Medway Council

Air Quality Progress Report For 2007

April 2008

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EXECUTIVE SUMMARY

The Environment Act, 1995 places a statutory duty on local authorities to periodically undertake an air quality review and assessment of their area. This involves consideration of present and likely future air quality against health based air quality objectives set out in the Government's Air Quality Strategy. In areas where air quality objectives are not likely to be met by the relevant target date, local authorities are required to declare an Air Quality Management Area (AQMA) and develop an action plan in pursuit of the air quality objectives.

Medway Council undertook Stages 1, 2 and 3 of the first round of review and assessment of air quality and published reports between 1998 and 2000. This led to the declaration of the Medway Air Quality Management Area in January 2002.

The findings of a further review and assessment were reported in December 2002. The findings led to a reconsideration of the declared Air Quality Management Area and the original AQMA was revoked. A new declaration was made in 2004. Appendix A shows maps of the AQMAs. An Air Quality Action Plan was produced in July 2005. A progress report for this plan is included at Appendix C. The Council completed the first phase of the third round of review and assessment, the Updating and Screening Assessment, in May 2006. This concluded that there was no requirement to go on to the detailed assessment stage of the third round.

This report considers monitoring data for the period January to December 2007 and assesses the data against the relevant air quality objectives. This confirms earlier predictions that the objective for NO_2 would be exceeded.

The NO_2 diffusion tube network was extended in 2007 and reflects the range of differing air quality found within Medway. Data from the continuous monitoring sites shows that exceedences of the ozone objective occurred in 2007. Peaks of PM_{10} were observed, which were due to local influences. NO_2 measured at Medway's roadside and background continuous monitoring sites have shown a gradual decrease since 1999.

Consideration has been made of any local development changes, which are likely to have a significant impact on air quality. A major planning application for the construction of two advanced supercritical (ASC) coal-fired generating units on the Isle of Grain was submitted and a four-storey hotel in Rochester was approved. Construction work on major new development at Rochester Riverside continued during 2007.

Medway's second Local Transport Plan (LTP) covers the period to the end of 2011 and includes measures, which impact on air quality. The Air Quality Action Plan forms part of the LTP. Achievements during 2007 include an increase in the number of school and business travel plans and walking buses.

CONTENTS

1.0 INTRODUCTION

1.1 Medway Council

Medway Council is a unitary authority, providing all local government services for a quarter of a million people in Medway. The area is predominantly urban and incorporates Chatham, Gillingham, Rainham, Rochester and Strood. Medway is the largest single conurbation in the southeast outside London. The district includes industrial areas and port facilities, including Thamesport on the Hoo peninsula. The Hoo peninsula is a mainly rural area forming part of the north Kent marshes.

The area is well served by transport links to London by the M2 motorway and the A2 trunk road. A network of subsidiary routes connects with other towns and small centres of population across Kent. The north Kent rail link connects Medway to London and the south coast and the Channel Tunnel Rail Link passes through the district.

1.2 Background to Local Air Quality Management

The Government published its updated Air Quality Strategy in July 2007. The primary objective of the Strategy is to ensure that all citizens should have access to outdoor air without significant risk to their health, where this is economically and technically feasible.

The Environment Act, 1995 places a statutory duty on local authorities to periodically undertake an air quality review and assessment of their area. Under local air quality management (LAQM), local authorities are required to work towards achieving the objectives prescribed by regulation for seven pollutants. In carrying out these duties, local authorities are required to have regard to policy and technical guidance published under Part IV of the 1995 Act. In areas where air quality objectives are not likely to be met by the relevant target date and there is relevant public exposure, local authorities are required to declare an Air Quality Management Area (AQMA) and develop an action plan in pursuit of the air quality objectives.

1.3 First Round of Review and Assessment

As part of its LAQM responsibilities, the Council undertook Stages 1, 2 and 3 of the first round of review and assessment of air quality and published reports between 1998 and 2000. These reports present a staged approach whereby the seven air pollutants were assessed and screened as to their relative importance to air quality within the Council's area. These assessments predicted exceedences of the nitrogen dioxide (NO_2) annual mean objective and the particulate (PM_{10}) twenty-four hour mean objective in the urban area adjacent to certain parts of the road network. This led to the declaration of the Medway Air Quality Management Area in January 2002.

The findings of a further review and assessment (stage four) were published in a report in December 2002. This identified more extensive areas of exceedence for the NO_2 objective and a significantly reduced area for the PM_{10} objective. Following consultation with Department for Environment, Food and Rural Affairs (Defra), a detailed mapping exercise determined that public exposure is unlikely in the areas predicted to exceed the PM_{10} objective. To reflect this change in circumstances, the original AQMA was revoked and a new declaration made in

May 2004. The locations of the AQMAs are shown in Appendix A. Medway's Air Quality Action Plan was published in July 2005.

1.4 Second Round of Review and Assessment

The second round of local authority review and assessment commenced in 2003 when new technical and policy guidance was issued by Defra. This introduced a system comprising an Updating and Screening Assessment (USA), a Detailed Assessment and a Further Assessment that required consideration of the seven pollutants of concern to health and whether air quality objectives for these pollutants would be met. Depending on the outcome at the Updating and Screening stage, local authorities may need to go on to the more detailed stages and make any necessary declarations of AQMAs. As each stage of this system is completed, reports are submitted to the Secretary of State and public consultation takes place. A new feature of the second round is a requirement for local authorities to produce a Progress Report in years when they are not carrying out an Updating and Screening Assessment or a Detailed Assessment.

Medway Council published its first USA in May 2003. This found that there was no requirement to go on to the detailed stage as the pollutants predicted to exceed air quality objectives were already in the AQMA declared in 2002. This outcome triggered the requirement for the Council to publish progress reports in 2003, 2004 and 2005.

1.5 Third Round of Review and Assessment

Medway Council published its second USA in May 2006. The same conclusions were again reached; that there was no requirement to go on to the detailed stage as the pollutants predicted to exceed air quality objectives were already in the AQMA declared in 2004. However, the USA recommended 5 new sites for NO_2 monitoring using passive diffusion tubes and that existing diffusion tubes were relocated to the nearest residential facade. These changes were made to the diffusion tube network in November 2006. This outcome triggered the requirement for the Council to publish progress reports in 2007 and 2008.

1.6 The Air Quality Action Plan

Medway's Air Quality Action Plan was published in July 2005. The Plan concludes the first round of local air quality review and assessment. The Action Plan outlines how the council will use its powers and work in conjunction with other organisations in pursuit of the air quality objectives.

The main aim of the action plan is to propose measures that will work towards achieving reductions in NO_2. Measures focus on transport and traffic management initiatives that are being progressed through Medway's Local Transport Plan, as the major source of NO_2 is road traffic. A further aim is to raise awareness of air quality issues by encouraging active participation in the achievement of proposed measures through a combination of joint working within the council and with external stakeholders.

Existing and proposed measures to improve air quality encompass transport planning, traffic management, land use planning, pollution control, local air quality management and promotional activities. Transport planning measures have a direct impact on the main source of pollution and Medway's Local Transport Plan will be a key platform for delivering initiatives aimed at improving local air quality.

1.7 The Progress Report

Progress Reports are designed to fill the gaps between the three yearly requirements to carry out a review and assessment of air quality. The aim is to ensure continuity in the LAQM process and allow air quality monitoring data to be assessed on a regular basis. Progress reports also provide a useful way of communicating information about local air quality to members of the public and provide information to assist in other policy areas such as transport and land use planning.

This report considers monitoring data for the period January to December 2007 and assesses the data against the air quality objectives. It also considers any significant development changes, including changes to industrial emissions to atmosphere that may have a significant impact on air quality. The Report has been undertaken in accordance with the Progress Report Guidance LAQM.PRG(03).

2.0 MONITORING RESULTS

Monitoring for NO_2 has been undertaken in Medway at various roadside, background and rural sites using passive diffusion tubes since 1993. Monitoring was carried out at 25 sites throughout the area in 2007. The location of these sites is shown at Appendix B.

Medway has three continuous automatic air quality stations; one at an urban roadside location in Chatham, one at an urban background site at Luton and one at a rural location in Lower Stoke. Monitoring of NO_2 and particulates (PM_{10}) are carried out at all three sites. The Lower Stoke and Luton sites also monitor Sulphur Dioxide (SO_2) and Ozone (O_3). In addition the Luton site monitors Carbon Monoxide (CO).

A kerbside site is one where sampling of air affected by local traffic is undertaken within 1m of a busy road. A roadside site samples within 1m of the pavement of a busy road. Information from these sites can be used to assess vehicle pollution blackspots and to evaluate the impacts of traffic planning/calming schemes.

Urban background sites are usually within a residential area. Background sites are distanced from traffic sources and broadly representative of borough-wide background conditions. Pollution at urban background sites could be influenced by emissions from space heating, vehicle exhaust and commercial & industrial sources. Information from the site can be used for trend analysis, urban land-use planning and traffic planning.

A rural site is one established in an area of low population density, distanced as far as possible from roads and industrial areas. Information from the site can be used to monitor summertime ozone, to assist in ecosystem impact studies, and in the investigation of regional and long-range pollution transport issues.

2.1 Pollution episodes

An air pollution episode is the term used for a period of poor air quality, lasting up to several days, often extending over a large geographical area usually as a result of weather conditions. Concentrations of all the measured species may increase at the same time, or only one species may be affected. Medway did not experience any pollution episodes during 2007.

Summer photochemical (ozone) episodes are relatively common in rural areas during periods of prolonged sunshine. Ozone can also become elevated in urban background areas. For ozone, the maximum of the 8 hourly and hourly mean is used to calculate the pollution index value to classify air pollution as low, moderate, high, or very high. 'Moderate' pollution (where mild effects, unlikely to require action may be noticed amongst sensitive individuals) occurs when ozone is between 100-179µg/m^3.

Medway's first ozone episode of 2007 occurred during March (13 days with moderate ozone pollution at Luton) and the last in August (5 days with moderate ozone pollution at Luton and 4 days at Stoke). During the year there were 16 days where the daily maximum 8-hour running mean was greater than 100 µg/m^3 at the Stoke site and 21 days at the Luton site. It is widely recognised that ozone episodes arise as a result of transboundary pollution during periods of warm, stable

weather. Ozone is not prescribed for Local Authority control under the local air quality management regime.

2.2 Continuous monitoring data

The Chatham roadside site is located along a busy, narrow section of road which experiences congestion at peak times.

The Luton urban background site is situated in the grounds of a school. The site is distanced from traffic sources and is within a residential area.

