

AIR QUALITY ACTION PLAN FOR THE BOROUGH OF DARTFORD

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EXECUTIVE SUMMARY

The Action Plan for the Borough of Dartford is the culmination of a three stage approach to local air quality review and assessment within the Borough of Dartford that started in 1998 and resulted in the declaration of an Air Quality Management Area (AQMA) in October 2001 along the A282 Tunnel Approach Road corridor for pollutants nitrogen dioxide (NO₂) and fine particles (PM₁₀). It has been prepared to comply with the statutory functions for local air quality management under Sections 84(2) and 88(2), Part IV of the Environment Act 1995. In compiling the Action Plan, the NAQS (2000) and following guidance issued by the Department for Environment, Food and Rural Affairs (DEFRA formerly DETR) has been referred to:

LAQM.G1(00) - Framework for Review and Assessment of Air Quality
LAQM.G2(00) - Developing Local Air Quality Action Plans and Strategies
LAQM.G3(00) - Air Quality and Transport
LAQM.G4(00) - Air Quality and Land Use Planning

Also, NSCA guidance 'Air Quality Action Plans' (Nov 2000) and 'Air Quality: Planning for Action' (June 2001) has provided a valuable input into this process.

The Action Plan outlines existing measures and proposes new measures whose aims are to work towards achieving the National Air Quality Strategy (NAQS) Objectives for NO₂ and PM₁₀. As the major source of these pollutants within the AQMA is road traffic, in particular traffic flowing along the A282 Tunnel Approach Road, measures have specifically been targeted at reducing pollution from these sources. There are also measures in place to tackle pollution from other sources, such as domestic and commercial heating and industrial processes.

PART 1 – OVERVIEW

INTRODUCTION

The National Air Quality Strategy

Part IV of the Environment Act 1995 introduced new responsibilities for local authorities relating to local air quality management. The approach was set out in the National Air Quality Strategy (NAQS), published in 1997.

The NAQS contains standards and objectives for eight air pollutants; nitrogen dioxide, sulphur dioxide, carbon monoxide, fine particles (PM₁₀), ozone, lead, 1,3-butadiene and benzene. All, with the exception of ozone, are designated as objectives for protecting human health to be included in Regulations for the purposes of local air quality management. These relate to non-occupational exposure to outdoor pollutants. The effects of these pollutants on health are shown in appendix I.

The objectives were placed onto a statutory footing by the Air Quality Regulations in December 1997 and effectively commenced the timetable in the Strategy, giving local authorities until December 1999 to carry out their three stage review and assessment of local air quality. The government reviewed the NAQS in 1999 and introduced amendments to the pollution levels and timetables for the objectives. Table 1 shows the current standards and objectives as set out in the Air Quality Regulations 2000. The air quality objectives must be met by target deadlines ranging from 2003 to 2005. Consultation is currently underway on proposals for new air quality objectives for particles, benzene, carbon monoxide and polycyclic aromatic hydrocarbons, but only benzene and carbon monoxide are likely to be put into Regulations. These objectives will be incorporated into the next phase of review and assessment of air quality.

Local authorities must review and assess current and projected pollutant levels and where it appears the targets will not be met by the designated time they must declare Air Quality Management Areas (AQMA's) and draw up action plans to meet the targets.

Other measures and policies to reduce emissions and improve air quality

International

The United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution:

UNECE Protocols for Sulphur and NO_x have been ratified by the UK. Under this agreement the UK is committed to reducing national annual emissions of sulphur dioxide and NO_x by target amounts. Sulphur dioxide should be reduced by 80% by 2010, compared with 1980 levels, and total emissions of NO_x should be reduced to 1987 levels. A second protocol for NO_x and related substances is proposed to target nitrogen dioxide, volatile organic solvents, sulphur dioxide and ammonia.

In terms of local air quality management the reduction in NO_x will be the most significant.

TABLE 1: Air Quality Standards and Objectives

| Pollutant | Standard | | Objective | Date to be achieved by |
|---|-----------------------|---------------------|--|------------------------|
| | Concentration | Measured as | | |
| Benzene | 5 ppb | Running annual mean | 5 ppb | 31 December 2003 |
| 1,3-butadiene | 1 ppb | Running annual mean | 1 ppb | 31 December 2003 |
| Carbon monoxide | 10 ppm | Running 8 hour mean | 10 ppm | 31 December 2003 |
| Lead | 0.5µg/m ³ | Annual mean | 0.5µg/m ³ | 31 December 2004 |
| | 0.25µg/m ³ | Annual mean | 0.25µg/m ³ | 31 December 2008 |
| Nitrogen dioxide* | 105 ppb | 1 hour mean | 105 ppb* not to be exceeded more than 18 times a year | 31 December 2005 |
| | 21 ppb | annual mean | 21 ppb* | 31 December 2005 |
| Fine particles (PM ₁₀) | 50µg /m ³ | 24 hour mean | 50µg/m ³ not to be exceeded more than 35 times a year | 31 December 2004 |
| | 40µg/m ³ | Annual mean | 40µg/m ³ | 31 December 2004 |
| Sulphur dioxide | 100 ppb | 15 minute mean | 100 ppb not to be exceeded more than 35 times a year | 31 December 2005 |
| | 47 ppb | 24 hour mean | 47 ppb not to be exceeded more than 3 times a year | 31 December 2004 |
| | 132 ppb | 1 hour mean | 132 ppb not to be exceeded more than 24 times a year | 31 December 2004 |
| ppb = parts per billion, ppm = parts per million, µg/m ³ = micrograms per cubic metre. | | | | |
| * These are provisional objectives and may be altered following next review of the National Air Quality Strategy. | | | | |

Climate change:

The international community has put in place a framework for action on climate change through the United Nations Framework Convention on Climate Change and the Kyoto Protocol.

Out of this commitment, the UK climate change programme has been developed and will put in place measures to deliver emission reductions in greenhouse gases, notably carbon dioxide (CO₂) from all sectors which will achieve our targets under the Kyoto Protocol.

Negotiations with energy intensive industries have resulted in those industries committing to meeting target reductions in carbon dioxide emissions and improvements in energy efficiency. The incentive for these industries will be through a reduced rate of Climate Change Levy.

Actions taken through energy management to reduce CO₂ emissions will also reduce emissions of NO_x and fine particles from domestic and business sources.

European

Air Quality Framework and Daughter Directives:

The Air Quality Framework Directive introduced in 1996 identified twelve pollutants for which limits were to be set in subsequent Daughter Directives. The first Daughter Directive in 1998 establishes legally binding limits for sulphur dioxide, nitrogen dioxide, particles and lead to be achieved by 2005 and 2010. The onus is for national governments to meet these limits once adopting the Directives and these limits are a driving force for UK air quality policy.

Integrated Pollution Prevention and Control (IPPC) Directive:

The Pollution Prevention and Control (England and Wales) Regulations 2000 was introduced to implement the IPPC Directive, adopted in 1996. A larger number of industrial processes are controlled under this legislation than the UK's integrated pollution control and local air pollution control systems and a wider range of environmental impacts are included in the site specific licences.

Auto oil programme:

The EU Auto oil programme was set up in partnership with the oil and motor industries and has been the most important force in the reduction of emissions from vehicles. For example, Directives requiring all petrol cars to have catalytic converters fitted from 1993 onwards, helped achieve a significant reduction in NO_x emissions. Their work to establish emission limits based on health effects has resulted in the adoption of Directives which have set tighter vehicle emissions and fuel quality standards. These emission limits are expected to deliver a 50% reduction in PM₁₀ and NO_x by 2005. More stringent standards (Euro IV) for cars and light vehicles will apply to all new vehicles from 1st January 2006. Emission limits have also been established for new heavy-duty diesel engines from 2000 and from 2005 almost all heavy-duty diesel vehicles will be required to fit particle traps. This should have a significant effect on PM₁₀ emissions from these sources.

National

Integrated Transport White Paper:

A New Deal for Transport was published in 1998. It set out policies including congestion charging, workplace taxation and local transport plans which have an important role in achieving air quality objectives and can be tied in directly with Air Quality Action Plans. The enabling legislation for many of these policies was taken forward in the Transport Act 2000.

National Action Plans:

The Secretary of State is legally responsible for delivering UK compliance with EU Directive air quality limit values. Compliance will involve drawing up National action plans which will incorporate local action plans, as well as addressing particular National air quality problems which cannot be dealt with at a local level.

Highways Agency:

The Highways Agency has set out its commitment to partnership working with the local authorities in its document 'The role of the Highways Agency in local air quality management', which is available on their website (www.highways.gov.uk).

Energy Savings Trust (EST):

Promotion of cleaner fuels through Government funded programmes *Powershift* and *Cleanup*. Powershift was launched in 1996 and promotes clean fuel vehicles e.g. natural gas (CNG, LNG), liquefied petroleum gas (LPG) and electricity. Grant support is available to help with the purchase of new vehicles. The Cleanup campaign (2001 – 2004) aims to improve air quality in worst polluted areas by promoting emissions reduction equipment e.g. diesel particulate traps, which can be retrofitted to the most polluting vehicles.

Regional

The Government's Regional Planning Guidance for the South East (RPG9) identifies the Thames Gateway as a growth area of national importance. The Thames Gateway Planning Framework (RPG9a) identifies Kent Thameside as one of the two major development growth poles in the Thames Gateway. Work by the Kent Thameside Association has sought to interpret how the objectives of the Planning Framework can be implemented whilst minimising both traffic growth and air quality impacts. Potentially, Thames Gateway-scale development in Kent Thameside has the prospect of being considerably more sustainable than traditional land use planning approaches.

County

Local Transport Plans (LTP) have emerged from the New Deal for Transport and aim to develop strategies to tackle transport problems at a local and regional level. Under the Transport Act 2000, LTP's now have a statutory footing. Through LTP's local transport authorities specify how they will implement integrated transport solutions to local transport problems. They promote, inter alia, green transport plans, bus quality partnerships and walking and cycling strategies. Kent County Council in partnership with the local authorities has developed the LTP for Kent. LTP strategies are likely to have a significant

impact on local air quality and therefore need to be coordinated with Air Quality Action Plans.

Local

Development Plan:

The Borough of Dartford Local Plan is under review. The Deposit Draft was published in March 2000 and the Second Stage Deposit version is expected in Spring 2002. This Review addresses air quality issues by promoting more sustainable travel patterns and incorporating policies which will minimise the emission of air pollutants new developments (See 'Land Use Planning' page 17).

Local Agenda 21 Strategy (LA21):

LA21 originated from the Earth Summit in Rio de Janeiro in 1992. It incorporates the concept of *sustainable development – meeting current needs without compromising the needs of future generations*. The LA21 process enables communities to take an active role in conserving their local environment and improving their quality of life. Dartford adopted its LA21 Strategy in December 2000, to be reviewed annually, and this sets out core aims and action plans, including:

Aim: Improving and maintaining air quality

Action Plan: Assess possibility of green travel plans for council employees

Aim: Improving transport

Action Plan: Develop with the community a local transport strategy to encourage diverse and sustainable transport options

These LA21 Strategy Action Plans tie in directly with the Air Quality Action Plan aims.

Quality Environment for Dartford (QED) is a community group that has arisen through the LA21 process. QED is divided into smaller groups that focus on specific issues e.g. biodiversity, pollution and waste. With regard to air quality, the pollution and waste group regularly meet up to discuss local pollution issues and comment on relevant planning applications that potentially have air quality impacts. The Environmental Promotions Officer facilitates these meetings and funding is provided to the group for their initiatives.

