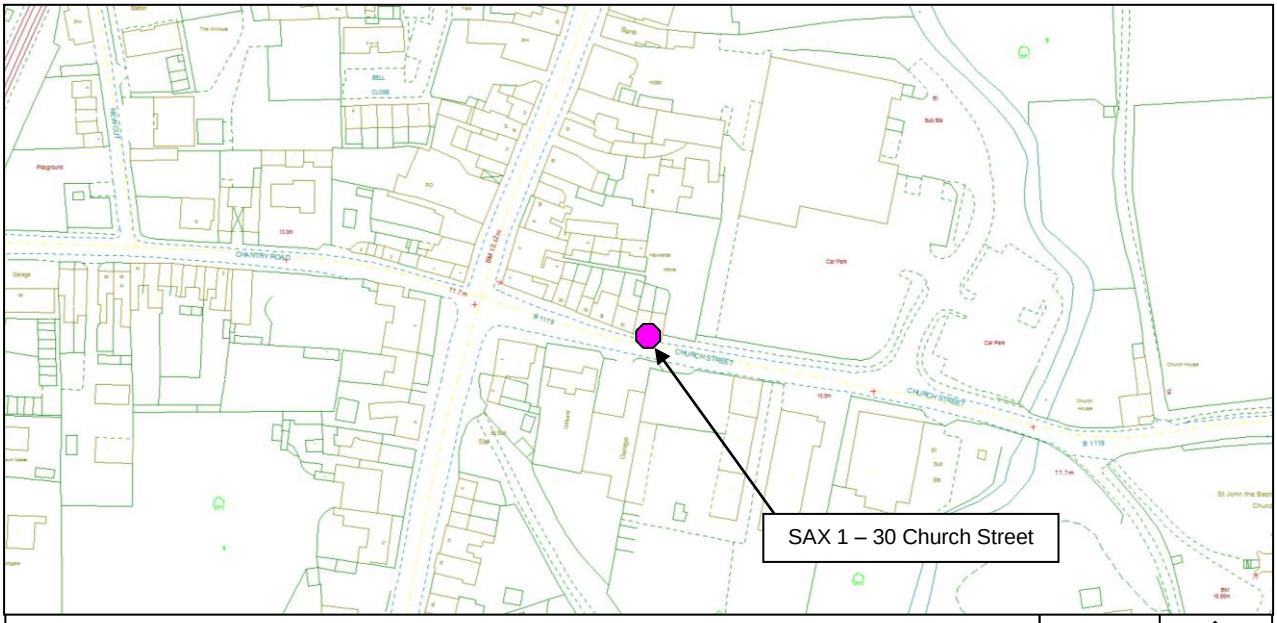
Triplicate Diffusion tube site

Saxmundham Map

Map 15 Map showing diffusion tube location at Church Street, Saxmundham



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Single Diffusion tube site

Appendix C: NOx analyser results summary

Air Pollution Report

RICARDO-AEA

1st January to 31st December 2014

Suffolk Coastal Woodbridge 2 (Site ID: SCW2)

These data have been fully ratified

Only relevant statistics for LAQM are presented in the table. Cells with - indicate no data available or calculated.

Pollutant	NO µg/m³	NO_2 µg/m³	NO_x as NO_2 µg/m³
Number Days Low	-	317	-
Number Days Moderate	-	0	-
Number Days High	-	0	-
Number Days Very High	-	0	-
Max Daily Mean	200	115	421
Annual Max	460	182	870
Annual Mean	25	39	78
99.8th Percentile of hourly mean	-	145	-
98th Percentile of hourly mean	115	103	272
95th Percentile of hourly mean	80	88	205
50th Percentile of hourly mean	15	34	57
% Annual data capture	**85.26%**	**85.26%**	**85.26%**

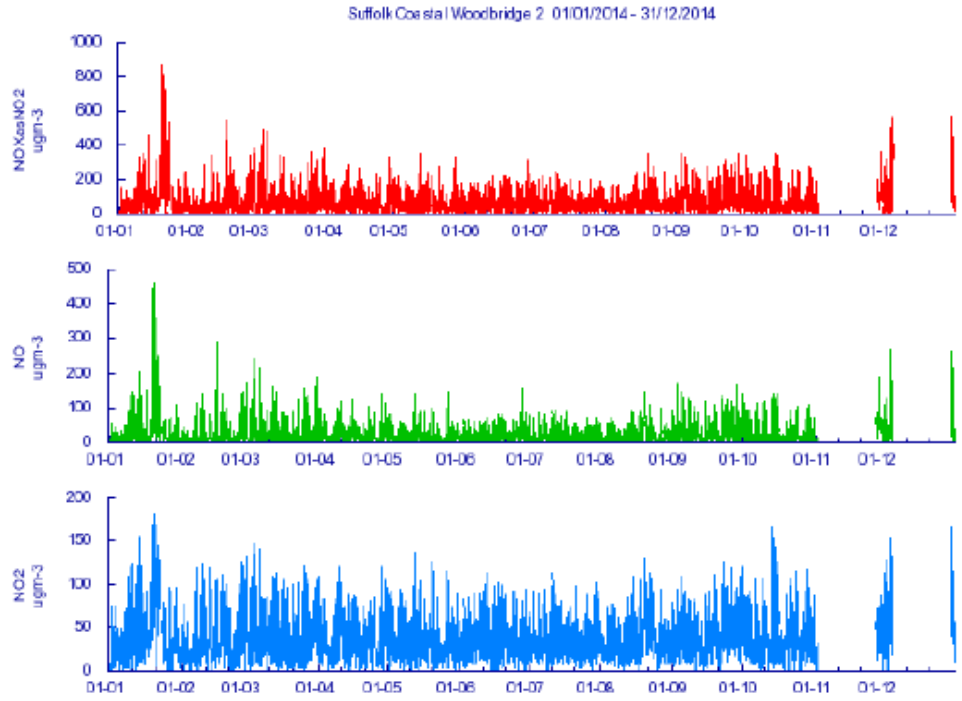
All gaseous pollutant mass units are at 20°C and 1013mb. Particulate matter concentrations are reported at ambient temperature and pressure. NO_X mass units are NO_X as NO_2 µg m-3

Pollutant	Air quality standard	Exceedances	Days
Nitrogen dioxide	Hourly Mean > 200 microgrammes per metre cubed	0	0
Nitrogen dioxide	Annual Mean > 40 microgrammes per metre cubed	0	-

