

Air quality action plan

Progress report

June 2010



Introduction

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 seven key pollutants are set out in the National Air Quality Strategy and the Air Quality Regulations 2000. 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.

The Southampton AQAP was produced in April 2008 and an update produced in November 2009. Local authorities which produce an AQAP are required to prepare an annual progress report on measures contained in the action plan and submit it to DEFRA. The last annual progress report was provided in June 2009.

This Progress Report will give a picture of the current situation in relation to measures set out in the Air Quality Action Plan update (November 2009) and other trends that have emerged through monitoring of NO_x emissions and data collected against a range of other intermediate outcomes.

Description of Southampton

Southampton is a south coast port city of 221,200 people (2004). The Deep Water Channel of Southampton Water links the City to the Solent and the English Channel. The City is bounded to the west by the River Test and the River Itchen runs through the eastern part of the City.

The City of Southampton lies at the western end of the South Hampshire sub-region. The wider urban South Hampshire area, consisting of Southampton, Eastleigh, Fareham, Gosport, Portsmouth and Havant, together with parts of the New Forest, Test Valley, Winchester and East Hampshire has a combined population of 971,250 (2004 figure) and is the largest urban area in the South East region outside London. As a consequence, the area is also one of the South East's major economic centres and whilst other successful areas in the region depend upon linkages to London, South Hampshire operates in a distinct and largely separate manner, relying instead on connections with other regions and with Europe as a result of the presence of two major ports (Southampton and Portsmouth).

The major source of air pollution in Southampton is road transport emissions, especially Heavy Goods Vehicles (HGVs). Domestic gas boilers, Industrial emissions particularly from the waterside and shipping emissions also contribute towards the total.

AQMAs

There are currently 8 AQMAs within the city of Southampton all of which were declared due to measured concentrations of nitrogen dioxide which exceed the annual mean objective of 40µg/m³, principally caused by traffic congestion. 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 57%. Whilst these are areas of particular concern, the action plan aims to address air quality across the whole city.

1) Bevois Valley Road



3) Hill Lane, Winchester Road and the Avenue



2) Bitterne Road West



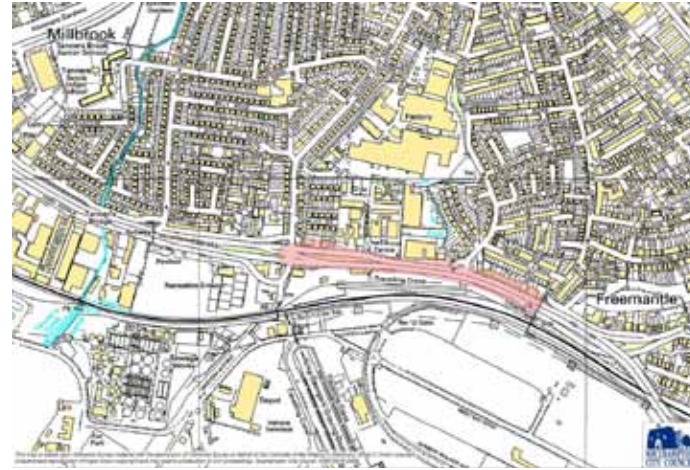
4) Town Quay



5) Redbridge Road



7) Millbrook Road



6) Junction of Romsey Road and Winchester Road



8) Commercial Road



New Projects

Since the AQAP was produced, a number of new projects were developed with an aim to reduce air pollution in the city. These were integrated into the measures table in the revised version of the AQAP published in November 2009.

Reduce Strategy

As part of the overall Reduce-Manage-Invest approach to transport, a Reduce Strategy was developed by Transport for South Hampshire in September 2009. The strategy aims to influence travel behaviour and widen travel choice in order to reduce the need to travel; maximise the number and proportion of journeys made by alternative modes to the private car; and contribute to wider environmental and health benefits, such as reducing carbon emissions and improving air quality. It was adopted by the Transport for South Hampshire Joint Committee in September 2009.

