

Update and Screening Report

City of York Council Environmental Protection Unit

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May 2003

This information can be provided in your own language.

我們也用您們的語言提供這個信息 (Cantonese)

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Summary

This document presents the findings of the May 2003 Update and Screening Assessment for York. The report has been prepared in accordance with the Local Air Quality Management Technical Guidance Note LAQM.TG(03).

Update and screening assessments have been undertaken for the following pollutants:

- carbon monoxide
- benzene
- 1,3 butadiene
- lead
- nitrogen dioxide
- sulphur dioxide
- PM₁₀

For carbon monoxide, benzene, 1,3 butadiene and lead the report concludes that there is no risk of the objectives for these pollutants being breached. It is recommended that a further update and screening assessment for these pollutants is undertaken no later than April 2006.

The update and screening assessment for nitrogen dioxide has concluded that the declaration of the current AQMA was based on an adequate assessment of all sources of nitrogen dioxide and that no further detailed assessment work is needed at this time. There are some locations outside the current AQMA where elevated concentrations of nitrogen dioxide have been monitored during specific periods, however at present these readings are not enough to justify any extension of the AQMA. It is recommended that City of York Council continues to develop an Air Quality Action Plan (AQAP) on the basis of the current AQMA, and also continues to monitor nitrogen dioxide both inside and outside the AQMA. A progress report on nitrogen dioxide should be prepared by the end of April 2004.

For sulphur dioxide the report concludes that at the current monitoring locations the air quality objectives are being met. There is however some uncertainty regarding concentrations of sulphur dioxide in the following locations:

- Villages where there is still a high proportion of domestic solid fuel burning
- Houses in the vicinity of railway sidings where diesel engines stand for prolonged periods.

It is recommended that both these issues are investigated further and that the findings of this work should be reported by the end of April 2004.

The update and screening assessment for PM₁₀ has concluded that at the current monitoring locations the air quality objectives for PM₁₀ are being met. There is however some uncertainty regarding concentrations of PM₁₀ in villages where there is still a high proportion of domestic solid fuel burning. It is recommended that this particular issue is investigated further and that the findings of this work should be reported by the end of April 2004.

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Contents

<u>Section</u>	<u>Page N°</u>
List of Figures	10
List of Tables	14
Glossary of Terms	16
List of Abbreviations	17
1.0 Introduction	18
1.1 Reviews and assessments of air quality in York	18
1.2 Purpose of the updating and screening report	18
2.0 Update and Screening Assessment of Carbon Monoxide	20
2.1 The national perspective	20
2.2 The local perspective	20
2.3 Scope of the update and screening assessment for carbon monoxide	20
2.4 Assessment of carbon monoxide monitoring data for York	21
2.5 Assessment of carbon monoxide from traffic	23
2.5.1 Assessment procedure	23
2.5.2 Assessment of traffic in York	24
2.6 Conclusions from the update and screening of carbon monoxide	25
3.0 Update and Screening Assessment for Benzene	26
3.1 The national perspective	26
3.2 The local perspective	26
3.3 Scope of the update and screening assessment for benzene	27
3.4 Assessment of benzene monitoring data for York	27
3.5 Assessment of benzene from traffic	28
3.5.1 Assessment procedure	28
3.5.2 Assessment of traffic in York	29
3.6 Assessment of benzene from industrial sources	29
3.6.1 Assessment procedure	29
3.6.2 Assessment of industry in York	29
3.7 Assessment of benzene from petrol stations	30
3.7.1 Assessment procedure	30

3.7.2 Assessment of petrol stations in York	30
3.8 Assessment of benzene from major fuel storage depots	32
3.8.1 Assessment procedure	32
3.8.2 Assessment of fuel storage depots in York	32
3.9 Conclusions from the update and screening of benzene	32
4.0 Update and Screening Assessment for 1,3-Butadiene	33
4.1 The national perspective	32
4.2 The local perspective	32
4.3 Scope of the update and screening assessment for 1,3-butadiene	33
4.4 Assessment of 1,3-butadiene monitoring data for York	34
4.5 Assessment of 1,3-butadiene from industrial sources	35
4.5.1 Assessment procedure	35
4.5.2 Assessment of industry in York	35
4.6 Conclusions from the update and screening of 1,3-butadiene	36
5.0 Update and Screening Assessment for Lead	37
5.1 The national perspective	37
5.2 The local perspective	37
5.3 Scope of the update and screening assessment for lead	37
5.4 Assessment of lead monitoring data for York	38
5.5 Assessment of lead from industrial sources	38
5.5.1 Assessment procedure	38
5.5.2 Assessment of industry in York	39
5.6 Conclusions from the update and screening of lead	39
6.0 Update and Screening Assessment for Nitrogen Dioxide	40
6.1 The national perspective	40
6.2 The local perspective	40
6.3 Scope of the update and screening assessment for nitrogen dioxide	42
6.4 Assessment of nitrogen dioxide monitoring data for the area outside the AQMA	43
6.4.1 Nitrogen dioxide monitoring results from real time monitoring stations outside the AQMA	43
6.4.2 Predicted 2005 concentrations based on results from real time monitoring stations outside the AQMA	45

6.4.3 Nitrogen dioxide monitoring results from diffusion tube monitoring sites outside the AQMA	45
6.4.4 Predicted 2005 concentrations based on data from nitrogen dioxide diffusion tubes located outside the AQMA	61
6.4.5 Predicted 2005 upper 95% confidence limits for bias corrected annual average nitrogen dioxide concentrations at diffusion tube sites outside the AQMA	67
6.5 Assessment of nitrogen dioxide monitoring data for the area inside the AQMA	68
6.5.1 Nitrogen dioxide monitoring results from real time stations inside the AQMA	68
6.5.2 Predicted 2005 concentrations based on data from real time monitoring stations inside the AQMA	70
6.5.3 Nitrogen dioxide monitoring results from diffusion tube monitoring sites inside the AQMA	70
6.5.4 Predicted 2005 upper 95% confidence limits for bias corrected annual average nitrogen dioxide concentrations at diffusion tube monitoring sites inside the AQMA	71
6.6 Assessment of nitrogen dioxide in narrow congested streets with residential properties close to the kerb	76
6.6.1 Assessment procedure	76
6.6.2 Assessment of narrow congested streets	76
6.7 Assessment of nitrogen dioxide in busy streets where people may spend 1-hour or more close to traffic	77
6.7.1 Assessment procedure	77
6.7.2 Assessment of busy streets	77
6.8 Assessment of roads with a high proportion of buses or HGVs	77
6.8.1 Assessment procedure	77
6.8.2 Assessment of roads with a high proportion of buses or HGVs	78
6.9 Assessment of nitrogen dioxide from new or proposed roads	79
6.9.1 Assessment procedure	79
6.9.2 Assessment of new and proposed roads in York	79
6.10 Assessment of nitrogen dioxide on roads which were	