1 / 2

Report produced by Ricardo-AEA

Annual Graph



Appendix D: Diffusion tube results for 2014

Felixstowe: Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites in Felixstowe during 2014. Figures in micrograms per cubic metre (µg/m^3). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m^3)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m^3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
FLX 12	31.4	32.4	32.4	30.7	27.4	21.1	20.3	28	31.7	28.9	35	46.1	30.5	0.81	25
FLX 14	31	27.4	34.4	27.3	25.8	14.4	21.5	27.5	29.6	23.7	28.9	34.4	27.2	0.81	22
FLX 17	32.4	39.4	26.4	30.3	24.2	24	23.3	19.8	28.9	24.2	34.8	28.5	28.0	0.81	23
FLX 20	37.1		32.7	25.3	20.7	13.3	13.5	25.0	22.2	34.5	29.3	38.3	26.5	0.81	21
FLX 21	32.9	31.6	31.0	26	19.4	9.1	16.1	20.2	22.4	20.2	24.8	33.4	23.9	0.81	19
FLX 22	25.6	28.3	31.5	26.5	18.5	15.9	14.1	21.4	30.8	24.6	24.5	38.9	25.1	0.81	20
FLX 23	33.6	34	38.3	38.1	33.1	34.6	32.0	22	46.5	24.6	32.1	29.1	33.2	0.81	27
FLX 24	37.7	38.9	31.7	48	23.4	17.6	22.2	29.3	28.5	34.7	36.1	45.3	32.8	0.81	27
FLX 26a	54.4	52.6	58.4	46.4	41.5	37.8	34.2	41.3	47.1	44.1	48.5	48.7	See FLX 26	~	~
FLX 26b	50.6	54.1	60.7	51.6	44.2	33.2	35.1	40.5	50.9	47.5	33.2	46	See FLX 26	~	~
FLX 26c	48.5	59.6	56.6	45	45.2	33.2	39.0	45.8	44.3	46.9	52.7	52.7	See FLX 26	~	~
FLX 26 a,b,c - mean	51.2	55.4	58.6	47.7	43.6	34.7	36.1	42.5	47.4	46.2	44.8	49.1	46.4	0.81	36
FLX 27a	46.1	47.4	48.0	41.2	33.2	27.9	31.4	37.5	38.3	40.1	41.5	45.8	See FLX 27	~	~
FLX 27b	46	46.9	47.6	38.3	37.8	26.4	32.5	35.8	40.8	40.5	41.9	42.4	See FLX 27	~	~
FLX 27c	43.4	44.3	41.8	38.9	30.3	22.5	31.2	36.6	41.4	38.5	40.2	45.1	See FLX 27	~	~
FLX 27a,b,c- mean	45.2	46.2	45.8	39.5	33.8	25.6	31.7	36.6	40.2	39.7	41.2	44.4	39.2	0.81	32
FLX 29	27.2	24.7	27.7	27.2	19.3	17.2	18.6	20.8	27.4	21.2	25.6	35.6	24.4	0.81	20
FLX 31a	30	27.8	34.3	32.4	18.8	21.8	22.4	26.5	33.6	24.7	31.9	41.4	see FLX 31	~	~
FLX 31b	32.6	31.5	33.1	31.3	21.2	19.9	19	27.3	34.1	30	31.9	38.5	see FLX 31	~	~
FLX 31c	27.8	29.4	38.8	33.1	21.4	17.3	23.1	28	33.1	24.8	31.5	35.4	see FLX 31	~	~
FLX 31a,b,c - mean	30.1	29.6	35.4	32.3	20.5	19.7	21.5	27.3	33.6	26.5	31.8	38.4	28.9	0.81	23
FLX 32a	47	43.7	43.6	35.9	20.1	20.1	25.8	32.2	36.9	36.4	33.8	46.4	see FLX 32	~	~
FLX 32b	46.8	45.3	38.2	37.2	29.3	27.7	29	33.7	39.2	42.3	46.7	45.8	see FLX 32	~	~
FLX 32c	39	48.4	43.9	34.7	27.5	17.9	24.3	32.1	40.9	41	34.4	43.7	see FLX 32	~	~
FLX 32 a,b,c - mean	44.3	45.8	41.9	35.9	25.6	21.9	26.4	32.7	39.0	39.9	38.3	45.3	36.4	0.81	29
FLX 33	77.4		69.3	63.2	61	57.9	50.9	67.2	72.2	75.4	66.4	87	68.0	0.81	**55**
FLX 34	60.9	59.5	59.3	59.9	58.9	46.6	47.1	55	61.5	47.4	56.8	56.3	55.8	0.81	**45**
FLX 35	55.6	57.6	59.9	53.9	38.7	65.3	36.5	41.9	59.4	47.8	59.7	56.6	52.7	0.81	**43**
FLX 36	57.6	52.9	50.1	46.7	39.5	34.7	24.1	40.1	47.1	54.8	37	50	44.6	0.81	36
FLX 37	63.2	63.4	56.4	54.6	47.7	20.3	39.8	47.6	50.5	63.1	53.9	67.1	52.3	0.81	**42**
FLX 38	47.5	43.5	46.7	45.8	37.3	38.7	31.1	39.2	40.7	40.9	34.2	49.4	41.3	0.81	33
FLX 39	38.6	36.7	34.1	71.2	31	20.3	20.5	23.7	32.5	35.7	38.8	30.2	34.4	0.81	28

Felixstowe Key:

FLX 12	Roadside site, drainpipe at 119 Hamilton Road, 'Ford Bros. Bike Shop' Felixstowe
FLX 14	Industrial site, drainpipe on 1 Adastral Close, Felixstowe.
FLX 17	Roadside site, drainpipe on 38 Spriteshall Lane, Trimley St. Mary.
FLX 20	Industrial/Roadside site, rear garden of 73 Glemsford Close, Felixstowe
FLX 21	Urban Background site, lamppost at 4 Kings Fleet Road, Felixstowe
FLX 22	Industrial site, drainpipe on 13 Levington Road, Felixstowe
FLX 23	Roadside site, drainpipe on 23 Heathgate Piece, Trimley St. Mary.
FLX 24	Roadside site, rear garden of 22 Brandon Road, Felixstowe
FLX 26 a,b,c	Industrial/Roadside site, Kitchen drainpipe to rear of The Dooley Inn, Ferry Lane, Felixstowe.
FLX 27 a,b,c	Industrial/Roadside site, first floor front window facing the Docks at The Dooley Inn, Ferry Lane, Felixstowe
FLX 29	Industrial Site, 18 Adastral Close, Felixstowe
FLX 31 a,b,c	Industrial Site, 44 Adastral Close, Felixstowe
FLX 32 a,b,c	Industrial Roadside Site, Guttering to rear of Dooley Inn PH
FLX 33	Roadside Site, Dock Gate 2 Roundabout
FLX 34	Industrial/Roadside Site Ferry Lane, Midway between roundabout and Dooley Inn PH
FLX 35	Industrial/ Roadside Site, The Dooley Inn Signpost at front of building
FLX 36	Industrial/ Roadside Site, Street Sign in Hodgkinson Road, Felixstowe
FLX 37	Industrial/ Roadside Site, Lamppost at Ferry Lane on corner of Hodgkinson Road
FLX 38	Industrial/ Roadside Site, Lamppost on Ferry Lane, past Hodgkinson Road
FLX 39	Roadside site, front of 424 High Road, Trimley St Mary

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Felixstowe sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Kesgrave: **Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites in Kesgrave during 2014. Figures in micrograms per cubic metre (µg/m^3). Annual mean concentration corrected for bias where relevant.**

