LOCAL TRANSPORT PLAN

2008 progress report

Annex 3 - Air Quality in Surrey

July 2008

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Air Quality in Surrey

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Contents

1 Introduction

1.1 Background

1 Under the Environment Act of 1995, detailed monitoring of air quality in Surrey and reporting on the results is the statutory responsibility of the 11 Borough/District Councils. If the authority determines that air quality does not meet the national air quality objectives, then it declares an Air Quality Management Area (AQMA) for the area concerned. The authority must then produce an Air Quality Action Plan (AQAP). Requirements for reporting are set out in guidance from Defra[1].

2 Where poor air quality is caused by traffic on Surrey's road network, Surrey County Council (SCC) is required under the 1995 Act (section 86) to work with the district councils to put forward proposals for tackling the problems.

3 Furthermore, as part of the Local Transport Plan process, SCC was required[2] to include air quality as one of the government's shared priorities.

4 SCC submitted its second Local Transport Plan (LTP)[3] in March 2006. Key issues relating to air quality are covered as follows:

- Objectives in paragraphs 2.4.40 - 2.4.50
- Measures to improve air quality in paragraphs 4.8.1- 4.8.24
- Targets in paragraphs 6.5.1-6.5.14

5 Annex 3 of the second LTP is a review of air quality for Surrey County Council providing details on:

- Air quality in 2005 and 2010
- Consultation
- Surrey's strategy to improve air quality
- The development of baseline air quality and assessment method
- Air quality and intermediate indicator targets

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[1] http://www.defra.gov.uk/environment/airquality/local/guidance/index.htm

Refer to LAGM.PGA(05) for LTP2 (and main LAQM guidance)

[2] Guidance on the second Local Transport Plan (LTP) is available at: http://www.dft.gov.uk/pgr/regional/ltp/guidance/fltp/fullguidanceonlocaltransport3657

[3] Surrey's second LTP is available at: http://www.surreycc.gov.uk/sccwebsite/sccwspages.nsf/LookupWebPagesByTITLE_RTF/Surrey's+second+Local+Transport+Plan+2006-07+to+2010-11?opendocument

1.2 Purpose

6 This report forms part of Surrey's 2008 Progress report on the second LTP. The principal aim is to satisfy DfT guidance[4], under the subheading *Better air quality*, which requires:

- An update on any new AQMA declarations, in addition to existing declared AQMAs based on local transport sources and the proposed approach to the development of the Air Quality Action Plan;
- Evidence of a comprehensive monitoring regime;
- Progress on implementing local transport measures to improve air quality (as per paragraphs 22 and 23 of the main guidance); and
- Evidence of partnership working in delivering improvements to air quality.

7 Paragraph 24 of the guidance says:

> As Progress Reports will not be required by the Department, from 2009 local transport authorities should report on an annual basis to Defra on progress against those parts of the LTP that relate to the transport aspects of their Air Quality Action Plans, including progress against the LTP8 indicator if this is monitored (see paragraphs 25-27) and contributes to meeting the objectives identified in the plan.

8 It is therefore envisaged that an updated report on air quality in Surrey will be submitted to Defra annually.

1.3 Scope

9 Section 2 describes the changes to air quality in the 11 districts including new AQMAs. Section 3 outlines action to improve air quality in Surrey including liaison with the districts in the development of action plans. Section 4 provides evidence of the monitoring regime operated by the districts and progress towards Surrey's LTP indicators for air quality. Section 5 describes the extent of partnership working on air quality in Surrey.

10 This report does not:

- set out the national air quality objectives that we are required to work towards.
- set out the health risks that are the basis for the objectives.

However, information on these can be found in statutory reports on air quality by local authorities responsible for monitoring and reporting on air quality (e.g. Borough/District councils in Surrey).

[4] http://www.dft.gov.uk/pgr/regional/ltp/guidance/prog

2 Update on new AQMAs

2.1 AQMAs in 2005

11 In 2005, the baseline year for the LTP, four of the 11 districts in Surrey had declared one or more AQMAs, with a total of 12. All were declared on the basis of NO_2 and two on the basis of PM_{10} as well. The main source of pollution in all cases is road traffic; most of which is on the national strategic network but some also on Surrey's own network. Table 2.1 summarises the AQMAs in force in 2005.

