Portsmouth CITY COUNCIL

Air Quality Action Plan

Appendix to the Local Transport Plan (LTP3)

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Glossary

µg/m³	Micrograms of the pollutant per cubic meter of air ($x10^{-6}$ g/m^3)
AADT	Annual Average Daily Traffic (vehicles per day)
AAQuIRE	Ambient Air Quality in Regional Environments (Dispersion Modelling package)
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQMU	Air Quality Management Unit
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
CHP	Combined Heat and Power plant
CIL	Community Infrastructure Levy
COPD	Chronic Obstructive Pulmonary Disease
CP	Corporate Plan
DA	Detailed Assessment
DEFRA	Department for Environment Food and Rural Affairs
DfT	Department of Transport
EAC	Environmental Audit Committee
EF	Emission Factors
EIA	Environmental Impact Assessment
EPAQ	Expert Panel on Air Quality
FA	Further Assessment
FDMS	Filter Dynamics Measurement System
EPAQ	Government's Expert Panel on Air Quality
HGV	Heavy Goods Vehicles (over 3.5 tonnes)
KDT	Key Delivery Target
KP	Kyoko Protocol
LAQM	Local Air Quality Management
LAQM. PG (09)	Local Air Quality Management (Policy Guidance 2009)
LDF	Local Development Framework
LSP	Local Strategic Partnership
LTP	Local Transport Plan
HNS	National Health Service
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Combination of Nitric Oxide and Nitrogen Dioxide
PCC	Portsmouth City Council
PCS	Portsmouth Core Strategy
POW	Pedal Once a Week
PPC	Pollution Control Regulations
PIGY	Portsmouth Intermodal Goods Yard

PM_{10}	Particles with diameter less than 10µm
$PM_{2.5}$	Particles with diameter less than 2.5µm
PPS	Planning Policy Statements
PSAG	Portsmouth Sustainability Action Group
PUSH	Partnership Urban South Hampshire
R&A	Review and Assessment
RRS	Regional Spatial Strategy
SAP	Home Energy Conservation Target
SCA	Smoke Control Areas
SDP	Sustainable Development Policy
SEA	Strategic Environmental Assessment
SPD	Supplementary Planning Document
TEOM	Tapered Element Oscillating Microbalance
TfSH	Transport for South Hampshire
TPIF	Travel Plan Initiatives Fund
UNFCCC	United Nations Framework Convention on Climate Change
USA	Updating and Screening Assessment
VOSA	Vehicle Operations Services Agency
WHO	World Health Organisation
WTP	Workplace Travel Plan
WOW	Walk Once a Week

1. Executive Summary

Creating a premier waterfront city within which people wish to invest, trade, work, live and visit requires an environment in which we can all prosper. This includes the air that we all breathe and therefore Portsmouth City Council (PCC) is committed to achieving the targets for cleaner air set by the government.

Cleaning up the air in Portsmouth with its high population and limited space is no easy challenge, especially as harmful pollutants are also blown into Portsmouth from sources beyond our direct control and influence. At the core of the proposals within this plan is the message that everyone therefore needs to play their part to take steps to improve air quality, and as vehicular traffic is the main contributor, wherever possible we should endeavour to use a less polluting and more sustainable form of transport.

Part IV of the 1995 Environment Act required the government to publish a national Air Quality Strategy (AQS) and establish the system of Local Air Quality Management (LAQM). In July 2007 the government last updated their AQS to deliver improvements in air quality in the long term. It was as a result of this legislation that in 2005 PCC declared 13 AQMAs where air pollution levels were above the NO_2 National Air Quality Objective (NAQO) set to protect health. Where NAQOs are unlikely to be met we need to develop an Air Quality Action Plan (AQAP) to work towards meeting the objectives. The first draft AQAP was produced in 2007 and, although not formally adopted, many of the proposed actions were implemented as part of the Local Transport Plan (LTP).

Following our 2009 Further Assessment (FA) it was evident the quality of air in Portsmouth has improved sufficiently to enable 8 of the 13 AQMAs declared in 2005 to be revoked. Areas of poor air quality however remain and therefore we have reviewed the 2007 AQAP to create this new plan to deliver cleaner air across the city and to target these remaining 'hotspot' areas.

It is not possible to categorically state why the levels of pollutant in Portsmouth have reduced as a multitude of factors influence pollution levels, however, what is clear is that nationally air pollution from road transport has fallen by 50% since 1990 despite traffic increasing by a fifth and the number of licensed vehicles increasing by 77% between 1980 and 2007, from 19 to 34 million. Links between improved exhaust technology and reductions in pollution are therefore apparent. Despite these improved technologies we cannot rely upon the introduction of new emission legislation to deliver the improvements we need, we must therefore work hard to manage and improve our local air quality environment.

This 2010 AQAP seeks to:

- update the draft 2007 AQAP;
- identify and assess measures implemented since 2007;

- identify the causes of pollution;
- identify specific target 'hotspot' areas for improvement;
- devise actions to deliver improvements in the target 'hotspot' areas;
- devise actions to deliver city wide and continuous improvements in air quality;
- improve cross-service working;
- improve public awareness;
- make significant progress towards reducing exposure to poor air quality by 2014 and improve the air which we all breathe.

2. Setting the scene

Portsmouth's 2010 AQAP has been prepared to set out the measures it intends to put in place in pursuit of achieving the NAQOs (Appendix 1) to deliver cleaner ambient air.

PCC designated 13 AQMAs covering various parts of the city on the 5th April 2005 as the 2004 Detailed Assessment (DA) predicted that the annual mean NO_2 NAQO would be exceeded in these areas in 2005 (see Appendix 2 of summary of PCC's air quality assessments).

On the 23rd March 2010 PCC revoked 8 AQMAs (1, 2, 3, 4, 5, 8, 10 and 13), retaining 4 AQMAs (6, 7, 9 and 12) and re-designating AQMA 11.

The 5 remaining AQMAs are as follows:

- AQMA 6: Extending north from along Fratton Road from Fratton Bridge into Kingston Road, continuing into London Road until the roundabout junction with Stubbington Road and Gladys Avenue (see Appendices 3, 4 and 5 depicting the southern, central and northern sections). This area is retained as a result of predicted breaches of the annual mean NO_2 NAQO for a further 6 years.

- AQMA 11: Redesigned in March 2010, AQMA 11 extends from Rudmore roundabout south to Church Street roundabout (see Appendix 6). This area is retained as a result of predicted breaches of the annual mean NO_2 NAQO for a further 2 years.

- AQMA 7: Focusing on Hampshire Terrace and St Michaels Road gyratory (see Appendix 7). This area was retained as a result of monitored breaches of the annual mean NO_2 NAQO.

- AQMA 9: Focusing on the southern most section of Eastern Road from Sword Sands Road south into Velder Avenue and it's junction with Milton Road (see Appendix 8). This area was retained as a result of monitored breaches of the annual mean NO_2 NAQO.

- AQMA 12: Encompassing the greater part of Queen Street from The Hard to St James's Road (see Appendix 9). This area is retained as there is a lack of enough historical monitoring data to justify the revocation at this stage.

2.1. Moving forward from the draft 2007 AQAP

Advertisement used as part of the 2007 public awareness campaign

This 2010 AQAP attempts to address the local air quality issues that remain in Portsmouth since the implementation of various measures contained within the draft 2007 AQAP.

Although never formally adopted, many of the proposed measures considered within the draft 2007 AQAP have continued to be developed and delivered through the Second Local Transport Plan (LTP2).

Following the 2009 FA of air quality, it is evident that the measures introduced through LTP2 have contributed to the improvement of quality of air in Portsmouth and enabled the government department responsible for the environment (Defra) to approve, in March 2010, the revocation of 8 AQMAs.

2.2. 2007 AQAP actions delivered through LTP

Examples of measures introduced through LTP2 which have contributed to improvements in air quality are:

- Following route-prioritisation, the introduction of variable messaging information systems, integrated signing schemes and express services, bus patronage has increased.

