

# A breath of fresh air

## Southampton air quality action plan

April 2008. Proposals to reduce air pollution in the city





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# 1. Summary

This Air Quality Action Plan (AQAP) sets out a strategic approach to improving air quality in Southampton.

In July 2005 Southampton City Council declared six Air Quality Management Areas (AQMAs) for the road transport derived pollutant nitrogen dioxide (NO<sub>2</sub>). The AQMAs were declared because assessments of air quality predicted that the annual mean objective for nitrogen dioxide of 40µg/m<sup>3</sup> was not likely to be met by the target date of December 2005. Whilst these are areas of particular concern, the action plan aims to address air quality across the whole city.

In order to meet the national objective for nitrogen dioxide in all of the AQMAs, Southampton will need to achieve a reduction in emissions of between 5% and 27%.

The AQAP puts forward a range of measures aimed at reducing NO<sub>x</sub> emissions in order to achieve the national air quality objective for nitrogen dioxide.

The main source of pollution in all of the AQMAs is from road traffic. Guidance from the Department for Environment, Food and Rural Affairs (DEFRA) states that, where road traffic emissions are the main contributor to pollution in the AQMA, the AQAP should be integrated with the Local Transport Plan (LTP). Southampton's second LTP was produced in June 2006 and contains an early draft version of the AQAP. The final AQAP will be fully integrated into future stages of the LTP and the LTP Annual Monitoring Report.

Southampton City Council has a statutory duty to review and assess air quality. Improvements in air quality will be measured against the baseline data, which is taken from the results of the commissioned 2004 detailed assessment. An aspiration has been set for Southampton to meet the national air quality objective for nitrogen dioxide by 2011. Progress against this will be measured through existing annual air quality monitoring procedures. A set of local indicators have also been devised to provide an intermediary measure of progress against the aspiration. The action plan has been prepared through a working group of City Council officers from Environmental Health, Transport, and

Sustainability, using the following government guidance documents:

NSCA (2001) Air Quality: Planning For Action

DEFRA (2003) Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance LAQM.PG (03)

DEFRA (2005) Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance: Addendum LAQM.PGA (05).



## 2. Consultation

The 1995 Environment Act provides the statutory basis for consultation on local air quality management. Schedule 11 of the Act requires local authorities to consult:

- the Secretary of State
- the Environment Agency
- the Highways Authority
- all neighbouring authorities
- any National Park authority
- other public authorities as appropriate
- bodies representing local business interests and other organisations as appropriate

The City Council has conducted consultation on the draft Air Quality Action Plan in line with the adopted Southampton Local Development Framework Statement of Community Involvement (2006), ensuring that the approach also incorporated the legal requirements as set out in the Environment Act 1995.

In addition to direct mailing for consultation, the draft document was made available to the public in a variety of accessible formats. Copies of the draft document for consultation were distributed at all the City of Southampton Local Housing Offices, the Civic Centre, and all City Libraries, and a copy was available on the City Council website.

The formal consultation period lasted for 8 weeks, from 3<sup>rd</sup> September 2007 to 29<sup>th</sup> October 2007.

Comments made through the consultation have been incorporated into the final version of the AQAP where appropriate. A summary of responses can be found in Appendix IV. Where measures outlined in the AQAP are taken forward, further consultation will be conducted as necessary on the details of the proposal.

The consultation on the Air Quality Action Plan has now closed, but any queries relating to its content can be directed to:

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### 3. Introduction

Clean air is essential for a good quality of life, yet every day thousands of people in urban centres are exposed to potentially harmful levels of pollutants, mainly from road traffic. Poor air quality is a threat to our health and the environment. Although there is still a degree of uncertainty as to the health effects of air pollution, there is increasing evidence that it can trigger asthma and other breathing illnesses and has also been associated with chronic conditions such as bronchitis and cancers.

#### 3.1. The Declarations

Part IV of The Environment Act 1995 places a statutory duty on all Local Authorities in the UK to periodically review and assess air quality in order to determine compliance with Government health-based objectives for a number of pollutants. National targets for the seven key pollutants are set out in the National Air Quality Strategy and the Air Quality Regulations 2000 (Appendix 1).

Local Authorities that determine air quality in their area is likely to fail to meet the objectives are required to declare the exceedance area as an Air Quality Management Area (AQMA), and produce an Air Quality Action Plan (AQAP) in pursuit of the achievement of air quality standards and objectives within the designated area. Local Authorities are also encouraged to have a strategy for improving and maintaining air quality across their entire administrative area.

In July 2005 Southampton City Council, following a detailed assessment of air quality across the city, declared six Air Quality Management Areas for the road transport derived pollutant nitrogen dioxide. The AQMAs were declared because assessments of air quality predicted that the annual mean objective for nitrogen dioxide of  $40\mu\text{g}/\text{m}^3$  was not likely to be met by the target date of December 2005.

Nitrogen dioxide pollution arises from emission of nitrogen dioxide and nitric oxide from combustion processes such as vehicle engines. When mixed with ambient air, nitric oxide is converted to the pollutant nitrogen dioxide. Together, nitric oxide and nitrogen dioxide are referred to as oxides of nitrogen

(NO<sub>x</sub>). The AQAP puts forward a range of measures aimed at reducing NO<sub>x</sub> emissions in order to achieve the national air quality objective for nitrogen dioxide. The national pollutant targets are health-based standards, which means the measures must reduce the level of human exposure to poor air quality. AQMAs are therefore only declared in areas where air quality is poor and buildings act as receptor units.

The AQMAs in Southampton are at the following locations:

- Bitterne Road
- Town Quay
- Bevois Valley
- Redbridge Road
- Junction of Romsey Road and Winchester Road
- Hill Lane, Winchester Road and The Avenue

The main source of pollution in all of the AQMAs is from road traffic. Guidance from the Department for Environment, Food and Rural Affairs (DEFRA) states that, where road traffic emissions are the main contributor to pollution in the AQMA, the AQAP should be integrated with the Local Transport Plan (LTP).

Southampton's second LTP was produced in June 2006 and contains an early draft version of the AQAP. The final AQAP will be included in future stages of the LTP and the LTP Annual Monitoring Report. Air quality is one of the five priority objectives in the LTP against which investment in transport schemes will be assessed. The LTP is therefore a key document in delivering a reduction of NO<sub>x</sub> emissions in the city through transport related measures.

Air quality is constantly being monitored in Southampton. Whilst air quality may improve and result in some of these areas reaching government objectives, in other areas it may worsen and result in new AQMA's being declared. For this reason, Southampton City Council has decided to implement a city-wide strategy to address the key causes of poor air quality, whilst also targeting areas known to have poor air quality with site specific measures.

The air quality targets that the Council is working towards do not guarantee to protect health. They are based on medical evidence of the effects of pollution but also take into account the costs, benefits and feasibility of moving towards the standards.

### 3.2. The Health Impacts

Acute rises in ambient NO<sub>2</sub> have been associated with short-term changes in total mortality, though much of this relationship is probably due to confounding by other pollutants. Ambient NO<sub>2</sub> is probably causally related to cardiovascular deaths and to emergency hospital admissions for ischaemic heart disease, acute myocardial infarction, chronic obstructive pulmonary disease (COPD) in older people and asthma at all ages, as well as increasing symptoms, medication use, and medical consultations, predominantly in people who already have COPD or asthma. The World Health Organisation (WHO) short term air quality guideline (AQG) of 200µg m<sup>3</sup> (1 hour) is based on studies of bronchial asthmatics which suggest an increase in responsiveness at levels upwards from 200µg m<sup>3</sup>.

Long-term exposure to raised NO<sub>2</sub> may affect lung function and increase the risk of respiratory infection. Epidemiological studies have not shown a threshold for these effects, although most experimental studies on healthy individuals or those with predominantly mild asthma have found effects only at much higher levels.

Epidemiological studies have shown that bronchitic symptoms of asthmatic children increase in association with annual NO<sub>2</sub> concentration, and that reduced lung function growth in children is linked to elevated NO<sub>2</sub> concentrations within communities already at current North American and European urban ambient air levels. A number of recently published studies have demonstrated that NO<sub>2</sub> can have a higher spatial variation than other traffic-related air pollutants, for example, particle mass. These studies also found adverse effects on the health of children living in metropolitan areas characterized by higher levels of NO<sub>2</sub> even in cases where the overall city-wide NO<sub>2</sub> level was fairly low.

The majority of the AQMAs are located within or very close to the priority neighbourhood areas. In recent years the COPD mortality gap between priority and non-priority neighbourhoods has been widening and in 2006 COPD mortality was 50% higher in the priority neighbourhoods compared to non-priority neighbourhoods. The prevalence of smoking is higher in the city's priority areas which is the main causal factor in COPD. The condition is worsened by exposure to air pollution. Whilst there is a need to do everything to reduce the prevalence of smoking there is also a need to protect this vulnerable population from the effects of air pollution. The AQAP must therefore recognise the need to address health inequalities and reduce air pollution in the AQMAs.



