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PREFACE

The Review and Assessment Process.

A system of Local Air Quality Management (LAQM) was established in response to requirements of the Environment Act 1995. Under this legislation new duties were placed on local authorities to periodically review and assess air quality in their areas and work towards achieving national objectives for prescribed pollutants. The main reason for the introduction of this system was to tackle the issue of air pollution where the risk of poor air quality to human health and quality of life needs to be addressed.

Review and assessment is the first step in LAQM. It forms a key part of the Government's strategy to achieve air quality objectives. The aim is to identify areas with poor air quality where air quality objectives are unlikely to be met. The first review and assessment of air quality in Cambridgeshire was completed in 2000. This second round is being undertaken in response to new Government guidance.

This Updating and Screening Assessment document forms the first phase of the second round of Review and Assessment taking place nationally.

In Cambridgeshire a working group formed by the five District Councils and the County Council carries out the process jointly. The working group's approach is to screen each of the seven prescribed pollutants in turn before concluding if any must be taken forward to a detailed assessment. The advantages of working in a group include joint working on common areas, consistency of approach, peer review of work, pooling of expertise and cost savings on document production and consultation.

Consultation forms a key part of the process, informing organisations and individuals, and inviting their comments on the process and it's conclusions. Draft reports are submitted to DEFRA for approval of methods and conclusions prior to publishing.

ACKNOWLEDGEMENTS

This report has been compiled by a working group of officers from the District Councils in Cambridgeshire and the County Council.

The following officers have contributed to the work of the group:

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East Cambridgeshire District Council	Phil Wright
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Huntingdonshire District Council	Adrian Beeching, Toby Lewis
South Cambridgeshire District Council	Susan Walford, David McKee
Cambridgeshire County Council	Janet Martin, Tobin Stephenson

Other organisations and individuals have made valuable contributions to the technical content of this report and their assistance is acknowledged: -

WS Atkins Consultants Ltd who provided detailed analysis of traffic data;

The Review and Assessment and Modelling Helpdesks run by UWE/Air Quality Consultants and Stanger respectively.

EXECUTIVE SUMMARY

Cambridgeshire's local authorities remain committed to the process known as Local Air Quality Management and support Government plans to protect and improve ambient air quality. This joint report sets out the findings of the first stage (Updating and Screening Assessment) of the second review and assessment of local air quality in the county.

The Updating and Screening Assessment (USA) has involved each district analysing the prescribed parameters for each pollutant to see if they require further detailed assessment. All district councils have used the same checklist, published in LAQM TG(03), to assess air quality in its locality – thus ensuring a common approach across the county.

The following table sets out a summary of the results of the USA. A tick indicates that the USA has shown that no further detailed assessment is necessary. A cross indicates that detailed assessment will be required.

The table shows that Cambridge City Council will require detailed assessment for Nitrogen Dioxide.

This report forms the basis for consultation with statutory consultees. Cambridge City Council will undertake further consultation when the detailed assessment has been completed.

Key for Table
✓ **=** the USA has shown that no further detailed assessment is necessary
X = detailed assessment will be required

Summary of USA Results					
Pollutant	**Local Authority**				
	CCC	**ECDC**	**FDC**	**HDC**	**SCDC**
Benzene	✓	✓	✓	✓	✓
1,3-butadiene	✓	✓	✓	✓	✓
Carbon monoxide	✓	✓	✓	✓	✓
Lead	✓	✓	✓	✓	✓
Nitrogen Dioxide	**X**	✓	✓	✓	✓
Fine Particles (PM_{10})	✓	✓	✓	✓	✓
Sulphur Dioxide	✓	✓	✓	✓	✓

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CHAPTER1: INTRODUCTION

Legislative Background.

The Environment Act 1995 introduced a framework for local air quality management across England and Wales. The provisions in Part IV of the 1995 Act give local authorities responsibilities to periodically 'review and assess' the air quality in their areas. Where the national air quality objectives are likely to be exceeded, local authorities are obliged to take action. They must declare Air Quality Management Areas (AQMAs) and create Air Quality Action Plans (AQAPs) in pursuit of the air quality objectives.

Statutory timescales were recently introduced in the last revision of policy guidance and the process is now effectively continuous with each review and assessment leading into the next. Local Authorities are also encouraged to draw up Local Air Quality Strategies to preserve the status quo where air quality is good and improve air quality where required.

The legislation is designed to be flexible to allow local authorities to undertake measures, appropriate for their localities, in pursuit of the air quality objectives. Local circumstances, therefore, determine the designation of AQMAs and the content of measures included in AQAPs and local air quality strategies.

Summary of the Findings of the First Review and Assessment.

The first round of Review and Assessment commenced in the summer of 1997 and in Cambridgeshire the District Councils and the County Council quickly formed a working group to pool skills and resources. Their first document (A Review & Assessment of Air Quality in Cambridgeshire: Stages 1 and 2) was published in December 1998. This formed conclusions on which the prescribed pollutants needed further analysis in order to determine whether national objectives would be met.

Throughout the County detailed assessment (Stage 3) was required for Nitrogen Dioxide, Fine Particles and Sulphur Dioxide. The results of this work were published in June 2000. This concluded that all of the air quality objectives were likely to be met by their due dates with two exceptions:

1) In Wisbech where Sulphur Dioxide and Fine Particles were being released from some coal-fired boilers at a factory in the town. Fenland District Council were, therefore, obliged to declare 2 Air Quality Management Areas in Wisbech and develop an Action Plan. Good progress is being made in Wisbech, thanks to voluntary initiatives by the factory operator in close liaison with Fenland District Council.
2) In parts of Cambridge City and South Cambridgeshire where Sulphur Dioxide levels were above objective levels. Here, an agreement with the operators to replace the boilers prevented designation of an AQMA.

New Air Quality Objectives.

The air quality objectives are prescribed in regulations made by the Secretary of State. These are periodically updated as required by European and domestic drivers. Owing to a national commitment to research there is also a better understanding of the short-term and the long-term health effects of air pollution largely due to the work undertaken by the Committee on the Medical Effects of Air Pollutants (COMEAP 4). The current health based objectives are shown in Table 1.1

Table 1.1

Pollutant	Concentration	Measured As	Date to be achieved
Benzene	16.25μg/m^3	Running annual mean.	31/12/2003.
	5μg/m^3	Annual mean.	31/12/2010.
1,3-Butadiene	2.25μg/m^3	Running annual mean.	31/12/2003.
Carbon Monoxide	10mg/m^3	Maximum daily running 8-hour mean.	31/12/2003.
Lead	0.5μg/m^3	Annual mean.	31/12/2004.
	0.25μg/m^3	Annual mean.	31/12/2008.
Nitrogen Dioxide	200μg/m^3 not to be exceeded more than18 times a year.	1-hour mean.	31/13/2005.
	40μg/m^3	Annual mean.	31/12/2005.
Particles (PM_{10}) (Gravimetric)	50μg/m^3 not to be exceeded more than 35 times a year.	24-hour mean.	31/12/2004.
	40μg/m^3	Annual mean.	31/12/2004.
Sulphur Dioxide	350μg/m^3 not to be exceeded more than 24 times a year.	1-hour mean.	31/12/2004.
	125μg/m^3 not to be exceeded more than 3 times a year.	24-hour mean.	31/12/2004.
	266μg/m^3 not to be exceeded more than 35 times a year.	15-minute mean.	31/12/2005.

Objective of the Updating and Screening Assessment.

This Updating and Screening Assessment (USA) constitutes the process that was formerly known as Stages 1 & 2. It involves screening each of the prescribed pollutants to see if they will require a more detailed assessment to determine if they are going to meet their respective objectives. It involves looking at busy and congested roads, factories and other sources of air pollution to see if the particular components are present that are likely to give rise to an air quality issue. Where certain factors are present in combination then the situation is studied using screening tools provided by the Department of Environment, Food and Rural Affairs (DEFRA) in their Technical Guidance LAQM. TG(03). Where scenarios are identified as potential problems they will be progressed through to the detailed assessment, which is due to be completed by April 2004.

CHAPTER 2:

CHANGES SINCE THE 1ST REVIEW AND ASSESSMENT

Population Growth

Results of the 2001 Population Census indicated that the population of Cambridgeshire was 552,655. This was 21.3% higher than mid 1981 and confirmed that it is the fastest growing shire county in the country.

Table 2.1: Cambridgeshire Census Day Population, 2001

	Census Day Population	Estimated increase since mid 1981 (%)
Cambridge City	108,879	7.8
East Cambridgeshire	73,216	35.7
Fenland	83,523	25.6
Huntingdonshire	156,950	25.3
South Cambridgeshire	130,087	19.4
Cambridgeshire	552,655	21.3
East of England	5,388,154	11.0
United Kingdom	58,789,194	4.3

Source: Population at Census Day 2001: Local Authority Districts and Other Geographies © Crown Copyright

Population forecasts used to inform the Cambridgeshire and Peterborough Structure Plan – Deposit Draft Plan 2002 (see Table 2.2) indicate that South Cambridgeshire is forecast to be the fastest growing district between 1999 and 2016. Cambridge City is also forecast to show greater growth between 1999 and 2016 than was experienced between 1991 and 1999. Growth in the other districts is forecast to be lower. This mainly reflects the changes in distribution of house-building as the Structure Plan concentrates development in and around Cambridge.

Table 2.2: Actual and Forecast Annual Population Change

	Annual Change (%)	
	1991 - 1999	1999 - 2016
Cambridge City	0.5	1.0
East Cambridgeshire	1.3	0.9
Fenland	1.0	0.7
Huntingdonshire	0.9	0.3
South Cambridgeshire	0.7	1.7

Source: Cambridgeshire County Council Research Group.
These figures refer to compound change

Development Proposals

Regional Planning Guidance (RPG6) identifies the housing requirements for the region between 1996 and 2016. The Deposit Draft Structure Plan makes provision for the construction of new homes between 1999 – 2016 as follows

Cambridge City	12,500
East Cambridgeshire	7,300
Fenland	8,100
Huntingdonshire	9,500
South Cambridgeshire	20,000.

Major development proposals expected to be brought forward before 2006 include

Cambridge City	Newmarket Road (650 houses)
East Cambridgeshire	Ely (1050 houses)
Huntingdonshire	Huntingdon (700 houses) St Neots (1,540 houses)
South Cambridgeshire	Arbury Camp, (900 houses)

Major development proposals expected to come forward and likely to be either under construction or having necessary infrastructure constructed before 2010 include

Cambridge City	Chesterton Sidings (1,900 houses) Newmarket Road (1,050 houses) Cherry Hinton (500 houses) Addenbrookes Hospital (400 houses) Clay Farm (2,460 houses) West Cambridge (2,000 houses)
South Cambridgeshire	New Settlement (6,000 houses)

The above proposals will be considered during the planning process as outlined in Policy guidance LAQM.PG(03) and will be reported in future Annual Progress Reports and future assessments.

Traffic levels/growth

Over the last 10 years there has been considerable traffic growth in the county. Increases in traffic have been seen on the A14 and M11 with growth of over 40% in all traffic and heavy goods vehicles. Traffic density on Cambridgeshire's rural A roads is 70% higher than the national average.

The number of motor vehicles crossing the River Cam bridges within Cambridge City was slightly less in 2002 than in 2001 but is still not quite achieving the County Council's target to reduce traffic within the City. The third stage of a major traffic management scheme (Cambridge Core Scheme) is due to be implemented this summer and is expected to result in a further reduction in total traffic across the River Cam bridges.

Major transport infrastructure improvements are planned to support the planned new development. These include an upgrade of the A14, which was recommended by the Cambridge to Huntingdon Multi-Modal Study, and has now been placed in the Government's Targeted Programme (list of projects the Government is committed to delivering).

There are also proposals to develop a Rapid Transit Scheme to help cut congestion on the A14. This guided bus scheme, which could be operational by 2006, would offer an alternative to use of the car.

Appendix 1 sets out the traffic information used in this USA.

Industrial Processes – Environment Protection Act 1990

A complete list of Part A and Part B Processes authorised under the Environmental Protection Act 1990 are assimilated for each district in Appendices 2 and 3. Each process has been considered in conjunction with Annex 2 Appendix E of Technical Guidance LAQM.TG(03) to identify those which may have significant emissions of prescribed pollutants. Where there is judged to be a potentially significant release these have been screened in accordance with pollutant specific guidance and the results reported within the pollutant screen commentary.

Appendices 2 and 3 provide details of processes considered in this USA.

CHAPTER 3: CARBON MONOXIDE

Summary of conclusions from the 1st round of Review & Assessment

All districts in the county, with the exception of Fenland, carried out a Stage 2 review and assessment for Carbon monoxide, primarily because of the presence of trunk roads and motorways carrying high volumes of traffic. The stage 2 review also considered a number of potentially significant point sources of Carbon monoxide arising from authorised processes. Stage 2 results indicated that the 1997 National Air Quality Objective was met and was likely to be met throughout Cambridgeshire by 2005. A further Stage 2 review was carried out in 2000 against the new 2000 Air Quality Objective as it was considered that receptor sites close to major highways were most at risk. Results indicated that the new objective was likely to be complied with throughout the county by the end of 2003 and no stage 3 assessment was required for this pollutant.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2003 – maximum daily running 8 hour mean: 10mg/m^3 (8.6ppm)

National perspective

The main source of carbon monoxide in the UK is road transport, which accounted for 67% of total releases in 2000 (the most recent year for which estimates are available). Annual emissions of carbon monoxide have been falling steadily since the 1970s, and are expected to continue to do so. Current projections indicate that road transport emissions will decline by a further 42% between 2000 and 2005.

Summary of Results

The following table sets out the results of the USA for all districts. These show that no district is required to carry out a detailed assessment for this pollutant.

CARBON MONOXIDE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Monitoring sites	One continuous monitor based in the Council offices at Regent Street.	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out
Public likely to be regularly present over averaging period of objective	Yes	N/A	N/A	N/A	N/A
Monitoring data	Highest 8-hour running mean = 5 mg/m^3	N/A	N/A	N/A	N/A
Current objective exceeded	No	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
Very busy roads or junctions (single carriageway over 80,000 vehicles per day, dual carriageway over 120,000 vpd, motorway over 140,000 vpd) where 2010 background levels expected to be above $1mg/m^3$	No such roads or junctions have been identified in any district. Estimated annual mean background concentrations are below $1mg/m^3$ throughout the county (2001 mapping data, air quality archive). As the correction factor to predict future years is less than 1 (0.862 for 2003) no such conditions would occur in 2003.				
Any relevant exposure within 10m of kerb	N/A	N/A	N/A	N/A	N/A
Predicted annual mean concentrations in 2003	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

CHAPTER 4: BENZENE

Summary of conclusions from the 1st round of Review & Assessment

All districts in the county, with the exception of Fenland, carried out a Stage 2 review and assessment for Benzene because of the presence of Part A or Part B processes with the potential to emit significant quantities of this pollutant. Also the presence of canyon streets in Cambridge City made a stage 2 assessment necessary. Stage 2 results indicated that the 1997 National Air Quality Objective was met and was likely to be met throughout Cambridgeshire by 2005. A further Stage 2 review was carried out in 2000 against the new 2000 Air Quality Objective for areas considered to be most at risk. These were receptor sites in the footprint of point sources and in canyon streets in the City centre. At all the locations results indicated that the objective was likely to be met.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2003 – running annual mean: 16.25μg/m^3 (5ppb)

England & Wales Objective to be achieved by 31st December 2010 – annual mean: 5μg/m^3 (1.5ppb)

National perspective

The main sources of Benzene emissions in the UK are petrol-engined vehicles, petrol refining and distribution, and the uncontrolled emissions from petrol forecourts without vapour recovery systems. A number of policy measures already in place, or planned for future years, will continue to reduce emissions of Benzene.

Summary of Results

The following table sets out the results of the USA for all districts. These show that no district is required to carry out a detailed assessment for this pollutant.

BENZENE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Monitoring sites	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out
Public likely to be regularly present over averaging period of objective	N/A	N/A	N/A	N/A	N/A
Monitoring data	During the first round of review and assessment, diffusion tubes were deployed within the City to collect Benzene data. A continuous benzene monitor (chromatographic analyser) was also installed at one site in the City centre. Assessments were carried out using the results of the monitoring. It was shown that both present day and 2005 objectives would be met. There has been no known change within the City in relation to point sources. No monitoring is currently undertaken.	N/A	N/A	N/A	N/A
Current UK objective exceeded	N/A	N/A	N/A	N/A	N/A
Current England objective exceeded	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

BENZENE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Very busy roads or junctions (single carriageway over 80,000 vehicles per day, dual carriageway over 120,000 vpd, motorway over 140,000 vpd) where 2010 background levels expected to be above 2μg/m^3	Not present The predicted increase in traffic flows throughout the city should have no significant impact on the levels of benzene due to the reductions in emissions from motor vehicles as part of the European Auto Oil Programme.	Not present	Not present	Not present	Not present
Any relevant exposure within 10m of kerb	N/A	N/A	N/A	N/A	N/A
Predicted annual mean concentrations in 2010	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
Industrial sources	Not present	There are three Part A sites that operate processes identified in TG(03) that may be significant for benzene. Witton Chemicals, Mildenhall; British Sugar, Stoke Ferry; and EPR Ely Ltd, Sutton (see Appendix 2).	Not present	Not present	Not present
Source exceeds threshold in relevant nomogram	N/A	Inspection of the Environment Agency's pollution inventory for the three sites has revealed that these processes do not release significant quantities of benzene. This has been	N/A	N/A	N/A

BENZENE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
		confirmed with the Agency.			
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
Petrol Stations close to busy road (more than 30,000 vpd) and with throughput of more than 2 million litres per annum	Q8 Cambridge Elizabeth Way	Not present	Not present	Not present	All petrol stations along the major traffic corridors A14/M11 in South Cambridgeshire may be expected to record a throughput of more than 2 million litres per annum.
Any relevant exposure within 10m of pumps	No	N/A	N/A	N/A	No
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
Major petrol storage depots	Not present	Not present	Not present	Not present	Not present
Any relevant exposure	N/A	N/A	N/A	N/A	N/A
Source exceeds threshold in relevant nomogram	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

CHAPTER 5: 1,3 BUTADIENE

Summary of conclusions from the 1st round of Review & Assessment

All districts in the county, with the exception of Fenland, carried out a Stage 2 review and assessment for 1,3-Butadiene because of the presence of Part A or Part B processes with the potential to emit significant quantities of this pollutant. Also the presence of canyon streets in Cambridge City made a stage 2 assessment necessary. Stage 2 results indicated that the 1997 National Air Quality Objective was met and was likely to be met throughout Cambridgeshire by 2005. A further Stage 2 review was carried out in 2000 against the new 2000 Air Quality Objective for areas considered to be most at risk. These were receptor sites in the footprint of point sources and in canyon streets in the City centre. At all the locations results indicated that the objective was likely to be met.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2003 – running annual mean: 2.25μg/m^3 (1ppb)

National perspective

The main source of this pollutant in the UK is emissions from motor vehicle exhausts. 1,3-Butadiene is also an important industrial chemical and is handled in bulk at a small number of industrial premises. National monitoring shows this pollutant to be within the 2003 objective for all urban background and roadside sites.

Summary of Results

The following table sets out the results of the USA for all districts. These show that no district is required to carry out a detailed assessment for this pollutant.