- Improvements to bus priority, a 'hub and spoke system' and feeder services have reduced the number of vehicular miles travelled.

- Improvements in the average age of the bus fleet have led to a reduction in emissions through improved exhaust technologies.

- The completion in November 2007 of the Portsmouth Intermodal Goods Yard (PIGY) at Fratton Railway Yard has reduced the number of HGV movements made through AQMAs.

- Significant reductions in the number of single student car journeys to school have been obtained following the introduction of School Travel Plans. Three quarters of all schools now have a travel plan in place.

- The percentage of pupils within 20 minutes walk of further education has tripled.

- The number of firms with workplace travel plans continues to increase.

- The number of cycles parked at key destinations continues to rise.

Since 2007, PCC has introduced a number of new traffic management systems at key locations reducing congestion and pollution. Examples of 2 key schemes are the junction of Milton Road / Velder Avenue and the new northern access road to HM Dockyard.

2.3. Air Quality Case Study - Velder Avenue / Milton Road - A27 (T) / A2030

The Velder Avenue / Milton Road traffic junction marks the southern end of the A2030, which is one of the 3 major arterial roads in and out of Portsmouth. The 2003 traffic signal junction was converted from a roundabout in 2001. The completion of the 2003 redevelopment of Fratton Goods Yard saw Rodney Road run continuously from the Milton Road junction through to Goldsmith Avenue via Fratton Way. As a result of the increased traffic volume, the junction was operating beyond capacity, which resulted in long queues and delays.

Velder Avenue / Milton Road are located in the Milton AQMA 9. The draft 2007 AQAP stated that the re-design of this junction was seen as being key to the air quality at houses located on Velder Avenue and Milton Road. A significant factor was the large queues that developed outside residential properties at the signalled junction on both of these roads. Removing or re-locating this stationary traffic was likely to have significant air quality benefits.

Immediately following completion of an approved junction layout and traffic management measures in 2008 a further assessment of congestion was undertaken. As a result, further improvements were considered and modifications were implemented in 2009.

Following the completion of the re-designs, assessments of air quality have continued. Modelling undertaken as part of the 2009 FA predicted that there were no exceedences of the annual mean NO_2 objective at this junction in 2010. The highest predicted concentration was at the junction of Velder Avenue and Milton Road (34.1 µg/m3) and was significantly below the NAQO.

Although modelling discrepancies mean that we will be retaining AQMA 9 without revising its geographical extent, this is to enable further reassurance that the air quality in this area is continuing to improve and further improvements to the road layout are not required.

2.4. Trafalgar Gate link road to HM Naval Base

The new £7.6 million road designed to cut congestion and pollution in central Portsmouth was approved in March 2010. The Trafalgar Gate link road is a 140m link direct route between Flathouse Road and Mile End Road with 4 lanes for HM Naval Base traffic using the M275 motorway. Its introduction in 2011 will cut the amount of traffic in the city centre and is likely therefore to have a considerable impact upon congestion and volumes of traffic in the southern area of AQMA 11.

3. Objectives of the 2010 AQAP

Although aiming to deliver city wide improvements in air quality, the primary purpose of this AQAP is to explore measures which will combat the areas of poor air quality within Portsmouth's remaining 5 AQMAs. The results of the 2009 FA for AQMA 7, 9 and 12 demands that we concentrate upon the 2 'hotspots' AQMA 6 and AQMA 11 which are predicted, without further intervention, to remain for some years to come (see Table 4 – page 21).

In implementing measures we aim to significantly improve local air quality in pursuit of the UK air quality objective for NO_2, which is currently exceeded and thereby improve the health and wellbeing of the local communities surrounding these 'hotspot' areas.

The actions within the plan have been judged on their ability to tackle our air pollution problems and what is likely to work best to resolve our somewhat unique circumstances.

The secondary purpose of this AQAP is to raise the profile of the problems caused by poor air quality both internally within PCC and externally with the public and local politicians. PCC has a fundamental role in working towards achievement of air quality objectives in the AQMAs and therefore the links between air quality and other policy areas are defined.

These links include close relationships between air quality and health, transport, land-use planning and climate change. Through delivery of this action plan, PCC will continue to unify our partners responsible for development and delivering our Local Transport Plans, Sustainable Community Strategies, Carbon Reduction Initiatives, Health Improvement Strategies, Corporate Improvement Plans and our Local Development Schemes focusing their engagement upon delivering cleaner air for the city.

We will therefore:

- deliver clear messages of what needs to be done and why a 'pro-active' focus upon achieving cleaner air is necessary;

- improve air quality and put air quality at the heart of decision making processes;

- secure and demonstrate our commitment to working closely with partners to deliver cleaner air;

- devise and implement specific local traffic management measures to limit access to, or re-route traffic away from, problem areas, reduce congestion and increase vehicular fluidity.

4. Portsmouth

4.1. Portsmouth's landscape and transport systems

The City of Portsmouth is located at the eastern end of the Solent. The city consists of 14 electoral wards; St Thomas, St Jude, Central Southsea, Eastney & Craneswater, Milton, Fratton, Charles Dickens, Baffins, Nelson, Copnor, Hilsea, Paulsgrove, Cosham, Drayton & Farlington and is divided into 2 parliamentary constituencies; Portsmouth South and Portsmouth North each represented by a member of Parliament.

A waterfront city with a prevailing south-westerly wind, Portsmouth is a busy international gateway and naval port attracting many visitors each year. It has a light industrial presence including naval, military and aerospace related companies and 5 main retail areas, Southsea, Gunwharf, the city centre, North End and Cosham.

Portsea Island is characterised by high-density development, including a high proportion of terraced housing, 4 of the 5 principal retail centres and the major employment uses of the commercial centre, the naval base and the university.

There are good rail services into this area with stations at Portsmouth Harbour, Portsmouth & Southsea, Fratton and Hilsea. Road access is limited to 3 north-south routes crossing Port Creek at Portsbridge, Eastern Road and the M275 / Mile End Road; the latter offering the most direct route to the city centre.

Bus routes are concentrated into the London Road / Kingston Road / Fratton Road corridor, a 'spine' running down the centre of Portsea Island, but the density of the bus network is such that almost all areas of Portsea Island are well served.

Mainland Portsmouth has been developed more recently and to a lower density level. Therefore the car is accommodated within wider roads with most properties having off-road parking. Rail access is limited to a single station at Cosham and the bus network is less comprehensive than on Portsea Island, although still good.

4.2. Portsmouth's population

Portsmouth has a unique urban landscape, with a population in excess of 200,000, spread over 88,100 residential properties. Portsmouth is the most densely populated city in the UK outside of London with around one third of the national average of public open space.

The city has undergone a period of significant development in recent years with the construction of some major commercial developments, such as Gunwharf Quays, providing a new waterfront attraction and the subsequent addition of the Spinnaker Tower which, together with the maritime heritage, makes it a popular tourist destination attracting over 7.4 million visitors per year.

Future regeneration programmes and redevelopment schemes are likely to be implemented within the next 5 years along with new residential schemes providing as many as 15,000 new homes in the next 15 years. Since the draft 2007 AQAP was published, the population of Portsmouth has increased by approximately 5%, residing within an additional 1,600 dwellings. In addition, some 70,000 commuters, shoppers and tourists enter and leave the City each day. This means that our restricted road network is straining under the immense pressure from cars, public transport and goods vehicles. These pressures lead to congestion, which in turn leads to increased levels of air pollution.

4.3. The significant impact of air pollution

It is because of the detrimental effect of air pollution on both human health and ecosystems that the LAQM process was introduced. The quality of the air we breathe has a great impact on our respiratory health. Lung tissue is easily damaged by pollutants in the air, which can result in increased risk of triggering the onset of attacks of asthma and chronic bronchitis and other respiratory diseases including Chronic Obstructive Pulmonary Disease (COPD). Furthermore, long term exposure to air pollution can lead to premature ageing of the lungs, reduced lung function and shortened life expectancy.