### 3.3. Addressing the Problem

The AQMAs were all declared because the locations did not meet Government air quality objectives for Nitrogen Dioxide (NO<sub>2</sub>) as a result of emissions from road traffic. The problem in Southampton is not unique and many other urban centres across the UK have also declared AQMAs.

Where road traffic has been identified as the main emission source responsible for exceedance of air quality objectives, local authorities are encouraged to integrate their Action Plan into their Local Transport Plans. Whilst the focus of the AQAP is on the existing measures proposed in the LTP, the AQAP will also identify a range of additional activities to ensure a more rapid improvement in air quality.



Following a further assessment of Southampton Air Quality in 2006, the source apportionment modelling identified that between 21% and 51% of the nitrogen dioxide in the AQMAs can be attributed to Heavy Goods Vehicles (HGVs). Improving the efficiency and quality of commercial vehicle and bus performance will therefore make a significant contribution to reducing overall levels of pollution from road transport.

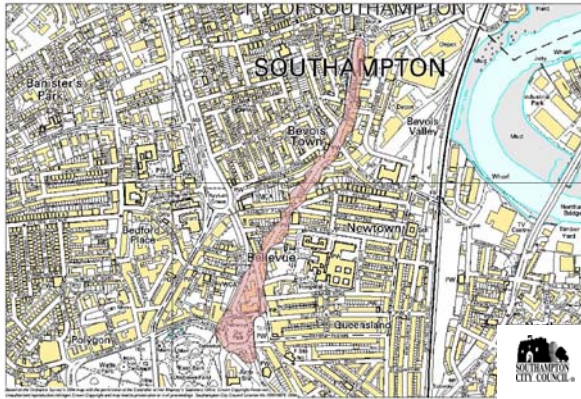
It is also important to emphasise the link between travel demand and the land use planning system. Co-ordinated planning across the city can help to locate development such that the need to travel by motor vehicle is reduced significantly. Such an approach should seek to minimise the cumulative effect of road transport emissions from smaller developments.

The Air Quality Action Plan will outline the baseline situation in Southampton with regards to key pollutants, set out proposed measures to improve air quality, and present an appraisal of these measures in terms of their air quality impacts, cost and timescale for implementation.

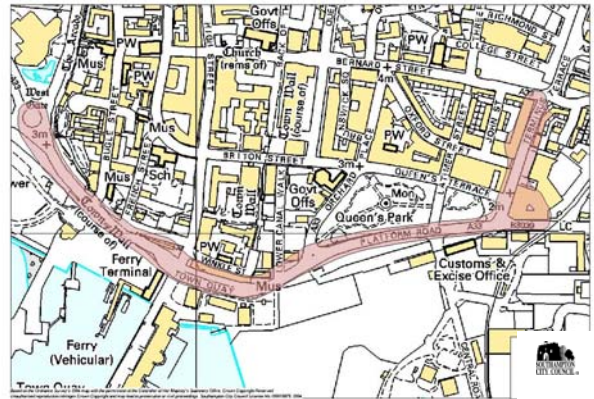
# 4. Local Air Quality Management

## 4.1. Air Quality Management Areas

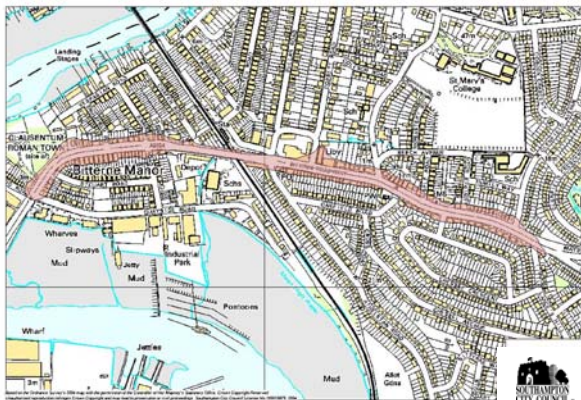
Bevois Valley



Town Quay



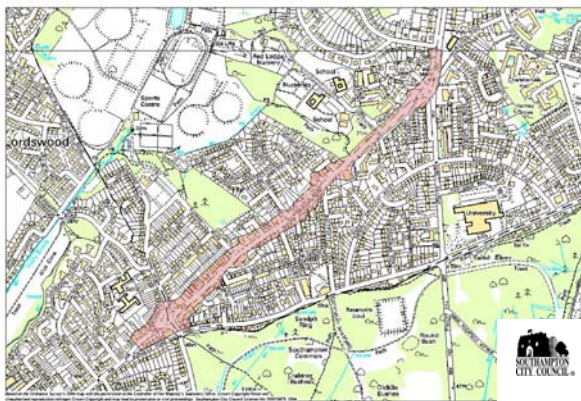
Bitterne Road



Redbridge



Winchester Road



Romsey Road



## 4.2. Air Quality Baseline and Monitoring

### Monitoring Stations in Southampton

The DEFRA Automatic Urban Network Station, located on Brintons Road by Six Dials Junction, was established 1994. The station is approximately 8 metres from the kerb of Northam Road in a residential area, and is passed by approximately 38000 vehicles per day. The station monitors nitrogen oxides, sulphur dioxide, ozone, carbon monoxide, and particulates.

The mobile Unit (Groundhog) is currently sited at Bitterne Road opposite Mays Carpets. It monitors nitrogen dioxide, sulphur dioxide, and particulates. The location is within a residential area approximately 10 metres from Bitterne Road/Bullar Road traffic signals and close to the railway line. The mobile unit has previously been sited at the Civic Centre Front Car Park & Wimpson Lane, Millbrook.

The permanent Station at Redbridge Community School was established in April 1999. It is approximately 8 metres from the kerb of Redbridge Road, the most heavily trafficked road in Southampton. This road is the designated route into the port for HGVs and lorries. An estimated 80,000 vehicles use this road every day, although only a proportion of those are vehicle movements are directly related to the Port. The station monitors nitrogen dioxide, sulphur dioxide, ozone, and particulates. It is in a residential area with several schools and sports grounds next to the road.

In 2005 a permanent nitrogen oxides analyser was also installed on Onslow Road within the Bevois Valley AQMA.

There are also currently 37 diffusion tubes situated at various locations across the city to regularly monitor levels of Nitrogen Dioxide.

### 2004-2005 Air Quality Baseline

In December 2004 the council published a detailed air quality assessment report, which was the technical basis of the AQMA declarations. The council collects monitoring data on an annual basis (see Table 1).

Figure 1: Air Quality Monitoring Sites



The city council is committed to carrying out a further review and assessment of air quality in the city to monitor government objective exceedances. This may result in some new AQMAs being declared and some existing areas being 'undeclared'. Annual monitoring of local air quality will be built into the AQAP programme.

### Future Air Quality Monitoring Proposals

There are currently no plans to increase the existing four automatic stations. At major development sites in the city, planning agreements will be sought between the city council and the site developers for installation of monitoring stations to ensure air quality targets are not exceeded as a direct result of the development.

The city council Environmental Health service has set in place a target to achieve 90% data capture on air quality monitoring. Traffic data predictions will be collected in order to model the likely air quality impact of proposals set out in the LTP.

Figure 2: Nitrogen Dioxide Annual Mean (2001-2006)