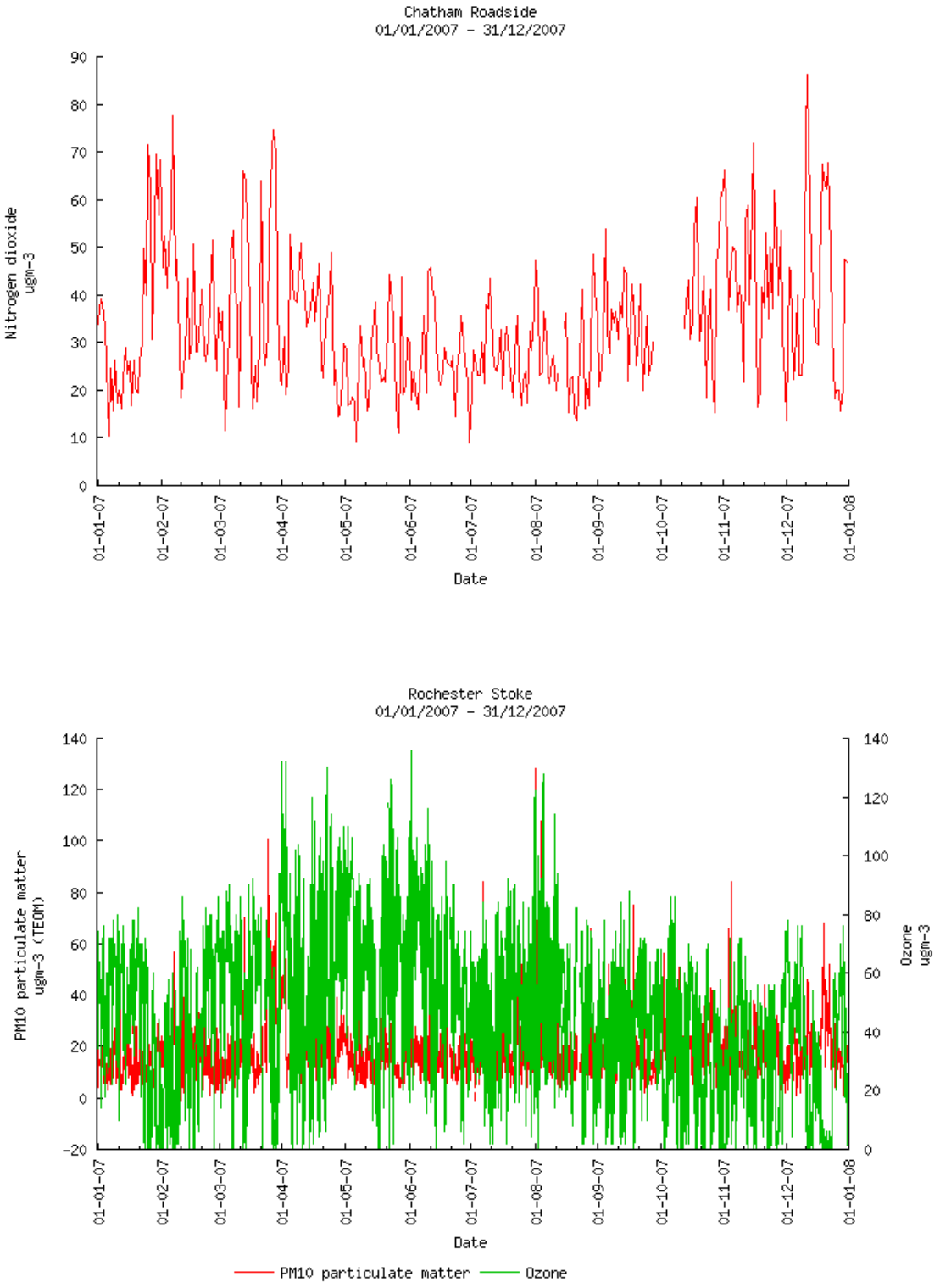
The Stoke rural station is located in an open country location within the playing field of the village school at Lower Stoke.

NO_2 concentrations are measured using a chemiluminescent analyser. SO_2 is measured using an ultra violet fluorescent analyser. Ozone is measured by UV absorption. CO is measured using infrared absorption and PM_{10} concentrations are monitored using a TEOM (tapered element oscillating microbalance). Members of Medway's environmental protection team calibrate the stations every two weeks. Data is downloaded and ratified by AEA Energy & Environment, the network managers for the Kent and Medway Air Quality Monitoring Network (KMAQMN). The quality assurance/quality control procedures for the KMAQMN are equivalent to the UK National Network procedures. A specialist company services the equipment every six months. An independent audit is carried out annually.

Low-level ozone is formed by the action of sunlight on particular types of air pollution. As the amount of sunlight cannot be controlled, the reduction of ozone-forming pollutants such as oxides of nitrogen (NO_x) is the only way to influence ozone levels. However, ozone may form at some distance from the source of the ozone-forming pollutants. In rural areas in summer levels of ozone tend to be higher than in urban areas and this is observed in Medway's monitoring results. In 2007 the objective for ozone was exceeded.

Results from Chatham roadside and Rochester Stoke rural sites are shown at Figure 1, a summary of the data for 2007 and comparison to the air quality strategy objectives is shown in Tables 1a, 1b and 1c.

Figure 1 - Nitrogen dioxide measured at the Chatham roadside site and PM_{10} and ozone measured at the Stoke rural site in 2007.



Continuous monitoring results Jan 2007 – Dec 2007

Table 1.a Air Quality Strategy Objective Statistics for Chatham Roadside

Pollutant	Objective	Result	Achieved Objective?
NO2	Annual Mean 40 µg/m^3	34 µg/m^3	Yes
NO2	No. hours hourly mean >200 µg/m^3 Not to be exceeded more than 18 times per year	0 times	Yes
PM10	No. days 24hr mean >50ug/m^3 Not to be exceeded more than 35 times per year	13 times	Yes
PM10	Annual Mean 40 µg/m^3	26 µg/m^3	Yes

Table 1.b Air Quality Strategy Objective Statistics for Luton Background

Pollutant	Objective	Result	Achieved Objective?
NO2	Annual Mean 40 µg/m^3	26 µg/m^3	Yes
NO2	No. hours hourly mean >200 µg/m^3 Not to be exceeded more than 18 times per year	0 times	Yes
O3	No. days max rolling 8hr mean >100 µg/m^3 Not to be exceeded more than 10 times per year	**21 times**	**No**
PM10	No. days 24hr mean >50ug/m^3 Not to be exceeded more than 35 times per year	12 times	Yes
PM10	Annual Mean 40 µg/m^3	23 µg/m^3	Yes
CO	No. periods rolling 8hr mean >10mg/m^3 None allowed	0 times	Yes
SO2	No. periods 15min mean >266 µg/m^3 Not to be exceeded more than 35 times per year	0 times	Yes
SO2	No. hours hourly mean >350 µg/m^3 Not to be exceeded more than 24 times per year	0 times	Yes
SO2	No. days 24hr mean >125 µg/m^3 Not to be exceeded more than 3 times per year	0 times	Yes

Table 1.c Air Quality Strategy Objective Statistics for Stoke Rural

Pollutant	Objective	Result	Achieved Objective?
NO2	Annual Mean 40 µg/m^3	18 µg/m^3	Yes
NO2	No. hours hourly mean >200 µg/m^3 Not to be exceeded more than 18 times per year	0 times	Yes
O3	No. days max rolling 8hr mean >100 µg/m^3 Not to be exceeded more than 10 times per year	**16 times**	**No**
PM10	No. days 24hr mean >50ug/m^3 Not to be exceeded more than 35 times per year	8 times	Yes
PM10	Annual Mean 40 µg/m^3	23 µg/m^3	Yes
SO2	No. periods 15min mean >266 µg/m^3 Not to be exceeded more than 35 times per year	0 times	Yes
SO2	No. hours hourly mean >350 µg/m^3 Not to be exceeded more than 24 times per year	0 times	Yes
SO2	No. days 24hr mean >125 µg/m^3 Not to be exceeded more than 3 times per year	0 times	Yes

Note: Results from TEOM Particulate analysers have been multiplied by a conversion factor of 1.3.

2.3 Passive monitoring data

Monitoring using passive NO_2 diffusion tubes is undertaken at 25 sites in Medway. Locations reflect a range of site conditions i.e. busy roadside, urban and rural. The majority of sites are kerbside. A kerbside site is a site sampling within 1m of a busy road.

Major changes to the diffusion tube network took place in 2007, partly as a result of recommendations in the 2006 USA. Seven sites were removed from the network and replaced with two new kerbside sites in Luton Road, Chatham, one on Pier Road, Gillingham, one on Corporation Street, Rochester and one at the Council Offices on Maritime Way in Chatham. An additional site in High Street, Strood and a new site along The Brook, Chatham were also introduced. All sites were moved to the nearest residential façade. Appendix B shows the location of the diffusion tube monitoring sites.

The diffusion tubes are supplied and analysed by Harwell Scientifics using the 50% Triethanolamine (TEA) in acetone method. The laboratory method is UKAS accredited.

Co-location of diffusion tubes was undertaken at three monitoring sites in 2007 where continuous monitoring is also carried out to allow comparison of passive and continuous monitoring. Single tubes were located in the same position as the continuous monitoring sites. The co-location exercise produced a bias correction factor to adjust diffusion tube data to take account of potential laboratory bias. Further details of bias correction are contained in Appendix D. Figures 2 and 3 show monitoring results with and without bias correction.

There are several sites in Medway, which have been operating since 1993, so consideration can be made of long-term trends within the area. Figures 4 and 5 show that there is variability from year to year, reflecting the differing meteorological conditions between years. Predictions based on government guidance suggested a reduction in NO_2 due to the introduction of national policy measures. The overall trend at both the kerbside and background passive monitoring sites is that NO_2 levels measured by diffusion tube are not reducing over time. The continuous monitoring sites show a reduction in NO_2 since the sites were established in 1997, however, there was a slight increase in 2007 compared with 2006. Monitoring will need to be maintained to help assess the impact of local transport plan initiatives and national policy measures.

The results of all the diffusion tubes sites for 2006 and 2007 are shown in Table 2. These show that there are five exceedences of the NO_2 objective in 2007 which are within AQMAs: -

- Cuxton Road, Strood
- Star Hill, Rochester
- High Street, Strood
- Railway Street, Chatham
- Frindsbury Road, Strood

Diffusion tube sites in High Street, Strood and Gibralter Hill, Chatham both show an exceedence. It should be noted that these sites are located close to existing AQMAs.

