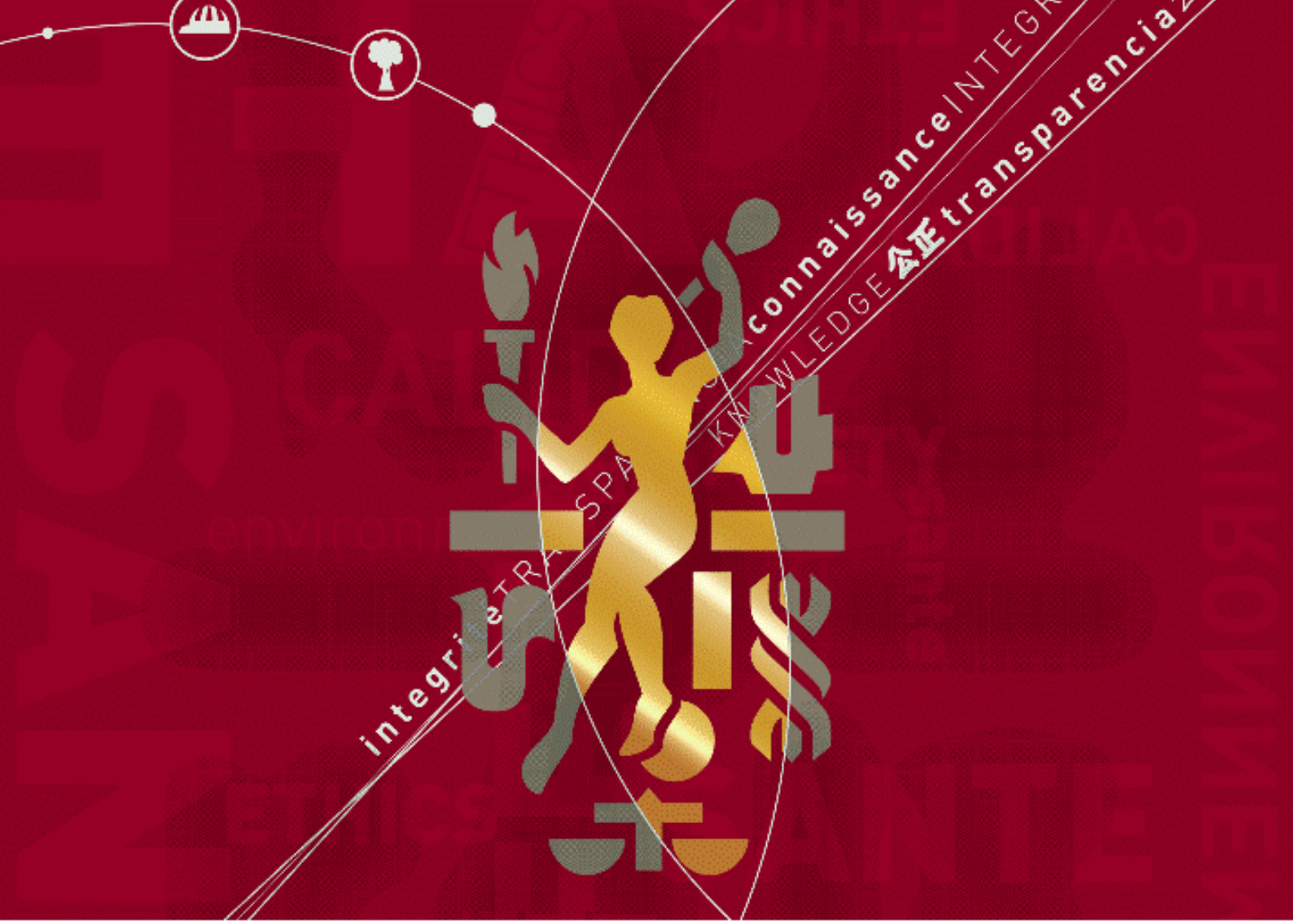

Thanet District Council

Local Air Quality Management – Updating and Screening Assessment

Ref: BV/AQ/AMCX0431/Draft
April 2006

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For the benefit of business and people

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EXECUTIVE SUMMARY

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work.

Between 1998 and 2000, Thanet District Council undertook its first round of review and assessment of air quality. The first round assessments concluded that UK Air Quality Objectives would be achieved for all pollutants and no further action was required. It was therefore deemed unnecessary to declare an Air Quality Management Area (AQMA) in Thanet at that time.

The first phase of the second round of review and assessment, the USA, was completed in May 2003 and this provided an update with respect to air quality issues within Thanet. The USA concluded that no potential exceedences of the Air Quality Objectives were identified within the District of Thanet.

The Annual Progress Report for 2004 considered monitoring data for 2003, which showed significant increases in monitored results due to unusually stable meteorological conditions. The conclusions of the APR were that the annual mean nitrogen dioxide objective may not be met at seven busy junctions, and five of these may also exceed PM_{10} Objectives. These were identified as:

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

A Detailed Assessment was undertaken in 2005 and the results showed predicted exceedences of NO_2 and PM_{10} objectives at the Square, Birchington. An Air Quality Management Area has been declared for NO_2 and PM_{10} at the Square, Birchington and a continuous monitoring station is being installed in 2006 to provide further supporting information for subsequent further assessment and action planning.

The Updating and Screening Assessment (USA) provides an update with respect to air quality issues within the District. There have been a number of changes since the last (second) round of review and assessments which have been taken into account in this assessment; including revised modelled background concentration maps, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms). The USA has included consideration of new emissions sources, in addition to any significant changes to existing emission sources identified in the previous rounds.

The USA considers the seven priority health based air quality objectives as laid down in Regulations and assesses the likelihood that the air quality objectives will be met by their target dates. If the air quality objectives are unlikely to be met, a detailed assessment will be required. It also considers the provisional fine particulates (PM_{10}) objectives for 2010,

although no detailed assessment of the 2010 PM_{10} objectives is required at this stage as the objectives have not been laid down in Regulations.

Having considered each pollutant and presented evidence to support the assessment of each, it is concluded that the air quality objectives for benzene, 1, 3-butadiene, carbon monoxide, lead, PM_{10} and sulphur dioxide will be met. There will be no requirement to undertake a detailed assessment for these pollutants.