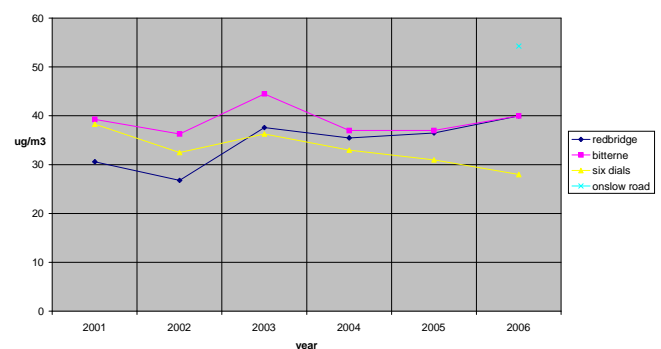


Table 1: Baseline Data 2006

Pollutant	Redbridge School	BitterneRoad/ Bullar Road by Mays Carpets	Six Dials Junction
<b>Particulate (PM<sub>10</sub>) ug/m<sup>3</sup></b>  <b>COMEAP banding system rating<sup>1</sup></b>	Average of 30.4ug/m <sup>3</sup> , peak day of 83.2ug/m <sup>3</sup> on the 5 <sup>th</sup> November 14 days above the daily mean standard Data Capture 91.2% <b>HIGH</b>	Average of 27.7 ug/m <sup>3</sup> , peak day of 128 ug/m <sup>3</sup> on the 5th November, 7 days above the standard Data Capture 92% <b>HIGH</b>	Average of 26 ug/m <sup>3</sup> , Peak day of 93 ug/m <sup>3</sup> 7 days above the standard. Data Capture 89% <b>HIGH</b>
<b>Nitrogen Dioxide ppb</b>  <b>COMEAP banding system rating</b>	Average of 40.0 ug/m <sup>3</sup> peak hour of 145 ug/m <sup>3</sup> on 3 <sup>rd</sup> July Data Capture 93.4%	Average of 40.0 ug/m <sup>3</sup> , peak hour 151 ug/m <sup>3</sup> on 19 <sup>th</sup> July Data Capture 86% <b>MODERATE</b>	Average of 28 ug/m <sup>3</sup> peak hour of 143 ug/m <sup>3</sup> Data Capture 91%
<b>Sulphur Dioxide ppb</b>	Average of 6.7 ug/m <sup>3</sup> peak 15 minute of 247ug/m <sup>3</sup> on 17 <sup>th</sup> August Data Capture 73%	Average of 2.1 ug/m <sup>3</sup> , peak 15 minute 165 ug/m <sup>3</sup> on the 18 <sup>th</sup> October Data Capture 88%	Average of 3 ug/m <sup>3</sup> peak 15 minute of 51 ug/m <sup>3</sup> Data Capture 74%
<b>Carbon Monoxide ppm</b>	N/A	N/A	Average of 0.3 mg m <sup>3</sup> peak 8 hour mean of 2.2 mg/ m <sup>3</sup> Data Capture 70%
<b>Ozone ppb</b>  <b>COMEAP banding system rating</b>	<b>Provisional data subject to QC/QA</b> Average of 58 ug/m <sup>3</sup> Peak 8 Hour of 318ug/m <sup>2</sup> on 17 <sup>th</sup> June 12 day above the standard Data Capture 86.5% <b>HIGH</b>	N/A	Average of 36 ug/m <sup>3</sup> peak 8 hour mean of 139 ug/m <sup>3</sup> 6 days above the standard Data Capture 94% <b>MODERATE</b>
<b>Benzene</b>	N/A	N/A	1.4 ug/m <sup>3</sup>  100% data capture (pumped diffusion tube)

ug/m<sup>3</sup> = micrograms per cubic metre, ppb = parts per billion, ppm = parts per million

<sup>1</sup> The Committee on the Medical Effects of Air Pollutants (COMEAP) banding system suggests that at levels categorised as 'high', sensitive people may notice significant effects of air pollution and may need to take action.

Table 2: Nitrogen Dioxide Diffusion Tube Annual Mean Results (2006)\*

	Data Capture	Ug/m3 average	Scaling Factor	Scaled Data	distance from receptor	distance scaling factor	Average at facade
Sandringham Road(garden)	100%	22.5	0.85	19.1	0	0	
Redbridge School	100%	55.8	0.85	47.5	0m	0	
Aukland Road	100%	49.2	0.85	41.8	3m	0.95	39.7
Regents Park Junction	92%	46.3	0.85	39.4	2m	0	
Pilgrim Court	92%	36.2	0.85	30.8	0m	0	
Anglesea Road	83%	46.6	0.85	39.6	6m	0.9	35.6
Cranbury Place	100%	62.3	0.85	52.9	1m	0	
Bitterne Road	75%	44.2	0.85	37.6	2m	0	
Bitterne Road AMS	100%	37.2	0.85	31.6	0m	0	
Brintons Road	100%	37.2	0.85	31.6	0m	0	
The Avenue	100%	48.7	0.85	41.4	6m	0.9	37.3
Town Quay	75%	44.4	0.85	37.8	1m	0	
41-59 Onslow Road	92%	53.5	0.85	45.5	2m	0	
3 Rockstone Place	100%	39.9	0.85	33.9	2m	0	
13 Earls Road	100%	36.8	0.85	31.3	2m	0	
Mt Pleasant Road	100%	39.0	0.85	33.1	1m	0	
Mt Pleasant Crossing	67%	39.3	0.85	33.4	1m	0	
Charlotte Place	75%	43.5	0.85	37.0	6m	0.9	31.5
22-28 Onslow Road	100%	49.2	0.85	41.8	2m	0	
Wyndham Court	100%	35.2	0.85	29.9	0m	0	
5 Commercial Road	83%	49.3	0.85	41.9	1m	0	
Hill Lane	100%	45.6	0.85	38.8	6m	0.9	34.9
Victoria Road	100%	27.2	0.85	23.1	0	0	
Victoria Road /Portsmouth Road	92%	46.3	0.85	39.4	4m	0.95	37.4
Portsmouth Road	100%	36.2	0.85	30.8	3m	0	
kerb 305 Millbrook Rd	92%	61.6	0.85	52.3	5m	0.95	49.7
St Andrews Road	92%	40.8	0.85	34.7	1m	0	
Fitzhugh Street	100%	39.6	0.85	33.7	0m	0	
Bursledon/Ruby	100%	39.2	0.85	33.3	3m	0.95	31.6
Bursledon/Kathleen	75%	50.3	0.85	42.8	3m	0.95	40.7
Thornhill Park/Hinkler Road	83%	30.5	0.85	25.9	0	0	
468 Bursledon Road	100%	31.7	0.85	26.9	0	0	
Canute Road	92%	38.2	0.85	32.5	1m	0	
431 Winchester Road	50%	36.0	0.85	30.6	3m	0.95	29.1
347A Winchester Road	50%	50.5	0.85	42.9	6m	0.9	38.6
148 Romsey Road	83%	54.3	0.85	46.2	5m	0.95	43.9

\*Red indicates exceedance of 40 ug/m3 annual mean

### 4.3. Local Air Quality Targets

Where AQMAs have been declared, Local Authorities must set targets for reductions in pollutant concentration.

Southampton City Council has an aspiration to meet the national air quality objective for Nitrogen Dioxide (NO<sub>2</sub>) across the city by 2011.

In order to achieve this, reductions in NO<sub>2</sub> will be required by varying amounts in each of the AQMAs.

Table 3: Nitrogen Dioxide Reductions Required in AQMAs

AQMA	Estimated reduction in NO <sub>2</sub> required to meet national objective
Bevois Valley	14.3 g/μm <sup>3</sup>
Bitterne Road	1-2 g/μm <sup>3</sup>
Winchester Road	1-2 g/μm <sup>3</sup>
Town Quay	2-4 g/μm <sup>3</sup>
Redbridge	1 g/μm <sup>3</sup>
Romsey Road	4 g/μm <sup>3</sup>

Progress against meeting air quality objectives will primarily be measured using existing air quality monitoring procedures. However, a set of indicators to measure intermediate outcomes are also set out below. These indicators will provide valuable data in monitoring the progress and relative success in the implementation of proposed air quality measures against the overall aim to reduce pollutant concentrations and have a positive impact on health.

- Bus patronage
- Number of cycling trips
- Change in peak period traffic flows
- Change in area-wide traffic mileage
- Mode Share of school journeys
- Number of properties within Southampton AQMAs
- CO<sub>2</sub> emissions from road transport



### 4.4. Source Apportionment

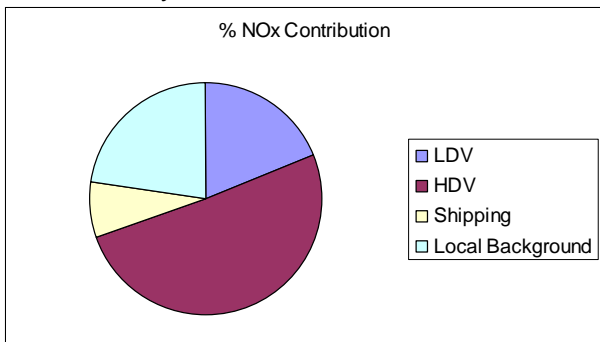
Source apportionment measurements show that at all locations analysed, traffic accounts for about half of the local NO<sub>x</sub> concentrations. At all source apportionment locations, Heavy Duty Vehicles (HDVs) account for well over 50% of the total traffic contribution, apart from AQMA Winchester Road and AQMA Romsey Road. HDV traffic generally contributes between a quarter and a half of the local NO<sub>x</sub> concentrations. Although the main focus of the action plan is to target emissions from road transport in general, with knowledge of the contributions from different sources to the exceedances more specific measures can be formulated where appropriate.

Shipping has contributed up to a quarter of the local total NO<sub>x</sub> concentrations at the location of the Town Quay AQMA, and 17% in Commercial Road<sup>2</sup>. Although air pollution from shipping is currently not significant, future projections would suggest that whilst road transport emissions will reduce as a result of technological advances, the same will not happen with shipping due to the lack of legislation and the prevalence of cheap and polluting fuels. In Southampton, as in other port cities, emissions from shipping are governed by the global community. It may however be necessary to intervene in this approach and take action at a local level to ensure shipping does not contribute significantly to air pollution in the future. A key measure for mitigating the impact of shipping would be through the supply of shore side electricity.