There are four other sites which show exceedences of the NO_2 objective in 2007. These sites are those that were recommended for diffusion tubes in the 2006 USA.

- High Street, Rainham
- Luton Road, Chatham
- High Street, Chatham
- Pier Road, Gillingham

It is recommended that diffusion tube monitoring be continued at these sites.

Table 2 Nitrogen dioxide diffusion tube data 2006 and 2007 (Bias corrected)

Site name	X coordinate	Y coordinate	Site type	AQMA	Average 2006 µg/m^3	Average 2007 µg/m^3
High Street, Rainham	581570	165950	Roadside	No	33	**53**
High Street, Strood (Tanning Shop)	573470	169283	Roadside	No	-	**50**
High Street, Strood (Southern Heating)	573791	169165	Roadside	Yes	43	**53**
Luton School, Chatham	577101	166646	Background	No	22	26
Luton Road (Funeral Directors)	576566	167336	Roadside	No	-	**43**
Luton High Street No 27	577419	166501	Roadside	No	-	40
Star Hill, Rochester No 18	574593	168085	Roadside	Yes	53	**59**
Cuxton Road, Strood No 92	573080	169890	Roadside	Yes	46	**45**
Brompton (Camperdown Manor)	576031	168984	Roadside	No	29	32
Railway Street, Chatham	575641	167781	Roadside	Yes	-	**49**
Rotary Gardens, Gillingham	578642	166701	Roadside	No	32	35
Chatham Girls School	577434	166991	Roadside	No	32	34
Burnham Walk, Rainham	581057	163303	Background	No	40	29
Hotel Road, Gillingham No 20	579053	166668	Roadside	No	42	29
Highview Drive, Chatham No 2	574791	164621	Roadside	Yes	29	28
Gibralter Hill, Chatham	575691	167693	Roadside	No	38	**45**
The Brook, Chatham	575999	167905	Roadside	No	-	34
Chatham High Street (Orbit Housing)	576393	167495	Roadside	No	30	**47**
Frindsbury Road, Strood No 28	573869	169643	Roadside	Yes	32	**45**
Stoke Prim School	583131	175747	Rural	No	21	19
Lower Stoke Oakham court	571480	168550	Roadside	No	26	22
St Albans, Strood	577941	169277	Background	No	35	35
Pier Road, Gillingham	574518	168470	Roadside	No	**-**	**48**
Corporation Street, Rochester	576464	169705	Roadside	Yes	-	36
Compass Centre, Chatham	583131	175747	Roadside	No	-	**50**
(M2) indicates sites which may be affected by traffic on the M2 motorway			Number in **bold** shows exceedence of the 40µg/m^3 objective for 2005			

