Air Quality Action Plan 2011

Thanet District Council

Draft

Report for Thanet District Council

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Executive summary

The Environment Act 1995 requires all Local authorities to review air quality within their districts. If it appears that any air quality “Objective” prescribed in the regulations and in the National Air Quality Strategy is not likely to be achieved then the local authority must designate the affected areas as Air Quality Management Areas (AQMAs). The Act then requires that an Action Plan be produced for any areas designated as AQMAs, setting out the actions that the District Council intend to take to achieve the National Air Quality Strategy.

Thanet District Council, hereafter referred to as The District Council, declared an AQMA in Birchington and St Lawrence for expected traffic related exceedence of the nitrogen dioxide (NO2) annual average objective. The District Council works with the local highway authority, Kent County Council (hereafter referred to as the County Council) to help secure improvements to the network. The District Council has consulted widely with local organizations and the public in developing measures for inclusion in this Action Plan.

In compiling this Action Plan, Government Guidance LAQM.PG (09) and the Review and Assessment reports produced by the District Council have been referred to. The Action Plan will be subject to statutory and public consultation and amended accordingly prior to formal adoption by the District Council.

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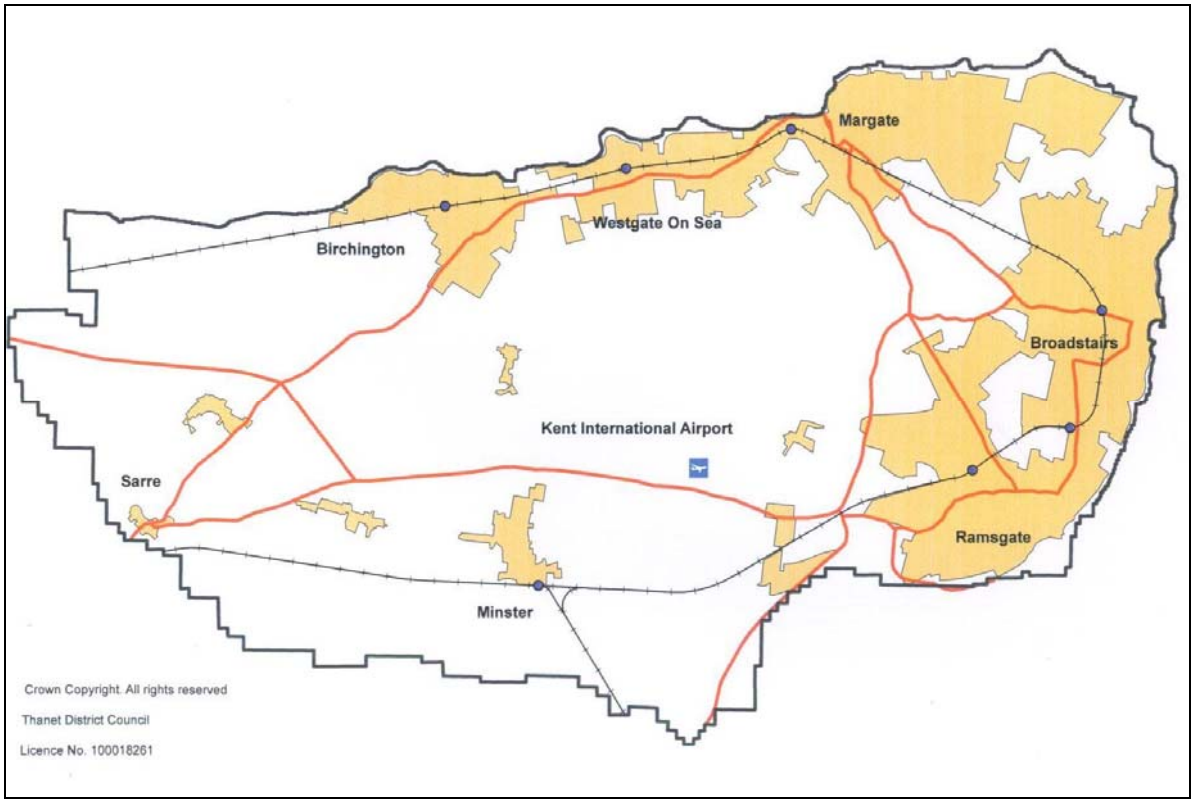
1 Introduction

This local Air Quality Action Plan sets out a work programme to improve air quality at The Square, Birchington and High Street, St Lawrence by the District Council in partnership with the County Council. The District Council is consulting the public and other statutory consultees on the content of the plan in advance of a final plan being approved by central Government and both Councils and then implemented.

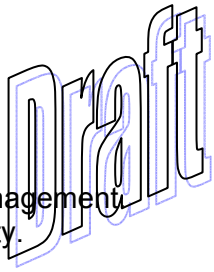
Thanet is located in the north east corner of Kent and is a diverse district incorporating coastal and rural environments, and urban areas dominated by the towns of Margate, Ramsgate and Broadstairs. (Figure 1.1).

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 two areas within the district where levels of pollution give rise for concern. As such, two Air Quality Management Areas have been declared in the District, one in Birchington and the other in St Lawrence. The District has a statutory duty to develop an Action Plan to improve air quality in these locations. Other areas within the county also exceed these limits (40 □g m-3).

Figure 1. Thanet District Council.



2 Air Quality in Thanet



This chapter sets out local authority duties in relation to Local Air Quality Management. These are the tasks that the District Council must complete as a statutory duty.

2.1 Health effects of poor air quality

There are various sources of air pollution in the UK. These can include transport (mainly road transport), energy – both use and production, commercial / industrial premises and natural sources. The Government has identified 8 key pollutants:

- Nitrogen Dioxide
- PM10 particulates
- Benzene
- 1,3-butadiene
- Lead
- Sulphur Dioxide
- Carbon Monoxide
- Ozone

This Action Plan is primarily aimed at reducing NO2, but the initiatives within it will have a positive effect on the reduction of other air pollutants, especially particulates. The health implications of the three main transport emissions types are as follows:

Nitrogen Oxides (NOx). Road transport is responsible for approximately 50% of the emissions of NO2 in Britain. NO2 has been identified as having various adverse health effects particularly on the respiratory system and in both asthmatics and non-asthmatics. Short-term exposure to this pollutant can increase the likelihood of reaction to allergens such as pollen and has been known to increase asthma in some people. Children exposed to this pollutant may have increased risk of respiratory infections.

Particulates (PM10). Particulates can be produced directly from combustion and other processes, as well as from natural activities. They can also be caused by chemical reaction in the air. Particulates of less than 3 µm can pass deep into the lungs thus causing respiratory problems.

Carbon Monoxide (CO). Carbon monoxide is a colourless, tasteless gas, which is known to be poisonous when incomplete combustion occurs. Inhaling small doses of this gas can result in a person becoming confused and having reduced co-ordination. It can also increase the likelihood of angina. Concentrations of this pollutant are now well below levels which are known to have adverse health effects.