OVERVIEW OF AIR QUALITY IN DARTFORD

Monitoring programme

Air quality monitoring within the Borough has centred on three automatic stations which each contain continuous analysers monitoring NO₂ and PM₁₀. The locations of the three stations are shown in the table below.

| Site | Address | Grid Reference | NO _x Analyser | PM ₁₀ Analyser |
|------|--|----------------|--------------------------|---------------------------|
| D1 | Adjacent to Ightham Cottages, Bean Road, Bean. | 558622,172752 | API M200A | BAM 1020 |
| D2 | Corner of Lowfield Street and Instone Road, Dartford | 554117,173852 | API M200A | BAM 1020 |
| D3 | Outside 1 Ivy Villas, Station Road, Greenhithe | 558460,174671 | API M200A | BAM 1020 |

Site D1 was installed in July 1998 and sites D2 and D3 were installed in June 1999. All three sites are termed as being 'roadside' sites and have been placed strategically to investigate the effects of road traffic. In choosing the sites, consideration has been given to the strategic road network in the Borough, exposure over the relevant averaging period and the prevailing wind direction. 15 NO₂ diffusion tube sites and 2 benzene diffusion tube sites have supplemented the automatic network.

However, in the light of the Stage 3 Review and Assessment a change to the existing monitoring network was required to provide greater information within the area where Standards were unlikely to be met. (see 'Air Quality Monitoring' page 20)

Review and assessment process

Stages 1 & 2

The Stage 1 (June 1998) and Stage 2 (December 1998) review and assessments showed that 5 of the 7 NAQS pollutants of concern to health are likely to meet the required standards by the objective target dates. No further assessment of these pollutants was therefore required at this stage, although the evidence supported the need for further assessment of PM₁₀ and NO₂.

| Stage 1 | | Stage 2 | | Stage 3 |
|------------------|---|------------------|---|-------------------------|
| Benzene | | | | |
| 1,3-Butadiene | | | | |
| Carbon Monoxide | → | Carbon Monoxide | | |
| Lead | | | | |
| Nitrogen Dioxide | → | Nitrogen Dioxide | → | Nitrogen Dioxide |
| PM ₁₀ | → | PM ₁₀ | → | PM₁₀ |
| Sulphur Dioxide | → | Sulphur Dioxide | | |

Stage 3 and Proposed Air Quality Management Area

The Stage 3 was completed in December 2000. The main findings of the Stage 3 review were that the geographical majority of the Borough is not expected to have any problems meeting the standards. However, there is a localised area adjacent to the A282 between junctions 1a-1b where it is anticipated that the standards will be difficult to achieve for NO₂ and PM₁₀. The major cause of the problem is the impact of emissions from road traffic along the A282 on the residential properties in close proximity to this major road. Other sources include roads within the local road network, such as the A226 and A296 and to a lesser extent, industry and domestic/commercial sources. The problem reduces with increasing distance from the roads of concern and relatively small areas are involved. The fact that locally, regionally and nationally generated traffic movements are involved means that action has to be taken at all these levels to guarantee the necessary improvements in air quality.

On the basis of the Stage 3 review and assessment, the Council were obliged to declare an Air Quality Management Area (AQMA); the area is shown in appendix II. The AQMA Order became effective as from 1st October 2001. Prior to this a period of statutory and public consultation took place from January to June 2001. Public meetings were held in June which, although they did not result in the changing of the physical boundary of the AQMA, provided some useful input into the Stage 4 and Action Planning process. The comments which arose from the consultation process are shown in appendix III. Tree planting along the A282 and requests for information on health effects were the issues raised the most in the written responses and these were raised again in the public meetings. Local residents also wished to relay their concerns regarding the tolling system, which they believed to part of the problem due to queues forming, and the fact that the route was of national importance and should be dealt with at that level.

Stage 4

The Stage 4 assessment has provided stronger evidence to support the need for action to reduce the impact of emissions from road transport along the A282 Tunnel Approach Road corridor. Further monitoring of NO₂ and PM₁₀ has been undertaken within the AQMA and the results confirm model predictions that exceedences of the annual NO₂ standard and PM₁₀ 24 hour standard are occurring and target dates are unlikely to be met. Levels of PM₁₀ were found to be higher than model predictions at the nearest receptors on the west side of the A282 near the crossing where queues regularly occur, and frequently exceed the levels recorded on the east side.

Source apportionment showed that HGV's were responsible for half of the emissions of NO_x and PM₁₀ from the A282 despite being less than a fifth of the total vehicle movements, indicating that targeting HGV's for traffic reduction or clean up would have a more significant effect on emissions. Model runs using only local sources, to estimate the local contribution to pollution levels, showed that PM₁₀ levels would meet the 24 hour standard without the through traffic element and NO₂ would only marginally exceed the annual standard at a small number of receptors.

Source apportionment from Stage 4:

National Atmospheric Emissions Inventory:

Within the AQMA, the main source of pollutants is traffic emissions

| |
|---------------------------------------|
| PM ₁₀ road traffic – 78.5% |
| NO _x road traffic – 94% |

Other sources include industry, domestic and other emissions generated outside the area.

Of the traffic contributions, AAQuIRE emissions database shows 56.5% NO_x and 46.5% PM₁₀ is from HGVs. This percentage is reduced for local traffic contributions.

Modelled local traffic source contribution, nearest receptor:

9.5% above NO₂ objective

0% above PM₁₀ objective

All traffic sources contribution, nearest receptor:

62% above NO₂ objective

54% above PM₁₀ objective

This means that 15% (9.5% of 62%) of excess emissions of NO₂ should be dealt with at a local level (DBC and KCC) and 0% of excess PM₁₀ emissions. The remainder is largely due to through traffic on the trunk road, which is the responsibility of the Highways Agency. Action plans will be assessed (costs v benefits) according to the above relative contributions.

Next Round of Review and Assessments

The next round will begin in 2003, to be completed by April 2004 and will involve reassessment of the seven priority pollutants of concern to health laid down in Air Quality Regulations.

PART 2 – ACTION PLAN

INTRODUCTION

When an AQMA has been designated, a written Air Quality Action Plan is required to be drawn up by the local authority. In line with Government Guidance LAQM G1 (00) this process is expected to be completed within 12 –18 months of designation. For Dartford Borough Council, completion should be by Oct 2002 – March 2003.

In developing the Action Plan, options available to secure air quality improvements need to be considered, bearing in mind source apportionment (i.e. where are the emissions coming from) and the costs and potential benefits. The process should be integrated into all relevant sections of the local authority and involve joint working with other relevant bodies and the local community.

AIMS

The main aim of this Air Quality Action Plan is, through joint working, to propose and deliver viable measures that will work towards achieving the desired reductions in NO₂ and PM₁₀ so that Government Objectives are met.

The aim is also to encourage active participation in the achievement of action plan measures by consulting the local community and raising awareness of air quality issues. Dartford's Draft Action Plan was completed in February 2002 following consultation between DBC, Highways Agency and KCC, in particular those responsible for transport issues. Comments from public consultation meetings were also incorporated into the measures considered. A public consultation summary document was distributed in April 2002 to all residents within and in close proximity to the AQMA (25m buffer) and an article was placed in the local press. Wide consultation with statutory and other relevant consultees, e.g. local community forum QED and regional air quality partnership Kent and Medway Air Quality Partnership was undertaken and a community promotional event was held in July 2002. The comments from consultation, including DEFRA comments, are summarised in Appendix IV and have been taken into account in drawing up this final Action Plan.

Existing and proposed measures to improve air quality through transport planning, partnership working, land-use planning, pollution control, local air quality management, energy management and environmental promotion are set out below, as well as measures to be achieved through support from other bodies. A number of options have been considered during the process of drawing up this action plan and those considered not viable have been excluded e.g. practicalities and cost preclude options such as compulsory purchase of 1000 properties or tunnelling over the A282. A summary of the measures to be taken forward is provided and an assessment of the costs and benefits of each of these is made. This process allows realistic measures to be prioritised and timetabled to ensure air quality improvements are secured.

1. TRANSPORT PLANNING

As the major source of the pollutants of concern in Dartford (PM₁₀ and NO₂) is road transport, particularly within the AQMA, the reduction of emissions from traffic through transport planning will be an important area in achieving Action Plan aims.

The primary source of pollution contributing to the exceedences of Standards is the large volume of traffic (over 140,000 vehicles per day) along the A282 Tunnel Approach Road. This is a trunk road and therefore the Highways Agency is the relevant highways authority for any action taken on this road. However, local traffic sources also contribute to the emissions within the AQMA and some of the traffic on the A282 is locally generated. It will therefore need a partnership between Dartford Borough Council (DBC), Kent County Council (KCC) and the Highways Agency to deliver the desired reduction in emissions to meet Government Standards.

Over the past 3-4 years, DBC has worked closely with KCC and with Gravesham Borough Council on the production of the Kent Thameside Urban Transport Strategy, elements of the Kent Local Transport Plan and the emerging Kent Thameside Transport Strategy. Transport planning elements have been closely linked to development plans for Kent Thameside (including the Local Plan Review) and to the needs of the existing and future communities of the area. This work involves regular liaison with a number of bodies, especially other member bodies of the Kent Thameside Association, the other Thameside local authorities, the Highways Agency and the public transport sector. DBC continues to lobby a range of bodies on implementing the Strategy. DBC is also an active member of the recently established Kent Thameside Transport Forum, which brings together local authority, developer, operator and community interests on a wide range of transport issues.

Local Transport Plan (LTP) for Kent 2001 – 2006:

Lying within the Kent Thameside part of the Thames Gateway regeneration area, Dartford is primed for significant growth in terms of development and travel demand. In Regional Planning Guidance, Thames Gateway has been targeted as a national priority for regeneration. Kent Thameside also includes a major part of Gravesham Borough and collectively there are large-scale development plans that are expected to yield approximately 50,000 new jobs and 30,000 new homes over 20 – 30 years. It is anticipated that travel demand in the area could double, with road traffic on the major and local road network increasing significantly as a result. This has important implications on air quality. The Borough and County Councils' aim is to secure such development needs in a sustainable and environmentally acceptable way to thus minimise the adverse impact on air quality. One of the major solutions to deliver this ambition is the Fastrack public transport system. Phase One (£15 million) of Fastrack should start construction in 2003/04.

In the transport strategy for Kent Thameside, the future transport system for the area must "handle local transport movements efficiently and conveniently to avoid undue pressure on the motorway system and Dartford Crossing, which are also handling longer distance movements".

Another issue to consider is the impact of the small number of new road schemes either under construction or planned for the area, including the South Thameside Development Route 4 (STDR 4) that will provide traffic relief for Northfleet High Street, as well as improved access to the proposed Channel Tunnel Rail Link (CTRL) station at Ebbsfleet.

The Borough and County Councils have both contributed to the Government's "Orbit" multi-modal study. This is looking at options to improve movement and accessibility around the M25 orbital route. The Orbit Study published its Provisional Strategy for consultation in summer 2002 and both DBC and KCC raised their concerns regarding air

quality and put forward their support for initiatives to improve air quality in the Borough e.g. through improved rail capacity and further Thames Crossings east of Dartford.