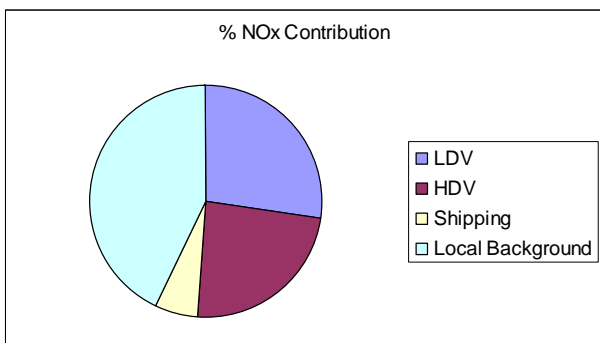
<sup>2</sup> These figures have been calculated using the best available information at the time of monitoring, although they are likely to vary with different data capture methodologies.

Figure 3: Source Apportionment within AQMAs\*

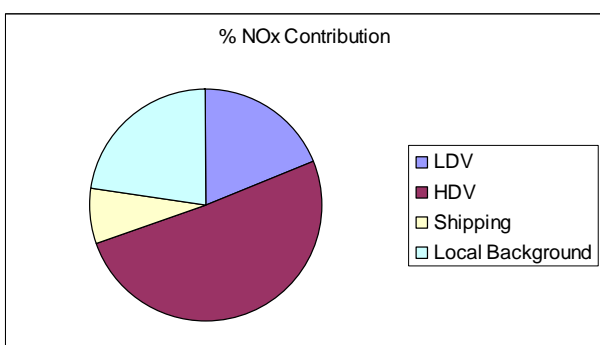
Bevois Valley



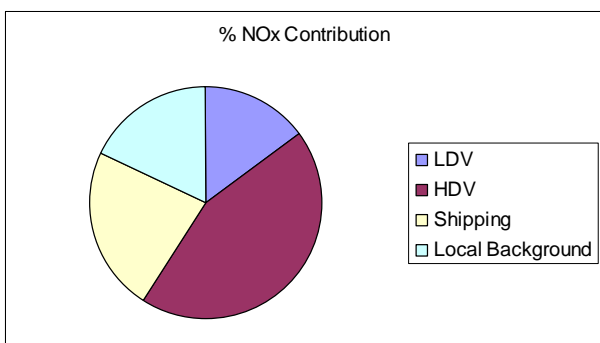
Bitterne Road



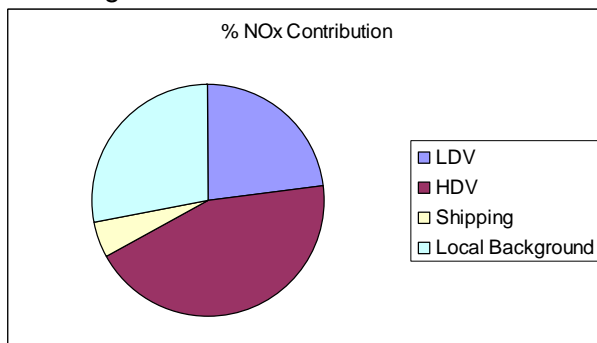
Winchester Road



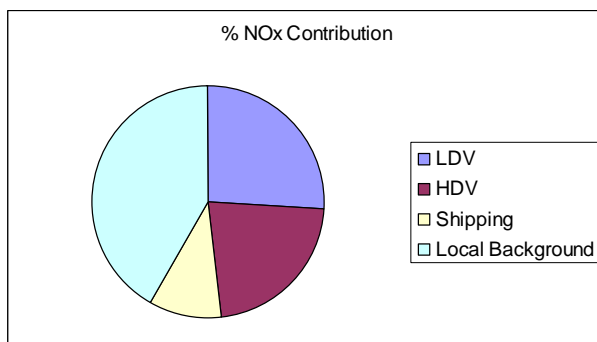
Town Quay



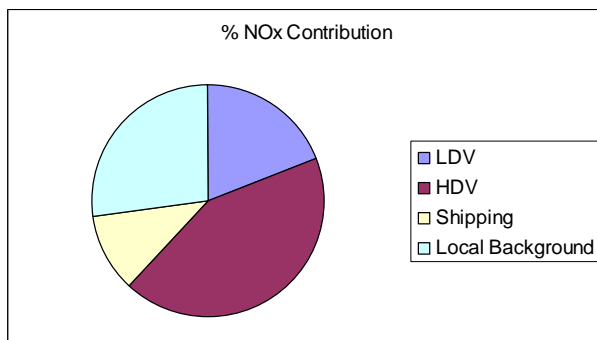
Redbridge



Romsey Road



Total



\*LDVs = Light Duty Vehicles  
 HDVs = Heavy Duty Vehicles

## 5. Air Quality Strategy and Policy



In 2001 Southampton City Council signed the Nottingham Declaration on Climate Change as it is recognised that greenhouse gas emissions are contributing to global climate change. The Declaration commits the Council to take a precautionary approach to the impacts of climate change and prepare an action plan to manage any associated risks or opportunities. In 2004 Southampton City Council adopted the Air Quality and Climate Change Strategy and aims to be a leader in efforts to combine improvements in air quality whilst addressing climate change.

Southampton City Council has aligned its own strategy to match the priorities under the UK Climate Change Programme which aim to ensure that the UK is secure in its delivery of its international target of reducing emissions of carbon dioxide by 20% on 1990 levels by 2010. The strategy seeks to ensure the Council meets its Climate Change targets and also fulfils its statutory obligation under the Air Quality Regulations (2000) to achieve the objectives for the seven key air pollutants. The strategy acknowledges that road transport accounts for a significant proportion of air pollution and CO<sub>2</sub> emissions in the city and therefore recognises the important role of transport-related measures in reducing emissions from road traffic.

The City Council is currently in the process of producing the Core Strategy as part of the Local Development Framework. The Core Strategy will set out the planning framework for the city. It will define the long term spatial vision and strategic objectives for the city (until 2026), incorporating: a spatial strategy; core policies; and a monitoring and implementation

framework with clear objectives for achieving delivery. Once adopted, it will supersede relevant components of the Local Plan Review.

Air Quality policy is currently contained within the City of Southampton Local Plan Review (March 2006). Local Plan Policy SDP 15 Air Quality states that planning permission will be refused where the effect of the proposal would contribute significantly to the exceedance of the National Air Quality Strategy Standards or where the proposal would be materially affected by existing and continuous poor air quality.

Large potentially polluting developments will be required to assess their air quality impact by detailed air dispersion modelling and appropriate monitoring.

Policy SDP 15 will be superseded by the Development Control Development Plan Document, which will be adopted as part of the Local Development Framework in 2010. Until this time, informal guidance has been provided to Development Control Officers as to the Local Air Quality Management process. This includes advice on how planning decisions should consider potential air quality impacts, particularly in relation to Air Quality Management Areas. There is a possibility for this advice to be expanded upon and formalised in an Air Quality Supplementary Planning Document in the near future.



## 6. Air Quality Action Plan

### 6.1. Transport related measures

#### 6.1.1 Corporate Commitments

The following commitments outline how the City Council works in partnership with other agencies and with all members of its own staff to ensure air quality improvements are a priority.

The City Council has made a corporate commitment to putting air quality in the heart of decision making process through the adoption of its Air Quality and Climate Change Strategy. The strategy emphasises the importance of other policy areas, such as planning, in contributing to improvements in local air quality. Further work will need to be done to influence the education and health sectors in recognition of the large proportion of transport movements they are responsible for in the city.

City transport policy and air quality monitoring is managed in co-ordination with involvement by the Highways Agency to ensure that emission reduction measures are put in place where trunk roads are major sources of pollution.

The City Council currently has quality partnerships in place with local bus operators. These will be further developed to ensure improvements are made to the way buses operate in Southampton. For example, bus operators will be required to drive cleaner, quieter vehicles in return for provision of better bus lanes.

The City Council is continually improving the level of information it provides to the public. The website will be regularly updated with relevant and accessible information relating to air quality improvements in the city.

#### 6.1.2 The City Council's Own Activities

The SCC Travel Co-ordination Unit administers a number of travel-related services which promote increased use of sustainable modes of transport through a co-ordinated programme of demand management. The Travel Coordination Unit's key activities are to:

1. Administer the Home to School Transport Service for Children's Services and Learning.

2. Administer the rail warrant scheme for the whole council.
3. Administer SCC corporate membership of the Wizzgo Car Club (new initiative aimed at reducing car ownership and staff use of own cars on a daily basis).
4. Provide a corporate journey planning service to promote sustainable travel options.
5. Run the corporate Courier Transport Service (a project set up to review the movement of goods council wide and reduce the council's fleet).