Principal Sources of Air Pollution in the District. Nitrogen dioxide (NO2) and nitric oxide (NO) are collectively known as Nitrogen Oxides (NOx). Nitrogen Oxides, which are the main source of poor air quality, are produced during all combustion processes in air. The pollutant is usually emitted from the source in the form of NO which subsequently reacts with ozone (O3) to form NO2. The predominant source of NOx in Britain is road transport and it is thought that half of emissions in Europe originate from this source; certainly the highest concentrations of NO2 are generally found close to busy roads in urban areas. NO2 pollution levels within the District follow a similar pattern with the majority of NOx emissions being road transport related. Commercial, industrial and domestic sources also make a small contribution to background. NOx emissions close to the Port of Felixstowe arise from a number of commercial and transport related sources.

In the UK, air pollution is currently estimated to reduce the life expectancy of every person by an average of 7-8 months with estimated equivalent health costs of up to £20 billion each

year. Air pollution also has a detrimental effect on our ecosystems and vegetation, clearly there are significant benefits to be gained from further improvements.

To protect the health of the population, the Government have set out a national air quality strategy which includes statutory objectives (standards) for some key pollutants. The objectives are expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedences within a specified timescale (see Appendix 1). The objectives have been set throughout the UK and European Union at levels that aim to protect the vulnerable members of society from the harmful effects of breathing pollution.

In response, a number of measures have been introduced at an international level (including the UK) to reduce this impact. They include:

- Incremental reductions in emissions from vehicles and industry
- Climate change programme policies
- Local Air Quality Management (see following section)

The UK government recognises the important role that local authorities have and continue to play in helping deliver the air quality objectives.

2.2 The legislative framework for air quality

Local Air Quality Management

The Environment Act 1995 gives local authorities duties and responsibilities that are designed to secure improvements in air quality, particularly at the local level. These include the review and assessment of key pollutants in their area in a series of rounds every three years. If it appears that any of the air quality objectives set by government are not likely to be achieved resulting in members of the public being exposed to the pollution, the local authority must by order designate any part of its area so affected, as an Air Quality Management Area (AQMA). They must then prepare and implement a remedial Action Plan of measures to reduce air pollution levels in that AQMA. A Review and Assessment round consists of local authorities initially undertaking an Updating and Screening Assessment (USA) and then carrying out the following stages if any objectives are found to be exceeded:

- Detailed Assessment of those areas identified in the USA as potential AQMA's
- Designation of AQMA
- Further Assessment of air pollution in the AQMA
- Amendment if necessary of AQMA boundaries
- Action Plan
- Annual Action Plan Progress Reports

The fifth round of Review and Assessment is due to commence in 2012. The District Council has currently designated two AQMA's, one in Birchington, declared in March 2006, and the other more recently declared in St Lawrence, declared in 2011. An Action Plan was previously drawn up for the Birchington AQMA in 2007 and this now requires updating. Both AQMAs are therefore the subject of this Action Plan.

2.3 Conclusions of previous review and assessment of air quality in Thanet

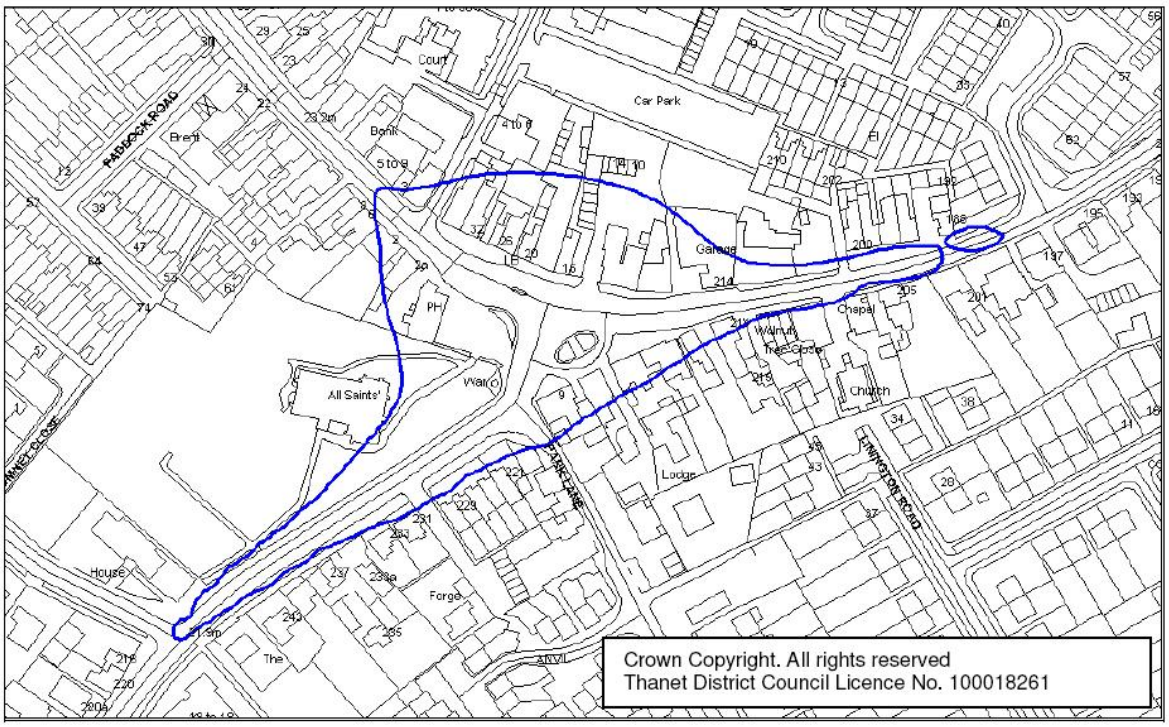
The District Council has completed its Local Air Quality Management duties in compliance with the government guidance. The bulk of the work to date has been to review air quality in the district and to assess whether any problems with achieving the health based air quality objectives exist now or are predicted for the future. This section provides a summary of this work.

Initial assessment of air quality began in 1998, but it was not until the second round of review and assessment in 2004 that seven potential areas of NO_2 annual mean exceedence and five potential areas of PM_{10} annual mean exceedence were highlighted. These were:

- The Square, Birchington (NO_2 and PM_{10})
- King Street/Boundary Road/Hereson Road, Ramsgate (NO_2 and PM_{10})
- Marine Gardens, Margate (NO_2 and PM_{10})
- The Broadway, Broadstairs (NO_2)
- College Road, Margate (NO_2 and PM_{10})
- Queens Avenue/Ramsgate Road, Margate (NO_2 and PM_{10})
- Haine Road, Ramsgate (NO_2)

A Detailed Assessment undertaken in 2005 highlighted that one area, The Square, Birchington, was predicted to exceed these objectives and recommended that an Air Quality Management Area (AQMA) should be declared due to emissions from local road traffic. This culminated in the declaration of the AQMA in March 2006 and the installation of an air quality monitoring station in 2007. Figure 2 shows the extent of the AQMA. This area comprises a roundabout on the A28 Canterbury Road (the primary Margate to Ashford route) and Station Road, which is the main shopping street in Birchington. Close to this junction Park Lane joins Canterbury Road. Park Lane carries a large proportion of the primary school traffic.