Figure 2 - NO_2 Roadside diffusion tube sites results for 2007

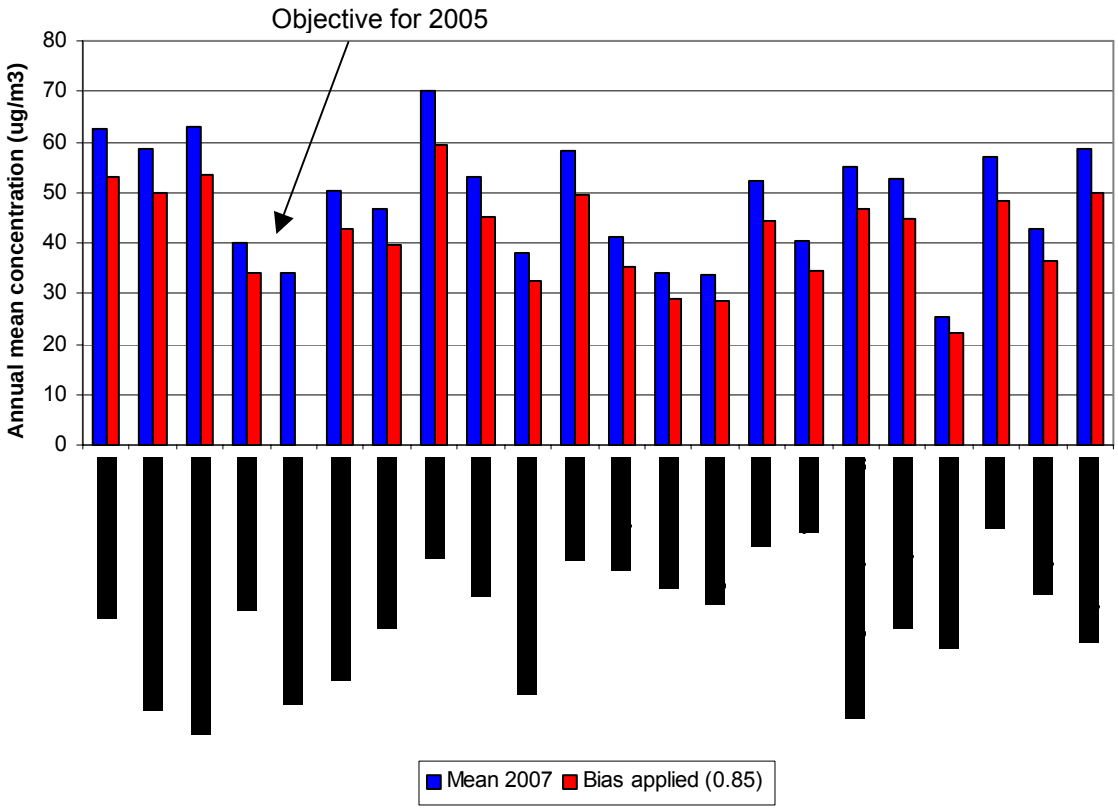


Figure 3 - NO_2 Rural and background diffusion tubes sites results for 2007

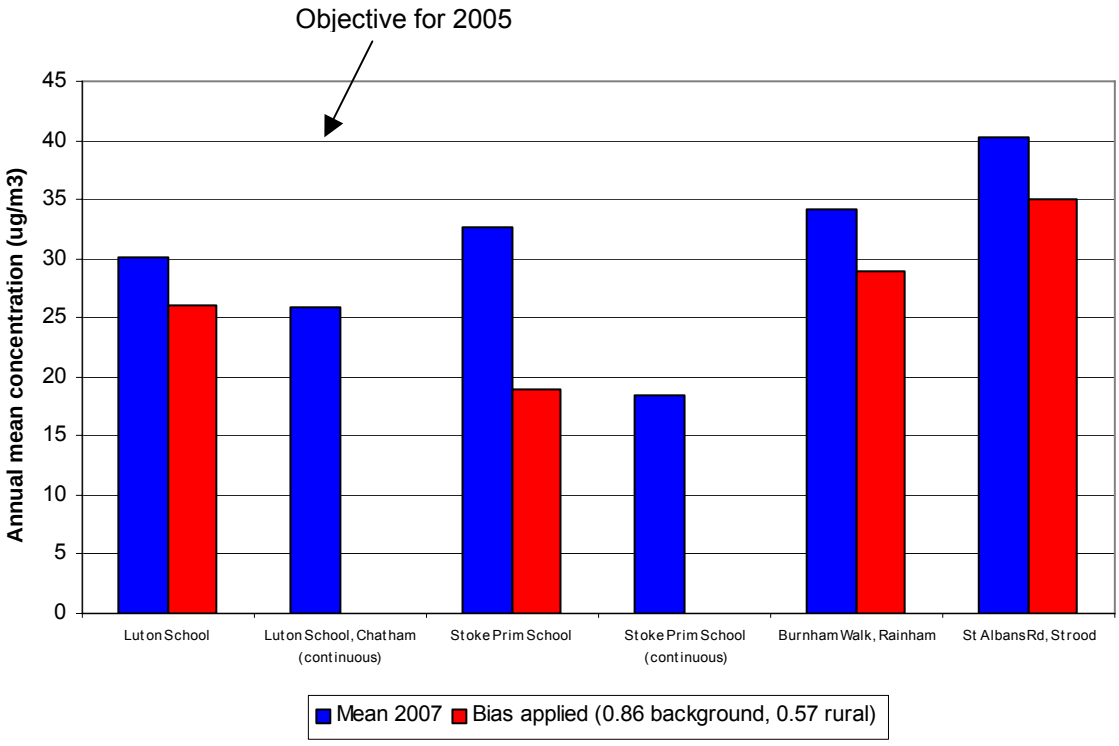


Figure 4 - NO_2 Trends kerbside diffusion tube sites

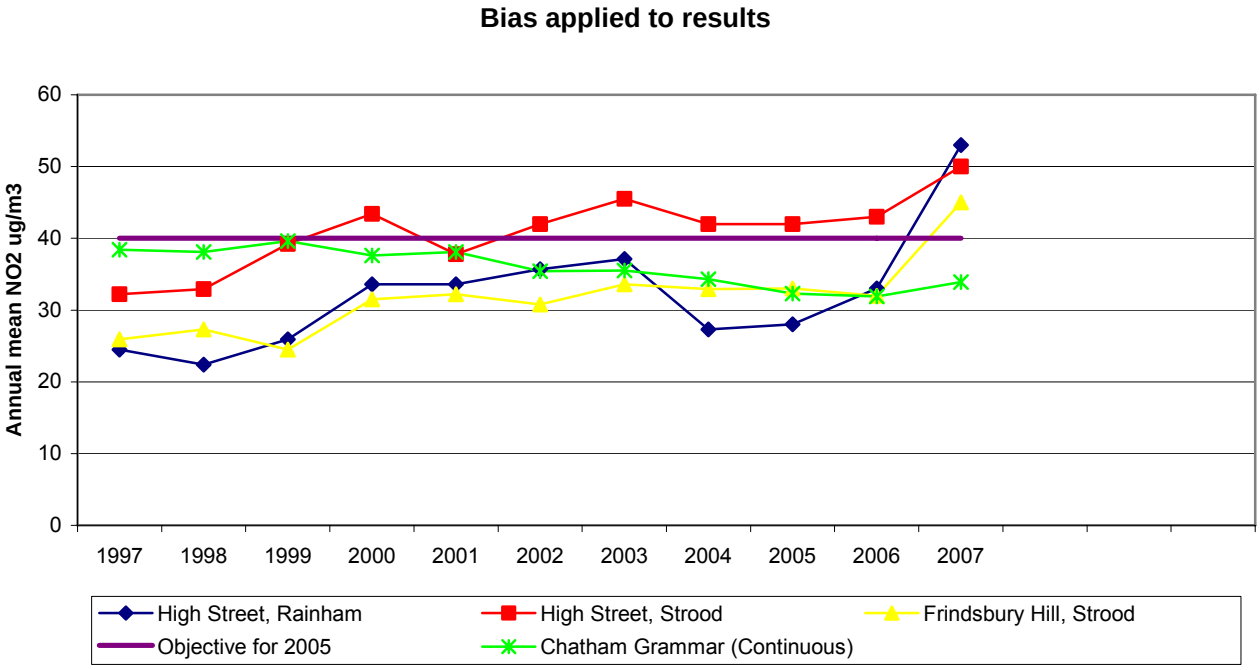
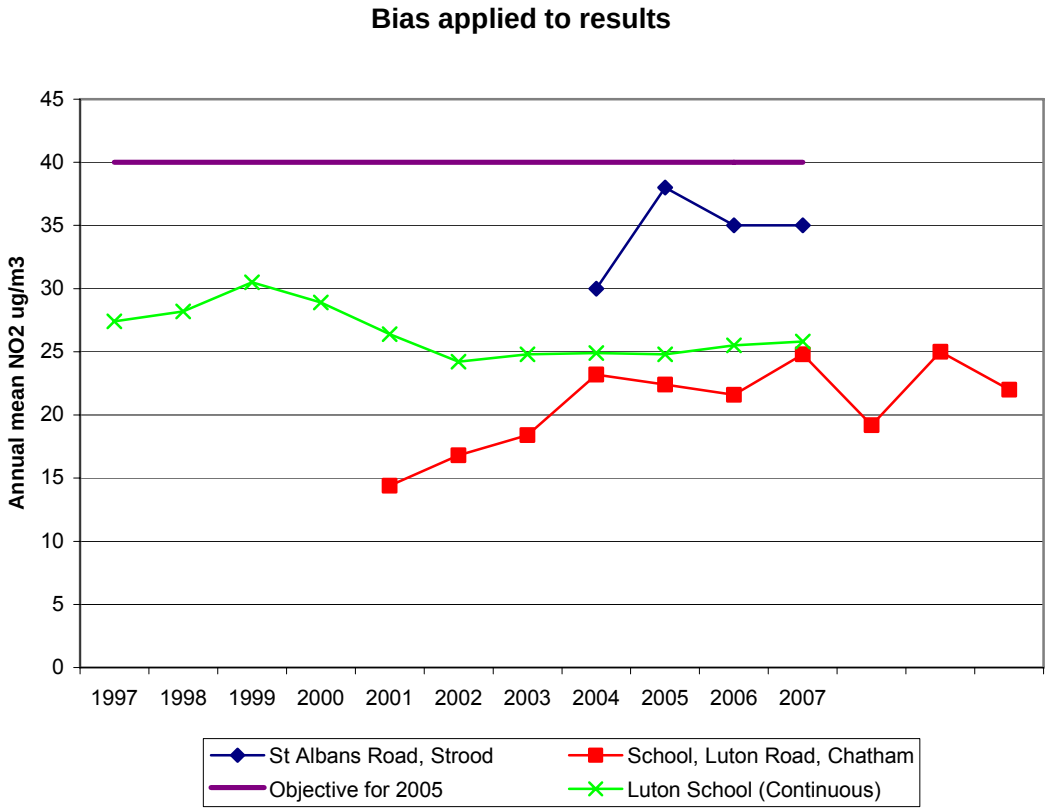


Figure 5 - NO_2 Trends background diffusion tube sites



3.0 NEW LOCAL DEVELOPMENTS

3.1 Industrial Prescribed Processes

The PPC Regulations sets out a three-tier system of regulatory control for all specified industrial processes with regulation divided between local authorities and the Environment Agency (EA):

- Part A(1) (IPPC) Environment Agency controlled for emissions to air, land and water;
- Part A(2) (LA-IPPC) Local Authority controlled for emissions to air, land and water; and
- Part B (LAPPC) Local Authority control for emissions to air only.

There has been no change to the two A(2) processes within Medway, other than pre-notification for site closure by Cemex UK Limited, the cement clinker grinding process at Halling, Rochester.

Revocations of an incineration process, a printing process and of a dry cleaning process took place in 2007.

Other Part B industrial processes currently regulated by Medway under LAPPC comprise of the following: -

10 Mineral Processes
15 Mobile Plant Processes
3 Coating Processes
2 Solvent Emissions Directive (SED) Surface Cleaning Processes
3 Timber Processes
5 Vehicle Re-spraying Processes
1 Non Ferrous Metal Foundry Process
1 Printing Process
14 Dry Cleaning Processes
28 Petrol Station Processes

Total Part B Processes 81 for this reporting period.

None of these changes are expected to have a significant impact on local air quality.

3.2 Planning applications

The Environmental Health department are consulted on planning applications that may have impacts on air quality or on sites which are subject to Local Authority Air Pollution Control.

The Medway Local Plan includes a policy on Air Quality, Policy BNE24, which states that: '*Development likely to result in airborne emissions should provide a full and detailed assessment of the likely impact of these emissions. Development will not be permitted when it is considered that unacceptable effects will be imposed on the health, amenity or natural environment of the surrounding area, taking into account the cumulative effects of other proposed or existing sources of air pollution in the vicinity*.'

The Kent and Medway Structure Plan, adopted in September 2006 contains policies relating to LAQM. Policy NR5 relates to development sensitive to pollution and Policy NR6 relates specifically to air quality management. These policies provide support when local air quality issues are raised during planning consultations.

Planning applications for the construction of two advanced supercritical (ASC) coal-fired generating units on the Isle of Grain and a four-storey hotel in Rochester were received in 2007 and the developers are assessing air quality as part of the development control and environmental impact assessment processes.

3.3 New Developments

A major new tourist attraction, Dickens World opened in Spring 2007. This development is not thought to have had an impact on air quality.

Major regeneration continues within Medway, including the extensive waterfront development at Rochester and Gillingham. The Environmental Health team continue to work closely with internal planners and transport planners on air quality issues related to transport and land use planning.

There were no new road schemes in 2007.

3.4 Local Transport Plan

Local highway authorities are required by government to produce local transport plans. They are built around a 5-year integrated transport strategy, devised at local level in partnership with the community. In February 2006 Medway Council adopted Medway's second local transport plan. This has been submitted to the Department for Transport, and is now valid until the end of March 2011. The document sets out a programme of works over the five-year period of the plan.

The local transport plan sets out a range of integrated transport works over the life of the plan. Actions are likely to have air quality impacts in the Medway area. Details of Medway's transport plan can be obtained from the Medway Council website at http://www.medway.gov.uk/index/environment/transplanning.htm or by contacting the Integrated Transport Team.

Some of the key features during 2007 include the development of many workplace and school travel plans. For example, 31 schools in Medway have walking buses in operation helping to reduce congestion at the beginning and the end of the school day. Furthermore over 62% of all Medway schools have now developed school travel plans. In addition there has been an overall increase in the cycle network which now extends to 100km.

Medway Carshare has been a major success with over 220,000 members. The scheme aims to reduce the cost of travel to work, to increase social interaction, to decrease the number of trips on the highway network and to reduce demand for parking. Medway Carshare is part of the national liftshare network and also gives opportunities to search for longer journeys to be shared.

These are all likely to have positive effects on Medway's air quality in future years.

4.0 CONCLUSIONS

The NO_2 diffusion tube network was extended in 2007 to include new kerbside sites and sites in AQMAs. The annual mean results for 2007 were in the range of 19µg/m^3 for an urban background site to 59µg/m^3 for a busy roadside site.

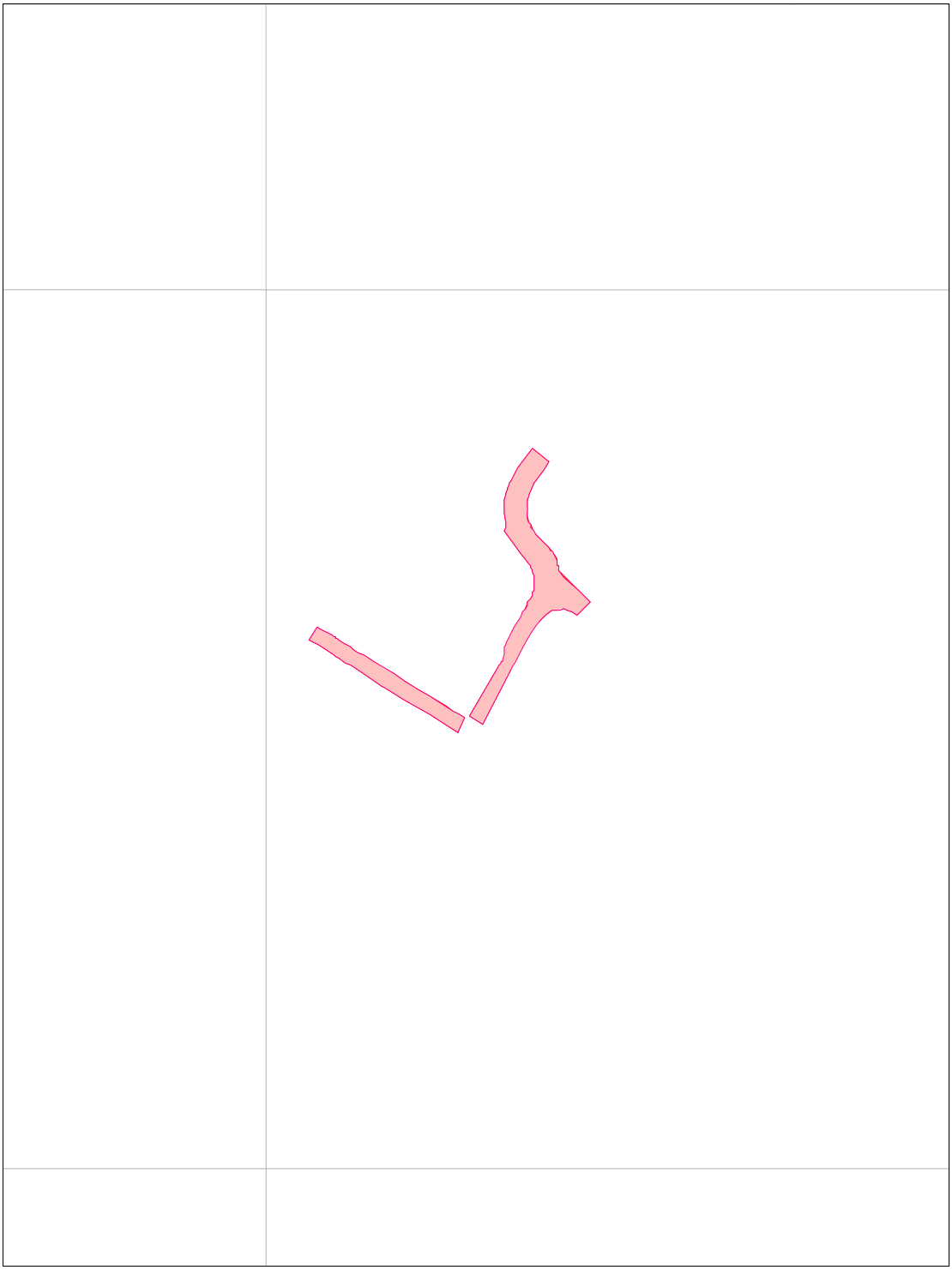
Consideration has been made of any significant local development changes, which are likely to have a significant impact on air quality. In 2007 re-development of Rochester and Gillingham Riverside continued. There have been no recent development changes that have been highlighted as impacting adversely on air quality during 2007.