Site	Time in months												Annual Mean (µg/m^3)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m^3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
KSG 9	47.6	44.6	38.7	33.9	30.8	15.7	21.8	33.2	32.3	36	45	47.4	35.6	0.81	29

Key:

KSG 9 Roadside site, roadside lamppost at 118 Main Road, Kesgrave

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Kesgrave sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Melton: **Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites in Melton during 2014. Figures in micrograms per cubic metre (µg/m^3). Annual mean concentration corrected for bias where relevant.**

Site	Time in months												Annual Mean (µg/m^3)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m^3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
MEL 5	39.9	36.2	38.1	34.6	32.5	27.9	26.2	29.2		35.1	35.2	45.6	34.6	0.81	28

Key:

MEL 5 Roadside site, 6 The Street, Melton

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Melton site were adjusted using a combined (national) bias adjustment factor of 0.81 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Woodbridge: **Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites in Woodbridge during 2014**
Figures in micrograms per cubic metre (µg/m^3). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m^3)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m^3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
WBG 1a	48.5	45.4	44.4	47.3	41.5	41.7	42.6	39.6	50.4	48	51	52.9	see WBG 1	~	~
WBG 1b	42.9	50.7	54.9	45.2	37.5	40.8	43.5	41.8	51.3	45.4	53.3	46.2	see WBG 1	~	~
WBG 1c	49.9	47.0	49.9	48.5	45.0	39	45.3	44.8	49.9	44.2	48	52.8	see WBG 1	~	~
WBG 1 a,b,c - mean	47.1	47.7	49.7	47.0	41.3	40.5	43.8	42.1	50.5	45.9	50.8	50.6	46.4	0.85	39
WBG 3	19.7	17.7	18.4	15.4	10.7	7.2	9.5	9.1	13.6	14.3	23.7	24.4	15.3	0.85	13
WBG 5	31.6	28.1	30.2	29.7	23.0	12.2	23.2	18.2	28.6	22.1	33.4	28.4	25.7	0.85	22
WBG 6	43.1	41.3	45.4	35.3	34	34.8		34.5	42.5	39	49.1	51.6	41.0	0.85	35
WBG 8	44.1	43.6	37.4	35.3	34.1	32	30.0	33.4	43.7	42.5	47.7	48.6	39.4	0.85	33
WBG 10	30.9	32.1	36	36.4	29.9	31.3	33.1	26.3	46.5	31.6	39.4	29.6	33.6	0.85	29
WBG 12	25.9	35.1	28.9	25.1	17.7	10.7	15.2	23.2	25.1	28.3	28.8	38.6	25.2	0.85	21
WBG 13	41.8	35.5	43.4	41.7	33.3	28.7	39.0	24.9	48.2	27.4	42.6	31.4	36.5	0.85	31
WBG 15	47.6	48.8	41.3	43.5	40.8	34	41.8	39.7	46.0	40.6	49	49.6	43.6	0.85	37
WBG 17	34.2	33	29.5	29.6	28.1	29.9	25.0	23.1	31.7	26.8	34.9	31.8	29.8	0.85	25
WBG 18	44.9	43.5	43.1	43.3	38.4	30.3	34.6	27.7	46.0	39.3	51	32.8	39.6	0.85	34
WBG 20	45.1	42.4	43.7	36.4	29.8	23.2	31.3	35.3	39.2	42.4	42	46.9	38.1	0.85	32
WBG 22	23.1	23.1	29.1		18.1	15.3	21.5	15.9	27.4	23.4	29.3	28.8	23.2	0.85	20
WBG 23	35	40.6	36.3	29.3	27.2	18.7	18.1	23.6	25.2	30.1	34.6	38.8	29.8	0.85	25

Woodbridge Key:

WBG 1a,b,c	Kerbside site, signpost outside 93 Thoroughfare, Woodbridge **(Triplicate site collocated with Continuous NOx Analyser)**
WBG 3	Urban Background site, lamppost outside 8 Kingston Farm Road, Woodbridge
WBG 5	Roadside site, drainpipe on corner of Suffolk Place, Lime Kiln Quay Road, Woodbridge
WBG 6	Roadside site, drainpipe on 87 Thoroughfare, Woodbridge
WBG 8	Roadside site, drainpipe on 95 Thoroughfare, Woodbridge
WBG 10	Roadside site, signpost in St. John's Street (opposite Surgery), Woodbridge
WBG 12	Roadside site, drainpipe on 8 Lime Kiln Quay Road, Woodbridge
WBG 13	Roadside site, traffic lights at front of 85 Thoroughfare, Woodbridge
WBG 15	Roadside site, Top guttering in middle of 87 Thoroughfare, Woodbridge
WBG 17	Roadside site, drainpipe at front Northern end of Suffolk Place, Lime Kiln Quay Road, Woodbridge
WBG 18	Roadside site, drainpipe between 106 / 108 Thoroughfare, Woodbridge
WBG 20	Roadside site, front of 97 Thoroughfare
WBG 22	Roadside Site, first floor balcony on Suffolk Place facing Lime Kiln Quay Road
WBG 23	Roadside Site, lamppost o/s new buildings (number 50), St Johns Street, Woodbridge

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Woodbridge sites were adjusted using a combined (national) bias adjustment factor of 0.85

Martlesham: **Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites in Martlesham during 2014. Figures in micrograms per cubic metre (µg/m^3). Annual mean concentration corrected for bias where relevant.**

Site	Time in months												Annual Mean (µg/m3)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m^3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
MRT 1a	30.4	27.9	34	26.6	24.2	16.2	22.7	21.2	33.9	25.4	30	36.7	see MRT 1 mean	~	~
MRT 1b	29.4	27.3	32.4	28.4	28.3	19.9	21.5	22.4	26.4	25.9	33.3	35.8	see MRT 1 mean	~	~
MRT 1a,b - Mean	29.9	27.6	33.2	27.5	26.3	18.1	22.1	21.8	30.2	25.7	31.7	36.3	27.5	0.81	22
MRT 2		18.4	21.5	20.8	17.8	10.4	19.3	12.7	24.5	15.4	29	23.1	19.4	0.81	16

Key:

MRT 1a,b,c Site located on drainpipe behind Horseman court, off Eagle Way, Martlesham. **(Duplicate Site)**

MRT 2 Drainpipe on 59 Manor Road, Martlesham (New site January 2014)

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Martlesham sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Saxmundham: **Monthly and annual mean nitrogen dioxide (NO2) concentrations recorded at sites in Saxmundham during 2014. Figures in micrograms per cubic metre (mg/m3). Annual mean concentration corrected for bias where relevant.**

Site	Time in months												Annual Mean (µg/m3)	Bias correction Factor Used	Bias corrected Annual Mean (µg/m3)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
SAX 1		31.4	35.4	18.3	31.9	28.1	33.8	29	42.9	32.3	49.1		33.2	0.81	27

Key:

SAX1 Roadside site, Drainpipe on 30 Church Street, Saxmundham (New site February 2014)

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the Saxmundham site was adjusted using a combined (national) bias adjustment factor of 0.81µg/m3 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet

A12 sites: **Monthly and annual mean nitrogen dioxide (NO_2) concentrations recorded at sites along the A12 during 2014. Figures in micrograms per cubic metre ($\mu g/m^3$). Annual mean concentration corrected for bias where relevant.**

Site	Time in months												Annual Mean (µg/m3)	Bias correction Factor Used #	Bias corrected Annual Mean ($\mu g/m^3$)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
LGM 1	22.7	16.3	21.7	20.3	16.8	15.1	13.5	9	18.3	14.4	24.2	16.6	17.4	0.81	14
FAR 1a	24.3	27.3	38.3	35.2	31.6	36.4	38.7	31.2	40.3	27.1	40.8	35.2	see FAR 1 mean	~	~
FAR 1b	33.5	25.7	33.1	36.0	32.8	37.8	38.0	29.7	36.6	28.7	35.5	31.4	see FAR 1 mean	~	~
FAR 1c	33.1	26.6	38.2	36.5	29.0	34.7	37.1	30.8	39.0	28.0	36.9	35.5	see FAR 1 mean	~	~
FAR 1a,b,c-mean	30.3	26.5	36.5	35.9	31.1	36.3	37.9	30.6	38.6	27.9	37.7	34.0	33.6	0.81	27
FAR 2a	44.2	39.6	41.9	36.0	34.2	31.7	33.1	29.9	40.2	36.5	39.2	37.1	see FAR 2 mean	~	~
FAR 2b	36	36.5	34.3	38.2	32.6	26.8	32.6	32.3	41.7	29.4	37.2	40.8	see FAR 2 mean	~	~
FAR 2c	36.4	33.9	33.8	42.6	30.4	27.2	31.8	34.3	38.9	33.7	44.5	39.8	see FAR 2 mean	~	~
FAR 2a,b,c- mean	38.9	36.7	36.7	38.9	32.4	28.6	32.5	32.2	40.3	33.2	40.3	39.2	35.8	0.81	29
STA 1a	57.5	50.6	50.1	51.2	55.6	42	48	48.3	54.4	62	56.3	49.1	See STA 1 mean	~	~
STA 1b	54.9	59.7	57.7	53.1	52.9	39.2	42.4	49.9	50.4	63.4	55.9	52	See STA 1 mean	~	~
STA 1c	54.2	59.9	56.3	52.7	53.6	37.4	43	45.4	46.4	55.8	58.7	51.2	See STA 1 mean	~	~
STA 1a,b,c- mean	55.5	56.7	54.7	52.3	54.0	39.5	44.5	47.9	50.4	60.4	57.0	50.8	52.0	0.81	**42**
STA 2	44.5	43	37	15.3	19.3	21	26.2	29.9	25.4	40.9	36.2	38.1	31.4	0.81	25
STA 4	23.3	15.8	24.7	5.8	15.4	11.5	17.8	17.8	21.7	15.5	24.2	25.4	18.2	0.81	15
STA 6	33.4	29.5	36.3	15.1	30.1	26.3	23.7	26.9	31.8	25.2	32.5	30.4	28.4	0.81	23
STA 7	33.2	28.6	43	22.9	41.7	32.3	38.5	36.5	55.3	39	36.2	44.1	37.6	0.81	30

A12 sites Key:

LGM 1	Roadside Site, Drainpipe on Pear Tree House, Main Road, Little Glemham
FAR 1a,b,c	Roadside Site, Turret House, The Street, Farnham
FAR 2a,b,c	Roadside Site, Post Office Stores, The Street, Farnham,
STA 1 a,b,c	Roadside Site, 1 Long Row, Main Road, Stratford (Triplicate)
STA 2	Roadside Site, Road Sign opposite 1-5 Long Row, Main Road, Stratford
STA 4	Roadside Site, Lowestoft Street Sign on bend, Main Road, Stratford
STA 6	Roadside Site, Jacobs Cottage, Main Road, Stratford
STA 7	Roadside site, 30 mph sign past 5 Long Row, Main Road, Stratford

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2014 data from the North sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the March 2015 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Appendix E: Traffic count information

Road	Traffic count site description	Site operator (SCC/DFT)	Site identification details	Grid reference Eastings	Grid reference Northings	7-day AADTs – all motorised vehicles. Details for 2011 (unless otherwise stated)	7-day AADTs – all motorised vehicles. Details for 2014 (unless otherwise stated)	Sites above 10,000 AADT for which traffic flow has increased between 2011 and 2014. (Percentage increase)
A14	TRIMLEY HEATH E/B	SCC	9927	628800	237300	**16,248**	**16,959**	**4.4%**
A14	TRIMLEY HEATH W/B	SCC	9928	628800	237300	**16,817**	**16,570**	**-**
A14	PORT OF FELIXSTOWE ROAD	DFT	6482	628800	236450	**30,517**	**29,713 (2013)**	**-**
A12	WOODBRIDGE BYPASS SOUTH OF B1079	SCC	M002	626000	249200	**29,544**	**32,454**	**9.8%**
A12	BRIGHTWELL	SCC	M026	624830	244485	**35,379**	**38,667**	**9.3%**
A12	SOUTH OF YOXFORD	SCC	M042	639300	268120	**8,759**	**11,177**	**27.6%**
A12	SAXMUNDHAM BYPASS	SCC	M095	637850	265320	**7,909**	**9,568**	**-**
A12	FARNHAM	SCC	Y141	636060	260110	**16,054**	**15,873**	**-**
A12	BLYTHBURGH	DFT	6204	645200	276230	**12,238**	**12,232 (2013)**	**-**
A12	STRATFORD ST ANDREW	DFT	16189	635730	260000	**14,638**	**14,477 (2013)**	**-**
A12	KELSALE	DFT	47844	637739	265000	**14,298**	**14,143 (2013)**	**-**
A154	FELIXSTOWE	SCC	M020	629577	235915	**14,383**	**15,569**	**8.2%**
A1021	FELIXSTOWE	DFT	6702	630390	235000	**8,755**	**8,653 (2013)**	**-**
A1094	SNAPE EAST OF B1069	SCC	Y115	639747	259329	**8,077**	**8,362**	**-**
A1120	SAXTEAD SOUTH WEST OF U2119	SCC	P005	624650	263930	**4,041**	**4,228**	**-**
A1152	MELTON WILFORD BRIDGE	SCC	M053	629019	250267	**14,557**	**14,968**	**2.8%**
A1156	WARREN HEATH – IPSWICH	SCC	P004	619758	242493	**25,052**	**25,911**	**3.4%**
A1156	NACTON HEATH SUFFOLK SHOWGROUND	DFT	17492	621000	241240	**16,264**	**16,115 (2013)**	**-**
A1214	RUSHMERE HEATH	DFT	6206	620000	245300	**17,529**	**17,316 (2013)**	**-**
B1077	SWILLAND NORTH OF C366	SCC	M055	618355	252349	**2,444**	**2,192**	**-**
B1078	OTLEY EAST OF C306	SCC	M036	619366	254036	**4,636**	**4,642**	**-**
B1116	NORTH OF PARHAM	SCC	M040	629974	260965	**5,233**	**5,263**	**-**
B1121	THEBERTON	SCC	M078	643910	265689	**4,423**	**4,694**	**-**
C322	FOXHALL ROAD IPSWICH	SCC	M089	621524	244033	**10,187**	**10,756**	**5.6%**