Figure 2. The Square, Birchington AQMA.



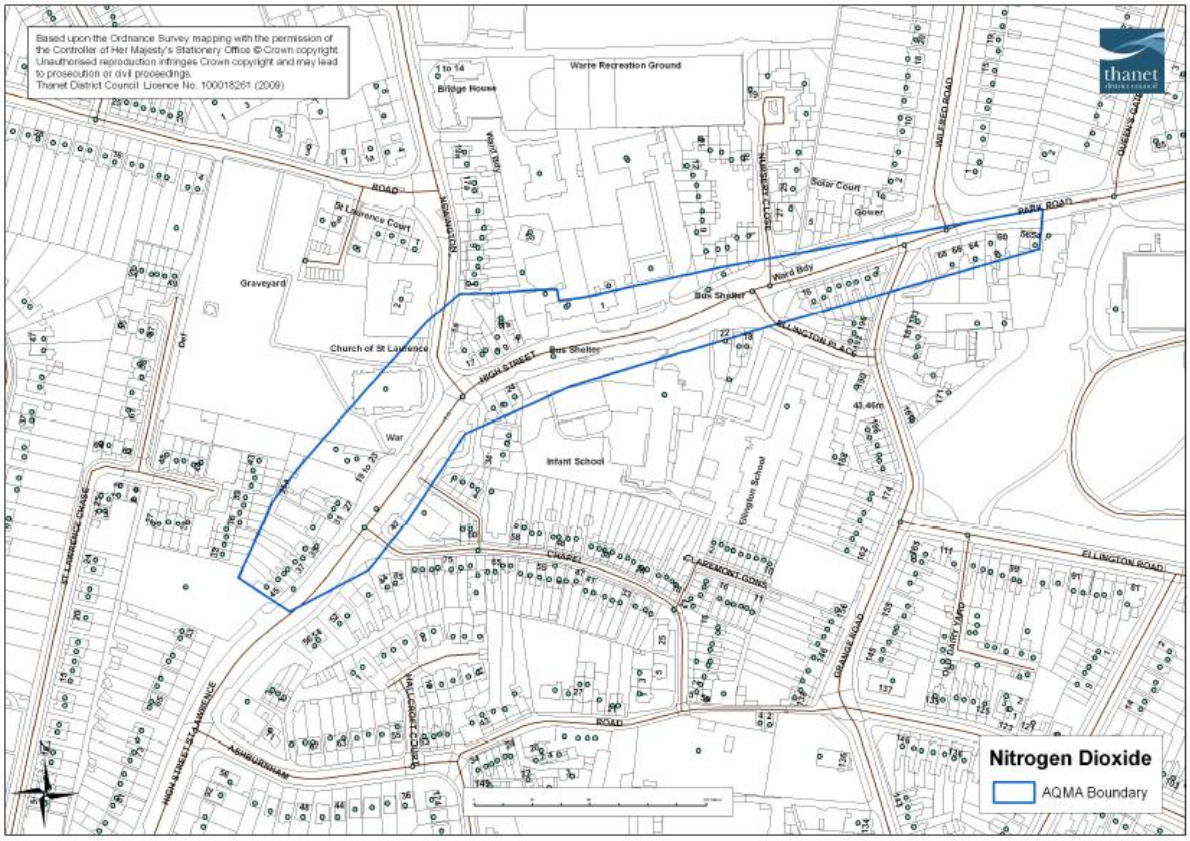
The Further Assessment undertaken for The Square, Birchington indicated that road traffic was the primary source of NOx emissions (71%) and of this approximately a third was due to Heavy Duty Vehicle movements, even though they comprised less than 5% of the vehicle fleet. Background concentrations of PM_{10} were found to make up 75% of the total concentrations with the remaining 25% originating from road traffic emissions.

An Action Plan was published in October 2007 which set out the mechanisms through which the local authority would deliver measures to work towards meeting the Air Quality Objectives though joint working with the County Council and other organisations. This Action Plan now requires updating. This is addressed in this document.

The 2011 Annual Progress Report produced as part of the most recent round of Review and Assessment has found that concentrations of PM_{10} within the Birchington AQMA have been consistently well below the annual mean objective concentration since continuous monitoring began within the AQMA in 2007. It is the Councils plan to revoke the PM_{10} AQMA declaration, leaving the declaration for NO_2 in place.

The USA undertaken at the start of the third round of review and assessment in 2006 concluded that a Detailed Assessment was required at two further locations, Hereson Road, Ramsgate and High Street, St Lawrence. This assessment, undertaken in 2008, predicted exceedance of the annual mean NO_2 objective at a small number of receptors on High Street, St Lawrence and an AQMA was declared in April 2010. Figure 3 shows the boundaries if this AQMA.

Figure 3. High Street, St Lawrence AQMA.



The Further Assessment undertaken in 2010 showed that five receptors were predicted to exceed the NO_2 annual mean objective. These are clustered on either side of Park Road close to the roundabout junction with Newington Road and High Street. This is demonstrated in *Figure 4*. Receptors 1 to 5 in Figure 4 were modelled to exceed the NO_2 Annual Air Quality Objective as presented in Table 1.

The traffic data for the modelling were sourced for the A255 High Street / Park Road from Kent County Council traffic counts and completed with detailed fleet composition data for 2009. For Newington Road, data from automatic traffic counts carried out in October 2008 were used. Traffic data were projected to year 2010 using growth factors adjusted for the Thanet area.

Figure 4. High Street, St Lawrence AQMA showing modelled receptors. Map sourced from the 2011 Further Assessment[1].