Population groups that are particularly vulnerable to air pollution exposures are those:

- inherently more sensitive to air pollutants (individuals with a genetic predisposition and unborn or very young children);
- with increased sensitivity because of old age, certain diseases (lung disease, asthma, heart problems and COPD), or environmental and socio-economical factors;
- exposed to excessive levels of air pollutants.

The 2007 AQS estimates that the health impact of man-made particulate air pollution experienced in the UK in 2005 costs between £8.5 billion and £20.2 billion a year. These figures were provided by the Interdepartmental Group on Costs and Benefits, which includes Defra. This estimate was based on life-years lost and the monetisation of this reflects estimates of the UK population's 'willingness to pay' to avoid these health impacts.

The Air Quality Management Resource Centre reports that the health impacts of air quality in the UK are almost twice those of physical inactivity, estimated to be £10.7 billion per annum. The costs of poor air quality are comparable to

the cost of alcohol misuse to society, estimated to be £12-£18 billion per annum.

The £8-£20 billion total cost of poor air quality is however likely to be an under-estimate. The AQS ignores the impact on morbidity, costing only mortality. There are additional costs to the National Health Service (NHS) from respiratory hospital admissions triggered by air pollution. For example, in 2007 / 2008, there were over 74,000 emergency admissions to hospital because of asthma costing the NHS £612 million for 2007 / 2008. There are clear links between asthma and air quality; Asthma UK estimate the annual cost of asthma to society at £2.3 billion.

More recently, on the 16th March 2010, a cross-party Environmental Audit Committee (EAC) appointed by the House of Commons published a document that reported:

'Air pollution on UK streets is contributing to tens of thousands of early deaths each year and the government is not doing enough to tackle the problem. The MPs warn that Britain could face millions of pounds in fines if our cities continue to breach EU air quality targets supposed to protect public health.'

Tim Yeo MP, Chair of the EAC said:

"Air pollution probably causes more deaths than passive smoking, traffic accidents or obesity, yet it receives very little attention from Government or the media.

In the worst affected areas this invisible killer could be taking years off the lives of people most at risk, such as those with asthma.

The large EU fines we face, if we don't get to grips with this problem, should now focus Ministers' minds.

Much more needs to be done to save lives and reduce the enormous burden air pollution is placing on the NHS."

According to evidence presented to the inquiry, air pollution could be contributing to as many as 50,000 deaths per year as it makes asthma worse and exacerbates heart disease and respiratory illness. Averaged across the whole UK population it is estimated that poor air quality is shortening lives by 7-8 months. In pollution hotspots it could be cutting the most vulnerable people's lives short by as much as 9 years. Despite these considerable impacts on public health very little effort is being put into reducing air pollution levels, compared with efforts to tackle smoking, alcohol misuse and obesity.

The report confirms that air pollution from road vehicles causes the most damage to health and recommends that a dramatic shift in transport policy is required if air quality is to be improved. This effectively means removing the most polluting vehicles from the road, cleaning up the vehicles that remain and encouraging smarter choices about transport. Many of the policies

needed to reduce transport emissions have the added benefits of tackling climate change by reducing CO2 emissions.

On the 30th March 2010 Asthma UK has backed this report. Neil Churchill, Chief Executive of Asthma UK, said:

"We agree that awareness needs to be raised and behaviour needs to change if air quality targets are to be met. It's shocking that the UK is so far behind on its commitments.

We also warmly welcome the committee's recommendation for the government to take better account of the health impacts of poor air quality. If the government is serious about pushing the prevention agenda this is precisely the kind of action it needs to take action. Air quality is of prime concern to people with asthma and two thirds tell us that traffic fumes trigger their asthma symptoms. 29% say that a reduction in air pollution is the single thing that would make the most difference to their quality of life in relation to their asthma. Quantifying the impact of pollution on health and quality of life, as well as the costs to the NHS and the economy, would open people's eyes to the importance of improving air quality."

The EAC concluded that better public understanding of air quality issues was critical and that the government and their agencies must educate the public about the health risk from poor air quality and about how they can limit their exposure and improve air quality. It suggested that any campaign on air quality should raise awareness of the actions people can take to reduce emissions of dangerous pollutants and to reduce their exposure.

It went on to recommend that the government must raise the priority attached to air quality in all government departments and provide better guidance on including air quality impacts in policy appraisals. It suggested that Ministers must drive this from the top, introduce measures to ensure improving air quality becomes routine practice and accept responsibility for policies that conflict with air quality. It stated firmly that transport policy must change dramatically if the UK is to meet future targets and reduce exposure to air pollution and highlighted the fact that much of this agenda is already being driven by efforts to tackle climate change (like modal shift and smarter travel choices) although some conflicts exist.

Importantly the EAC also advised the government to urgently explore how planning guidance can be strengthened and applied to reduce air pollution and identified local authorities as the key to improving air quality. It explained why the government must raise the profile of air quality with all local authorities, encourage the sharing of best practice and ensure that the issue is given sufficient attention across all areas of local authority responsibility, not just within their environmental departments.

Although most reports tend to concentrate upon the costs to human health, the impact upon the environment is considerable. Air pollution has wide-ranging environmental impacts including loss of biodiversity, reduced crop yields and contributes to climate change. Excess nitrogen from emissions of

ammonia and NO_X leads to excessive plant growth and decay that disturbs the biodiversity of both land-based and water-based ecosystems.

Emissions of ammonia and NO_X also contribute to acidification of ecosystems. Ozone has a direct effect on plants, damaging their leaf structure, reducing growth and compromising their defence mechanisms. A 'critical load' is an estimate of the exposure to one or more air pollutants, above which there is risk of damage to certain sensitive elements of the environment. Critical loads for acidity and the fertilising effects of nitrogen are exceeded in over half the UK's natural and semi-natural habitats. Currently 60% of sensitive habitats exceed the critical load for nutrient nitrogen.

Poor air quality is frequently obvious in Portsmouth. Across the city NO_x emissions can be seen by anyone that chooses to look. Impacts upon our own microclimate NOx contributes to the visible formation of a brown-haze-like cloud of pollution which can be seen above Portsea Island particularly on warm days.

4.4. Health inequalities in Portsmouth

The evidence linking poor outdoor air quality and its impact on health conditions such as asthma and COPD is well established. The evidence base quantifying the impact on health is however less developed and therefore when looking at our data it is important to also consider the likely impact of other contributing factors such as smoking, exposure to passive smoke, indoor air quality and respiratory infections.

Portsmouth has higher levels of COPD and asthma than the national averages, moreover AQMA 11 and AQMA 6 fall within some of the most disadvantaged areas within the city and has some of the highest levels of smoking and other risk factors associated with lung and respiratory related ill health. We can conclude therefore that our most disadvantaged communities experience a higher risk of poor health as localised environmental factors and as a result of lifestyle choices.

4.5. What is the pollutant of most concern in Portsmouth?

Based on the 2009 FA report, the pollutant of most concern in Portsmouth is road traffic related NO_2.

4.6. What is NO_2?

NO_2 is a naturally occurring gas with an unpleasant smell. It can also occur in significant concentrations as a result of anthropogenic activities mainly in urban or industrialised areas.

There are two sources of NO_2:

- Naturally occurring NO_2 is formed in the atmosphere as a result of lightning, and some is produced by plants, soil and water. This however constitutes a very small percentage of the overall NO_2 found in our cities.

- Anthropogenically occurring NO_2 is formed in coal, oil and gas combustion processes. Oxides of nitrogen are generated during combustion, when nitrogen is oxidised to generate the relatively unstable nitrogen oxide molecule (NO) and the more stable nitrogen dioxide molecule (NO_2). This is known as primary NO_2. NO can also be oxidised in the atmosphere, particularly in the presence of ozone, producing NO_2. This is known as secondary NO_2. NO_2 is more harmful to health than NO and has two objective levels set under the daughter directives and adopted in the UK under the Environment Act 1995, one for an hourly average and one for an annual average.