close to the objectives during previous reviews and assessments	80
6.10.1 Assessment procedure	80
6.10.2 Re-assessment of roads close to the objectives in York	80
6.11 Assessment of nitrogen dioxide on roads with significant increases in traffic flows since the last round of reviews and assessments	81
6.11.1 Assessment procedure	81
6.11.2 Assessment of roads in York which have experienced increases in traffic flows of greater than 25%	81
6.12 Assessment of nitrogen dioxide in bus stations	83
6.12.1 Assessment procedure	83
6.12.2 Assessment of bus stations in York	83
6.13 Assessment of nitrogen dioxide from industrial sources	83
6.13.1 Assessment procedure	83
6.13.2 Assessment of industry in York	84
6.14 Assessment of nitrogen dioxide from aircraft	85
6.14.1 Assessment procedure	85
6.14.2 Assessment of aircraft emissions in York	86
6.15 Conclusions from the update and screening of nitrogen dioxide	86
7.0 Update and Screening Assessment for Sulphur Dioxide	87
7.1 The national perspective	87
7.2 The local perspective	87
7.3 Scope of the update and screening assessment for sulphur dioxide	88
7.4 Assessment of sulphur dioxide monitoring data for York	88
7.5 Assessment of sulphur dioxide from industrial sources	91
7.5.1 Assessment procedure	91
7.5.2 Assessment of industry in York	91
7.6 Assessment of sulphur dioxide from domestic sources	93
7.6.1 Assessment procedure	93
7.6.2 Assessment of domestic solid fuel burning	93
7.7 Assessment of sulphur dioxide from large boiler plant	96

7.7.1	Assessment procedure	96
7.7.2	Assessment of large boiler plant	96
7.8	Assessment of sulphur dioxide from transport sources	96
7.8.1	Assessment procedure	96
7.8.2	Assessment of sulphur dioxide from shipping	97

7.8.3	Assessment of sulphur dioxide emissions from railway locomotives	97
7.8.3.1	York station	97
7.8.3.2	Re-fuelling Depot	98
7.8.3.3	Railway sidings	98
7.8.3.4	National Railway Museum	98
7.8.3.5	Derwent Valley Light Railway	99
7.9	Conclusions from the update and screening of sulphur dioxide	100
8.0	Update and Screening Assessment for PM₁₀	101
8.1	The national perspective	101
8.2	The local perspective	101
8.3	Scope of the update and screening assessment for PM ₁₀	102
8.4	Assessment of PM ₁₀ data for the area outside the AQMA	103
8.4.1	PM ₁₀ monitoring results from real time monitoring stations outside the AQMA	103
8.4.2	Predicted 2004 annual average PM ₁₀ concentrations outside the AQMA based on data from real time monitoring stations	105
8.4.3	Predicted number of exceedances of the 24 hour objective outside the AQMA in 2004	106
8.5	Assessment of PM ₁₀ monitoring data for the area inside the AQMA	107
8.5.1	PM ₁₀ monitoring results from real time monitoring stations inside the AQMA	107
8.5.2	Predicted 2004 annual average PM ₁₀ concentrations Within the AQMA based on data from real time monitoring stations	109
8.5.3	Predicted number of exceedances of the 24 hour objective in 2004 (within the aqma)	110
8.6	Assessment of PM ₁₀ concentrations close to junctions	110
8.6.1	Assessment procedure	110
8.6.2	Assessment of PM ₁₀ concentrations at junctions	111
8.7	Assessment of PM ₁₀ concentrations close to roads with high flows of buses or HGVs	114
8.7.1	Assessment procedure	114
8.7.2	Assessment of roads with a high proportion of buses or HGVs	114

8.8 Assessment of PM ₁₀ from new or proposed roads	115
8.8.1 Assessment procedure	115
8.8.2 Assessment of new and proposed roads in York	115
8.9 Assessment of PM ₁₀ on roads which were close to the objectives during previous reviews and assessments	116
8.9.1 Assessment procedure	116
8.9.2 Re-assessment of roads close to the objectives in York	116
8.10 Assessment of PM ₁₀ concentrations on roads with significant increases in traffic flows since the last round of reviews and assessments	116
8.10.1 Assessment procedure	116
8.10.2 Assessment of roads in York which have experienced increases in traffic flows of greater than 25%	116
8.11 Assessment of PM ₁₀ from industrial sources	117
8.11.1 Assessment procedure	117
8.11.2 Assessment of industry in York	117
8.12 Assessment of PM ₁₀ from domestic sources	119
8.12.1 Assessment procedure	119
8.12.2 Assessment of domestic solid fuel burning	119
8.13 Assessment of fugitive PM ₁₀ emissions	119
8.13.1 Assessment procedure	119
8.13.2 Assessment of fugitive emission sources in York	120
8.14 Assessment of PM ₁₀ from aircraft	120
8.14.1 Assessment procedure	120
8.14.2 Assessment of aircraft emissions in York	121
8.15 Conclusions from the update and screening of PM ₁₀	121
Appendix 1	122

List of Figures

<u>Figure N°</u>	<u>Title</u>	<u>Page N°</u>
1	Location of carbon monoxide analysers	21
2(a)	8 hour running mean carbon monoxide concentrations on Gillygate 17/5/02 to 7/11/02	22
2(b)	8 hour running mean carbon monoxide concentrations on Bootham 17/5/02 to 7/11/02	23
3	Roads in York with daily average flows > 9000 vehicles per day	25
4	Areas of potential exceedance of the annual average nitrogen dioxide objective identified in the Second and Third Stage Review and Assessment of Air Quality in York	41
5	Area covered by the Council of the City of York Air Quality Management Area Order No.1	42
6	Locations outside the AQMA where real time monitoring of nitrogen dioxide has been undertaken	44
7	Location of city wide survey 3 tubes outside the AQMA (July 2000 to June 2001)	48
8	Location of city wide survey 4 tubes outside the AQMA (July 2001 to June 2002)	49
9	Location of survey A tubes outside the AQMA (August 2000 to July 2001)	50
10	Location of survey A tubes outside the AQMA (August 2001 to July 2002)	51
11	Location of survey B tubes outside the AQMA (August 2000 to July 2001)	52
12	Location of survey B tubes outside the AQMA (August 2001 to July 2002)	53
13	Location of survey C tubes outside the AQMA (August 2000 to July 2001)	54
14	Location of survey C tubes outside the AQMA (August 2001 to July 2002)	54

15	Location of survey D tubes outside the AQMA (August 2000 to July 2001)	55
16	Location of survey D tubes outside the AQMA (August 2001 to July 2002)	55
17	Bias corrected annual average nitrogen dioxide concentrations for city wide survey 3 tubes outside the AQMA (July 2000 to June 2001)	56
18	Bias corrected annual average nitrogen dioxide concentrations for city wide survey 4 tubes outside the AQMA (July 2001 to June 2002)	56
19	Bias corrected annual average nitrogen dioxide concentrations for survey A tubes outside the AQMA (August 2000 to July 2001)	57
20	Bias corrected annual average nitrogen dioxide concentrations for survey A tubes outside the AQMA (August 2001 to July 2002)	57
21	Bias corrected annual average nitrogen dioxide concentrations for survey B tubes outside the AQMA (August 2000 to July 2001)	58
22	Bias corrected annual average nitrogen dioxide concentrations for survey B tubes outside the AQMA (August 2001 to July 2002)	58
23	Bias corrected annual average nitrogen dioxide concentrations for survey C tubes outside the AQMA (August 2000 to July 2001)	59
24	Bias corrected annual average nitrogen dioxide concentrations for survey C tubes outside the AQMA (August 2001 to July 2002)	59
25	Bias corrected annual average nitrogen dioxide concentrations for survey D tubes outside the AQMA (August 2000 to July 2001)	60
26	Bias corrected annual average nitrogen dioxide concentrations for survey D tubes outside the AQMA (August 2001 to July 2002)	60
27	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for city wide	

survey 3 tubes outside the AQMA (based on July
2000 to June 2001 results)