1,3 BUTADIENE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Monitoring sites	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out
Public likely to be regularly present over averaging period of objective	N/A	N/A	N/A	N/A	N/A
Monitoring data	N/A	N/A	N/A	N/A	N/A
Current objective exceeded	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
New industrial sources + proposed sources with planning permission	There are no known new or proposed sources since the 1st review and assessment	As identified in TG(03) EPR Ely Ltd, Sutton (combustion process) may be significant. Inspection of the Environment Agency's pollution inventory has revealed that emissions from this source are nil/insignificant. This view has been confirmed with the Agency.	There are no known new or proposed industrial sources since the 1st review assessment	There are no known new or proposed industrial sources since the 1st review assessment	There are no known new or proposed industrial sources since the 1st review and assessment
Source exceeds threshold in relevant nomogram	N/A	No	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

1,3 BUTADIENE					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Existing sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	Not present	Not present	Not present	Following a change in an Authorisation, a process in St. Neots was identified as using 1,3-Butadiene. Assuming all of the available monomer was discharged to atmosphere the potential emission was extremely low. The emission was below the minimum on the nomogram.	Not present
Source exceeds threshold in relevant nomogram	N/A	N/A	N/A	No	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

CHAPTER 6: LEAD

Summary of conclusions from the 1st round of Review & Assessment

Only Huntingdonshire and South Cambridgeshire District Councils carried out a stage 2 assessment for Lead because of the presence of authorised processes in their areas that were potentially a significant source of this pollutant. It was concluded that these point sources were most unlikely to cause the 1997 National Air Quality Objective to be put at risk. A further assessment was carried out in 2000 against the new 2000 Air Quality Objectives. It was concluded that these new objectives were likely to be complied with throughout the county.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2004 –annual mean: 0.5μg/m^3

UK Objective to be achieved by 31st December 2008 –annual mean: 0.25μg/m^3

National perspective

Historically, Lead pollution has been associated with motor vehicles running on leaded petrol. Lead from motor vehicles has been significantly reduced over the last decade and will continue to be reduced as part of the European Auto Oil programme.

Summary of Results

The following table sets out the results of the USA for all districts. These show that no district is required to carry out a detailed assessment for this pollutant.

LEAD					
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
Monitoring sites	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out	No monitoring is carried out
Public likely to be regularly present over averaging period of objective	N/A	N/A	N/A	N/A	N/A
Monitoring data	N/A	N/A	N/A	N/A	N/A
Current 2004 objective exceeded	N/A	N/A	N/A	N/A	N/A
Current 2008 objective exceeded	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
New industrial sources + proposed sources with planning permission	Not present	Yes, EPR Ely Ltd, a Straw fired power station at Sutton, which as a Part A combustion process is identified in TG(03) as potentially significant regarding lead emissions.	In Fenland there is a secondary lead process that is new since the last round of review and assessment. Discussions have taken place with the Environment Agency to determine the status of the installation with respect to PPC permitting. The Agency response at Appendix 4 indicates that the Agency is satisfied that the activities undertaken at the installation appear not to fall for regulation by the Environment Agency. They are also of the opinion that there is not a likelihood (due to the temperature of the melting activity) of lead in detectable	Not present	Since the last round of review and assessment there have been no applications that would result in the release of significant quantities of lead.

					LEAD
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
			amounts that might cause harm The Emissions Helpdesk agree that, in view of the Agency position, there is no need to take Lead forward to a detailed assessment.		
Source exceeds threshold in relevant nomogram	N/A	Inspection of the Environment Agency's pollution inventory has revealed that lead emissions from this process are nil/not significant. This view has been confirmed with the Agency.	No	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	Not present	A review of the relevant public registers and compliance visits to Part B processes indicates that no existing processes have increased emissions by this figure.	Not present	Not present	A variation to an existing authorised process within the District would mean that there might be an emission of lead in the future. To date the operator has not completed his plans for the proposed change. All planning applications are

					LEAD
	City	**ECDC**	**FDC**	**HDC**	**SCDC**
					screened prior to approval and this screening assessment will be applied when the operator implements any changes to his process. Owing to the location of the site and the distance to the nearest sensitive receptor it is unlikely that there will be an exceedance of the objective.
Source exceeds threshold in relevant nomogram	N/A	N/A	N/A	N/A	N/A
Detailed Assessment required	**No**	**No**	**No**	**No**	**No**

CHAPTER 7: NITROGEN DIOXIDE

Summary of conclusions from the 1st round of Review & Assessment

District	Results of 1st Review & Assessment, 2000
Cambridge City	The data used in the model runs for the City Council were the best available. Moreover, given the vagaries of monitoring and in particular, modelling, the level of validation achieved seemed good. This accepted, there were significant discrepancies between measured and modelled concentrations of NO_2 at the three, city centre monitoring sites. Given the level of precaution built in at every stage of the modelling, it was felt that there was no justification for the declaration of an air quality management area at that time. However, the City Council felt, that as the objective values were being breached, at that time, and that worst-case predictions for 2005 were close to the objective that the monitoring regime should continue. In addition, it was felt that the outer areas of the city and feeder roads into Cambridge had not been characterised well in terms of NO_2 monitoring. Plans were therefore put in place, in partnership with the County Council, to provide a mobile monitoring station to fill the data gaps. The results indicated that both the air quality objectives for Nitrogen Dioxide were likely to be met by the end of 2005. It was proposed to continue to monitor this pollutant.
East Cambridgeshire	The results indicated that both air quality objectives for Nitrogen Dioxide were likely to be met by the end of 2005.
Fenland	The results indicated that both air quality objectives for Nitrogen Dioxide were likely to be met by the end of 2005
Huntingdonshire	The results indicated that both air quality objectives for Nitrogen Dioxide were likely to be met by the end of 2005. It was proposed to continue and supplement continuous air quality monitoring. Also that sites where monitoring was carried out would be re-assessed to ensure that measurements were being made where the highest levels of exposure to pollutants were likely.
South Cambridgeshire	The results indicated that both air quality objectives for Nitrogen Dioxide were likely to be met by the end of 2005. It was proposed to continue monitoring adjacent to the A14 for the foreseeable future to ensure that the model predictions were correct.

2nd Round of Review and Assessment

Objectives 2002

UK Objective to be achieved by 31st December 2005 – 1 hour mean not to be exceeded more than 18 times a year: 200µg/m³ (105ppb)
EU Objective to be achieved by 31st December 2010 – 1 hour mean not to be exceeded more than 18 times a year: 200µg/m³ (105ppb)

UK Objective to be achieved by 31st December 2005 –annual mean: 40µg/m³ (21ppb)
EU Objective to be achieved by 31st December 2010 –annual mean: 40µg/m³ (21ppb)

National perspective

The principal source of NOx emissions is road transport, which accounted for about 49% total UK emissions in 2000. The contribution of road transport to NOx has declined in recent years as a result of various policy measures and improved technology. Further reductions are expected up until 2010.

Summary of results from USA checklist approach for Nitrogen Dioxide

✓ = USA has shown that no further detailed assessment is necessary. X = indicates that detailed assessment will be required.

Source, Location or data Assessed	City	ECDC	FDC	HDC	SCDC
Monitoring data	**X**	✓	✓	✓	✓
Narrow congested streets with residential properties close to the kerb	**X**	✓	✓	✓	✓
Busy junctions with more than 10,000 vehicles per day	**X**	✓	✓	✓	✓
Busy streets where people may spend 1 hour or more close to traffic	**X**	✓	✓	✓	✓
Roads with high flow of buses and/or HGVs	**X**	✓	✓	✓	✓
New roads constructed since 1st R&A	**X**	✓	✓	✓	✓
Roads close to objective during 1st R&A	**X**	✓	✓	✓	✓
Roads with significantly changed traffic flows	**X**	✓	✓	✓	✓
Bus stations	**X**	✓	✓	✓	✓
New industrial sources	✓	✓	✓	✓	✓
Industrial sources with substantially increased emissions	✓	✓	✓	✓	✓
Aircraft	✓	✓	✓	✓	✓

CAMBRIDGE CITY COUNCIL	NITROGEN DIOXIDE
Monitoring sites	42 NO_2 diffusion tube sites (see table) 5 continuous monitoring sites at: Parker Street, Gonville Place, Silver Street, Newmarket Road and Regent Street
Public likely to be regularly present over averaging period of objective	Yes, at some if not all of the sites
Monitoring data	See below
Estimated annual mean in 2005	Within Cambridge City, most of the 42 NO_2 passive diffusion tubes have been in place since 1993. The sampling laboratory used is the same as that used by all the Cambridgeshire Authorities (Harwell Scientifics). Separate adjustment factors were used to derive 2001 and 2002 data in accordance with bias recalculation. These factors are 0.73 and 0.84 respectively. It is interesting to note that at our co-location site factors for 1999, 2000, 2001 were 0.72, 0.71 & 0.73 respectively with the obvious shift to 0.84 in 2002. This pattern is repeated at the co-location site in Huntingdon for 2001, 2002. It was decided that 2001 would be used as the base year with consideration of 2002 values. This is primarily because of relatively poor data capture during 2002 for continuous monitors. However, measured results for 2002 show worse pollution for NO_2 and so are considered as a precautionary measure.

Diffusion Tube Site All values are tabulated in $\mu g/m^3$	Site Designation	Annual Mean 2002 (with bias)	Correction for bias	Predicted for **2005**	Predicted for **2010**
Emmanuel Street	Roadside	74.93	62.94	58.74	50.33
Jesus Lane	Roadside	57.21	48.06	44.85	38.43
Magdalene Street	Roadside	44.21	37.14	34.66	29.69
Northampton Street	Roadside	66.85	56.15	52.40	44.90
Silver Street	Roadside	70.68	59.37	55.40	47.47
Regent Street	Roadside	74.41	62.50	58.33	49.98
Newmarket Road	Roadside	57.79	48.54	45.30	38.81
Milton Road	Roadside	63.47	54.73	51.07	43.76

CAMBRIDGE CITY COUNCIL						NITROGEN DIOXIDE
	Drummer Street	Roadside	72.58	61.98	57.84	49.55
	Gilbert Road	Roadside	38.36	29.74	27.75	23.78
	Latham Road	Urban Background	25.13	21.06	19.65	16.84
	Newmarket Road	Roadside	50.66	40.17	37.49	32.12
	East Road	Roadside	45.28	36.99	34.51	29.57
	Mill Road	Roadside	42.48	39.67	37.02	31.72
	Hills Road	Roadside	51.45	43.30	40.41	34.62
	Regent Street	Roadside	51.70	40.58	37.87	32.45
	Trinity Street	Roadside	40.88	33.78	31.52	27.01
	Pembroke Street	Roadside	62.66	49.93	46.59	39.92
	Gonville Place	Roadside	50.77	45.56	42.52	36.43
	Elizabeth Way	Roadside	54.12	44.35	41.39	35.46
	Victoria Road	Roadside	62.85	47.51	44.34	37.99
	Madingley Road	Roadside	50.67	45.90	42.83	36.70
	Huntingdon Road	Roadside	45.8	37.66	35.14	30.11
	Histon Road	Roadside	48.82	39.90	37.23	31.90
	Queens Road	Roadside	43.74	37.45	34.95	29.94
	Fen Causeway	Roadside	40.20	34.46	32.15	27.55
	Trumpington Road	Roadside	47.50	40.97	38.23	32.76
	Babraham Road	Roadside	50.53	42.26	39.44	33.79
	Cherry Hinton Road	Roadside	42.78	36.93	34.46	29.53
	Arbury Road	Roadside	47.31	44.28	41.32	35.40
	Newnham Road	Roadside	59.93	53.22	49.67	42.56
	Chesterton Road	Roadside	47.59	40.43	37.73	32.33
	Victoria Avenue	Roadside	54.67	51.91	48.44	41.51
	Abbey Road	Roadside	51.88	45.03	42.02	36.01
	Cockburn Street	Roadside	34.19	28.42	26.52	22.72
	Oaktree Avenue	Roadside	34.48	29.14	27.19	23.30

<table>
<tr><th>CAMBRIDGE CITY COUNCIL</th><th>NITROGEN DIOXIDE</th></tr>
<tr><td></td><td>
<table>
<tr><td>Chesterton Road</td><td>Roadside</td><td>44.83</td><td>37.88</td><td>35.35</td><td>30.29</td></tr>
<tr><td>Maids Causeway</td><td>Roadside</td><td>53.42</td><td>46.08</td><td>43.00</td><td>36.85</td></tr>
<tr><td>Emmanual Road</td><td>Roadside</td><td>63.39</td><td>53.46</td><td>49.89</td><td>42.74</td></tr>
<tr><td>Downing Street</td><td>Roadside</td><td>52.1</td><td>44.18</td><td>41.23</td><td>35.33</td></tr>
<tr><td>Trumpington Street</td><td>Roadside</td><td>50.15</td><td>39.61</td><td>36.97</td><td>31.68</td></tr>
</table>
<table>
<tr><th>Continuous Monitoring Stations</th><th>Annual Mean 2005</th><th>Number of Exceedences 2005</th><th>Annual Mean 2010</th><th>Number of Exceedences 2010</th></tr>
<tr><td>Parker Street</td><td>35</td><td>10</td><td>29</td><td>2</td></tr>
<tr><td>Silver Street</td><td>46</td><td>10</td><td>38</td><td>5</td></tr>
<tr><td>Gonville Place</td><td>34</td><td>0</td><td>28</td><td>0</td></tr>
<tr><td>Newmarket Road</td><td>43</td><td>0</td><td>36</td><td>0</td></tr>
<tr><td>Regent Street</td><td>37</td><td>1</td><td>31</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>Parker Street 10
Silver Street 10
Gonville Place 0
Newmarket Road 0
Regent Street 3</td></tr>
<tr><td>Estimated annual mean in 2010</td><td>See above</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>Parker Street 2
Silver Street 5
Gonville Place 0
Newmarket Road 0
Regent Street 1</td></tr>
<tr><td>Detailed Assessment required</td><td>YES – ALL FOLLOWING ASSESSMENTS TO BE COMPLETED AS PART OF THE DETAILED ASSESSMENT</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Narrow congested streets with residential properties within 5m of the kerb and with traffic flows greater than 10,000 vehicles per day</td><td>To be carried out as part of detailed assessment</td></tr>
</table>

CAMBRIDGE CITY COUNCIL	NITROGEN DIOXIDE
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
Busy junctions with more than 10,000 vehicles per day	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
Busy streets with traffic flows greater than 10,000 vehicles per day where people may spend 1 hour or more close to traffic	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
Roads with high proportion (greater than 25%) of buses and/or HGVs and where any relevant exposure within 10m	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
Roads close to objective in 1st R&A round	To be carried out as part of detailed assessment

CAMBRIDGE CITY COUNCIL	NITROGEN DIOXIDE
Detailed Assessment required	**Yes**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
Bus stations (not enclosed) with flow of HGVs greater than 2,500 vpd and where any relevant exposure within 10m of road	To be carried out as part of detailed assessment
Predicted annual mean in 2005	To be carried out as part of detailed assessment
Predicted annual mean in 2010	To be carried out as part of detailed assessment
Detailed Assessment required	**Yes**
New industrial sources + proposed sources with planning permission	N/A
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	N/A
Source exceeds threshold in relevant nomogram	
Detailed Assessment required	**No**
Airports with likely passenger throughput in 2005 of more than 5mppa and where relevant exposure within 1000m of boundary	N/A
Detailed Assessment required	**No**

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
Monitoring sites	11 NO_2 Diffusion Tube sites: - Ely - Market St, Abbott Thurston Avenue, Fieldside, Station Rd Littleport - Main St, Soham - High St, Fordham - Market St Burrough Green - Sheriff's Court Haddenham - Station Rd, Sutton - Tramar Drive, Witcham Toll - A142
Public likely to be regularly present over averaging period of objective	Yes
Monitoring data	All Cambridgeshire Local Authorities use the services of Harwell Scientifics (supply and analysis) for their diffusion tubes.

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
Estimated annual mean in 2005	

Diffusion Tube Site All values are tabulated in μg/m^3	Site Designation	Annual Mean 2002 (with bias)	Correction for bias	Predicted for **2005**	Predicted for **2010**
Ely, Market Street	Roadside	34.8	28.2	25.9	21.4
Ely, Abbot Thurston Avenue	Urban background	23.7	19.2	17.7	14.9
Ely, Fieldside	Urban	25.4	20.6	19.0	15.7
Ely, Station Road	Roadside	40.4	32.5	29.9	24.7
Littleport, Main St	Roadside	29.7	24.1	22.2	18.3
Soham, High Street	Roadside	35.0	28.4	26.1	21.6
Fordham, Market St	Roadside	46.5	37.7	34.7	28.7
Borough Green, Sheriff's Court	Urban background	21.2	17.2	15.8	13.1
Haddenham, Station Road	Roadside	36.9	29.9	27.5	22.7
Sutton, Tramar Drive	Urban Background	23.9	19.4	17.5	14.7
A142, Witcham Toll	Roadside	41.5	33.6	30.9	25.5

*The bias adjustment factor used was 0.81 derived from Huntingdonshire DC, which has had a long term deployment of a diffusion tube co-located at their roadside automatic NO_x analyser. For continuity with the last round of assessment the figure from Huntingdonshire DC was used as opposed to those of another Cambridgeshire District, which were similar, Cambridge City Council derived a figure of 0.84 for the year 2002. All Cambridgeshire authorities use Harwell Scientifics for the supply and analysis of their diffusion tubes.