Road traffic reduction targets have been produced by KCC with the aim of constraining the rate of growth of traffic in the Borough: 1.1% reduction in the rate of growth by 2005 for Dartford inner cordon and 1% by 2005 for Dartford outer cordon (which includes the A226 The Brent and A296 Watling Street lying within the AQMA). However, as Dartford Borough has two of the four centres of high traffic growth in Kent identified in the LTP (The Dartford Crossing and Bluewater shopping centre, as well as major proposed developments) it is difficult to envisage any absolute reduction in traffic levels.

The LTP Annual Progress Report for 2001 and 2002 contained an air quality annex which incorporated the review and assessment of air quality for each district (DBC Section for 2002 report shown in Appendix V). This will ensure that subsequent submissions of the LTP will incorporate air quality issues.

Public transport improvements:

Fastrack will improve the local public transport infrastructure and aims, through attracting modal shift, to help reduce the worsening in local traffic emissions, especially in the light of proposed development. This will have a positive impact on the AQMA as secondary sources to the A282 emissions are local roads, such as the A226 and A296 along which Fastrack will operate.

The Council is liaising closely with Kent County Council (the local Highway Authority) to help deliver Fastrack. It is also being pursued through the Local Authorities Kent Thameside Strategic Implementation Team and its Fastrack Project Manager. The Fastrack route is safeguarded through the Local Plan Review (Policy T1) and negotiations and planning applications on the major sites are helping secure its phased provision.

A new international and domestic station is proposed at Ebbsfleet, near Swanscombe, on the Channel Tunnel Rail Link. The impact on the AQMA is believed to be minimal, but improvements in the local network will help reduce the impact of proposed development in the area.

A2/A282 Dartford Improvement:

The A2/A282 improvement scheme appears in the Government's 1998 National Roads Programme and construction could be under way by 2005. It includes widening the A2 to four lanes in each direction between the M25 and Bean and adding some free-flow slip roads to the A2/M25 interchange (M25 Junction 2). Easier movement between the A2 (east) and A282 may result in an increase in traffic flows on the A282, thus resulting in a corresponding increase of pollutant concentrations within the Air Quality Management Area. Consultation between the local authority and Highways Agency has taken place to ensure that issues such as this are taken into account.

Dartford River Crossing:

The tolling system at the Dartford River Crossing (DRC) is under review. Tolls have been levied at the DRC since the first of the two tunnels opened in 1963. The powers granted by the Dartford – Thurrock Crossing Act 1988 enabled tolls to continue to be charged to

pay for the Queen Elizabeth II Bridge, until such time as the cost of the bridge was paid for and a reasonable sum collected to cover future maintenance charges. That point is likely to be reached at some stage in 2002.

The Transport Act 2000 enables the Secretary of State to make Orders to levy tolls on trunk roads and motorways. The draft Order on which the Highways Agency is consulting is pursuant to those powers and would enable tolling to continue at the crossing.

Consultants have looked at the possible effects on traffic levels of removal of tolls at the crossing, but the Government is not convinced that there is sufficiently clear evidence to make a strong enough case to end tolling. Recent estimates suggest an increase of some 17.6% in traffic levels if tolls were removed, though another Government study in recent years suggested a figure nearer 30%. Such increases in traffic would probably take up the crossing's remaining spare capacity, so the tolls are therefore an effective tool to manage traffic demand. Retention of the toll also has the benefit of providing a sustainable revenue stream for transport projects, part of which could be available to key projects in the Thames Gateway such as Fastrack and potentially projects to relieve air quality problems along the A282 Tunnel Approach Road. The Highways Agency consulted on the future of the tolls in August 2001 and the outcome of that consultation exercise will be known later in 2002.

During Stage 4, it was found that monitored levels of particles were higher than model predictions on the west side of the A282. This can be attributed to the queuing that occurs fairly frequently up to the tolls. This could be due to the tolls themselves, capacity constraint of the tunnels or the occurrence of incidents at the crossing. As a tool for demand management and having a direct influence on air quality within the AQMA, the toll system needs to be studied carefully. Fine tuning the toll system, in conjunction with other targeted road traffic related action along this trunk road, could potentially be an effective means of changing the pattern of traffic flow to improve local air quality.

Green transport initiatives

Development of Travel Plans:

A Travel Plan (TP) is a general term for a package of measures tailored to the needs of an organisation to introduce greener, cleaner and sustainable travel choices and reduce the reliance on the car. It involves the development of a set of mechanisms, initiatives and targets that together can enable an organisation to reduce the impact of travel and transport on the environment.

The Council will evaluate the practicality of potential measures for inclusion in a Council Travel Plan. This process will involve:

- Research of information on polluting criteria for cars
- Gathering data on alternatives to the car, on people's journey to work (including school drop-off etc) and on people's need for a car for work
- Identification of potential Travel Plan elements
- Consideration of promotion of alternatives e.g. through awareness, special offers or targets/rewards
- Review of travel to work, travel for work, deliveries/collections, contractors
- Researching the scope for car share schemes
- Investigation of Home Working Policy

- Review of the staff and visitor parking at the Civic Centre
- Review of the vehicle policy and polluting criteria for lease cars/car loans.
- Investigation of the potential for bike loans
- Liaison with operators on information provision, route improvements and ticket offers.
- Improving awareness

A draft travel plan has been drawn up and options are currently being considered. A timetable for adoption and implementation has yet to be agreed.

Greening Council and Contractors' Fleets:

The Council Travel Plan will include consideration of contractor vehicles. Use of LPG fuel and other environmentally positive measures within major contracts, e.g. refuse, are only optional and not compulsory at the current time. The contracts will be reviewed during the development of the Council Travel Plan to promote cleaner alternative fuels.

The use of cleaner emissions technology in Council vehicles will be investigated, including the potential for funding to secure air quality benefits e.g. through the Energy Saving Trust.

In parallel with the development of the Council's own Travel Plan, DBC will liaise with other employers on the introduction of their own Travel Plans, with the Council taking an advisory role. Linking together the requirements of employers in Dartford Town centre, for example by establishing a car sharing database, may offer an opportunity to have a significant influence on peak time traffic into and out of town.

Borough Transport Strategy:

DBC will be compiling a Borough Transport Strategy during 2002, as part of the LA21 Strategy Action Plans. The aim is to bring together all the elements of the existing transport strategy into one document. This will then undergo a review process. It is important that the Borough Transport Strategy promotes measures to protect and improve air quality. Close co-operation with transport operators will be a key element.

Vehicle Emissions Testing:

DBC, in partnership with the community environment group QED and a number of local garages have set up a scheme to offer free emission testing for vehicles. This scheme encourages the public to carry out a free check on their exhaust emissions at local facilities and help improve the local environment. Improved promotion of this voluntary scheme has been initiated and the potential use of regulatory powers for vehicle emission testing under the Road Traffic (Vehicle Emissions)(Fixed Penalty)(England) Regulations 2001 will be investigated.

2. CONTRIBUTIONS FROM OTHER PARTNERS

Dartford Borough Council will work in co-ordination with other relevant bodies e.g. Kent County Council, the Health Authorities and Highways Agency to secure the action plan aims. However, further action will be required by Central Government to achieve the desired reduction in pollution levels and this will require large investment and involve more long term measures.

Highways Agency

Screening:

Potential improvements to the screening along the A282 Dartford Tunnel Approach Road will be investigated, for example further tree planting and management or more effective solid screens, to secure shorter term benefits in air quality. Research has been undertaken by the Highways Agency on the effectiveness of different screens and this should be drawn upon to assess what benefits can be achieved. Secondary environmental benefits of such action may include reduction in noise levels. The Highways Agency has agreed to undertake a preliminary assessment of the feasibility of providing dense tree planting/screening.

Traffic Management:

The Stage 4 Review and Assessment considered the impact of reduction in speed to 50mph along the A282 Tunnel Approach Road. The existing limit is 60mph, but a lack of enforcement can result in higher average speeds.

The results of the AAQuIRE scenario model runs show that speed reduction, if adequately enforced, can have a significant impact on emissions. This will require improved speed and flow data along the A282 Tunnel Approach Road to allow such traffic management measures to be targeted effectively and the impact of such action properly assessed. The Highways Agency, in conjunction with Kent Police, has agreed to consider whether it is feasible to further reduce the A282 speed limit.

The use of variable message signs along this trunk road to promote better driver behaviour and increase awareness of the AQMA could be an effective tool if used in conjunction with speed restrictions on the A282.

Such traffic management scenarios aimed at improving the flow along the A282 from Junction 2 of the M25 up to the toll booths will require testing and the undertaking of feasibility studies. Improved flows could alleviate some of the peak pollution episodes which occur when traffic is queuing, especially on the northbound side towards the tolls. Assessment of the impact of the present tolling system on the flow of traffic should also be investigated. The Highways Agency has agreed to investigate the potential for an early review of the efficiency of the Dartford River Crossing toll booths operation.

Health Authority

Dartford Borough Council will be contacting the Health Authority regarding the provision of advice and information on health related effects of emissions to local residents in pollution hotspots. The potential for health screening and research into localised effects of air pollution and health will also be investigated.

Central Government:

Modelling undertaken as part of the Stage 4 Review and Assessment source apportionment has shown that through traffic along the A282 accounts for at least 25% of emissions within the AQMA, half of which are due to HGV's. Without the through traffic element in the model, 'worst case' model predictions did not lead to any exceedences of

the PM₁₀ 24 hour standard and only a small number of NO₂ annual exceedences. Implementation of the proposed measures within this action plan detailed thus far would be sufficient to prevent these NO₂ exceedences.

Further action will be required to achieve the desired reduction in pollution levels at nearby receptors, but such action will need to be taken at a national level and require large investment.

Potential measures:

- Improvements to the national rail network to enable more transfer of freight from road to rail thus reducing HGV emissions
- A new Lower Thames Crossing:
 - If a rail crossing, this would make transferring freight to rail even more attractive, especially if the crossing is related well to the proposed development at Shellhaven;
 - If a road crossing, this could have a major benefit to the AQMA by removing a good proportion of the strategic traffic movement currently using the M25 and the Dartford Crossing; and
 - If the crossing catered for both road and rail, the benefits to the AQMA would be even higher.

As a trunk road of national and international importance and with a large proportion of emissions outside the control of the local authority, actions will be required at a national level, possibly through the generation of National Action Plans.

3. LAND-USE PLANNING

NCSA Guidance Nov 2000 stresses the importance of having a local plan that recognises the importance of air quality for any action plan to be delivered. Strategic planning must 'be sensitive to the need to improve local air quality along with the wider local environment' and development control should be a tool 'for promoting more sustainable travel patterns and hence minimising traffic generation.'

The Dartford Borough Local Plan is under review. The first deposit draft was published in March 2000; the second deposit draft is likely to be published in Spring 2002. The Local Plan Review addresses air quality issues in the following ways:

- An integrated approach to land use and transport planning. The local rationale for this approach is that future development targets and travel demands cannot be met on the basis of current mode shares and that for the future; a proportionately greater number of journeys will need to be made by non-car means. This approach is given effect in the Review through a range of policies dealing with mixed-use, higher density, public transport-orientated development and the provision of better public transport.

In order to foster an integrated approach at a working level, the Council's Transport Planning staff are now integrated into the Planning Policy and Development Control teams rather than being in a stand-alone group.