The results of the screening assessment have shown that a detailed assessment is required for nitrogen dioxide as a result of measured exeedences of the annual mean objective at the nearest receptors to Hereson Road, Ramsgate and High Street, St Lawrence. It is recommended that monitoring be undertaken at the façade of the nearest receptors.

The provisional annual PM_{10} objective for 2010 is predicted to be exceeded at a number of busy roads and junctions assessed due to the high modelled background PM_{10} for 2010. This will require further assessment in future air quality assessments once included in Regulations.

It is recommended that the Council continue with its monitoring programme for nitrogen dioxide to confirm the findings of this report.

Summary Table

Pollutant	Detailed assessment required?	Sources/Location
Benzene	No	
1, 3 - butadiene	No	
Carbon monoxide	No	
Lead	No	
Nitrogen dioxide	Yes	Hereson Road, Ramsgate and High Street, St Lawrence
PM_{10}	No	
Sulphur dioxide	No	

1 INTRODUCTION

1.1 Project Background

Bureau Veritas was appointed by Thanet District Council to carry out the third round Updating and Screening Assessment (USA) of air pollution sources that may affect local air quality within the area based on information provided by the local authority. The USA is required to be undertaken as part of the local authority's statutory duties under the Local Air Quality Management (LAQM) regime as defined within Part IV of the Environment Act 1995.

1.2 Legislative Background

Part IV of the Environment Act 1995 places a statutory duty on local authorities to periodically review and assess the air quality within their area. This involves consideration of present and likely future air quality against air quality standards and objectives. Guidelines for the 'Review and Assessment' of local air quality were published in the 1997 National Air Quality Strategy (NAQS) [1] along with associated policy guidance and technical guidance. In 2000, Government reviewed the NAQS and published a revised Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland[2]. This laid out a revised framework for air quality standards and objectives for seven pollutants, which were subsequently set in Regulations in 2000 through the Air Quality Regulations 2000[3]. These were subsequently amended in 2002[4].

More recently (February 2003), Government published its Addendum to the NAQS that proposed new Objectives for PM_{10} in 2010 whilst also setting down new Objectives for benzene and carbon monoxide. Provisional Objectives for PM_{10} have been set, which mark a significant tightening of the existing 2004 Objectives. For areas outside London in England and Wales a new annual mean objective of 20 µg/m^3 is proposed, whilst the fixed 24-hour mean remains at the same level (50 µg/m^3) but with only 7 allowable exceedence days (rather than 35). The new Objectives have yet to be set in Regulations so do not currently require consideration, but have been assessed in this Report for completeness.

Revised Technical Guidance (LAQM.TG(03))[5] and Policy Guidance (LAQM.PG(03))[6] were issued on behalf of DEFRA in January 2003. This guidance sets the framework for the requirements of review and assessment for future years, taking account of experiences from the previous rounds of review and assessment. Additional guidance has been provided in the form of FAQs and updated LAQM tools in January 2006 to assist with the third round of review and assessment to be completed by April 2006. This includes revised modelled background concentration maps for NO_X, NO_2 and PM_{10}, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms).

The Objectives included in the Air Quality (England) Regulations, 2000, and Air Quality (England) (Amendment) Regulations, 2002, provide the over-arching assessment criteria to

[1] DoE (1997) The United Kingdom Nation Air Quality Strategy The Stationery Office
[2] DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office
[3] DETR (2000) The Air Quality Regulations 2000, The Stationery Office
[4] Defra (2002) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, The Stationery Office
[5] Defra (2003) Technical Guidance LAQM.TG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office
[6] Defra (2003) Policy Guidance LAQM.PG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office

which local air quality management and the process of review and assessment relates. These are summarised below in Table 1.1 for the seven pollutants of concern to health which are assessed in this report.

Table 1.1 Air Quality Standards and Objectives

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	**Measured as**	
Benzene All authorities	16.25 μg/m^3	Running annual mean	31.12.2003
Authorities in England and Wales only	5.00 μg/m^3	Annual mean	31.12.2010
1,3 Butadiene	2.25 μg/m^3	Running annual mean	31.12.2003
Carbon monoxide Authorities in England, Wales and Northern Ireland only	10.0 mg/m^3	Maximum daily 8-hour mean	31.12.2003
Lead	0.5 μg/m^3 0.25 μg/m^3	Annual mean Annual mean	31.12.2004 31.12.2008
Nitrogen dioxide [a]	200 μg/m^3 not to be exceeded more than 18 times a year 40 μg/m^3	1 hour mean annual mean	31.12.2005 31.12.2005
Particles (PM_{10}) (gravimetric)[bc] All authorities	50 μg/m^3 not to be exceeded more than 35 times a year 40 μg/m^3 50 μg/m^3 not to be exceeded more than 7 times a year 20 μg/m^3	24 hour mean annual mean 24 hour mean annual mean	31.12.2004 31.12.2004 31.12.2010 31.12.2010
Sulphur dioxide	350 μg/m^3 not to be exceeded more than 24 times a year 125 μg/m^3 not to be exceeded more than 3 times a year 266 μg/m^3 not to be exceeded more than 35 times a year	1 hour mean 24 hour mean 15 minute mean	31.12.2004 31.12.2004 31.12.2005

a. The objectives for nitrogen dioxide are provisional. These Objectives are equivalent to the EU Limit value to be met by 2010
b. Measured using the European gravimetric transfer sampler or equivalent.
c. Provisional objectives not included in Regulations to date.

Within the First Round of Review and Assessment it was recommended that local authorities fulfil their statutory duty under the Local Air Quality Management regime by undertaking a three-stage assessment, increasing in detail at each stage. The first stage of this process (Stage 1) includes undertaking a desktop review in order to identify all sources of pollution within the area. Using Technical Guidance issued by Government significance is placed on sources of pollution both within the authority's area and those immediately outside the authority's area, that are likely to impact on air quality. Having identified those sources and areas that require further attention, simple screening assessments (Stage 2) or detailed monitoring and modelling programmes (Stage 3) are undertaken. The more recent (2003-2005) Second Round of Review and Assessment provided a basis for local authorities to

again update their previous air quality assessments. In doing so, local authorities were to take into consideration changes in national air quality standards and objectives and revised Technical Guidance (LAQM.TG(03)), new emission sources, and any significant proposed planning developments due to take place before the relevant Air Quality Objective date. Where the results of the Review and Assessment process highlight that the problems are likely to exist with respect to achievement of the relevant Air Quality Standards and Objectives, the authority is required to declare an Air Quality Management Area (AQMA) under Section 83(1) of the Environment Act 1995.