Appendix F: Permitted Processes

Processes regulated under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Samkin of Saxmundham Ltd Chantry Road, Saxmundham	Suffolk Coastal District Council (EPA 02)	63846 26301	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Bridge Garage Charsfield	Suffolk Coastal District Council (EPA 05)	62642 25609	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Cemex Readymix East Anglia Sinks Pit, Kesgrave	Suffolk Coastal District Council (EPA 07)	62288 24636	Production of Cement and Lime Section 3.1	The blending of cement in bulk
Cemex Readymix East Anglia Theberton Airfield, Leiston	Suffolk Coastal District Council (EPA 08)	64134 26438	Production of Cement and Lime Section 3.1	The blending of cement in bulk
The Paddocks Hacheston	Suffolk Coastal District Council (EPA 13)	63075 25945	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
The Garage Church Road, Dallinghoo	Suffolk Coastal District Council (EPA 36)	62642 25495	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Shell Garage A12 Northbound (Woodbridge), 715 Grove Road, Woodbridge	Suffolk Coastal District Council (EPA 38)	62598 24951	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Shell Garage A12 Southbound (Woodbridge) 805 Grove Road, Woodbridge	Suffolk Coastal District Council (EPA 39)	62605 24950	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Haynings Service Station Saxmundham Road, Framlingham	Suffolk Coastal District Council (EPA 40)	62885 26349	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
WM Morrisons Plc Grange Farm Avenue, Cavendish Park Estate, Felixstowe	Suffolk Coastal District Council (EPA 42)	62863 23477	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Solar Garage High Road West, Felixstowe	Suffolk Coastal District Council (EPA 44)	63034 23520	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Sainsbury's Supermarkets Ltd Felixstowe Road, Purdis Farm	Suffolk Coastal District Council (EPA 45)	62015 24235	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Martlesham Heath Services Service Area, Anson Road, Martlesham Heath	Suffolk Coastal District Council (EPA 47)	62466 24586	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Motor Fuel Company Felixstowe Dock Service Area Anzani Avenue, Felixstowe	Suffolk Coastal District Council (EPA 49)	62798 23451	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Tesco Stores Ltd Anson Road, Martlesham Heath	Suffolk Coastal District Council (EPA 50)	62473 24592	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Stratford Service Station A12 Main Road, Stratford St Andrew	Suffolk Coastal District Council (EPA 52)	63578 26007	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
L. B. Shotter & Sons Waterloo Avenue, Leiston	Suffolk Coastal District Council (EPA 55)	64377 26260	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
John Grose Melton Road, Melton	Suffolk Coastal District Council (EPA 56)	62785 24987	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
A. G. Potter Ltd. Station Road, Framlingham	Suffolk Coastal District Council (EPA 58)	62852 26285	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Mr. M. Ladd, Vehicle Surgeon Grundisburgh Road, Hasketon	Suffolk Coastal District Council (EPA 59)	62420 25002	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Smith & Wesby (Sax) Limited Service Station, Main Road, A12, Darsham	Suffolk Coastal District Council (EPA 62)	64061 26980	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Brett Concrete Limited Waldringfield Quarry, Martlesham Heath	Suffolk Coastal District Council (PPC 01)	62568 24485	Production of Cement and Lime Section 3.1	The blending of cement in bulk

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
VAS Autoservices Ltd 3/4 Quayside, Woodbridge	Suffolk Coastal District Council (PPC 02)	62759 24892	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Truckeast Limited 6 Hodgkinson Road, Felixstowe	Suffolk Coastal District Council (PPC 04)	62810 23446	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Nationwide Crash Repair Centres Ltd. 29 Gloster Road, Martlesham Heath	Suffolk Coastal District Council (PPC 05)	62481 24562	Coating Activity Section 6.4	Respraying of Road Vehicles
Eurovia Roadstone Foxhall Four Quarry, Foxhall Road Brightwell	Suffolk Coastal District Council (PPC 06)	62446 24375	Other Mineral Activities Section 3.5e	Coating road stone with tar or bitumen
L F Geater & Sons Ltd West End Nurseries, Westward Ho, Leiston	Suffolk Coastal District Council (PPC 07)	64380 26321	Combustion Activity Section 1.1	Straw Burning between 0.4 and 3 MW
Hazlewood Hand Laundry Aldeburgh Road, Aldringham, Leiston	Suffolk Coastal District Council (PPC 08)	64471 26033	Solvent Activity SED Directive Section 7	Dry Cleaning
West End Dry Cleaners Unit 12, Undercliff Road West, Felixstowe	Suffolk Coastal District Council (PPC 11)	62969 23411	Solvent Activity SED Directive Section 7	Dry Cleaning
Kesgrave Dry Cleaners Unit 3 Tesco Store, Ropes Drive, Kesgrave, Ipswich	Suffolk Coastal District Council (PPC 12)	62196 24538	Solvent Activity SED Directive Section 7	Dry Cleaning
Castle Cleaners 10A Church Street, Framlingham	Suffolk Coastal District Council (PPC 13)	62860 26353	Solvent Activity SED Directive Section 7	Dry Cleaning
Clappits Plant Ltd Clappits Pit, Woodbridge Road, Newbourne	Suffolk Coastal District Council (PPC 14)	62741 24381	Other Mineral Activities Section 3.5	Crushing, grinding or size reduction of bricks, tiles or concrete (mobile)
V W Anticks 2-4 The Forge, Bredfield	Suffolk Coastal District Council (PPC 15)	62661 25218	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
East Suffolk Crematorium Ltd., Seven Hills Crematorium, Nacton	Suffolk Coastal District Council (EPR 01)	62300 24130	Incineration Activity Section 5.1	Cremation of human remains
Colin Carter Motor Engineer Clarendon Works, 13 Bridge Road, Felixstowe IP11 7SL	Suffolk Coastal District Council (EPR 03)	63014 23509	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Clarkes Demolition Ltd. Chapel Works, Waldringfield, IP12 4PT	Suffolk Coastal District Council (EPR 04)	62741 24380	Other Mineral Activities Section 3.5	Crushing, grinding or size reduction of bricks, tiles or concrete (mobile)
Tippers R Us Ltd. Sinks Pit, Main Road, Kesgrave IP5 2PE	**Suffolk Coastal District Council (EPR 05)**	**62298 24644**	**Other Mineral Activities Section 3.5**	**Crushing, grinding or size reduction of bricks, tiles or concrete (mobile)**

Processes regulated under the Environmental Permitting Regulations 2010 by the Environment Agency