  In UK cities, most of the ambient NO_2 is generated by automotive exhaust. Metal refining, electricity generation from coal-fired power stations, domestic emissions, other manufacturing industries and food processing remain minor contributors to the overall NO_2 emissions. Many pollutants from these sources do not reside in the atmosphere long enough to become globally well mixed, such as the case for conventional Green House Gases, and these are therefore also linked to climate change.

4.7. What are the NO_2 NAQOs?

The NO_2 objective stems from the World Health Organisation (WHO) standards and on the recommendations of the government's Expert Panel on Air Quality (EPAQ) (Appendix 1):

- Short-term exposure: 200 $\mu g/m^3$ as one-hour mean objective not to be exceeded more than 18 times.

- Long-term exposure: 40 $\mu g/m^3$ as an annual mean objective. This objective applies where members of the public are likely to be exposed over the annual averaging period. This does not require the same individual to be present for a full year at a particular location, but the location must be one where people are likely to be regularly present for long periods. For the annual mean objective this might be where people are exposed for a cumulative period of 6 months in a year, for example at residential properties and within schools.

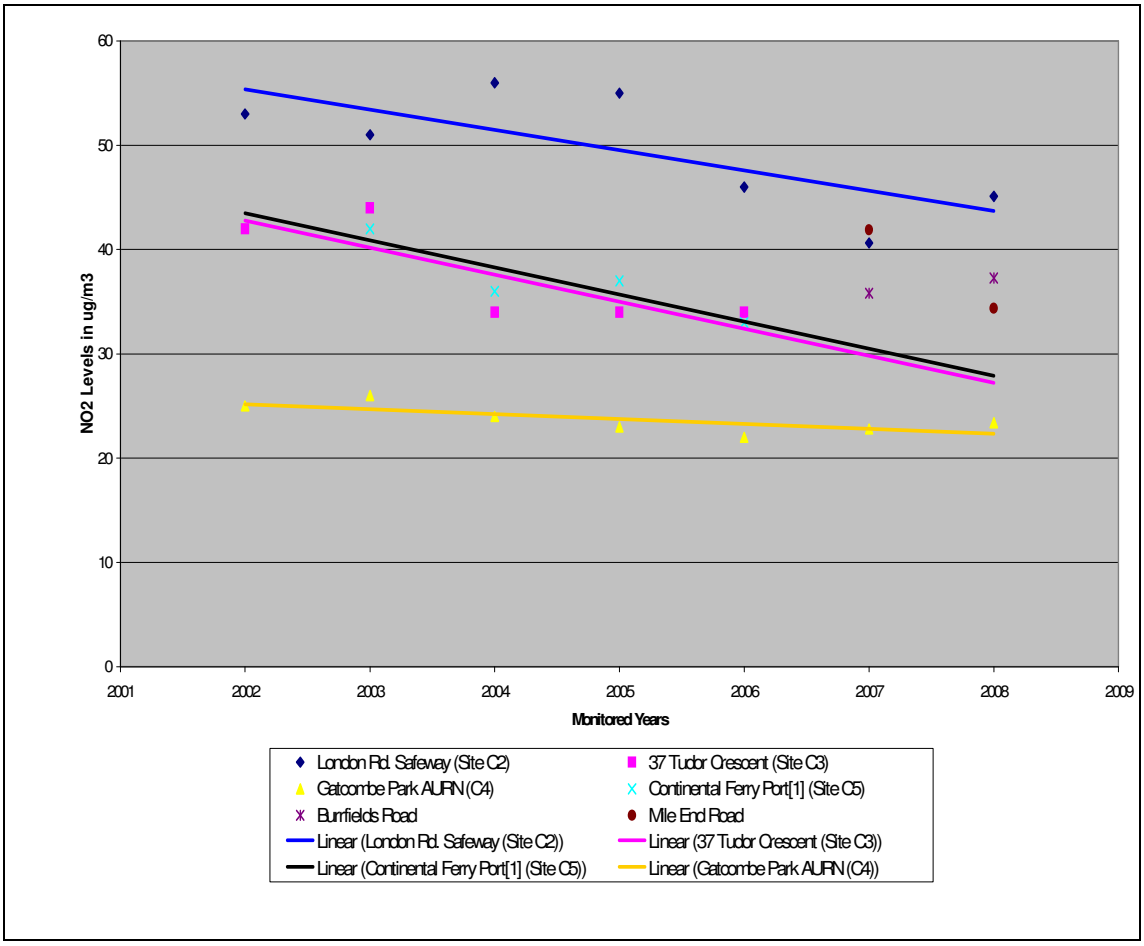
4.8. What is the NO_2 trend in Portsmouth?

Based on the historical monitoring data provided by PCC's 4 continuous monitoring locations, a decreasing trend in ambient NO_2 levels emerged. It is assumed that the decreases in NO_2 between 2007 and 2008 are a continuation of this pattern across all continuous monitoring locations since 2002 (Figure 1).

Air quality is improving in Portsmouth as a result of a combination of the following factors; traffic management schemes, reduction in ferry services to continent, national policy interventions, improvement in modelling, transport initiatives, cycling and sustainable transport developments, road traffic

demand management improvements, public transport improvement, road improvements and effective planning.

Figure 1: NO_2 trends in Portsmouth



4.9. What are the sources of NO_2 in Portsmouth?

In the 2009 FA report, source apportionment was completed at selected individual sensitive receptors in AQMA 6 and AQMA 11.

The results are listed in Table 1 and Table 2 for 2007 and 2010 respectively.

Table 1: Percentage Source Apportionment, NO_X Concentrations, 2007

AQMA	X	Y	Cars	HGVs	Buses	Ships	Ind	Background	
								Local	Reg
6	464911	101894	22.4%	24.8%	15.9%	18.0%	0.4%	11.6%	6.9%
11	464412	101159	29.2%	31.1%	5.1%	9.3%	0.2%	15.9%	9.4%

Ind – Industrial; Reg – Regional

Table 2: Percentage Source Apportionment, NO_X Concentrations, 2010

AQMA	X	Y	Cars	HGVs	Buses	Ships	Ind	Background	
								Local	Reg
6	464911	101894	24.3%	23.2%	14.4%	17.5%	0.4%	12.1%	8.0%
11	464412	101159	32.0%	24.5%	4.9%	9.6%	0.2%	17.4%	11.4%

Ind – Industrial; Reg – Regional

It can be concluded from the above source apportionment that:

- in 2007 the predominant NO_x source was generally predicted to be HGVs, closely followed by car emissions;
- in 2010 the influence of cars and background concentrations was greater than those of 2007 but HGVs remained the highest polluter comparatively when considering the number of each type of vehicle.

These source apportionment tables have enabled PCC to indentify the sources which cause the highest level of pollution and those upon which we should focus and prioritise our attention within this AQAP.

5. 2010 AQAP Priorities

5.1. Priority 1: Heavy Goods Vehicles (HGVs)

Portsmouth is a sub-regional centre with a busy international ferry and container port, a naval base and has a strong tourism industry. Unsurprisingly Portsmouth has a high level of goods movements, which are necessary for its economic prosperity.

Portsmouth's capacity for rail freight movement improved in 2008 with the introduction of the PIGY at Fratton Railway Yard, however the city is still largely dependent on road transport to support its economic sustainability. This makes emissions from HGVs the most significant and the most challenging of the sources to address locally.