- New development sites are to be based on “public transport orientated development”, urban villages and walkable neighbourhoods. The aim is to maximise the potential for public transport provision, walking and cycling.
- Through the proposed green grid network, the greater number of open spaces and green links between developments should encourage more sustainable modes of travel such as walking and cycling.
- The incorporation of a new section on Air Quality in the Natural Resources chapter. This contains policies which deal with minimising pollutants from new development and requiring air quality impact assessments for new development proposals and development affecting an AQMA.

The Local Plan Review has incorporated air quality impacts of new developments through the following policies (**as per First Deposit Draft, Spring 2000**):

NR10 Air Quality: Minimisation of Pollutants

Development proposals will only be permitted where they are sited and designed to minimise the emission of air pollutants and the impact of air pollutants on the local environment.

NR11 Air Impact Assessments

Development proposals that give rise to a potentially polluting activity, including the emission of dust, will only be permitted where they are accompanied by an assessment of the potential impact of the proposal on local air quality arising either from the operational characteristics of the development or the traffic generated by it.

NR12 Development in Air Quality Management Areas

Development within an Air Quality Management Area will only be permitted if it can be demonstrated that the resulting long-term air quality situation will be satisfactory, and that short and medium term impacts can be minimised to an acceptable level.

The Local Plan Review also contains policies that seek to promote renewable energy sources, and energy efficiency in buildings and building layouts (NR22, NR23).

Planning applications with air quality implications are submitted routinely to Environmental Health for comment and this practice will continue. A list of all planning applications received by the Council is forwarded to Environmental Health on a weekly basis. This is particularly important for any proposed development that might have an impact on air quality within the AQMA. There is no formal internal guidance for dealing with such applications at present and therefore this is an area that could be improved upon to ensure consistency in approach.

4. POLLUTION CONTROL AND AIR QUALITY MANAGEMENT

Pollution control

Industrial emissions: The Environmental Protection Act 1990 Part I A & B

In 1990 the Environmental Protection Act introduced new controls over industries with significant air pollution potential. The Environment Agency was given the responsibility of regulating larger industries (Part A processes) and local authorities were given the smaller industries (Part B processes). The regulatory regime was phased in industry by industry and the regime has successfully reduced emissions from these industries significantly.

In terms of current industries in Dartford that result in emissions to air, there are 30 processes authorised under the Environmental Protection Act 1990. There are two concrete batching plants, one quarry process and four concrete crushing plants, all of which are potential sources of dust emissions. There are four vehicle re-sprayers, one print process and three coating processes which produce volatile organic compounds. There is one timber combustion process and three waste oil burners producing combustion gases and fine particles. Also, now included as Part B authorised processes are eleven petrol stations that are sources of volatile organic compounds from petrol vapour.

Large industrial processes, such as power stations, are called Part A processes, and these are regulated by the Environment Agency under the Environmental Protection Act 1990. There are three in the borough, one gas-powered power station Littlebrook, one Incineration process and one paper process which are combustion processes producing emissions of nitrogen oxides, particles and sulphur dioxide. All these have strict emission limits to meet.

Regulations issued in 1995 under the Environmental Protection Act 1990 amended the Part B process list to include petrol stations. As from 1 January 1996 all new petrol stations were required to fit vapour recovery equipment to reduce the escape of emissions of volatile organic compounds, including benzene, when underground tanks are being filled by road tankers. Petrol vapour releases from larger petrol filling stations (those with a throughput of greater than 1000m³ per annum) have been reduced since the end of 1998 as they became subject to controls requiring vapour recovery systems. By the end of 2001 those stations with a throughput of greater than 500m³ will require authorisation.

Further revisions to the number of industrial processes being regulated by the Environment Agency and local authorities are being brought in under the Pollution and Prevention Control Act 1999 and subsequent regulations published in 2000. This will bring the UK in line with European legislation. The new legislation is unlikely to have a significant impact on the number of industrial processes regulated in Dartford. However, there are likely to be some changes in the regulation of existing processes due to subsequent revisions of process guidance notes.

Nuisance (Bonfires, fugitive dust sources, construction dust):

Guidance for developers on environmental controls required during construction has been produced by DBC to minimise fugitive dust emissions from this source, and standard

planning conditions are imposed where such emissions are likely. Bonfire leaflets have also been produced and these are distributed when nuisance problems arise. Statutory nuisance is enforced by Environmental Health (EH) under the Environmental Protection Act 1990 Part III and this controls smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health.

Smoke Control Areas:

The majority of Dartford Borough is within a Smoke Control Area and therefore emissions from domestic chimneys are controlled. This controls domestic smoke emissions by requiring people to burn only smokeless fuel and is enforced by EH under the Clean Air Act 1993.

Local air quality management

Air quality monitoring:

The monitoring network has been increased within the AQMA to provide better information on modelled pollutant concentrations and monitor the performance of the action plan measures. The existing network included three continuous air quality monitoring stations (NO₂ and PM₁₀ analysers) and 15 NO₂ diffusion tube sites. This has been extended to incorporate two portable PM₁₀ analysers, one portable NO₂ analyser and eight new NO₂ diffusion tube sites within the AQMA.

Partnership working and consultation:

Commitment to partnership working has been established through the action plan working group and Kent Air Quality Partnership (KAQP) Review and Assessment Sub-group. The action plan group involves DBC transport planning, planning, LA21 and environmental health as well as external bodies Kent County Council and the Highways Agency. KAQP involves working in partnership with other local authorities in Kent. Public consultation meetings have also been carried out and will be repeated during the development of the Action Plan.

Local Air Quality Strategy:

A draft Air Quality Strategy for Dartford has been developed in 2002 and should be adopted later in the year. This provides a much broader framework so that related policy areas can be incorporated, such as climate change and links can be made to other strategies and policy areas e.g. the Community Strategy. It will also provide a framework for subsequent developments in air quality management, such as reviewing new pollutants and carrying out further review and assessments. The aim of the Strategy will be to ensure air quality is considered across all Council activities and to influence others to adopt positive actions to improve local air quality.

5. ENERGY MANAGEMENT

Energy efficiency:

Commercial energy use:

The Dartford Energy Group has recently been established to identify energy use within the Council. An inventory of energy use and CO₂ emissions is currently being undertaken with the aim of establishing a baseline for July 2002 and setting up appropriate indicators. Investigations will continue into the measures available to assist with energy efficiency and the reduction of CO₂ emissions. Once the Council has assessed its own contribution to emissions, other organisations within the community will be targeted.

Domestic energy use:

The Kent Energy Centre (KEC) was set up in 2000 and provides advice to all sectors. The DBC housing technical officer participates in the KEC initiatives. The Housing Department also provides advice direct to residents and information on grant schemes including discounts on loft insulation and cash back on condenser boiler installation. DBC also has a planned maintenance schedule for all Council owned property. This scheme is aimed at replacing windows, roof insulation and cavity wall insulation.

A Fuel Poverty report was submitted to cabinet at the end of 2000. The "Care and Repair" scheme is being used to help community individuals on benefit to conserve energy and make them aware of energy supporting schemes. Care and Repair is a joint initiative with the County Council. All the Kent local authorities are working on a Countywide Fuel Poverty Strategy and will implement actions where feasible.

DBC sent energy questionnaires out to 36000 local residents in 2001 and house condition surveys have been undertaken. Within this survey energy issues were identified such as double glazing and loft insulation.

Energy Awareness

Dartford Borough Council (Housing Department) aims to work closely with the Kent Energy Centre to provide education for schools and other establishments. Energy awareness talks have been undertaken in schools and internal staff seminars have been given, specifically to Officers who interact with community. It is proposed, through the Local Agenda 21 Strategy Action Plans, that a training seminar on energy will be given to all staff in 2002.

Building Control

Building Control can contribute to the development of policies for air quality improvement through the promotion of emission-reducing technologies in new developments and buildings. DBC Building Control Service has policies in place to improve energy efficiency in buildings, as described below.

The Building Control Service has a statutory responsibility to ensure that new building works within the Borough meet minimum technical standards in relation to health, safety,

welfare and energy conservation, as prescribed under the Building Regulations 1991. The legislation sets out substantive requirements and technical guidance to achieve minimum standards. This technical guidance is contained in Approved Documents giving general guidance as well as practical guidance about some of the ways of meeting the requirements of the Regulations. Approved Document L – Conservation of fuel and power requires reasonable provision to be made for the conservation of fuel and power in buildings by:

- Limiting the heat loss through the fabric of the building.
- Controlling the operation of the space heating and hot water systems.
- Limiting the heat loss from hot water vessels and hot water service pipe work.
- Limiting the heat loss from hot water pipes and hot air ducts used for space heating.
- Installing in buildings artificial lighting systems, which are designed and constructed, to use no more fuel and power than is reasonable in the circumstances and making reasonable provision for controlling such systems.

Revisions to Approved Document L are expected to be introduced in 2002 to reduce CO₂ emissions associated with buildings by increasing energy efficiency above current minimum standards.

6. ENVIRONMENTAL PROMOTION

Awareness raising and improved dissemination of information on air quality issues is planned in 2002 -3 through:

- Development of the DBC web site to incorporate air quality information. The web site is currently under review.
- Public and DBC staff consultation exercises
- Information to the public through articles in local press and air quality displays
- Advertising local recharging points/alternative fuel refuelling points
- Information to schools through LA21 presentations
- Advice to local businesses on travel plans

Promotion of alternative fuels:

Quality Environment for Dartford (QED) plans to contact the major fuel suppliers and service station franchises to consider including alternative fuel supplies such as LPG, CBG when service stations are built or improved.

SCENARIO TESTING

A number of scenarios have been run using the new emissions factors (2002) within AAQuIRE to model the potential air quality benefits of proposed measures for the A282 as set out in this Action Plan. Predictions at nearby receptors along the A282 are considered.

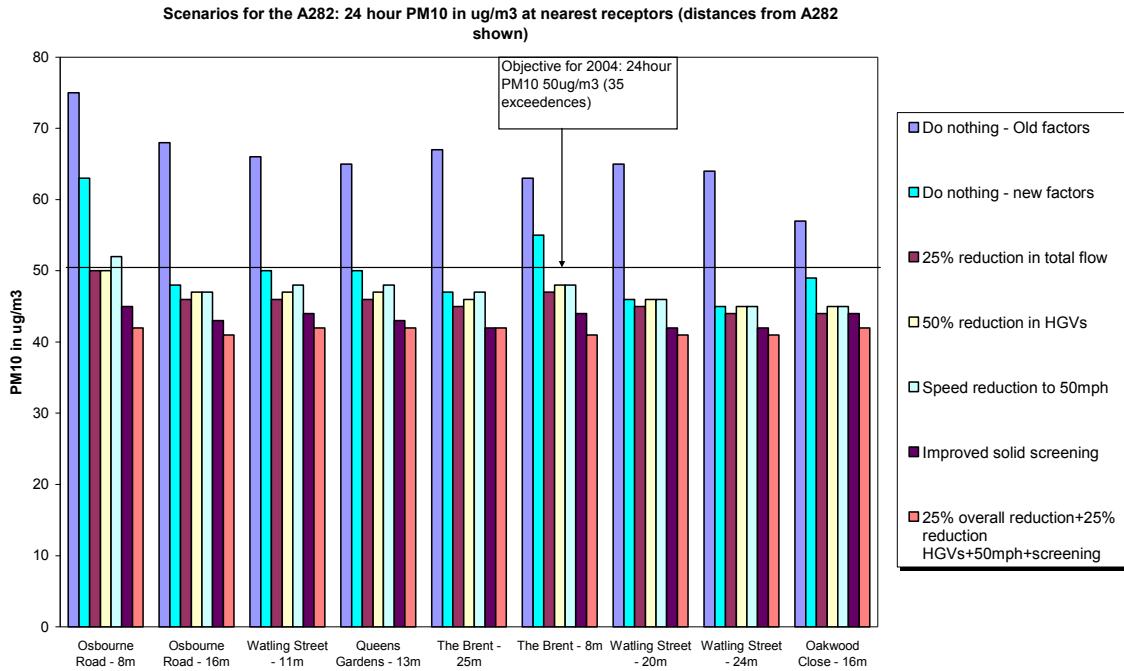
The results have demonstrated the magnitude of the undertaking to reduce NO₂ levels at the nearest receptors to the annual objective and the requirement of significant long term investment at a National level. Even with significant reductions in total flow and in the proportion of HGVs, the Objective would not necessarily be met at all receptors and a

suite of measures will be required. The model run with 25% reduction in HGV proportion, 25% reduction in total flow, speed reduction to 50mph and improved screening predicts exceedences of NO₂ of up to 10% at 10 building facades with relevant exposure. (With proposed local measures the Objective could potentially be met). With the new emissions factors, NO₂ predicted concentrations are greater than previously predicted in the Stage 3 Review and Assessment. The reverse is true for PM₁₀, where predicted concentrations have been reduced. The proposed measures for speed reduction and screening are predicted to reduce levels to meet the Objective for 2004.

