



CHELTENHAM
BOROUGH COUNCIL

AIR QUALITY MANAGEMENT
2003 PROGRESS REPORT

In fulfillment of Part IV of the Environment Act 1995

April 2004

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1. INTRODUCTION TO AIR QUALITY PROGRESS REPORT

This Air Quality Progress Report forms part of the local air quality management (LAQM) system introduced by the Environment Act 1995 ('The Act') and subsequent Regulations. It is a requirement as part of the Act and follows on from Cheltenham Borough Council's Updating and Screening Assessment (USA). Cheltenham Borough Council's USA was published in 2003 and concluded that a Detailed Assessment would not be required for any pollutant. As a result of this, Cheltenham Borough Council now submits this Progress Report to Defra, which concludes that there is a risk of the annual mean objective for nitrogen dioxide being exceeded in December 2005. A Detailed Assessment will therefore be undertaken for this pollutant and submitted to Defra in April 2005.

The overall aim of this report is to report upon the ongoing implementation of local air quality management in Cheltenham Borough Council and progress made towards achieving the air quality objectives. Progress Reports have been introduced into the LAQM system following a detailed evaluation of the first round (Round 1) of local authority review and assessment. Progress Reports are to be prepared in years when Cheltenham Borough Council is not undertaking an Updating and Screening Assessment or a Detailed Assessment. It is intended that this Progress Report should assist Cheltenham Borough Council in the following ways:

- Retaining a profile for LAQM within Cheltenham Borough Council;
- Providing a means for communicating air quality information to Members and the public;
- Maximising the usefulness and interpretation of the monitoring effort being carried out by Cheltenham Borough Council;
- Maximising the value of the investment in monitoring equipment;
- Making the next round of review and assessment easier, as there will be a readily available up-to-date source of information;
- Assisting Cheltenham Borough Council to respond to requests for up-to-date information on air quality;
- Providing information to assist with other policy areas, such as transport and land-use planning;
- Providing a ready source of information on air quality for developers carrying out environmental assessments for new schemes;
- Demonstrating progress with implementation of any future air quality action plans required or Gloucestershire's County-wide Air Quality Strategy, and

- Providing a timely indication of the need for further measures to improve air quality, rather than delaying until the next full round of review and assessment.

Copies of this Progress Report have been sent to the Secretary of State, Environment Agency, Highways Agency and other local authority departments for information and copies of the report have been made available to the public and local stakeholders.

1.1 Overall aims of Progress Report

This Progress Report has two main aims, as follows:

- To report on progress being made with the implementation of local air quality management (LAQM) in Cheltenham Borough Council, and
- To report on progress made towards achieving the air quality objectives.

New monitoring data within Cheltenham Borough Council and new developments that might affect local air quality are the focus of this report and are the minimum requirements for progress reporting purposes. Each is considered in turn, using the Progress Report Checklist made available by government on their air quality review and assessment web site (www.uwe.ac.uk/aqm/review). Table 1 below provides an indication of what is expected of local authorities in their progress reporting.

Table 1. Minimum reporting requirements.

Monitoring data	The minimum requirement is to report monitoring data and trends over recent years. To maximise the value of air quality monitoring, careful attention should be paid to the type of equipment used and the locations where the monitors are placed, as well as the QA/QC and data verification procedures.
New developments	A consideration of new development with the potential to affect local air quality (mainly through the generation of traffic), such as new industrial processes, new retail premises, new roads and new quarries.

In addition to the minimum requirements, the government recommends that local authorities report upon a number of additional elements in their Progress Reports. These additional elements are listed in table 2 below.

Table 2. Recommended additional reporting requirements.