Medway's second Local Transport Plan covers the period to the end of 2011 and includes measures, which impact on air quality. The environmental health team were consulted during the development of the plan. Some of the key achievements in 2007 include the success of the Medway Carshare scheme and the development of many school travel plans with an increase in walking buses. As air quality in Medway is primarily affected by transport sources, the Air Quality Action Plan forms part of the new Local Transport Plan.

This Progress Report has provided an update on air quality monitoring and local developments in accordance with the Guidance LAQM.PRG(03). The report has compared the 2007 monitoring data against the relevant Air Quality Objectives and twelve exceedences of the annual average objective for NO_2 were noted in 2007, five of which are within the AQMA, two are adjacent to AQMAs and one is located in an area of employment. Exceedences at four other sites have been noted and it is recommended that monitoring at these sites continue.

Appendix A – Air Quality Management Areas

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

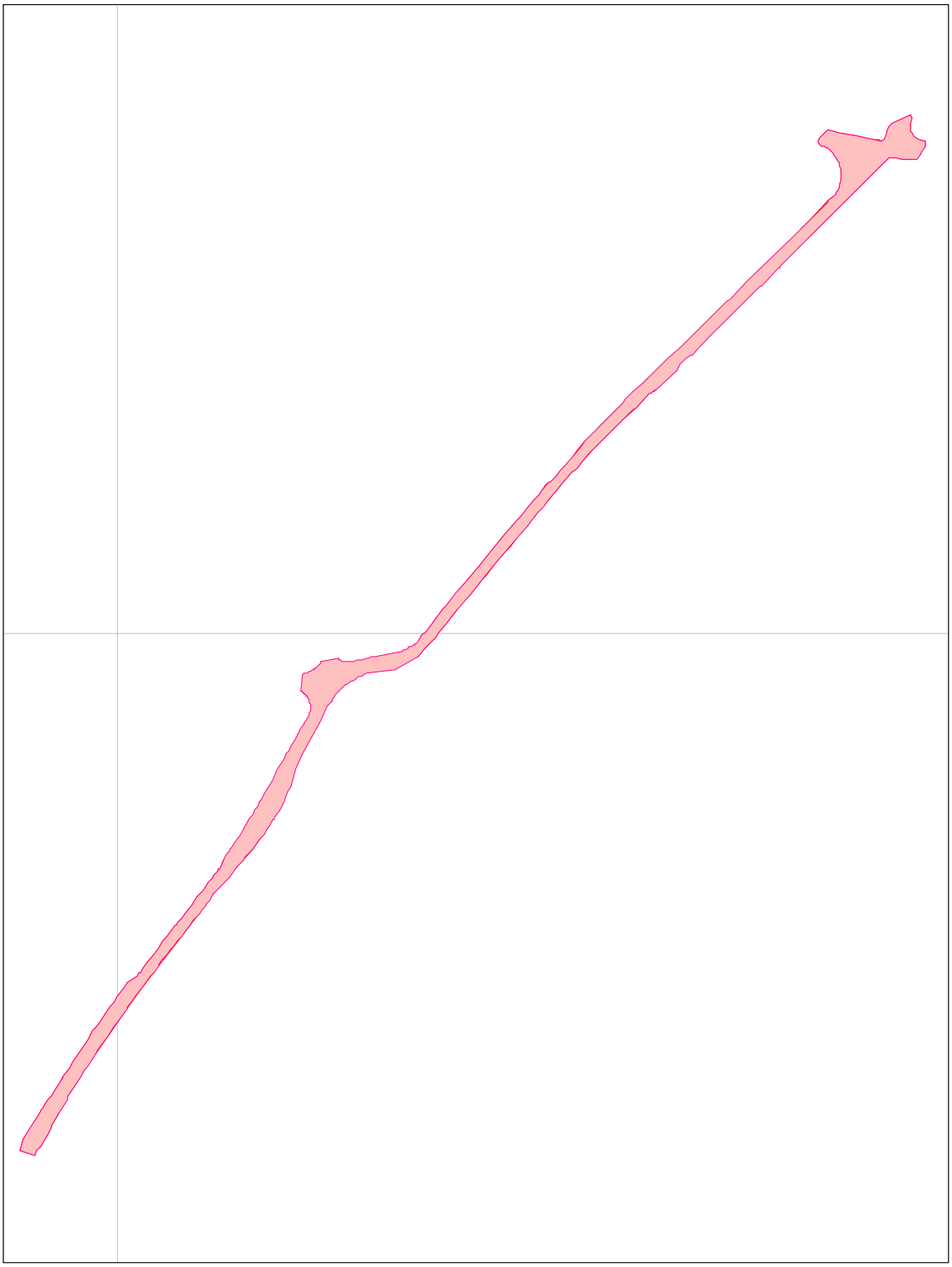


Chatham Centre AQMA
Air Quality Management Area
Area where exposure may occur above 2005 objective for Nitrogen Dioxide (annual mean)

Medway Council

Scale: 1:3000

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

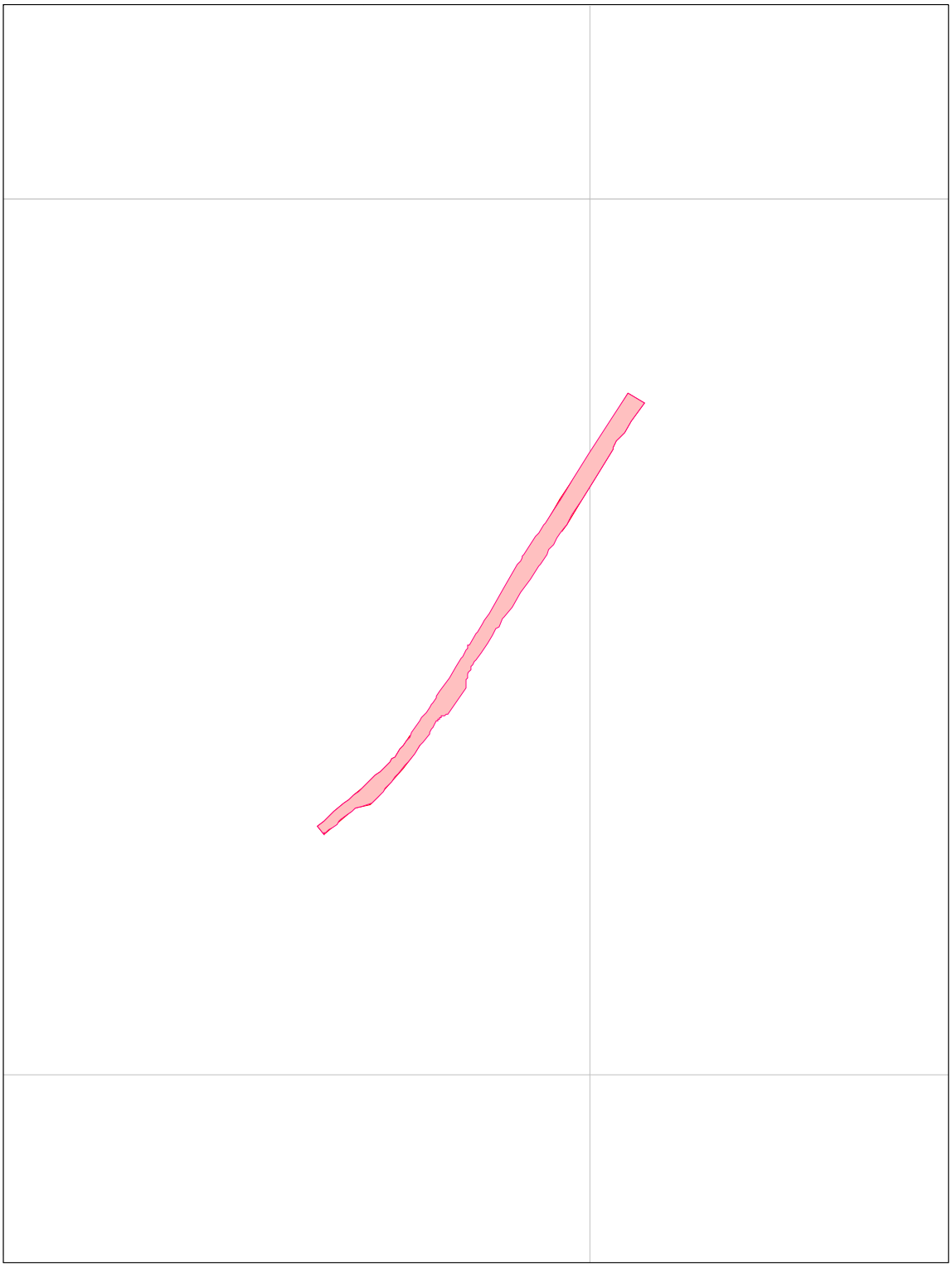


Cuxton Road AQMA
Air Quality Management Area
Area where exposure may occur above 2005 objective for Nitrogen Dioxide (annual mean)