Having declared an AQMA the authority is required to confirm the findings of the Detailed Assessment work through further monitoring or modelling assessments (Further Assessment). The Further Assessment should provide information on the source-apportionment of the pollutant emissions in order to identify the level of pollutant reduction required for the attainment of relevant air quality objectives. Additionally, consideration should be made to evaluating local management practices that could be used to improve air quality, and feed into the formulation of an Action Plan.

At the time of writing the Review and Assessment process has culminated in the declaration of over 175 separate AQMA areas across the UK. Results of the process have shown that road traffic emissions are the main cause of exceedences of two pollutants listed with the NAQS - fine particulates (PM_{10}) and nitrogen dioxide (NO_2). Whilst other pollutants such as carbon monoxide (CO) and benzene are associated with road traffic emissions, the latest national perspective on the occurrence of each of these pollutants suggests that these are no longer a problem at roadside locations across the UK.

1.3 Aims of the Updating and Screening Assessment

The purpose of the Updating and Screening Assessment is:

- to identify new or substantially changed emission sources since the last round of review and assessment which may lead to an air quality objective being exceeded. A series of checklist for pollutants, and different screening tools for industrial and road traffic sources are used in order determine those new sources that may have significant contributions to potential exceedences of the air quality objectives.
- To assess new monitoring data in terms of relevant exposure and compare with air quality objectives
- Where a risk of exceeding an air quality objective at relevant exposure locations has been identified through the USA, a detailed assessment is required (due to be reported by April 2007). The detailed assessment should identify with reasonable certainty whether or not an exceedence is likely to occur.

1.4 Reporting of the Updating and Screening Assessment

The USA has been reported as one section for each pollutant to be assessed, as per the LAQM.TG(03) Technical Guidance, with reference to updated checklists provided for the third round.

A summary of the responses to the USA checklist criteria for each pollutant has been included within each section.

1.5 Summary of the First and Second Rounds of Review and Assessment

Between 1998 and 2000, Thanet District Council undertook its first round of review and assessment of air quality. The first round assessments concluded that UK Air Quality Objectives would be achieved for all pollutants and no further action was required. It was therefore deemed unnecessary to declare an Air Quality Management Area (AQMA) in Thanet at that time.

The first phase of the second round of review and assessment, the USA, was completed in May 2003 and this provided an update with respect to air quality issues within Thanet. The USA concluded that no potential exceedences of the Air Quality Objectives were identified within the District of Thanet.

The Annual Progress Report for 2004 considered monitoring data for 2003, which showed significant increases in monitored results due to unusually stable meteorological conditions. The conclusions of the APR were that the annual mean nitrogen dioxide objective may not be met at seven busy junctions, and five of these may also exceed PM_{10} Objectives. These were identified as:

- The Square, Birchington NO_2/PM_{10}
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A Detailed Assessment was undertaken in 2005 and the results showed predicted exceedences of NO_2 and PM_{10} objectives at the Square, Birchington. An Air Quality Management Area has been declared for NO_2 and PM_{10} at the Square, Birchington and a continuous monitoring station is being installed in 2006 to provide further supporting information for subsequent further assessment and action planning.

The Annual Progress Report (APR) for 2005 considered monitoring data for 2004, and the conclusions of the APR were that there were no exceedences outside the previous areas identified which warranted a detailed assessment.

2 ASSESSMENT METHODOLOGY

Background concentrations as used in this assessment have been obtained from the national maps of modelled background concentrations available from the Air Quality Archive website www.airquality.co.uk. The maps have been updated for pollutants NO_X, NO_2 and PM_{10} from the previous round of review and assessment and are projected from a 2004 baseline.

Continuous monitoring results have been obtained directly from the network managers King's College ERG. Thanet District Council also operates additional monitoring outside the network, through nitrogen dioxide and benzene passive diffusion tubes, and these are also considered within this report.

Traffic data for roads within the area have been provided by Kent County Council, via their consultants Jacobs in the form of AADT data and future year growth factors obtained from TEMPRO/National Road Traffic Forecast. National Atmospheric Emissions Inventory road traffic data for trunk roads have been used to supplement the County data as appropriate. In the absence of speed data, speeds have been based on speed limits, modified according to local conditions to take account of congestion and stop/start vehicle movements at junctions. Speeds were reduced at junctions to 20kph at junctions in accordance with LAQM.TG (03) to reflect the higher emissions of queuing traffic.

Design Manual for Roads and Bridges (DMRB) screening method V1.02 has been used to predict the traffic flow at relevant receptor locations along significant roads and junctions in the area in order to assess the concentrations of NO_2, PM_{10}, CO and benzene in the relevant objective years. In addition, PM_{10} concentrations have also been assessed for the year 2010, however the objectives are not yet set in Regulations for England and only a small consideration has been given to the provisional objectives in this assessment.

The Council has provided a current list of industrial processes (Part B/A2) for processes regulated by the Council under LAPPC. This includes a list of current petrol stations which have been screened using the criteria set out in the USA checklists. Additional information has been obtained for processes potentially significant to LAQM as set out in LAQM.TG(03) Annex 2. For the larger Part A1 processes, regulated by the Environment Agency, information has been obtained from the Environment Agency Pollution Inventory for new or changed processes potentially significant to LAQM as set out in LAQM.TG(03) Annex 2. Industrial sources in neighbouring Local Authority areas have also been taken into account. Industrial processes have been screened where relevant using LAQM nomogram tools.

Other potential sources of pollutant emissions in the area, such as rail, shipping, airports, domestic sources, bus stations, small boilers and fugitive sources of PM_{10} (quarries, landfills, construction sites, etc) have been derived through discussions with the local authority and screened using the criteria as set out in the USA checklists.

3 UPDATING AND SCREENING OF CARBON MONOXIDE

3.1 New monitoring data

There is currently no monitoring of carbon monoxide carried out within the District of Thanet. Carbon monoxide monitoring results for 2005 at all monitoring sites within the Kent & Medway Air Quality Monitoring Network, including busy roadside sites in Maidstone and Canterbury, confirm the Objective will be met.