62

28	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for city wide survey 4 tubes outside the AQMA (based on July 2001 to June 2002 results)	62
29	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey A tubes outside the AQMA (based on August 2000 to July 2001 results)	63
30	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey A tubes outside the AQMA (based on August 2001 to July 2002 results)	63
31	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey B tubes outside the AQMA (based on August 2000 to July 2001 results)	64
32	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey B tubes outside the AQMA (based on August 2001 to July 2002 results)	64
33	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey C tubes outside the AQMA (based on August 2000 to July 2001 results)	65
34	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey C tubes outside the AQMA (based on August 2001 to July 2002 results)	65
35	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey D tubes outside the AQMA (based on August 2000 to July 2001 results)	66
36	Predicted 2005 bias corrected annual average nitrogen dioxide concentrations for survey D tubes outside the AQMA (based on August 2001 to July 2002 results)	66
37	Location of real time monitoring sites within the AQMA	69

38	Location of 'relevant' tubes in the AQMA which have predicted upper 95% confidence limits of greater than $40\mu\text{g}/\text{m}^3$ by 2005	75
39	Roads in York where HGVs and buses make up more than 25% of the total flow	78
40	Roads which have experienced 25% or more growth in AADT traffic flows	82
41	Locations where real time monitoring of sulphur dioxide has been undertaken in York	89
42	Scope of housing survey outside the outer ring road	94
43	Locations outside the AQMA where real time monitoring of PM_{10} has been undertaken	104
44	Location of real time PM_{10} monitoring equipment within the AQMA	108
45	Predicted 90 th percentile of daily 24 hour average PM_{10} concentrations in York by 2004	112
46	Predicted annual average PM_{10} concentrations in York by 2004	113

List of Tables

<u>Table N°</u>	<u>Title</u>	<u>Page N°</u>
1	Revised approach to reviews and assessments	19
2	Estimated annual average benzene concentrations in York	28
3	Authorised petrol stations in York	31
4	Estimated annual average 1,3-butadiene concentrations in York	34
5	Summary of real time nitrogen dioxide monitoring results for locations outside the AQMA	44
6	Predicted 2005 nitrogen dioxide concentrations based on results from real time monitoring stations outside the AQMA 45	
7	Nitrogen dioxide diffusion tube monitoring surveys undertaken since the completion of the Second and Third Stage Review and Assessment of Air Quality in York	46
8	Diffusion tube monitoring sites outside the AQMA which have a predicted upper 95% confidence limit of 40µg/m ³ or greater by 2005	68
9	Summary of real time nitrogen dioxide monitoring results from the Fishergate monitoring site	69
10	Predicted 2005 nitrogen dioxide concentrations based on results from the Fishergate monitoring site	70
11	Diffusion tube monitoring sites within the AQMA which have a predicted upper 95% confidence limit of 40ug/m ³ or greater by 2005	72
12	Industrial processes within 50km of York which have the potential to emit significant quantities of nitrogen dioxide	85
13	Summary of real time sulphur dioxide monitoring results	90
14	Industrial processes within 50km of York which have the potential to emit significant quantities of sulphur dioxide	92
15	Primary and secondary heating sources outside the outer	

ring road

95

16	Summary of real time PM ₁₀ monitoring results for locations outside the AQMA	104
17	Predicted 2004 PM ₁₀ concentrations outside the AQMA	106
18	Predicted number of exceedances of the 24 hour objective in 2004 (outside the AQMA)	107
19	Summary of real time PM ₁₀ monitoring results for locations within the AQMA	108
20	Predicted 2004 PM ₁₀ concentrations within the AQMA	109
21	Predicted number of exceedances of the 24 hour objective within the AQMA in 2004	110
22	Industrial processes within 50km of York which have the potential to emit significant quantities of PM ₁₀	118

Glossary of Terms

Air Quality Objectives

Targets set by the Government for air quality which are considered to be achievable in terms of cost, benefit and technical feasibility.

Air Quality Standards

Optimistic targets for air quality which represent the minimum or no significant risk to health levels. They take no account of cost, benefit and technical feasibility.

Review

The consideration of current and future concentrations of air pollutants for which objectives have been set.

Assessment

The consideration of whether or not the air quality objectives will be met by the relevant compliance dates.

Relevant Location

Outdoor, non-occupational, locations where members of the public are likely to be regularly exposed to pollutants over the averaging time of the air quality objectives.

Air Quality Management Area (AQMA)

An area formally designated by a local authority where one or more of the air quality objectives are unlikely to be met.

Air Quality Action Plan (AQAP)

A plan of action drawn up by a local authority for improving air quality in an Air Quality Management Area.

List of Abbreviations

ppb - parts per billion

ppm - parts per million

µg/m³ - microgrammes per cubic metre

mg/m³ - milligrammes per cubic metre

LAQM - Local Air Quality Management

AQMA - Air Quality Management Area

AQAP - Air Quality Action Plan

DEFRA - Department for the Environment, Food and Rural Affairs

NRM – National Railway Museum

QA - Quality Assurance

QC - Quality Control

TEOM - Tapered Element Oscillating Microbalance

Introduction

1.1 Reviews and assessments of air quality in York

Under the requirements of the Environment Act 1995, Part IV, all local authorities are required to periodically review and assess air quality in their areas against health based objectives prescribed by the Government. Where it is found that the objective levels are unlikely to be met, local authorities must declare Air Quality Management Areas (AQMAs) and draw up Air Quality Action Plans (AQAPs) for improving air quality in those areas.

In December 1998 City of York Council completed the First Stage Review and Assessment of Air Quality in York. This report concluded that no further action would be needed to meet the air quality objectives for the following pollutants:

- benzene
- 1,3 butadiene
- lead
- carbon monoxide

For three other pollutants; nitrogen dioxide, sulphur dioxide and PM₁₀, the report concluded that more detailed reviews and assessments should be undertaken.

In February 2000 City of York Council completed the Second and Third Stage Review and Assessment of Air Quality in York. This report concluded that the air quality objectives for sulphur dioxide and PM₁₀ would be met, but recommended that an AQMA should be declared due to potential breaches of the annual average nitrogen dioxide objective. Following a period of extensive public participatory consultation an AQMA was declared in January 2002.

The declaration of the AQMA in York placed a duty on City of York Council to undertake a fourth stage review and assessment of nitrogen dioxide concentrations in the city and to submit an AQAP to the Department for the Environment, Food and Rural Affairs (DEFRA).