AQ prediction & traffic management pilot study

The study is investigating the feasibility of reducing or relocating traffic queues in AQMA areas. Some initial studies have indicated that there is a direct correlation between the micro climate and the intensity of pollutants in the atmosphere even on days when traffic flows remain constant. In response to this, the ROMANSE team are researching the ability to collect micro climate data and traffic flow data in an attempt to identify suitable trigger points when alterations to the control of traffic maybe of benefit in the reduction in the concentration of localised emissions in the atmosphere. A low cost CO and NOX sensor and a meteorological data logging device has been developed and installed in the Bevois Valley AQMA. Baseline data has been collected and aligned with data on vehicle flows, delays, speeds and queue lengths collected from the adaptive traffic control systems at ROMANSE for the past 12 months. A traffic micro simulation model will now be created which will be used to test the potential traffic control measures which may result in the reduction of emissions concentrations in the AQMA area. It was intended that the project will take 3 years to complete. Year 1 has seen the development of logging equipment, data collection and analysis, year 2 will see traffic modelling and control analysis, year 3 field trials. Total costs are £8,000 over 3 years. Air quality impacts will be localised. Whilst they won't necessarily reduce air pollution they will relocate the source to an area without receptors, therefore reducing the health impact.

Air Alert project

The Air Alert project is a joint venture between Southampton City Council and Southampton City PCT and was launched on the 14th June 2010 (www.airAlert.info). Air Alert will provide Southampton residents who have an existing respiratory condition with advance warning of poor air quality and enable them to adjust their behaviour to minimise the risk of exposure to elevated levels of pollution. This will empower individuals to manage their own illnesses, and in extreme cases will prevent admissions to hospital. The project will initially identify community clusters in 3 of Southampton's Air Quality Management Areas (AQMA's) – Redbridge Road, Bitterne Road and Bevois Valley, 2 of which are designated Priority Neighbourhoods. The project costs are relatively low and will be committed initially over a period of 2-5years. Whilst the actual air quality impact will be negligible, the objective of the project is to address the existing health impacts of residents by preventing their exposure to future incidents of poor air quality.

Keep the City Moving group

The Keeping the City Moving Group has been established and meets on a regular basis. The principal aims of the group are to act as the project Board for Congestion issues, provide a focus for and coordination of anti-congestion actions, coordinate the Authority's Network Management Duty, coordinate issues and actions from consultation groups, managers and members, communicate issues and solutions to the public, partners and Members, ensure plans are in place for events, issues and emergencies and reflect the key principles of the LTP of Reduce – Manage – Invest. The group is SCC led with officers from across relevant service areas of the council.

Air Quality Action Plan

The AQAP sets out a strategic approach to improving air quality in Southampton. It puts forward a range of measures aimed at reducing NOx emissions in order to achieve the national air quality objective for nitrogen dioxide. Road traffic has been identified as the main emission source responsible for the exceedance of air quality objectives in the city, and therefore, the AQAP action plan is integrated into the Local Transport Plan. The Local Transport Plan will 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. A range of other specific measures have been proposed relating to transport and highways management, mitigation techniques, and future partnership working opportunities.

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. This approach seeks to minimise the cumulative effect of road transport emissions from smaller developments. 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.

Whilst the focus of the AQAP is on the existing measures proposed in the LTP, the AQAP also identifies a range of additional activities to ensure a more rapid improvement in air quality. Therefore actions are prioritised within a number of categories:

- council's own activities,
- planning policy,
- local transport plan actions,
- behaviour change,
- other actions and
- new actions

These performance measures are subsequently evaluated to determine impact and status. The table demonstrates in a prioritised way, based on impact, those measures which will realistically be implemented to reduce pollution. This enables us to make informed judgements about the priority of each action given the variability of reductions required.

Key to Air Quality Impact Assessment of Proposed Measures

Air Quality Impact*	
HIGH	✓✓✓
MODERATE	✓✓
LOW	✓
NEGLIGIBLE	-

Table 1: Progress against Air Quality Action Plan measures

Measure		Timescale	Description	Status	Progress	Air Quality Impact	
Council's own activities	1	School Travel Plans	2010	Survey of travel needs; encouraging alternatives to car travel; route improvements (walking/cycling); cycle storage provision; walking buses.	Green	100% of all schools in Southampton have travel plans in place	✓✓
	2	Investigate ways to assist staff in cycling to work and between meetings	2008	A number of measures will be introduced to build upon existing programme including: 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.	Green	Road safety assessments are now undertaken, the number of secure cycle storage locations have been expanded throughout the city, a salary sacrifice scheme for bike lease to staff has been put in place and pool bikes are now provided to staff	✓
	3	City Council Rail Warrant Scheme	2008	Encourages staff to travel to by train to meetings by issuing advance ticket payment vouchers	Green	The scheme is now in place. Rail Warrants are made available to allow advance purchase of train tickets for work related travel	✓
	4	City Council Car Club	2008	New car sharing scheme aimed at reducing the number of staff bringing vehicles to work for business purposes.	Green	The scheme is now in place and is managed by City Car Club.	✓
	5	City Council Journey Planning Service	2008	Enables staff to have their journeys to/from work or business travel planned to increase financial efficiency and promote sustainable travel.	Amber	30.9% of the working population are now covered by a Travel Plan.	✓
	6	Corporate Courier Transport Service	2008	A council wide review of the movement of goods vehicles.	Green	All deliveries co-ordinated by central fleet service. 1 vehicle and 1 ft member staff saved plus reduction in overall mileage. The development of a	✓