3.2 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the carbon monoxide objective is only likely to be exceeded near to 'very busy' roads and junctions[7], where the current year background concentration is greater than 1mg/m^3. The highest modelled background concentration in 2005 in Thanet is 0.2mg/m^3. Additionally, there are no new (or substantially changed) roads which meet the criteria for 'very busy' roads and junctions that warrant further assessment. The Objective is therefore expected to be achieved at all locations within the area.

3.3 Conclusion

No further action is required for carbon monoxide.

Checklist Summary for Carbon Monoxide:

Item	**Response**
New monitoring data	The local authority is currently not monitoring carbon monoxide, but monitoring undertaken in Kent show the objective to be met even at busy roadside sites
Very busy roads or junctions in built up areas	No new (or substantially changed) roads have been identified which meet this criteria. Background concentrations are below the threshold level.
Conclusion	**No further action required**

[7] 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

4 UPDATING AND SCREENING OF BENZENE

4.1 Monitoring data outside an AQMA

There is currently monitoring of benzene undertaken within the District of Thanet using passive diffusion tubes at six locations. The maximum mean monitored results in 2005 (January to August) was measured at The Broadway, Broadstairs kerbside – 2.6μg/m^3. There has been a substantial decrease in benzene concentrations in recent years brought about by the reduction of the concentrations of benzene in petrol. The Thanet results indicate that benzene concentrations are well below the 2010 annual mean benzene objective, even at busy roadsides.

4.2 Monitoring data within an AQMA

There are no AQMA areas that have been declared for benzene in the District of Thanet and therefore this section is not relevant.

4.3 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the benzene objective for 2010 is only likely to be exceeded near to 'very busy' roads and junctions[8], where the 2010 background concentration is greater than 2μg/m^3. The highest estimated background concentration in Thanet is 0.3μg/m^3. This confirms that the objective will be met at all locations within the area.

4.3 New industrial sources

There have been no new processes identified in the District of Thanet or in neighbouring authorities which emit significant quantities of benzene.

4.4 Industrial sources with substantially increased emissions, or new relevant exposure

There are no existing industrial processes that emit significant quantities of benzene. There are therefore unlikely to be exceedences of the benzene objective as a result of industrial processes.

4.4 Petrol stations

Petrol stations are only likely to lead to an exceedence of the 2010 objective for benzene if they have a large throughput of petrol (greater than 2 million litres per annum), are near to a busy road (>30,000 AADT) and have relevant exposure within 10 m of the petrol pumps. There are no petrol stations within the District of Thanet that fulfil these criteria, and therefore it is unlikely that petrol stations will lead to an exceedence of the benzene objective.

4.5 Major fuel storage depots (petrol only)

There are no major fuel storage depots in the District of Thanet.

4.6 Conclusion

No further action is required for benzene.

[8] 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

Checklist Summary for Benzene:

Item	Response
Monitoring data outside an AQMA	The District of Thanet is currently monitoring benzene, and results show levels well below the objective
Monitoring data within an AQMA	No AQMA, therefore not relevant
Very busy roads or junctions in built up areas	No roads or junctions have been identified which meet this criteria
New industrial sources.	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Petrol stations	No petrol stations have been identified which meet this criteria
Major fuel storage depots (petrol only)	No major fuel storage depots in the area
Conclusion	**No further action required**

5 UPDATING AND SCREENING OF 1,3-BUTADIENE

5.1 Monitoring data

There is currently no monitoring of 1,3-butadiene carried out within the District of Thanet. Monitoring is carried out as part of the national Automatic Urban and Rural Monitoring Network (AURN) and the results show that the running annual mean objective is expected to be achieved where there are no significant sources. As there are no significant sources of 1,3-butadiene in Thanet, it is expected that the objective will be met within the Thanet area.

5.2 New industrial sources

There are no new processes which handle 1,3-butadiene located in or near to the District of Thanet.

5.3 Existing industrial sources with significantly increased emissions, or new relevant exposure

There are no existing industrial processes located in or near to the District of Thanet which emit significant quantities of 1,3-butadiene.

5.4 Conclusion

No further action is required for 1,3-butadiene.

Checklist Summary for 1,3-butadiene:

Item	**Response**
Monitoring data	The local authority is not currently monitoring 1,3-butadiene
New industrial sources	No industrial processes have been identified which meet this criteria
Existing industrial sources with significantly increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Conclusion	**No further action required**

6 UPDATING AND SCREENING OF LEAD

6.1 Monitoring data

There is currently no monitoring of lead carried out in the District of Thanet. Monitoring is carried out as part of the national metals monitoring network and the results show that the running annual mean objective is expected to be achieved where there are no significant sources. As there are no significant sources of lead in Thanet, it is expected that the objective will be met within the District of Thanet.

6.2 New industrial sources

There are no new processes, which emit lead, located in or near to the District of Thanet.

6.3 Industrial sources with substantially increased emissions, or new relevant exposure

There are no processes, which emit lead, located in or near to the District of Thanet.

6.4 Conclusion

No further action is required for lead.

Checklist Summary for Lead:

Item	**Response**
Monitoring data	The local authority is currently not monitoring lead
New industrial sources	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Conclusion	**No further action required**

7 UPDATING AND SCREENING OF NITROGEN DIOXIDE

7.2 Monitoring data outside an AQMA

There is currently continuous monitoring of nitrogen dioxide undertaken by Thanet District Council outside an AQMA at three locations in the area, Thanet roadside site (Ramsgate), Thanet background site (Margate) and Thanet Airport (Manston). The Council calibrates the site every two weeks and ETi services the station 6 monthly. Data for 2005 has been provisionally ratified by Network Managers King's College ERG. The results, as shown in Table 7.1, show that the objectives are met.

Table 7.1 Continuous nitrogen dioxide monitoring results 2005

Location	X	Y	Data capture	2005 NO_2 Annual Mean	No. exceedences of hourly mean >200ug/m^3
Thanet Roadside site (Ramsgate)	638487	165433	100	26	0
Thanet Background site (Margate)	635460	169832	98	21	0
Thanet Airport (Manston)	635900	165400	75	20	0

Nitrogen dioxide is measured using diffusion tubes at 26 locations in the District of Thanet. Harwell Scientifics supplies and Kent Scientific Services analyses the diffusion tubes using the 50% TEA[9] in acetone method. Kent Scientific Services participates in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Efficiency (WASP). They currently hold UKAS accreditation for analysis of diffusion tubes.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (03) and Review and Assessment Helpdesk[10] recommends use of a local bias adjustment factor where available and relevant to diffusion tube sites. Thanet District Council has triplicate co-located diffusion tubes at the Thanet Roadside and Thanet Airport. The data capture at the Airport site has been low during 2005 and therefore the Thanet Roadside site has been used to derive a local bias adjustment factor for 2005 of 0.99. Annualisation of data has been undertaken for short-term sites in accordance with LAQM.TG(03).