Poultry Units

Permit Number	Operator	Installation Location	Post Code	Installation Activity (type of bird)	No. birds housed	Type of ventilation
TP3931MF	Vion Agriculture Ltd.	2 Units Badingham, Woodbridge	IP13 8LU	Intensive Farming Activity Poultry Broiler	196,200	Mechanical
MP3433UX	Crown Chicken Ltd.	Darsham Poultry Unit, Thorington	IP17 3QW	Intensive Farming Activity Poultry Broiler	145,000	Mechanical
AP3333UV	Hook 2 Sisters Limited	Driftway Farm, Linstead Magna, Halesworth	IP19 0DT	Intensive Farming Activity Poultry Broiler	89,625	Mechanical
EP3431MH	Vion Agriculture Ltd.	Earl Soham Farm, Bedfield Road, Earl Soham	IP13 7SL	Intensive Farming Activity Poultry Broiler	102,200	Mechanical
HP3437MB	CS Buchanan Ltd	Great Pinners Farm, Clopton Road, Tuddenham St Martin	IP6 9EG	Intensive Farming Activity Duck Production	52,000	Natural side and roof vents
HP3831MY	Vion Agriculture Ltd.	High House Farm, Heveningham Long Lane, Peasenhall	IP17 2JW	Intensive Farming Activity Poultry Broiler	98,100	Mechanical
VP3431ML	Vion Agriculture Ltd.	Lampard Brook, Framlingham, Woodbridge	IP13 9SB	Intensive Farming Activity Poultry Broiler	185,100	Mechanical
GP3633UM	Green Label	Loomswood Duck Unit, Loomswood Farm, Debach, Woodbridge	IP13 6JW	Intensive Farming Activity Duck Production	125,700	Mechanical
VP3931MZ	Vion Agriculture Ltd.	Otley Poultry Farm, Hall Lane, Otley	IP6 9PA	Intensive Farming Activity Poultry Broiler	113,100	Mechanical
PP3431XK	Loombest Ltd	Park Farm, Thorington, Suffolk	IP17 3QW	Intensive Farming Activity Poultry Broiler	337,249	Mechanical (fan vent)
GP3436UX	Vion Agriculture Ltd.	Peasenhall Poultry Farm, Ceder Bungalow, Rendham Road, Peasenhall	IP17 2NQ	Intensive Farming Activity Poultry Broiler	85,400	Mechanical
PP3433UT	SJ & R Wright	Redhouse Farm, Badingham, Woodbridge	IP13 8JE	Intensive Farming Activity Poultry Broiler	64,000	Mechanical
RP3731MU	St Lawrence Hall Farms Limited	Wenhaston Farm, Bartholomews Lane, Blackheath, Wenhaston	IP19 9DF	Intensive Farming Activity Poultry Broiler	85,000	Mechanical

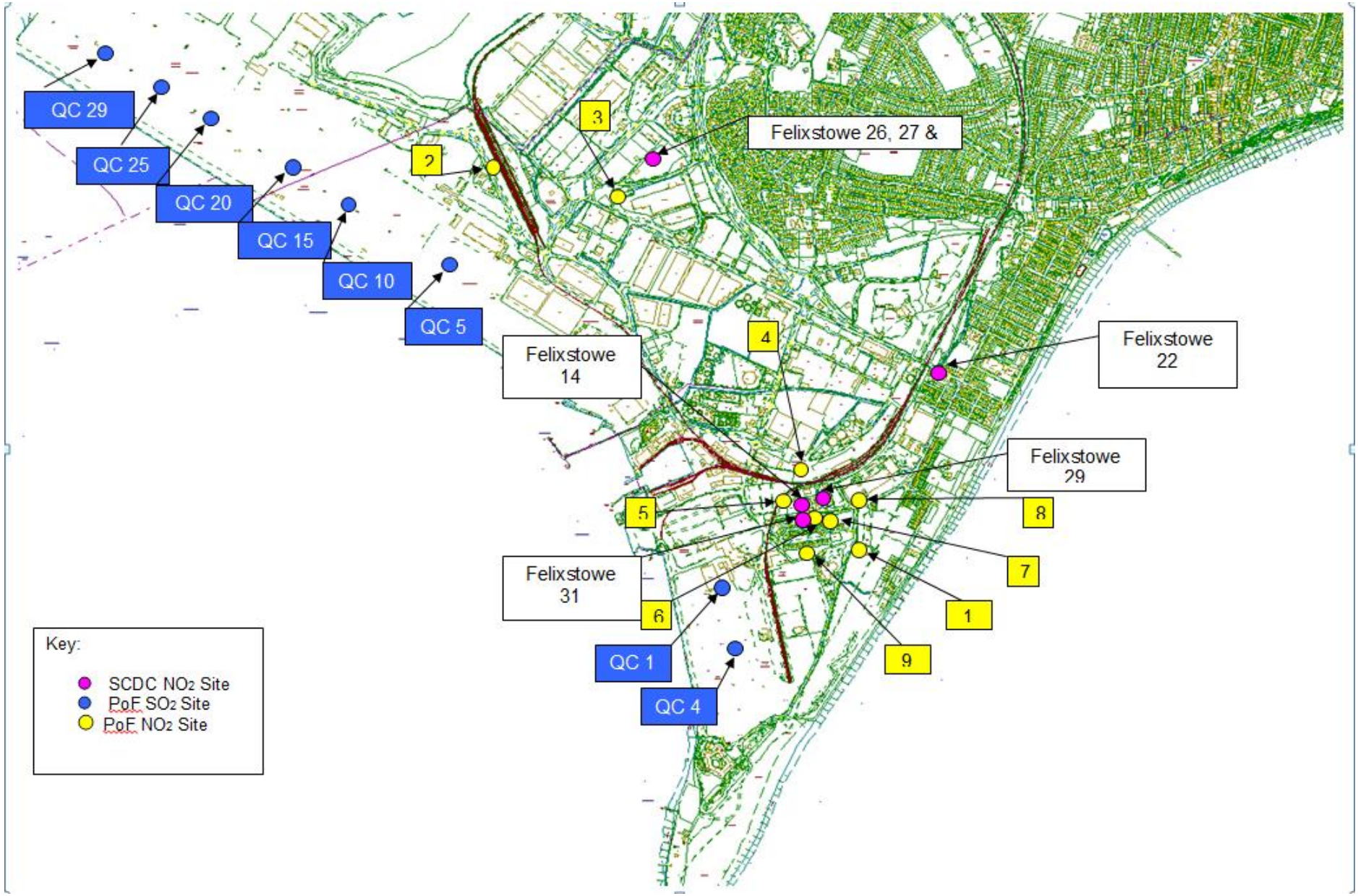
Installations

Permit Number	Operator	Installation Location	Post Code	Installation Activity
QP3938LY variation V005	Novera Energy Generation No. 2 Limited	Foxhall Generation Plant, Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Combustion Activity
BW2943IG variation v004	Viridor Waste Management Limited	Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste by Landfill