12 All 12 AQMAs in table 2.1 are still in force though a number are under review. Action plans for some of the AQMAs have been prepared or are in preparation (section 3.3).

Table 2.1 Summary of AQMAs declared in Surrey by 2005

District	AQMAs	Pollutants	Source
Reigate and Banstead	• M25 • M23 south of the M25 • A23 Dean Lane • Horley, nr Gatwick Airport • A217 Rushworth Road	NO_2 NO_2 NO_2 NO_2 NO_2	• Traffic on M25 • Traffic on M23 • Traffic on SCC roads • Traffic on SCC and HA roads (24%) and aircraft (21%) • Traffic on SCC roads
Runnymede	• M25 (J11-13) • M25 (J11 to boundary)	NO_2, PM_{10} NO_2	• Traffic on M25 • Traffic on M25
Spelthorne	• Whole borough Including M3 & M25, A30 & A308, Staines, Ashford and Sunbury.	NO_2	• Traffic on M3 & M25, on SCC roads and Heathrow airport
Surrey Heath	• M3 J4 to A325	NO_2, PM_{10}	• Traffic on M3
Waverley BC	• Farnham town centre • Godalming • Hindhead - A3 crossroad	NO_2 NO_2 NO_2	• Traffic on SCC roads • Traffic on SCC roads • Traffic on A3

2.2 AQMAs declared since 2005

13 By the end of 2007, a further 6 AQMAs had been declared, all on the basis of traffic on Surrey's roads and with NO_2 as the pollutant (Table 2.2).

14 There are now a total of 18 AQMAS declared and affecting 7 of the 11 districts. Annex A lists both original 2005 (Column 2) and current AQMAs (Column 3).

Table 2.2 Summary of AQMAs declared in Surrey in 2006 and 2007

District	AQMAs	Pollutant	Source
Elmbridge BC	• Esher High St • Walton Road, Molesey	NO_2 NO_2	• Traffic on SCC roads • Traffic on SCC roads
Epsom and Ewell BC	• Ewell High St	NO_2	• Traffic on SCC roads
Reigate and Banstead BC	• A217 Blackhorse Lane • Reigate High Street • Drift Bridge (A2022 / A240)	NO_2 NO_2 NO_2	• Traffic on SCC roads • Traffic on SCC roads • Traffic on SCC roads

2.3 Emerging AQMAs

15 In addition to the above, about 12 more areas are being investigated and further AQMAs may be declared in 2008 (emerging AQMAs).

16 The emerging AQMAs are listed in Annex A (Column 5).

2.4 Comments

17 The number of AQMAs declared has increased as Districts have extended their analysis of potential hot spots and not because air quality is thought to be getting worse.

18 AQMAs vary in scope and significance. In the case of Spelthorne, the extent of the AQMA is the whole borough whereas in two of the AQMAs in Reigate and Banstead, the AQMA comprises just one or two houses.

19 All the new AQMAs result primarily from traffic on Surrey's local network. Emerging AQMAs are also traffic related.

3 Action to improve air quality in Surrey

3.1 General approach

20 Tackling AQMAs that have been declared on the basis of road traffic present a serious challenge. Improvements to vehicle engines (as a result of tighter EU standards) are making a significant difference but additional measures are needed to achieve the required standards in the timescale set by the EU and by the UK. The principal methods involve one or more of the following:

- Reducing local traffic flows (especially HGVs) through areas with poor air quality
- Improving/smoothing traffic flow
- Redirecting traffic along alternative routes
- Reducing the impact/health risk by moving people from critical areas.

21 Analysis of the causes of poor air quality shows that significant improvements to air quality require major interventions. Action plans to improve air quality generally include a range of measures but many of these are likely to have only very limited impact.

22 It follows that SCC needs to ensure that any transport measures it delivers to improve air quality will actually make a difference and show value for money. In order to help identify priority measures, SCC has:

- reviewed/researched the effectiveness of appropriate measures
- liaised with specialists working on air quality
- devised a process to compare the effectiveness of alternative measures[5]

23 SCC recognises that most measures that it can put in place will be those principally aimed at tackling other shared priorities (e.g. congestion, accessibility and safety) and which have only a modest impact on air quality. However, emissions of pollutants are worst from slow moving or stationary traffic so most measures to reduce congestion will improve air quality. The use of such measures in AQMAs will ensure that we are "working towards" meeting the air quality objectives.