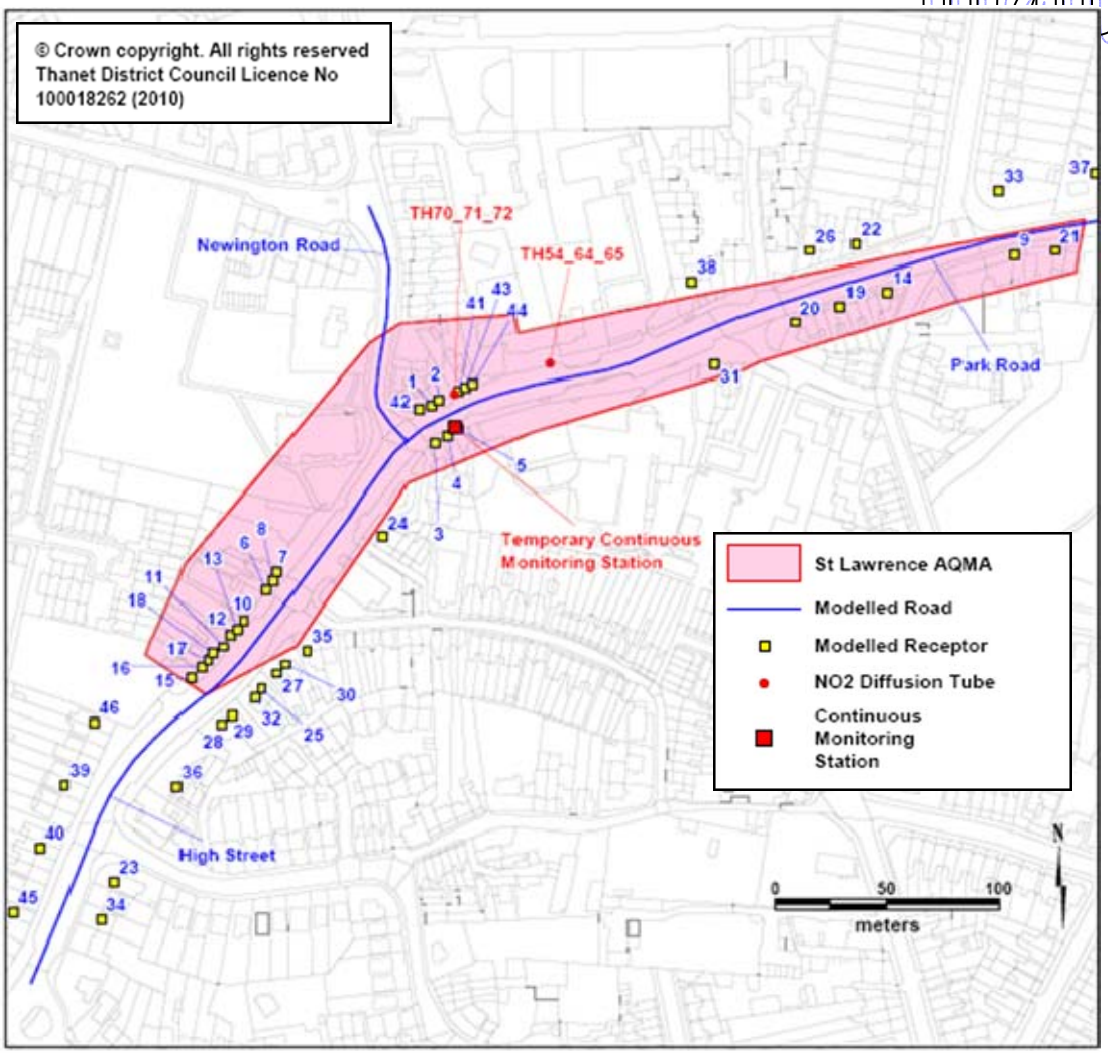


Table 1. Receptors on Park Road modelled to exceed the Annual NO_2 Air Quality Objective of 40 ug/m^3.

Receptor ID	Total Modelled NO_2 2010 µg/m^3
1	42.2
2	41.4
3	44.3
4	41.3
5	41

Source apportionment showed that, although background pollution levels contribute significantly, road traffic is the main emissions source contributing to elevated levels of NOx and NO_2. Table 1 shows the results of the source apportionment calculations. Of the traffic emissions HDVs (HGV plus buses) are the most significant contributors.

[1] http://www.thanet.gov.uk/pdf/Thanet_DC_Further_Assessment2010_Final_word.pdf

Table 2. Source apportionment at highest predicted receptor.

Source	NOx %	NO_2 %
Local background	11.6	16.8
Regional background	19.3	27.9
Road traffic	69.2	55.3
Car	*26.5*	*21.2*
LGV	*13.3*	*10.7*
Bus	*9.6*	*7.6*
HGV	*19.8*	*15.8*

The reduction in NOx concentrations required to comply with the AQS objectives in the St Lawrence AQMA is approximately 13µg/m^3 (equivalent to a 21% reduction in road-NOx emissions). This equates to about 4µg/m^3 reduction in NO_2 (10% reduction). Measures formulated in the Local Action Plan should aim to reduce the levels of NOx / NO_2 within the AQMA by at least these amounts.

2.4 Recent trends in air quality within the two AQMAs

Table 3 shows annual mean concentrations of NO_2 at all monitoring sites located within the AQMAs All diffusion tube data presented has been corrected for laboratory bias. The bias correction factor for each year has been calculated from collocation studies undertaken within the Thanet District Council area.

Table 3. Annual mean NO_2 concentrations (µg/m^3) at monitoring sites located within the AQMAs.

Site name	Monitoring method	2006	2007	2008	2009	2010
The Square, Birchington AQMA						
The Square, Birchington	Automatic Monitoring Site	-	37	39	**40**	35
Birchington Square	Diffusion Tube TH13/46/47	**51**	**42**	**42**	**49**	**41**
Canterbury Rd, Birchington (A28) (Yew Tree)	Diffusion Tube TH48	32	32	33	37	31
Canterbury Rd, Birchington (A28) (Kent Gdns)	Diffusion Tube TH49	**46**	34	35	**43**	36
High Street, St Lawrence AQMA						
High Street, St Lawrence	Diffusion Tube TH54/64/65*	**54** (only TH54)	**40**	**41**	**45**	**40**
High Street, St Lawrence - Facade	Diffusion Tube TH66	-	29	29	31	29
High Street, St Lawrence Facade	Diffusion Tube TH70/71/72*	-	**43**	**42**	**47**	**42**

Table 3 shows that other than 2009, which saw a marked increase in concentrations at almost all the sites, the overall trend between 2007 and 2010 has been of fairly static annual mean concentrations. Concentrations in the year 2006 are elevated over subsequent years. This was a known high pollution year across the UK due to the meteorological conditions during the summer months. The three monitoring sites which were seen to be exceeding in 2010 had almost the same annual mean concentration as in 2007.

Predicted background concentrations were expected to decrease over the past years and to continue to decrease into the future, as the national vehicle fleet gradually improved and other national policies to reduce emissions took effect. However, this expected decrease has not been seen in Thanet or indeed across the UK. It is now known that regulations introduced by the EU to reduce emissions from newer vehicles (Euro 5 and Euro 6 standards) have not seen the reduction in emissions that were expected. In addition the introduction of particulate traps to reduce particle emissions on Heavy Goods Vehicles is believed to have led to a rise in direct NO_2 emissions leading to increased NO_2 concentrations at nearby receptors. This has resulted in projected reductions in pollutant concentrations not being realised in many areas of the UK, particular where concentrations are derived primarily from vehicle emissions. The resulting consequence of the reduction in emissions per vehicle not being realised is that it is important within the Action Plan to look at potential options for a reduction in vehicle numbers within the areas affected.