The bias adjusted diffusion tube results, as shown in Table 7.2, show predicted exceedences at 4 kerbside monitoring locations outside an AQMA in 2005:

- Cecil Square, Margate (no relevant exposure)
- Hereson Road Ramsgate (Receptor within 5m of roadside)
- High Street St Lawrence Ramsgate (Receptor within 5m of roadside)
- Church Street St Peters (Receptor within 5m of roadside)

Projected to façade, there are two kerbside sites which are predicted to exceed the annual mean NO_2 objective: Hereson Road and High Street St Lawrence, Ramsgate and these will require a detailed assessment. It is recommended that monitoring be undertaken at the façade of the nearest receptors.

[9] TEA = Triethanolamine
[10] www.uwe.ac.uk/aqm/review

Table 7.2 Nitrogen dioxide diffusion tube annual mean results 2005 in µg/m^3

Code	Address	x	y	Class	No. Months Data	Annual Mean 2005	2005 Projected to 2010	AQMA?
TH04	St James Avenue Broadstairs	637000	166300	background	10	24.5	21.4	
TH05	The Broadway, Broadstairs	639000	168000	kerbside	12	37.8	31.8	
TH10	College Road, Margate	635500	169800	kerbside	8	32.1	27.0	
TH13/46/47	The Square Birchington	630200	169000	kerbside	10	**43.8**	36.9	AQMA
TH16	Earlesmede Cres., Cliffsend	634400	164300	background	11	17.3	15.1	
TH23	Cecil Square, Margate	635400	170800	kerbside	11	**45.4**	38.2	
TH26	King Street Ramsgate	638500	165400	kerbside	12	36.5	30.7	
TH27	Avebury Ave Ramsgate	638000	165100	intermediate	12	23.3	19.6	
TH30	Marine Gardens, Margate	637400	164500	kerbside	11	39.0	32.8	
TH31	High Street, Manston	634600	166000	background	12	19.0	16.6	
TH32	Bell Davies Drive, Manston	632900	166400	background	12	20.9	17.8	
TH33	Hill House Drive, Manston	631100	165400	background	12	18.5	16.2	
TH34	Westwood Road Broadstairs nr Pizza Hut	636500	167800	kerbside	6	33.1	27.8	
TH36	Ramsgate Road, Margate	636400	168200	kerbside	11	24.3	20.4	
TH37/38/45	Kentmere Ave Ramsgate tube 1 ZH3	635900	165400	intermediate	11	21.2	17.9	
TH40	Haine Road Ramsgate	635800	166400	kerbside	10	27.3	23.0	
TH48	Canterbury Rd Birchington nr Yew Tree	630419	169092	kerbside	10	31.3	26.3	AQMA
TH49	Canterbury Rd Birchington nr Kent Gdns	630194	168993	kerbside	9	38.8	32.6	AQMA
TH50	Hereson Road Ramsgate	638566	165494	kerbside	10	**42.7**	35.9	
TH51	Boundary Road Ramsgate 1 ZH4	638487	165433	kerbside	10	30.5	25.7	
TH54	High Street St Lawrence Ramsgate	637091	165342	kerbside	10	**48.0**	**40.4**	
TH55	Coxes Lane Margate Rd Ramsgate	636818	167303	kerbside	12	30.2	25.4	
TH57	High Street Broadstairs	639366	167898	kerbside	10	34.9	29.4	
TH58	Westwood Road Broadstairs nr Vauxhall Garage	636900	167900	kerbside	10	32.7	27.5	
TH59	Church Street St Peters	639366	167898	kerbside	5	**41.4**	34.8	
TH60	Vicarage Street St Peters	638059	168382	kerbside	5	36.2	30.5	

Notes Exceedences are highlighted in bold.

7.3 Monitoring data within an AQMA

There is one AQMA area in the District of Thanet in relation to exceedences of the NO_2 annual mean objective: The Square, Birchington. The diffusion tube monitoring undertaken in this area as shown in Table 7.2, shows exceedences of the annual mean objective.

There are proposals to install continuous monitoring of nitrogen dioxide within the Birchington AQMA in 2006.

7.4 Narrow congested streets with residential properties close to the kerb

There are no new areas identified which meet this criteria and there is no new relevant exposure at the locations previously assessed in the USA 2003. As these types of location were specifically included during previous rounds, there is no need to proceed further with this section.

7.5 Junctions

Two junctions have been identified as potentially significant due to congestion issues and relevant exposure. These have been assessed using the DMRB screening tool and the results are shown in Table 7.3. The DMRB results predict that that the annual mean objective is likely to be met at these locations.

Table 7.3 DMRB results for nitrogen dioxide at significant junctions

Receptor Location/Junction	Predicted (2005) Annual Mean Concentration ($\mu g/m^3$)	Predicted (2010) Annual Mean Concentration ($\mu g/m^3$)
College Road/Ramsgate Road	36.1	30.4
Hereson Road/Boundary Road	33.0	27.9
Objective/EU Limit Value	**40**	**40**

7.6 Busy streets where people may spend 1-hour or more close to traffic

There are no busy streets where members of the public are likely to spend an hour or more close to traffic in the District of Thanet that have not been assessed previously.

7.7 Roads with high flow of buses and/or HGVs

There are no roads in Thanet identified that have a flow of buses and/or HGVs greater than 20%.

7.8 New roads constructed or proposed since the previous round of Review and Assessment

There are no new roads that has been constructed or proposed since the previous round and therefore this section is not relevant.

7.9 Roads with significantly changed traffic flows

There are no roads in Thanet identified that have had a substantial change in traffic flow of greater than 25% and no new relevant exposure at previously assessed roads which warrant further assessment.

The DMRB assessment results for all roads assessed in the area are shown in Appendix II. There are no exceedences of the objectives predicted.

7.10 Bus Stations

There are no significant changes to bus movements or new receptor locations since the previous rounds.