Waste Operations and Installation Sites

Waste Management License Number	Operator	Installation Location	Post Code	Installation Activity and additional information
70779	FCC Recycling (UK) Ltd	Felixstowe Household Waste Recycling Centre, Carr Road, Felixstowe	IP11 3RX	Disposal of Waste
100216	Viridor	Foxhall Waste Transfer Station, Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste (Storage of Waste)
70778 and 71228 consolidated	Waste Recycling Limited	Foxhall Household Waste Recycling Centre Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste
210108	Brett Aggregates Limited	Waldringfield Landfill, Waldringfield Quarry, Martlesham Heath	IP10 0BL	Disposal of Waste
104224	Brett Aggregates Limited	Waldringfield Recycling Facility, Waldringfield Quarry, Martlesham Heath	IP10 0BL	Disposal of Waste (Waste recovery)
71353	DJ Spall Recycling Ltd	Dallinghoo Garage, Woodbridge	IP13 0LA	Disposal of Waste (End of life vehicles)
71093	Tamar Composting (East Anglia) Ltd	Parham Recycling Centre, Parham, Woodbridge	IP13 9AF	Disposal of Waste (In vessel composting)
101470	Skipaway	Leiston Transfer Station, Master Lord Industrial Estate, Station Road, Leiston	IP16 4JD	Disposal of Waste
70780	FCC Recycling (UK) Ltd	Leiston Household Waste Recycling Centre, Lovers Lane, Leiston	IP16 4RS	Disposal of Waste
70739	VW Harrowmead Limited	Breakers Yard, Moat Road, Theberton	IP16 4RS	Disposal of Waste
70794	Shotley Holdings (Leiston) (trading as Collins Skips)	Master Lord Industrial Estate, Station Road, Leiston	IP16 4JD	Disposal of Waste

Appendix G: Port of Felixstowe monitoring locations for nitrogen dioxide and sulphur dioxide


QC 29
QC 25
QC 20
QC 15
QC 10
QC 5
2
3
Felixstowe 26, 27 &
4
Felixstowe 14
Felixstowe 22
Felixstowe 29
5
8
7
Felixstowe 31
6
1
9
QC 1
QC 4
Key:
SCDC NO2 Site
PoE SO2 Site
PoE NO2 Site

Glossary of Terms and Abbreviations

A

Adblue	Diesel Exhaust Fluid - used in selective catalytic reduction in order decrease NOx concentrations in diesel exhaust emissions from diesel engines.
Air Quality Action Plan (AQAP) or Action Plan	Plan required by the Government to be drawn up for an Air Quality Management Area (AQMA) to provide information on what action will be taken to try and reduce pollutant levels to within the set objectives.
Air Quality Action Plan (AQAP) Progress Report	Once an Action Plan has been developed for an Air Quality Management Area (AQMA) the Government require that an annual report be produced to provide an update on progress.
Air Quality Management Area (AQMA)	Each local authority in the UK is required to undertake a review and assessment of air quality in their area. This involves measuring air pollution and trying to predict how it will change in the next few years. The aim of the review is to make sure that the national air quality objectives will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment. If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area there.
Air Quality Management Area (AQMA) Order	Air Quality Management Area Order – the official order which is made declaring an AQMA.
Air Quality Objectives	Policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedences, within a specified timescale. The Objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
Air Quality Standards	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The Standards are based on assessment of the effects of each pollutant on human health, including the effects on sensitive sub-groups.
Air Quality Strategy	The Air Quality Strategy for England, Scotland, Wales and Northern Ireland describes the plans drawn up by the Government and the Devolved Administrations to improve and protect ambient air quality in the UK in the medium-term. The Strategy sets Objectives for the main air pollutants to protect health. Performance against these Objectives is monitored where people regularly spend time and might be exposed to air pollution.
Analytical laboratory	Laboratory used to analyse air pollution samples collected.

Annualised mean	Calculation of an annual mean concentration using a period of less than a year to produce a calculation for the whole year.
Annual mean concentration	The average concentration of a pollutant measured over one year.
Automatic analyser	Equipment used to undertake accurate and reliable detailed monitoring of an air pollutant. Equipment records air pollution levels continuously and produces real-time measurements of pollutant concentrations.
B	
Bias	The overall tendency of (diffusion tube) readings to depart from the true value, i.e to over or under read when compared to the reference method (automatic analyser)
Bias adjustment/correction factor	Diffusion tubes used to monitor air pollutants (mainly nitrogen dioxide) are affected by several sources of interference which can cause substantial under or overestimation (often referred to as "bias") compared to an automatic analyser. This is a problem where diffusion tube results are to be compared with air quality objectives. As a result, local authorities using diffusion tubes are required to quantify the "bias" of their diffusion tube measurements and apply an appropriate bias adjustment factor to the annual mean if required.
Biomass combustion	Biomass is a renewable energy source - biological material from living, or recently living organisms, such as wood, waste, (hydrogen) gas, and alcohol fuels. Biomass is commonly plant matter grown to generate electricity or produce heat, usually by direct incineration. Biomass combustion is therefore a means of converting biomass to usable energy (both heat and electricity) by burning.
C	
CNG	Compressed Natural Gas – methane stored at high pressure.
CO_2	Carbon dioxide - a naturally occurring chemical compound composed of 2 oxygen atoms each covalently double bonded to a single carbon atom.
Co-location study	Study in which the accuracy of diffusion tubes is quantified by exposure alongside an automatic analyser, and the results used to calculate a bias adjustment factor.
D	
Data Capture	Term given to the percentage of measurements for a given period that were validly measured.
Defra	Department for the Environment, Food and Rural Affairs – government body who deal with air quality matters.
	Where an Updating and Screening Assessment identifies a

Detailed Assessment	risk that an air quality objective may be exceeded at a location then a Detailed Assessment of the site is required. The aim of a Detailed Assessment is to identify with reasonable certainty whether or not an exceedence will occur.
Diffusion tube	Low-cost method for indicative monitoring of ambient air pollutant concentrations, mainly used for measuring nitrogen dioxide. Collect pollutants by molecular diffusion along an inert tube to an efficient chemical absorbent. After exposure for a known time, the absorbent material is chemically analysed and the concentration calculated.
E	
ECO-RTG	ECO-Rubber Tyred Gantry Cranes employ a variable speed drive and a diesel engine energy hybrid management system to increase efficiency and reduce diesel fuel consumption by as much as 40%.
Environmental Management System – EMS	The management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection. More formally, EMS is "a system and database which integrates procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm." The most widely used standard on which an EMS is based is International Organization for Standardization (ISO) 14001.
Energy Management System – EnMS – ISO 50001	A system used to monitor, measure, and control electrical building loads. They allow facility and building managers to gather data and insight to make more informed decisions about energy activities across their sites. ISO 50001 is the international standard for energy management practices that are considered to be the best globally. This standard was developed by energy management experts from more than 60 countries.
Environment Act 1995 Part IV	The Parliamentary Act which sets out the requirements for Local Air Quality Management.
Environmental Impact Assessment	An assessment of the possible positive or negative impact that a proposed project may have on the environment, consisting of the natural, social and economic aspects. The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts when deciding whether to proceed with a project.
Environmental Permitting Regulations 2010	Regulations under which certain types of industry are required to have a permit to operate The industrial premises must show compliance with their permit conditions. Includes discharge consenting, groundwater authorisations and radioactive substances regulation.