Likely number of exceedences of 1 hour level	None
Estimated annual mean in 2010	See above
Likely number of exceedences of 1 hour level	None
Detailed Assessment required	**No**
Narrow congested streets with residential	N/A

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
properties within 5m of the kerb and with traffic flows greater than 10,000 vehicles per day	
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Busy junctions with more than 10,000 vehicles per day	Market Street, Fordham A142, Witcham Toll Both sites have a diffusion tube placed at a relevant location.
Predicted annual mean in 2005	Market Street, Fordham : - 34.7µg/m^3 A142, Witcham Toll : - 30.9ug/m^3
Predicted annual mean in 2010	Market Street, Fordham :- 28.7µg/m^3 A142 Witcham Toll : - 25.5µg/m^3
Detailed Assessment required	**No**

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
Busy streets with traffic flows greater than 10,000 vehicles per day where people may spend 1 hour or more close to traffic	**DMRB Screening Assessment** Spring Hall, Newmarket Rd, Bottisham National Grid (NG) Ref for background values. (i) 556500, 263500 (ii) 560500, 256500 (iii) Mean NO_x 2005 μg/m^3 as NO_2 annual mean (i) 27.8 (ii) 24.1 (iii) 26 NO_x 2010 μg/m^3 as NO_2 annual mean (i) 21.9 (ii) 19.2 (iii) 20.6 NO_2 2005 μg/m^3 annual mean (i) 19.1 (ii) 17.3 (iii) 18.2 NO_2 2010 μg/m^3 annual mean (i) 16.1 (ii) 14.8 (iii) 15.5 Distance, source to receptor 157m ADDT 2005:- 40684 (21% HGV) ADDT 2010:- 44753 (21% HGV) Speed (kph) 97/97 (2005/2010) DMRB assessment 2005 (μg/m^3) 19.2 DMRB assessment 2010 (μg/m^3) 16.2 Sheepyard Cottages, Heath Rd, Burwell National Grid (NG) Ref for background values. (i) 558500, 265500 (ii) 558500, 255700 (iii) Mean NO_x 2005 μg/m^3 as NO_2 annual mean (i) 27 (ii) 29.3 (iii) 28.2 NO_x 2010 μg/m^3 as NO_2 annual mean (i) 21.3 (ii) 22.8 (iii) 22.1 NO_2 2005 μg/m^3 annual mean (i) 18.7 (ii) 19.8 (iii) 19.3 NO_2 2010 μg/m^3 annual mean (i) 15.9 (ii) 16.6 (iii) 16.3 Distance, source to receptor 45m ADDT 2005:- 66450 (18% HGV) ADDT 2010:- 73967 (18% HGV) Speed (kph) 103/102 (2005/2010) DMRB assessment 2005 (μg/m^3) 29.9 DMRB assessment 2010 (μg/m^3) 24.3

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
	3 Newmarket Rd, Snailwell National Grid (NG) Ref for background values. (i) 564500, 270500 (ii) 564500, 262500 (iii) Mean NO_x 2005 μg/m^3 as NO_2 annual mean (i) 25.2 (ii) 27 (iii) 26.1 NO_x 2010 μg/m^3 as NO_2 annual mean (i) 20.2 (ii) 21.5 (iii) 20.9 NO_2 2005 μg/m^3 annual mean (i) 17.8 (ii) 18.7 (iii) 18.3 NO_2 2010 μg/m^3 annual mean (i) 15.3 (ii) 16 (iii) 15.7 Distance, source to receptor 44m ADDT 2005:- 64077 (17% HGV) ADDT 2010:- 70485 (17% HGV) Speed (kph) 103/103 (2005/2010) DMRB assessment 2005 (μg/m^3) 28.7 DMRB assessment 2010 (μg/m^3) 23.5 62 Station Rd, Kennett National Grid (NG) Ref for background values. (i) 556500, 270500 (ii) 565500, 257000 (iii) Mean NO_x 2005 μg/m^3 as NO_2 annual mean (i) 24.2 (ii) 23.6 (iii) 23.9 NO_x 2010 μg/m^3 as NO_2 annual mean (i) 19.2 (ii) 18.9 (iii) 19.1 NO_2 2005 μg/m^3 annual mean (i) 17.3 (ii) 17 (iii) 17.2 NO_2 2010 μg/m^3 annual mean (i) 14.8 (ii) 14.6 (iii) 14.7 Distance, source to receptor 42m ADDT 2005:- 40684 (16% HGV) ADDT 2010:- 44753 (16% HGV) Speed (kph) 97/97 (2005/2010) DMRB assessment 2005 (μg/m^3) 26 DMRB assessment 2010 (μg/m^3) 21.2

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
	Norwich Rd, Kennett National Grid (NG) Ref for background values. (i) 556500, 263500 (ii) 560500, 256500 (iii) Mean NO_x 2005 μg/m^3 as NO_2 annual mean (i) 23.9 (ii) 23.9 (iii) 23.9 NO_x 2010 μg/m^3 as NO_2 annual mean (i) 19 (ii) 19 (iii) 19 NO_2 2005 μg/m^3 annual mean (i) 17.2 (ii) 17.2 (iii) 17.2 NO_2 2010 μg/m^3 annual mean (i) 14.7 (ii) 14.6 (iii) 14.7 Distance, source to receptor 45m ADDT 2005:- 37433 (13% HGV) ADDT 2010:- 41177 (13% HGV) Speed (kph) 97/97 (2005/2010) DMRB assessment 2005 (μg/m^3) 24.4 DMRB assessment 2010 (μg/m^3) 20
Predicted annual mean in 2005	See above
Predicted annual mean in 2010	See above
Detailed Assessment required	**No**
Roads with high proportion (greater than 25%) of buses and/or HGVs and where any relevant exposure within 10m	Not present
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	Not present
Predicted annual mean in 2005	N/A

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Roads close to objective in 1st R&A round	Not present
Detailed Assessment required	**No**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	Not present.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Bus stations (not enclosed) with flow of vehicles greater than 1,000 buses per day and where any relevant exposure within 10m of road	Timetables from the County Council's web site show that bus movements for Ely bus station are significantly below the threshold of 1000 as outlined in LAQM.TG(03).
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	Yes, Straw fired power station, Sutton. Air quality assessment carried out during planning process, no exceedences predicted. Short term monitoring carried out at relevant receptor locations a year post and prior to commissioning as part of section 106 agreement. In addition the Tramar Drive diffusion tube is sited at a relevant location. Both pieces of monitoring evidence indicate the model predictions to have been conservative.
Source exceeds threshold in relevant nomogram	The following figures were used in the nomogram. Stack diameter 1.82m Stack height 46.7m Height of nearest building within 5 stack heights 25m (the boiler house) Background NO_2 levels 19.4μg/m^3 (this figure is the annual mean for the Tramar Drive diffusion tube 2002 corrected for bias but not adjusted for 2005. Tramar Drive is some 600m from the source and the as such the closest receptor, also being 50m from the A142, hence any affect from the road would be reflected at this location.) Using these figures the nomogram sets a maximum emission rate of 899 t/a, the Environment

EAST CAMBRIDGESHIRE	NITROGEN DIOXIDE
	Agency pollution inventory shows that for 2001 the emission rate of the plant was 223.36 t/a reading NO_x as NO_2. Using the adjusted figures for 2005 & 2010 for background NO_2 levels at Tramar Drive of 17.5 and 14.7 respectively raised the maximum emission to 982 & 1105 t/a. Hence the source does not exceed the nomogram threshold.
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	A review of the relevant public registers and compliance visits to Part B processes indicates that no existing processes have increased emissions by this figure.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Airports with likely passenger throughput in 2005 of more than 5mppa and where relevant exposure within 1000m of boundary	No airports or relevant sites outside the district boundary.
Detailed Assessment required	**No**

FENLAND DISTRICT COUNCIL	**NITROGEN DIOXIDE**
Monitoring sites	10 NO_2 Diffusion Tube Sites at Wisbech – Roundabout, New Drove March - City Road, Calvary Park Manea Chatteris Whittlesey – Orchard Street, Drybread Road Thorney Foul Anchor No continuous NO_2 monitors.
Public likely to be regularly present over averaging period of objective	Yes, at some if not all of the sites
Monitoring data	See below
Estimated annual mean in 2005	Monitoring of NO_2 with passive diffusion tubes has been carried out since 1996 at 10 sites in the District. The designations of each of the sites are given in the table below. All of the Local Authorities in Cambridgeshire use the same supplier and analytical laboratory for the diffusion tube service namely Harwell Scientifics. The tube preparation method is 50% TEA in Acetone. To determine diffusion tube bias adjustment, FDC have relied on information supplied by Huntingdonshire District Council, which gives a bias adjustment factor of 0.81 for the period December 2001 to November 2002. This is close to the factor derived by Cambridge City Council of 0.84 for the same period. The table below shows annual mean diffusion tube concentrations corrected for bias and year adjusted to 2005 and 2010.

DIFFUSION TUBE SITE	Site designation	Annual mean 2002 $\mu g/m^3$	Correction for bias	Adjustment to **2005**	Adjustment to **2010**
Wisbech Rdbout	Roadside	50.10	40.6	37.4	30.7
Chatteris	Roadside	43.19	35.0	32.2	26.5
Orchard St	Roadside	35.43	28.7	26.4	21.7
Thorney Toll	Roadside	32.25	26.1	24.0	19.8
Drybread Rd	Roadside	32.02	25.9	23.9	19.6
Foul Anchor	Roadside	25.35	20.5	18.9	15.6

<table>
<tr><td>FENLAND DISTRICT COUNCIL</td><td colspan="6">NITROGEN DIOXIDE</td></tr>
<tr><td></td><td colspan="6">
<table>
<tr><td>Cavalry Pk</td><td>Roadside</td><td>24.15</td><td>19.6</td><td>18.0</td><td>14.8</td></tr>
<tr><td>City Road</td><td>Background</td><td>23.41</td><td>19.0</td><td>17.5</td><td>14.4</td></tr>
<tr><td>New Drove</td><td>Roadside</td><td>20.75</td><td>16.8</td><td>15.5</td><td>12.7</td></tr>
<tr><td>Manea</td><td>Background</td><td>18.59</td><td>15.1</td><td>13.9</td><td>11.4</td></tr>
</table>

The Review and Assessment helpdesk have confirmed that the year adjustment factors given in guidance do incorporate an element for traffic growth for each year. FDC have compared these traffic growth forecasts with those derived locally by the transportation authority and have found that the differences are minimal and are unlikely to materially affect the adjustments above.</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td colspan="6">None</td></tr>
<tr><td>Estimated annual mean in 2010</td><td colspan="6">See above</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td colspan="6">None</td></tr>
<tr><td>Detailed Assessment required</td><td colspan="6">NO</td></tr>
<tr><td></td><td colspan="6"></td></tr>
<tr><td>Narrow congested streets with residential properties within 5m of the kerb and with traffic flows greater than 10,000 vehicles per day</td><td colspan="6">Not Present</td></tr>
<tr><td>Predicted annual mean in 2005</td><td colspan="6">N/A</td></tr>
<tr><td>Predicted annual mean in 2010</td><td colspan="6">N/A</td></tr>
<tr><td>Detailed Assessment required</td><td colspan="6">NO</td></tr>
<tr><td></td><td colspan="6"></td></tr>
<tr><td>Busy junctions with more than 10,000 vehicles per day</td><td colspan="6">Not present</td></tr>
<tr><td>Predicted annual mean in 2005</td><td colspan="6">N/A</td></tr>
<tr><td>Predicted annual mean in 2010</td><td colspan="6">N/A</td></tr>
<tr><td>Detailed Assessment required</td><td colspan="6">No</td></tr>
<tr><td></td><td colspan="6"></td></tr>
<tr><td>Busy streets with traffic flows greater than 10,000 vehicles per day where people may spend 1 hour or more close to traffic</td><td colspan="6">DMRB Screening Assessments

Background Concentrations in Wisbech and March</td></tr>
</table>

X	Y	NOx 2005 µg/m^3 as NO_2 annual mean	NOx 2010 µg/m^3 as NO_2 annual mean	NO_2 2005 µg/m^3 annual mean	NO_2 2010 µg/m^3 annual mean
546500	309500	29.1	23.9	19.7	17.2
541500	296500	22.9	18.7	16.7	14.5

Wisbech – Annual Mean NO_2 Assessment

Site	Flow AADT 2005 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2005 NO_2 µg/m^3	DMRB Screening Assessment 2010 NO_2 µg/m^3
Horsefair	19.8 (4.4)	21.7(4.4)	95m	40	24.1	20.5
	10.0 (3.0)	11.0(3.0)	111m	43		
	19.9 (4.5)	21.7(4.5)	83m	37		
	14.5 (4.3)	15.9(4.3)	56m	37		
Wisbech Park	19.8 (4.4)	21.7(4.4)	8m	37	26.8	22.5

March - Annual Mean NO_2 Assessment

Site	Flow AADT 2005 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2005 NO_2 µg/m^3	DMRB Screening Assessment 2010 NO_2 µg/m^3
Broad Street	19.4 (1.4)	21.2(1.4)	19m	23	21.0	17.7
High Street	19.4 (1.4)	21.2(1.4)	7m	23	22.5	18.8

Predicted annual mean in 2005	See above
Predicted annual mean in 2010	See above
Detailed Assessment required	**NO**

FENLAND DISTRICT COUNCIL	NITROGEN DIOXIDE
Roads with high proportion (greater than 25%) of buses and/or HGVs and where any relevant exposure within 10m	Not present
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**NO**
New roads constructed or proposed since 1st R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	Not present
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**NO**
Roads close to objective in 1st R&A round	Not present
Detailed Assessment required	**NO**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	Not present
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**NO**
Bus stations (not enclosed) with flow of vehicles greater than 1,000 buses per day and where any relevant exposure within 10m of road	FDC have examined bus timetables for Wisbech and March bus stations that are published on the County Council's website. These show that HGV movements at both stations are less than 500 per day.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**NO**

FENLAND DISTRICT COUNCIL	NITROGEN DIOXIDE
New industrial sources + proposed sources with planning permission	There is a continuing monitoring programme within FDC of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of NOx, neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**NO**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	**Wisbech – Screening Assessment of NOx Emissions from H L Foods** Since the last round of review and assessment, detailed emissions monitoring data has been made available for the industrial facility in Wisbech that is the source of emissions for which the two current AQMAs were declared. The method below follows the screening assessment methodology for industrial sources given in guidance. Emissions monitoring data gives an emission factor 6.1g NOx per kilogram of coal burned. This corresponds well with the Emission Factors Database figure of 6.29. Coal consumption on the site is currently 12000 tonnes per annum, giving NOx emissions of 73.2 tonnes per annum. From the AUN monitoring station at Norwich Centre, the 99.8th percentile of total oxidant concentration is 164 μg/m^3, giving headroom of 36 μg/m^3. The target concentration for screening is therefore 180, and the scaled emission rate for the process is 16.3. The effective stack height is 24 metres with a diameter of 0.5 metres. The emission rate from the nomogram is 30 tonnes per annum, which is greater than the scaled emission rate. No detailed assessment is therefore required
Source exceeds threshold in relevant nomogram	No
Detailed Assessment required	**NO**
Airports with likely passenger throughput in 2005 of more than 5mppa and where relevant exposure within 1000m of boundary	None present
Detailed Assessment required	**NO**

HUNTINGDONSHIRE	**NITROGEN DIOXIDE**
Monitoring sites	19 tubes and 2 real time analysers located at Alconbury Brampton Buckden Fenstanton Godmanchester Huntingdon Ramsey Sawtry Southoe St Ives St Neots - High Street, The Paddock, Avenue Road, Harland Road
Public likely to be regularly present over averaging period of objective	Yes
Monitoring data	See below
Estimated annual mean in 2005	Mobile 36.7µg/m^3, ring road 31.8µg/m^3. HDC have been monitoring NO_2 with passive diffusion tubes since 1996, and now monitor at 19 sites in the District. HDC have two continuous NO_2 monitors. The designations of each of the sites are given in the table below. All of the Local Authorities in Cambridgeshire use the same supplier and analytical laboratory for the diffusion tube service namely Harwell Scientifics. The tube preparation method is 50% TEA in Acetone. The diffusion tube bias adjustment determined by HDC gives a bias adjustment factor of 0.81 for 2002. This is close to the factor derived by Cambridge City Council of 0.84. The table below shows annual mean diffusion tube concentrations corrected for bias and year adjusted to 2005 and 2010.

MONITORING SITE R=REALTIME	SITE DESIGNATION	ANNUAL MEAN 2002 ug/m3	CORRECTION FOR BIAS	ADJUSTMENT TO **2005**	ADJUSTMENT TO **2010**
Brampton	Background	29.8	24.2	22.2	16.8
Sawtry 1	Background	30.1	24.4	22.4	17.0
Ramsey	Background	28.4	23.0	21.2	16.1
St. Ives	Background	28.9	23.4	21.6	16.3
Fenstanton	Background	37.0	29.9	27.6	20.9

Huntingdon	Roadside	43.5	35.3	32.5	24.6
Godmanchester	Roadside	37.4	30.3	27.9	21.1
Blethan Drive	Roadside	47.0	38.0	35.0	26.5
Brampton 2	Roadside	41.8	33.8	31.2	23.6
Godmanchester	Roadside	39.7	32.2	29.6	22.4
Southoe 1	Roadside	33.2	26.9	24.8	18.8
Southoe 2	Background	27.3	22.1	20.4	15.4
Buckden	Roadside	31.7	25.7	23.7	17.9
Alconbury	Background	32.6	26.4	24.3	18.4
Sawtry 2	Roadside	31.7	25.7	23.6	17.9
High St.	Roadside	48.8	39.5	36.4	27.6
The Paddock	Roadside	36.2	29.3	27.0	20.4
Avenue Rd	Background	30.0	24.3	22.4	17.0
Harland Rd	Background	28.6	23.1	21.3	16.1
Ring Road (R)	Roadside	35.3	NA	32.5	26.7
God'chester(R)	Background	39.4	NA	36.7	31.5

HDC have two real-time analysers measuring oxides of Nitrogen in their area. One analyser is housed in a mobile unit currently located 25m North of the elevated A14 at Godmanchester. The other analyser is housed at Pathfinder House, on the Huntingdon Ring road, with the inlet 3m from the kerb. Due to the annual data capture of both analysers being less than 75% the data has been adjusted to correct for the missing data in accordance with the Technical Guidance methodology. For the avoidance of doubt the corrections have been made using both 2002 data and 2001 data. Ideally the 2002 data would be used alone as this is the same year as the missing data, but the AUN data for that year is not yet ratified.