					database will be undertaken pending the adoption of Local Transport Plan 3. LTP3 is reviewing data collection from 2011 to 2012 to ensure that duplication doesn't occur. A Green Fleet Review is being undertaken by the Carbon Trust		
	7	Continuous Improvement Objectives	2010-2013	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.	Green	Work on action plan is ongoing. Green Fleet Review is being undertaken by the Carbon Trust	✓
	8	Improving emissions from Council's vehicle fleet	2010	A review of existing fleet to investigate the use of biofuel and the retro fitting of abatement technology.	Green	Fuel consumption figures were obtained and will provide a baseline for comparison in future years. Green Fleet Review is being undertaken by the Carbon Trust as a modelling exercise on the increase of the entire fleet to Euro 3 or 4 standards commissioned. At least two thirds of the current fleet are at Euro 4 standard.	✓
Local Transport Plan actions	9	A33 Marsh Lane / Terminus Terrace Gyratory Removal	2010-2013	Removal of existing one-way system to re-direct heavy goods traffic away from residential area and providing new bus priority route.	Amber	Traffic survey has been undertaken but progress towards construction of the scheme dependent on LTP3. The scheme will need to wait for funding to come available	✓
	10	A33 Platform Road / Town Quay Gyratory Removal	2010-2013	Removal of existing one-way system to re-direct heavy goods traffic away from residential area and providing new bus priority route.	Amber	Halcrow has produced an outline design but no funding for this scheme has been made available at this stage and proposed developments in the area will no doubt change the shape of the final outcome. The scheme will need to wait for funding to come available	✓
	11	Central Station Re-modelling	2013-2018	Creation of an interchange between bus and rail and a gateway arrival point to the city	Amber	This will start between June and September 2010. It is a £2.5m scheme to increase the use of public transport, reduce congestion, improve accessibility	✓✓

			centre, with improved pedestrian links.		and increase revenue for city transport services to re-invest into the network	
12	Park and Ride	2010-2013	A demand management project at three strategic sites, intended to be linked to further restriction of car access to the City Centre.	Amber	A study looking into park and ride options was undertaken during 2009. M27 J8 Windhover Roundabout has been identified as a good potential site however there is no park and ride currently in operation.	✓
13	A3024 Bitterne Road route (bridge widening plus bus and high occupancy vehicle priority lane linked to eastern P&R site)	2013-2018	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).	Amber	Plans in place but the scheme is dependent on new government spending plans. There is a question mark over Regional Transport Board (RTB) funded schemes due to the coalition governments spending cuts.	✓✓
14	Rail Gauge enhancement (to enable more containers to go by rail)	2010	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.	Green	Gauge enhancements have been completed which will reduce the proportion of container freight taken by road.	✓✓
15	City centre bus interchanges (2 locations)	2013-2018	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.	Amber	Plan to increase the use of public transport and improvements to accessibility will be delivered through the city centre action plan and LTP3	✓✓
16	North South spine (continuation of scheme)	2013-2018	Major remodelling of London Road. Improvements to city centre legibility and street scene.	Green	Remodelling of London Road with improvements to legibility and street scene completed. Civil works underway along Guildhall square and Above Bar street.	-
17	Woolston District Centre (linked to redevelopment)	2010-2013	Proposed major redevelopment project will create a revitalised district centre, which will include	Amber	£55k has been secured to install a new NOx monitor. This was obtained via the Section 106 agreement for the development.	✓✓

			improvements to promote walking, cycling and public transport in the area possible through installation of a new bypass.			
18	Millbrook roundabout improvements	2010-2013	Improvements to pedestrian and cycling facilities around a major junction and to enable high quality access to dock gate 20.	Green	Scheme complete providing increased access for cyclists and pedestrians	✓✓
19	Active Travel schemes (walking and cycling)	2010-2013	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.	Green	Work is underway on the Connect2 national lottery funded scheme and is due to be completed on 16 th July 2010. This is a boardwalk for cyclists and pedestrians from Northam Bridge to Horseshoe Bridge. The installation of new pedestrian facilities along the North/South spine is being delivered A programme of cycle parking has started city-wide. This will provide additional parking for 160 bikes. It is planned to extend National cycle route 2 from Weston to Netley in late 2010.	✓✓✓
20	Public transport improvements (citywide)	2010-2013	A range of schemes, including; continuation of real-time bus information system.	Amber	Pending the finalisation of LTP3. LTP3 proposals are to develop bus priority throughout the city, deliver real time information systems and restart the real-time information that is already in place.	✓✓✓