7.11 New industrial sources

There have been no new processes, which emit significant quantities of nitrogen dioxide in or near to the District of Thanet since the previous round of review and assessment and therefore there is no need for any further assessment.

7.12 Industrial sources with substantially increased emissions, or new relevant exposure

There are no industrial processes in or near to the District of Thanet which have been identified as significant contributors to nitrogen dioxide in the previous round of review and assessment. No existing sources have substantially increased emissions or new relevant exposure.

7.13 Aircraft

Manston Airport is within the District of Thanet. This airport does not fulfil the criteria of a major airport likely to be a significant source of NO_2 objectives.

7.14 Conclusion

A detailed assessment is required for nitrogen dioxide as a result of measured exceedences of the annual mean objective at two locations. Projected to façade, there are two kerbside sites which are predicted to exceed the annual mean NO_2 objective: Hereson Road and High Street St Lawrence, Ramsgate. It is recommended that monitoring be undertaken at the façade of the nearest receptors.

Checklist Summary for Nitrogen Dioxide:

Item	Response
Monitoring data outside an AQMA	Monitoring data indicates a risk of exceedences of the annual mean objective at the nearest receptors to 2 kerbside monitoring locations.
Monitoring data within an AQMA	Monitoring data within the AQMA areas continue to show predicted exceedences of the objectives.
Narrow congested streets with residential properties close to the kerb	This was examined in the previous round USA 2003. No changes or further assessment required.
Junctions	Two potentially significant junctions assessed using DMRB. Results show annual mean objective expected to be met.
Busy streets where people may spend 1-hour or more close to traffic	This was examined in the previous round USA 2003. No changes or further assessment required.
Roads with high flow of buses and/or HGVs	This was examined in the previous round USA 2003. No changes or further assessment required.
New roads constructed or proposed since the previous round of R&A	No new roads, therefore this section not relevant.
Roads with significantly changed traffic flows, or new relevant exposure	No roads identified with significantly changed traffic flows, or new relevant

	exposure.
Bus Stations	This was examined in the previous round USA 2003. No changes or further assessment required.
New industrial sources	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Aircraft	No airports have been identified which meet this criteria
Conclusion	**Detailed Assessment required with respect to monitored exceedences at 2 diffusion tube locations: Hereson Road and High Street St Lawrence, Ramsgate**

8 UPDATING AND SCREENING OF SULPHUR DIOXIDE

8.1 Monitoring data outside an AQMA

There is currently no continuous monitoring of sulphur dioxide undertaken within the District of Thanet. Data from sites with the Kent and Medway Air Quality Monitoring Network show no exceedences of the objectives in 2005.

8.2 Monitoring data within an AQMA

No AQMA areas have been declared for sulphur dioxide in Thanet and therefore this section is not relevant.

8.3 New industrial sources

There have been no new processes, which emit significant quantities of sulphur dioxide, introduced in or near to the District of Thanet since the previous round of review and assessment.

8.4 Industrial sources with substantially increased emissions, or new relevant exposure

There have been no substantial changes to industrial processes or new relevant exposure since the previous rounds.

8.5 Areas of domestic coal burning

There are no areas of the District of Thanet where there is a high density of domestic coal burning.

8.6 Small boilers (>5MW(thermal)) burning coal or oil

The existence of any schools, hospitals or other large institutional or commercial buildings, which may have boilers using coal or heavy fuel oil has been determined using local knowledge. No such boilers have been identified within or near to the District of Thanet.

8.7 Shipping

Ship movements were assessed in the previous round and found to be insignificant in terms of likely exceedences of the objectives. There has been a change in ship movements at Ramsgate since the last round as 'Transeuropa' have started passenger and vehicle movements to Ostend (these exclude foot passengers), where previously all movements at the Port were freight. The most recent guidance for the USA 2006 round suggests that only very large ports (5000 – 15000 movements) with relevant exposure within 250m require consideration. The Port of Ramsgate has anticipated annual movements of approx 5,916 (based on 2005 calculations) and therefore fits the criteria of >5000. However, members of the public are not regularly present within 1km of the shipping berths and are unlikely to be exposed over a 15-minute period. A detailed assessment for shipping is therefore not required.

8.8 Railway Locomotives

Railway locomotives were not identified as a significant source of sulphur dioxide in the District of Thanet in the previous rounds of review and assessment. There are no significant changes to rail network since the last round to warrant any further assessment.

8.9 Conclusion

A Detailed Assessment is not required for sulphur dioxide.

Checklist Summary for Sulphur Dioxide:

Item	**Response**
Monitoring data outside an AQMA	The local authority is currently not monitoring SO_2
Monitoring data within an AQMA	No AQMA, therefore not relevant
New industrial sources	No new industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Areas of domestic coal burning	No significant areas identified
Small boilers (>5MW(thermal)) burning coal or oil	No boilers which meet this criteria
Shipping	Ramsgate Port has shipping movements of >5000, but there in no relevant exposure within 250m
Railway Locomotives	No rail movements identified which meet this criteria
Conclusion	**No further action required**

9 UPDATING AND SCREENING OF PARTICLES (PM_{10})

9.1 Monitoring data outside an AQMA

Thanet District Council currently undertakes monitoring of PM_{10} outside an AQMA using BAM analyser at one location within the District at Thanet roadside site in Ramsgate. The Council calibrates the site every two weeks and ETi services the station 6 monthly. Data for 2005 has been provisionally ratified by Network Managers King's College ERG. Results from this site are shown in Table 9.1. The results show that there are no measured exceedences of the 2004 PM_{10} objectives in 2005.

Table 9.1 PM_{10} Monitoring Results in 2005

Location	X	Y	Data capture	2005 PM_{10} Annual Mean	No. exceedences of 24 hour mean
Thanet Roadside site, Ramsgate	638487	165433	79	25	22

9.2 Monitoring data within an AQMA

No monitoring is currently undertaken in the Birchington AQMA and therefore this section is not relevant.

There are proposals to install continuous monitoring of PM_{10} within the Birchington AQMA in 2006.

9.3 Junctions

Two junctions have been identified by the local authority as potentially significant due to congestion issues and relevant exposure. PM_{10} concentrations in 2005 and 2010 were assessed at the nearest relevant receptors to these junctions using DMRB and the results are shown in Table 9.2. Results from the DMRB assessment of junctions indicate that the 2004 24 hour mean objective is being met at these locations.