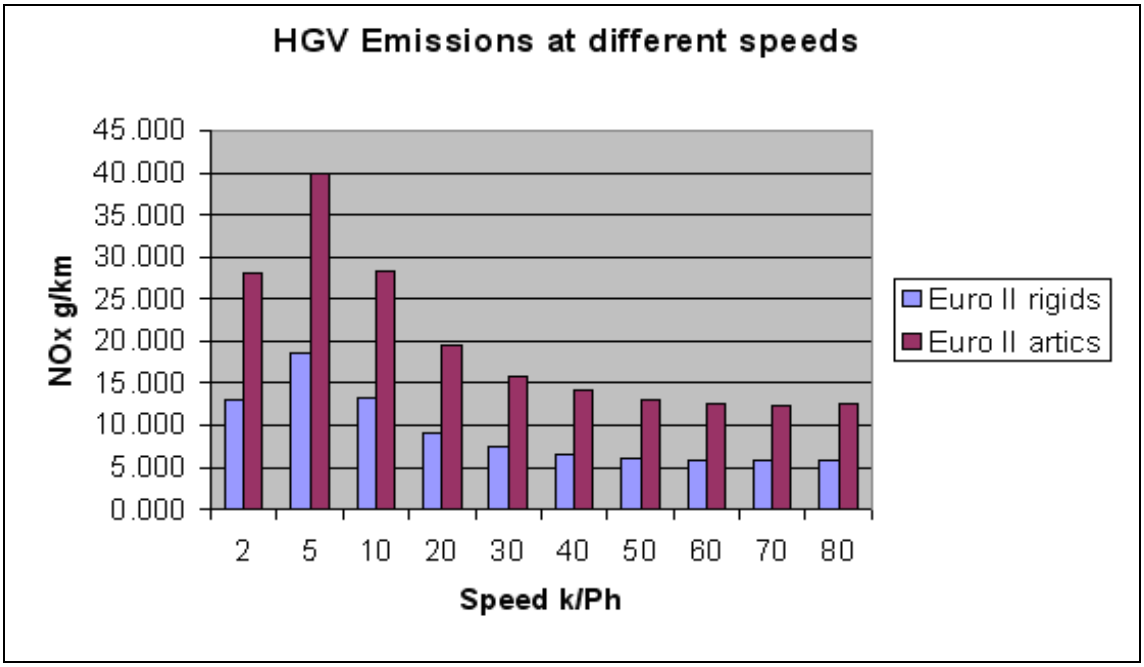
In 2010, HGVs are predicted to contribute between 23.2% and 24.5% of the NO_x within AQMA 6 and AQMA 11. Therefore any % decrease in HGVs passing through these areas will have a significant beneficial impact upon the air quality.

Another factor to address is the implications of HGVs' reduced speed. As illustrated in Figure 2 the very lowest speeds are disproportionately more polluting, with speeds of 5kph showing emissions of NO_x of around double those at 20kph. More modern Euro designs show reduced emissions overall but the emissions for all Euro design emissions at 5kph are around double those at 20kph.

Congestion impairing HGV movement is therefore highly significant and needs to be reduced. Unfortunately, HGVs also contribute to the problem of congestion when making deliveries. This is particularly relevant on the London Road / Kingston Road / Fratton Road corridor in AQMA 6 where many shops face the main road and have poor delivery access. Addressing modes

and times of delivery is therefore also fundamental to the improvement of air quality within these areas.

Figure 2: Emissions from HGVs at varying speeds



5.2. Priority 2: Car traffic

In 2010, cars are modelled to contribute between 24.3% and 32.0% of NO_x emissions with AQMA 6 and AQMA 11. Reducing congestion across the road network is essential if air quality is to improve.

5.3. Priority 3: Buses

In 2010, buses are likely to contribute between 4.9% and 14.4% of the NO_x emissions with AQMA 6 and AQMA 11. The continued introduction of bus priority measures and introduction of improved bus exhaust technology therefore plays an important part in ensuring public transport can offer a realistic and sustainable alternative to the private car.

5.4. Priority 4: Domestic, commercial and background sources

As background concentrations are influenced by pollution generated from outside Portsmouth's boundaries, emissions are difficult to specify or control. We must however continue, wherever possible, to reduce unnecessary discharges from our residential and industrial premises and encourage the use of more efficient heating systems.

5.5. Priority 5: Shipping sources

Contributions from shipping sources had originally been over-estimated in the 2004 DA. This was demonstrated by modelling and monitoring work as carried out as part of the 2006 FA. This work confirmed that the emissions from shipping did not exceed 10% of the total NO_x contribution in AQMA 11.

This contribution is relatively small given the economic importance of shipping to Portsmouth.

5.6. Priority 6: Industrial sources

In 2007, industrial sources were found to contribute between 0.2% and 0.4% to the NO_x levels in AQMA 11 and AQMA 6.

5.7. Priority 7: Continuous improvement

Although the current legal limits on ambient air quality are now met across the majority of Portsmouth, the remaining NO_2 'hotspots' within the 5 remaining AQMAs mean that exposure in these areas is still highly significant. The recent Ambient Air Quality Directive (2008/50/EC) provides for additional time to meet the NAQO limit values in these areas (deadlines 2011 for PM10 and 2015 for NO2). However, even where the NAQO have been achieved, effort is needed to maintain air quality given pressures from Portsmouth's increasing population and demands on transport and land use.

Directive 2008/50/EC was adopted in April 2008 and demonstrates the EU's strong commitment to delivering continuous improvements in air quality by setting ambitious but realistic standards for fine particle $PM_{2.5}$ pollution and ozone. It sets standards and target dates for reducing concentrations of fine particles, which together with coarser particles known as PM_{10} already subject to legislation, are among the most dangerous pollutants for human health.

These targets are however only intended as drivers for UK air pollution policy and it is not appropriate for PCC to assess against them at this time as we lack the necessary policy instruments to address the pollutant in question ($PM_{2.5}$) and because ozone is regional in nature and therefore not suitable for local control.

The 2009 FA highlighted concerns over potential for breaches of the PM_{10} NAQO in 2010 following development around the city centre. Although the introduction of the Trafalgar Gate link road may impact upon these predictions, particulate matter, in particular $PM_{2.5}$, is a concern. PCC should therefore consider exposure to $PM_{2.5}$ and where possible try to reduce exposure.

5.8. What is the required NO_X reduction to meet the NAQO?

In order to create an appropriate AQAP, it is important to determine the reduction in NO_X emissions required to meet the annual mean NO_2 objective. This calculation has been performed for 2010 using the guidance outlined in LAQM Technical Guidance 2009 (LAQM TG09) which has been designed to support local authorities in carrying out their duties under the Environment Act 1995. The calculation results are detailed in Table 3.

Table 3: Required reduction in NOx concentrations in 2010

AQMA	Reduction of NO_2 Required	Road NO_X	Required NO_X	Reduction of NO_X Required	
	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	%
AQMA 11	1.9	63.8	56.70	7.1	11.1%
AQMA 6	10.9	102.52	56.70	45.8	44.7%

In this procedure, the required NO_X to meet the annual mean objective of 40 $\mu g/m^3$ for NO_2 was calculated using the NO_2 to NO_X Calculator[1] on the Air Quality Archive. This figure was then compared with 'road' contribution to NO_X and the reduction in absolute and percentage terms was calculated.

5.9. What is the likely date for compliance with the NAQO?

With no additional remedial measures being implemented, an estimate of the likely date for compliance with the NAQO has been made. This estimate has been calculated using the approach described in LAQM TG09. The results of this approach are listed in Table 6.

Table 4: Estimated Year of Compliance with NAQO

AQMA	Year of Compliance - Annual Mean NO_2 Objective
AQMA6	2016
AQMA11	2012

6. Improving Air Quality - Policy Context

There are many different groups, policies and strategies involved in improving air quality within Portsmouth and the surrounding areas. The key linkages between all of these and this AQAP are:

- raising awareness of air quality issues;
- aligning air quality indicators and measures within the local air quality action planning framework to reduce air pollution;
- improving the evidence base so that decisions can be based on an assessment of cost effectiveness and a better estimate of costs and benefits;
- improving cross-departmental working.

Often air pollution cannot be detected by the general public and most people do not understand how much it may harm their health. Some policies require significant behavioural change, such as a modal shift away from private

[1] http://www.airquality.co.uk/laqm/tools.php

vehicle use. Others, like low emission zones, depend on public acceptance but, as our 2007 AQAP public consultation process demonstrated, this is far from easy to establish.

In 2006 Defra established a 'Citizen's Jury' to explore public views on air quality. The results of this showed that when LAQM began, the general public had little understanding of how air quality is measured, of the health impacts, or of how individuals can improve it. Despite our endeavours to improve this, the situation in Portsmouth has only marginally improved. Raising public awareness, providing clearer information on the causes and implications of air quality, what individuals could do to make a difference and how they would benefit as a result, is vitally important to the success of this AQAP.