Additional monitoring data	<p>Projecting the measured concentrations forward to the objective years is helpful in providing early warning of likely exceedences that may not have been previously identified.</p> <p>Local authorities may also find it helpful to report on their monitoring for pollutants not covered by the regulations, e.g. ozone, polycyclic aromatic hydrocarbons (PAH), as well as other air quality data, i.e. odour complaints, dust deposition, radiation monitoring.</p>
Action Plans	Any progress on the implementation of air quality action plans where appropriate.
Local or Regional Air Quality Strategies	Government guidance strongly recommends that all authorities, particularly those without AQMAs but who have areas close to the exceedence levels, should consider drawing up a local air quality strategy. Progress Reports provide the opportunity for local authorities to report on the development of local or regional strategies. Local authorities should report upon the extent to which the local authority has developed or implemented an air quality strategy, how to access the strategy and when the strategy is to next be reviewed (as appropriate).
Planning policy	Any relevant updates on planning policies that relate specifically to air quality. Policies within Development Plans, Structure Plans and Local Plans determine the local authority approach to the relationship between planning and air quality, with new developments judged against these policies. Reference to any supplementary planning guidance to address air quality matters should be referenced.
Planning applications	A list of planning applications that have the potential to affect local air quality should be provided. The land-use planning system is recognised as playing an integral part in improving air quality. This requires close co-operation between planners and environmental health officers. Some local authorities have developed procedures to help ensure that planning applications that might

	<p>have impacts on air quality are forwarded to the environmental health department for comment.</p> <p>Updating and Screening Assessments and Detailed Assessments should take account of planning applications that have been approved only. Progress Reports, however, provide the opportunity to log planning applications for new developments to give a picture of areas where changes may take place and where combined impacts from several developments may become important.</p> <p>The information provided should therefore include a list of any major developments under consideration that might affect air quality. Such a list could be based on those applications for which an air quality assessment has been provided or for which an air quality assessment has been requested.</p>
<p>Local Transport Plans and Strategies</p>	<p>Progress on implementing those elements of the Local Transport Plan (LTP) that might affect air quality should be provided. Measures to improve air quality on a local scale are closely related to the LTP. Local authorities should reference those measures within the LTP that relate specifically to bringing about air quality improvements.</p> <p>Local authorities should also report on any other measures aimed at addressing transport-related air quality issues that have not been (or will not be) reported in the LTP Annual Progress Report.</p>

2. MINIMUM REQUIREMENTS

This chapter provides the necessary information to fulfill the minimum requirements of Cheltenham Borough Council's Progress Report.

2.1 New monitoring results for Cheltenham Borough Council

This report provides a summary of all available monitoring data from 2003 in a format suitable for comparison with the relevant air quality objectives. A location map indicating the roads within Cheltenham and the monitoring sites is provided in Appendix 2 of Cheltenham Borough Council's Updating and Screening Assessment¹.

A summary table of concentrations that allow a comparison with the air quality objectives (see table 3 below).

Table 3. New monitoring results for Cheltenham Borough Council.

Carbon monoxide (CO)	Cheltenham Borough Council does not monitor carbon monoxide (CO) within the local authority and did not progress from a Stage 1 assessment for CO in the first round. CO was not taken to a Detailed Assessment in Round 2. Carbon monoxide is monitored at the AURN site at Westal Green operated by the Highways Agency. The maximum daily running 8hr mean in 2003 was 3.0 mg/m ³ ; substantially under the 10 mg/m ³ objective for 2003.
Benzene	Benzene is not monitored locally within the local authority, and did not progress from a Stage 1 assessment for benzene in the first round. Benzene was not taken to a Detailed Assessment in Round 2.
1,3-butadiene	1,3-butadiene is not monitored locally within the local authority, and did not progress from a Stage 1 assessment for 1,3-butadiene in the first round. Benzene was not taken to a Detailed Assessment in Round 2.
Lead (Pb)	Lead is monitored with a sampling pump drawing air through a filter and fed by an inlet 4m above the kerb at a roadside location on Royal Well Road (central Cheltenham). The filters are changed every two months and analysed by Bristol Scientific Services. The annual mean in 2003 was 0.25 ug/m ³ . This is under the annual mean objective of 0.5 ug/m ³ .

¹Cheltenham Borough Council's Updating and Screening Assessment Report., April 2003.