Medway Council

Scale: 1:3000

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

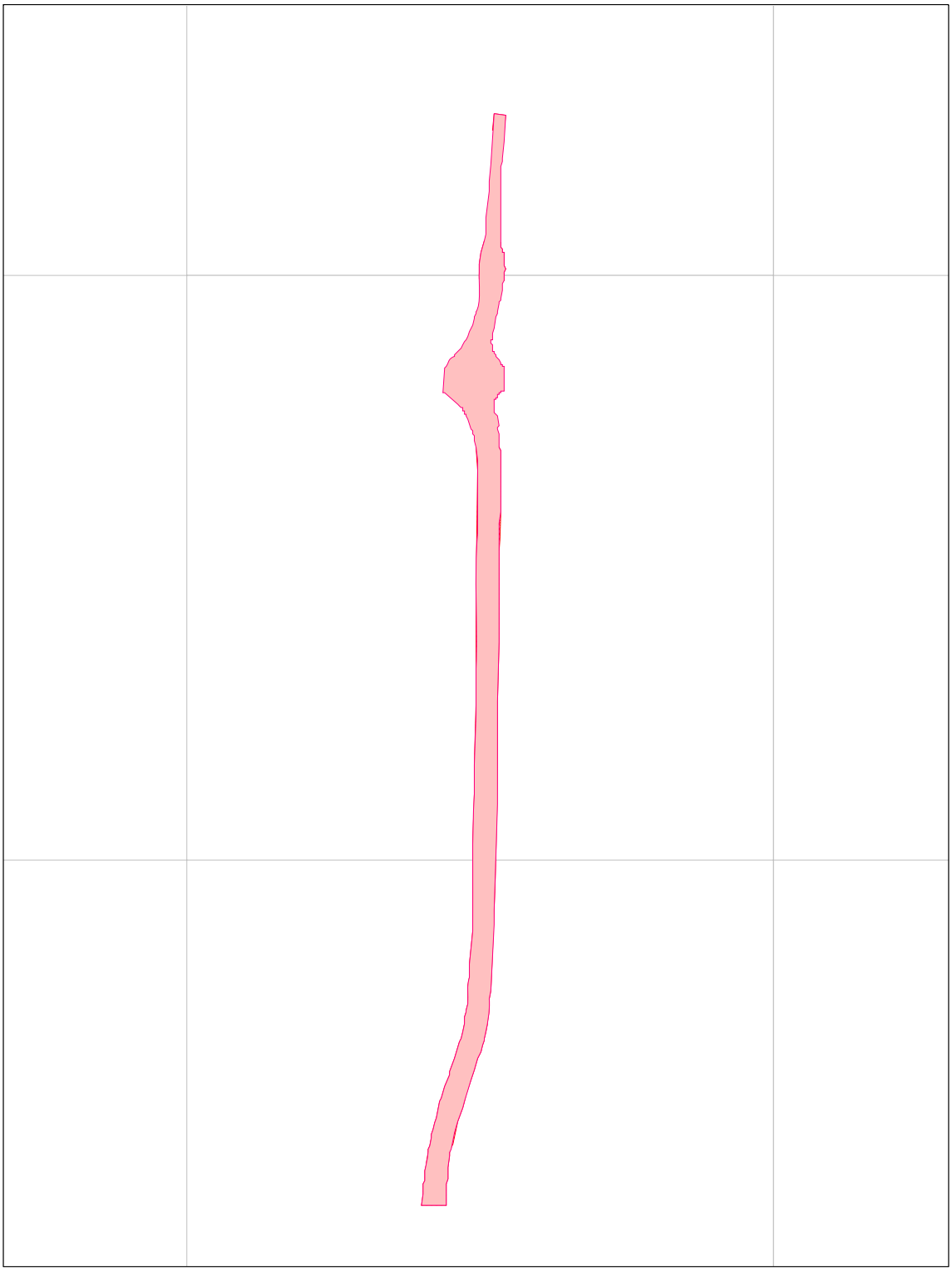


Frindsbury Road AQMA
Air Quality Management Area
Area where exposure may occur above
2005 objective for Nitrogen Dioxide (annual mean)

Medway Council

Scale: 1:3000

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

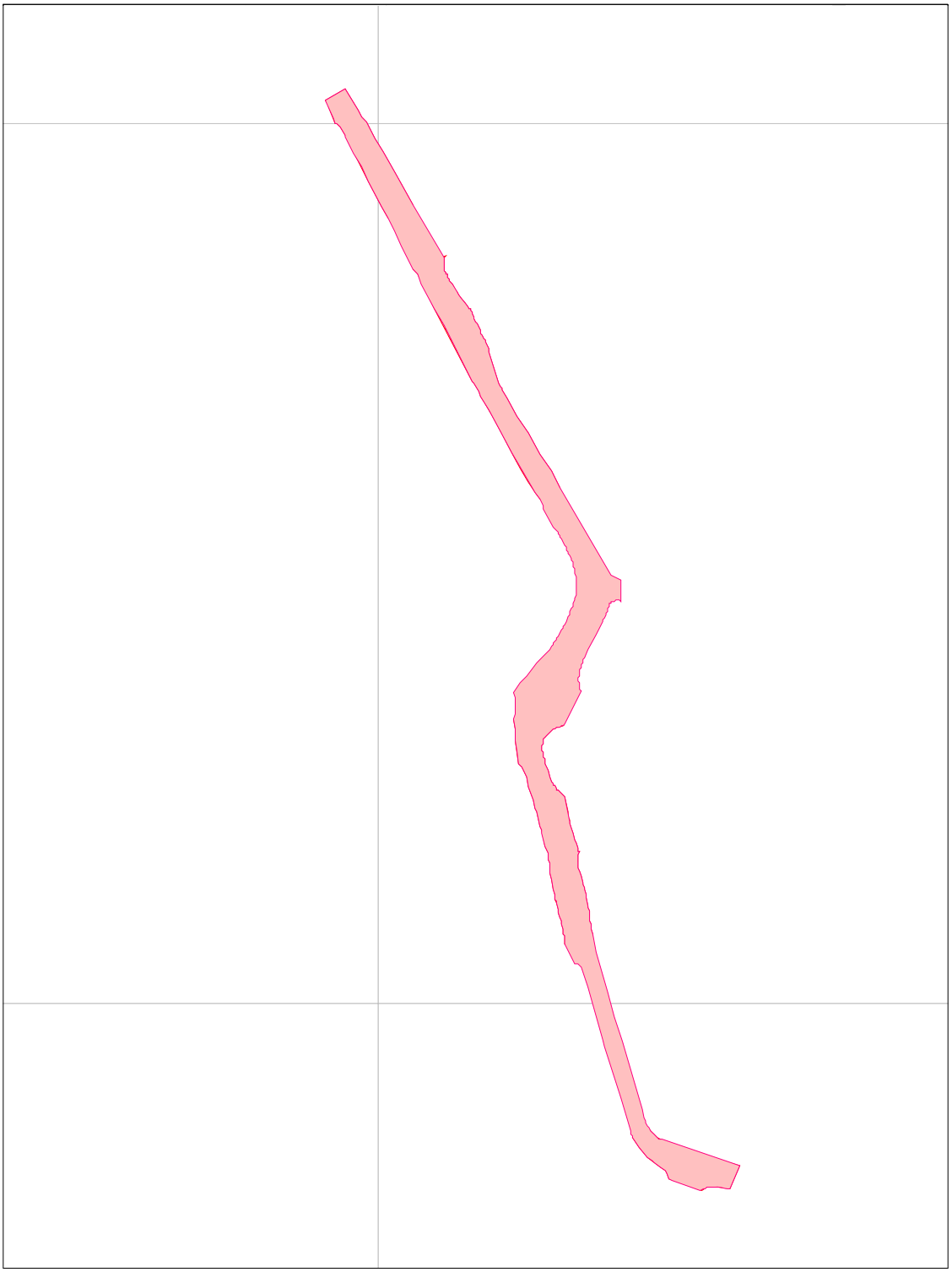


Maidstone Road, Chatham AQMA
Air Quality Management Area
Area where exposure may occur above 2005 objective for Nitrogen Dioxide (annual mean)

Medway Council

Scale: 1:4500

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

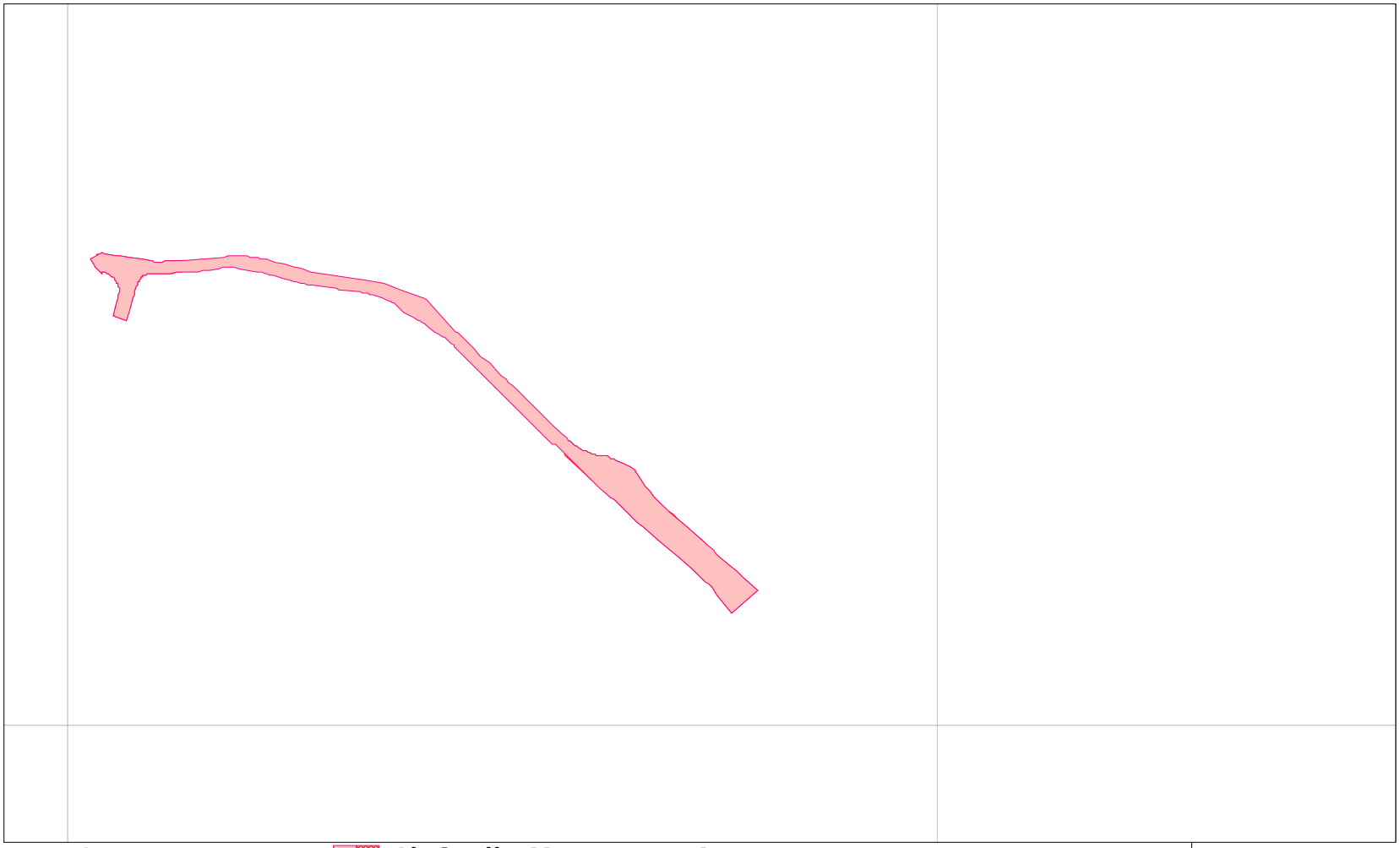


Rochester Centre AQMA
Air Quality Management Area
Area where exposure may occur above 2005 objective for Nitrogen Dioxide (annual mean)