Key objectives for continuous improvement have been created following the Best Value Review of Council's use of transport and some further key activities including: a review of school owned minibuses to establish feasibility of a central brokerage service, and a review of Health and Community Care Learning Disability Team transport to improve the administration and co-ordination of activities and create efficiencies by reducing the number of vehicles in operation  
Investigate new ways of encouraging staff to cycle to work

The City Council will also seek to investigate the possibility of converting the SCC vehicle fleet to biofuel and/or retrofitting SCC vehicles with NOx abatement technology equipment to reduce NOx emissions.

#### 6.1.3 Local Transport Plan 2006-2011

The Local Transport Plan has put together a package of measures that will contribute to reducing road traffic emissions and congestion across the city. These range from strategic corridor improvements at specified locations, to highway alterations to improve accessibility for pedestrians and public transport, as follows:

- Gyrotory removal at Marsh Lane/Terminus Terrace and Platform Road/Town Quay.
- Central station re-modelling.
- Proposals for 3 Park & Ride sites.
- Bitterne Road improvements, including bridge widening and bus priority lane linked to P&R site.
- Rail gauge enhancement to increase rail freight capacity.

- City centre bus interchanges at 2 identified locations.
- Continuation of North South Spine scheme to enhance city centre accessibility.
- Woolston district centre improvements linked to major site re-development.
- Millbrook roundabout improvements to enhance access to Dock Gate 20.
- Major highway maintenance schemes.
- Active travel schemes to encourage walking and cycling.
- Travel planning initiatives for schools and in the workplace.
- Citywide public transport improvements.
- Citywide road safety improvements.
- Citywide accessibility improvements.
- Include costs for air quality modelling and impact assessment in the design stage of major transportation projects.
- Work closely with the Health Authority and University of Southampton to research the health impact of air pollution on vulnerable groups.

#### **6.1.4 Other Measures**

A range of other specific measures have been proposed relating to transport and highways management, mitigation techniques, future partnership working opportunities

- Target the freight fleet to container port to raise engine standards.
- Investigate alternative routes from the M271 to the container port.
- Investigate the possibility of de-trunking the M271 to gain control over its management.
- Partnership arrangements to introduce Euro 4 standard vehicles in bus and taxi fleets.
- Introduced fixed penalty fines for idling vehicles under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations, which came into force in July 2002.
- Emissions testing (VOSA).
- Introduce a public awareness and information provision strategy.
- Review existing traffic calming measures.
- Investigate funding opportunities for shore side electric supplies at the port.
- Revitalisation of District Centres, providing local community services and reducing the need for car trips.
- Provide guidance to Development Control.

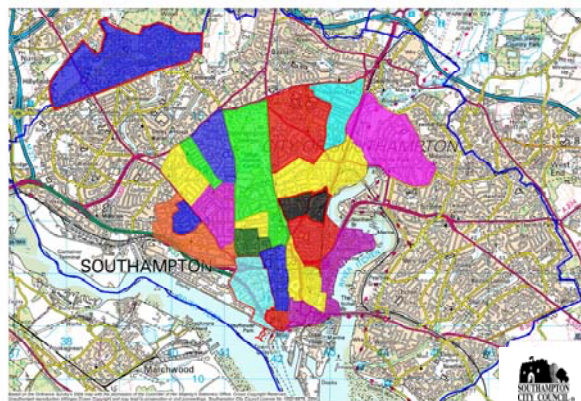
## 6.2. Non-transport related measures

Southampton City Council Environmental Health Team regularly investigates nuisance complaints from local residents regarding bonfires. Black Smoke is an offence under the Clean Air Act. Nuisance non black smoke is dealt with under the EPA 1990. The City Council regularly serves EPA 1990 Section 80 legal notices to abate nuisance bonfires from construction and demolition sites and private residents who irresponsibly choose to burn their waste. The planning department can impose planning conditions to prohibit the use of bonfires on redevelopment sites, although enforcement of this condition is very difficult.

The Environmental Health Team regulates and inspects authorised industrial processes under the EPA 1990 and has targets for the number of inspections carried out per year at authorised processes. Strict emission standards are enforced for particulate, solvents and energy efficiency. Larger industrial processes are regulated by the Environment agency. Emission standards become progressively stricter as technology provides more cost effective abatement.

Under the Clean Air Act 1993 local authorities may declare the whole or part of their district as smoke control areas. Southampton has 21 designated smoke control areas that cover approximately one third of the total area of the city (see Figure 4). It is an offence to emit smoke from a chimney, furnace or any fixed boiler if located within a smoke control area. Only authorised 'smokeless' fuels are permitted in a smoke control area unless the appliance is specifically exempted under the Clean Air Act.

Figure 4: Southampton Smoke Control Areas



### 6.3. Measures Appraisal

In preparing their AQAP's, local authorities are required to evaluate the cost-effectiveness of the individual measures propose, and to appraise the wider environmental, economic and social consequences of each option. This should be a broadly indicative assessment and not an in-depth cost-benefit analysis process.

The decision was taken to not rank measures in order as a result of the appraisal. Due to the integration of the AQAP with the LTP, many of these measures are already timetabled in for implementation. Equally, the implementation of some measures will rely on funding that cannot be assured at this stage, or is subject to resources that have already been allocated to particular programmes. The appraisal therefore seeks to demonstrate that the package of measures is proportionate and reasonable.

The majority of measures are generally applicable city-wide although some target particular areas and some generic measures could be used within existing AQMAs to increase the likelihood of reducing road transport emissions.

Air quality impact has been assigned on a basis of; the estimated scale of impact (i.e. expected decrease in vehicle numbers on the road or improvements to traffic flows and congestion), the location and/or geographical scope of impact (i.e. specific impact on a declared AQMA or areas close to exceedance of air quality objectives and/or city wide impacts as opposed to localised improvements), and the estimated reduction in emissions (e.g. through increased use of low emission vehicles and alternative modes such as public transport or walking/cycling).

Table 4: Key to Air Quality Impact Assessment of Proposed Measures

Cost		Air Quality Impact*		Timescale	
£	Less than £100K	HIGH	✓✓✓	LONG	5 to 10 years
££	£100K-£500K	MODERATE	✓✓	MEDIUM	2 to 5 years
£££	£500K-1 million	LOW	✓	SHORT	Less than 2 years
££££	Greater than 1 million	NEGLIGIBLE	-		

\* More quantified measurements (reductions in NOx concentrations) will be given as quantified traffic modelling data becomes available.

Table 5: Air Quality Impact Assessment of Proposed Measures

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
<b>CITY COUNCIL'S OWN TRAVEL ACTIVITIES</b>								
School Travel Plans	Survey of travel needs; encouraging alternatives to car travel; route improvements (walking/cycling); cycle storage provision; walking buses.	20% of peak time traffic is created by the school run. STPs can lead to a 10-15% reduction in this.	✓✓	all	£	Reduced congestion; enhanced safety; improved fitness & health; raised awareness behavioural change.	S - on course to have travel plans in all schools by 2010	Central Government (the Department for Transport and the Department for Children & Schools & Families)
Investigate ways to assist staff in cycling to work and between meetings	A number of measures will be introduced to build upon existing programme.	Measures include: road safety assessments, expanding on number of secure cycle storage locations, investigating a salary sacrifice scheme for bike lease to staff and providing pool bikes.	✓	all	£	Reduced congestion at peak travel times. Improved health and fitness of staff. Reduced travel times and cheaper transportation for staff.	In place	Existing budgets
City Council Rail Warrant Scheme	Encourages staff to travel to by train to meetings by issuing advance ticket payment vouchers.	The benefits of this scheme are likely to be limited as a high proportion of staff would decide to use public transport despite the scheme, and if they do not petrol costs can be re-claimed.	✓	all	£	May instigate behavioural change.	In place	Existing budgets

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
City Council Car Club	New car sharing scheme aimed at reducing the number of staff bringing vehicles to work for business purposes.	Will potentially decrease employee car ownership & travel out of work hours; ensures that low emission cars are used. Benefits dependant on previous patterns of car use, usage will increase as more people become aware of the scheme.	✓	all	£	Reduced congestion; greater scope in staff recruitment as no longer a need for individuals to provide their own car; fewer car parking spaces needed; cost savings.	In place	Existing budgets
City Council Journey Planning Service	Enables staff to have their journeys to/from work or business travel planned to increase financial efficiency and promote sustainable travel.	Will inform people of alternatives to car travel, benefits of the scheme may be limited dependant on the modes of transport that would have been used if the scheme was not in place.	✓	all	£	Reduced congestion; cost savings; may instigate behavioural change.	In place	Existing budgets
Corporate Courier Transport Service	A council wide review of the movement of goods vehicles.	Deliveries have been co-ordinated by a central fleet service such that vehicles for individual departments can be removed. Courier routes have also been re-engineered to create further efficiencies.	✓	all	Savings achieved	Potential cost, time and carbon savings.	In place	-