An Interim Fourth Stage Review and Assessment of Air Quality in York was submitted to DEFRA in January 2002. It is currently anticipated that the completed Fourth Stage Review and Assessment of Air Quality in York, and an AQAP will be submitted to DEFRA in January 2004.

1.2 Purpose of the update and screening report

In the recently revised guidance note LAQM.TG(03)¹ DEFRA have indicated that local authorities should take a risk based approach to undertaking future reviews and assessments of air quality. The aim of this approach is to ensure that the amount of work undertaken for each pollutant is proportional to the risk of the

¹ DEFRA Review and Assessment: Technical Guidance LAQM.TG (03) 2003

objectives for that pollutant being breached. It is therefore recommended that future reviews and assessments be undertaken in two stages as detailed in Table 1.

Table 1: Revised approach to reviews and assessments

Level of Assessment	Objective	Completion Dates
Update and Screening Assessment	To identify those matters that have changed since the last review and assessment, which might lead to a <i>risk</i> of an air quality objective being exceeded.	May 2003 April 2006 April 2009
Detailed Assessment	To provide an accurate assessment of the <i>likelihood</i> of an air quality objective being exceeded at locations with relevant exposure. This should be sufficiently detailed to allow the designation or amendment of any necessary AQMA.	April 2004 April 2007 April 2010

This document details the findings of the May 2003 Update and Screening Assessment for York.

2.0 Update and Screening Assessment for Carbon Monoxide

2.1 The national perspective

The main source of carbon monoxide in the UK is road transport which accounted for 67% of total releases in 2000. Annual emissions of carbon monoxide have been falling steadily since the 1970's 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.

Modelling and monitoring undertaken at a national level indicates that existing national policies should generally be sufficient to achieve the current air quality objective for carbon monoxide.² There may however be some exceedances of the objective close to very busy roads.

2.2 The local perspective

In the First Stage Review and Assessment of Air Quality in York carbon monoxide was assessed against the following objective:

'An 8-hour running average of 10ppm, or less, to be achieved by the end of 2005'.

It was concluded that this objective would be met in York without the need for further action at a local level.

In the Second and Third Stage Review and Assessment of Air Quality in York carbon monoxide was assessed against a revised objective which was:

'An 8-hour running mean of 11.6mg/m³ (10ppm) or less to be achieved by the end of 2003.'

It was concluded that this objective would be met in York without the need for further action at a local level.

2.3 Scope of the update and screening assessment for carbon monoxide

For the purpose of this update and screening assessment carbon monoxide has been assessed against the current objective which is:

'10mg/m³ as a maximum daily 8-hour mean concentration to be achieved by the end of 2003.'

² DEFRA Review and Assessment: Technical Guidance LAQM.TG (03) 2003

In accordance with the air quality guidance note LAQM.TG(03) the following items have been considered:

- Carbon monoxide monitoring data
- Impact of 'very busy' roads

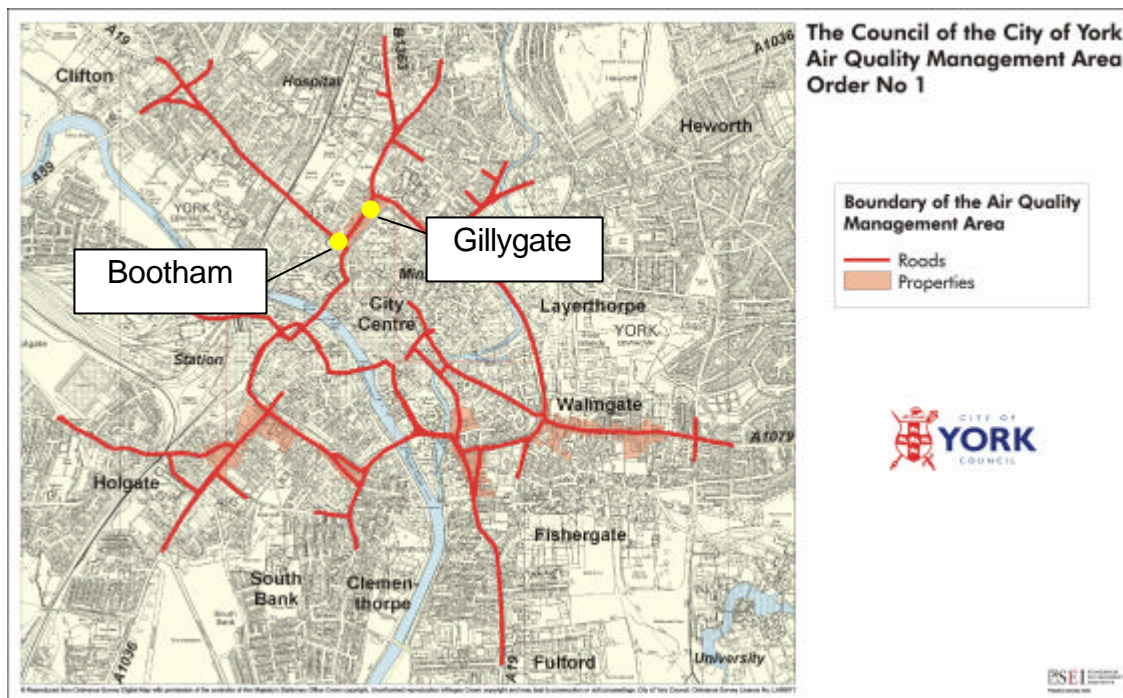
2.4 Assessment of carbon monoxide monitoring data for York

City of York Council has not undertaken any monitoring of carbon monoxide. This is in accordance with the findings of the previous reviews and assessments of air quality in York which concluded that detailed assessments of carbon monoxide were not required.

The council has however been able to obtain some carbon monoxide monitoring data from the Institute of Transport Studies (ITS) at the University of Leeds.

Researchers at ITS recently undertook some carbon monoxide monitoring in York as part of their wider research into the dynamics of street canyons. For the purpose of this updating and screening assessment they have provided carbon monoxide monitoring data for two locations in the city as shown in Figure 1. As can be seen from Figure 1 both the monitoring sites are located in the Bootham / Gillygate area of the city where technical breaches of the annual average nitrogen dioxide objective have previously been identified.

Figure 1: Location of carbon monoxide analysers



The carbon monoxide data has been collected using Learian Streetbox analysers. These are battery operated electrochemical sensor systems which continuously monitor carbon monoxide. The systems used in York were passive systems although recently a dynamically pumped version of the analyser has been launched.

Figure 2(a) and 2(b) show the daily eight hour running mean carbon monoxide concentrations measured at the two sites for the period 16/6/02 to 7/11/02.