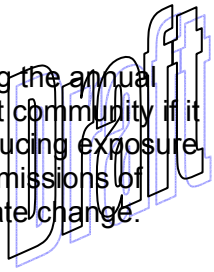
Table 4 demonstrates that concentrations on PM_{10} are well below the two UK Air Quality Objectives. This evidence is sufficient to support the Districts decision to revoke the AQMA for PM_{10}.

Table 4. Results on PM_{10} monitoring within The Square, Birchington AQMA.

Site name	Monitoring method	2007	2008	2009	2010
Annual mean concentrations (μg/m^3)					
The Square, Birchington	Automatic Monitoring Site	24	23	23	24
Number of exceedences of daily mean objective (50 μg/m^3)					
The Square, Birchington	Automatic Monitoring Site	11	6	10	6

2.5 Conclusions

1. Both junctions at The Square, Birchington and High Street, St Lawrence have a problem with local NOx emissions causing levels of NO_2 to be above the health-based annual mean standard of 40 μg/m^3.
2. Road transport at both junctions is the dominant local source of NOx emissions. Therefore it is intended that this Action Plan will be integrated into the Kent County Council Local Transport Plan (LTP).
3. Based on the source apportionment analysis, options to reduce traffic emissions should firstly focus on reducing HGV movements.
4. This may solve the air quality problem but if not then additional options that focus on improving the flow of traffic through the junctions may also be considered.
5. Based on 2008 values, measures at High Street, St Lawrence would need to reduce traffic NOx emissions by up to 21% to achieve the air quality standard.
6. Based on 2006 values, measures at The Square, Birchington would need to reduce traffic NOx emissions by up to 20% to achieve the air quality standard.



7. Although this Action Plan will focus on making progress towards achieving the annual mean objective for NO_2, it will have additional value for the Thanet District community if it also addresses other objectives relating to traffic emissions including: reducing exposure to fine particulate matter (PM_{10} for human health benefits) and reducing emissions of carbon dioxide (CO_2) as part of efforts to mitigate human-influenced climate change.

These conclusions will be referred to throughout the process of developing the Action Plan.

3 Development of the draft Action Plan

The Action Plan must include:

- Quantification of the source contributions to the predicted exceedences of the objectives; this will allow the Action Plan measures to be effectively targeted.
- Evidence that all available options have been considered on the grounds of cost-effectiveness and feasibility
- How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives
- Clear timescales in which the District Council and other organisations and agencies propose to implement the measures within the plan
- Quantification of the expected impacts of the proposed measures and where possible an indication as to whether the measures will be sufficient to meet the air quality objectives and
- How the local authority intends to fund, monitor and evaluate the effectiveness of the plan.

Once the Action Plan is adopted, the District Council will also report progress on the implementation of the Action Plan annually and revise it from time to time depending on circumstances.

3.1 Partnership between the District Council and the Local Transport Authority (the County Council)

In Kent, the County Council is responsible for overall transport strategy. As the AQMAs in Thanet are dominated by emissions from transport, a partnership arrangement between the District and County Councils for the development of this Action Plan has been used. The County Council has put forward proposed actions, which they themselves can implement in pursuit of the air quality objectives.

3.1.1 Integration with Local Transport Plan (LTP)

The Local Transport Plan system has been a 5-year transport strategy at a local level whereby Local Transport Authorities are required to submit a 5-year Local Transport Plan (LTP) for their area that sets objectives and targets for transport, and strategies for achieving them. The plans must cover all forms of transport and establish strategies to tackle congestion and poor air quality. The LTP provides the basis for allocating resources to the Local Transport Authority in order for them to implement their plans. The Local Transport Authority for Kent is the County Council.

The Department for Transport (Dft) included air quality as one of four shared priority areas to be reported in the Second Local Transport Plan (LTP2) which covered the period from 2006 to 2011. This was the first time that air quality was addressed separately as a priority alongside three other areas: congestion; accessibility; and road safety. The Kent County Council LTP2 recognised the impacts of transport emissions on public health and was integrated with the Air Quality Action Plans prepared by Kent's district councils in those areas where concentrations exceeded the Government's prescribed limit.

In contrast to the first and second round of LTPs, LTP3 will not be formally assessed by the Department for Transport and there are fewer mandatory targets to report against. There is also no requirement to renew every five years but instead the requirement to include a separate Strategy and Implementation Plan setting out objectives and how these will be met. For LTP3 DfT published a set of five key goals and related challenges for development of the UK's future transport policy and infrastructure. One of these, "Contribute to Better Safety,

Security and Health", specifies the reduction of "social and economic costs of transport to public health, including air quality impacts in line with the UK's European obligations" thus maintaining the importance of reducing air quality impacts with the transition from LTP2 to LTP3.

Kent County Council has recently adopted its third Local Transport Plan which covers the period from 2011 to 2016[2]. The Plan presents five themes based on the five Government Goals. These are:

1. Growth without Gridlock;

2. A Safer Healthier County;

3. Supporting Independence;

4. Tackling a Changing Climate;

5. Enjoying Life in Kent.

The document states that the implementation Plan for a Safer and Healthier County includes measures to protect communities from pollution and that these will be targeted at Air Quality Management Areas. Furthermore the Implementation Plan for Tackling a Changing Climate looks to reduce transport emissions which will indirectly lead to improvements in air quality. This will be achieved through a combination of promoting greener forms of transport, reducing the length of, and necessity to make, a journey and reducing the carbon footprint of KCC as the manager of the local road network.

The AQMAs in Thanet are characterised by road geometry which do not lend to extensive infrastructure improvements or traffic management schemes – essentially they are pinch points in the road network. Previously traffic management via traffic lights were trialled at the Birchington AQMA, but results indicated that this was not an effective means of easing congestion and hence lowering emissions and improving air quality.

Focus during the preparation of this draft action plan has therefore been directed towards increasing sustainable transport in the whole district. This relies on the existing bus, walking and cycling strategies but includes new focus from Kent County Council on their successful Local Sustainable Transport Fund (LSTF) award from the Department of Transport.

Included in the LSTF are sustainable transport improvements to encourage sustainable access between the new High Speed 1 service, Margate town centre and seafront:

- Improved access to existing bus stops (see attachment 'Margate bus stop accessibility');
- Improved information for public transport users (racks for bus timetables etc);
- Improved forecourt area to enhance interchange facilities (part of Margate public realm scheme – see attachment 'Margate Station Forecourt').
- Revenue support for creation of 'Cycle Hub' within the station building; with the potential for establishment and/or expansion of existing local businesses to cover bike maintenance, recycling, storage, cycle hire, education, volunteer support, led rides, crime reduction, health initiatives.

This initiative aims to encourage modal shift from the passenger car to public transport and cycling which should result in lower emissions.