	21	Accessibility improvements (citywide)	2010-2013	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).	Amber	Accessibility Forum launched to discuss and resolve accessibility issues.	✓✓
Planning Policy	22	Local planning policies (citywide)	2008-2013	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.	Green	There is a requirement in the Core Strategy transport policy (CS18) to 'Require new developments to consider impact on air quality, particularly in Air Quality Management Areas (AQMAs) through the promotion of access by sustainable modes of travel'. The Core Strategy sets out the general principles and the CCAP and Southampton Development Plan will show how this affects individual sites.	-
	23	Targeted planning guidance to address air quality impacts of development	2010	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.	Amber	There is regular and ongoing close working between Planning Policy and Development Control. There will be a discussion about the strategic approach to tall buildings in the Masterplan and CCAP. Draft documents setting out the council's approach will be out for consultation in summer 2011.	✓

Behaviour change	24	Public awareness and information provision strategy	2010	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.	Green	<p>Southampton has launched the 'Southampton Cycle Challenge' communications campaign to encourage a greater take-up of cycling across the city as an alternative to private car use. This has been running since 14th June. There are 44 organisations registered with 215 departments. Currently 804 people have logged a trip for the Challenge with 82 people having not cycled in more than a year before taking part in the Challenge. This equates to 3,502 cycle trips logged, 25,796 miles cycled and 2,677 trips cycled for transport purposes with 5,562 kilograms of CO2 saved.</p> <p>Additionally the air alert project has been launched. Air Alert will provide Southampton residents who have an existing respiratory condition with advance warning of poor air quality and enable them to adjust their behaviour to minimise the risk of exposure to elevated levels of pollution.</p>	-
	25	Emission test days (in partnership with the VOSA)	2010	Undertake 4-6 emissions test days per year and publicise testing results.	Red	VOSA has stopped emission testing in Southampton as part of the police stop vehicle check	✓
	26	Provide alternative routes from the M271	2013-2018	Provide a new link at Redbridge to enable direct access to the port from M271.	Red	The Southampton Port masterplan details that there will be no shifting of access points.	✓✓✓
	27	De-trunk M271	2010-2013	Taking responsibility of the M271 would enable SCC to introduce new traffic management measures.	Red	Awaiting outcome of DASTs sub-regional study prior to fixing proposals whilst funding options are currently being explored.	✓✓

	28	Target the freight fleet to raise engine standards	2010-2013	Potential for reducing emissions from HGVs by working with freight partnerships to establish minimum emissions standards for HGVs operating in Southampton.	Amber	A sub-regional freight strategy has been published and adopted. This strategy sets out the objectives to encourage a holistic multi-modal approach to freight transport which recognises the most appropriate mode for each type of movement and to promote positive freight planning linked to environmental, community and safety considerations.	✓✓
	29	Bus quality partnership	2010-2013	Emissions from buses can be reduced by modernising the bus fleet to Euro 4 standard by 2010-12.	Amber	The partnership has been formalised but will be 'refreshed' through LTP3. One major bus provider within the city has committed to fleet improvements but currently there are no significant planned upgrades to Euro 4 standard.	✓✓
	30	Taxi quality partnership	2010-2013	Taxi emissions can be reduced by modernising the fleet to Euro 4 standard by 2010-12.	Amber	Euro 4 standard taxis are being introduced on a vehicle by vehicle basis. Funding is available for modelling of the air quality benefits of an increase in the bus fleet to Euro 3 or 4 standard	✓
	31	Introduce fixed penalty for idling vehicles (including buses and taxis)	2010	Use legal powers to enforce fines for idling vehicles and prevent unnecessary emissions.	Amber	Discussions with parking enforcement team to approach idling vehicles with initial warning. However, this has not yet been invoked	✓
	32	Review traffic calming measures	2010	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.	Green	Traffic calming methods have been implemented on London Road. SCC is looking to improve the public realm in accordance with the Manual for Streets	✓
	33	Consider changes to	2010	Using the Road Traffic	Amber	Assessment of traffic light phasing will be	✓✓