It should be noted that modelled predictions of screening effects are difficult to simulate using AAQuIRE. Solid screening has been modelled by altering the road profile to simulate a cutting and by changing mixing widths. The results may therefore be a reflection of the sensitivity of the model to these changes in parameters. There appears to be an overestimation of the potential reductions, however there is likely to be significant localised benefits at the receptors worst affected, where screening at present is poor. This requires more detailed investigation and the Highways Agency will be considering the impact of improved screening.

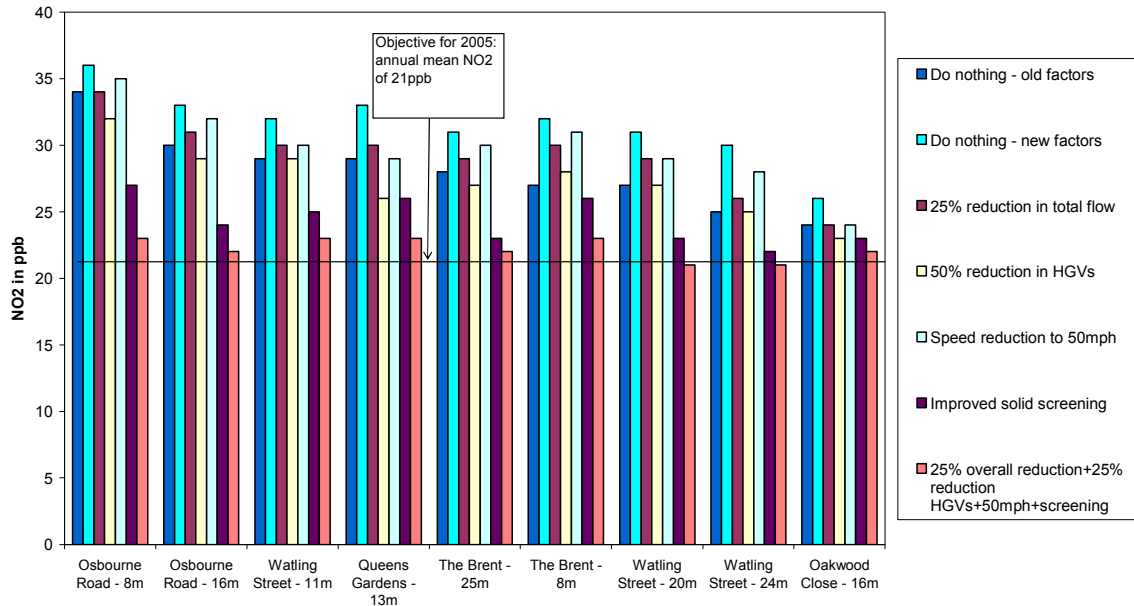
There is a required reduction of NO₂ of 15% through local measures. A number of Borough Wide measures have been proposed which will have an impact directly and indirectly on the AQMA. For example, Fastrack will reduce traffic demand on local roads intersecting the AQMA and will be particularly important in future years in meeting the demands of proposed development in Kent Thameside. There has been no detailed assessment of the impact of Fastrack to date, except the first phase and this indicates a minimal effect on the AQMA. Measures such as the Council Travel Plan and Borough Transport Strategy are underway and drafts have been drawn up. However, it is not possible to model the impact of these until the various options under consideration have been studied in more detail. Together, implementation of these Borough Wide measures should achieve the required reduction at a local level, but indicators will be required to monitor their progress.

| AQMA Nearest receptors | | PM10 (ug/m3) | | | | | | | 2004 |
|------------------------|----------------------|-------------------|---------------------------------|---------------------------------|---------------------|-----------------------------|-----------------------|---|------|
| Location | Distance to A282 (m) | PM10 - Do nothing | PM10 - Do nothing - New factors | A: 25% overall capacity removed | B: 50% HGVs removed | C: Speed reduction to 50mph | D: Improved screening | All measures for A282 - A +25%HGv removed+C+D | |
| Osbourne Road | 8 | 75 | 63 | 50 | 50 | 52 | 45 | 42 | |
| Osbourne Road | 16 | 68 | 48 | 46 | 47 | 47 | 43 | 41 | |
| Queens Gardens | 13 | 66 | 50 | 46 | 47 | 48 | 44 | 42 | |
| Watling Street | 11 | 65 | 50 | 46 | 47 | 48 | 43 | 42 | |
| The Brent | 25 | 67 | 47 | 45 | 46 | 47 | 42 | 42 | |
| The Brent | 8 | 63 | 55 | 47 | 48 | 48 | 44 | 41 | |
| Watling Street | 20 | 65 | 46 | 45 | 46 | 46 | 42 | 41 | |
| Watling Street | 24 | 64 | 45 | 44 | 45 | 45 | 42 | 41 | |
| Oakwood Close | 16 | 57 | 49 | 44 | 45 | 45 | 44 | 42 | |



| AQMA Nearest receptors | | NO2 (ppb) | | | | | | | |
|---------------------------|-------------|------------------|------------------------------|---------------------------------|---------------------|-----------------------------|-----------------------------|---|--|
| Distance | | 2005 | | | | | | | |
| Street (distance to A282) | to A282 (m) | NO2 - Do nothing | NO2 - Do nothing NEW factors | A: 25% overall capacity removed | B: 50% HGVs removed | C: Speed reduction to 50mph | D: Improved solid screening | All measures for A282 - A +25%HGV removed+C+D | |
| Osbourne Road - 8m | 8 | 34 | 36 | 34 | 32 | 35 | 27 | 23 | |
| Osbourne Road - 16m | 16 | 30 | 33 | 31 | 29 | 32 | 24 | 22 | |
| Watling Street - 11m | 11 | 29 | 32 | 30 | 29 | 30 | 25 | 23 | |
| Queens Gardens - 13m | 13 | 29 | 33 | 30 | 26 | 29 | 26 | 23 | |
| The Brent - 25m | 25 | 28 | 31 | 29 | 27 | 30 | 23 | 22 | |
| The Brent - 8m | 8 | 27 | 32 | 30 | 28 | 31 | 26 | 23 | |
| Watling Street - 20m | 20 | 27 | 31 | 29 | 27 | 29 | 23 | 21 | |
| Watling Street - 24m | 24 | 25 | 30 | 26 | 25 | 28 | 22 | 21 | |
| Oakwood Close - 16m | 16 | 24 | 26 | 24 | 23 | 24 | 23 | 22 | |

Scenarios for the A282: annual NO2(ppb) at nearest receptors (distances from A282 shown)



PRIORITISATION OF ACTIONS AND PROPOSED TIMETABLE

During the development of the Action Plan for the Borough of Dartford, the proposed measures to improve air quality have been considered in the light of the required reductions of pollutants, source apportionment and the costs versus potential benefits. Summary Tables 1 – 3 below suggest indicative prioritisation of the proposed and ongoing actions to improve air quality within the Borough. The criteria for consideration in prioritisation of actions are ranked from lowest to highest (1 to 3). It should be noted that

although some actions in isolation may have only small impacts in terms of air quality improvements, when implemented in conjunction with other actions they may be significant in contributing to the achievement of the desired improvements in air quality.

Target dates, costs and benefits for proposed actions are provided wherever possible. As DBC is working in partnership with other relevant bodies to secure the action plan aims, some proposals have timetables yet to be agreed. Further, more detailed assessment will be required to produce an accurate cost benefit analysis, including feasibility studies of some of the proposed options.

Limitations: There have been limitations in producing detailed assessment of the costs and benefits of proposed measures and agreeing timetables. Dartford's AQMA Action Plan relies largely on the delivery of measures by other partners. The Highways Agency, although giving their support to the assessment of some of the proposed measures in January 2002, have not provided any assessments to date. Kent Police have stated that their criteria for use of cameras for enforcement of speed restrictions are based on safety grounds and not air quality (see comments page 42). Scenarios have been run where possible by DBC but there has been no provision of accurate figures from partners to aid this process. Implementation of these measures will be essential to DBC achieving the air quality objectives. DBC proposed and existing measures have been difficult to assess in terms of detailed cost and benefits, for example promotional events, voluntary emissions testing or promotion of travel plans are dependent on the uptake and rely on contributions by local communities. Uptake will be monitored and measures reviewed regularly.

| SUMMARY OF EXISTING AND PROPOSED MEASURES: TABLE 1 | RESPONSIBILITY | TARGET DATE (TIME SCALE) | RELATIVE AIR QUALITY IMPROVEMENT | PERCEIVED COST EFFECTIVENESS | PRACTICALITY | OTHER ENVIRONMENTAL BENEFITS E.G. CO ₂ , NOISE | NET SOCIAL AND ECONOMIC BENEFITS |
|---|----------------------|---------------------------------------|--|------------------------------|--------------|---|----------------------------------|
| Ranking 1 (Low) – 3 (High) | | | | | | | |
| A282 Tunnel Approach Road measures: | | | | | | | |
| Lobbying Central Government for national actions a) to c) on the A282 | DBC, KCC | 2002 (short term) | Dependant on outcome | * | * | Dependant on outcome | Dependant on outcome |
| a) Improved existing rail freight infrastructure | Central government | Yet to be agreed (long term) | Removal 50% HGVs – up to 27% NO ₂ | * | * | 2 | * |
| b) New rail freight infrastructure | | | as above | * | * | 2 | * |
| c) New Lower Thames Crossing | | | Removal 25% flow – up to 15% NO ₂ | * | * | 3 | * |
| Speed restriction and enforcement | HA, Kent Police | Yet to be agreed (short/ medium term) | 50mph – up to 14%NO ₂ | Recoverable | * | 1 | * |
| Use of variable message signs | HA, Kent Police, KCC | | 1 | * | * | 1 | * |
| Assessment of the impact of the toll system | HA, DRC | | Dependant on outcome | * | * | Dependant on outcome | Dependant on outcome |
| Improved screening | HA | | Restricted benefits -up to 38% NO ₂ | 3 | 3 | 1-2 | 1 |
| Borough wide measures: | | | | | | | |
| <i>Planning policy:</i> | | | | | | | |
| Local Plan Review adoption of policies on improving air quality | DBC | 2004 (medium/longterm) | 1 - 2 | 3 | 3 | 1 - 2 | 2 |
| <i>Transport Planning:</i> | | | | | | | |
| Public transport infrastructure improvements: Fastrack | KCC, DBC | 2004 (medium) £15 million (Phase1) | 1 - 2 | 2 | 3 | 1 | 1 |