[2] http://www.kent.gov.uk/roads_and_transport/highway_improvements/our_transport_vision/local_transport_plan/local_transport_plan_3.aspx

3.2 Partnership with Development Planning

The planning system plays a key role in protecting and improving the environment. Land use planning and development control can become an effective tool to improve air quality by first locating developments in such a way as to reduce emissions overall, and secondly reducing the direct impacts of those developments. Although the presence of an AQMA makes consideration of the air quality impacts of a proposed development more important, there is still a need to regard air quality as a material factor in determining planning applications in any location. This is particularly important where the proposed development is not physically within the AQMA, but could have adverse impacts on air quality within it, or where air quality in that given area is close to exceeding guideline objectives itself.

The Government's commitment to the principles of sustainable development were set out in 'A Better Quality of Life – A Strategy for Sustainable Development for the UK', May 1999. Eight principles of particular relevance to planning and pollution control were set out: -

- Taking a long term perspective;
- Putting people at the centre;
- Taking account of costs and benefits;
- Respecting environmental limits;
- Applying the precautionary principle;
- Using scientific knowledge;
- Following procedures which are based on transparency, access to information, effective participation by stakeholders and access to justice; and
- Making the polluter pay.

The national air quality strategy reiterates that the government strongly believes that air quality issues should be dealt with in a holistic and multi-disciplinary way. In developing an air quality Action Plan the District Council has engaged with land-use and transport planners to ensure the actions are supported by all parts of the authority.

The District Council is currently preparing the Core Strategy as part of the Local Development Framework. Air quality is acknowledged within the draft core strategy as an important consideration in the planning process. Where proposed development is likely to impact on air quality consideration of the Community Infrastructure Levy will be made.

3.3 Formation of steering group

A steering group was established to develop the Action Plan, which included officers from Environmental Protection and Development Planning within the District Council and Transport Planning plus the air quality manager at the County Council.

3.4 Action Plan options and their assessment

The steering group, in developing the draft Action Plan, has considered a full range of relevant options to change traffic at the Birchington and St Lawrence AQMAs. The process has been one of narrowing down the range of potential options to ones that are focussed on the problem, feasible, do not adversely impact on other locations or vulnerable highway users, and are cost-effective compared to others. This section summarises how this was done. Full details of the assessment methodology are provided in Appendix 4, and the results of the assessments for each option are provided in Appendix 5.

Essentially the steering group adopted the following procedure:

- Consideration was given to the full range of potential options.
- Initial decisions were made to determine whether any options were unfeasible or unacceptable and they were eliminated from the options list.
- Remaining options were defined further and underwent a detailed assessment.
- The results of the assessment identified those options to prioritise and to adopt as measures in the Action Plan.

There is a very wide range of options available to reduce the emissions from road transport. The District and County Councils do not necessarily have the power to implement them all directly but potentially they do have a role in attempting to influence those bodies or individuals who could implement them. Therefore, it is appropriate to initially consider all options.

3.5 Measures to improve air quality

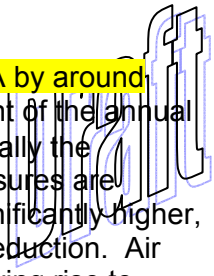
Eight key measures were identified via assessment for inclusion in this Action Plan as priorities for the improvement of air quality at the Birchington and St Lawrence AQMAs and wider areas. Theses include:

1. Specific options aimed at promoting more sustainable travel choices and reducing queues at the Birchington and St Lawrence junctions
2. Strategic options aimed at integrating air quality into all relevant areas of decision making within the District and County Councils.

The measures in the draft Action Plan are detailed in the following section and a summary is presented in table 3. This Plan is:

- Focussed – road transport is the dominant source of emissions in the AQMA and queuing vehicles and HDVs are particularly significant sources.
- Proportionate – the plan puts most emphasis on reducing queuing from all vehicles and contains specific measures to attempt to address HDV emissions.
- Realistic – the measures in the plan have been assessed as being the more feasible, acceptable and cost-effective among many options.
- Strategic – key measures to be implemented include improving the District Council's capacity to manage air quality in order to avoid worsening air quality and to make progress towards the air quality standards.
- Sustainable – we believe that the plan can contribute to the District Council community aims to reduce CO_2 emissions, improve quality of life (by improved health) and not compromise the local economy or pedestrians and cyclists.

The 8 measures in this draft Action Plan are the ones that the District and County Councils have considered for adoption and implementation in pursuit of the air quality standards within the Woodbridge junction AQMA. Detailed information on most of the 8 measures is presented in Appendix 5. Some of the identified measures require further study to facilitate which ones are most cost effective. After these studies are complete, the Councils will be able to decide which of the measures are fully warranted for implementation.



In summary, the Action Plan aims to reduce transport emissions in the AQMA by around 10%. It is anticipated that a reduction of this scale will lead to the achievement of the annual mean NO_2 air quality standard (40μg/m^3) within the AQMA and hence potentially the revocation of the AQMAs based on 2010 monitoring data. No additional measures are thought to be required. However, it should be noted that 2009 data were significantly higher, and further measures would be required if this year is used as the basis for reduction. Air quality is significantly influenced by weather conditions, with calm weather giving rise to higher concentrations. The District Council will continue to review and assess air quality to monitor this situation.

Funding for the implementation of this Action Plan is through the Local SustainableTransport Fund and the Local Transport Plan where existing projects complement the Action Plan. Further funding will be sought through the Defra air quality grant annual award scheme for the implementation of specific tasks within measures.

3.5.1 Measure 1: Investigate Traffic Signal and Junction Configuration

Stationary vehicles give rise to a high proportion of emissions relative to moving traffic. Consequently, measures to reduce traffic queues are likely to reduce emissions. Initial consideration has been given to this with previous trials to optimise traffic flows to reduce congestion have been undertaken at the Birchington junction. Further detailed consideration of this measure should be undertaken to ascertain if any further option is available to include in the final draft of the action plan. This would include the installation of a MOVA system - Microprocessor Optimised Vehicle Actuation (MOVA) is a self optimizing control system for traffic signals developed by the Transport Research Laboratory (TRL). Using an online microprocessor MOVA maintains the optimum green stage, cycle time and control strategy to accommodate prevailing conditions and therefore minimise queuing at signalised junctions. TRL tests have shown on average a 13% delay saving for the motorist over conventional vehicle actuation controlled traffic signals. This reduction in queuing traffic should lead to a reduction in Nitrogen Dioxide levels at the junction. MOVA has been reported to produce emission reductions up to 15% (McCrae, 2009)

3.5.2 Measure 2: Improving Movement of Freight

HGV movements in both AQMAs are not significant in their number. However, HGVs give rise to a corresponding high emission of NOx and it was demonstrated in a previous study that 5% HGV movements in Birchington resulted in about one third of the total NOx emissions.

The current Freight Strategy is outdated and consideration to include signage for freight movement within Thanet should be undertaken. Consideration should be given to setting up a Freight Quality Partnership with major freight hauliers in local and regional areas which aims to address local environmental concerns with those of the haulage industry of meeting journey times.

Eco-driving, which is the technique of driving in a smooth controlled manner, has been demonstrated to reduce fuel consumption and hence lower emissions of both air pollutants and carbon. For the haulage industry, a key benefit is fuel cost savings.