ERTG	Electric Rubber Tyred Gantry Crane (RTG) - specialised equipment for yard handling of containers.
European Emission Standards	These define the acceptable limits for exhaust emissions of new vehicles sold in EU member states. The emission standards are defined in a series of European Union directives staging the progressive introduction of increasingly stringent standards – Euro I to Euro VI.
F	
Further Assessment	Where an Air Quality Management Area (AQMA) has been declared, a Further Assessment must be submitted to Defra within 12 months. This will supplement the information provided in the Detailed Assessment, confirm the objective exceedence, define what improvement in air quality and reduction in emissions is required to meet the objectives, and provide information on source contributions.
H	
Haven Gateway	Area incorporating the five Haven ports of Felixstowe, Harwich International, Harwich Navyard, Ipswich and Mistley.
HDV – Heavy Duty Vehicle	A motor vehicle rated at more than 3,856 kg - includes trucks/lorries, buses and coaches.
HGV – Heavy Goods Vehicle	Goods motor vehicles (i.e. trucks / lorries) capable of carrying heavy loads over 3.5 tonnes maximum permissible gross vehicle weight and requiring a special license to drive.
Hourly mean concentration (1-hour mean)	The average over a one hour period of an air pollutant concentration.
I	
IMVs	Internal Movement Vehicles, used on the Port of Felixstowe to move containers on the site.
L	
Laboratory bias	There is considerable difference in the performance of diffusion tubes prepared by different laboratories, such that they may systematically over or under read when compared with an automatic analyser. The laboratory bias is the figure derived in order to correct the over/under read to the reference method – the automatic analyser results. Each local authority in the UK is required to carry out a regular

Local Air Quality Management (LAQM)	review and assessment of air quality in their area. This involves measuring air pollution and trying to predict how it will change in the next few years. The aim of the review is to make sure that national air quality objectives will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment.
LAQM.PG(09)	Local Air Quality Management Policy Guidance February 2009. Policy guidance issued by Defra to assist local authorities when carrying out review and assessment of air quality within their district.
LAQM.TG (09)	Local Air Quality Management Technical Guidance February 2009. Technical guidance issued by Defra to assist local authorities in reviewing and assessing air quality on their district.
LDV – Light Duty Vehicle	A motor vehicle up to and including 3.5 tonnes Gross Vehicle Weight
LGV – Light Goods Vehicle	Goods vehicles, mainly vans (including car derived vans), not over 3.5 tonnes maximum permissible gross vehicle weight.
LNG	Liquefied Natural Gas - natural gas (predominantly methane) that has been converted to liquid form for ease of storage or transport.

M

mg/m^3	Milligrams per cubic metre – unit for measurement of an air pollutant concentration. A measure of concentration in terms of mass per unit volume. A concentration of $1mg/m^3$ means that one cubic metre of air contains one milligram of pollutant.
$\mu g/m^3$	Micrograms per cubic metre – unit for measurement of an air pollutant concentration. A measure of concentration in terms of mass per unit volume. A concentration of $1\mu g/m^3$ means that one cubic metre of air contains one microgram of pollutant.

N

NO_2	Nitrogen Dioxide - a gas produced by the reaction of nitrogen and oxygen in combustion processes in air. Nitrogen Oxide (NO) is formed initially and this is subsequently oxidised to form NO_2.
NOx	Oxides of nitrogen – NOx is a generic term for the nitrogen oxides NO and NO_2 (nitric oxide and nitrogen dioxide). They are produced from the reaction of nitrogen and oxygen gases in the air during combustion, especially at high temperatures.

O

OS Grid Ref – Ordnance Survey Grid Reference	The British Grid Reference System which can be used to accurately pinpoint any location in Great Britain and it's outlying islands through the use of a unique Ordnance Survey map reference – a Grid Reference.
Outline Planning Application	An outline of the plans and other information that developers send to the local authority for decision on whether or not to grant planning permission. If outline planning permission is granted the developers are required to provide more information later, in advance of each works, to make sure that they are acceptable.

P

Percentile	A value below which that percentage of data will either fall or equal. For instance the 98th percentile of values for a year is the value below which 98% of all the data in the year will fall or equal.
Port Environmental Review System - PERS	The only Port-sector specific environmental management system (EMS). An EMS is the management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection. More formally, EMS is "a system and database which integrates procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm."
Progress Report	A report intended to maintain the continuity of the Local Air Quality Management process and fill in the gaps between the 3 yearly cycle of the review and assessment process. Required in all years when an Updating and Screening Assessment is not undertaken.
PM_{10}	Particulate Matter with a diameter of less than 10 microns – air pollutant of concern

Q

QA:QC – Quality Assurance : Quality Control	Relates to the collection of air quality monitoring data - the systematic monitoring and evaluation of the various aspects to maximize the probability that the data collected is of good quality.

R

Relevant exposure	Review and assessment of air quality must focus on locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the specific objective, this is termed relevant exposure.
RTGs	Rubber Tyred Gantry Cranes – specialised equipment for yard handling of containers.
Review and Assessment process	Procedure put in place by Defra to ensure that all local authorities review and assess air quality within their district on a regular basis and take action for any location where the air quality objectives are exceeded.
Running mean	This is a mean - or series of means - calculated for overlapping time periods, and is used in the calculation of several of the National Air Quality Standards. For example, an 8-hour running mean is calculated every hour, and averages the values for eight hours. There are, therefore, 24 possible 8-hour running means in a day (calculated from hourly data).

S

SCC	Suffolk County Council
SCDC	Suffolk Coastal District Council
Section 106 planning agreements	Section 106 of the *Town and Country Planning Act 1990* (as amended) allows local planning authorities to negotiate arrangements whereby the developer makes some commitment if he obtains planning permission.
SO_2	Sulphur dioxide – air pollutant of concern.
Source apportionment	This exercise is undertaken if a Further Assessment is required for a site. All potential emission sources for the pollutant and site of concern are identified and investigations undertaken to determine how much of the problem is attributed to each emission source.
Supplementary Planning Document (SPD)	A supplementary planning document provides additional information on planning policies in a development plan**.** SPDs fit into the new type of local plan called the local development framework that has been introduced by the Planning and Compulsory Purchase Act 2004.

T

TEU	Twenty-foot equivalent unit (often TEU or teu) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals. It is based on the volume of a 20-foot-long (6.1m) intermodal container, a standard-sized metal box which can be easily transferred between different modes of transportation, such as ships, trains and trucks.

U

USA – Updating and Screening Assessment	The first step of the review and assessment process which must be undertaken by all local authorities every 3 years. Based on a checklist to identify those matters which have changed since the previous round of review and assessment was completed.

V

Vehicle Booking System - VBS	This is a real-time appointment system used by hauliers wishing to deliver or collect containers at The Port of Felixstowe. The simple-to-use web-based system allows hauliers to select a time for their visit, enabling the Port to proactively manage customer demand, providing a faster turnaround.

W

Worst case exposure	Location where air pollution from a specific source will be the highest.
15-minute mean	The average over a 15 minute period of an air pollutant concentration.
24-hour mean	The average over a 24 hour period of an air pollutant concentration.