* = Cannot be determined without input from others

| SUMMARY OF EXISTING AND PROPOSED MEASURES : TABLE 3 | RESPONSIBILITY | TARGET DATE (TIME SCALE) | RELATIVE AIR QUALITY IMPROVEMENT | PERCEIVED COST EFFECTIVENESS | PRACTICALITY | OTHER ENVIRONMENTAL BENEFITS E.G. CO₂, NOISE | NET SOCIAL AND ECONOMIC BENEFITS |
|--|------------------------|---------------------------------|---|-------------------------------------|---------------------|--|---|
| Ranking 1 (Low) – 3 (High) | | | | | | | |
| <i>Local Air Quality Management:</i> | | | | | | | |
| Commitment to partnership working (action plan working group and KAQP) | DBC, KCC, HA, EA, LA's | Ongoing | 1 | 3 | 3 | 1 | 1 |
| Development and implementation of a local air quality strategy for Dartford | DBC | 2002 draft (short term) | 1-2 | 3 | 3 | 1-2 | 1 |
| Potential for regulatory vehicle emissions testing investigated | DBC | 2002 (short term) | 1 | 2 | 2 | 1 | 1 |
| <i>Energy management:</i> | | | | | | | |
| Energy efficiency schemes domestic and commercial | DBC/KCC | Ongoing | 1 | 3 | 3 | 2 | 2 |
| Energy awareness | DBC/KCC | Ongoing | 1 | 3 | 3 | 1 | 1 |
| Building Control measures | DBC | Ongoing | 1 | 3 | 3 | 2 | 2 |
| <i>Environmental promotion:</i> | | | | | | | |
| Improved awareness and dissemination of air quality information, including development of the DBC web site | DBC | 2002 -3 (short term) | 1 | 3 | 3 | 1 | 1 |
| Ad hoc talks to schools on LA21 | DBC | Ongoing | 1 | 3 | 3 | 1 | 1 |
| Vehicle emissions testing- promotion of free testing locally. | DBC | 2002 (short term) | 1 | 3 | 3 | 1 | 1 |
| Liaise with Health Authority on provision of information and advice on health effects | DBC, Health authority | 2002 (short term) | 1 | 3 | 3 | 1 | 1 |

DBC –Dartford Borough Council; KCC – Kent County Council; EA – Environment Agency; HA – Highways Agency; LA – local authorities; DRC – Dartford River Crossing Concessionaires.

DELIVERING THE ACTION PLAN

Dartford Borough Council will work jointly on the action plan measures with the relevant partners including the Highways Agency, Kent County Council, the Health Authority and Kent Police. To secure the necessary air quality improvements there must be involvement of all stakeholders and the Council will actively work to encourage public participation in the process. Further work is required to accurately assess the costs and benefits of some of the proposed actions and this will be carried out during 2002 -3.

The implementation and effectiveness of the Action Plan will be carefully monitored against Government Objectives through the use of indicators, such as air pollution levels (which will continue to be monitored) traffic flow changes (composition/hourly flow is measured at the Dartford Crossing) and uptake of travel plan measures. There will be regular review and assessment of the action plan proposals to evaluate progress and this will be reported annually.

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National Society for Clean Air (2000) 'Air Quality Action Plans: Interim Guidance for Local Authorities'

National Society for Clean Air (2001) 'Air Quality: Planning for Action'

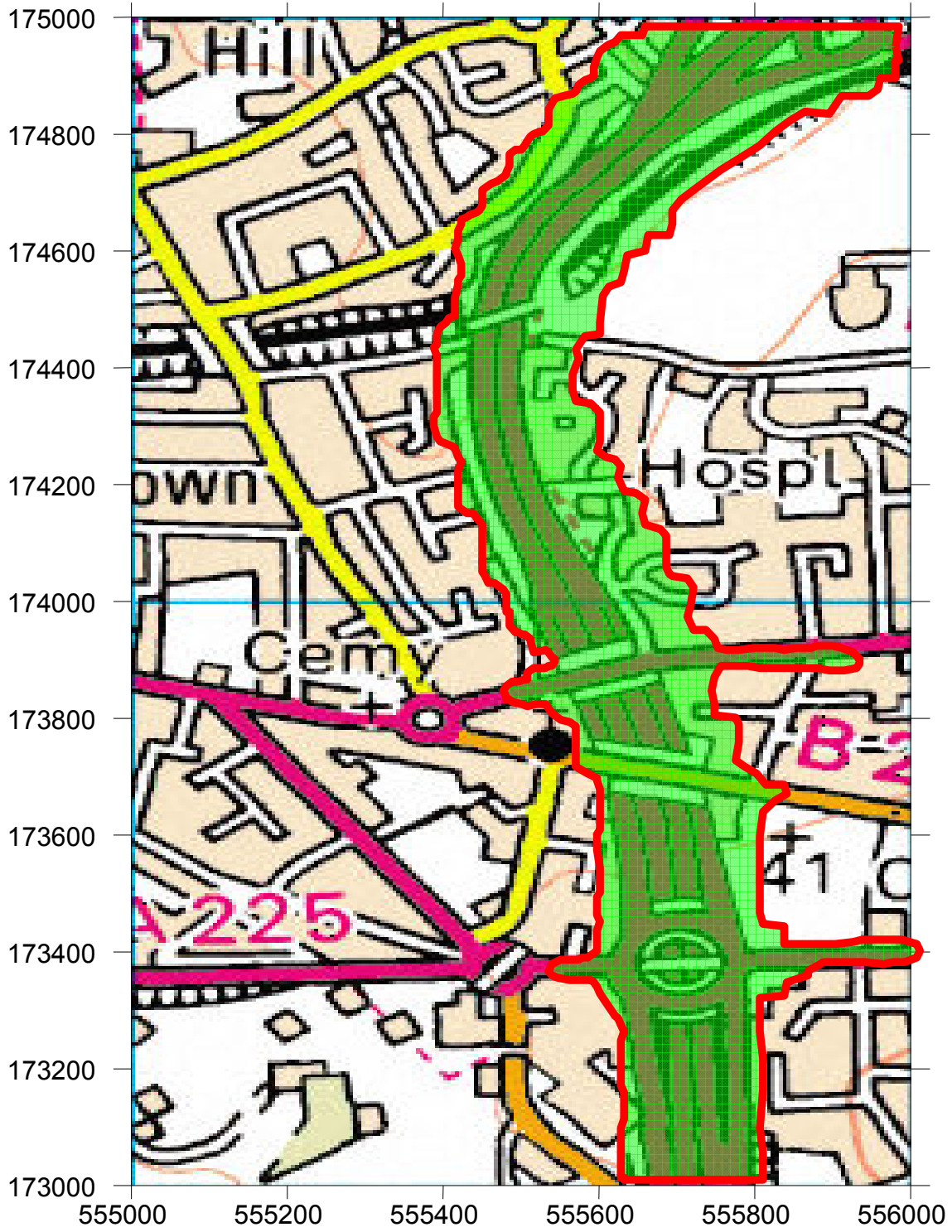
GLOSSARY:

| Abbreviation | Full name |
|--------------------------|--|
| $\mu\text{g}/\text{m}^3$ | Micrograms per cubic metre |
| AQMA | Air Quality Management Area |
| CO_2 | Carbon dioxide |
| CNG | Compressed natural gas |
| DBC | Dartford Borough Council |
| DEFRA | Department for Environment, food and Rural Affairs |
| DETR | Department of the Environment, Transport and the Regions |
| DRC | Dartford River Crossing |
| EA | Environment Agency |
| EST | Energy Savings Trust |
| EU | European Union |
| HA | Highways Agency |
| IPC | Integrated pollution control |
| IPPC | Integrated pollution prevention and control |
| KAQP | Kent Air Quality Partnership |
| KCC | Kent County Council |
| KEC | Kent Energy Centre |
| LA | Local authority |
| LA21 | Local Agenda 21 |
| LAQM | Local air quality management |
| LNG | Liquefied natural gas |
| LPG | Liquefied petroleum gas |
| LTP | Local travel plans |
| NAQS | National Air Quality Strategy |
| NO_x | Oxides of nitrogen |
| NO_2 | Nitrogen dioxide |
| PM_{10} | Fine particle matter less than $10\mu\text{m}$ diameter |
| ppb | Parts per billion |
| QED | Quality Environment for Dartford |
| TP | Travel plan |
| UNECE | United Nations Economic Commission for Europe |

APPENDIX I: HEALTH EFFECTS OF POLLUTANTS

| Pollutant | Health effects |
|------------------------------------|---|
| Nitrogen dioxide | Causes respiratory illnesses and possibly increases the risk of lung infections. Young children and people with asthma are the most sensitive to this pollutant. |
| Sulphur dioxide | It is an irritant and can cause a feeling of chest tightness and a narrowing of the airways. Those who suffer from asthma are more sensitive than other people. Can aggravate existing bronchitis. |
| Fine particles (PM ₁₀) | Fine particles have been linked with a number of respiratory illnesses, including asthma. Of more concern is that long-term exposure to fine particles has recently been found to cause premature death from heart disease and lung disease. Fine particles may also cause lung cancer, since cancer-causing compounds found in exhaust fumes attach themselves to the surface of the particles, which may then be breathed into the lungs. |
| Ozone | Ozone is a toxic gas which can cause damage and irritation to the lungs and air ways. Damage is increased when taking exercise, but the effects are not permanent. Asthmatics are not thought to be more sensitive to ozone, although it is possible that ozone may make people more sensitive to pollens and allergens. |
| Carbon monoxide | This pollutant can deprive the blood of oxygen and can cause headaches, dizziness, nausea and at very high levels, death. Elderly people, pregnant women, young children and people with heart disease and lung disease are more sensitive to carbon monoxide. |
| Volatile organic compounds | Includes some compounds which are either known or thought to cause cancer. Two compounds which are known to cause cancer are benzene and 1,3-butadiene. |
| Lead | Children are the most sensitive to lead poisoning. Exposure to lead is thought to cause behavioural problems, lower learning ability and lack of concentration. |

APPENDIX II: AQMA: A282 TUNNEL APPROACH ROAD JUNCTIONS 1A -1B



APPENDIX III: PUBLIC CONSULTATION FEEDBACK**Consultation letter feedback:**

| Comments received | Total number of individuals |
|---|------------------------------------|
| <i>Re A282 Tunnel approach Road</i> | |
| Tree planting along motorway corridor | 10 |
| Removal of tollbooths | 7 |
| Build double wall or higher screen | 4 |
| vehicle emission testing for HGV's | 4 |
| Build tunnel/enclose motorway with extract fans | 3 |
| Low emission vehicles/alternative fuel use | 2 |
| Separate diesel lane (in centre) | 1 |
| Misting spray for road dust | 1 |
| Speed limit reduced | 1 |
| New Crossing built | 1 |
| Re-route motorway | 1 |
| | |
| <i>Property</i> | |
| Compensation/ council tax reduction requested | 4 |
| Extra glazing/air purifiers | 3 |
| Concern over blight to property | 3 |
| | |
| <i>Other</i> | |
| Emissions from Littlebrook power station | 3 |
| Tighter parking restrictions on non-trunk roads | 3 |
| Impact of further development in the area | 2 |
| Liaison with petrol stations/ development of | |
| quality partnerships with bus companies | 1 |
| Health screening | 1 |
| Concern over increased traffic from Bluewater | 1 |
| Walk to school schemes | 1 |
| Bonfires banned | 1 |
| | |
| <i>Further information / health issues</i> | |
| Requests for further information and concerns raised regarding health effects | 13 |