Nationally Defra, Department of Health, Department for Transport, Department for Communities and Local Government, Department of Energy and Climate Change and HM Treasury all have a role in determining air quality policy. Locally, their local government counterparts are responsible for delivering these policies. There is considerable evidence demonstrating an understanding of the impact and causes of poor air quality in Portsmouth and numerous policies and strategies mention air quality and the importance of tackling this issue. However, it is only relatively recently that asserted joined-up working to improve air quality in Portsmouth has taken place. This AQAP therefore aims to continue to cement the linkages between PCC departments and services and how together we can deliver specific individual targets but also secure a healthy environment for the future.

This AQAP therefore suggests that the Environment and Public Protection Service, Planning Services, Transport Managers and those responsible for climate change and sustainable growth, link up more effectively and undertake quarterly liaison meetings to discuss and develop an understanding of the air quality issues in Portsmouth and how collectively they can be addressed. A co-ordinated approach and consolidated policy will cut overall costs. In contrast, unco-ordinated policy has unintended consequences, and leads to contradictions within policy delivery. Unless improvement occurs systematically, air quality issues may continue to be ignored as departments focus on their primary objectives at the expense of environmental impacts. Departments are expected to address air quality in policy appraisals but lack the formal guidance to do this effectively. To assist, the Department of Transport (DfT) has published guidance on Local Transport Plans, which will be applicable from April 2011. This strongly encourages local authorities to integrate AQAPs with the local transport planning process.

6.1. National Strategies

6.1.1. The 2007 Air Quality Strategy (AQS)

This strategy:

- sets out a way forward for work and planning on air quality issues;
- sets out the air quality standards and objectives to be achieved;

- introduces a new policy framework for tackling fine particles;

- identifies potential new national policy measures which could give further health benefits and move closer towards meeting the Strategy's objectives.

The 2007 AQS also sets out an agenda for the longer term. In particular to find out more about how air pollution impacts on people's health and the environment to help inform options and future policy decisions. As part of that agenda, on 3rd March 2010, Defra published the document 'Air Pollution: Action in a Changing Climate' which highlighted the additional health benefits that can be achieved through closer integration of air quality and climate change policies in future. This 'forward looking' document does not replace the 2007 AQS but accounts for the rapid development of climate change policy since it was published. In particular, the publication includes the following key messages:

- Air pollution often originates from the same activities that contribute to climate change (notably transport and electricity generation) so it makes sense to consider how the linkages between air quality and climate change policy areas can be managed to best effect;

- The UK's commitment to build a Low Carbon Economy by 2050 will reduce air pollution but the choices made to get there will affect the extent of air quality improvements. Optimising climate policy decisions to account for air pollution could yield additional benefits of approximately £24 billion by 2050;

- Air quality / climate change co-benefits can be realised through actions such as promoting low-carbon vehicles and renewable sources of energy that do not involve combustion. At the same time, actions that tackle climate change but damage air quality must be avoided;

- Action will be needed at international, EU, national, regional and local levels to ensure air quality and climate change policies are integrated to maximise the co-benefits of tackling both air pollution and climate change together and ensure ambitious but realistic air quality targets are set for the future.

Defra is now considering how to take forward the key messages from this document, which will help to shape the direction of the next air quality strategy and how PCC is likely to address these issues in the future.

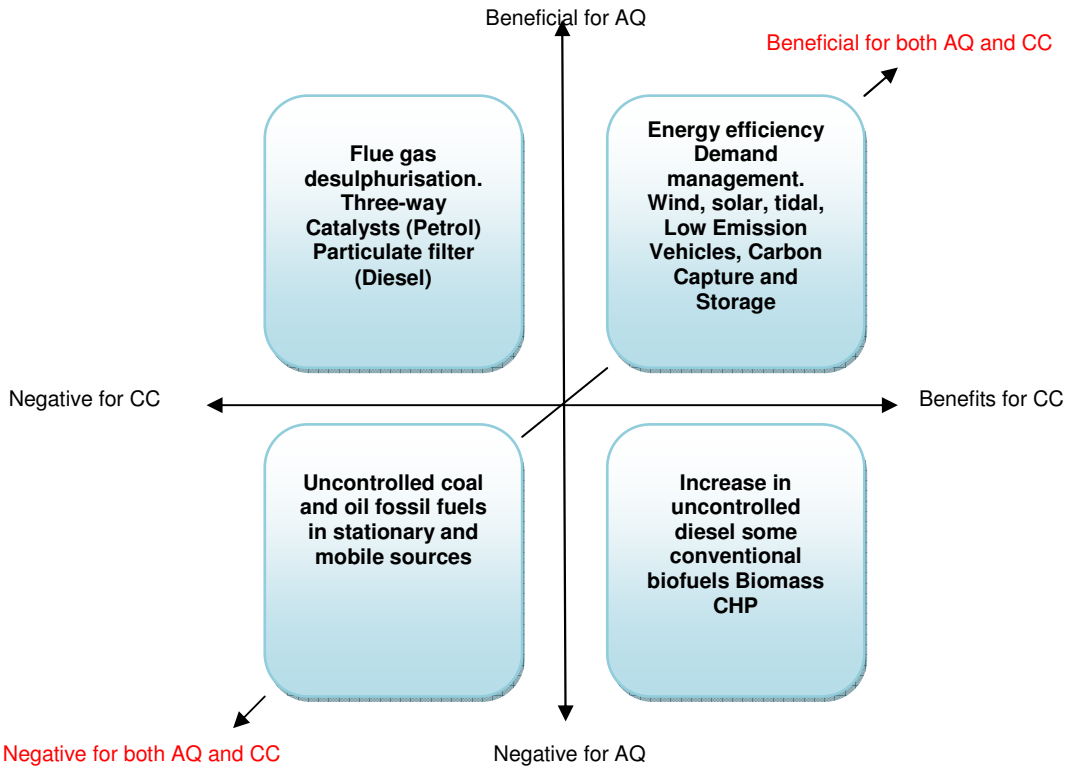
6.1.2. Climate change and its impact upon air quality

Although separate policy frameworks have evolved for managing air pollution and climate change, it is important that PCC develops strong linkages between these if we are to deliver our goals in a cost effective way. In combining these 2 agendas we will also be able to maximise the synergies between these functions.

While the scope of this AQAP is not sufficiently wide to prioritise actions that contribute to achieving more than one policy objective, it does highlight the opportunities of exploring and developing an integrated approach to capitalise on the linkages between climate change and air quality. Changes in the climate impact on air quality, for example, increases in temperature affect the formation of ozone which increases the frequency and severity of summer smogs. Climate change and air pollutants share common sources; these shared sources mean that taking action to reduce the effects of climate change provide excellent opportunities to deliver further benefits to both air pollution and greenhouse gas emissions. When considering climate change it is also however important to avoid, as far as possible, policies which tackle climate change but damage air quality.

Measures that successfully minimise impact upon the climate and deliver improvements in air quality are those which result in the reduction in emissions of pollutants. Certain measures can be counter-productive if not complemented with other proportionate measures. For example, improvements in the efficiency of processes and services, that reduce emissions, can also encourage increased use, which can offset potential benefits. Also measures specifically designed to improve air quality can detrimentally impact upon climate change initiatives and vice versa. An example of specific interest is the potential use of combined heat and power plants to provide local power and heat generation and reduce CO_2 emissions. Despite some advantages these plants can increase emissions of NO_X and PM_{10}, particularly if biomass is used as fuel. PCC will ensure therefore that air quality impacts are carefully considered in the design of any future CHP plants in Portsmouth.

Figure A: Policy map depicting air quality / climate change interactions



As a local authority PCC has a responsibility to monitor data on National Indicator 194: Air quality – % reduction in NOx and primary PM_{10} emissions through our estate and operations.