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Continuous Improvement Objectives	A series of projects arising from the Best Value Review of Transport. Objectives associated with a range of services will seek to reduce the number of fleet vehicles in operation.		✓	all	Savings achieved		M	-
Improving emissions from Council's vehicle fleet	A review of existing fleet to investigate the use of biofuel and the retro fitting of abatement technology.		✓	all	££	Carbon emission reductions.	S	Existing budgets
<b>LTP MEASURES: INFRASTRUCTURE &amp; PUBLIC TRANSPORT ENHANCEMENTS</b>								
A33 Marsh Lane / Terminus Terrace Gyratory Removal	Removal of existing one-way system to re-direct heavy goods traffic away from residential area and providing new bus priority route.		✓	Town Quay AQMA	££££	Reductions in congestion and noise pollution in concentrated areas; improves public realm value of the only open space in the old town.	M	LTP
A33 Platform Road / Town Quay Gyratory Removal	Removal of existing one-way system to re-direct heavy goods traffic away from residential area and providing new bus priority route.		✓	Town Quay AQMA	££££	Reductions in congestion and noise pollution in concentrated areas; improves public realm value of the only open space in the old town.	M	LTP

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Central Station Re-modelling	Creation of an interchange between bus and rail and a gateway arrival point to the city centre, with improved pedestrian links.		✓✓	all	££££	Increased use of public transport; reduced congestion; improvements to accessibility; increased revenue for city transport services for re-investment in the network.	L	LTP
Park and Ride	A demand management project at three strategic sites, intended to be linked to further restriction of car access to the City Centre.	Control issues over sites outside of the city's administrative boundary are affecting the speed of delivery. May generate longer trips to reach Park and Ride sites and some abstraction from other public transport services.	✓	all	££££	Reduction in City Centre congestion.	M	LTP and s106 contributions
A3024 Bitterne Road route (bridge widening plus bus and high occupancy vehicle priority lane linked to eastern P&R site)	Linked to the P&R scheme proposed for the east of the city to allow for dedicated bus facilities on the eastern approach (possible dual use as toll lane).		✓✓	Bitterne Road AQMA	££££	Encourages use of public transport leading to carbon emission reductions. Reductions in congestion and noise pollution in concentrated areas.	L	s106 contributions and Regional Funding Allocation
Rail Gauge enhancement (to enable more containers to go by rail)	Gauge enhancements to the rail route north from Southampton to increase the number of containers from the port being transported by rail rather than HGVs.		✓✓	Redbridge Road AQMA	££££	Retains local economy through competitiveness of the port. Prevents congestion on roads from growing port trade.	S	LTP



Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
City centre bus interchanges (2 locations)	Provide a focus for public transport hubs (in conjunction with extensions to pedestrianised areas) improving in-city links through proposals for bus priority, service reliability and accessibility.		✓✓	all	££££	Increased use of public transport leading to carbon emission reductions. Improvements to accessibility.	L	LTP
North South spine (continuation of scheme)	Major remodelling of London Road. Improvements to city centre legibility and street scene.		-	-	££££	Improved pedestrian access and public realm through the city centre.	L	LTP
Woolston District Centre (linked to redevelopment)	Proposed major redevelopment project will create a revitalised district centre, which will include improvements to promote walking, cycling and public transport in the area possible through installation of a new bypass.		✓✓	-	££££	Encourages active lifestyles and increases use of public transport.	M	LTP
Millbrook roundabout improvements	Improvements to pedestrian and cycling facilities around a major junction and to enable high quality access to dock gate 20.		✓✓	Redbridge Road AQMA	££££	Safety and accessibility improvements.	M	LTP

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Active Travel schemes (walking and cycling)	Walking: installation of new pedestrian crossing facilities in areas of demand, programme of walk to work routes in centres of business/retail activity, improvements to local shopping parades. Cycling: continuation of work to complete routes on the National Cycle Network, installation of more Advanced Stop Lines, erection of more cycle stands and development of more shared-use facilities.		✓✓✓	all	££££	Encourages active and healthy lifestyles and may instigate behaviour change. Carbon emission reductions.	M	LTP
Travel Planning initiatives (school and workplace)	Work with city schools and major employers to introduce travel plans for their sites.		✓✓✓	all	££££	Carbon emission reductions. Reduces road congestion.	M	LTP
Public transport improvements (citywide)	A range of schemes, including; continuation of real-time bus information system.		✓✓✓	all	££££	Encourages uptake of public transport leading to carbon emission reductions. Reduces road congestion.	M	LTP
Road Safety Improvements (citywide)	Programme of safety schemes to reduce road accident casualties.		✓	-	££££	Improves health and well being of population.	L	LTP

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Accessibility improvements (citywide)	Minor traffic management and/or freight management schemes, works to assist disabled road users, and other measures to assist general accessibility (e.g. funding for the shopmobility scheme, installation of dropped crossings, measures to support HGV bans in specific areas).		✓✓	all	£££	Quality of life benefits to users.	M	LTP
<b>PLANNING POLICY</b>								
Local planning policies (citywide)	Implementation of existing Local Plan policy and work towards strengthening policy in new Local Development Framework. This should include ensuring that the cumulative adverse effect of smaller developments on local air quality is avoided.	The air quality policy contained in the Local Plan helps to prevent residents from being exposed to poor air quality as a result of new development, and aims to reduce increases in road traffic linked to new development in and around AQMAs.	-	all	-	Section 106 agreements can raise money to fund other air quality improvement schemes. Local planning policies to encourage active travel as an alternative mode will contribute to health benefits.	In place	Existing budgets
Targeted planning guidance to address air quality impacts of development	Ongoing involvement with Planning Policy and Development Control to avoid the canyon effect (created by tall buildings on both sides of a road) and cumulative air quality effects of development through the planning process.	The canyon effect occurs when air pollutants are unable to disperse due to the density and height of surrounding development.	✓	all	£	Enhanced street scene and urban design improvements.	S	Existing budgets

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
<b>BEHAVIOURAL CHANGE &amp; AWARENESS RAISING</b>								
Public awareness and information provision strategy	General awareness initiatives to encourage behavioural changes that could lead to reduced car use, more efficient car use, and greater acceptance of alternatives and air quality management measures.	Promotion of walking and cycling. Air quality awareness, advice for motorists on cutting pollution, advice to car buyers, promotion of alternative fuels, health promotion and real time pollution information.	-	all	£	Reduced car use and more moderate driving would reduce traffic noise, improve safety and reduce congestion. Potential of 35% saving on fuel for the average driver. Considerable health benefits if population more active.	S	Existing budgets
Emission test days (in partnership with the VOSA)	Undertake 4-6 emissions test days per year and publicise testing results.	Emissions testing can be used to raise awareness on air quality issues to motorists and encourage them to seek improvements to their vehicles.	✓	all	£		S	Existing budgets
<b>OTHER MEASURES</b>								
Provide alternative routes from the M271	Provide a new link at Redbridge to enable direct access to the port from M271.	Aside from cost, there would be many issues to consider with this proposal, including the need for a Compulsory Purchase Order of existing housing and development in the Redbridge area.	✓✓✓	Redbridge Road AQMA	££££	Reduces congestion in the city from port related traffic.	L	Existing budgets
De-trunk M271	Taking responsibility of the M271 would enable SCC to introduce new traffic management measures.	Dependent on detailed discussions with the Highways Agency.	✓✓	-	££		M	Existing budgets

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Target the freight fleet to raise engine standards	Potential for reducing emissions from HGVs by working with freight partnerships to establish minimum emissions standards for HGVs operating in Southampton.	HGV emissions can be reduced by modernising the freight fleet to Euro 4 standard by 2010-12. these standards would be required anyway through government legislation so the measure involves achieving the target in advance. Costs would be borne by industry.	✓✓	all	£££	Wider environmental benefits depending on type of technology.	M	Dependent on private investment or external funding opportunities
Bus quality partnership	Emissions from buses can be reduced by modernising the bus fleet to Euro 4 standard by 2010-12.	The majority of buses currently operating in Southampton are Euro 2, with an average age of over 7 years. To upgrade the fleet to Euro 4 would require major investment to replace the fleet of 200 vehicles. Improvements to air quality would be concentrated on main corridors.	✓✓	all	Up to ££££		S/M - fleet could potentially be upgraded over a 2 year period subject to funding	Dependent on private investment or external funding opportunities
Taxi quality partnership	Taxi emissions can be reduced by modernising the fleet to Euro 4 standard by 2010-12.	Costs would be borne by industry.	✓	all	£		M	Dependent on private investment or external funding opportunities