Figure 2(a): 8 hour running mean carbon monoxide concentrations on Gillygate 17/5/02 to 7/11/02

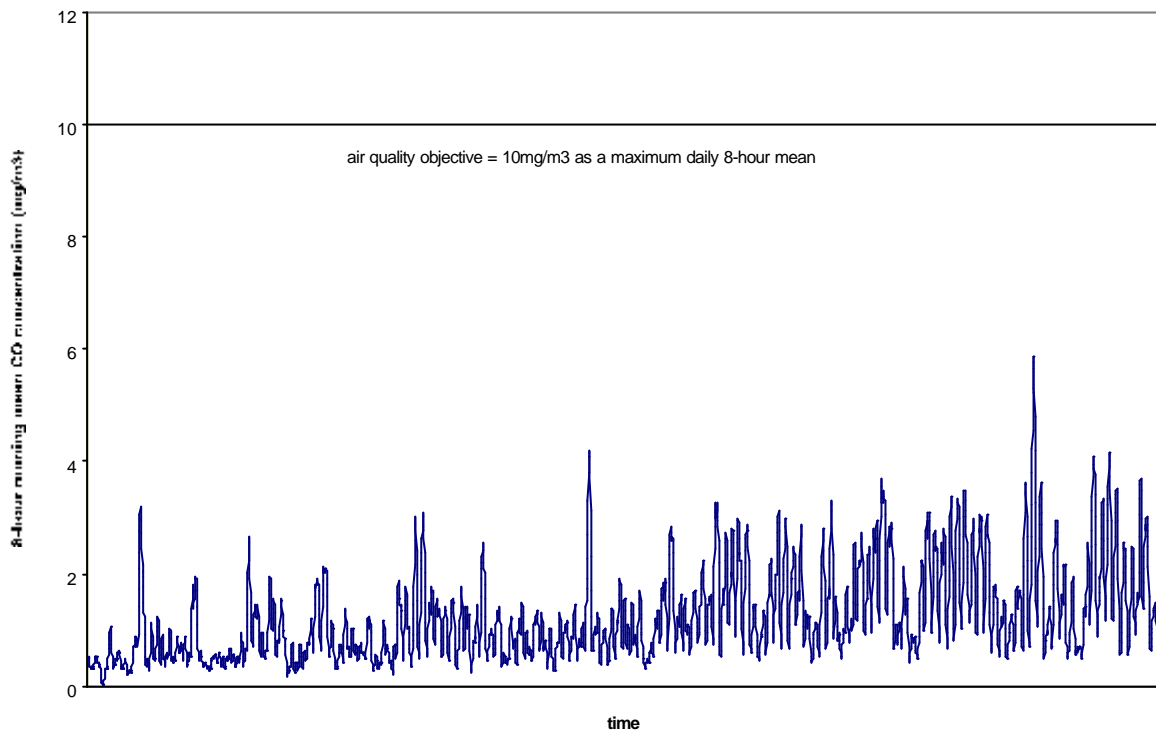
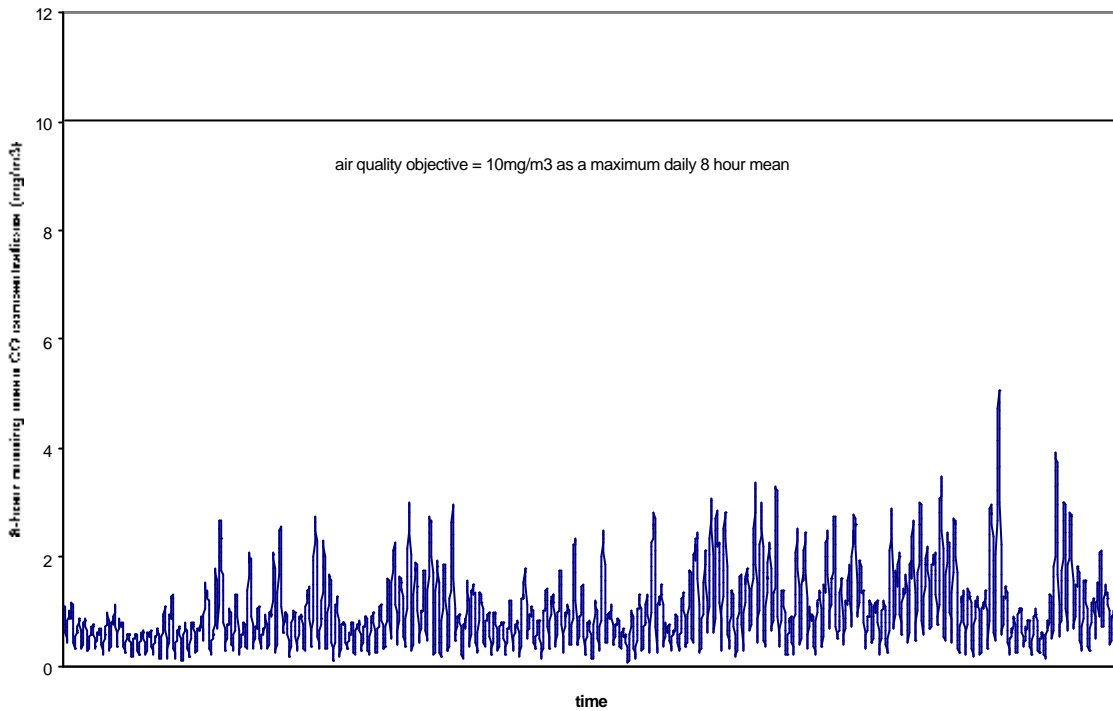


Figure 2(b): 8 hour running mean carbon monoxide concentrations on Bootham 17/5/02 to 7/11/02



As can be seen from Figures 2(a) and 2(b) the maximum 8 hour means recorded during the period 17/5/02 to 7/11/02 were 5.86mg/m³ at the Gillygate site and 5.05mg/m³ at the Bootham site. These are both well below the objective level which is 10mg/m³ measured as a daily maximum 8 hour running mean

2.5 Assessment of carbon monoxide from traffic

2.5.1 Assessment procedure

National monitoring and modelling suggests that any breaches of the current objective for carbon monoxide will occur close to 'very busy' roads. For the purpose of assessing carbon monoxide from traffic local authorities are required to undertake the following:

1. Identify all 'very busy' roads in their area. Where 'very busy' roads are defined as:
 - Single carriageway roads with daily average traffic flows which exceed 80,000 vehicles per day.
 - Dual carriageway (2 or 3-lane) roads with daily average traffic flows which exceed 120,000 vehicles per day.
 - Motorways with daily average traffic flows which exceed 140,000 vehicles per day.

At junctions flows should be added to give a combined total.

2. Identify if there is 'relevant' exposure within 10m of any 'very busy' road.
3. If 'relevant' exposure exists undertake DMRB modelling to predict annual mean concentrations in 2003.
4. If the DMRB modelling suggests potential for the carbon monoxide objective to be breached proceed to a detailed assessment.