24 Five of the AQMAs in Annex A have been declared solely on the basis of traffic on sections of motorways & trunk roads, which are operated by the Highways Agency (HA). Action on these is set out in section 3.5.

3.2 Action in Surrey's second LTP

25 Action by SCC to improve air quality is set out in section 4.8 of the second LTP. Specific measures proposed by SCC are set out in pages 102-108 and are

[5] **Pitt, J.D and Jones, G** (2006) *Assessing the impact of transport interventions on air quality*. Proceedings of the Institution of Civil Engineers, Municipal Engineer, Volume 159 issue 4 ISSN 0965-0903

summarised in Table 3.1 below. Progress in each of these areas is described in the 2008 Progress Report referred to in section 1.2.

26 Used in suitably targeted AQMAs, the measures in table 3.1 form the basis for developing a toolbox for improving air quality.

Table 3.1 Summary of actions to improve air quality in the second LTP

Action	Impact
Restrain traffic growth	o Limits the total emission of pollutants so reduces the background levels of pollutants including NO_2 and PM_{10}
Travel planning (for schools, businesses, hospitals and communities)	o Encourages mode shift so contributes towards limiting traffic growth as above
Safe Routes to Schools (SRS)	o Linked to school travel plans so contributes as above
Quality bus Partnerships (QBP)	o Encourages mode shift so contributes towards limiting traffic growth as above o Requires operators to use newer buses with cleaner engines (Typically Euro III) so reduces emissions of PM_{10} and (probably) NO_2
Freight Quality Partnerships (FQP)	o Diverts HGV from critical routes so can reduce emissions
Variable Message Signs (VMS) – e.g. warning of congestion,	o Advises drivers of need to take alternative routes to avoid congestion
Permanent signing e.g. *switch off engines* (at level crossings)	o Reduces emissions from stationary queues of traffic
Urban Traffic Control (UTC) and Other Intelligent Transport Systems (ITS)	o Controls traffic flows and can be used to move congestion – e.g. away from a critical area
Low emission zone (LEZ) (London LEZ in 2008)	o Ensures that HGV and/or buses in the zone have Euro III or better engines so reduces the emissions of NO_2 and PM_{10}

3.3 Liaison on district action plans

27 Action plans to improve air quality are produced by the district authorities after they have declared an AQMA. The process usually involves a detailed analysis of the sources of pollution and consultation with stakeholders. In practice, the action plan follows the declaration of the AQMA by a year or more so there are fewer action plans than AQMAs. Column 6 of annex A indicates the status of action plans and shows that just four AQAPs have been produced and that a further five are currently being prepared.

28 Paragraph 4.8.3 of the second LTP includes the following commitment by SCC:

Additional Air Quality Management Areas may be declared during the LTP period. We have therefore developed a strategy to maintain our awareness of the transport-related air quality problems in the county and to fulfil our responsibilities to manage such issues. Surrey's strategy is:

- *To collaborate with air quality review and assessment work in the districts and by the Highways Agency. In particular to monitor their conclusions that identify the need to declare AQMAs*
- *Where AQMAs are declared, to collaborate with work in the districts to develop air quality action plans.*

29 Surrey has now liaised with several districts on the preparation of AQAPs and, as a result, many of the measures in the plans quote SCC as the organisation responsible for delivery. Implementation of the measures remains subject to availability of funding.

30 Surrey also liaises with the districts on monitoring and on providing traffic data. Table 3.2 gives examples of liaison work. Further details on consultation with the districts is covered in section 5.1

Table 3.2 Examples of liaison with districts

District/Borough in Surrey	Topics covered in liaison
Elmbridge BC	o Real time monitoring
Reigate and Banstead BC	o Real time monitoring o Changes to the UTC system
Spelthorne BC	o Measures in the first LTP that apply to Spelthorne
Waverley BC	o Plans for reducing congestion in Farnham

3.4 Impact of the London Low Emission Zone

31 The London Low Emission Zone (LEZ) is designed to ensure that the majority of HGV and buses in London have Euro III or better engines. The LEZ covered HGV over 12 tonnes from February 2008 and will be extended to include buses and HGV over 3 tonnes from July 2008. The benefit to Surrey is that many of these vehicles pass through the county to and from destinations in London and so there should be fewer HGV and buses operating in Surrey with engines that are not Euro III compliant or better. There is a potential negative impact in that some older vehicles that previously used routes through London will be diverted onto Surrey's roads. Transport for London (TfL) are undertaking surveys to assess the impact.