With respect to the 2010 provisional annual mean objective of 20 $\mu g/m^3$, this is predicted to be exceeded at all locations as is expected to be the case at a large number of locations across the UK. Until these provisional objectives are set in Regulations, they do not need to be considered further within this assessment.

Table 9.2 DMRB Calculations for PM_{10} at Significant Junctions

	2005	**2005**	**2010**	**2010**
Receptor location/ Junction	**Predicted Annual Mean Concentration ($\mu g/m^3$)**	**Predicted Number of Exceedences of 50 $\mu g/m^3$ as a 24-Hour Mean**	**Predicted Annual Mean Concentration ($\mu g/m^3$)**	**Predicted Number of Exceedences of 50 $\mu g/m^3$ as a 24-Hour Mean**
College Road/Ramsgate Road	28.2	21	24.4	11
Hereson Road/Boundary Road	26.8	17	23.4	9
Objective	**40**	**35**	**20**	**7**

9.4 Roads with high flow of buses and/or HGVs

There are no roads identified in the District of Thanet with a flow of buses and/or HGVs greater than 20%.

9.5 New roads constructed or proposed since the previous round of Review and Assessment

There are no new roads that has been constructed or proposed since the previous round and therefore this section is not relevant.

9.6 Roads with significantly changed traffic flows, or new relevant exposure

There are no roads in Thanet identified that have had a substantial change in traffic flow of greater than 25% and no new relevant exposure at previously assessed roads which warrant further assessment.

The DMRB assessment results for all roads assessed in the area are shown in Appendix II. There are no exceedences of the 2004 PM_{10} objectives predicted.

9.7 New industrial sources

There are no new processes, which emit significant quantities of PM_{10}, identified in or near the District of Thanet since the previous round of review and assessment.

9.8 Industrial sources with substantially increased emissions, or new relevant exposure

There were no processes identified in the previous round, which emit significant quantities of PM_{10} in or near the District of Thanet. No industrial sources have substantially increased their emissions of PM_{10} and there is no new relevant exposure which warrants further assessment.

9.9 Areas with domestic solid fuel burning

There are no areas of the District of Thanet where there is a high density of domestic coal burning.

9.10 Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports

No processes have been identified that are expected to emit significant fugitive dust emissions that would lead to exceedences of the PM_{10} objectives.

9.11 Aircraft

Manston Airport is within the District of Thanet. This airport does not fulfil the criteria of a major airport likely to be a significant source of NO_2 objectives.

9.12 Conclusion

A Detailed Assessment is not required for PM_{10}.

Checklist Summary for PM_{10}:

Item	Response
Monitoring data outside an AQMA	There are no measured exceedences of the 2004 PM_{10} objectives in 2005
Monitoring data within an AQMA	No monitoring undertaken within and AQMA, therefore not relevant
Junctions	Two junctions assessed – no exceedences predicted.
Roads with high flow of buses and/or HGVs	This was examined in the previous round USA 2003. No changes or further assessment required.
New roads constructed or proposed since the previous round of Review and Assessment	No new roads, therefore not relevant.
Roads with significantly changed traffic flows, or new relevant exposure	No roads meet this criteria
New industrial sources	No new industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Areas with domestic solid fuel burning	No significant areas identified
Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports	No significant processes identified
Aircraft	No airports have been identified which meet this criteria
Conclusion	**No further action required**

APPENDIX I TRAFFIC DATA

Site	X	Y	Road	%HGV	AADT 2005	AADT 2010
D034553	635941	169953	A255 / St Peters Road	2.9	14212	15258
D034580	636078	170267	Addiscombe Road	1.9	9797	10518
X037360	635553	169861	A254 / Ramsgate Road (Margate)	2.5	6412	6884
X037360	635553	169861	B2052 / College Road	3.5	5530	5937
X037360	635553	169861	A254 / Ramsgate Road (Ramsgate)	4.4	8278	8887
X037361	635628	169877	B2052 / College Road (W)	3.3	11752	12617
X037361	635628	169877	B2052 / College Road (E)	2.8	15572	16719
X037655	635715	169614	A254 / Ramsgate Road	3.7	20700	22224
X037658	635999	169863	A255 / St Peters Road	2.8	15033	16139
D420104	635572	170034	A254 / Ramsgate Road	2.7	10023	10763
D420167	635900	169900	A255 / St Peters Road	2.8	14446	15513
D420278	636065	170258	Addiscombe Road	1.8	9529	10233
X410689	635715	169614	A254 / Ramsgate Road	4.3	18961	20361
X410692	635999	169863	A255 / St Peters Road	2.3	14741	15830
X420278	636065	170258	Addiscombe Road	1.8	9529	10233
X511555	635715	169614	A254 / Ramsgate Road	4.4	9719	10584
511085B	635715	169614	A254 / Ramsgate Road (W)	4.4	12397	13303
511085B	635715	169614	A254 / Ramsgate Road (E)	4.3	12514	13429
D034476	638763	166001	A255 / Hereson Road	4.3	9524	10184
D420231	637540	166000	A254 / Margate Road	3.0	14803	15833
X410290	637626	165899	A254 / Margate Road (W)	2.7	15678	16769
X410290	637626	165899	A254 / Margate Road (E)	3.0	11574	12379
D520643	638763	166001	A255 / Hereson Road	5.3	8868	9478
X037171	639023	167964	A255 / Broadstairs Road	3.4	9863	10546
X037171	639023	167964	A255 / The Broadway	3.2	13703	14653
X037365	639551	167825	A255 / High Street	5.1	9030	9656
X037365	639551	167825	A2052 / High Street	2.7	5919	6329
D420125	639204	167918	A255 / High Street	3.7	12102	12944
D520429	637932	167553	C425 / Rumfields Road	2.4	8343	8917
X511917	637900	168207	A256 / Westwood Road	2.4	21094	22546
X511917	637900	168207	B2053 / Vicarage Street	1.1	11970	12794
X511917	637900	168207	A255 / Dane Court Road	2.5	13771	14719
X511917	637900	168207	A255 / Broadstairs Road	2.7	16520	17656
D034512	635002	165070	A253 / Canterbury Road	9.8	18129	19845
X037975	634495	165091	A253 / Canterbury Road	9.5	16052	17571
D520610	635000	165100	A253 / Canterbury Road	7.9	19259	21072
AA	638488	165417	Boundary Road	3.4	4992	5462
D024129	630012	168795	A28 / Canterbury Road	5.9	15632	16783
36862	635000	164250	A256	5.5	18618	19908
56823	636000	167500	A256	3.4	18073	19325
57883	637600	167970	A256	2.0	18589	19877
75449	635450	165140	A256	4.6	27776	29701
16282	630000	168800	A28	3.2	16994	18171