Medway Council

Scale: 1:3000

The Environment Act 1995 The Air Quality (England) Regulations 2000
Medway Air Quality Management Area (2004)

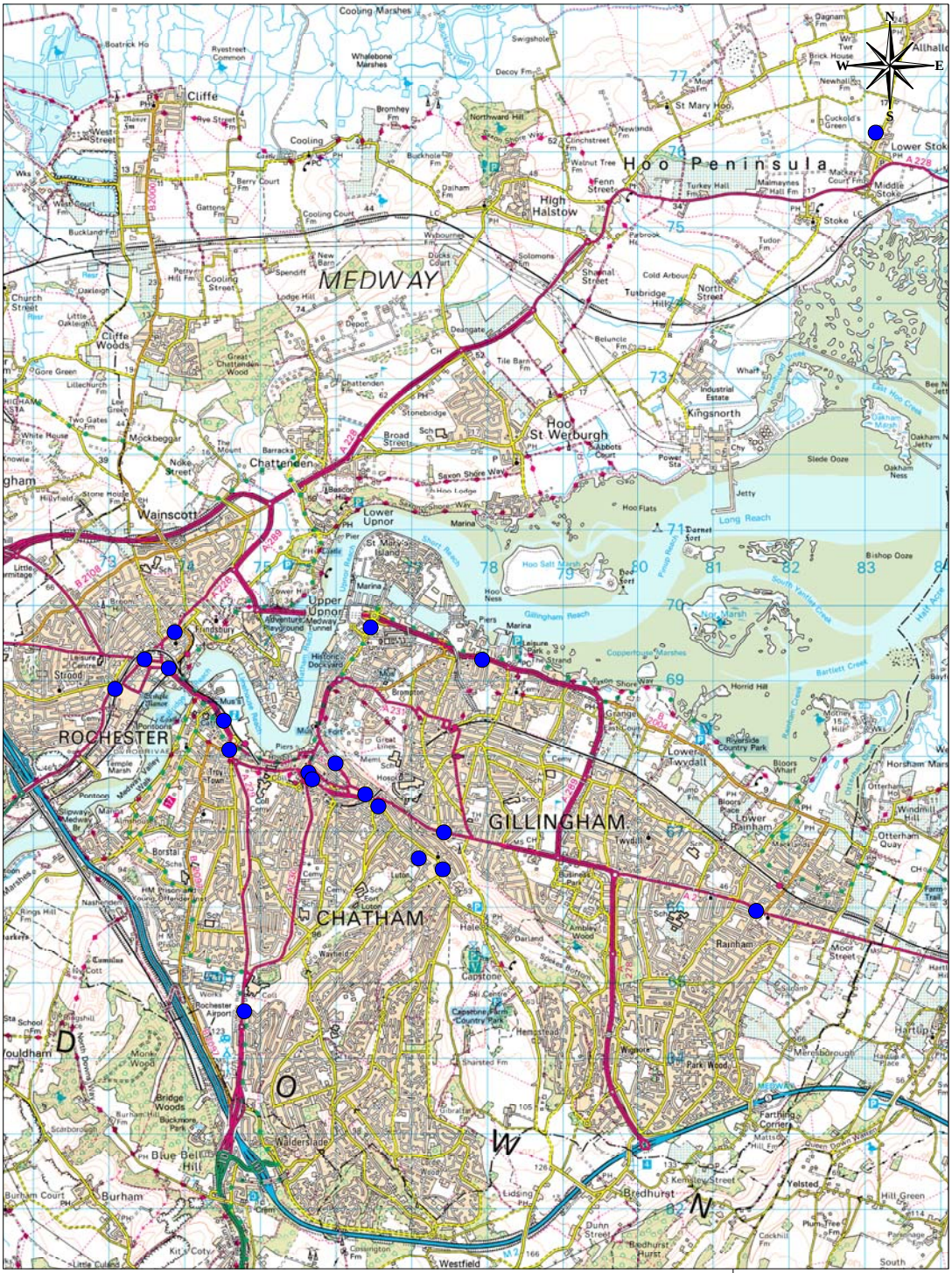


Strood Centre AQMA

Air Quality Management Area
Area where exposure may occur above 2005 objective for Nitrogen Dioxide (annual mean)

Scale: 1:3000

Appendix B – Location of Diffusion Tube Sites



Location of nitrogen dioxide diffusion tubes

Medway Council

Scale:1:70000 09/04/08

Medway Council

Local Air Quality Management
Air Quality Review And Assessment

AIR QUALITY ACTION PLAN

PROGRESS REPORT

April 2008

1 INTRODUCTION

Medway's Air Quality Action Plan (AQAP) was produced in July 2005. This set out the initial measures Medway Council intends to take to achieve a reduction in nitrogen dioxide concentrations across the area. The measures to improve air quality encompass transport planning, traffic management, land use planning, pollution control, local air quality management and promotional activities. Transport related emissions of nitrogen dioxide are the main issue for local air quality management in Medway. The action plan concentrates on initiatives aimed at reducing road traffic pollution as it represents the greatest percentage of emissions contributing to exceedences of this air quality objective. However, consideration is also given to measures that may help reduce emissions from other sources.

This report details the progress that has been made in delivering the measures contained within Medway Council's AQAP. Good progress has been made with the majority of measures. The table overleaf is arranged to show, amongst other things, what progress has been made with each measure and the outcome to date. Implementation of the AQAP has involved liaison with several Council departments, including Highways and Transportation, Planning, Waste Management and Environmental Health.

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
National Measures:				
Implementation of EU Directives on vehicle emission and fuel standards	S-M	The imposition of limits to the permissible levels of carbon monoxide, hydrocarbons and oxides of nitrogen in petrol vehicle exhaust has had a very positive effect. The limits have been successfully reduced and test methods made more accurate and stringent. http//www.defra.gov.uk	A downward trend in vehicle emissions is well established and this is set to continue as further planned initiatives are implemented.	Eventually, however, the effects of traffic growth may exceed the rate at which new technology lowers the cumulative emissions of the vehicle fleet.
Council wide measures:				
Develop corporate sustainability framework for Medway	S-M	The first corporate sustainability strategy was agreed in January 2007, building on the carbon management plan produced in conjunction with the Carbon Trust. The strategy is accompanied by a SMART action plan to support the following objectives: **Demonstrating good practice**: running the council's estate in a more sustainable manner; **Mainstreaming sustainability**: ensuring that all services consider the sustainability implications of their actions, and working to reduce any negative impacts; **Spreading the message:** the promotion of sustainability throughout Medway and beyond, through sharing good practice and exercising an external influence on suppliers and peers.	Projects have been identified to make energy efficiency savings using the Carbon Trust's 'invest to save' local authority fund. It is currently proposed that the projects will include improving heating efficiency in supported care for older people, extending the use of swimming pool covers and making alterations to the council's new civic head quarters at Gun Wharf in Chatham. Attempts to recruit an energy manager have proved unsuccessful and we are now looking at ways to develop existing staff to take on this role. The carbon reduction website was completed last year and is now available at www.medwayourplanet.net The website provides information to help the people of Medway work together to reduce greenhouse gas emissions making Medway a climate friendly place. The information has been designed to appeal to audiences including children and local businesses.	In November 2006 the Council signed the Nottingham Declaration on Climate Change - committing the council to working with the community to produce a carbon reduction plan.

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Land Use Planning:				
Kent & Medway Structure Plan	S	Policy NR5 relates to development sensitive to pollution. *Development which would be sensitive to adverse levels of noise, air, light and other pollution, will not be supported where such conditions exist, or are in prospect, and where mitigation measures would not afford satisfactory protection.* Policy NR6 relates specifically to air quality management. *The local authorities are required to* *a) review and assess air quality and, where necessary, declare Air Quality Management Areas* *b) work towards improving air quality in Air Quality Management Areas through preparation of an Air Quality Action Plan* *The scale and character of development in, or adjoining such areas, should be controlled so as not to adversely affect this improvement.*	The Kent & Medway Structure Plan was adopted in September 2006.	These policies provide support when local air quality issues are raised during planning consultations.
Planning conditions and development controls	S	The Medway Local Plan 2003 includes a policy on air quality, Policy BNE24, which states: *Development likely to result in airborne emissions should provide a full and detailed assessment of the likely impact of these emissions. Development will not be permitted when it is considered that unacceptable effects will be imposed on the health, amenity or natural environment of the surrounding area, taking into account the cumulative effects of other proposed or existing sources of air pollution in the vicinity.* Medway Council has developed a Guide to Developer Contributions which sets out what obligations and contributions will be required for future developments. Developers are expected to take account of and meet the requirements of this document before submitting planning applications to the council.	Planning applications with air quality implications are submitted to the Environmental Health service for comment. This is particularly important for any development proposals alongside AQMA's or that might have an impact on air quality in an AQMA. Work has started on an air quality technical guidance note for developers. Environmental Health have submitted a section which will require all new developments above set thresholds to contribute towards the maintenance or improvement of the Council's roadside air quality monitoring network, and other initiatives that contribute to local air quality management.	This consultation process will continue. The Cabinet approved the adoption of the Medway Council Guide to Developer Contributions as a Supplementary Planning Document on 22 April 2008.
Medway Council's Website	S	Medway Council's air quality page provides a link to the www.kentair.org.uk site which provides information on current and historic air quality in the Medway area.	Specialist consultants make use of this data when undertaking assessments for planning applications.	