Consideration of eco-driving training should be investigated and promoted for selected haulage operators and also for the District Council refuse collection vehicle fleet.

3.5.3 Measure 3: Encouragement of Public Transport Use

Generally in the UK, 25% of Britain's car journeys are less than 2 miles, which is a distance that can be covered by walking or cycling. Also, 17% of car journeys are travelling to and from work while school journeys are estimated at 17.5% of morning peak traffic in urban areas in term time. Indeed, if half of UK motorists received a lift one day a week, pollution would be reduced by 10% and traffic jams by 20%. It is therefore important to consider the promotion of public transport uptake, car sharing and travel planning within the Birchington and St Lawrence areas and Thanet in general.

A quality bus partnership is an agreement between the principal bus company, Kent County Council and the district or borough council. The partnership aims to develop all aspects of bus travel and to increase the number of passengers using bus services, with the aim of bringing about significant improvements in the quality of bus services in the county.

The local authorities are investing in improvements such as bus lanes and bus priority at traffic lights. There are also bus stop improvements such as raised kerbing and traffic restrictions known as bus stop "clearways". The bus companies are investing in easy-access low-floor buses and are improving the frequency, punctuality and reliability of their services

The first quality bus partnership in East Kent was formed in Thanet and helped to pioneer the development of these in the rest of the county. The Thanet Quality Bus Partnership provided the framework for the introduction of 'The Loop' service linking Margate, Westwood Cross, Ramsgate, Broadstairs and Margate, which was supported with Kickstart funding from the Department for Transport and Kent County Council.

The success of The Loop in attracting new bus passengers and the growing of the bus business is an example of an effective quality bus partnership in action. This involves Thanet District Council providing bus stop clearways and enforcing them, Stagecoach in East Kent operating new vehicles to a higher frequency, and us providing bus stop infrastructure improvements.

Since the signing of the Thanet Quality Bus Partnership, a separate one has been signed between the independent bus operator Eastonways, Thanet District Council and Kent County Council for route 38. This service, which links several important locations around the Isle of Thanet, will soon be provided with new vehicles as part of our Kickstart funding, which will also include improved bus stop infrastructure. Bus quality success indicators are included in the Appendix

3.5.4 Measures 4: Car Sharing and Travel Planning

The encouragement of travellers to plan their journey and share transport when possible is likely to lead to fewer vehicle trips and, therefore, lower emissions. Car sharing and travel planning are therefore important measures to improve air quality.

Car sharing schemes operate in urban areas around the UK, and have been reported to reduce driver days by up to 36% (Jones, 2009).

Car Club

Kent has developed a successful contractual partnership with car club operator Streetcar over the last four years to implement a car club scheme in Maidstone. This is linked to the need to provide a cost effective and resource efficient pool car solution for County Hall based employees. The existing three cars are available as pool cars for KCC employees during office hours and help to provide a reliable and effective alternative to driving to work, enabling employees to travel by public transport, walking, cycling or car sharing. The financial viability of the scheme is ensured by making the cars available to local residents at evenings and weekends, providing an alternative to car ownership for those only requiring occasional usage of a car.

Recently, Section 106 monies have been secured from a nearby residential development, enabling the transfer of a vehicle to that site, supporting the aspirations of the developer to provide reduced levels of parking. KCC is currently working with Streetcar to develop opportunities to expand the car club network in Maidstone and to launch it in other parts of Kent. It is recommended that the use of a car club in Thanet be investigated with KCC

Car Sharing

Kentjourneyshare.com is KCC's online car-sharing database operated under contract by Liftshare.com, the UK's largest provider of these services. The scheme enables car drivers and prospective passengers to log details of their journeys online and to search for matches to share their trip. To date, Kentjourneyshare.com has over 3,500 registered members and is estimated to save over 3.7 million car miles and 1,200 tonnes of CO2 a year. The Local Sustainable Transport Fund includes a proposal to expand the number of 'private groups' promoted by external organisations (e.g. Kent Police and the NHS) where local ownership and buy-in delivers the best results. Investigations should be undertaken to review the applicability of such a car sharing scheme in Thanet.

Workplace travel plans

A Travel Plan (sometimes referred to as a green travel plan) is a package of measures designed to influence the travel behaviour of individuals, businesses, schools or other organisations through promoting sustainable travel. The general aim is to reduce the negative effects of traffic by encouraging alternatives to single-occupancy car-use.

The County Council is working with businesses, schools, developers and individuals by promoting sustainable travel through travel planning

Within the District Council's Local Development Framework travel plans are to be sought under the Development Control Policy. Proposals for new development that would have significant transport implications should be accompanied by a Green Travel Plan'. It is not necessarily the size of the development that would trigger the need but more the nature of the use. It could include:

- new employment sites employing over an agreed threshold
- a use which is aimed at the public (eg retail, leisure activities)
- major residential development

The Travel Plans should seek to:

(a) reduce the use of cars by encouraging car sharing;

(b) provide links to enable the use of public transport;

(c) improve road safety for pedestrians and cyclists; and

(d) Identify any mitigation works to be funded by the developer in conjunction with the proposal.

Once a travel plan has been prepared as part of the planning approval process, there is often limited follow up to ascertain the success of the plan from the end user. As part of the LSDF, the County Council is developing an initiative called 'New Ways 2 Work' which aims to match the 'sticks' secured through planning with a range of corporate and individual travel and leisure benefits which participating organisations can access on behalf of their employees. The scheme will be open to those organizations which demonstrate a clear commitment to encouraging sustainable travel choices and would be renewable on a 12 monthly basis. KCC has already secured the support of four district councils, a major bus operator and a cycle retailer in this proposal.

In addition, KCC is developing a website resource hub, an award and accreditation scheme and a more co-ordinated approach to sustainable travel campaigns, whilst retaining flexibility for their local interpretation and implementation.

It is recommended that the District Council liaises with the County Council on this issue to determine the potential benefits to Thanet.

School Travel Plans

The District Council has worked with all schools in Thanet to develop a travel plan, aiming to encourage sustainable modes of transport for all school children. To build on this initiative the District Council will work with the County Council to establish a 'Diamond School Travel Plans' initiative that builds on the existing Gold and Platinum accreditation program and is intended to focus on schools identified as having the greatest potential for mode shift following a detailed analysis of school census data. All schools will continue to be asked for an annual review of their School Travel Plan whilst the Diamond Schools initiative will build on focused and exemplar Plans, providing case studies and good practice examples to be emulated by others.

3.5.5 Measures 5: Promotion of Cycling and Walking

Measures to encourage cycling and walking rather than using car especially for local journeys are important to reduce emissions and hence improve air quality.