6.1.3. Local Area Agreement (LAA)

A LAA is an agreement between central government and PCC to provide greater flexibility and capacity to deliver solutions for Portsmouth. Our LAA describes what the council and its partners, through the Local Strategic Partnership (LSP), will do to face the challenges of today and deliver the aspirations for the future.

The LAA is an opportunity for us and our partners to agree with government a set of improvement priorities for the local area along with the targets that need to be hit to deliver improved outcomes for local people.

Priority 2 states: Make Portsmouth an accessible city, with sustainable and integrated transport.

Targets set alongside priority 2 include:

- NI 198 - Children travelling to school - mode of transport usually used;
- Increased cycle use;
- Improved accessibility to primary health services.

6.1.4. Low Emissions Strategies (LES) - Using the planning system to reduce transport emissions

In January 2010 Defra published guidance with respect to local air quality management and how through a 'joined up working' planning system should be used to reduce air emissions from transport.

The main benefit of LES is to reduce transport emissions by accelerating the uptake of low emission fuels and technologies in and around a new development and to promote modal shift away from car travel. This approach will contribute towards achieving the NAQO, provide local economic benefits, help to streamline planning decisions and contribute to wider sustainable development goals.

LES enable a broad package of measures to be assembled, which work together to reduce transport emissions. These address both construction and operational phases of a development. Typical operational phase measures include parking policies; investment in low emission infrastructure, fleet emission improvement, emission based tolling, procurement and supply chain initiatives and contributions to local transport projects and strategic monitoring.

These strategies are secured through a combination of planning conditions and planning obligations and incorporate policy measures and / or require financial investments and contributions to the delivery of low emission transport projects and plans, including strategic monitoring and assessment activities.

PCC will think carefully about how LES can be effectively used and how continued close liaison between the Environment and Public Protection Service, Transport Planners, Transport Engineers and our Sustainable Development Team can be further developed.

A practical approach for mitigating the cumulative impacts of transport emissions from development is to require contributions to a central low emission fund (separate from the Community Infrastructure Levy – see 6.1.7.) to assist the implementation of AQAP, climate change action plans and local transport plans.

Transport assessments provide the logical mechanism for integrating the development of low emission strategies within the wider planning processes. There is scope to enhance the existing approach adopted within Portsmouth to make a more positive contribution to reducing the impact of new developments on air quality.

6.1.5. Strategic Environmental Assessment (SEA)

The European Community Directive on Strategic Environmental Assessment (SEA) came into force in June 2001, and the UK Government and the Devolved Administrations incorporated the SEA requirements into law in 2004. SEA legislation requires national, regional and local authorities to carry out environmental assessments of certain plans and programmes they promote. SEA is an emerging process, which may have implications for improving air quality locally and particularly within the action planning process.

6.1.6. Land use planning – Town & Country Planning Act 1990, Section 106 (S106) funding

UK Government Planning Guidance PPS23 outlines the statutory basis for applying a combination of planning conditions and legal obligations to address the environmental impacts of proposed developments. In particular, it notes that 'S106 Agreements can be used to improve air quality, make other environmental improvements or offset the subsequent environmental impact of a proposed development'.

Planning conditions and obligations have been successfully employed to help mitigate the transport impacts of development by stimulating and accelerating the uptake of low emission fuels and technologies. Similarly they have been used elsewhere to support the implementation of AQAPs and to support strategic monitoring activities.

Developers are expected to make all reasonable efforts to reduce the emission impacts of a proposed development, firstly through appropriate

design features and by proposing mitigation measures. Where site specific mitigation is not possible then S106 monies may be sought to fund low emission plans and measures to offset the impacts of the development.

Within the SPD Planning Obligations first adopted in July 2006, update adopted September 2008; it is acknowledged that under the provisions of S106 planning obligations can be carried out in 2 main ways: either the developer provides the physical measures or makes a financial contribution towards any works to be carried out by the local authority or its partners.

Planning obligations should only be used where the improvements are needed to make a development acceptable. All contributions are intended to benefit the local community and contribute towards sustainable communities through providing a range of infrastructure and services. They should seek to ensure that any adverse impacts of a development are offset, enhance the physical environment or contribute towards local facilities.

For future large scale developments, PCC are likely to better explore how S106 Agreements or similar can be better utilised to offset adverse impact upon air quality.

6.1.7. Community Infrastructure Levy (CIL)

The CIL is being proposed for use in conjunction with existing S106 agreements to increase fairness and uniformity in the way developments contribute to local and regional infrastructure.

The ability of people and goods to travel into and around Portsmouth with ease is a key contributor to quality of life and the attractiveness of the city as a place in which to do business. New development will create an additional burden on the existing transport network. If Portsmouth is to continue to be a transport and economic hub of the sub-region, it is essential that travel alternatives to the private car are enhanced and improved to allow travel in and out of but also within the city, and policies and the proposals in the Local Development Framework (LDF) and the LTP3 seek to contribute towards this aim.

The amount of financial contribution to be sought relates to the accessibility zone within which the application for planning permission lies, on the basis that the less accessible a site is in terms of the existing provision for alternative modes of transport, the greater the need to improve the accessibility to prevent unnecessary car use. Accordingly, the more accessible a site is, the smaller the contribution necessary.

A major benefit from CIL would be provision of a mechanism enabling PCC to require developments to contribute to large infrastructure affected by increased development.

6.1.8. Planning Policy Statements (PPS) 22 and 23

PPS22 and a supplement to PPS1, Planning and Climate Change, provide a policy framework which challenges PCC to do more to support delivery of local renewable or local low-carbon energy. This could include energy from biomass and Combined Heat and Power.

The national planning policy in relation to planning consideration of air quality that is set out in PPS23 will continue to be considered, especially if there are potential impacts on air quality. PPS23 is intended to complement the pollution control framework under the Pollution Prevention and Control Act 1999 and the PPC Regulations 2000.

6.1.9. Clean Air Legislation

Building regulations (specifically Approved Document J – Combustion Appliances and Fuel Storage Systems) are also relevant, and statutory nuisance provisions under Part III of the Environmental Protection Act 1990 may be applicable where the combustion installation is not situated in a smoke control area. In smoke control areas, only appliances that are exempted from the provisions of the Clean Air Act 1993 may be used. There will be situations where an alternative regulatory regime may be used but where the Clean Air Act 1993 applies, PCC must take action where dark smoke is emitted from a chimney of any building (subject to certain permitted periods and exemptions), take action where dark smoke is emitted from industrial or trade premises (subject to certain exemptions), require notification of installation of industrial furnaces and approve grit and dust arrestment equipment, and approve chimney heights.

7. Regional policies and strategies

7.1. The South East (SE) plan

The Regional Spatial Strategy (RSS) for the South East of England (known as the SE Plan) was published by the Government Office for the South East of England in May 2009. This sets out the long term spatial planning framework for the region up until 2026.

The policies within the SE plan form part of the development plan for Portsmouth and will now be considered in planning applications and appeals relating to development. Portsmouth is identified as a focus for investment and development through the plan period and as a result we are required to provide 15,000 new homes and substantial amounts of employment floor space. The plan acknowledges that action can be taken locally to address the problems i.e. by influencing movement, mode and management of transport through spatial planning. The transport policies of the plan propose measures that address poor air quality and contribute to the delivery of AQAPs.

The SE plan suggests that local authorities and other relevant bodies should seek an improvement in air quality in their areas so that there is a significant reduction in the number of days of medium and high air pollution by 2026. It

acknowledges that local development documents and development control can help to achieve improvements in local air quality through:

- ensuring consistency with the 2010 AQAP;
- reducing the environmental impacts of transport and congestion management, and support the use of cleaner transport fuels;
- mitigating the impact of development and reduce exposure to poor air quality through design, particularly for residential development in areas which already, or are likely to, exceed NAQO;
- encouraging the use of best practice during construction activities to reduce the levels of dust and other pollutants.