3.5 Roads operated by the Highways Agency

32 AQMAs that have been declared as a result of traffic on roads operated by the Highways Agency (HA) are the subject of a review and prioritisation. Work by the HA covers:

- Research and development – including refinement of the DMRB air quality screening method and development of an instantaneous emissions database to help in predicting the impact of alternative schemes
- Monitoring – to obtain a better baseline of nitrogen dioxide concentrations in AQMAs, a better understanding of the dispersion of pollution and long term monitoring to assess the impact of tightening of exhaust emissions standards
- Schemes to reduce emissions – such as variable speed limits, speed limit enforcement and development control.
- Road widening and bypasses – as below.

33 One of the major schemes under construction by the HA is the Hindhead Tunnel. When it opens in 2012, traffic on the A3 will be diverted from it's current route and congestion at the signalised junction with the A287 will be eliminated. As a result, the AQMA around this junction is expected to be revoked.

4 Evidence of a comprehensive monitoring regime

4.1 Monitoring by districts

34 As explained in section 1.1, all 11 districts in Surrey monitor and report on air quality as part of their statutory duty under the Environment Act (1995). Column 6 of Annex A indicates the scope of monitoring from which it can be seen that there are over 350 NOx diffusion tubes and 13 continuous monitoring stations (mainly for NO_2) spread through the county.

35 The monitoring data is used to estimate locations and times where high values of air pollution are expected. The use of mathematical models enhances the process and provides the districts with the basis for identifying areas of high pollution and, where necessary, declaring AQMAs

36 Further details of this local monitoring are available from the district websites.

4.2 SCC indicators and targets

37 Indicators chosen to monitor air quality for the LTP are set out in section 6.5 of the second LTP. The principal indicator is the annual mean concentration of NO_2 (calculated from a simple air quality model) at a receptor in Spelthorne. The target is to reduce the concentration from 45 μg/m3 (in the baseline year of 2004) to 34.6 μg/m3 in 2010, and effectively meet the national air quality objective.

38 Following the DfT guidance for the second LTP, Surrey also identified two intermediate indicators. The two indicators and the corresponding targets are:

1. Limiting traffic growth on Surrey's roads to 1% per year between 2004 and 2010.
2. Increasing the proportion of buses with Euro III compliant engines in Spelthorne to 85% by 2010

39 The two intermediate indicators are used as input to the model so if both are on track to meet the targets, then so too is the principal concentration based indicator. The 2008 Progress Report confirms that this is the case - i.e. that SCC is on track to meet its air quality targets.

5 Evidence of partnership working

5.1 Surrey Air Quality Group

40 The main working group, which facilitates liaison between SCC and the districts, is the Surrey Air Quality Group (SAQG). The group meets four times a year to share information on monitoring, progress in reporting to DEFRA and to discuss action needed. In addition, there are regular presentations on air quality issues such as that on 10 March 2008 by Michelle Hackman of the Highways Agency (section 3.5). The group has representatives from SCC, from each of the districts and from other sectors such as covering health care. SAQG is currently chaired by the Principal Environmental Health Officer for Tandridge.

41 Surrey's involvement includes:

- advising on the scope of traffic data – both historical and forecast
- responding to requests for specific data by districts for use in air quality modelling
- liaising on the Local Transport Plan

42 Surrey expects to support the districts in their investigations into further potential AQMAs and in providing more extensive traffic data to help districts in the next round of air quality assessment.

5.2 External organisations

43 Over the last two years, SCC has liaised with TfL over their development of the London Low Emission Zone (LEZ). Surrey has supported the introduction of the LEZ and understands that air quality in Surrey will be improved as a result. Detailed comments on signing for HGV approaching London through Surrey were also agreed with TfL.