	traffic light phasing		Management System to change traffic light phasing could hold back traffic queues in areas without residential receptors.		dependent upon the results of the AQ traffic management system currently being undertaken. A review of the intelligent transport strategy will be undertaken.	
34	Addressing port related issues through a package of measures	2010-2013	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.	Green	In 2008, the Port entered into a partnership with the energy company Utilicom, whereby the Port is supplied with power generated by a combined heat and power installation. ABP anticipate that this will provide around 55% of the Port's annual electricity requirement and will make savings in emissions of 11,500 tonnes of CO2, thereby reducing the Port's carbon footprint by around 30%. The port is now a low-sulphur zone regulated by the MCA. Discussions are currently being explored with Red Funnel to consider a range of measures. Red Funnel account for 40% of shipping movement within the port.	✓✓✓
35	Investigate shore side electricity	2010-2013	Investigate funding options to undertake a feasibility study for shore side electric scheme at Southampton berths. ABP are currently unable to fund shore side electricity due to disproportionate costs for port infrastructure and retrofitting of vessels. There is also an issue with high transmission losses when using power from the national grid.	Red	ABP were looking into the development of cold-ironing facilities. The conclusions were that technical infrastructure for both the port and vessels would be prohibitively expensive (estimated as millions); and whilst local emissions (SOx and NOx) would be reduced – transmission losses from the coal burning power station would mean this is a very inefficient process.	✓
36	Revitalising District Centres and creation of Community Hubs at Lordshill, Woolston,	2010-2013	Community Hubs will provide the local community with key services, therefore reducing the need for car trips.	Amber	Portswood and Shirley District Centres have been revitalised through new retail/service opportunities and road improvement works. This has included widened paths for cycling in Shirley District Centre.	✓✓

	Bitterne, Portswood, Shirley and City Centre				Part of the Regeneration programme and Core Strategy and LTP3	
37	Investigate a personal travel planning service for residents and businesses of Southampton	2010	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.	Green	The legible city methodology is being adopted in Southampton in order to improve signage within the city to encourage cycling and walking at key points in the city. Maps have been produced and during October 2010 we expect to commence installation of signs. Additionally we are developing online cycle journey planning.	✓
38	Integrate Air Quality Impact Assessment into all major transport projects	2010	Include costs for air quality modelling and impact assessment in the design stage of major transportation projects to ensure that their impacts are understood.	Green	This is part of the planning and transport assessment and is done on a site by site basis	-
39	Research the health impacts of air pollution	2010-2013	Work closely with the Health Authority and University of Southampton to research the health impact of air pollution on vulnerable groups.	Green	The monitoring and evaluation procedures as part of the Air Alert project are specifically designed to research the health affects of air pollution. This project has now commenced	-

New Actions	40	Air Alert project	2010-2013	The Air Alert project aims to provide Southampton residents who have an existing respiratory condition with advance warning of poor air quality and enable them to adjust their behaviour to minimise the risk of exposure to elevated levels of pollution. The project will initially identify community clusters in 3 of Southampton's Air Quality Management Areas (AQMs) – Redbridge Road, Bitterne Road and Bevois Valley. The project has now commenced and the process of registering users is taking place.	Green	The project was launched on the 14 th June. The contract with Kings College London (KCL) has been signed. KCL have been collecting our monitoring data from the 5 Southampton stations since 1 st April in readiness for forecasting air alerts this summer. £20,000 DEFRA grant funding was made available to the City Council and the PCT contributed £7500 towards the project. Some publicity has already been achieved and users are registering to the service (www.airAlert.info). Further publicity is planned and staff from Environmental Health Services and will be attending local forum events for General Practitioners and Practice Nurses to promote the service. Whilst the actual air quality impact will be negligible, the objective of the project is to address the existing health impacts of residents by preventing their exposure to future incidents of poor air quality. Air quality impacts will be localised.	-
	41	Green Fleet Review	2010	Working with the Energy Savings Trust the council will undertake a full review of all vehicles used for business purposes. A carbon footprint baseline will be drawn up along with an action plan for carbon emission reduction.	Green	The Green Fleet Review has been commissioned and will be completed during the summer of 2010. It will result in a series of pragmatic actions which can be put in place which will realise significant savings.	-