<p>Nitrogen dioxide (NO₂)</p>	<p>Cheltenham Borough Council gathers NO₂ data from 3 sources:</p> <ol style="list-style-type: none"> 23 diffusion tubes sites around Cheltenham, including three tubes that are co-located with the air quality unit. Continuous air quality monitoring using a Monitor Labs ML9841B NO_x chemiluminescent analyzer. AURN site at Westal Green operated by the Highways Agency. <p>Bristol City Council Scientific Services remains the supplier of the diffusion tubes and provides the analysis. Quality assurance procedures and (unchanged) tube locations were provided in Cheltenham Borough Council's 2003 USA². The tubes are exposed for 4 weeks using the preparation method of 20% TEA in water. The results from all 23 diffusion tube monitoring locations, in terms of annual means calculated for 2003 and bias adjusted (using Air Quality Consultants' overall bias adjustment factor of 0.92 available at the UWE website), together with predictions of the annual mean for 2005 and 2010 (calculated using the correction factors provided in the technical guidance¹) are provided in Appendix A-1. The diffusion tube site on the building façade 2m from the road kerb at 6 Bath Road measured 43.3 ug/m³ in 2003. This site is predicted to read 41.0 ug/m³ in 2005, which is an exceedence of the 2005 annual mean objective of 40 ug/m³. (There are residential flats at 2 and 8A Bath Road, so this is a relevant exposure location). A graph of the monthly values for the four highest reading sites is at Appendix A-3. This shows sustained high monthly NO₂ values in 2003 at the Bath Road site, with similarly sustained elevated values from the three next highest reading sites for comparison. The annual mean values at Bath Road for the last five years are at Appendix A-4. This illustrates a steady decline from 1999 (when site established) to 2002 from 40 to 34ug/m³, but then with the 40% increase to the 2003 figure of 43ug/m³.</p> <p>The continuous air quality monitoring site was deactivated at Montpellier Parade on 21 Jan 04, moved and reactivated at Imperial Square (a background location behind the Town Hall) on 10 Apr 04.</p>
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² Cheltenham Borough Council's Updating and Screening Assessment Report., April 2003.

¹ Technical Guidance LAQM.TG(03). Department for Environment, Food & Rural Affairs and devolved administrations. 2003.

	<p>There was no data available for the 79 day period between those dates. The analyser is serviced by Casella ETI Ltd and the quality assurance procedures were provided in Cheltenham Borough Council's 2003 USA³. The data set used for 2003 has been ratified by Casella ETi. Monitoring at the site indicates an annual mean NO₂ level of 18.3µg/m³ with a data capture of 77%. The author has not calculated a corrected annual mean as described in Technical Guidance LAQM.TG(03) box 6.5 as the above figure is so substantially under the annual objective that any adjusted figure would still be compliant. There was only one exceedence of the hourly objective. Predictions of future annual means from this site indicate that the 2005 and 2010 levels will be $18.3 \times (0.892/0.941) = 17.3 \text{ ug/m}^3$ and $18.3 \times (0.734/0.941) = 14.3 \text{ ug/m}^3$ respectively. The annual and hourly objectives for these years are expected to be met at this location. The exceedence data is summarized in Appendix B.</p> <p>The AURN site at Westal Green operated by the Highways Agency recorded an annual mean of 43.2 ug/m³ and a maximum 1 hour mean level of 173.5 ug/m³. Predictions of future annual means from this site indicate that the 2005 and 2010 levels will be $43.2 \times (0.892/0.941) = 41.0 \text{ ug/m}^3$ and $43.2 \times (0.734/0.941) = 33.7 \text{ ug/m}^3$ respectively. The first value exceeds the 40 ug/m³ annual objective for 2005, but the monitoring site is on a traffic island in the middle of the A40 on Lansdown Road and is not a relevant exposure location for the public.</p>
Particulates (PM₁₀)	<p>The continuous air quality monitoring site was deactivated at Montpellier Parade on 21 Jan 04, moved and reactivated at Imperial Square (a background location behind the Town Hall) on 10 Apr 04. There was no data available for the 79 day period between those dates. The TEOM instrument is serviced by Casella ETI Ltd and the quality assurance procedures were provided in Cheltenham Borough Council's 2003 USA⁴. The data set used for 2003 has been ratified by Casella ETi. Monitoring at the site indicates an annual mean PM₁₀ level of 18.9ug/m³ (24.6µg/m³ gravimetric) with a data capture of 72%, with only 2 exceedences of the 24-hour mean recorded in 2003. The author</p>

³ Cheltenham Borough Council's Updating and Screening Assessment Report., April 2003.