Mobile Monitor – Adjustment of Annual Mean NO_2 Using 2002 AUN Monitoring Data

Location	Annual Mean Am	Period Mean Pm	Ratio Am/Pm
Cambridge Roadside	41.7	40.6	1.027
Norwich Roadside	28.7	27.4	1.047
Norwich Centre	24.1	21.9	1.100
Southend	24.5	22.9	1.070
Thurrock	31.3	28.9	1.083
Average			**1.066**

Mobile Monitor Annual Mean NO_2 = 36.9 μg/m^3
Adjusted Annual Mean = 36.9 * 1.066 = 39.39 μg/m^3

Annual Mean Adjusted to 2005 = 39.39 * 0.908/0.973 = 36.7 μg/m^3

Annual Mean Adjusted to 2010 = 39.39 * 0.778/0.973 = 31.5 μg/m^3

Mobile Monitor – Adjustment of Annual Mean NO_2 Using 2001 AUN Monitoring Data

Location	Annual Mean Am	Period Mean Pm	Ratio Am/Pm
Cambridge Roadside	39.6	42.2	0.938
Norwich Roadside	31.2	29.7	1.051
Norwich Centre	28.3	27.4	1.033
Southend	26.2	24.5	1.069
Thurrock	36.1	35.2	1.026
Average			**1.023**

Mobile Monitor Annual Mean NO_2 = 36.9 μg/m^3
Adjusted Annual Mean = 36.9 * 1.023 = 37.7 μg/m^3

Annual Mean Adjusted to 2005 = 37.7 * 0.908/1.000 = 34.2 μg/m^3

Annual Mean Adjusted to 2010 = 37.7 * 0.778/1.000 = 29.3 μg/m^3

Ring Road Monitor – Adjustment of Annual Mean NO_2 Using 2002 AUN Monitoring Data

Location	Annual Mean Am	Period Mean Pm	Ratio Am/Pm
Cambridge Roadside	41.7	41.8	0.998
Norwich Roadside	28.7	30.7	0.935
Norwich Centre	24.1	27.6	0.873
Southend	24.5	26.8	0.914
Thurrock	31.3	32.3	0.969
Average			**0.938**

<table>
<tr><td>HUNTINGDONSHIRE</td><td>NITROGEN DIOXIDE</td></tr>
<tr><td></td><td>
Ring Road Monitor Annual Mean NO_2 = 37.6 µg/m^3
Adjusted Annual Mean = 37.6 * 0.938 = 35.3 µg/m^3

<u>Annual Mean Adjusted to 2005 = 35.3 * 0.892/0.969 = 32.46 µg/m^3</u>

<u>Annual Mean Adjusted to 2010 = 35.3 * 0.734/0.969 = 26.7 µg/m^3</u>

Ring Road Monitor – Adjustment of Annual Mean NO_2 Using 2001 AUN Monitoring Data
<table>
<tr><th>Location</th><th>Annual Mean Am</th><th>Period Mean Pm</th><th>Ratio Am/Pm</th></tr>
<tr><td>Cambridge Roadside</td><td>39.6</td><td>39.7</td><td>0.997</td></tr>
<tr><td>Norwich Roadside</td><td>31.2</td><td>33.3</td><td>0.937</td></tr>
<tr><td>Norwich Centre</td><td>28.3</td><td>31.0</td><td>0.913</td></tr>
<tr><td>Southend</td><td>26.2</td><td>28.1</td><td>0.932</td></tr>
<tr><td>Thurrock</td><td>36.1</td><td>37.5</td><td>0.963</td></tr>
<tr><td colspan="3">Average</td><td>0.948</td></tr>
</table>

Ring Road Monitor Annual Mean NO_2 = 37.6 µg/m^3
Adjusted Annual Mean = 37.6 * .948 = 35.6 µg/m^3

<u>Annual Mean Adjusted to 2005 = 35.6 * 0.892/1.000 = 31.76 µg/m^3</u>

<u>Annual Mean Adjusted to 2010 = 35.6 * 0.734/1.000 = 26.1 µg/m^3</u>
</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>None at the mobile, 4 at the ring road.</td></tr>
<tr><td>Estimated annual mean in 2010</td><td>Mobile 31.5µg/m^3, ring road 26.1µg/m^3.</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>N/A</td></tr>
<tr><td>Detailed Assessment required</td><td>NO</td></tr>
<tr><td></td><td></td></tr>
</table>

HUNTINGDONSHIRE	NITROGEN DIOXIDE
Narrow congested streets with residential properties within 5m of the kerb and with traffic flows greater than 10,000 vehicles per day	Yes, St. Neots' High Street (part).
Predicted annual mean in 2005	From bias adjusted Diffusion Tubes 36.4μg/m^3
Predicted annual mean in 2010	27.6μg/m^3.
Detailed Assessment required	**No.**
Busy junctions with more than 10,000 vehicles per day	Huntingdon Ring Road and St Neots High Street.
Predicted annual mean in 2005	38.8μg/m^3 and 31.7μg/m^3
Predicted annual mean in 2010	31.7μg/m^3 and 26.5μg/m^3
Detailed Assessment required	
Busy streets with traffic flows greater than 10,000 vehicles per day where people may spend 1 hour or more close to traffic	Yes, St. Neots' High Street (part).
Predicted annual mean in 2005	From bias adjusted Diffusion Tubes 36.4μg/m^3
Predicted annual mean in 2010	27.6μg/m^3.
Detailed Assessment required	**No**
Roads with high proportion (greater than 25%) of buses and/or HGVs and where any relevant exposure within 10m	Not Present.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and	None

HUNTINGDONSHIRE	NITROGEN DIOXIDE
where any relevant exposure within 10m	
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Roads close to objective in 1st R&A round	None.
Detailed Assessment required	**No.**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	None.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Bus stations (not enclosed) with flow of vehicles greater than 1,000 buses per day and where any relevant exposure within 10m of road	No, largest bus station only 681 movements per day. HDC have examined bus timetables for the Huntingdon bus station that are published on the County Council's website. These show that there are approximately 681 HDV movements per day, comfortably below the assessment figure of 1,000 per day.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**.
New industrial sources + proposed sources with planning permission	None. There is a continuing monitoring programme within HDC of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of NOx, neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with	None.

HUNTINGDONSHIRE	NITROGEN DIOXIDE
significantly increased emissions (more than 30% since 1st Review and Assessment)	
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Airports with likely passenger throughput in 2005 of more than 5 mppa and where relevant exposure within 1000m of boundary	None.
Detailed Assessment required	**No.**

<table>
<tr><th>SOUTH CAMBRIDGESHIRE</th><th>NITROGEN DIOXIDE</th></tr>
<tr><td>Monitoring sites</td><td>There are 12 locations within the district where Nitrogen Dioxide is monitored passively (Girton, Harston, Histon (4), Linton, Milton, Sawston (2), Tadlow & Thriplow) and two sites (Bar Hill & Histon) where real time monitoring is undertaken.</td></tr>
<tr><td>Public likely to be regularly present over averaging period of objective</td><td>It is likely that relevant exposure may occur at the sites monitored.</td></tr>
<tr><td>Continuous Monitoring Information</td><td>Continuous monitoring of Nitrogen Dioxide has taken place at a roadside location on the eastbound carriageway of the A14 at Bar Hill (TL 386 637) since 2001. The monitor employed is a Thermo Onix oxide of nitrogen analyser that utilises the chemiluminescent technique to obtain continuous hourly average ambient oxides of nitrogen concentrations. The National Environmental Technology Centre (NETCEN) provides an independent audit and data review service of this equipment. The results available for this site are a fully scaled and ratified dataset from March 2001 to September 2002 and a provisional dataset to December 2002, which has been scaled but may be subject to further quality control following the equipment audit. The second real time analyser is located adjacent to the west bound carriageway of the A14 at Histon, this has been operational for less than a year and therefore monitoring data is not included for this site.

Nitrogen Dioxide Results Measured at Bar Hill and Reported by NETCEN

<table>
<tr><th></th><th>NO_2 2001</th><th>NO_2 2002</th></tr>
<tr><td>Maximum hourly mean</td><td>124.2 µg/m^3</td><td>145.2 µg/m^3</td></tr>
<tr><td>Hourly mean 99.8th percentile</td><td>109.0 µg/m^3</td><td>113.0 µg/m^3</td></tr>
<tr><td>Annual mean</td><td>38.2 µg/m^3</td><td>43.9 µg/m^3</td></tr>
<tr><td>Data Capture</td><td>72%</td><td>67%</td></tr>
</table>

Owing to the data capture being less than 90% at this site the measurements have been adjusted to correct for the missing data in accordance with the Technical Guidance methodology and hourly means have been quoted as the 99.8th percentile to give an indication of the number of exceedences expected of the hourly mean objective. It is unlikely that concentrations at this site will rise above the 18 exceedences of the hourly mean prescribed in the national objectives.</td></tr>
</table>

Adjustment of Annual Mean Nitrogen Dioxide using 2001 AUN Monitoring Data.

Location	Annual Mean Am	Period Mean Pm	**Ratio** *Am/Pm*
Cambridge Roadside	39.5	40.6	*0.97*
Norwich Roadside	31.1	30.1	*1.04*
Norwich Centre	28.3	27.0	*1.05*
Southend-on-Sea	26.2	24.7	*1.06*
Thurrock	36.1	35.0	*1.03*
Wicken Fen	13.7	11.3	*1.21*
		Average	*1.06*

From monitoring result reported above **2001** mean NO2 = 38.2 µg/m^3
Adjusted annual mean = 38.2 * 1.06 = **40.5 µg/m^3**

Adjustment of Annual Mean Nitrogen Dioxide using 2002 AUN Monitoring Data.

Location	Annual Mean Am	Period Mean Pm	**Ratio** *Am/Pm*
Cambridge Roadside	42.7	43.6	*0.98*
Norwich Roadside	29.9	31.1	*0.96*
Norwich Centre	24.7	26.7	*0.92*
Southend-on-Sea	24.6	26.8	*0.92*
Thurrock	35.8	35.8	*1.00*
Wicken Fen	11.2	12.0	*0.93*
		Average	*0.95*

From monitoring result reported above **2002** mean NO2 = 43.9 µg/m^3
Adjusted annual mean = 43.9 * 0.95 = **41.9 µg/m^3**

SOUTH CAMBRIDGESHIRE	**NITROGEN DIOXIDE**
Passive Monitoring Information	Monitoring of Nitrogen Dioxide has been carried out by the diffusion tube method since 1995, currently there are 12 sites within the District. The location and classification of these sites is given below. The tubes are supplied and analysed by Harwell Scientifics a UKAS accredited laboratory (0322). The tube preparation method is 50% TEA in Acetone, and analysis is by desorbtion with distilled water, and the extract analysed using a segmented flow auto analyser with ultraviolet detection. The diffusion tube bias adjustment is calculated from a co-location study carried out at the continuous chemiluminescent monitor at Bar Hill. This gives a bias adjustment factor of 0.7 over an eleven-month period (August 2001 to July 2002), which is the longest continuous period of chemiluminescent results with greater than 90% data capture. Neighbouring authorities, which use the same analytical laboratory, have derived bias adjustment figures of 0.81 and 0.84 for 2002; the laboratory is currently reporting a bias estimation of 0.78. The table below shows the annual mean diffusion tube concentration recorded for 2002, corrected for bias and year adjusted to 2005 and 2010.

Diffusion Tube Site	Site Designation	Annual Mean 2002 µg/m^3	Corrected for bias µg/m^3	Predicted for **2005**	Predicted for **2010**
High Street, Histon.	Roadside	45.3	31.7	28.3	23.3
Narrow Lane, Histon.	Background	27.0	18.9	16.9	13.9
High Street, Sawston.	Roadside	46.1	32.3	28.8	23.7
Paddock Way, Sawston	Background	23.2	16.2	14.5	11.9
The Coppice, Histon.	Background	32.6	22.8	20.4	16.7
Lone Tree Ave., Histon.	Background	37.1	26.0	23.5	19.1
A505, Thriplow.	Roadside	40.2	28.1	25.1	20.7
High Street, Linton.	Roadside	38.7	27.1	24.2	19.9
High Street, Tadlow.	Background	20.6	14.4	12.9	10.6
High Street, Harston.	Roadside	37.8	26.5	23.6	19.4
Garner Close, Milton.	Background	32.6	22.8	20.4	16.7
High Street, Girton.	Roadside	47.9	33.5	29.9	24.6

Estimated annual mean in 2005	**Bar Hill site** 40.5 * (0.892/1.000) = **<u>36.1 µg/m^3</u>** (based on 2001 monitoring data) 41.9 * (0.892/0.969) **= <u>38.6 µg/m^3</u>** (based on 2002 monitoring data) (employing method as described in Box 6.6)

<table>
<tr><th>SOUTH CAMBRIDGESHIRE</th><th>NITROGEN DIOXIDE</th></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>The 99.8th percentile of hourly means recorded at Bar Hill was 109 µg/m^3 (2001 data) and 113 µg/m^3 (2002 data). There were no exceedences recorded during the measurement period although data capture was low for both years and therefore it would be unlikely for exceedences to occur in 2005.</td></tr>
<tr><td>Estimated annual mean in 2010</td><td>Bar Hill site
40.5 * (0.0.734/1.000) = <u>29.7 µg/m^3</u> (based on 2001 monitoring data)
41.9 * (0.734/0.969) = <u>32.1 µg/m^3</u> (based on 2002 monitoring data)
(employing method as described in Box 6.6)</td></tr>
<tr><td>Likely number of exceedences of 1 hour level</td><td>Exceedences are unlikely at this site based on an estimation of concentrations measured in 2001 and 2002.</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Narrow congested streets with residential properties within 5m of the kerb and with traffic flows greater than 10,000 vehicles per day</td><td>There are no narrow congested streets in South Cambridgeshire with the required traffic flows and properties within 5 metres of the kerb. The nearest representative location would be at Old North Road Kneesworth where there is some peak hour congestion in a relevant location.</td></tr>
<tr><td>Predicted annual mean in 2005</td><td>23.8 µg/m^3 (from DMRB screening assessment see below)</td></tr>
<tr><td>Predicted annual mean in 2010</td><td>20.3 µg/m^3 (from DMRB screening assessment see below)</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Busy junctions with more than 10,000 vehicles per day</td><td>Yes. Linton A1301 with High Street
Waterbeach A10 with Landbeach Road
Histon B1049 with High Street
Girton Interchange A14 (Eastbound)
Childerley Gate A428 (new roundabout)
Kneesworth A1198 (new mini-roundabout configuration, The Causeway)</td></tr>
<tr><td>Relevant exposure within 10m of the kerb</td><td>Yes. Model Inputs for DMRB Screening Assessment.
<table>
<tr><th>Location</th><th>Link</th><th>Flow AADT 2005 (000’s (%HGV))</th><th>Flow AADT 2010 (000’s (%HGV))</th><th>Mean Hourly Traffic Speed (km/h)</th><th>Distance to Receptor (metres)</th></tr>
<tr><td>Linton</td><td>A1303</td><td>19764 (8)</td><td>21744 (8)</td><td>64</td><td>10</td></tr>
<tr><td></td><td>B1052</td><td>3843(2)</td><td>4228 (2)</td><td>30</td><td>11</td></tr>
<tr><td>Waterbeach</td><td>A10</td><td>21850 (15)</td><td>24039 (15)</td><td>80</td><td>12</td></tr>
<tr><td></td><td>Waterbeach Rd</td><td>1647 (2)</td><td>1812 (2)</td><td>30</td><td>30</td></tr>
</table></td></tr>
</table>

Histon	B1049	22832 (5)	25162 (5)	64	13
	High Street	8235 (2)	9060 (2)	30	8
Girton	A14 (Eastbound)	66783 (14)	73469 (14)	96 (95)	12
	M11	57113 (18)	62831 (18)	101 (101)	50
Childerley Gate	A428	24376 (9)	26817 (9)	64	35
		1098 (2)	1208 (2)	20	11
Kneesworth	A1198	12736 (7)	14012 (7)	48	17
	The Causeway	2196 (2)	2416 (2)	32	5

Estimated Background Concentrations Derived from National Database

Location	Grid Reference		NO_x 2005	NO_x 2010	NO_2 2005	NO_2 2010
	X	Y				
Linton	556500	247500	25.5	20.1	18	15.3
Waterbeach	549500	265500	29.6	23.4	19.9	16.9
Histon	543500	263500	38	29.2	23.6	19.7
Girton	537500	260500	27.4	21.5	18.9	16.0
Childerley Gate	535500	260500	27.2	21.4	18.8	15.9
Kneesworth	533500	244500	24.9	20.6	17.7	15.5

Predicted annual mean in 2005

Location	***DMRB Screening Assessment 2005 Annual Mean NO_2 µg/m^3***
Linton	*28.6*
Waterbeach	*34.1*
Histon	*33.3*
Girton	*39.6*
Childerley Gate	*26.2*
Kneesworth	*23.8*

Predicted annual mean in 2010

Location	***DMRB Screening Assessment 2010 Annual Mean NO_2 µg/m^3)***
Linton	*23.7*
Waterbeach	*27.6*
Histon	*27.4*
Girton	*31.6*
Childerley Gate	*26.2*

SOUTH CAMBRIDGESHIRE	NITROGEN DIOXIDE
	Childerley Gate: *26.2* Kneesworth: *20.3*
Detailed Assessment Required	**No**
Busy streets with traffic flows greater than 10,000 vehicles per day where people may spend 1 hour or more close to traffic	Not present. Villages often have just a few shops on the high street and traffic flows will be less than 10,000 vehicles through these High Streets (Histon, Great Shelford, Sawston, Melbourn). Harston has a traffic flow of 14,700 vehicles per day however it would be unlikely for people to spend an hour or more close to traffic in this location. An assessment has been made of this site to provide a comparative basis
Predicted annual mean in 2005	Harston – 23.6 µg/m^3 (from bias adjusted diffusion tube measurement)
Predicted annual mean in 2010	Harston – 19.4 µg/m^3 (from bias adjusted diffusion tube measurement).
Detailed Assessment required	**No**
Roads with high proportion (greater than 25%) of buses and/or HGV's and where any relevant exposure within 10m	Not present (the highest proportion of HGV's recorded on roads in South Cambridgeshire is 23%).
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	Not present
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A

SOUTH CAMBRIDGESHIRE	NITROGEN DIOXIDE
Detailed Assessment required	**No**
Roads close to objective in 1st R&A round	None
Detailed Assessment required	**No**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	None
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
Bus stations (not enclosed) with flow of vehicles greater than 1,000 buses per day and where any relevant exposure within 10m of road	There are no bus stations with this number of vehicles using the facility in South Cambridgeshire District Council area.
Predicted annual mean in 2005	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There are no such sources proposed. There is a continuing monitoring programme of all planning applications within the Environmental Health Department where such developments are screened prior to approval. Since the last round of review and assessment there have been no applications that would result in the release of significant quantities of oxides of nitrogen.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since	Several industrial processes have applied for variations to their existing authorisations but all have resulted in a reduction of emissions of oxides of nitrogen. An incineration process at Vetspeed, Thriplow recorded a significant increase of over 1,180% for oxides of

SOUTH CAMBRIDGESHIRE	NITROGEN DIOXIDE
1998 or 2000?)	nitrogen on the pollution inventory for 2001 which was created by the foot and mouth crisis. This resulted in all four incinerators being operated around the clock and hence an unprecedented annual mass emission being returned. The mass emission for 2001 was 201.55 tonnes compared to 15.75 tonnes recorded in 2000. This process is regulated by the Environment Agency under Part 1 of the Environmental Protection Act 1990. The EPA has been the main mechanism for minimising air pollution from industrial sources for a number of years with the Environment Agency authorising the process under the integrated pollution control system. Emission limits specified within the authorisation for this process should prevent ground level concentrations which would breach the air quality objectives. The Environment Agency has confirmed that emissions of total oxides of nitrogen fell dramatically in 2002. The reporting threshold for Nitrogen Dioxides has been raised to 100 tonnes from 2002 and Vetspeed have returned a figure of less than 100 tonnes. In conversation with the Environment Agency it was implied that this figure is likely to be much less than 100 tonnes. It is expected that this will continue to be the case and therefore the results of the original review and assessment remain relevant in that it is likely that the objectives will be achieved and no further assessment is required at this stage.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Airports with likely passenger throughput in 2005 of more than 5 mppa and where relevant exposure within 1000m of boundary	Cambridge Airport is the largest airfield in the District. The predicted annual throughput of passengers and tonnes of freight equivalent is expected to be less than 5 million passengers per annum in 2005 and 2010. Based on a current throughput of 0.45 mppa (passengers and freight combined)
Detailed Assessment required	**No**

CHAPTER 8: SULPHUR DIOXIDE

Summary of conclusions from the 1st round of Review & Assessment

District	Results of 1st Review & Assessment, 2000
Cambridge City	The results indicated that the air quality objectives for Sulphur Dioxide were likely to be met at Marshall's Engineering works by the due dates provided the capital programme to replace oil fired boiler plant with gas was adhered to. Monitoring of Sulphur Dioxide at Marshall's Engineering Works was programmed to continue with the intention that the City Council would reconsider its decision not to declare an Air Quality Management Area if it felt at any time that the objectives would not be met.
East Cambridgeshire	The results indicated that air quality objectives for Sulphur Dioxide were likely to be met.
Fenland	The results indicated that the air quality objectives for Sulphur Dioxide were not likely to be met by the due dates unless the coal-fired boiler plant in Wisbech was replaced with a low-sulphur-fuelled plant. An AQMA was duly declared and an Action Plan is being implemented.
Huntingdonshire	The results indicated that air quality objectives for Sulphur Dioxide were likely to be met by the due dates. Compliance with objectives depended on continuation of the "business as usual" scenario at a site in the west of the district and implementation of the change to gas or gas oil at a site in the north of the district. The Council intended to monitor both situations to ensure compliance with objectives.
South Cambridgeshire	The results indicated that the air quality objectives for Sulphur Dioxide were likely to be met at Marshall's Engineering works by the due dates provided the capital programme to replace oil fired boiler plant with gas was adhered to. Monitoring of Sulphur Dioxide at Marshall's Engineering Works was programmed to continue. Results also indicated that the objectives were likely to be met at Papworth Everard provided that the industrial unit moved to a new estate as planned and the existing boiler house was decommissioned as proposed.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2004 – 1 hour mean not to be exceeded more than 24 times a year: 350㎎/m^3 (132ppb)

UK Objective to be achieved by 31st December 2004 – 24 hour mean not to be exceeded more than 3 times a year: 125㎎/m^3 (47ppb)

UK Objective to be achieved by 31st December 2005 –15 minute mean not to be exceeded more than 35 times a year: 266㎎/m^3 (100ppb)

National perspective

The principal source of Sulphur dioxide emissions in the UK is power stations, which accounted for about 71% total UK emissions in 2000. There are also significant emissions from other industrial combustion processes. Domestic sources and road transport now only account for a very small amount.