New actions	42	AQ traffic management system	2010-2013	The study is intended to investigate the feasibility of reducing or relocating traffic queues in AQMA areas. It is a 3-year-long project. Whilst they won't necessarily reduce air pollution they will relocate the source to an area without receptors, therefore reducing the health impact.	Green	The first phase of project, which involves data collection and analysis, is approaching its conclusion	✓
	43	Keep the City Moving group	2010-2013	A project board for congestion issues that will coordinate, communicate and plan in relation to keeping the city moving.	Green	The group provide a focus for and coordination of anti-congestion actions achieving financial savings from significant reduction in fuel consumption. The group has met several times and has developed an action plan	✓
	44	Eco driving training for all SCC fleet operators	2010-2013	To provide training for fleet transport drivers to reduce overall fuel consumption.	Green	Work with the Energy Savings Trust in progressing. The EST provided a showcase presentation, driver training simulator and staff awareness survey in February 2010. The option to provide driver training will be considered further following the recommendations of the Green Fleet Review	✓

Monitoring of air quality improvements

Air quality monitoring data is collected every calendar year at a number of monitoring stations across the city. 2008 monitoring data is now complete and progress is being made on 2009 data. For both Millbrook and Brintons Road 2009 data has been ratified and this is included in the table below.

- The DEFRA Automatic Urban Network Station, located on Brintons Road by Six Dials Junction.
- The mobile Unit (Groundhog) is currently sited at Bitterne Road.
- The permanent Station at Redbridge Community School was established in April 1999.
- In 2005 a permanent nitrogen oxides analyser was also installed on Onslow Road within the Bevois Valley AQMA.
- In September 2007 a small roadside monitoring station was installed at the junction with Waterhouse Lane. This is within the Millbrook Road Air Quality Management Area.

Table 2: Nitrogen Dioxide Monitoring Data 2008/2009 (Comparison of Monitoring data against national AQ objectives)