2.5.2 Assessment of traffic in York

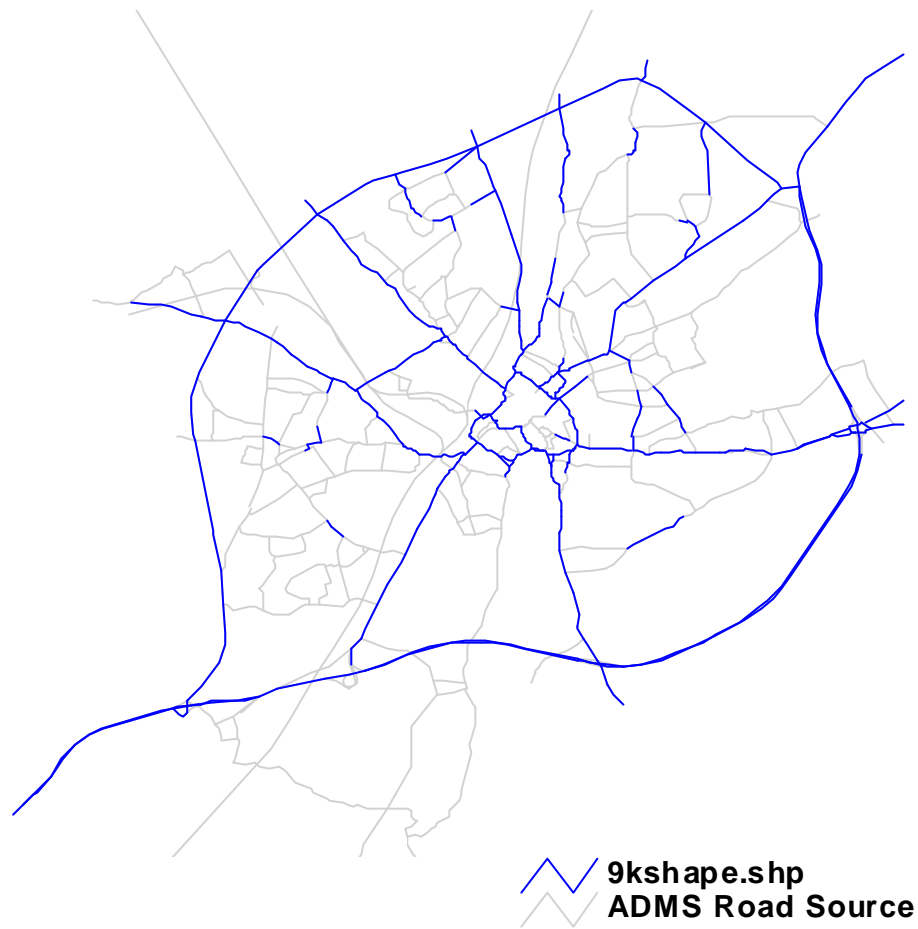
Figure 3 shows all roads in York which have flows of >9000 vehicles per day. This data has been provided by City of York Council transport planning unit and has been derived from the council's SATURN transport model. All the roads shown in Figure 3 are represented in the York ADMS-Urban emissions inventory.

The road with the highest daily flows is the A64 to the south of the city which in some areas carries up to 45,000 vehicles per day.

The junction with the greatest traffic flow is the Grimston Bar interchange which when considered as a single junction carries up to 66,000 vehicles per day.

None of the roads in York fit the definition of 'very busy' for the purpose of assessing against the carbon monoxide air quality objective. This indicates that the current air quality objective for carbon monoxide should be met in York without the need for further reductions in traffic emissions.

Figure 3: Roads in York with daily average flows > 9000 vehicles per day



2.6 Conclusions from the update and screening of carbon monoxide

Based on this assessment it is concluded that City of York Council is not required to progress to a detailed assessment of carbon monoxide at this time. It should however undertake a further update and screening exercise for carbon monoxide in April 2006.

3.0 Update and Screening Assessment for Benzene

3.1 The national perspective

The main sources of benzene emissions in the UK are petrol-engined vehicles and petrol refining and distribution activities. A number of policy measures already in place, or planned for future years, will ensure that benzene emissions continue to be reduced.

Since January 2000, EU legislation has reduced the maximum benzene content of petrol to 1% from a previous upper limit of 5%. Benzene emissions from vehicles will be reduced further through the provisions the European Auto-Oil Programme. Emissions from petrol storage and distribution activities are already widely controlled by the use of vapour fuel recovery systems.

Modelling and monitoring undertaken at a national level indicates that existing national policies should generally be sufficient to achieve the 2003 objective for benzene. However, some localised exceedances of the 2010 objective may occur close to very busy roads³.

3.2 The local perspective

In the First Stage Review and Assessment of Air Quality in York benzene was assessed against the following objective:

'A running annual average of 5ppb or less to be achieved by the end of 2005'.

It was concluded that this objective would be met in York without the need for further action at a local level.

In the Second and Third Stage Review and Assessment of Air Quality in York benzene was assessed against a revised objective which was:

'A running annual mean of 16.25 $\mu\text{g}/\text{m}^3$ (5ppb) or less to be achieved by the end of 2003'.

It was concluded that this objective would also be met in York without the need for further action at a local level.

³ DEFRA Review and Assessment: Technical Guidance LAQM.TG (03) 2003

3.3 Scope of the update and screening assessment for benzene

For the purpose of this update and screening assessment benzene has been assessed against the current objectives which are:

‘A running annual mean of 16.25mg/m³ or less to be achieved by the end of 2003’.

‘A fixed annual mean of 5mg/m³ to be achieved by the end of 2010.’

In accordance with the air quality guidance note LAQM.TG(03) the following items have been considered:

- Benzene monitoring data
- Impact of ‘very busy’ roads
- Impact of industrial sources of benzene
- Impact of petrol stations
- Impact of major fuel storage depots (petroleum only)

3.4 Assessment of benzene monitoring data for York

In the First Stage Review and Assessment of Air Quality in York the results of a benzene diffusion tube monitoring survey undertaken in 1997 were reported. These results indicated that in general benzene levels in the city were already below the 16.25mg/m³ objective level which is now to be achieved by 2003.

Since the completion of the First Stage Review and Assessment of Air Quality in York no further benzene monitoring has been undertaken in York.

As benzene monitoring data is not available for York, estimated annual average background concentrations have been obtained from the national air quality archive. The national air quality archive can be accessed from the Internet at the following address:

www.airquality.co.uk/archive/laqm/tools.php

A summary of the estimated annual average background concentrations for York can be found in Table 2.

As can be seen from Table 2 the estimated annual average background benzene concentrations in York are already well below the objective levels.

Table 2: Estimated annual average benzene concentrations in York

Estimated annual average benzene concentration	2001 (mg/m³)	2003 (mg/m³)	2010 (mg/m³)
maximum	0.530	0.479	0.397
minimum	0.205	0.185	0.150
mean	0.286	0.257	0.211

3.5 Assessment of benzene from traffic

3.5.1 Assessment procedure

National monitoring and modelling suggests that any breaches of the current 2010 objective for benzene will occur close to 'very busy' roads. For the purpose of assessing benzene from traffic local authorities are required to undertake the following:

1. Identify all 'very busy' roads in their area. Where 'very busy' roads are defined as:
 - Single carriageway roads with daily average traffic flows which exceed 80,000 vehicles per day.
 - Dual carriageway (2 or 3lane) roads with daily average traffic flows which exceed 120,000 vehicles per day.
 - Motorways with daily average traffic flows which exceed 140,000 vehicles per day.