⁴ Cheltenham Borough Council's Updating and Screening Assessment Report., April 2003.

	<p>has not calculated a future annual mean for 2004 as described in Technical Guidance LAQM.TG(03) box 8.6 as the above figure is so substantially under the annual objective that any adjusted figure would still be compliant. The objective for 2004 is expected to be met. The exceedence data is summarized in Appendix B-3.</p> <p>The AURN site at Westal Green operated by the Highways Agency recorded an annual mean of 27.0 $\mu\text{g}/\text{m}^3$ (gravimetric) and a 90th percentile of daily means of 43.7 $\mu\text{g}/\text{m}^3$ (gravimetric).</p>
Sulphur dioxide (SO₂)	<p>Continuous monitoring of SO₂ has been undertaken by Cheltenham B.C. at Imperial Square over 2003 using a ML 9850B analyzer supplied by Monitor Labs. Monitoring from the site showed no exceedences of the 15-minute, 1-hour or 24-hour objectives and none are predicted by the end of 2004 and 2005. The 99.9, 99.7 and 99.0 percentiles for the above three durations have not been calculated as the maximum individual values for each timescale were 132, 93 and 27 $\mu\text{g}/\text{m}^3$ respectively, thus under the objective levels. The exceedence data is summarized in Appendix B-4.</p>

Data capture and calibration validating values are at Appendix B-5.

2.1.1 Monitoring data summary

There were no significant changes in trends or any predicted exceedences at relevant locations by objective deadlines for the following pollutants: Carbon monoxide, benzene, 1,3-butadiene, lead, fine particulates (PM10) and sulphur dioxide.

The annual values for nitrogen dioxide have increased significantly in 2003. At the Bath Road diffusion tube site in 2003 it was 43 $\mu\text{g}/\text{m}^3$ and is now predicted to be 41 $\mu\text{g}/\text{m}^3$ by 2005. This pollutant will now require a Detailed Assessment by April 2005.

2.2 New local developments

This section considers any new developments and changes that have taken place, or are proposed, that may affect air quality. Such developments are logged so that they can be considered more thoroughly during the next full round of review and assessment. Table 4 provides details of relevant new developments in Cheltenham Borough Council.

Table 4. New local developments with potential to affect local air quality in Cheltenham Borough Council.

New Part A1 /A2	None
New Part B	None
New retail development	None
New road scheme	None
New mineral development	None
New landfill development	None
New mixed-use development	None

2.2.1 New development summary

There were no significant new developments of such individual note as to substantially affect air quality

3. Recommended Additional Elements

Progress made in respect of a County-wide Air Quality Strategy, Gloucestershire's Local Transport Plan and other elements are reported in table 5 below.

Table 5. Recommended additional elements with respect to air quality progress reporting in Cheltenham Borough Council.

<p>Additional monitoring data</p>	<p>Ozone is monitored at the Imperial Square site, representing a background location, using a Monitor Labs ML9810 analyser. In 2003 there were 35 exceedences of the 8-hourly mean of $120\mu\text{g}/\text{m}^3$, which is above the allowed 25 exceedences of the Third Air Quality Daughter Directive. Over the year, an annual mean of $50.6\mu\text{g}/\text{m}^3$ was recorded. Data was not available from 21 Jan to 10 Apr. Maximum background concentrations of $208\mu\text{g}/\text{m}^3$ and $206\mu\text{g}/\text{m}^3$ was recorded in July 2003 and August 2003 respectively and the data capture for the year was 77.8%.</p> <p>Radiation monitoring across three residential sites in Cheltenham gave the following mean values:</p> <p>Thermoluminescent detector 30 day dose = 59.9 micrograys Instantaneous gamma dose rate = 0.0644 micrograys/hour</p>
<p>Action Plans</p>	<p>Cheltenham Borough Council was not required to develop or implement an air quality action plan following Round 1 and Round 2 work.</p>
<p>Local or Regional Air Quality Strategies</p>	<p>Cheltenham Borough Council does not have a local air quality strategy at present, but it is a member of the partnership developing a county-wide strategy for Gloucestershire. All six local authorities in Gloucestershire (operating as the Gloucestershire Pollution Group) together with the county and the University of the West of England's Air Quality Research Group (AQRC, U.W.E.) have recently developed a scope for the development of a county-wide strategy. The key objective is to provide a consistent approach to air quality considerations across the county and across the departments of individual local authorities. The strategy will review the local authority and county planning processes and powers available to deliver cleaner air across Gloucestershire and will provide a framework for the consideration of new pollutants, objectives and assessment practice in future. County-wide and local strategies, plans and</p>