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Introduce fixed penalty for idling vehicles (including buses and taxis)	Use legal powers to enforce fines for idling vehicles and prevent unnecessary emissions.	Air quality improvements would be localised.	✓	all	£	Improvements to noise levels and general quality of life. Cost savings possible due to reduced fuel use. Reductions in carbon emissions.	S - enforcement arrangements would need to be agreed	Existing budgets
Review traffic calming measures	Creating horizontal deflections rather than vertical (e.g. speed bumps) can prevent sporadic engine use. Alternative design measures such as those used in Home Zones can still ensure high levels of road safety. Changes would be implemented through the planning process and the use of s106 and s38 agreements.	Air quality improvements would be localised and minimal.	✓	all	-	Reduces congestion.	S - no targets but work is already underway and ongoing (e.g. London Road)	Existing budgets
Consider changes to traffic light phasing	Using the Road Traffic Management System to change traffic light phasing could hold back traffic queues in areas without residential receptors.	Reduces impacts in AQMAs. Displacement of congestion to areas without residential receptors would not effect compliance with air quality standards.	✓✓	Bevois Valley AQMA and Bitterne Road AQMA	-	Reduces congestion in AQMAs. Noise impacts would increase in new traffic waiting areas.	S - no target date but the proposal could be implemented relatively quickly	Existing budgets

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Addressing port related issues through a package of measures	Working with ABP to address port related transport issues and emissions from shipping could involve a range of measures, including; creating new access routes, providing alternative fuel supplies, introducing freight quality partnerships, and developing lorry staging areas.	Port related activity (particularly HGVs) contributes significantly to air quality issues across the city.	✓✓✓	Redbridge Road AQMA and Town Quay AQMA	£-£££	Most measures would reduce congestion in the city from port related traffic.	M	Dependent on private investment or external funding opportunities
Shore side electricity	Investigate funding options to undertake a feasibility study for shore side electric scheme at Southampton berths.	Port related activity from shipping and HGVs contributes significantly to air quality issues across the city. Shore side electric supplies would achieve reductions in shipping emissions in the port and emissions from HGVs that would usually be transported fuel.	✓	Town Quay AQMA	££££	Could reduce congestion from port related traffic.	M - no target date for implementation of scheme as depends on feasibility study and funding available	Dependent on private investment or external funding opportunities
Revitalising District Centres and creation of Community Hubs at Lordshill, Woolston, Bitterne, Portswood, Shirley and City Centre	Community Hubs will provide the local community with key services, therefore reducing the need for car trips.		✓✓	all	££££	Reduction in road congestion and carbon emissions. Encourages the use of local amenities, businesses and public transport.	M	Existing budgets

Measure	Action	Additional Information	Air Quality Impact	AQMA	Cost	Non-Air Quality Impacts	Timescale	Funding
Investigate a personal travel planning service for residents and businesses of Southampton	Run by a partnership of charitable organisations, the service would encourage the use of more sustainable transport. There is an opportunity to obtain European funding for this project.		✓	all	£		S	Dependent on funding
Integrate Air Quality Impact Assessment into all major transport projects	Include costs for air quality modelling and impact assessment in the design stage of major transportation projects to ensure that their impacts are understood.	Transport projects do not currently include a requirement for Air Quality Impact Assessments. Having a clear understanding of the potential impact of proposed infrastructure can determine how projects should go ahead and the levels of mitigation required.	-	all	-	Improved project management.	S	Individual project costs
Research the health impacts of air pollution	Work closely with the Health Authority and University of Southampton to research the health impact of air pollution on vulnerable groups.	Understanding the health impacts of air pollution, particularly on vulnerable groups, is necessary to inform the development of appropriate actions. Southampton University is an academic leader in the field of asthma research.	-	-	-	Strengthening of partnership working.	S-M	Existing budgets



#### **6.4. Monitoring and Evaluation**

Implementation of the actions will be monitored by the Environmental Health and Transport Policy Services. The effectiveness of actions will be judged by progress towards meeting the air quality objectives as measured by:

- Reductions in NO<sub>x</sub> emission concentrations
- Intermediate outcomes as detailed in section 4.3

Some of the measures proposed may need to be modelled in terms of air quality impacts. Other studies such as bus use, further traffic surveys and car parking surveys are also likely to be required to monitor the effectiveness of the options in the AQAP.

Progress against the AQAP measures will be reported on through an annual progress report, the first of which will be submitted to Defra in April 2009.

Local Authorities also have a duty under the Environment Act 1995 to keep their action plans up to date which may include revising the AQAP.

#### **6.5. Further work on the AQMA process**

Air quality in Southampton will be continuously reviewed to assess management needs and progress against the national air quality objectives.

In April 2007 Southampton City Council commissioned a Detailed Assessment Report of air quality in the city. The will provide information on any changes in air quality that may result in either the revocation of existing AQMAs or the declaration of new AQMAs in areas where air quality is currently on the borderline of the national objectives.

In April 2009 a further Updating and Screening Assessment will be commissioned to review the local air quality situation across the city. Any resulting updates to the AQMAs will be consulted on.

## Appendix I National Air Quality Objectives

Substance	Objective Levels	Objective Date
Benzene	16.25 micrograms per cubic metre or less, when expressed as a running annual mean	31st December 2003
1,3 -Butadiene	2.25 micrograms per cubic metre or less, when expressed as a running annual mean	31st December 2003
Carbon monoxide	11.6 milligrams per cubic metre or less, when expressed as a running 8 hour mean	31st December 2003
Lead	0.5 micrograms per cubic metre or less, when expressed as an annual mean	31st December 2004
	0.25 micrograms per cubic metre or less, when expressed as an annual mean	31st December 2008
Nitrogen dioxide	200 micrograms per cubic metre, when expressed as an hourly mean, not to be exceeded more than 18 times a year	31st December 2005
	40 micrograms per cubic metre or less, when expressed as an annual mean	31st December 2005
PM <sub>10</sub>	50 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 35 times a year	31st December 2004
	40 micrograms per cubic metre or less, when expressed as an annual mean	31st December 2004
Sulphur dioxide	125 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 3 times a year	31st December 2004
	350 micrograms per cubic metre or less, when expressed as an hourly mean, not to be exceeded more than 24 times a year	31st December 2004
	266 micrograms per cubic metre or less, when expressed as a 15 minute mean, not to be exceeded more than 35 times a year	31st December 2005

## **Appendix II Summary of Air Quality Assessment and AQMA Declaration Methodology**

The Environment Act 1995 introduced a requirement for local authorities to review and assess air quality in their areas. The aim of the Review and Assessment process is to determine whether the statutory objectives contained in the National Air Quality Strategy and Air Quality Regulations will be breached at the target date. If the standard is likely to be breached, the Review and Assessment Report should predict future pollutant levels in more detail and identify areas where the public is likely to be exposed for a significant period of time.

The Environment Act states that “the local authority shall by order designate as an AQMA any part of its area in which it appears that the air quality objectives are not likely to be achieved..”. In theory this means that the boundary of the AQMA and the area of exceedance (i.e. the contour on the modelled map) would be exactly the same. However this would lead, for instance, to only parts of properties being designated and in practice most authorities have used physical features e.g. roads, property boundaries or administrative boundaries such as wards to designate their AQMAs.

The objective is to have boundaries which are soundly based on the evidence of modelling and monitoring, logical, understandable and consistently applied.

In order to achieve some consistency for AQMA boundaries in Southampton, the following principles will be applied:

Where the contour passes through part of a building the whole building will be included.

Gardens, which form an extension of the area outside the contour or gardens of properties otherwise included within the boundary will not be included e.g. rear gardens of properties where the area of exceedance is to the front (but see rule relating to vacant land below).

Properties in the middle of a terrace, where properties each side are included will also be included.