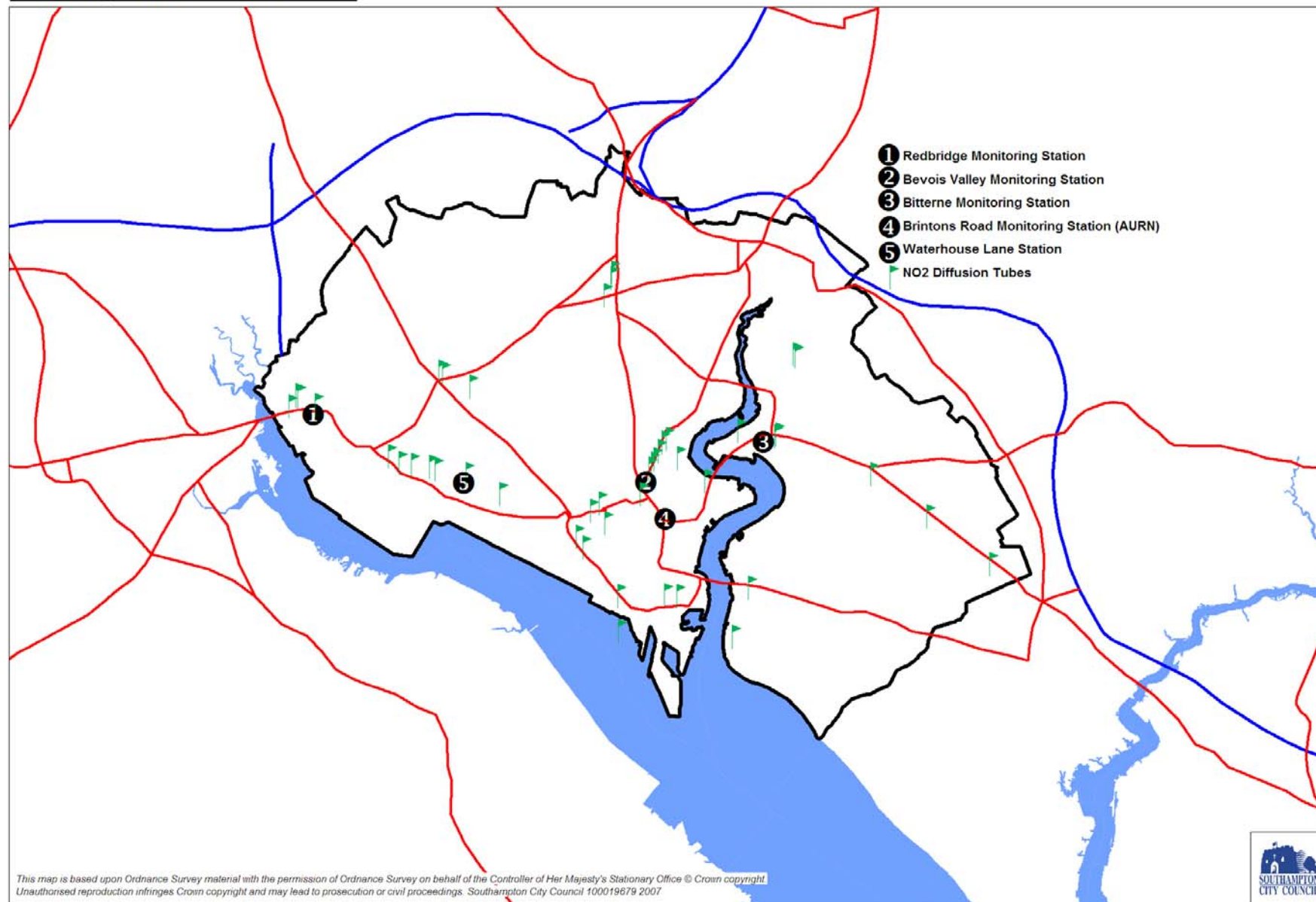
Monitoring Station	Annual mean concentrations for Nitrogen Dioxide ug/m ³				Exceedance of annual mean objective (40 ug/m ³)	Further details	Description of the monitoring stations
	2006	2007	2008	2009			
Onslow Road	54.3 ug/m ³	56.0 ug/m ³	51.4 ug/m ³	-	Yes	Onslow Road recorded 51.4 ug/m ³ for nitrogen dioxide annual mean, a small decrease compared to 2007, but still well above the annual mean standard. There were 5, One Hour exceedances of the 200 ug/m ³ standard. This monitoring station is located within the Bevois Valley Air Quality Management Area.	This site is located 2 metres from the kerb and is opposite 3 Onslow Road. It lies within the Bevois Valley AQMA and was established in July 2005. Onslow Road has 18,000 vehicles per day, 2.6% HGV and a 30mph speed limit. This site only monitors oxides of nitrogen. O.S. Grid Ref: 442304, 112771.
Redbridge AMS	40.0 ug/m ³	39.0 ug/m ³	44.3 ug/m ³	-	Yes	The nitrogen dioxide annual mean was 44.3ug/m ³ , above the 40ug/m ³ standard, an increase on 2007 when it was just below. A peak hour concentration of 160.4ug/m ³ was recorded, with no exceedance of the 1 Hour	The monitoring station at Redbridge Community School was established April 1999. It is situated approximately 8 metres from the kerb of Redbridge Road and is the most heavily trafficked road in Southampton, comprising of a 3-lane dual

						Standard. PM ₁₀ concentrations averaged 26.8µg/m ³ , less than 2007 with 10 exceedences of the 24 hour standard, 1 day less than 2007. Redbridge School Station had the highest annual mean for PM ₁₀ in Southampton. This is unsurprising as it is only 8 metres from Redbridge Road which has the highest overall traffic flow and highest number of HGVs in the City. The Teom data was bias corrected in accordance with the Volatile Correction Model	carriageway, and 50-mph speed limit. This road is the designated route into the port for HGVs. Average Daily Traffic count of 76,000 vehicles per day, 8% HGV. The pollutants monitored include NO _x , SO ₂ , O ₃ and PM ₁₀ . A residential area with several schools and sports grounds next to the road. O.S. Grid Ref: 437549, 113721.
Bitterne AMS	40.0 ug/m ³	39.7 ug/m ³	39.2 ug/m ³	-	No	The annual mean nitrogen dioxide level for 2008 was 39.2 ug/m ³ , extremely close to the 40µg/m ³ standard. A peak hour concentration of 175 µg/m ³ was recorded on the 16 th January 2008, with no exceedance of the 1 Hour Standard. PM ₁₀ concentrations averaged 22.7 µg /m ³ , less than 2007, with 7 exceedences of the PM ₁₀ daily standard, the same number as 2007. Peak day of 74.0 µg/m ³ on 23 rd January 2008. The Teom data was bias corrected in accordance with the Volatile Correction Model.	Mobile Unit located at Bitterne Road in the railway station car park. Pollutants monitored include NO ₂ , SO ₂ , and PM ₁₀ . This is a residential area approximately 10 metres from Bitterne Road/Bullar Road Traffic Lights and close to railway line. It has 33,000 vehicles per day, 3.5% HGV, 30mph speed limit. The monitoring station is located on the edge of the Air Quality Management Area. O.S. Grid Ref: 443987, 113340
Brinton's Road	28.0 ug/m ³	34.0 ug/m ³	36.0 ug/m ³	35 ug/m ³	No	An annual mean of 35µg/m ³ was recorded for nitrogen dioxide in	DEFRA Automatic Urban Network Station, Brintons Road, by Six Dials