Local exceedences of the objective may occur in the vicinity of small combustion boilers which burn coal or oil.

Summary of results from USA checklist approach for Sulphur Dioxide

✓ = USA has shown that no further detailed assessment is necessary. X = indicates that detailed assessment will be required.
AQMA = Air Quality Management Area declared and Action Plan in place

Source, Location or data Assessed	City	ECDC	FDC	HDC	SCDC
Monitoring data	✓	✓	**AQMA**	✓	✓
New industrial sources	✓	✓	✓	✓	✓
Industrial sources with substantially increased emissions	✓	✓	✓	✓	✓
Areas of domestic coal burning	✓	✓	✓	✓	✓
Small boilers (>5MW $_{(thermal)}$)	✓	✓	✓	✓	✓
Shipping	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Railway Locomotives	✓	✓	✓	✓	✓

CAMBRIDGE CITY	SULPHUR DIOXIDE
Monitoring sites	There have been two monitoring sites within Cambridge City. The first is at Marshalls Aerospace. Marshalls is an aircraft engineering centre and small airport. During the first round of Review and Assessment, it was found that medium fuel oil with a sulphur content of not more than 3.5% w/w was being used in boiler plants here. It was proposed that by 2003, Marshalls would be using low sulphur oil (1% w/w). This target has been reached. Monitoring at Marshalls has continued since the first review and assessment, the results of which are much reduced compared to previous years. The monitor is located at OS 5483, 2589. The second monitor has taken readings from within the City Centre at Parker Street. This street is predominantly used by buses moving in and out of the adjacent bus station and by taxis and vehicles loading / unloading within the core area.
Public likely to be regularly present over averaging period of objective	Yes
Monitoring data	**Marshalls:** Sept 2002 – end Feb 2003 (burning season) Max 15 min mean: 164 μg/m3, exceedences: 0 Max 1 hour mean: 142 μg/m3, exceedences: 0 Max 24 hour mean: 58 μg/m3, exceedences: 0 **Parker Street:** 2001 full calendar year Max 1 hour mean: 74 μg/m3, exceedences: 0 Max 24 hour mean: 35 μg/m3, exceedences: 0
Current 2004 15 minute objective exceeded	No
Current 2004 1 hour objective exceeded	No
Current 2005 24 hour objective exceeded	No
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There are no known new industrial sources of Sulphur Dioxide within the City
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and	There are no known industrial sources with significantly increased emissions within the City

CAMBRIDGE CITY	SULPHUR DIOXIDE
Assessment)	
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic coal burning areas (500 x 500m with more than 100 houses using coal as primary fuel source)	There are no areas of coal burning of this size within the City
Detailed Assessment required	**No**
Sources with small boilers (> $5MW_{(thermal)}$) and where likely to be relevant exposure within 500m	During the first round of review and assessment, a questionnaire was submitted to all medium and large commercial and industrial premises to gain information on boiler type, boiler size and fuel combusted. This led to assessments of 3 sites with just Marshalls Engineering proving to be a likely source of problems. This site has since implemented the use of low sulphur fuel and has installed one new boiler which reduces dependency on other units. In addition one old boiler has been removed. The resultant ambient air quality is monitored by the City Council and does not currently breach the objective. No significant industrial development using oil or coal has occurred since this survey and therefore we feel there is little chance of any significant impact.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Shipping	NOT RELEVANT
Railway locations where diesel locomotives are stationary with engines running for more than 15 minutes twice a day and where there is likely to be regular exposure within 15m	After speaking with EWS and District Environmental health Officers, the diesel locomotives in the city will only idle engines at the train wash (>15m from a receptor and a process lasting no more than 5 minutes) or during a delay at the station. The train operators confirmed that their drivers switch off when at stations unless loading / unloading passengers. The process of loading / unloading with engines running at the platforms lasts no more than 2 – 3 minutes.
Detailed Assessment required	**No**

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
Monitoring sites	None
Public likely to be regularly present over averaging period of objective	N/A
Monitoring data	N/A
Current 2004 15 minute objective exceeded	N/A
Current 2004 1 hour objective exceeded	N/A
Current 2005 24 hour objective exceeded	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	Straw burning power station at Sutton, details from the plant were fed into the relevant nomogram on the LAQM website, the stack diameter being 1.82m, the stack height is 46.7m and the height of the nearest building within 5 stack heights is 25m. Using this data the emission rate given in the nomogram is 418t/a, data from the Environment Agency's pollution inventory shows that for 2001 the emission rate for SO_2 was 43.77t/a.
Source exceeds threshold in relevant nomogram	No
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	Inspection of the relevant public registers together with compliance inspections of Part B processes indicate no increase of this magnitude.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic coal burning areas (500 x 500m with more than 100 houses using coal as primary fuel source)	East Cambridgeshire DC had a housing condition survey carried out in June 2002, this included fuel use. The results for fuel use were as follows:- On peak electricity 1.3% Off peak electricity 13.4% LPG 1.5% Oil 19.3% Solid fuel/wood 3% Gas 61.4% Other 0.1%

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
	However, despite the dominance of gas there are small settlements within the District which are not on mains gas and thus the 3% figure could reasonably be expected to be significantly higher. The same could also be assumed for off/on peak electricity, LPG and oil when gas is not available. The districts, home energy conservation officer has confirmed that in the areas where gas is not available oil and off peak electricity predominate rather than solid fuel. A survey of the areas not on gas has been carried out using the Council's GIS, this has shown that there are 500m x 500m areas where there are more than 100 domestic dwellings. However the Council's Home Energy Conservation Officer has confirmed that there are not 100 domestic dwellings burning solid fuel in these areas.
Detailed Assessment required	**No**
Sources with large boilers (> 5MW$_{(thermal)}$) and where likely to be relevant exposure within 500m	No planning applications which would give rise to the installation of such a boiler have been granted. A review of the fuel use survey carried out for the last round of review and assessment, which included schools and large commercial buildings, indicates no significant change, hence no plant of this capacity was identified. East Cambridgeshire has no large hospitals or universities
Source exceeds threshold in relevant nomogram	No
Detailed Assessment required	**No**
Shipping	NOT RELEVANT
Railway locations where diesel locomotives are stationary with engines running for more than 15 minutes twice a day and where there is likely to be regular exposure within 15m	Assessment of the diesel lines within East Cambridgeshire indicates that there is no relevant exposure.
Detailed Assessment required	**No**

<table>
<tr><th>FENLAND DISTRICT COUNCIL</th><th>SULPHUR DIOXIDE</th></tr>
<tr><td>Monitoring sites (FDC need to indicate if outside or within AQMA)</td><td>Continuous monitoring of Sulphur Dioxide is carried out inside the AQMA in Wisbech.</td></tr>
<tr><td>Public likely to be regularly present over averaging period of objective</td><td>Yes</td></tr>
<tr><td>Monitoring data</td><td>Continuous Monitoring of Sulphur Dioxide in Wisbech

Monitoring is carried out inside the Air Quality Management Area in Wisbech. The last twelve months of ratified monitoring data are presented in the table below.

<table>
<tr><th>Statistic</th><th>Year to 31/12/2002</th></tr>
<tr><td>Number of 15 minute mean concentrations >266 μg/m^3 (35 allowed in a year)</td><td>762</td></tr>
<tr><td>Maximum 15 minute mean concentration μg/m^3</td><td>1654</td></tr>
<tr><td>Number of 1 hour mean concentrations >350 μg/m^3 (24 allowed in a year)</td><td>135</td></tr>
<tr><td>Number of 24 hour mean concentrations >125 μg/m^3 (3 allowed in a year)</td><td>14</td></tr>
<tr><td>Data Capture %</td><td>93.2</td></tr>
</table>

Clearly all three of the Sulphur Dioxide objectives are being exceeded by a considerable margin.</td></tr>
<tr><td>Current 2005 15 minute objective exceeded</td><td>Yes</td></tr>
<tr><td>Current 2004 1 hour objective exceeded</td><td>Yes</td></tr>
<tr><td>Current 2004 24 hour objective exceeded</td><td>Yes</td></tr>
<tr><td>Detailed Assessment required</td><td>Fenland District Council declared an Air Quality Management Area (AQMA) in Wisbech in 2001 in respect of exceedences of all three of the air quality objectives. The further review and assessment in the AQMA and the Action Plan were completed in 2002. Whilst there has been an improvement in air quality associated with the recent trial of low sulphur coal burning, there is still</td></tr>
</table>

FENLAND DISTRICT COUNCIL	SULPHUR DIOXIDE
	wholesale contravention of the objectives when looking at twelve months of monitoring data. A detailed assessment would be with a view to revoking the AQMA Order, which would clearly be inappropriate at this time. Full compliance with the objectives is, in the opinion of FDC, unlikely to be achieved until after the issue of a PPC permit. Application for a PPC Permit is not scheduled until 2005. A detailed Assessment is not therefore required.
New industrial sources + proposed sources with planning permission	There is a continuing monitoring programme within FDC of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of Sulphur Dioxide, neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	**Existing Industrial Sources – Hanson plc Whittlesey** At the last Review and Assessment of air quality in Fenland, there was evidence from modelling that the 15 minute mean Sulphur Dioxide objective was being exceeded at relevant locations in Whittlesey as a result of emissions from Hanson's brick making operations. There was no non-compliance with the hourly or daily mean objectives. No air quality management area was declared because of the programme being implemented by Hanson plc for Sulphur Dioxide emissions reductions, modelling of which showed compliance with all of the objectives. Following detailed discussions with both Hanson and the Environment Agency, FDC are satisfied that the Sulphur Dioxide emissions reduction programme is proceeding in line with previous expectations, and that no detailed assessment is required**.**
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic coal burning areas (500 x 500m with more than 100 houses using coal as primary fuel source)	In Fenland, there are many villages that are not connected to mains gas. In these villages, it is expected that coal is the main form of heating fuel for some of the properties. For the Council's housing stock, it is known that 7% of properties use coal as the

FENLAND DISTRICT COUNCIL	SULPHUR DIOXIDE
	primary fuel. Each village has been examined using GIS to count the highest density of housing in a single 500m x 500m square. Applying the percentage figure above to the highest density of housing figure provides a good approximation of the density of coal burning dwellings. The worst position found in Fenland was Wisbech St Mary where the highest housing density was 550 dwellings per 25 hectares. Assuming that 7 % of dwellings are primarily coal burning, this gives 39 properties in the 25 ha assessment area. Clearly the assessment level of 100 properties per 25 ha is not met and therefore, no detailed assessment is required.
Detailed Assessment required	**No**
Sources with small boilers (> 5MW$_{(thermal)}$) and where likely to be relevant exposure within 500m	N/A – no new sources since last round of review and assessment
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Shipping	NOT RELEVANT
Railway locations where diesel locomotives are stationary with engines running for more than 15 minutes twice a day and where there is likely to be regular exposure within 15m	N/A – no relevant locations within 15 metres of railways/sidings
Detailed Assessment required	**No**

HUNTINGDONSHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
Monitoring sites (FDC need to indicate if outside or within AQMA)	Monitoring of ambient Sulphur Dioxide not carried out.
Public likely to be regularly present over averaging period of objective	Not Applicable
Monitoring data	N/A
Current 2004 15 minute objective exceeded	N/A
Current 2004 1 hour objective exceeded	N/A
Current 2005 24 hour objective exceeded	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There is a continuing monitoring programme within Huntingdonshire District Council (HDC) of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of Sulphur Dioxide, neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	At the last Review and Assessment of air quality in Huntingdonshire, two installations (one in the north and one in the west of the district) were identified where the air quality objectives could be at risk. For this updating and screening assessment, details of fuel consumption rates at the two sites have been obtained from the process operators and compared with corresponding data relevant to the last round of review and assessment. For the installation in the west of the District, records show that both fuel usage rates and fuel sulphur content remain virtually unchanged (within 5%) since the last round of review and assessment. Mathematical modelling last time showed that, whilst there was an area of non-compliance with the 15 minute mean objective outside of the site boundary there were no relevant locations within, or anywhere near the boundary of, the area of non-compliance. No detailed assessment is therefore required. For the installation in the north of the District, records show that there has been a significant reduction in the usage of fuel oil, and its sulphur content, since the last round of review and assessment. This is in line with the emissions improvement programme supplied by the operator last time. Emissions of Sulphur Dioxide from this

HUNTINGDONSHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
	installation in winter (the time of heaviest fuel usage) are currently running at 0.07 grammes/second (2.2 tonnes/annum) compared with 1.12 grammes/second last time. Using this current emission rate in the nomogram at Figure 7.1 in Technical Guidance shows that detailed assessment is not required.
Source exceeds threshold in relevant nomogram	No
Detailed Assessment required	**No**
Domestic coal burning areas (500 x 500m with more than 100 houses using coal as primary fuel source)	There are a number of small villages and settlements in Huntingdonshire that are not connected to mains gas supply. Analysis of the results of the Council's Home Energy Conservation survey information shows that the parish of Holme has the highest number of domestic dwellings where coal is the primary source of fuel. The highest density identified (by GIS) in Holme is 107 dwellings within an area of 25 hectares. Huntingdonshire Housing Partnership stated that approx 3% of their dwellings use coal as their primary heating source. Assuming 3% as a representative figure for the general housing stock then Holme is comfortably below the further assessment threshold.
Detailed Assessment required	**No**
Sources with small boilers (> $5MW_{(thermal)}$) and where likely to be relevant exposure within 500m	N/A – no new sources since the comprehensive review of fuel usage carried out for the last round of review and assessment
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Shipping	NOT RELEVANT
Railway locations where diesel locomotives are stationary with engines running for more than 15 minutes twice a day and where there is likely to be regular exposure within 15m	N/A – no relevant locations within 15 metres of railways/sidings
Detailed Assessment required	**No**

<table>
<tr><th>SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL</th><th>SULPHUR DIOXIDE</th></tr>
<tr><td>Monitoring sites</td><td>There are two locations at which Sulphur Dioxide is monitored within South Cambridgeshire District Council area.

The first site was installed to monitor ground level Sulphur Dioxide concentrations which were thought to be at risk of exceeding the objective in the vicinity of the cement works at Barrington. Emissions modelling was undertaken to determine the maximum ground level concentration at a relevant receptor site. Subsequently an API Sulphur Dioxide analyser utilising the ultra violet fluorescence technique to obtain continuous 15-minute average ambient Sulphur Dioxide concentrations was commissioned at a site on Challis Green (TL397 498) in February 1998. AEA Technology's National Environment Technology Centre (netcen) audit the equipment and scale and ratify the data.

The second monitor is at Marshalls Aerospace in Cambridge (TL 483 589). This site was identified during the first round of review and assessment as it was found that the airport had several local boiler plants which used medium oil with a sulphur content of not more than 3.5%w/w. It was suspected that in combination these emissions might have led to exceedences of the objective. The company proposed to switch fuels to low sulphur oil and are now operating at 1%w/w. Officers of Cambridge City Council have facilitated monitoring at this location during the burning season, since 1999.</td></tr>
<tr><td>Public likely to be regularly present over averaging period of objective</td><td>Yes</td></tr>
<tr><td>Monitoring data</td><td>
<table>
<tr><th>Location</th><th>Year</th><th>Maximum 15 Minute Mean ($\mu g/m^3$) [number of exceedences]</th><th>Maximum One Hour Mean ($\mu g/m^3$) [number of exceedences]</th><th>Maximum 24 Hour Mean ($\mu g/m^3$) [number of exceedences]</th><th>Data Capture (%)</th></tr>
<tr><td>Barrington</td><td>1998</td><td>192 [0]</td><td>160 [0]</td><td>32 [0]</td><td>23</td></tr>
<tr><td></td><td>1999</td><td>125 [0]</td><td>117 [0]</td><td>32 [0]</td><td>83</td></tr>
<tr><td></td><td>2000</td><td>114 [0]</td><td>85 [0]</td><td>32 [0]</td><td>60</td></tr>
<tr><td></td><td>2001</td><td>106 [0]</td><td>106 [0]</td><td>29 [0]</td><td>96</td></tr>
<tr><td></td><td>2002</td><td>138 [0]</td><td>94 [0]</td><td>18 [0]</td><td>94</td></tr>
<tr><td>Cambridge</td><td>2002/3</td><td>164 [0]</td><td>142 [0]</td><td>58 [0]</td><td></td></tr>
</table>
</td></tr>
<tr><td>Current 2004 15 minute objective exceeded</td><td>No</td></tr>
</table>

SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
Current 2004 1 hour objective exceeded	No
Current 2005 24 hour objective exceeded	No
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There are no such sources proposed. There is a continuing monitoring programme of all planning applications within the Environmental Health Department where such developments are screened prior to approval. Since the last round of review and assessment there have been no applications that would result in the release of significant quantities of sulphur dioxide.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1998 or 2000?)	There have been no significant increases in Sulphur Dioxide emissions recorded within the area.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic coal burning areas (500 x 500m with more than 100 houses using coal as primary fuel source)	From the last round of review and assessment it was extrapolated from existing data that the maximum percentage of properties burning solid fuel would be 24.4% in a village without mains gas and 18.1% in those villages with a mains gas connection. The House Condition Survey from which this data was extrapolated is due to be repeated this year. Therefore in updating this assessment figures have been used based on the DIY Home Energy Checks carried out during 2001-2 supplied by the Anglia West Energy Efficiency Advice Centre. This data suggests that only 4% of households in the district use solid fuel as their main source of heating. South Cambridgeshire comprises 101 villages, the largest village Sawston has only 2,823 properties. GIS analysis of the densest area of residential development in a 500m * 500 m grid square shows that the Victorian area of Cottenham a small village to the north of the district has 433 properties. Four percent of these properties would yield only seventeen properties using solid fuel as their main source of heating, comfortably within the screening assessment.

SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL	SULPHUR DIOXIDE
Detailed Assessment required	**No**
Sources with small boilers (> 5MW$_{(thermal)}$) and where likely to be relevant exposure within 500m	During the first round of review and assessment, a questionnaire was circulated to all medium and large commercial and industrial premises to gain information on boiler type, boiler size and fuel consumption. This led to assessments of three industrial locations. At Papworth Everard, Histon and Teversham. Since 2000: - ▪ the Factory Complex at Papworth Everard has been redeveloped to provide housing and this source removed. ▪ Chivers Hartley, Histon operated an oil fired back up for an interruptible gas supply, as the use of this fuel is now controlled by the Sulphur in Fuels Directive, it is thought that this process will not lead to exceedences of the objective. ▪ Marshalls Engineering at Teversham has also switched to a low sulphur fuel and has decommissioned one boiler unit at its north works. The resultant ambient air quality is monitored by Cambridge City Council and does not currently breach the objective. There has been no significant industrial development which is likely to give rise to a relevant exposure since the first review and assessment and it is therefore unlikely that any such sources are present within the District.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Shipping	Not relevant
Railway locations where diesel locomotives are stationary with engines running for more than 15 minutes twice a day and where there is likely to be regular exposure within 15m	Assessment of the rail network in South Cambridgeshire District Council area shows that there are no locations where this may occur.
Detailed Assessment required	**No**

Chapter 9: FINE PARTICLES – PM_{10}

Summary of conclusions from the 1st round of Review & Assessment

District	Results of 1st Review & Assessment, 2000
Cambridge City	The results indicated that the air quality objectives for Fine Particles were being met and were likely to be met by the objective due date. However, there would be continued monitoring to ensure compliance.
East Cambridgeshire	The results indicated that the air quality objectives for Fine Particles were being met and were likely to be met by the objective due date.
Fenland	The results indicated that the air quality objectives for Fine Particles would not be met by the due dates unless the coal-fired boiler plant in Wisbech was replaced with a low-sulphur-fuelled plant. An Air Quality Management Area was duly declared and an Action Plan is being implemented.
Huntingdonshire	The results indicated that the air quality objectives for Fine Particles were being met and were likely to be met by the objective due date.
South Cambridgeshire	The results indicated that the air quality objectives for Fine Particles were being met and were likely to be met by the objective due date. However, there would be continued monitoring adjacent to the A14 to ensure compliance.

2nd Round of Review and Assessment

UK Objective to be achieved by 31st December 2004 – 24 hour mean, 35 exceedences: 50µg/m³

UK Objective to be achieved by 31st December 2004 – annual mean: 40µg/m³

England Objective to be achieved by 31st December 2010 – 24 hour mean, 7 exceedences: 50µg/m³

England Objective to be achieved by 31st December 2010 – annual mean: 20µg/m³

National perspective

There is a wide range of emission sources that contribute to PM_{10}. These can be divided into 3 main categories – primary, secondary and coarse particles. The expected reduction in particle emissions in future years is different for each source type.

Emissions of particles from transport and industrial sources have declined nationally over the last 10 years. New legislation and vehicle emission standards will continue to impact on emissions from road transport, tighter controls will govern emissions from industrial sources.

Summary of results from USA checklist approach for Fine Particles

✓ = USA has shown that no further detailed assessment is necessary for this round. X = indicates that detailed assessment will be required. AQMA = Air Quality Management Area declared and Action Plan in place

Source, Location or data Assessed	City	ECDC	FDC	HDC	SCDC
Monitoring data	✓	✓	**AQMA**	✓	✓
Busy junctions	✓	✓	✓	✓	✓
Roads with high flow of buses and/or HGVs	✓	✓	✓	✓	✓
New roads constructed or proposed since 1st R&A	✓	✓	✓	✓	✓
Roads close to objective during 1st R&A	✓	✓	✓	✓	✓
Roads with significantly changed traffic flows	✓	✓	✓	✓	✓
New industrial sources	✓	✓	✓	✓	✓
Industrial sources with substantially increased emissions	✓	✓	✓	✓	✓
Areas of domestic coal burning	✓	✓	✓	✓	✓
Quarries, landfill sites etc	✓	✓	✓	✓	✓
Aircraft	✓	✓	✓	✓	✓

CAMBRIDGE CITY COUNCIL	FINE PARTICLES
Monitoring sites	Silver Street (TEOM) - Roadside Parker Street (TEOM) - Roadside Gonville Place (TEOM) - Roadside Newmarket Road (FAG Dust Monitor) – Roadside
Public likely to be regularly present over averaging period of objective	Yes but not at all
Monitoring data	
Predicted exceedences of 2004 24 hour objective	Silver Street – 18 Parker Street – 28 Gonville Place – 5 Newmarket Road – 10
Predicted 2004 annual mean	Parker Street - 31.4µg/m^3 Silver Street - 26.5µg/m^3 Gonville Place- 21.5µg/m^3 Newmarket Road - 26.2µg/m^3 Measured 2002 Annual Mean = 32.5µg/m^3 Secondary Particles for 2001= 7.5µg/m^3 Secondary Particles for 2002 = 7.5*0.977 = 7.33µg.m^3 Secondary Particles for 2004 = 7.5*0.932 = 6.99µg.m^3 Secondary Particles for 2010 = 7.5*0.795 = 5.96µg.m^3 Coarse particles (yearly) = 10.5µg.m^3 **Parker Street** Annual mean primary combustion particles for 2002 = 32.5 – 7.33 – 10.5 = 14.67µg/m^3 Annual mean primary combustion particles for 2004 - 14.67*(0.93/0.977) = 13.94µg/m^3

Annual mean primary combustion particles for 2010 - 14.67*(0.815/0.977) = 12.24µg/m^3

Derived Total PM_{10} Annual Mean for 2004 = 13.94 + 6.99 + 10.5 = 31.4µg/m^3

Derived Total PM_{10} Annual Mean for 2010 = 5.96 + 10.5 + 12.18 = 28.6µg/m^3

Silver Street

Annual mean primary combustion particles for 2002 = 27.3 – 7.33 – 10.5 = 9.47µg/m^3

Annual mean primary combustion particles for 2004 - 9.47*(0.93/0.977) = 9.00µg/m^3

Annual mean primary combustion particles for 2010 - 9.47*(0.815/0.977) = 7.9µg/m^3

Derived Total PM_{10} Annual Mean for 2004 = 9.00 + 6.99 + 10.5 = 26.5µg/m^3

Derived Total PM_{10} Annual Mean for 2010 = 5.96 + 10.5 + 7.86 = 24.3µg/m^3

Gonville Place

Annual mean primary combustion particles for 2002 = 22.1 – 7.33 – 10.5 = 4.27µg/m^3

Annual mean primary combustion particles for 2004 -4.27*(0.93/0.977) = 4.07µg/m^3

Annual mean primary combustion particles for 2010 - 4.27*(0.815/0.977) = 3.56µg/m^3

Derived Total PM_{10} Annual Mean for 2004 = 4.07 + 6.99 + 10.5 = 21.5µg/m^3

Derived Total PM_{10} Annual Mean for 2010 = 5.96 + 10.5 + 3.55 = 20.5µg/m^3

CAMBRIDGE CITY COUNCIL	FINE PARTICLES

Newmarket Road - less than 9 months data		Location	µg/m³
Annual mean 2001		Parker	32.5
		Silver	27.3
		Gonville	22.1
Period Mean		Parker	27.3
		Silver	27.3
		Gonville	20.8
Ratio (am/pm)		Parker	1.2
		Silver	1
		Gonville	1
Average			1.06
Correction			1.06
NM Rd Mean 2002			24.7
* Correction	**2004 Annual Mean**		**26.2**
	2004 Predicted Daily Exceedences		**10**

Predicted exceedences of 2010 24 hour objective	Silver Street – 4 Parker Street – 8 Gonville Place – 1
Predicted 2010 annual mean	Parker Street - 28.6µg/m^3 Silver Street - 24.3µg/m^3 Gonville Place - 20.5µg/m^3
Detailed Assessment required	**NO**

Roads/junctions with more than 5,000 vehicles per day where annual mean background in 2010 likely to be above 15µg/m^3 and where likely to be relevant exposure within 10m of kerb

Road	Predicted exceedences in 2010	Predicted annual mean in 2010
Huntingdon Road	4	20.8
Milton Road	6	21.8
Trump. High Street	6	21.9
Newmarket Road	5	21.2
Elizabeth Way	6	21.9
Silver Street	4	20.5
Victoria Avenue	6	21.9

Roads/junctions with more than 10,000 — There are no areas within the City where background concentrations are set to be below 15 µg/m^3

vehicles per day where annual mean background in 2010 likely to be below 15µg/m^3 and where likely to be relevant exposure within 10m of kerb — as annual mean

Predicted annual mean in 2010 — See above table

Detailed Assessment required — **Not at this stage. Objectives for 2004 are going to be met. Objectives for 2010 will not be met at busy junctions based upon current input data.**

Junctions with more than 10,000 vehicles per day

Receptor	Distance to Receptor (m)	2004 Background (µg/m^3)	Traffic Flow Data (vehicles/day)	%HGV	Predicted Annual Mean (µg/m^3)	Predicted no. Exceedences (days)
Huntingdon Road	10	20.3	21725	5	25.7	**14**
Milton Road	10	20.4	34500	4	26.2	**15**
Trumpington High Street	10	21.2	32026	8	30.7	**30**
Newmarket Road	10	21.4	22072	5	27.9	**20**
Elizabeth Way	10	21.4	39068	5	29.6	**26**
Parker Street	5	21.2	11689	60	30.7	**30**
Silver Street	5	20.4	12766	3	24.8	**12**
Gonville Place	5	21.2	22424	4	26.6	**16**
Regent Street	10	21.2	10202	12	25.9	**15**
Victoria Avenue	5	21.4	22133	5	27.2	**18**

Public likely to be regularly present within 10m of kerb — At some but not all of tested roads / junctions

Predicted exceedences of 2004 24 hour objective — See above table (2)

CAMBRIDGE CITY COUNCIL	FINE PARTICLES
Predicted exceedences of 2010 24 hour objective	See above table (1)
Detailed Assessment required	**NO**
Roads with high proportion (greater than 20%) of buses and/or HGVs and where any relevant exposure within 10m	Parker Street, Regent Street – see above table
Predicted exceedences of 2004 24 hour objective	Parker Street – 30 Regent Street - 15
Predicted annual mean in 2004	Parker Street – 30.7 Regent Street – 25.9
Predicted exceedences of 2010 24 hour objective	Unknown – no traffic flow data
Predicted annual mean in 2010	Unknown – no traffic flow data
Detailed Assessment required	**NO**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	N/A
Predicted exceedences of 2004 24 hour objective	N/A
Predicted 2004 annual mean	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted 2010 annual mean	N/A
Detailed Assessment required	**NO**
Roads close to objective in 1st R&A	Milton Road, Elizabeth Way, Victoria Avenue – see above tables
Detailed Assessment required	**NO**
Roads with traffic flows greater than 10,000 vehicles per day having more than	N/A

CAMBRIDGE CITY COUNCIL	FINE PARTICLES
25% increase in traffic flow since 1998	
Predicted exceedences of 2004 24 hour objective	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Detailed Assessment required	**NO**
New industrial sources + proposed sources with planning permission	N/A
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**NO**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	N/A
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**NO**
Domestic areas (500 x 500m with 50 houses using solid fuel as primary heating source)	N/A
Source exceeds criterion in relevant nomogram	N/A
Detailed Assessment required	**NO**
Quarries/landfill where public likely to be regularly exposed (within 1000m of source) and dust complaints received	N/A
Detailed Assessment required	**NO**
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2005 of more	N/A

CAMBRIDGE CITY COUNCIL	FINE PARTICLES
than 10 mppa	
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2010 of more than 5 mppa	N/A
Detailed Assessment required	**NO**

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	**FINE PARTICLES**
Monitoring sites (FDC need to indicate if outside or within AQMA)	None
Public likely to be regularly present over averaging period of objective	N/A
Monitoring data	N/A
Predicted exceedences of 2004 24 hour objective	N/A
Predicted 2004 annual mean	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted 2010 annual mean	N/A
Detailed Assessment required	**No**
Roads/junctions with more than 5,000 vehicles per day where annual mean background in 2010 likely to be above 15μg/m^3 and where likely to be relevant exposure within 10m of kerb	See DMRB Screening Assessment below.
Roads/junctions with more than 10,000 vehicles per day where annual mean background in 2010 likely to be below 15μg/m^3 and where likely to be relevant exposure within 10m of kerb	No such areas within East Cambridgeshire.
Predicted annual mean in 2004/2010	See DMRB screening Assessment below
Detailed Assessment required	**Whilst objectives for 2004 will be met it is clear that the proposed 2010 objectives will not.**
Junctions with more than 10,000 vehicles per day	<u>DMRB Screening Assessment</u> <u>Market St, Fordham</u> National Grid (NG) for background values (i) 560,269 (ii) 562,273 (iii) Mean PM_{10} background 2004 μg/m^3 annual mean (i) 18.5 (ii) 18.3 (iii) 18.4 PM_{10} background 2010 μg/m^3 annual mean (i) 17.1 (ii) 16.9 (iii) 17 Distance to receptor, link one, 8 meters

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	FINE PARTICLES
	Distance to receptor, link two 16 meters Link one ADDT 2005 - 22,575, 2010 - 23,052 (HGV's at 12% for both years) Link two ADDT 2005 - 12,000, 2010 – 12,000 (HGV's at 6% for both years) – (link two is a minor B road for which there is no traffic data, the figures used are just over half of link one, a major A road, it is envisaged that these figures will provide a very conservative DMRB assessment. Speed (kph) 2004/2010 link one 74/74, link two 20/20. DMRB assessment 2004/2010 (annual mean) 26.4/21.3 $\mu g/m^3$ <u>Witcham Toll</u> National Grid (NG) for background values (i) 546,282 (ii) 546,276 (iii) Mean PM_{10} background 2004 $\mu g/m^3$ annual mean (i) 17.6 (ii) 18.1 (iii) 17.9 PM_{10} background 2010 $\mu g/m^3$ annual mean (i) 16.4 (ii) 16.8 (iii) 16.6 Distance to receptor, link one 12 meters Distance to receptor, link two 30 meters Distance to receptor, link three 50 meters Link one ADDT 2005 - 22, 575, 2010 - 23052 (HGV's at 12% for both years)* Link two ADDT 2005 - 22, 575, 2010 - 23052 (HGV's at 12% for both years)* Link three ADDT – 6,000, 2010 – 6,000 (HGV's at 1% for both years)* *No traffic data exists for the exact point on the A142 that is link 1, however information is available for the A142 at Fordham a few miles to the east which is considered representative. Link two is an A road which carries less traffic than the A142 however no traffic information is available for this road so data from the A142 has been used to produce a conservative DMRB assessment. Link three is an unmarked road that has not been classified as an A or B and again no data is available, to produce a conservative DMRB assessment, a flow of roughly 25% of the A142 at Fordham has been used. Speed (kph) 2005/2010,link one 74/74, link two 20/20, link three 20/20 DMRB assessment 2004/2010 (annual mean) 29/22.4$\mu g/m^3$
Public likely to be regularly present within 10m of kerb	Yes
Predicted exceedences of 2004 24 hour objective	Fordham – 16

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	FINE PARTICLES
	Witcham Toll - 24
Predicted exceedences of 2010 24 hour objective	Fordham – 5 Witcham Toll - 7
Detailed Assessment required	**Whilst objectives for 2004 will be met the case for the proposed 2010 objectives is marginal.**
Roads with high proportion (greater than 20%) of buses and/or HGVs and where any relevant exposure within 10m	None
Predicted exceedences of 2004 24 hour objective	N/A
Predicted annual mean in 2004	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted annual mean in 2010	N/A
Detailed Assessment required	**No**
New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	None
Predicted exceedences of 2004 24 hour objective	N/A
Predicted 2004 annual mean	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted 2010 annual mean	N/A
Detailed Assessment required	**No**
Roads close to objective in 1st R&A	None
Detailed Assessment required	**No**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	N/A
Predicted exceedences of 2004 24 hour objective	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Detailed Assessment required	**No**

EAST CAMBRIDGESHIRE DISTRICT COUNCIL	FINE PARTICLES
New industrial sources + proposed sources with planning permission	New part A process at Sutton, a straw burning power station. The following figures were entered into nomogram 8.2, combustion sources >100^{o}C with a stack height >10m which was downloaded from the air quality management site. Stack diameter 1.82m Stack height 46.7m Height of nearest building within five stack heights 25m Background PM_{10} value 2004 18µg/m^{3} The following parameters gives a maximum emission rate of 99.4t/a, this compares to <1 t/a in 2001 for PM_{10} taken from the pollution inventory on the Environment Agency's website.
Source exceeds threshold in relevant nomogram	No
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1998 or 2000?)	A review of the relevant public registers and regular compliance visits to part b processes indicate that an increase of this magnitude has not occurred compared to both dates.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic areas (500 x 500m with 50 houses using solid fuel as primary heating source)	East Cambridgeshire DC had a housing condition survey carried out in June 2002, this included fuel use. The results for fuel use were as follows: - On peak electricity 1.3% Off peak electricity 13.4% LPG 1.5% Oil 19.3% Solid fuel/wood 3% Gas 61.4% Other 0.1% However despite the dominance of gas there are small settlements within the District that are not on mains gas and thus the 3% figure could, reasonably be expected to be significantly higher. The same could also be assumed for off/on peak electricity, LPG and oil when gas is not available. The districts, home energy conservation officer has confirmed that in the

<table>
<tr><td>EAST CAMBRIDGESHIRE DISTRICT COUNCIL</td><td>FINE PARTICLES</td></tr>
<tr><td></td><td>areas were gas is not available, oil and off peak electricity predominate rather than solid fuel.
A survey of the areas not on gas has been carried out using the Council's GIS, this has shown that there are 500mx500m areas where there are more than 100 domestic dwellings.
However the Council's home energy conservation officer has confirmed that there are not 50 domestic dwellings burning solid fuel in these areas.</td></tr>
<tr><td>Source exceeds criterion in relevant nomogram</td><td>N/A</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Quarries/landfill where public likely to be regularly exposed (within 1000m of source) and dust complaints received</td><td>Three sites have been identified, two landfills and one small quarry.

<table>
<tr><th>Site</th><th>Distance to Receptor</th><th>Background 2004 µg/m³</th><th>Background 2010 µg/m³</th><th>Complaints Received</th></tr>
<tr><td>Grunty Fen landfill site</td><td>500m</td><td>18</td><td>16.7</td><td>No</td></tr>
<tr><td>Kennett landfill site</td><td>150m</td><td>18.5</td><td>17.1</td><td>No</td></tr>
<tr><td>.Francis Flower Quarry</td><td>350m</td><td>18.1</td><td>16.7</td><td>No</td></tr>
</table>
</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2004 of more than 10 mppa</td><td>No airports within East Cambridgeshire or within 500m of the districts boundary.</td></tr>
<tr><td>Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2010 of more than 5 mppa</td><td>No airports within East Cambridgeshire or within 500m of the districts boundary.</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
</table>

<table>
<tr><th>FENLAND DISTRICT COUNCIL</th><th>FINE PARTICLES</th></tr>
<tr><td>Monitoring sites (FDC need to indicate if outside or within AQMA)</td><td>Continuous monitoring of Fine Particles PM_{10} is carried out inside the AQMA in Wisbech.</td></tr>
<tr><td>Public likely to be regularly present over averaging period of objective</td><td>Yes</td></tr>
<tr><td>Monitoring data</td><td>Monitoring is carried out inside the Air Quality Management Area in Wisbech, using a Beta Attenuation instrument that measures directly in gravimetric units. The last twelve months of ratified monitoring data are presented in the table below.