MEETING 1: 26th June 2001

1. When will there be action?
 - Timetable from Government
 - Aim to meet standards by 2004/5
 - Liaison with Highways Agency (HA)
 - Local plans also to be used
 - Review other schemes.
2. Any local authority (LA) achieved improvements?
 - 35 LA's declared AQMA's
 - Kent, 1 declared AQMA. Eight being considered
 - Several LA's are trialing schemes
 - Some London LA's declaring clean air zones.
 - Encouraging alternative transport
 - Vehicle taxation
 - Major employers promoting alternative transport/sharing.
3. Where does HA come in, cost? Feel should be larger contribution from HA.
 - LA's have principle duty
 - Balance needed between economic growth and potential pollution
 - Some obligations placed on LA's by Central Government re. Development
4. Development
 - Ebbsfleet being looked at with air quality in mind.
5. Different types of vehicle (e.g. HGV) produce different levels of pollution.
 - HA have obligation to consider this.
6. Littlebrook power station pollution (LPS)
 - Part A process, therefore controlled and monitored.
 - A lot of work at LPS improving emissions.
 - QED forum.
7. HGV's
 - Dirty diesel line.
 - Toll booths at Tunnel.
 - Change in types of vehicles petrol/diesel
 - LA figures from DETR
 - Internet site says up to 45% of UK vehicles will be diesel by 2005
 - AQMA is a live process
8. Private vehicle is a major problem.
 - Local Plans looks at this through parking standards per property.
9. Comments on consultation letter – compensation, tax reduction, etc.
 - Don't have authority to reduce Tax, etc.
10. When road widened, HA paid compensation – double glazing.

- This was for noise not air quality.
11. HA should be taking lead.
 - Comments go to HA, as they have responsibility re AQ.
 - Could run model removing Tunnel toll booths, reducing vehicle speed, etc
 - LA have to pay for review and assessment
 - HA pay for improvements
 - Booths supposed to have gone after a number of years.
 12. AQMA will affect house prices.
 - No plans on statutory questions within land charges searches
 - Some may want to be in AQMA. AQMA may give other benefits.
 - Some degree of devaluation already due to noise and closeness of major road
 13. Good traffic links can increase house prices.
 14. Tree planting – reduce air pollution?
 - Species dependent, age also.
 - More effective on particles.
 - Limited effect. Comparative studies have been done.
 15. Tunnel over approach road?
 - Cost implications
 - HA will look at options using cost benefit analysis
 16. Channel Tunnel Rail Link, Freight trains? Terminal other side of London?
 - Freight considered. May have high value, low weight. Won't be as heavy as will slow line.
 - Second CTRL up to North? Unlikely.
 17. Poor response, why?
 - Views and concerns of people
 18. Should Dartford Borough Council publicise it more?
 - Dartford Borough News used.
 19. Why bother?
 - Legal obligation.
 20. Health issues?
 - Information package provided.
 21. When will there be action?
 - Twelve months to produce action plan, after declaration of AQMA.
 - Three new air quality policies for Local Plan being considered.
 - Planning process has to be a compromise.
 - Air Quality in planning is becoming an increasing concern.

21. Are there EU standards?
 - Yes, these drove the LAQM process.
22. Has any EU country signed an undertaking?
 - Countries talking to one another re. Cross-boundary pollution.

MEETING 2: 30 June 2001

1. Modelling and monitoring queries
 - Further monitoring being undertaken in AQMA
 - Road system increase included in model
 - AQ model includes local data sources and weather
 - Local industry changes and impact on AQ – is the LA told?
2. How far above AQ is health affected?
 - Dependent on many issues – personal health conditions, lifestyle, work
 - Air Quality Standards are health based. Research ongoing.
3. Accumulative Risk
 - AQS is not based on accumulative health risk
 - Research is being done on low level exposure to pollution
4. Sources of particulates
 - Petrol and diesel
 - Local dust/pollen
 - References on health studies available
5. Traffic Reduction
 - Is being assessed
 - Kent Thameside plans
 - Local plan includes consideration to traffic management
6. Methods of traffic management
 - Restrictions on travel freedom i.e. Lorries after 12:00, etc.?
 - Odd/even number plates?
7. Business Involvement
 - Green Travel Plans
 - Local Agenda 21 – involvement with business.
8. Long term Solutions
 - Local and Regional problems
 - Economy driven
 - Housing and social needs
 - Balance of Environmental/Social/Economic needs
 - Culture change
 - Leisure needs of modern life.
9. Pollution Reduction Options

- Tree planting
 - Maintenance of footpaths
 - Lack of public transport infrastructure – Fastrack
 - Co-ordinated Public Transport system
10. Does an AQMA mean that residents have an increased power for action?
- Blight/ tax reduction raised
11. Particulate distribution
- Source/Point
 - Concentration
 - Large particulate drop out first
 - Affected by weather.
12. What happens after AQMA is declared?
- Look at Action Plans
 - Consult on proposals
 - Central Government informed. Can state if AP's are reasonable.
 - Agree AP and timescale
 - A2/A282 National and International Importance. Therefore Central Government may include in their National AP's.
 - Where possible AP's are acted on quickly as an interim solution.
13. Short term measures
- Tree planting?
14. Cycle Track along A282
- Monitor use of this cycle track. Can it be used as part of mitigation measures?
 - Cycle is green transport – Is it being used?
 - Put up conifer screen
 - Pollution and noise important
15. Funding
- Could there be EC funding for AQMA?
 - EC other countries seem to have pro-active pollution control measures.
 - Road type/ Material/Screening Does the U.K. Highways Agency consider EU transport/ pollution management controls?
16. Court Action by local community? Lobby MP's and force mitigation measures.
17. Impact in this area worse than other areas. Difficult problems equate to more cost for mitigation not all local traffic. National and International.

APPENDIX IV: CONSULTATION ON DRAFT ACTION PLAN

a) DEFRA Comments:

Ref. AP1 – 004 SCHEDULE 11 (2) ENVIRONMENT ACT 1995: CONSULTATION ON DARTFORD BOROUGH COUNCIL'S DRAFT AIR QUALITY ACTION PLAN

The action plan is detailed in scope and considers measures that can be both implemented within the AQMA and those that, in general, would reduce the overall pollutant burden across the Borough. Further consideration is needed in terms of defining the impacts of the proposed measures, and the feasibilities and practicalities, the responsibilities of which lie with other organisations.

The AQMA is declared within the Borough Council on the basis of road transport using the A282 Tunnel Approach Road corridor. The report clearly states that it is road transport that is the primary cause of exceedences in the Borough. In particular, the issues of HGVs are identified as playing a major role in contributing the predicted exceedences and it is this that provides the focus for a number of proposals. However, a clearer consideration and inclusion of the outcome of the Stage 4 would aid further the identification of the extent of the problem and the likely recovery in pollutant levels required in order to attain the objectives.

The inclusion of other proposed measures covering industry, domestic and energy usage are better dealt with in a section aimed at formulating further the development of a local air quality strategy. Whilst it is commendable that these additional measures are being considered it is recommended that the action plan be re-structured to make the AQMA the main focus of the report. For example, policy measures surrounding proposed developments within the Borough are the first measures proposed in the Action Plan, when it has been previously stated that road traffic is the main cause of exceedences. Additionally, measures being considered by the Highways Agency are integral to the Action Plan within the AQMA yet are reported in Section 6. It is recommended that Part 2 of the document be re-structured to cover Transport Planning issues first, thereby addressing the balance and focus of the action plan on the AQMA.

Whilst it is evidenced that a certain level of consultation has taken place with the public (Appendix III), it is unclear as to whether a clear engagement of statutory consultees has occurred during the development of the action plan. We believe it would be beneficial to see evidence of stakeholder engagement in drawing up the draft proposals. Further information should be included in this regard.

Whilst the report considers a wide range of measures, it is noted that there is no clear evidence with respect to the options chosen, or whether (by default) the action plan has considered a number of options but has dismissed these on the grounds of feasibility and/or cost. We look forward to a more detailed consideration of prioritisation in the future and further information with respect to scenario modelling and the impacts on both air quality and secondary impacts of the proposed measures.

The proposed measures within the action plan take full account of existing policies at local, regional and national levels, and refer in detail to existing funding programmes and initiatives. No measures are in contravention of wider Government policies.

A simple 3-way ranking approach has been used to evaluate a number of options for perceived cost-effectiveness, practicality, air quality impacts and other environmental impacts and socio-economic implications. The limitations of this methodology are recognised and a number of key measures, where responsibility lies outside the authority are understandably not assessed. We look forward to seeing a more complete consideration and firmer approach to the proposals in the final action plan. The approach is to be commended. The inclusion of further information surrounding the process of assessment and the determination of the rankings would aid a fuller understanding of this process.

Specific comments with regards to the overall themes of land-use, transport strategies etc. are given below:

Specifics:

Source-apportionment:

It is recommended that additional quantitative work be reported from the outcome of the Stage 4 within the action plan to better understand the magnitude of the problem and the required recovery in pollutant concentrations. This could take the form of a tabular summary. Results from the Aaqire emissions model are reported on page 20 of the action plan, but it is unclear as to how far these emissions reductions go to achieving the overall reduction required.

Land-use:

The inclusion of policies in the Local Plan Review aimed at reducing air quality through development is welcomed. It is stated that there is currently no formal guidance with respect to criteria on which to assess air quality impacts of proposed developments. Improvements in this area are required to fully understand these issues. Recent guidance 'Air Quality Assessment for Planning Applications' issued by the ALG may provide assistance in this regard.

Transport Strategy:

Travel plans and related issues such as car sharing, encouraging walking and cycling to work and school, are covered, alongside a number of other measures, adequate for inclusion in the action plan under Dartford's Green Transport Initiatives. It is recognised that once formulated, the Council will consider adopting a travel plan and the timetable for its implementation. The formulation of wider strategies (Kent Thameside Urban Transport Strategy, Fastrack and LTP) show a high level of support for improved transport links and management leading to reductions in air quality on a wider level and are also welcomed. Some consideration to quantification and effectiveness of measures would further aid the relative contribution to the overall reductions in emissions required in order to reduce ambient levels of pollutants.