The provision of facilities to encourage people to make short trips on foot or by bicycle, rather than by car is very important. Within the Local Transport Plan, the County Council has set out programmes of improvements to walking and cycling routes, with crossings in the centres of the larger market towns to make it easier for people to access schools, shops and other local services. This measure comprises two tasks:

Task 1: Review the current walking and cycling routes across Birchington and St lawrence and identify where improvements can be made

Task 2: Prepare a detailed implementation programme for such works in Birchington and St Lawrence.

3.5.6 Measures 6: Development Planning

The planning system plays a key role in protecting and improving the environment. Land use planning and development control can become an effective tool to improve air quality by first locating developments in such a way as to reduce emissions overall, and secondly reducing the direct impacts of those developments. As air quality is a material planning consideration, the District Council is contributing to a Supplementary Planning Guidance Document on air quality which has been prepared by the County Council for the whole of Kent. This will help to understand the air quality impact of any proposed development by planners, environmental services officers and developers.

The Supplementary Planning Document will seek to ensure that developments in Thanet are well served by public transport, pedestrian and cycle facilities in order to promote sustainable travel. It will enable the District Council to secure appropriate developer contributions and ensure resources are targeted towards schemes that promote long term sustainable travel. The inclusion of an indicator in the Local Development Framework that measures access by public transport to services from new residential developments, will also help us to monitor progress in incorporating sustainable travel into the planning process.

3.5.7 Measures 7: Promotion of air quality issues

To monitor the impact of this Action Plan on the improvement of ambient air quality it is important that the District Council measures the air pollutant concentration and reports this into the public domain. With effective communications the District Council can raise awareness about the air pollution problem to encourage more sustainable travel in both AQMAs.

The District Council will continue to raise the level of knowledge of air pollution in Birchington and St Lawrence and release press statements when appropriate to promote sustainable travel options.

The District Council will continue to undertake routine monitoring of air pollution in existing AQMAs and locations around the District and increase the number of monitoring points as necessary. The District Council will continue to report progress on air pollution monitoring.

3.5.8 Measures 8: Feasibility Studies and Funding

In preparing this Action Plan the District Council and the County Council have not had all relevant traffic data available to undertake a detailed analysis of all measures. Target emission reductions for each measure that have been derived are therefore uncertain for some measures and have been based on judgement and available information. It is therefore important that the Councils undertake some further feasibility studies for example to determine if junction alteration (measure 1) is appropriate. Funding streams have to be identified to enable such feasibility studies.

The District and County Councils will work together to undertake identified feasibility studies of measures to determine more robustly the effectiveness and cost of options. These feasibility studies will require traffic counts to be undertaken which will be used in transport modelling to investigate the impact of the measure on traffic flows and emission reduction.

Table 3 Summary of the measures included in the draft Action Plan for the Birchington and St Lawrence AQMAs .

No	Measure description	Focus	Lead Authority	Planning phase	Implementation phase	Indicator	Target emission reduction
1							
2							
3							
4							
5							
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8							
9							
10							
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12							
13							
14							
15							
16							
17							
18							-
19							-
20							-

4 Implementation Plan

4.1 Consultation

Consultees for the Action Plan

This draft Action Plan will be issued to the following consultees and as appropriate, the plan will be amended to reflect their views and comments.

All properties in the Air Quality Management Areas
Kent County Council
Defra
All Parish and Town Councils within the Thanet District
Local Chambers of Commerce
Federation of Small Businesses
Bus Operators in Thanet
Neighbouring District Councils
All Thanet District Council Departments
Highways Agency
Environment Agency
English Nature
Freight Transport Association

Thanet District Council website for general public access

Monitoring the Action Plan: The Action Plan will be monitored annually and the results collated for the yearly progress report on the implementation of the plan.

5 Conclusions

This Action Plan describes the air quality assessment process that has taken place in Thanet to date, identifies the role of traffic in the current problem and sets out a range of transport-focussed measures that could help improve air quality.

The objective of this Action Plan is to improve air quality at the Birchington and St Lawrence AQMAs to work towards meeting the national air quality objective for the protection of human health. To this end, target emission reductions for the measures have been estimated and indictors to demonstrate progress have been identified. Prior to the implementation of this Action Plan a consultation process as described will be undertaken. Following the receipt of comments, a final plan will be produced followed by plan implementation

Appendix 1 - UK air quality standards and objectives

Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene All authorities	16.25 μg/m^3	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 μg/m^3	annual mean	31.12.2010
Authorities in open areas and coastal areas should be cleaner as air changes more frequently and Northern Ireland only	3.25 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 Authorities in England, Wales and Northern Ireland only	10.0 mg/m^3	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg/m^3	running 8-hour mean	31.12.2003
Lead	0.5 μg/m^3 0.25 μg/m^3	annual mean annual mean	31.12.2004 31.12.2008
Nitrogen dioxide[b,e]	200 μg/m^3 not to be exceeded more than 18 times a year 40 μg/m^3	1 hour mean annual mean	31.12.2005 31.12.2005
Particles (PM_{10}) (gravimetric)[c] All authorities	50 μg/m^3 not to be exceeded more than 35 times a year 40 μg/m^3	24 hour mean annual mean	31.12.2004 31.12.2004
Authorities in Scotland only[d]	50 μg/m^3 not to be exceeded more than 7 times a year 18 μg/m^3	24 hour mean annual mean	31.12.2010 31.12.2010
Sulphur dioxide	350 μg/m^3 not to be exceeded more than 24 times a year 125 μg/m^3 not to be exceeded more than 3 times a year 266 μg/m^3 not to be exceeded more than 35 times a year	1 hour mean 24 hour mean 15 minute mean	31.12.2004 31.12.2004 31.12.2005

b. The objectives for nitrogen dioxide are provisional.
c. Measured using the European gravimetric transfer standard sampler or equivalent.
d. These 2010 Air Quality Objectives for PM10 apply in Scotland only, as set out in the Air Quality (Scotland) Amendment Regulations 2002.
e. The annual average and 1 hour average nitrogen dioxides objectives are the same as the EU Limit Values but the EU Limit Values have to be achieved by the 1 January 2010 and maintained thereafter

Efforts to achieve these objectives should be focussed on locations where members of the public are likely to be exposed over the averaging period of the objective. The table below summarises the locations where these objectives should and should not apply.

Typical locations where the objectives should and should not apply			
Averaging Period	**Pollutants**	**Objectives *should* apply at …**	**Objectives should *not* generally apply at …**
Annual mean	1,3 Butadiene Benzene Lead Nitrogen dioxide PM_{10}	All background locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, libraries etc.	Building facades of offices or other places of work where members of the public do not have regular access. Gardens of residential properties. Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term
24-hour mean and **8-hour mean**	Carbon monoxide PM_{10} Sulphur dioxide	All locations where the annual mean objective would apply. Gardens of residential properties	Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
1 hour mean	Nitrogen dioxide Sulphur dioxide	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed. Any outdoor locations to which the public might reasonably be expected to have access.	Kerbside sites where the public would not be expected to have regular access.
15 minute mean	Sulphur dioxide	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

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