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Transport Planning:				
SCOOT System, Strood	M	An urban traffic control (UTC) system that co-ordinates traffic signal timings has been in place in Medway since 1980. Split Cycle and Offset Optimisation Technique (SCOOT) equipment followed. A study was undertaken to review the existing traffic control system at road junctions and from this the LTP target was developed and incorporated in LTP2 to have in place a full Urban Traffic Management Control System (UTMC) system. This resulted in a recommendation to upgrade the SCOOT at a number of these junctions.	Changes commenced in April 06 as a result of a new retail development in Knight Road, Strood. This development also involved the modification to signals at the High Street Strood and Station Road junction. All highway works are now complete, traffic signal links to SCOOT in progress. SCOOT has been introduced in Chatham Town Centre since the implementation of the new two-way system. As part of Medway's UTMC project SCOOT is to be introduced into Rainham and will be implemented in the month of June 2008	It is anticipated that UTMC will improve traffic control and contribute to improved local air quality
Council Travel Plan	On going	Medway Council's workplace travel plan was adopted in September 2000. The plan contains a number of initiatives to reduce single occupancy car travel and increase alternatives such as walking, cycling, car sharing, using public transport and flexible working practices. The travel plan continues to be promoted through 'bike 2 work' and 'green travel to work' days as well as a staff newsletter and staff induction packs. Medway Carshare at www.medwaycarshare.com is an interactive website which links drivers and passengers who make similar journeys. This is a free service run by the council which is available to everyone and has over two hundred thousand members.	A measure of the success of the travel plan can be seen in the sales of staff traveller bus tickets, which have significantly increased since 2001. The equivalent weekly sales show an increase of 213% from 2051 in 2001/2 to 6422 in 2007/8.	
School Travel Plans	On going	School travel plans are developed by school communities in conjunction with Medway Council, to promote sustainable travel, modal shift, partnership working and Safer Routes to School (SRtS) projects.	An additional 20 school travel plans were approved in Medway during in 2006/2007. The total number of school travel plans in Medway amounts to 73, over 62% of the schools in Medway. This figure will continue to increase in Medway following the 2007/2008 Quality Assurance (QA) procedure. As of March 2008, there are currently 31 walking bus routes in Medway, compared to 26 in 2006/07.	

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Pedestrian- Cycle Networks	S	Medway Council, in partnership with local travel interest groups, has adopted a strategy to encourage walking and cycling and to assist people with restricted mobility. The strategy anticipates that a combination of encouragement and promotion, better land use planning and the implementation of engineering and complementary measures can achieve a reverse in the decline in walking and cycling in urban areas. These measures will also improve conditions for people with mobility difficulties significantly.	LTP target 2.3: To increase the level of cycling on the primary cycle route network in Medway by 5% by 2010/2011 compared with 2003/04 levels. Target on track LTP target 3.1: To increase the length of Medway's cycle network from 70km in 2003/04 to 100km by 2010/2011. Target on track. In April 2006 we stood at 79.5km, and after a further audit of our network we have reached the 100km target. Two cycle schemes implemented, a signing scheme and a road scheme as part of a major junction improvement. 12 schemes from the Cycle Action plan are currently undergoing feasibility checks in preparation for implementation in the coming year. LTP target 4.5: To increase the number of rail passengers cycling to one major railway station in Medway by 15% by 2010. Target on track. Monthly surveys continue to show increase. For all stations the base line figure was 61. In 2007 the figure was 95, a growth of over 50%. Promotional work is scheduled to be undertaken. Cycle counts as part of annual traffic surveys on the A2, A229, A231 have indicated a 15.0% increase between 2006 and 2007. However, as this is a small sample and six permanent counter sites have been installed to obtain more detailed, continuous data. We are planning to install another 12 counters at the end of April 2008	These measures should contribute to local air quality by reducing the use of the private car.

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Bus Improvements	S	Medway has been mentioned as having three of the fastest growing bus routes for 2004 in England according to the Confederation of Passenger Transport Annual Report.	Medway Council launched the community transport scheme in June 2006 which has been successfully developing with an increasing membership. The Villager has two accessible minibuses and a group of volunteer drivers and provides a variety of sustainable public transport services for Medway's villages. Work continues on the transition of the Villager from the council to an independent voluntary organisation to ensure its long term viability The Expansion of the Yellow Bus School Scheme continues to be reviewed as it is currently fully occupied on a school day and has waiting lists. Any expansion must be accommodated within the financial constraints available. Half price fares for children came into effect from September 2007. A School's provisional Sustainability Strategy was produced for September 2007. Work is in-hand to produce the final document for September 2008.	Reducing reliance on the private car will contribute to improved local air quality.

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Transport for Medway	M-L	Transport for Medway (TfM) was a major, continuing study being conducted by Colin Buchanan, an independent consultancy specialising in transport. They have been working closely with Medway Council to develop a new, integrated transport policy for Medway which has now concluded.	Following earlier rounds of consultation with the public, a preferred strategy has emerged. This strategy consists of six short term measures and three long term measures: **Short term measures** New bus routes A2 Strategic Transport Corridor Bus priority measures elsewhere Expanded park and ride provision linked to overall parking provision Improving the image of public transport in Medway Adopting best practice from other cities **Long term measures** Improved transport interchanges linked to developments Network of quality transport corridors A new kind of transport system	Transport modelling work has commenced on key junctions along the A2. Modelling for Bowater's roundabout at Gillingham is complete. A CIF 2 bid to government has received preliminary acceptance in the Thames gateway delivery plan and a business case in now under development to release funding. This process if successful will allow the implementation of some of the TfM measures.

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Parking Management	S-M	A significant influence on whether people drive into towns is whether they can park. The Road Traffic Regulation Act 1997 permits local authorities to determine parking provision and charging schemes. Local authorities can also use the planning process to regulate the amount of private non-residential parking associated with new development. Medway has adopted a number of parking control practices likely to contribute to improvements in local air quality.	During 2007/2008 the rate of conformity with Medway Council's Parking Standards was 99%. Only 2 permitted developments had more than the maximum permitted number of parking spaces and these were both by a very small number of parking spaces. A large number of developments, including ongoing regeneration proposals in Medway's town centres have provided low levels of parking coupled with other measures to create more sustainable developments. The integrated transport team through the planning process, seek to secure Travel Plans for all developments including education, commercial, retail facilities as well as residential developments. This is coupled with developer contributions to pedestrian, cycle and public transport improvements where at all possible.	

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Pollution Controls Domestic emissions:				
Enforcement of statutory nuisance legislation	S	Medway's Environmental Health service is responsible for investigating statutory nuisance including, smoke and dust emitted from premises and taking appropriate enforcement action. Officers also offer information and advice on how to minimise the risk of causing a nuisance of this kind.	Complaints of smoke and dust are investigated and formal action taken where appropriate. No formal action was undertaken during the period April 2007 to March 2008.	
Enforcement of Smoke Control Area	S-L	Parts of Medway have been designated as Smoke Control Areas. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance.	Information on Smoke Control Areas is given in Local Authority Searches and the Environmental Health Service investigates complaints.	
Bonfire leaflets and advice	S	The council promotes composting as an alternative to burning garden waste. Medway also operates a kerbside green waste collection service across parts of the district. Three civic amenity sites run by the council have facilities for recycling or disposing a wide range of materials to help reduce the need for bonfires.	The number of bonfire complaints received during 2007 increased by 5% compared with 2006. 1340 compost bins were issued to Medway residents in 2007 increasing the total number issued in Medway to 10,944.	
Industrial emissions:				
Licensing and enforcement of LAPPC and LA-IPPC regulated processes	S	Part B industrial processes currently regulated by Medway under LAPPC comprise of the following: - 9 Mineral Processes 15 Mobile Plant Processes 4 Coating Processes 3 Solvent Emissions Directive (SED) Surface Cleaning Processes 3 Timber Processes 5 Vehicle Re-spraying Processes 1 Non Ferrous Metal Foundry Process 1 Printing Process 14 Dry Cleaning Processes 28 Petrol Station Processes	All inspections have been completed in accordance with our statutory requirements. The processes were found to be satisfactory and within their authorisations.	

Action Plan Measure	Original Timescale S Short term to 2006 M Medium term 2006-2009 L Long term 2009+	Progress with measure	Outcome to date	Comments
Local Air Quality Management:				
Air Quality Monitoring	L	Monitoring for NO_2 has been undertaken in Medway at various roadside, background and rural sites using passive diffusion tubes since 1993. Monitoring was carried out at 25 sites throughout the area in 2007. Medway has three continuous automatic air quality stations; one at an urban roadside location in Chatham, one at an urban background site at Luton and one at a rural location in Lower Stoke. Monitoring of NO_2 and particulates (PM_{10}) are carried out at all three sites. The Lower Stoke and Luton sites also monitor Sulphur Dioxide (SO_2) and Ozone (O_3). In addition the Luton site monitors Carbon Monoxide (CO).	The annual mean NO_2 results for 2007 were in the range of 19µg/m^3 for a rural background site to 59µg/m^3 for a busy roadside site. Urban background concentrations were a maximum of 35µg/m^3. Twelve kerbside sites had means, which exceeded the annual mean objective for NO_2. Medway Council is up to date with its air quality review and assessment work. The council is preparing for the next round due to commence in 2009.	It is recommended that monitoring at both the continuous and passive monitoring sites continue.
Continued participation in partnership working	On going	Air quality monitoring in Medway is undertaken as part of the Kent and Medway Air Quality Monitoring Network, which forms part of the Kent and Medway Air Quality Partnership. All but one of the Kent district authorities participate in the monitoring network, thereby providing a strategically focused monitoring regime. The council takes a lead role in the network as it administers the contract with specialist consultants who manage the data handling, ratification and publication of monitoring results. A network report is published annually and all monitoring data and annual reports are available on the network website. Medway's web page has a direct link to the network website.	The Kent and Medway Air Quality Monitoring Network has been operating for eleven years. The network continues to support the member authorities in carrying out their LAQM duties.	

Appendix D – Calculation of Bias Correction

The methodology outlined in the Technical Guidance LAQM.TG (03) has been used in the calculation of the bias adjustment factor.

To take account of the bias in the diffusion tubes supplied and analysed by Harwell Scientifics, an assessment has been made of 3 continuous air quality monitoring sites in Medway which had co-located diffusion tubes in 2007 and have >10 months of data capture.

A co-location study produces an annual mean diffusion tube concentration ***Dm*** and an annual mean chemiluminescence concentration ***Cm***.

A bias adjustment factor A is calculated as follows:
A= Cm/Dm

The diffusion tube annual mean values are then multiplied by this bias adjustment factor

Calculation of bias adjustment factor				
Site name	Location	Annual mean 2007 NO_2 $\mu g/m^3$ continuous analyser **Cm**	Annual mean 2007 NO_2 $\mu g/m^3$ diffusion tubes **Dm**	Bias adjustment factor **Cm/Dm = A**
Stoke	rural	18.5	32.7	0.57
Luton	urban background	25.8	30.1	0.86
Chatham	urban roadside	33.9	40.1	0.85