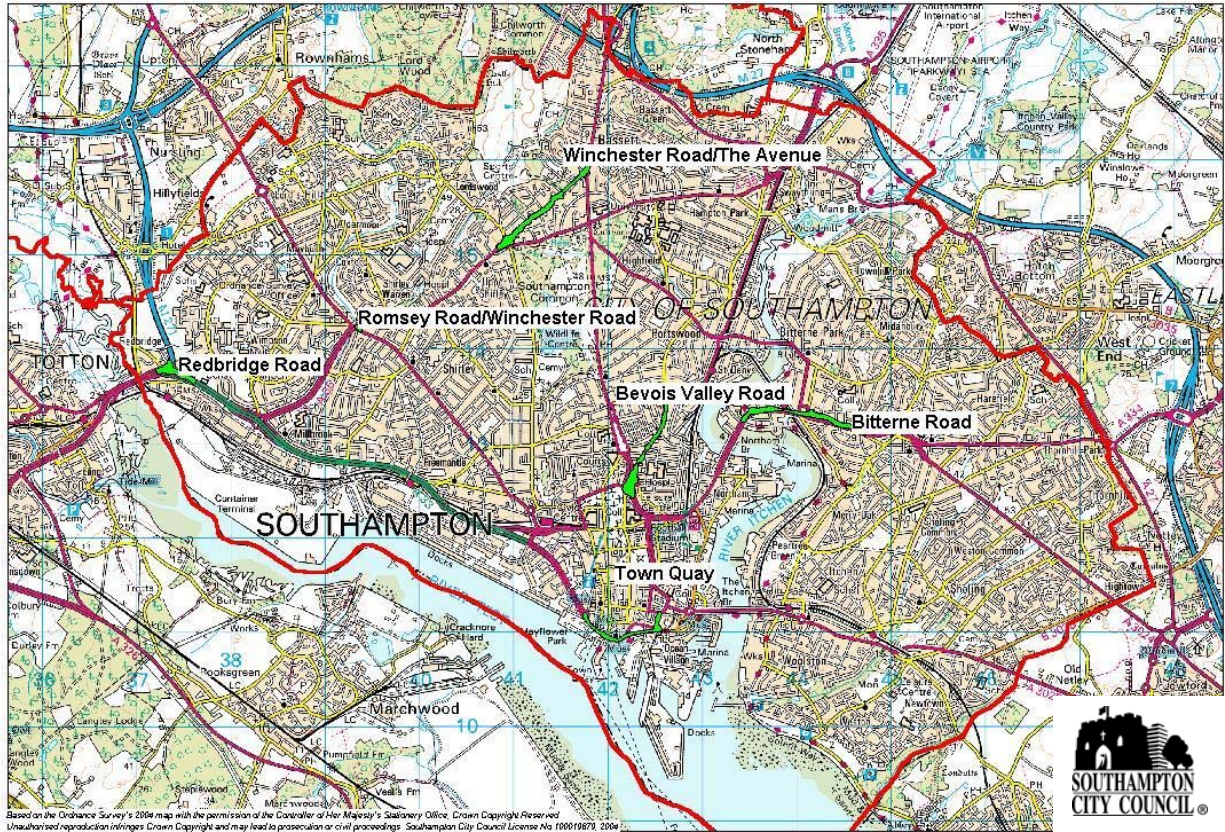
Buildings with no ‘receptors’ e.g. unoccupied or commercial properties enclosed within the boundary should be included.

Most of the areas follow the line of roads. Where properties on one side of the road are included the boundary on the opposite side should consider the inclusion of properties which are positioned similarly to those included on the opposite side unless there are significant differences in likely exposure.

Vacant land within boundaries or between properties which are included will be included.

This approach takes into account the uncertainty of modelling and by including an area of uncertainty (as advised in NSCA advice) outside the modelled contour, allows for the inclusion of the additional areas and the sensible setting of the boundary.

## Appendix III Location of all AQMAs in the city



## Appendix IV AQAP consultation responses

AQMA	Comments	Response
Winchester Road	Needs to be limitations to development in the area as it generates traffic. Concerns about Boldrewood site.	The AQAP sets out a commitment to addressing air quality issues through the planning system. The action plan will not go into details of planning issues and individual sites as this is dealt with through planning legislation and policy.
Town Quay	Suggests closing off docks end of Terminus Terrace and closing Queens Terrace to traffic, making Platform Road two way, enabling HGV traffic for dock gate 4 to approach from motorway rather than through city centre. Queen's park should be used as recreational area.	The suggested measures are already set out in the AQAP.
Bitterne Road	Bullar Road/Athelstan Road intersection causes congestion. Two lane bridge over railway line yet to be widened. Obstructions across the city such as traffic lights that create slow down and speed up patterns. Unnecessary speed cameras cause traffic to slow down.	The AQAP contains proposals to widen the Bitterne Road bridge (linked to a possible bus priority lane), and to review changes to traffic light phasing and traffic calming measures across the city. The current traffic management system (ROMANSE) is designed to smooth traffic flow and maximise road use through the city.
Winchester Road	Suggest the following: <ul style="list-style-type: none"> <li>• Commitment to disallow movement of docks freight traffic along Winchester Road/Bassett Avenue</li> <li>• No further major retail outlets fed from Winchester Road</li> <li>• Minimising HMO and conversion to apartments locally</li> <li>• Commitment that planning decisions will positively engage with the AQAP (e.g. of Boldrewood site)</li> <li>• Need imaginative park and ride scheme.</li> </ul>	The action plan will not go into details of planning issues and individual sites as this is dealt with through planning legislation and policy.  Proposals to address dock freight movement and park and ride schemes are put forward in the AQAP.
All	Need funding to improve frequency of services for public transport. Sustainable planning must incorporate strict measures to reduce traffic flow and prohibit developments which increase transportation.	Encouraging take up of public transport, introducing park and ride schemes, and evaluating traffic management are proposals put forward in the AQAP.  Residents' parking is dealt with through planning policy

	<ul style="list-style-type: none"> <li>• Why are Bassett Avenue and Burgess Road not AQMAs – is there monitoring here?</li> <li>• No additional traffic lights installed – reduce existing number where possible.</li> <li>• Blanket areas of resident parking schemes – many currently allow a couple of hours parking for non-residents.</li> <li>• Introduce park and ride schemes, with a study to quantify number cars accessing the city daily and their destinations.</li> </ul>	<p>and legislation.</p> <p>Detailed monitoring and assessment of air quality has been carried out across the city, which has identified areas to be declared as AQMAs. The methodology adopted has been prescribed by Government and includes a range of variables such as the presence of resident receptors. Environmental Health are looking into placing additional monitoring tubes where requested.</p>
Winchester Road	<p>Issues with overdevelopment. Lack of community facilities within walking distance. Boldrewood site will create traffic increases.</p>	<p>The action plan will not go into details of planning issues and individual sites as this is dealt with through planning legislation and policy.</p>
All	<ul style="list-style-type: none"> <li>• Partnership working to identify vulnerable groups</li> <li>• Concerns about the effects of poor air quality on health</li> <li>• The health impact of air pollution should be made more explicit</li> <li>• The effects of air pollution on health inequalities</li> <li>• Consider the declaration of further AQMAs</li> <li>• Adverse health effects of proposals to improve air quality should be avoided</li> <li>• Aim to maximise the positive health impact of the AQAP</li> <li>• Prioritise the proposals to improve air quality on the basis of health impact</li> <li>• Measure the effect of the AQAP on health</li> <li>• Working group to progress the above recommendations</li> </ul>	<p>The technical details provided on the health impacts of poor air quality have been included in the AQAP as important background information that underpins approaches to air quality management.</p>
All	<ul style="list-style-type: none"> <li>• Port issues are not sufficiently covered. Although air pollution from shipping is currently not significant, future projections would suggest that whilst road transport emissions will reduce as a result of technological advances, the same will not happen with shipping as there is no legislation and cheap, polluting fuels are commonly used.</li> <li>• This is an International issue – see Ports Policy</li> </ul>	<p>These issues have been integrated into the AQAP.</p>

	<p>Review document (interim response) on the DfT website.</p> <ul style="list-style-type: none"> <li>• A key measure for mitigating the impact of shipping emissions would be 'cold ironing' (shore side electric supplies).</li> <li>• The AQAP document needs to make a clearer link between investigations in shore side electric and the role it has to play in reducing shipping emissions.</li> <li>• The LDF should contain policies that condition and major applications resulting in increased shipping activity to provide cold ironing facilities.</li> </ul>	
All	<p>Investigate a personal travel planning service (run by and NGO, the Environment Centre, and Solent Groundwork) for residents of Southampton and businesses to encourage more use of sustainable transport. Potential for European funding. Probably £30,000 a year, low AQ impact, timescale within 12-18 months dependent on European funding.</p> <p>Include in the AQAP "we will investigate funding options to undertake a feasibility study for a possible shore side electric scheme at Southampton berths".</p>	These issues have been integrated into the AQAP.

## Glossary

AQMA	Air Quality Management Area
AQPA	Air Quality Action Plan
CO <sub>2</sub>	Carbon Dioxide
Defra	Department for Environment, Food and Rural Affairs
Euro Standards	European emission regulations for new heavy-duty diesel engines are commonly referred to as Euro I to V. Euro III was introduced in 2000 and Euro IV in 2005 with NO <sub>x</sub> emission standards of 5.0 g/KWh and 3.5 g/KWh respectively
HDV	Heavy Duty Vehicles (includes buses, coaches and articulated vehicles)
HGV	Heavy Goods Vehicles
LDV	Light Duty Vehicles
NO <sub>x</sub>	Nitrogen Oxides
NO <sub>2</sub>	Nitrogen Dioxide
SCC	Southampton City Council
VOSA	Vehicle & Operator Services Agency





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Designed, printed & produced by Southampton City Council 11.07.20655



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