	<p>policies to be considered as part of the strategy will include local climate change strategies and policies, community plans, health action zones, structural plans and economic development plans.</p> <p>With the development of the strategy in its infancy, the strategy working group is currently assembling relevant literature and is consolidating the monitoring data available across the county for the purpose of local authority progress reporting requirements. The Gloucestershire Pollution Group has previously produced an annual air quality monitoring report to inform the review and assessment process and other relevant processes. As part of the strategy, a new format for the production of an annual monitoring report is to be devised for the county, in order to resemble more closely the reporting requirements for air quality assessments and progress reports in future.</p> <p>The county-wide Air Quality Strategy for Gloucestershire is expected to be completed by the autumn, so as to inform the next reporting requirement of the LAQM process. When completed, the strategy will be made available through all appropriate media, i.e. on the web and as paper copies at local authority offices.</p>
Planning policy	<p>In February 2004, Cheltenham Borough Council approved a revised local plan for public consultation, which is available for public consultation until the end of April 2004.</p> <p>There is no Supplementary Planning Guidance (SPG) to address air quality matters currently available to the Borough, although use is made of the SPG on Planning an Air Quality produced by the Bristol, Gloucestershire and Somerset (BG&S) Environment Protection Committee in 2001. There is reference to this SPG within the draft local plan, together with the process of requiring an air quality impact assessment. Recommendations for more coherent policies relating to air quality within the borough are to be included within the developing strategy for the county as a whole.</p>
Planning applications	<p>There were no planning applications of such significance as to substantially affect local air quality. All planning applications with a potential environmental health impact are forwarded to the Public</p>

	Protection Division for assessment and action as necessary.
Local Transport Plan	<p>One of two environmental objectives of Gloucestershire County Council's Local Transport Plan is to improve air quality in areas where it is significantly affected by pollution from traffic (EN2). With respect to Cheltenham, the development of the Central Severn Vale Strategy is an important element of the LTP, which intends to address congestion along the A40 corridor and so assist with improving local air quality. As part of this, a programme of works has been identified for the Extended Inner Ring Road in Cheltenham, which will improve traffic movement within the town centre, where the highest concentrations of NO₂ and PM₁₀ are experienced. Within the LTP there is a commitment from Cheltenham Borough Council to work with the Highways Agency and the county on developing an air quality action plan in future, should air quality objectives be exceeded along the A40 corridor.</p> <p>Cheltenham Borough Council is working in partnership with Gloucestershire County Council to develop a County-wide Air Quality Strategy, for which the implementation of aspects of the LTP will play a key role.</p> <p>As part of Gloucestershire's Local Transport Plan Annual Progress report 2003, Appendix D is devoted to the A40 improvements and Park and Ride proposals for the main junctions on the A40 north of Gloucester. With respect to the A40 Cheltenham section, a more detailed study of the A40 has been commissioned, in recognition of the need to develop an integrated package of measures to deal with the congestion and future capacity of the busy A40 within the Central Severn Vale area.</p>

4. Progress Report conclusions

From the evidence provided in this report, predicted air pollutant levels are considered unlikely to exceed any forthcoming air quality objectives except for the nitrogen dioxide annual mean objective for 2005 in Bath Road. As a result of this, Cheltenham Borough Council will undertake a Detailed Assessment for nitrogen dioxide to be submitted by April 2005.