<table>
<tr><th>Statistic</th><th>Year to 31/12/2002</th></tr>
<tr><td>Number of 24 hour mean concentrations >50 μg/m^3 (35 allowed in a year)</td><td>41</td></tr>
<tr><td>Mean Concentration (Objective is 40 μg/m^3)</td><td>31.1</td></tr>
<tr><td>Data Capture %</td><td>94.8</td></tr>
</table>

Clearly the daily mean objective of 50 μg/m^3 not to be exceeded more than 35 times in a year is being breached. The annual mean objective of 40 μg/m^3 is not being breached.</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>Current exceedences of the daily mean Fine Particles PM_{10} Objective arise as a result of emissions from a coal fired boiler installation. Following an application for permitting under PPC (due in early 2005) emissions will be regulated under BAT by the Environment Agency.

Assuming that the ‘business as usual’ emissions scenario will pertain until at least the time of issue of a permit under PPC, then it is unlikely that the daily mean objective will be complied with in 2004. On the same basis, it would appear to FDC that the annual mean objective of 40 μg/m^3 is likely to be met in 2004.

Compliance with the 2010 objectives (7 exceedences in a year of 50 μg/m^3 daily mean and 20 μg/m^3 annual mean) will depend entirely upon the outcome of the review of the 1st EUDD Limit Values for Particles. If the stage two limit values are ratified, then the Agency, as regulator, will apply BAT under PPC permitting to ensure that the two limit</td></tr>
</table>

FENLAND DISTRICT COUNCIL	FINE PARTICLES
	values (and hence the air quality objectives) will be met. However, if the stage two limit values are not ratified following the review, it seems that achievement of both the daily mean and annual mean objectives as currently proposed for England are unlikely to be met.
Predicted 2004 annual mean	Current exceedences of the daily mean Fine Particles PM_{10} Objective arise as a result of emissions from a coal fired boiler installation. Following an application for permitting under PPC (due in early 2005) emissions will be regulated under BAT by the Environment Agency. Assuming that the 'business as usual' emissions scenario will pertain until at least the time of issue of a permit under PPC, then it is unlikely that the daily mean objective will be complied with in 2004. On the same basis, it would appear to FDC that the annual mean objective of 40 $\mu g/m^3$ is likely to be met in 2004. Compliance with the 2010 objectives (7 exceedences in a year of 50 $\mu g/m^3$ daily mean and 20 $\mu g/m^3$ annual mean) will depend entirely upon the outcome of the review of the 1st EUDD Limit Values for Particles. If the stage two limit values are ratified, then the Agency, as regulator, will apply BAT under PPC permitting to ensure that the two limit values (and hence the air quality objectives) will be met. However, if the stage two limit values are not ratified following the review, it seems that achievement of both the daily mean and annual mean objectives as currently proposed for England are unlikely to be met.
Predicted exceedences of 2010 24 hour objective	Current exceedences of the daily mean Fine Particles PM_{10} Objective arise as a result of emissions from a coal fired boiler installation. Following an application for permitting under PPC (due in early 2005) emissions will be regulated under BAT by the Environment Agency. Assuming that the 'business as usual' emissions scenario will pertain until at least the time of issue of a permit under PPC, then it is unlikely that the daily mean objective will be complied with in 2004. On the same basis, it would appear to FDC that the annual mean objective of 40 $\mu g/m^3$ is likely to be met in 2004. Compliance with the 2010 objectives (7 exceedences in a year of 50 $\mu g/m^3$ daily mean

FENLAND DISTRICT COUNCIL	FINE PARTICLES
	and 20 μg/m^3 annual mean) will depend entirely upon the outcome of the review of the 1st EUDD Limit Values for Particles. If the stage two limit values are ratified, then the Agency, as regulator, will apply BAT under PPC permitting to ensure that the two limit values (and hence the air quality objectives) will be met. However, if the stage two limit values are not ratified following the review, it seems that achievement of both the daily mean and annual mean objectives as currently proposed for England are unlikely to be met.
Predicted 2010 annual mean	Current exceedences of the daily mean Fine Particles PM_{10} Objective arise as a result of emissions from a coal fired boiler installation. Following an application for permitting under PPC (due in early 2005) emissions will be regulated under BAT by the Environment Agency. Assuming that the 'business as usual' emissions scenario will pertain until at least the time of issue of a permit under PPC, then it is unlikely that the daily mean objective will be complied with in 2004. On the same basis, it would appear to FDC that the annual mean objective of 40 μg/m^3 is likely to be met in 2004. Compliance with the 2010 objectives (7 exceedences in a year of 50 μg/m^3 daily mean and 20 μg/m^3 annual mean) will depend entirely upon the outcome of the review of the1st EUDD Limit Values for Particles. If the stage two limit values are ratified, then the Agency, as regulator, will apply BAT under PPC permitting to ensure that the two limit values (and hence the air quality objectives) will be met. However, if the stage two limit values are not ratified following the review, it seems that achievement of both the daily mean and annual mean objectives as currently proposed for England are unlikely to be met.
Detailed Assessment required	**Fenland District Council declared an Air Quality Management Area (AQMA) in Wisbech in 2001 in respect of exceedences of the Daily Mean PM_{10} objective. The further review and assessment in the AQMA and the Action Plan were completed in 2002. A detailed assessment would be with a view to revoking the AQMA Order, which would clearly be inappropriate at this time. Full compliance with the daily mean objective is, in the opinion of FDC, unlikely to be achieved until after the issue of a PPC permit. Application for a PPC Permit is not scheduled until 2005. A detailed Assessment is not therefore required.**

<table>
<tr><th>FENLAND DISTRICT COUNCIL</th><th>FINE PARTICLES</th></tr>
<tr><td></td><td></td></tr>
<tr><td>Junctions with more than 10,000 vehicles per day</td><td>Present in FDC at Broad Street, March</td></tr>
<tr><td>Public likely to be regularly present within 10m of kerb</td><td>Yes</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>

DMRB Screening Assessments for Busy Junctions

Background Concentrations in Wisbech

	X	Y	PM_{10} in 2004 $\mu g/m^3$	PM_{10} in 2010 $\mu g/m^3$
Wisbech	546500	309500	19.3	17.8

March - Annual Mean PM_{10} Assessment – 10 kph

Site	Flow AADT 2050 ’000s (%hgv)	Flow AADT 2010 ’000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	20m 8m 29m	10 10 10	29.3	23.7

March - Annual Mean PM_{10} Assessment – 20kph

Site	Flow AADT 2050 ’000s (%hgv)	Flow AADT 2010 ’000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	20m 8m 29m	20 20 20	26.3	22.2

</td></tr>
</table>

March - Daily Mean PM_{10} Assessment – 10kph

Site	Flow AADT 2050 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} Number of Days > 50 $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} Number of Days > 50 $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	19m 6m 25m	10 10 10	25	10

March - Daily Mean PM_{10} Assessment – 20kph

Site	Flow AADT 2050 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} Number of Days > 50 $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} Number of Days > 50 $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	19m 6m 25m	20 20 20	16	7

Predicted exceedences of 2010 24 hour objective

DMRB Screening Assessments for Busy Junctions

Background Concentrations in Wisbech

	X	Y	PM_{10} in 2004 $\mu g/m^3$	PM_{10} in 2010 $\mu g/m^3$
Wisbech	546500	309500	19.3	17.8

March - Annual Mean PM_{10} Assessment – 10 kph

Site	Flow AADT 2050 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	20m 8m 29m	10 10 10	29.3	23.7

March - Annual Mean PM_{10} Assessment – 20kph

Site	Flow AADT 2050 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	20m 8m 29m	20 20 20	26.3	22.2

March - Daily Mean PM_{10} Assessment – 10kph

Site	Flow AADT 2050 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	DMRB Screening Assessment 2004 PM_{10} Number of Days > 50 $\mu g/m^3$	DMRB Screening Assessment 2010 PM_{10} Number of Days > 50 $\mu g/m^3$
Broad Street Junction	19.4 (1.4) 8.1 (5.0) 11.8 (5.0)	21.2(1.4) 8.8(5.0) 12.9(5.0)	19m 6m 25m	10 10 10	25	10

<table>
<tr><td>FENLAND DISTRICT COUNCIL</td><td>FINE PARTICLES</td></tr>
<tr><td></td><td>March - Daily Mean PM_{10} Assessment – 20kph
<table>
<tr><th>Site</th><th>Flow AADT 2050 ’000s (%hgv)</th><th>Flow AADT 2010 ’000s (%hgv)</th><th>Distance to receptor</th><th>Mean Hourly Traffic Speed kph</th><th>DMRB Screening Assessment 2004 PM_{10} Number of Days > 50 $\mu g/m^3$</th><th>DMRB Screening Assessment 2010 PM_{10} Number of Days > 50 $\mu g/m^3$</th></tr>
<tr><td>Broad Street
Junction</td><td>19.4 (1.4)
8.1 (5.0)
11.8 (5.0)</td><td>21.2(1.4)
8.8(5.0)
12.9(5.0)</td><td>19m
6m
25m</td><td>20
20
20</td><td>16</td><td>7</td></tr>
</table></td></tr>
<tr><td>Detailed Assessment required</td><td>No – 2010 objectives not yet prescribed.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Roads with high proportion (greater than 20%) of buses and/or HGVs and where any relevant exposure within 10m</td><td>Not present</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted annual mean in 2004</td><td>N/A</td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted annual mean in 2010</td><td>N/A</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m</td><td>Not present</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted 2004 annual mean</td><td>N/A</td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted 2010 annual mean</td><td>N/A</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
</table>

FENLAND DISTRICT COUNCIL	FINE PARTICLES
Roads close to objective in 1st R&A	Not present
Detailed Assessment required	**No**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	Not present
Predicted exceedences of 2004 24 hour objective	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There is a continuing monitoring programme within FDC of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of Fine Particles PM_{10} , neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	Not present
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic areas (500 x 500m with 50 houses using solid fuel as primary heating source)	In Fenland, there are many villages that are not connected to mains gas. In these villages, it is expected that coal is the main form of heating fuel for some of the properties. For the Council's housing stock, it is known that 7% of properties use coal as the primary fuel. Each village has been examined using GIS to count the highest density of housing in a single 500m x 500m square. Applying the percentage figure above to the highest density of housing figure provides a good approximation of the density of coal burning dwellings.

FENLAND DISTRICT COUNCIL	FINE PARTICLES
	The worst position found in Fenland was Wisbech St Mary where the highest housing density was 550 dwellings per 25 hectares. Assuming that 7 % of dwellings are primarily coal burning, this gives 39 properties in the 25 ha assessment area. Background concentrations of PM_{10} in Wisbech St Mary for 2004 and 2010 are 18.2 and 16.9 $\mu g/m^3$ respectively. Using the nomograms at figures 8.8 and 8.9 in Technical Guidance it is clear that the criterion for small villages are not exceeded, therefore no detailed assessment is required
Source exceeds criterion in relevant nomogram	No
Detailed Assessment required	**No**
Quarries/landfill where public likely to be regularly exposed (within 1000m of source) and dust complaints received	Not present
Detailed Assessment required	**No**
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2004 of more than 10 mppa	No airports
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2010 of more than 5 mppa	N/A
Detailed Assessment required	**No**

HUNTINGDONSHIRE	FINE PARTICLES
Monitoring sites	Yes, One Beta gauge, one TEOM.
Public likely to be regularly present over averaging period of objective	No
Monitoring data	Huntingdon 25μg/m^3, Godmanchester 20μg/m^3.
Predicted exceedences of 2004 24 hour objective	10 and 2.
Predicted 2004 annual mean	24.32μg/m^3 and 19.75μg/m^3 **Mobile Monitor (Godmanchester) – Prediction of PM_{10} 2004 Annual Mean and 2010 Annual Mean Using 2002 Monitoring Data (All units mg/m^3 Grav.)** Measured 2002 Annual Mean = 20.2μg/m^3. Secondary Particles for 2001 = 7.5μg/m^3. Secondary Particles for 2002 = 7.5 * 0.977 = 7.33μg/m^3. Secondary Particles for 2004 = 7.5 * 0.932 = 6.99μg/m^3. Secondary Particles for 2010 = 7.5 * 0.795 = 5.96μg/m^3. Coarse Particles (every year) = 10.5μg/m^3. Annual mean primary combustion particles for 2002 = 20.2 – 7.33 – 10.5 = 2.37μg/m^3. Annual mean primary combustion particles for 2004 = 2.37 * (0.930/0.977) = 2.26μg/m^3. Annual mean primary combustion particles for 2010 = 2.37 * (0.815/0.977) = 1.98μg/m^3.

So Derived Total PM_{10} Annual Mean for 2004 =

2.26 + 6.99 + 10.5 = 19.75µg/m^3.

So Derived Total PM_{10} Annual Mean for 2010 =

1.98 + 5.96 + 10.5 = 18.44µg/m^3.

Huntingdon Inner Ring Road Monitor – Prediction of PM_{10} 2004 Annual Mean and 2010 Annual Mean Using 2002 Monitoring Data (All units mg/m^3 Grav.)

Measured 2002 Annual Mean = 25µg/m^3.

Secondary Particles for 2001 = 7.5µg/m^3.

Secondary Particles for 2002 = 7.5 * 0.977 = 7.33µg/m^3.

Secondary Particles for 2004 = 7.5 * 0.932 = 6.99µg/m^3.

Secondary Particles for 2010 = 7.5 * 0.795 = 5.96µg/m^3.

Coarse Particles (every year) = 10.5µg/m^3.

Annual mean primary combustion particles for 2002 =

25 – 7.33 – 10.5 = 7.17µg/m^3.

Annual mean primary combustion particles for 2004 =

7.17 * (0.930/0.977) = 6.83µg/m^3.

Annual mean primary combustion particles for 2010 =

	7.17 * (0.815/0.977) = 5.98μg/m^3. So Derived Total PM_{10} Annual Mean for 2004 = 6.83 + 6.99 + 10.5 = 24.32μg/m^3. So Derived Total PM_{10} Annual Mean for 2010 = 5.98 + 5.96 + 10.5 = 22.44μg/m^3.
Predicted exceedences of 2010 24 hour objective	8 and 2.
Predicted 2010 annual mean	22.44μg/m^3 and 18.44μg/m^3 **Mobile Monitor (Godmanchester) – Prediction of PM_{10} 2004 Annual Mean and 2010 Annual Mean Using 2002 Monitoring Data (All units mg/m^3 Grav.)** Measured 2002 Annual Mean = 20.2μg/m^3. Secondary Particles for 2001 = 7.5μg/m^3. Secondary Particles for 2002 = 7.5 * 0.977 = 7.33μg/m^3. Secondary Particles for 2004 = 7.5 * 0.932 = 6.99μg/m^3. Secondary Particles for 2010 = 7.5 * 0.795 = 5.96μg/m^3. Coarse Particles (every year) = 10.5μg/m^3. Annual mean primary combustion particles for 2002 = 20.2 – 7.33 – 10.5 = 2.37μg/m^3. Annual mean primary combustion particles for 2004 =

2.37 * (0.930/0.977) = 2.26µg/m^3.

Annual mean primary combustion particles for 2010 =

2.37 * (0.815/0.977) = 1.98µg/m^3.

So Derived Total PM_{10} Annual Mean for 2004 =

2.26 + 6.99 + 10.5 = 19.75µg/m^3.

So Derived Total PM_{10} Annual Mean for 2010 =

1.98 + 5.96 + 10.5 = 18.44µg/m^3.

Huntingdon Inner Ring Road Monitor – Prediction of PM_{10} 2004 Annual Mean and 2010 Annual Mean Using 2002 Monitoring Data (All units mg/m^3 Grav.)

Measured 2002 Annual Mean = 25µg/m^3.

Secondary Particles for 2001 = 7.5µg/m^3.

Secondary Particles for 2002 = 7.5 * 0.977 = 7.33µg/m^3.

Secondary Particles for 2004 = 7.5 * 0.932 = 6.99µg/m^3.

Secondary Particles for 2010 = 7.5 * 0.795 = 5.96µg/m^3.

Coarse Particles (every year) = 10.5µg/m^3.

Annual mean primary combustion particles for 2002 =

25 – 7.33 – 10.5 = 7.17µg/m^3.

HUNTINGDONSHIRE	FINE PARTICLES
	Annual mean primary combustion particles for 2004 = 7.17 * (0.930/0.977) = 6.83μg/m^3. Annual mean primary combustion particles for 2010 = 7.17 * (0.815/0.977) = 5.98μg/m^3. So Derived Total PM_{10} Annual Mean for 2004 = 6.83 + 6.99 + 10.5 = 24.32μg/m^3. So Derived Total PM_{10} Annual Mean for 2010 = 5.98 + 5.96 + 10.5 = 22.44μg/m^3.
Detailed Assessment required	**No**
Roads/junctions with more than 5,000 vehicles per day where annual mean background in 2010 likely to be above 15μg/m^3 and where likely to be relevant exposure within 10m of kerb	Yes, Ramsey, St Neots, St Ives and Huntingdon.
Roads/junctions with more than 10,000 vehicles per day where annual mean background in 2010 likely to be below 15μg/m^3 and where likely to be relevant exposure within 10m of kerb	Not present.
Predicted annual mean in 2010	Ramsey 18.2μg/m^3, St Neots 22.1μg/m^3, St Ives 19.9μg/m^3, Huntingdon 24.3μg/m^3. **DMRB Screening Assessment for Busy Junctions.** **Background Concentrations.**

HUNTINGDONSHIRE	FINE PARTICLES

Location	Background Concentrations Coordinates X.	Background Concentrations Coordinates Y.	PM_{10} in 2004 µg/m3.	PM_{10} in 2010 µg/m3.
Ramsey (High Str/Great Whyte).	527500	284500	18.4	17
St. Neots (High Str/Huntingdon Str).	518500	260500	19.3	18
St. Ives (Houghton Rd).	530500	270500	19.3	17.7
Huntingdon (Ring Rd/Ermine Str).	524500	269500	18.8	17.3

DMRB Inputs and Outputs.

Site	Flow AADT 2004 '000s (%hgv)	Flow AADT 2010 '000s (%hgv)	Distance to receptor	Mean Hourly Traffic Speed kph	Screening Assessment 2004 PM_{10} µg/m^3. (Exceedences of the 24hr objective).	Screening Assessment 2010 PM_{10} µg/m^3. (Exceedences of the 24hr objective).
Ramsey (High Str/Great Whyte).	2332(5)/ 5618(6).	2605(5)/ 6275(6).	10m.	25kph/ 25kph.	20.8(5).	18.5(2).
St. Neots (High Str/Huntingdon Str).	16576(4)/ 9000(3).	17886(4)/ 7622(3).	6.7m	23kph/ 23kph.	25.3(13).	22.1(6).
St. Ives (Houghton Rd).	20988(5).	23443(5).	8.1m.	40kph.	23.3(9).	20(3).
Huntingdon (Ring Rd/Ermine Str).	25200(6)/ 13338(4).	29555(6)/ 14671(6).	13m.	15kph/ 25kph.	30.7(30).	24.3(11).

Detailed Assessment required	No.