APPENDIX II DMRB ASSESSMENTS FOR ROADS

Receptor	X	Y	Annual Mean PM_{10}	PM_{10} Number Daily means > 50	Annual Mean PM_{10}	PM_{10} Number Daily means > 50	Annual Mean Benzene	CO	Annual Mean NO_2	Annual Mean NO_2 (with SC)	Annual Mean NO_2	Annual Mean NO_2 (with SC)	Detailed Assessment Required?
			2005	2005	2010	2010	2010	2005	2005	2005	2010	2010	
65 St Peters Road	636011	169876	24.7	12	22.1	7	0.36	0.25	21.9	26.6	19.3	22.8	No
53 St Peters Road	635954	169960	24.8	12	22.2	7	0.36	0.25	22.2	27.2	19.6	23.3	No
66 Ramsgate Road	635573	169924	24.1	10	21.8	6	0.34	0.22	21.0	24.7	18.7	21.5	No
35 Ramsgate Road	635548	170053	24.1	10	21.8	6	0.34	0.22	20.9	24.5	18.6	21.4	No
Ozengell Grange	635664	165654	22.9	8	20.2	4	0.29	0.25	18.3	25.1	14.6	19.6	No
276 Hawley Street	635466	171012	24.4	11	22.0	6	0.34	0.22	21.7	26.1	19.2	22.6	No
17 Ulster Road	635634	169899	25.2	13	22.4	7	0.38	0.26	22.9	28.6	20.0	24.2	No
46 Old School Gardens	636002	170050	25.2	13	22.5	7	0.38	0.26	23.1	28.8	20.1	24.4	No
274 Canterbury Rd	629913	168700	26.1	15	22.9	8	0.38	0.27	25.2	33.0	21.7	27.5	No
220 Canterbury Rd	630109	168936	26.1	15	22.9	8	0.38	0.27	25.2	33.1	21.7	27.6	No
14 Margate Road	637754	165701	25.1	13	22.4	7	0.38	0.26	22.9	28.5	20.0	24.1	No
21 Westwood Road	637837	168113	24.3	11	21.9	6	0.37	0.23	21.3	25.3	18.8	21.7	No
102 Westwood Road	637134	167873	25.1	13	22.4	7	0.40	0.27	22.6	27.9	19.8	23.7	No
34 Vicarage Street	637940	168251	24.0	10	21.8	6	0.35	0.23	20.5	23.8	18.4	20.8	No
2 Vicarage Street	638076	168400	24.3	11	22.0	6	0.36	0.24	21.0	24.7	18.7	21.5	No
16 Canterbury Rd	634624	165056	24.0	10	20.7	4	0.28	0.25	20.9	30.4	16.6	23.7	No
143 High Street	639170	167925	24.8	12	22.2	7	0.36	0.24	22.4	27.6	19.8	23.7	No
121 Canterbury Road	634325	170393	25.3	13	22.5	7	0.39	0.26	23.3	29.4	20.3	24.8	No

Notes SC=Street canyon. All results as ug/m^3, except CO (mg/m^3) and number of exceedences.

APPENDIX III LIST OF INDUSTRIAL PROCESSES

Ref.	Process Name	Process Type	PG Note	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Comment	Detailed Assessment Required?
99 02	Royal Oak	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
00 02	J C Morrisons	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
00 03	J C Morrisons	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
00 04	Brown & Mason	Concrete Crushing	PG3/16	No	No	No	No		No
00 06	Thanet Crematorium	Incineration	PG5/2	No	No	No	No		No
00 07	Seaview	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
00 08	Sericol	Manufacture of Printing Ink	PG6/11	No	No	No	No		No
00 09	Murco	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
01 01	BP/Safeway	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
01 02	Montrose	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
01 03	J Sainsbury PLC	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
01 06	Cummins	Coating Process	PG6/23	No	No	No	No		No
01 09	BSW Timber Systems Ltd	Wood Treatment	PG6/3	No	No	No	No		No
01 10	Tesco	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
01 11	Cummins	Coating Process	PG6/23	No	No	No	No		No
01 12	Blaze Neon	Coating Process	PG6/23	No	No	No	No		No
01 13	Frape Garage	Waste Oil Burning	PG1/1	No	No	No	No		No
01 14	Brett Concrete	Cement and Lime	PG3/1	No	No	No	No		No
97 03	Downfast Demolition	Concrete Crushing	PG3/16	No	No	No	No		No
02 01	RMC	Cement and Lime	PG3/1	No	No	No	No		No
02 02	Northdown	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
02 03	Cross Channel	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
02 04	Pegwell	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
02 05	Drome Garage	Waste Oil Burning	PG1/1	No	No	No	No		No
03 02	Tesco, Manston	Unloading of petrol into storage at service stations	PG1/14	No	No	No	No		No
05 01	Somerfield, Minster	Unloading of petrol into storage at service stations	PG1/14	No	Yes	No	No		No
02 05	Grupo Antolin	Adhesive Coating and Disocyanate	PG6/29 PG6/32	No	Yes	No	No		No

GLOSSARY

Abbreviation	Definition
AQMA	Air Quality Management Area
DEFRA	Department for Environment, food and Rural Affairs
DETR	Department for Transport and Regions
DMRB V1.02	Design Manual for Roads and Bridges (Highways Agency November 2003) - screening tool for traffic sources
DOE	Department of the Environment
HGV	Heavy goods vehicles
LAQM	Local Air Quality Management
LAQM.TG(03)	Technical guidance document provided by DEFRA to assist local authorities in completion of the LAQM Review & Assessment process
NAQS	National Air Quality Strategy
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
PM_{10}	Fine particle matter less than 10µm diameter
ppb	Parts per billion
SO_2	Sulphur dioxide
$\mu g/m^3$	Micrograms per cubic metre
USA	Updating and Screening Assessment

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