44 SCC also liaises with the Highways Agency and has discussed air quality at meetings on Integrated Demand Management (IDM).

45 Representatives of SCC have liaised with the Sussex Air Quality Partnership, recognising that the joint working between East Sussex and West Sussex provides an example of good practice.

Annex A Table of AQMAs

Summary of Air Quality Management Areas in Surrey

AQMAs in Surrey - 2007 update							
1 **District/ Borough**	**2** **AQMAs in 2005**	**3** **AQMAs in 2007**	**4** **Location of current AQMAs (2007)**	**5** **Additional Problem Areas identified in 2007**	**6** **Action plans**	**7** **Monitoring**	**8** **Notes**
Elmbridge BC	0	2	1) Esher High St 2) Walton Road, Molesey Both NO_2	AQMAs to be declared for NO_2 exceedences 1) Cobham High St, 2) Weybridge High St, 3) Walton on Thames High St, 4) Hampton Court Bridge Area East Molesey, 5) Hinchley Wood By Pass	Detailed Assessment approved - needs slight adjustment. Action Plan being prepared.	61 NOx tube sites. 3 continuous monitors (Hersham from July 1998, Esher from Oct 2005, Molesey from Aug 2007)	
Epsom and Ewell BC	0	1	Ewell High St	A24 junction of London Road and Ewell bypass	To follow in 2009	3 NOx tubes. Funding for continious monitoring to begin Summer 2008	6 new NOx tubes sites in 2007-2008 up to 19 in EEBC area now.

Guildford BC	0	0				14 NOx tubes Continuous monitor at Station Approach, junction of Bridge Street / Walnut Tree Close.	
Mole Valley DC	0	0		West street Dorking, Ashtead, M25 Leatherhead		14 NOx tubes 1 continuous monitor at town hall.	
Reigate and Banstead BC	5	8	M25, M23 south of the M25 Horley, nr Gatwick Airport A217 Rushworth Road A23 Dean Lane A217 Blackhorse Lane Reigate High Street, Drift Bridge (A2022 / A240)	Reigate, Merstham	Action plan for M25 within R&B (2003) Action plan for non airport sources in Horley (2007) Action plan for Reigate High Street / A217 Blackhorse lane being produced.	100 NO_X tubes across the borough within and outside of AQMAs. Three real time sites around Gatwick, 1 real time to go in on Reigate High Street in 2008.	Merstham High Street (A23) was declared an AQMA in 2008, so no. of AQMAs now 8. POSSIBLE problem areas on A25 Redstone Hill in Redhill, and A217 Reigate Hill. May revoke A217 Rushworth Road and A23 Dean Lane in 2008.
Runnymede BC	2	2	M25	New Haw, Addlestone	Draft action plan – email of 23/10/07	20 NOx tubes	

Spelthorne BC	1	1	Whole borough Including M3 & M25, A30 & A308, Staines, Ashford and Sunbury.	Sunbury Cross Area	Action plan produced 2005	46 NOx tubes; 42location;1blank; 2 triplicate points 3 continuous monitoring stations: • Sunbury Cross area real-time NOx analyser (from 2007) • Heathrow (c/o BAA) NOx and PM_{10} • M25, Staines (c/o HA) NOx and PM10.	
Surrey Heath BC	1	1	M3 J4 to A325		Action plan produced 2005	10 Nox tubes, 1 continuos monitor	AQAP Progress Report produced 2007 and 8
Tandridge DC	0	0				25 NOx tubes 2 BTX tubes	

Waverley BC	3	3 (Farnham AQMA was extended in August 2007)	Farnham town centre (The Borough; parts of East Street and South Street; The Woolmead; Union Street; Downing Street; and part of West Street. Godalming - Ockford Rd / Flambards Way Hindhead - A3 crossroads	Farnham - East street	drafted during 2007 undergoing consultation	37 Nox tubes, 2 benzene tubes, 1 automatic monitoring station Hindhead (Nox), 1 automatic monitoring station Farnham, PM_{10} and NOx	
Woking BC	0	0	N/A	Anchor Hill, Knaphill 3 x NOx diffusion tubes are located at this site.	N/A	16 x NOx diffusion tubes 1 x BTEX tube	No mobile monitoring stations .
TOTAL	12	17					