<table>
<tr><th>HUNTINGDONSHIRE</th><th>FINE PARTICLES</th></tr>
<tr><td></td><td></td></tr>
<tr><td>Junctions with more than 10,000 vehicles per day</td><td>Yes, St Neots, St Ives and Huntingdon.</td></tr>
<tr><td>Public likely to be regularly present within 10m of kerb</td><td>Yes, St Neots, St Ives and Huntingdon.</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>St Neots 13, St Ives 9, Huntingdon 30.

DMRB Screening Assessment for Busy Junctions.

Background Concentrations.

<table>
<tr><td>Location</td><td>Background Concentrations Coordinates X.</td><td>Background Concentrations Coordinates Y.</td><td>PM_{10} in 2004 µg/m3.</td><td>PM_{10} in 2010 µg/m3.</td></tr>
<tr><td>Ramsey (High Street/Great Whyte).</td><td>527500</td><td>284500</td><td>18.4</td><td>17</td></tr>
<tr><td>St. Neots (High Street/Huntingdon Street).</td><td>518500</td><td>260500</td><td>19.3</td><td>18</td></tr>
<tr><td>St. Ives (Houghton Road).</td><td>530500</td><td>270500</td><td>19.3</td><td>17.7</td></tr>
<tr><td>Huntingdon (Ring Road/Ermine Street).</td><td>524500</td><td>269500</td><td>18.8</td><td>17.3</td></tr>
</table>

DMRB Inputs and Outputs. – see table in previous section</td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td>St Neots 6, St Ives 3, Huntingdon 11.

DMRB Screening Assessment for Busy Junctions.

Background Concentrations.</td></tr>
</table>

<table>
<tr><td>HUNTINGDONSHIRE</td><td>FINE PARTICLES</td></tr>
<tr><td></td><td>
<table>
<tr><td>Location</td><td>Background Concentrations Coordinates X.</td><td>Background Concentrations Coordinates Y.</td><td>PM_{10} in 2004 µg/m3.</td><td>PM_{10} in 2010 µg/m3.</td></tr>
<tr><td>Ramsey (High Street/Great Whyte).</td><td>527500</td><td>284500</td><td>18.4</td><td>17</td></tr>
<tr><td>St. Neots (High Street/Huntingdon Street).</td><td>518500</td><td>260500</td><td>19.3</td><td>18</td></tr>
<tr><td>St. Ives (Houghton Road).</td><td>530500</td><td>270500</td><td>19.3</td><td>17.7</td></tr>
<tr><td>Huntingdon (Ring Road/Ermine Street).</td><td>524500</td><td>269500</td><td>18.8</td><td>17.3</td></tr>
</table>
DMRB Inputs and Outputs. – see previous table
</td></tr>
<tr><td>Detailed Assessment required</td><td>No.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Roads with high proportion (greater than 20%) of buses and/or HGVs and where any relevant exposure within 10m</td><td>Not present.</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted annual mean in 2004</td><td>N/A</td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td>N/A</td></tr>
<tr><td>Predicted annual mean in 2010</td><td>N/A</td></tr>
<tr><td>Detailed Assessment required</td><td>No.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or where new road has increased flow on existing roads with high levels and where any relevant</td><td>Not present.</td></tr>
</table>

HUNTINGDONSHIRE	FINE PARTICLES
exposure within 10m	
Predicted exceedences of 2004 24 hour objective	N/A
Predicted 2004 annual mean	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted 2010 annual mean	N/A
Detailed Assessment required	**No.**
Roads close to objective in 1st R&A	Not present.
Detailed Assessment required	**No.**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	Not present.
Predicted exceedences of 2004 24 hour objective	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Detailed Assessment required	**No.**
New industrial sources + proposed sources with planning permission	Not present There is a continuing monitoring programme within HDC of all new planning applications. Since the last round of review and assessment, there have been no applications that would result in the release of significant quantities of Fine Particles (PM_{10}), neither are there any proposed sources with planning permission.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No.**
Existing industrial sources with significantly increased emissions (more than 30% since 1st Review and Assessment)	Not present.
Source exceeds threshold in relevant	N/A

HUNTINGDONSHIRE	FINE PARTICLES
nomogram	
Detailed Assessment required	**No.**
Domestic areas (500 x 500m with 50 houses using solid fuel as primary heating source)	No. There are a number of small villages and settlements in Huntingdonshire that are not connected to mains gas supply. Analysis of the results of the Council's Home Energy Conservation survey information shows that the parish of Holme has the highest number of domestic dwellings where coal is the primary source of fuel. The highest density identified (by GIS) in Holme is 107 dwellings within an area of 25 hectares. Huntingdonshire Housing Partnership stated that approx 3% of their dwellings use coal as their primary heating source. Assuming 3% as a representative figure for the general housing stock then Holme is comfortably below the further assessment threshold.
Source exceeds criterion in relevant nomogram	N/A
Detailed Assessment required	**No.**
Quarries/landfill where public likely to be regularly exposed (within 1000m of source) and dust complaints received	Not present.
Detailed Assessment required	**No.**
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2004 of more than 10 mppa	Not present.
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2010 of more than 5 mppa	Not present.
Detailed Assessment required	**No.**

<table>
<tr><th>SOUTH CAMBRIDGESHIRE</th><th>FINE PARTICLES</th></tr>
<tr><td>Monitoring sites</td><td>There are two sites where Fine Particles are measured on real time basis.</td></tr>
<tr><td>Public likely to be regularly present over averaging period of objective</td><td>It is likely that relevant exposure may occur at the sites monitored.</td></tr>
<tr><td>Monitoring data</td><td>South Cambridgeshire District Council operate a Beta attenuation particulate analyser located at Bar Hill on the A14 (Eastbound) (TL 385 637). Ambient data has been collected since March 2001 and is equipment audited and data ratified by NETCEN. The results available from this site are a fully scaled and ratified dataset from March 2001 to September 2002 and a provisional dataset to December 2002, which has been scaled but may be subject to further quality control following the equipment audit. The second real time analyser is located at Histon adjacent to the A14 (eastbound), this site has not been operational for a full twelve months and therefore monitoring data is not included for this site.

<u>PM_{10} Results Measured at Bar Hill and Reported by NETCEN</u>

<table>
<tr><td></td><td>2001</td><td>2002</td></tr>
<tr><td>Annual Mean (Gravimetric)</td><td>22 mg/m^3</td><td>23 mg/m^3</td></tr>
<tr><td>Number of exceedences of 24 hour mean > 50µg/m^3</td><td>9</td><td>9</td></tr>
<tr><td>Data capture of hourly means</td><td>75.2 %</td><td>96.5 %</td></tr>
</table>
</td></tr>
<tr><td>Predicted 2004 annual mean</td><td>
<table>
<tr><td>Secondary particles for 2001</td><td></td><td>7.50 µg/m^3</td></tr>
<tr><td>Secondary particles for 2002
(Box 8.7 correction factor)</td><td>7.5 * 0.977</td><td>7.33 µg/m^3</td></tr>
<tr><td>Secondary particles for 2004
(Box 8.7 correction factor)</td><td>7.5 * 0.932</td><td>6.99 µg/m^3</td></tr>
<tr><td>Coarse particles</td><td></td><td>10.50 µg/m^3</td></tr>
<tr><td>Annual mean primary combustion particles for 2002</td><td>23 (– 7.33 – 10.5)</td><td>5.17 µg/m^3</td></tr>
<tr><td>Annual mean primary combustion particles for 2004</td><td>5.17 * (0.930/0.977)</td><td>4.92 µg/m^3</td></tr>
<tr><td>Derived total PM_{10} Annual Mean for 2004</td><td>4.92 + 6.99 + 10.5</td><td>22.41 mg/m^3</td></tr>
</table>
</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>7 (derived using relationship in Figure 8.1)</td></tr>
</table>

<table>
<tr><td>SOUTH CAMBRIDGESHIRE</td><td colspan="3">FINE PARTICLES</td></tr>
<tr><td>Predicted 2010 annual mean</td><td colspan="3"><table>
<tr><td>Secondary particles for 2001</td><td></td><td>7.50 µg/m^3</td></tr>
<tr><td>Secondary particles for 2002 (Box 8.7 correction factor)</td><td>7.5 * 0.977</td><td>7.33 µg/m^3</td></tr>
<tr><td>Secondary particles for 2010 (Box 8.7 correction factor)</td><td>7.5 * 0.795</td><td>5.96 µg/m^3</td></tr>
<tr><td>Coarse particles</td><td></td><td>10.50 µg/m^3</td></tr>
<tr><td>Annual mean primary combustion particles for 2002</td><td>23 (– 7.33 – 10.5)</td><td>5.17 µg/m^3</td></tr>
<tr><td>Annual mean primary combustion particles for 2010</td><td>5.17 * (0.815/0.977)</td><td>4.31 µg/m^3</td></tr>
<tr><td>Derived total PM_{10} Annual Mean for 2010</td><td>4.31 + 5.96 + 10.5</td><td>20.77 µg/m^3</td></tr>
</table></td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td colspan="3">4 (derived using relationship in Figure 8.1)</td></tr>
<tr><td>Detailed Assessment required</td><td colspan="3">NO. There are not more than 35 exceedences estimated therefore no further assessment is required.</td></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td>Roads/junctions with more than 5,000 vehicles per day where annual mean background in 2010 likely to be above 15µg/m^3 and where likely to be relevant exposure within 10m of kerb</td><td colspan="3">The estimated annual mean background PM_{10} concentrations for 2010 have been mapped for the area and are available on the air quality archive website. This database indicates that the annual mean background in 2010 is likely to be above 15µg/m^3 throughout South Cambridgeshire District Council area.
Roads/junctions with more than 10,000 vehicles per day and exposure within 10m of the kerb are:
Linton A1301 with High Street
Waterbeach A10 with Landbeach Road
Histon B1049 with High Street
Girton Interchange A14 (Eastbound)
Childerley Gate A428 (new roundabout)
Kneesworth A1198 (new mini-roundabout configuration, The Causeway)</td></tr>
<tr><td>Roads/junctions with more than 10,000 vehicles per day where annual mean background in 2010 likely to be below 15µg/m^3 and where likely to be relevant exposure within 10m of kerb</td><td colspan="3">There are no areas within South Cambridgeshire where the annual mean background in 2010 is likely to be below 15µg/m^3 .</td></tr>
</table>

SOUTH CAMBRIDGESHIRE	FINE PARTICLES
Predicted annual mean in 2010	Model Inputs for DMRB Screening Assessment.

Location	Link	Flow AADT 2005 (000's (%HGV))	Flow AADT 2010 (000's (%HGV))	Mean Hourly Traffic Speed (km/h)	Distance to Receptor (metres)
Linton	A1303	19764 (8)	21744 (8)	64	10
	B1052	3843 (2)	4228 (2)	30	11
Waterbeach	A10	21850 (15)	24039 (15)	80	12
	Waterbeach Road	1647 (2)	1812 (2)	30	30
Histon	B1049	22832 (5)	25162 (5)	64	13
	High Street	8235 (2)	9060 (2)	30	8
Girton	A14 (Eastbound)	66783 (14)	73469 (14)	96 (95)	12
	M11	57113 (18)	62831 (18)	101 (101)	50
Childerley Gate	A428	24376 (9)	26817 (9)	64	35
		1098 (2)	1208 (2)	20	11
Kneesworth	A1198	12736 (7)	14012 (7)	48	17
	The Causeway	2196 (2)	2416 (2)	32	5

Estimated Background Concentrations Derived from National Database and DMRB Screening Assessment for 2004/2010.

Location	Grid Reference		PM_{10} 2004	PM_{10} 2010	**Screening Assessment 2004 PM_{10} $\mu g/m^3$ (Exceedences of the 24 hour objective)**	**Screening Assessment 2010 PM_{10} $\mu g/m^3$ (Exceedences of the 24 hour objective)**
	X	Y				
Linton	556500	247500	18.4	17.0	23.1 (8)	20.0 (3)
Waterbeach	549500	265500	18.7	17.3	24.8 (12)	20.8 (4)
Histon	543500	263500	19.2	17.6	24.1 (10)	20.8 (4)

SOUTH CAMBRIDGESHIRE							FINE PARTICLES
	Girton	537500	260500	18.3	16.9	28.5 (22)	22.9 (8)
	Childerley Gate	535500	260500	18.3	16.9	21.3 (5)	21.3 (5)
	Kneesworth	533500	244500	18.3	16.9	21.0 (5)	18.6 (2)

Detailed Assessment required	**No**
Junctions with more than 10,000 vehicles per day	As per assessment above please refer to previous boxes for model input and background details.
Public likely to be regularly present within 10m of kerb	Yes

Predicted exceedences of 2004 24 hour objective

Location	Predicted Number of Exceedences of 2004 24 hour objective
Linton	8
Waterbeach	12
Histon	10
Girton	22
Childerley Gate	5
Kneesworth	5

Predicted exceedences of 2010 24 hour objective

Location	Predicted Number of Exceedences of 2010 24 hour objective
Linton	3
Waterbeach	4
Histon	4
Girton	8
Childerley Gate	5
Kneesworth	2

Detailed Assessment required	**No**
Roads with high proportion (greater than 20%) of buses and/or HGVs and where any	The highest proportion of HGV's on roads in South Cambridgeshire is recorded at 23% between Trinity Foot and Bar Hill on the A14. There is likely to be no relevant exposure within 10 metres of this section of road. Model Inputs for DMRB Screening Assessment.

<table>
<tr><th>SOUTH CAMBRIDGESHIRE</th><th>FINE PARTICLES</th></tr>
<tr><td>relevant exposure within 10m</td><td>
<table>
<tr><th>Location</th><th>Link</th><th>Flow AADT 2005 (000's (%HGV))</th><th>Flow AADT 2010 (000's (%HGV))</th><th>Mean Hourly Traffic Speed (km/h)</th><th>Distance to Receptor (metres)</th></tr>
<tr><td>536934 264956</td><td>A14 Trinity Foot to Bar Hill.</td><td>77518 (23)</td><td>85279(23)</td><td>95</td><td>17</td></tr>
</table>

Estimated Background Concentrations Derived from National Database and DMRB Screening Assessment for 2004/2010.

<table>
<tr><th rowspan="2">Location</th><th colspan="2">Grid Reference</th><th>PM_{10} 2004</th><th>PM_{10} 2010</th><th>DMRB Screening Assessment 2004 PM_{10} $\mu g/m^3$ (Exceedances of the 24 hour objective)</th><th>DMRB Screening Assessment 2010 PM_{10} $\mu g/m^3$ (Exceedances of the 24 hour objective)</th></tr>
<tr><th>X</th><th>Y</th></tr>
<tr><td>Trinity foot – Bar Hill</td><td>540500</td><td>265500</td><td>18.5</td><td>17.0</td><td>29.5 (26)</td><td>23 (8)</td></tr>
</table>
</td></tr>
<tr><td>Predicted exceedences of 2004 24 hour objective</td><td>26</td></tr>
<tr><td>Predicted annual mean in 2004</td><td>29.5</td></tr>
<tr><td>Predicted exceedences of 2010 24 hour objective</td><td>8</td></tr>
<tr><td>Predicted annual mean in 2010</td><td>23</td></tr>
<tr><td>Detailed Assessment required</td><td>No</td></tr>
<tr><td></td><td></td></tr>
<tr><td>New roads constructed or proposed since 1st round R&A with traffic flows greater than 10,000 vehicles per day or</td><td>There are no new roads of this scale within the district.</td></tr>
</table>

SOUTH CAMBRIDGESHIRE	FINE PARTICLES
where new road has increased flow on existing roads with high levels and where any relevant exposure within 10m	
Predicted exceedences of 2004 24 hour objective	N/A
Predicted 2004 annual mean	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Predicted 2010 annual mean	N/A
Detailed Assessment required	**No**
Roads close to objective in 1st R&A	None
Detailed Assessment required	**No**
Roads with traffic flows greater than 10,000 vehicles per day having more than 25% increase in traffic flow since 1998	None
Predicted exceedences of 2004 24 hour objective	N/A
Predicted exceedences of 2010 24 hour objective	N/A
Detailed Assessment required	**No**
New industrial sources + proposed sources with planning permission	There are no such sources proposed. There is a continuing monitoring programme of all planning applications within the Environmental Health Department where such developments are screened prior to approval. Since the last round of review and assessment there have been no applications that would result in the release of significant quantities of Fine Particles.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Existing industrial sources with	There are no processes with significantly increased emissions of Fine Particles within South Cambridgeshire

SOUTH CAMBRIDGESHIRE	FINE PARTICLES
significantly increased emissions (more than 30% since 1998 or 2000?)	District Council area.
Source exceeds threshold in relevant nomogram	N/A
Detailed Assessment required	**No**
Domestic areas (500 x 500m with 50 houses using solid fuel as primary heating source)	From the last round of review and assessment it was extrapolated from existing data that the maximum percentage of properties burning solid fuel would be 24.4% in a village without mains gas and 18.1% in those villages with a mains gas connection. The House Condition Survey from which this data was extrapolated is due to be repeated this year. In updating this assessment figures have been used based on the DIY Home Energy Checks carried out during 2001-2 supplied by the Anglia West Energy Efficiency Advice Centre throughout South Cambridgeshire. This data suggests that only 4% of households in the district use solid fuel as their main source of heating. South Cambridgeshire comprises 101 villages, the largest village Sawston has only 2,823 properties. GIS analysis of the densest area of residential development in a 500m * 500 m grid square shows that the Victorian area of Cottenham a small village to the north of the district has 433 properties. Four percent of these properties would yield only seventeen properties using solid fuel as their main source of heating, comfortably within the screening assessment.
Source exceeds criterion in relevant nomogram	N/A
Detailed Assessment required	**No**
Quarries/landfill where public likely to be regularly exposed (within 1000m of source) and dust complaints received	See Table below

SOUTH CAMBRIDGESHIRE	FINE PARTICLES

Site	Distance to Receptor (metres)	Background Concentrations of PM_{10} in 2004 µg/m^3	Background Concentrations of PM_{10} in 2010 µg/m^3	*Complaints Recorded on Environmental Health Management System*	*Visual Inspection Identified Significant Dust*
Landbeach - Landfill 549000 269500	200	18.3	16.9	*No*	*No*
Milton - Landfill 546560 262496	400	19.7	18.1	*No*	*No*
Heydon – Quarry 541375 243054	250	18.2	16.8	*No*	*No*
Hinxton – Quarry 548546 246545	350	19.1	17.6	*No*	*No*
Thriplow – Landfill 544558 244687	400	22.5	21.5	*No*	*No*
Meldreth – Landfill 536516 246819	450	18.3	17.0	*No*	*No*
Steeple Morden – Quarry 530000 239350	600	18.4	17.0	*No*	*No*

Detailed Assessment required	**No**
Airports where likely to be relevant exposure within 500m of boundary and with predicted throughput in 2004 of more than 10 mppa	Cambridge Airport is the largest airfield in the District. The predicted annual throughput of passengers and tonnes of freight equivalent is expected to be less than 5 million passengers per annum in 2004 and 2010. Based on a current throughput of 0.45 mppa (passengers and freight combined).
Airports where likely to be	It is unlikely that the throughput of the airport will exceed this threshold.

SOUTH CAMBRIDGESHIRE	FINE PARTICLES
relevant exposure within 500m of boundary and with predicted throughput in 2010 of more than 5 mppa	
Detailed Assessment required	**No**