At junctions flows should be added to give a combined total.

2. Identify if there is 'relevant' exposure within 10m of any 'very busy' road.
3. If 'relevant' exposure exists undertake DMRB modelling to predict annual mean concentrations in 2003.
4. If the DMRB modelling suggests potential for the benzene objectives to be breached proceed to a detailed assessment.

3.5.2 Assessment of traffic in York

Figure 3 page 25 shows all roads in York which have flows of >9000 vehicles per day. This data has been provided by City of York Council transport planning unit and has been derived from the authority's SATURN transport model.

The road with the highest daily flows is the A64 to the south of the city which in some areas carries up to 45,000 vehicles per day.

The junction with the greatest traffic flow is the Grimston Bar interchange which when considered as a single junction carries up to 66,000 vehicles per day.

None of the roads in York fit the definition of 'very busy' for the purpose of assessing against the benzene air quality objectives. This indicates that the current air quality objectives for benzene should be met in York without the need for further reductions in traffic emissions.

3.6 Assessment of benzene from industrial sources

3.6.1 Assessment procedure

Industrial processes which emit significant amounts of benzene may give rise to breaches of the benzene objectives in some locations. For the purpose of assessing benzene from industry local authorities are required to undertake the following:

1. Identify all significant industrial sources of benzene in their area. Significant emitters of benzene are listed in Annex 2 of technical guidance note LAQM.TG(03).
2. If significant industrial sources of benzene are identified the nomograms in technical guidance note LAQM.TG(03) should be used to determine if the benzene objectives are at risk of being breached.

3.6.2 Assessment of industry in York

Annex 2 of technical guidance note LAQM.TG(03) lists the following processes as being significant benzene emitters:

- petroleum processes
- carbonisation and associated processes

For the purpose of this update and screening assessment all the Part A and Part B processes in the vicinity of York have been reviewed using information posted on the Internet (www.environment-agency.gov.uk), and by consulting the relevant public registers. A summary of all the authorised processes in and around York can be found at Appendix 1.

It can be seen from the table in Appendix 1 that there are no petroleum or carbonisation processes in or close to York. This indicates that in York there is no risk of industrial emissions giving rise to breaches of the current benzene objectives.

3.7 Assessment of benzene from petrol stations

3.7.1 Assessment procedure

In some locations petrol stations may emit sufficient benzene to put the 2010 objective at risk of being breached, especially where emissions from the petrol stations are combined with emissions from nearby busy roads. For the purpose of assessing benzene from petrol stations local authorities are required to undertake the following:

- Identify all petrol stations with an annual throughput of more than 2000m³ of petrol which have a busy road nearby. A busy road should be taken as any road with a flow of more than 30,000 vehicles per day. Only petrol should be considered when assessing the throughput.
- Determine whether there is relevant exposure within 10m of the pumps.

3.7.2 Assessment of petrol stations in York

The Environmental Protection Act 1990, Part I requires local authorities to authorise all petrol filling stations which have a throughput of greater than 1000 m³ of petrol per annum. A list of petrol stations currently authorised by City of York Council is given in Table 3. In each case the distance of the petrol pumps from relevant locations has been checked using an Arc View GIS system. The results of this search are also shown in Table 3.

Table 3: Authorised petrol stations in York

Petrol station	Authorisation reference number	Is there residential property within 10m of the pumps?	Is there any other 'relevant' location within 10m of the pumps?
Asda Monks Cross	1/14/1A	No	No
Inner Space Station Nether Poppleton	1/14/2A	No	No
Bristows of York Fulford Road	1/14/3A	No	No
Tesco Askham Bar	1/14/4A	No	No
Tesco Clifton Moor	1/14/5A	No	No
Sainsburys Monks Cross	1/14/6A	No	No
Station Garage Haxby Road	1/14/7A	No	No
FR Pulleyn Wigginton Road	1/14/8A	No	No
Jorvick Filling Station Hull Road	1/14/12A	No	No
National Car Rental	1/14/13A	No	No
Costcutter Garage A1079 Hull Road	1/14/15A	No	No
Fina Acomb Green	1/14/16A	No	No
London Bridge Service Station Tadcaster Road	1/14/17A	No	No
Inner Space Station Hull Road	1/14/20A	No	No
Inner Space Station Boroughbridge Road	1/14/21A	No	No
SAVE Mill Street	1/14/23A	No	No
Knavesmire Service Station Tadcaster Road	1/14/24A	No	No
Shell Service Station Hull Road	1/14/14A	No	No
Fulford Service Station	1/14/19A	No	No

As can be seen from Table 3 none of the authorised petrol stations in York have relevant locations within 10m of the pumps. This indicates that in York there is no risk of petrol stations giving rise to breaches of the current benzene objectives.

3.8 Assessment of benzene from major fuel storage depots

3.8.1 Assessment procedure

In some locations the presence of fuel storage depots may put the 2010 objective at risk of being breached, especially where emissions from the fuel storage depot are combined with emissions from nearby busy roads. For the purpose of assessing benzene from fuel storage depots local authorities are required to undertake the following:

- Identify any major fuel storage depots handling petrol.
- Determine the distance of the nearest relevant exposure.
- Establish the annual emissions from the storage depot.
- Use the nomograms in LAQM.TG(02) to determine if the source require further assessment.

3.8.2 Assessment of fuel storage depots in York

There are no major fuel storage depots in York.

3.9 Conclusions from the update and screening of benzene

Based on this assessment it is concluded that City of York Council is not required to progress to a detailed assessment of benzene at this time. It should however undertake a further update and screening exercise for benzene in April 2006.

4.0 Update and Screening Assessment for 1,3-Butadiene

4.1 The national perspective

The main source of 1,3-butadiene in the UK is emissions from motor vehicle exhausts. 1,3-butadiene is also an important industrial chemical which is handled in bulk at a small number of industrial premises.

Modelling and monitoring undertaken at a national level indicates that existing national policies should generally be sufficient to achieve the 2003 objective for 1,3-butadiene. However, some localised exceedances of the objective may occur close to major industrial processes.⁴

4.2 The local perspective

In the First Stage Review and Assessment of Air Quality in York 1,3-butadiene was assessed against the following objective:

'A running annual average of 1ppb or less to be achieved by the end of 2005'.

It was concluded that this objective would be met in York without the need for further action at a local level.

In the Second and Third Stage Review and Assessment of Air Quality in York benzene was assessed against a revised objective which was:

'A running annual mean of 2.25 $\mu\text{g}/\text{m}^3$ (1ppb) or less to be achieved by the end of 2003.'

It was concluded that this objective would also be met in York without the need for further action at a local level.

4.3 Scope of the update and screening assessment for 1,3-butadiene

For the purpose of this update and screening assessment 1,3-butadiene has been assessed against the current objective which is:

'A running annual mean of 2.25 $\mu\text{g}/\text{m}^3$ (1ppb) or less to be achieved by the end of 2003.'