Non-transport measures:

Although not explicitly part of the AQMA, the action plan includes a number of proposals targeted at non-road traffic sources. It is recommended that these be considered under the umbrella of a local air quality strategy rather than explicitly as part of the action plan, the focus of which is transport measures.

b) Public and other consultees' comments:

| Consultee/Address | Comments |
|---|---|
| Member of public Sundridge Close Dartford | Problem with noise; lorries and vibration, especially at night. Speed reduction would be good, especially at night. |
| Member of public The Brent Dartford | Agree that speed restrictions and screening should be progressed as short term measures. Request for DEFRA & Highways Agency addresses. |
| Member of public Ruskin Grove Dartford | Concerned regarding children who have asthma and health implications of pollution. Also noise/vibration. Would like to be kept informed of any health based projects. |
| Member of public Attlee Drive Dartford | Would support speed reduction proposal. Queuing at the toll increases pollution so suggest removal of toll. |
| Member of public Brent Way Dartford | Would not wish to see solid barriers in use - would prefer more tree planting as a barrier. Would support speed reduction to 50mph. Another source of pollution is suspected to be Littlebrook Power Station when the wind is from the north. |
| Member of public Kipling Road Dartford | Believes that commitment by all relevant agencies is essential to solving the problem. Most of the traffic is commercial and speed should be reduced to a level even lower than suggested within the Action Plan. Rail improvements/new crossing - to be successful these would require commitment from the Government and would be long term solutions. Concerned that parents leave engines running on the "school run" while waiting for the school gates to open. Greater public awareness on this issue required. |
| Member of public Brent Way Dartford | Main points: Disappointed that funding for previous tree planting initiative had run out. Support for improved screening. Full support to any measures to improve air quality in the area. Hope to see improvements soon. |
| Ashford Borough | Main points: |

Council

The feedback from the public consultation exercise merits some further attention, especially with reference to the route being of "national importance and should be dealt with at that level".

Query the effectiveness of consultation with Highways Agency on air quality issues for the A2/A282 improvements and the use of 'sustainable' revenue for transport projects from Dartford River Crossing Tolls.

With respect to contacting the Health Authority and investigating the potential for health screening and research into localised effects of air pollution. This should be expanded on and linked to the response from your public consultation exercise.

Note that if Central Government does not share the burden of solving these air quality problems, then DBC will not be able to achieve action plan goals and this should be emphasised.

Target dates are very ambitious, especially when you are relying upon "partners" to deliver some of the proposed actions. As a final comment when you strip away all the local initiatives to be pursued by DBC you are still left with a massive problem that only Central Government has the resources to solve, so why don't you say this?

Gravesham
Borough Council

No adverse comments and supportive.

The Lower Thames Crossing may affect Gravesham's AQMA.

Kent County
Constabulary

Kent Police Safety Camera Team: A282 does not meeting current Department For Transport criteria and there are no plans to install cameras on this road.

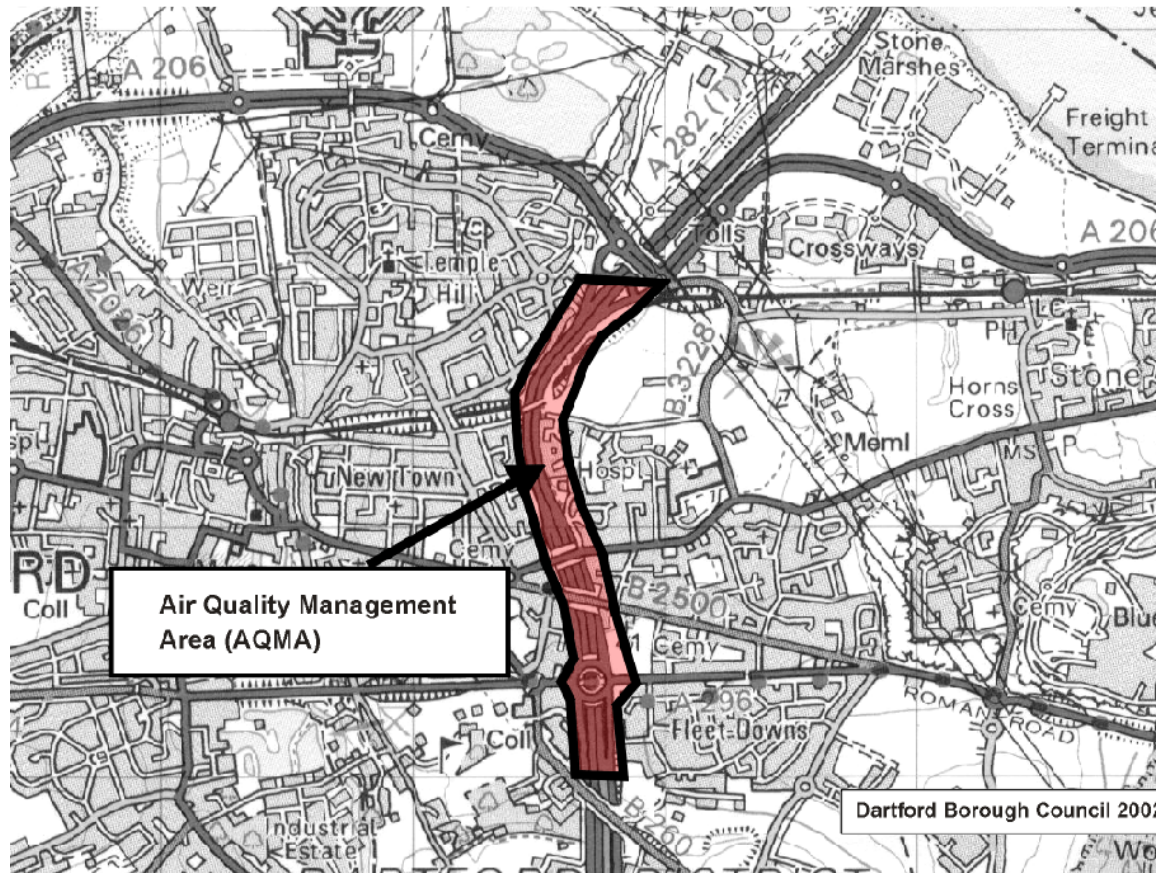
c) Response to air quality questionnaire – Dartford Festival Promotional Event July 2002

| Questions: Total of 16 responses | Ranking 1- 5 | | | | | |
|---|--|---------|---------|------------|----|-----------------------|
| | (positive) | | | (negative) | | |
| | 1 | 2 | 3 | 4 | 5 | n/a |
| Do you think air pollution is a problem in Dartford? (yes/no/don't know) | 9 (Yes) 5 (No) 1 (don't know) | | | | | |
| Are you aware of the Dartford AQMA? (yes/no/don't know) | 5 (Yes) 11 (No) | | | | | |
| How willing or unwilling are you to undertake regular vehicle maintenance (every 10 000 miles)? | 11 | | 1 | | | 4 |
| How willing or unwilling are you to undertake free vehicle emissions tests 6-monthly? | 8 | 1 | 2 | | | 5 |
| How willing or unwilling are you to consider vehicle emissions by adopting a smoother driving style and reducing speed to increase fuel efficiency? | 10 | 1 | 1 | | | 4 |
| How willing or unwilling are you to consider making more trips by walking, cycling or public transport? | 8 | 1 | 3 | | | 4 |
| What would convince you to reduce your car usage? | 9 – better public transport 1- better cycle paths 1 - nothing 5 – n/a | | | | | |
| How do you think the Council can help deliver improvements in air quality? | 4 – improve cycle lane facilities 1 – school buses 3 – education and raising awareness 4 – vehicle emission checks 1 – complete ring road (southern stage) around Dartford 3 – don't know | | | | | |
| What way do you consider is best to deliver air quality information a) web site b) leaflets/mail drop c) press release d) promotional event e) other | a) 1 | b) 6 | c) 8 | d) | e) | 1 - No response given |
| Name: Address: Any further information? 1/16 | | | | | | |

APPENDIX V: LTP ANNUAL REPORT CHAPTER 5 'AIR QUALITY'

Dartford Borough Council

A Draft Local Air Quality Management Action Plan has been drawn up by Dartford Borough Council in liaison with the Highways Agency and Kent County Council. Public consultation on the Draft Action Plan was undertaken in April 2002.

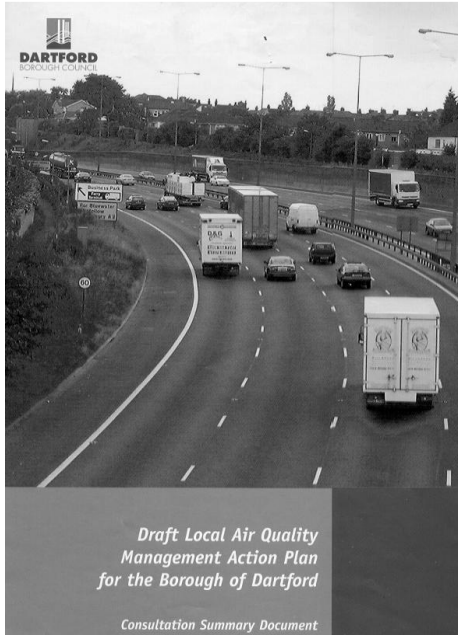


Lying within Kent Thameside, part of the Thames Gateway regeneration area, Dartford is primed for significant growth in terms of development and travel demand. It is anticipated that travel demand in the area could double, with road traffic on the major and local road network increasing significantly as a result. This has important implications for air quality and requires due consideration within the Kent LTP process.

On the basis of the Stage 3 Review and Assessment Report December 2000, Dartford Borough Council declared an Air Quality Management Area for nitrogen dioxide and particulate matter along the A282 Dartford Crossing Approach Road. The Order became effective as from 1st October 2001.

A Draft Local Air Quality Management Action Plan has been drawn up by Dartford Borough Council in liaison with the Highways Agency and Kent County Council. Public consultation on the Draft Action Plan was undertaken in April 2002. The Draft Action Plan outlines existing measures and proposes new measures whose aims are to work towards achieving the National Air Quality Strategy (NAQS) Objectives for nitrogen dioxide and PM10. As the major source of these pollutants within the Air Quality Management Area is

road traffic, in particular traffic flowing along the A282 Tunnel Approach Road, measures have specifically been targeted at reducing pollution from these sources. There are also measures in place to tackle pollution from other sources, such as domestic and commercial heating and industrial processes.



The Stage 4 Review and Assessment was completed in April 2002. Refinements to the modelling work and further monitoring have been undertaken. These have confirmed that the original assessment and designation of an Air Quality Management Area was correct, although the incorporation of the new emissions factors predicts exceedences for nitrogen dioxide annual objective beyond the current Air Quality Management Area boundary. This suggests that the Air Quality Management Area should be extended by over 25m on the east side of the carriageway towards the tolls and where the local road network (A296 and A226) intersects the A282, with the remaining being largely within the 25m buffer around the area used for the targeted public consultation undertaken.

Remodelling with the new emissions factors also showed that predictions for the nitrogen dioxide annual objective at the previously marginal A226/B255 Junction at Greenhithe are now exceeding the objective at the nearest monitoring receptors. This is now being considered in more detail with regard to Air Quality Management Area designation. The Everards Link/Greenhithe Triangle is a key project identified in the proposed Borough Transport Strategy, of which this node is a key consideration. In the light of these predicted exceedences and the expected increase in traffic demand at this important node, air quality considerations will need to be incorporated into any proposed traffic scheme for this junction.

Improvements to Thames Road in neighbouring Bexley Council will result in an increase in traffic flows along the A206 University Way. This feeds into the A282 at Junction 1A and will impact on the Air Quality Management Area. Model predictions indicate that the AQMA will have to be extended along the A206 should this scheme be progressed and mitigation measures have been requested by Dartford Borough Council to be incorporated into the Scheme. The objections and requests of the Borough Council have not been addressed and therefore it is likely that increases in through traffic along this route will worsen air quality resulting in further declarations in the future and potentially hindering proposed Action Plan measures.