						2009, a decrease of 1 $\mu\text{g}/\text{m}^3$ from 2008	Junction, established 1994, classified as an Urban Centre site. This site is approximately 8 metres from the kerb of Northam Road and has around 33,000 vehicles per day (3.5% HGV). Pollutants monitored at this site include NO_x , SO_2 , O_3 , CO , PM_{10} and benzene (by pumped diffusion tube). It is in a residential area with houses close to the road. O.S. Grid Ref: 442583, 112248.
Millbrook Road	-	-	51.9 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$	Yes	The annual mean nitrogen dioxide level for 2009 was 50 $\mu\text{g}/\text{m}^3$ a slight reduction from a mean of 51.9 $\mu\text{g}/\text{m}^3$ recorded in 2008 which was in turn well above the annual mean standard, but a small reduction on 2007. A peak hour concentration of 141.7 $\mu\text{g}/\text{m}^3$ was recorded. There were no hourly mean above 200 $\mu\text{g}/\text{m}^3$	This site is located at the junction of Millbrook Road/Waterhouse Lane, Freemantle. It lies within the Millbrook Road AQMA, established September 2007. The site is funded by Marchwood Power Station as part of a planning condition to monitor emissions downwind of the stack. Pollutants monitored are NO_x and O_3 . The site is situated 6 metres from the kerb, and has 53,000 vehicles per day (4.5% HGV) Grid Reference: 439702, 112768

The locations for the monitoring stations can be identified on the map on the following page.

Monitoring Station Locations 2008



Intermediate outcomes

Intermediate outcomes show a broader picture of progress towards cleaner air. They represent our choices in mode of transport, the numbers of people exposed to poor air quality on a regular basis, and the relationship between transport use and climate change. Monitoring data on these outcomes is made available every financial year. The following section will therefore look at trends in data over 2008-2009 and 2009-2010 financial years, or the most recently available data.

Bus patronage ↓ (RED)

Target: 20.9M

In 2008-2009 there were 19.8M bus journeys, representing a 0.5% increase on the figure for the previous year. However, in 2009-2010 there was a moderate decrease in bus journeys to 19.1M. The recent dip is likely to be a symptom of the recession with a number of bus operators within the city having to cut service along a number of routes.

Number of cycling trips ↑ (GREEN)

Target: 2117

In 2008-2009 the number of cycling trips made at peak period greatly exceeded the target and, at 3537, represented an additional 270 journeys compared to the previous year. In 2009-2010 cycling trips dipped slightly to reach a total of 3424 but still represented a large increase compared to the 2006-2008 period. The slight decrease compared to 2008-2009 may be attributable to the inclement weather experienced over the winter months which made cycling conditions hazardous.

Change in peak period traffic flows ↓ (GREEN)

Target: 30,784

Using a baseline figure of the average number of light vehicles per morning peak period for the years 2002-2004 (30,784), surveys in the past two years have indicated a steady reduction in flows down to 28,734 in 2008-2009. In 2009-2010 peak period traffic flows have reduced again slightly down to 28,113.

Change in area-wide traffic mileage ↓ (GREEN)

Target: 1208km

The latest figures demonstrate a decrease for area-wide traffic mileage to 1138km in 2008-2009 down from 1180km during 2007-2008. Additionally this represents a slight decrease compared to the 2006-2007 figure of 1174km.

Mode Share of school journeys ↓ (GREEN)

Target: none set (2006-2007 as baseline)

In 2008-2009 the percentage of children travelling to school by car (excluding car share) was 22.3% up 2% from 2007-2008. In 2009-2010 the percentage fluctuated slightly to 21.8% but still represented a net increase compared to the previous two year period.

Number of properties within Southampton AQMAs ↑ (RED)

Following the 2010 declaration extending the Millbrook Road AQMA, a total of 1177 residential properties were in an AQMA. This extension equated to an additional 280 properties compared to the 2008 figure of 897.

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