In accordance with the air quality guidance note LAQM.TG(03) the following items have been considered:

⁴ DEFRA Review and Assessment: Technical Guidance LAQM.TG (03) 2003

- 1,3-butadiene monitoring data
- New industrial sources
- Existing industrial sources with significantly increased emissions

4.4 Assessment of 1,3 butadiene monitoring data for York

Previous reviews and assessments of air quality in York have not identified any risk of the current 1,3 butadiene objective being breached. Consequently no monitoring of 1,3-butadiene has been undertaken in York.

As 1,3-butadiene monitoring data is not available for York, estimated annual mean background concentrations have been obtained from the national air quality archive. The national air quality archive can be accessed from the Internet at the following address:

www.airquality.co.uk/archive/laqm/tools.php

A summary of the estimated annual average background concentrations for York can be found in Table 4.

Table 4: Estimated annual average 1,3-butadiene concentrations in York

Estimated annual average 1,3-butadiene concentration	2001 (mg/m ³)	2003 (mg/m ³)
maximum	0.183	0.148
minimum	0.0912	0.076
mean	0.122	0.100

As can be seen from Table 4 the estimated annual average background 1,3-butadiene concentrations in York are already well below the objective level.

4.5 Assessment of 1,3-butadiene from industrial sources

4.5.1 Assessment procedure

National monitoring and modelling suggests that any breaches of the current objective for 1,3-butadiene will be associated with industrial processes. For the purpose of assessing 1,3-butadiene from industry local authorities are required to undertake the following:

1. Identify all new industrial sources of 1,3-butadiene which have entered the area since the last round of reviews and assessments. Significant emitters of 1,3-butadiene are listed in Annex 2 of technical guidance note LAQM.TG(03).
2. Identify all existing industrial sources of 1,3-butadiene which have increased their emissions substantially since the last round of reviews and assessments.
3. If any new or substantially increased industrial sources of 1,3-butadiene are identified the nomograms in section 4.16 of the technical guidance note LAQM.TG(02) should be used to assess the risk of breaching the objective level.
4. If a risk of breaching the 1,3 butadiene objective is identified authorities should proceed to a detailed review and assessment.

4.5.2 Assessment of industry in York

Annex 2 of technical guidance note LAQM.TG(02) lists the following processes as being significant 1,3-butadiene emitters:

- petrochemical processes
- rubber processes

For the purpose of this update and screening assessment all the Part A and Part B processes in the vicinity of York have been reviewed using information posted on the Internet (www.environment-agency.gov.uk), and by consulting the relevant public registers. A summary of all the authorised processes in and around York can be found at Appendix 1.

It can be seen from the table in Appendix 1 that there are no petrochemical or rubber processes in, or close to, York. This indicates that there is no risk of industrial emissions giving rise to breaches of the current 1,3-butadiene objective in York.

4.6 Conclusions from the update and screening of 1,3-butadiene

Based on this assessment it is concluded that City of York Council is not required to progress to a detailed assessment of 1,3-butadiene at this time. It should however undertake a further update and screening exercise for 1,3-butadiene in April 2006.

5.0 Update and Screening Assessment for Lead

5.1 The national perspective

Since the 1 January 2000 the sale of leaded petrol in the United Kingdom has been banned. Emissions of lead are now restricted to a variety of industrial activities such as battery manufacture, paint manufacture and the use of radiation shielding.

Modelling and monitoring undertaken at a national level indicates that existing national policies should generally be sufficient to achieve the objectives for lead. However, some localised exceedances of the objective may occur close to major industrial processes.⁵

5.2 The local perspective

In the First Stage Review and Assessment of Air Quality in York lead was assessed against the following objective:

'An annual average of 0.5mg/m³ or less to be achieved by the end of 2005'.

It was concluded that this objective would be met in York without the need for further action at a local level.

In the Second and Third Stage Review and Assessment of Air Quality in York lead was assessed against revised objectives which were:

'An annual mean of 0.5mg/m³ or less to be achieved by the end of 2004.'

'An annual mean of 0.25mg/m³ or less to be achieved by the end of 2008'

It was concluded that these objectives would also be met in York without the need for further action at a local level.

5.3 Scope of the update and screening assessment for lead

For the purpose of this update and screening assessment lead has been assessed against the current objective which is:

'An annual mean of 0.25mg/m³ or less to be achieved by the end of 2008'

⁵ DEFRA Review and Assessment: Technical Guidance LAQM.TG (03) 2003

In accordance with the air quality guidance note LAQM.TG(03) the following items have been considered:

- Lead monitoring data
- New industrial sources
- Existing industrial sources with significantly increased emissions

5.4 Assessment of lead monitoring data for York

Previous reviews and assessments of air quality in York have not identified any risk of the current lead objectives being breached. Consequently no monitoring of lead has been undertaken in York.

National maps of estimated annual mean lead concentrations have not yet been made available to local authorities. However, monitoring has been undertaken at a national level close to 30 key industrial sites. This monitoring work has indicated that in general the 2004 and 2008 lead objectives are already being met in the United Kingdom. The only areas found to still be at risk of breaching the lead objectives are those located in close proximity to non-ferrous metal and foundry processes.

5.5 Assessment of lead from industrial sources

5.5.1 Assessment procedure

National monitoring and modelling suggests that any breaches of the current objectives for lead will be associated with industrial processes. For the purpose of assessing lead from industry local authorities are required to undertake the following:

1. Identify all new industrial sources of lead which have entered the area since the last round of reviews and assessments. Significant emitters of lead are listed in Annex 2 of technical guidance note LAQM.TG(03).
2. Identify all existing industrial sources of lead which have increased their emissions substantially since the last round of reviews and assessments.
3. If any new or substantially increased industrial sources of lead are identified the nomograms in section 5.21 of the technical guidance note LAQM.TG(03) should be used to assess the risk of breaching the objective levels.
4. If a risk of breaching the lead objectives is identified authorities should proceed to a detailed review and assessment.

5.5.2 Assessment of industry in York

Annex 2 of technical guidance note LAQM.TG(03) lists the following processes as being significant lead emitters:

- iron and steel
- non-ferrous metals
- manufacture and use of organic chemicals
- electrical and rotary furnaces
- hot and cold blast cupolas
- aluminium and aluminium alloy processes
- copper and copper alloy processes
- metal decontamination
- lead glass manufacture

For the purpose of this update and screening assessment all the Part A and Part B processes in the vicinity of York have been reviewed using information posted on the Internet (www.environment-agency.gov.uk), and by consulting the relevant public registers. A summary of all the authorised processes in and around York can be found at Appendix 1.

It can be seen from the table in Appendix 1 that the only processes in the York area which fall into the categories listed above are the following organic chemical manufacturing processes:

- Tate & Lyle – Selby
- Linpac Polymers – Selby
- Clariant UK Ltd – Selby
- Clariant UK Ltd – Northallerton
- Clariant UK Ltd - Beverley
- Croda Chemicals -Goole

None of these processes have significant lead emissions. There is therefore no risk of industrial emissions giving rise to breaches of the current lead objectives in York.

5.6 Conclusions from the update and screening of lead

Based on this assessment it is concluded that City of York Council is not required to progress to a detailed assessment of lead at this time. It should however undertake a further update and screening exercise for lead in April 2006.