8. Local Influences

8.1. The Corporate Plan (CP) 2007-2010

The CP outlines the priorities of PCC and how we intend to improve. A new CP will be published soon within which our aims, core values and key corporate objectives and shows how PCC contributes to the vision for the city outlined in the Community Strategy will be described. The plan, along with the Medium Term Resources Strategy and our business planning process, helps to ensure that our resources are aligned to achieve our priorities.

Three of the most relevant priorities set out in the 2007-2010 CP relative to air quality are:

- Corporate Plan Priority 10 - Regenerate the city;
- Corporate Plan Priority 11 - Cleaner and greener city;
- Corporate Plan Priority 12 - Improve public transport.

These 3 priorities are unlikely to change significantly in the emerging new CP.

8.2. The Portsmouth Core Strategy (PCS)

The PCS is the overarching planning policy document, which forms part of a wider set of local planning policy documents known as the LDF. The LDF will gradually replace the policies in the City Local Plan, adopted in 2006.
The PCS is designed to:

- set out the vision of the Sustainable Community Strategy for the development of Portsmouth up to 2026;
- set strategic objectives and policies;
- identify broad locations for development, protection or change;
- set out an implementation and monitoring framework.

Within this PCS Policy DC5 Amenity and Pollution will continue to dictate that new development will only be permitted where:

- it would not cause unacceptable levels of air, noise, vibration, light, water or other pollution or otherwise cause unacceptable detrimental effects to the amenity of adjoining or nearby occupiers;
- the amenity of future occupiers or users of the proposed development is not adversely affected by existing or projected levels of air, noise, vibration, light, water or other pollution;
- new developments should be laid out and designed to minimise, as far as possible, the impact of the above matters. Particular consideration will be given to the location of sensitive land uses, especially housing, in the context of the above.

8.3. Air quality as a material consideration

Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight given to air quality in making a planning application decision, in addition to the policies in the local plan, will however depend on such factors as:

- the severity of the impacts on air quality;
- the air quality in the area surrounding the proposed development;
- the likely use of the development, i.e. the length of time people are likely to be exposed at that location and the positive benefits provided through other material considerations.

Air quality has increasingly played a part in the determination of planning applications, particularly for developments within AQMAs. Refusals have led to the decisions being tested at appeal. The outcomes have been varied because each is determined on its own merit. PCC has been tested and has failed at appeal on a decision to uphold a recommendation for development refusal on grounds that air quality above the NAQO within an AQMA merited refusal.

8.4. Future developments and new sources of air pollution

Because of the unique urban landscape and the high population density, resolving air quality issues within Portsmouth is difficult without simply moving the problem to a different location. Therefore air quality is specifically integrated in the development control process.

It is not necessarily the case that a proposed development in an area of poor air quality will have a negative impact. It is however important to recognise when such development might introduce additional people into an area of poor air quality.

Areas of poor air quality may need to be considered in one of 4 ways:

- As areas which have been declared as an AQMA;
- As areas adjacent to a declared AQMA;
- As areas where concentrations are close to a NAQO and the proposed development (or other planned developments in the area) could lead to breach of that objective;
- As areas where air quality is poor enough to breach one or more of the air NAQO but which has not been declared an AQMA due to previous lack of exposure.

8.5. Development in the city

Land use planning can contribute to a long-term solution to air quality problems but by its nature can have little immediate impact. In some cases, further air quality problems can result where there are conflicts with other policy objectives, such as road safety.

It is important to balance all aspects of development within an AQMA. For example a new residential development may increase the number of people exposed to poor air quality, but on the other hand there may be overriding social and economic benefits arising from the regeneration of the area. Moreover, if a development is proposed close to a main shopping or employment area, there may be a reduction in the need to travel by car, with a corresponding potential to reduce emissions if people who previously travelled into the area by car no longer do so, leading to an improvement in air quality.

This does not mean however that the immediate air quality impacts of the development can be dismissed. The local planning processes should assist with off-setting, removing or reducing the impacts of development. As such, land-use planning and development control can become an effective tool to improve air quality by first locating developments in such a way as to reduce emissions overall, and secondly reducing the direct impacts of those developments.

The development control process sets out to improve air quality within the city through:

- minimising the impact of polluting development;
- determining the form of development (mixed or single use);
- determining the location of development so that sensitive developments are steered away from areas where air pollution is an issue and that employment, facilities and services are close to where people live, thereby reducing the need to travel;

- influencing parking levels and promoting sustainable forms of travel to reduce car dependency;
- increasing / maintaining open spaces and green infrastructure;
- encouraging sustainable designs of new buildings.

Planning policies for the city are set out in Portsmouth's LDF. There are many draft policy areas which could have a positive impact on air quality such as the sustainable development of key sites, green infrastructure, sustainable construction and design, transport and health.

8.6. The SPD on air quality

The SPD on air quality is one of the tools produced in 2006 that has been extremely effective in addressing the issues of air quality and air pollution through the planning process, by giving due consideration to any possible problems at the first opportunity. The SPD applies to both polluting developments (those predicted to worsen air quality) and sensitive developments (those which may introduce an increased population to areas of poor air quality).

The aim of the SPD is to ensure that when new development comes forward in an area where air quality is seen to be a significant issue, developers will be expected to demonstrate that they have given due consideration to the issue.

Where a development requires an air quality assessment, this will be undertaken using an approach that is robust and appropriate to the scale of the likely impacts. Air quality assessments may be required as part of a formal EIA for a major development, or as a standalone air quality report submitted in support of a planning application.

As a general rule, an air quality assessment will be required where the development is anticipated to give rise to significant changes in air quality. The decision as to whether or not an air quality assessment is required should take into account:

- the physical characteristics and scale of the proposals;
- the changes in traffic flows predicted to arise;
- the proposals for CHP plant or stand alone boilers burning biomass;
- the air quality sensitivity of the location.

An air quality assessment is likely to be considered necessary when:

- Proposals that will generate or increase traffic congestion, where 'congestion' manifests itself as an increase in periods with stop start driving;

- Proposals that will give rise to a significant change in either traffic volumes, typically a change in annual average daily traffic (AADT) or peak traffic flows of greater than ±5% or ±10%, depending on local circumstances (a change of ±5% will be appropriate for traffic flows within an AQMA), or in vehicle speed (typically of more than ±10 kph), or both, usually on a road with more than 10,000 AADT (5,000 if 'narrow and congested');

- Proposals that would significantly alter the traffic composition on local roads, for instance, increase the proportion of HDVs by 10% or more, due to the development of a bus station or an HGV park (professional judgement will be required, taking account of the total change as well as the percentage change);

- Proposals that include significant new car parking, which may be taken to be more than 100 spaces outside an AQMA or 50 spaces inside an AQMA. Account will also be taken of car park turnover, i.e. the difference between short-term and long-term parking, which will affect the traffic flows into and out of the car park.

The intent of an air quality assessment is to demonstrate the likely changes in air quality or exposure to air pollutants, as a result of a proposed development. Ultimately the planning authority will use this information to decide the 'significance' of the air quality impacts, and thereby the priority given to air quality concerns in determining the application.

Depending on the 'significance' of the air quality issue, developers are encouraged to consider varying levels of intervention in order to reduce the impact on future occupiers and users. A preferred hierarchy of intervention has been set out in the SPD. This firstly looks for schemes to be redesigned, to remove the air quality impact. For example, for new housing this might mean that the separation distance between the source and the receptor is increased significantly. Secondly, if redesign is not a feasible option, mitigatory measures, such as encouraging the use of public transport through the implementation of a travel plan will be sought. If neither a redesign of the scheme or mitigatory measures can be secured, measures that may offset any potential air quality issues will then be sought by PCC in order to minimise additional air pollution and enhance air quality for residents and users.

In light of the content of the Development Control Planning for Air Quality (2010 Update) for Consultation document published by Environmental Protection UK on 25th February 2010, a review of the current 2006 Air Quality SPD is proposed as part of this AQAP. This review will further facilitate closer integration and promote a consistent approach to the treatment of air quality issues within development control decisions and the LDF. The reviewed document will include a SEA report indentifying the likely significant effects of the plan, and the extent to which its implementation will achieve the social, environmental and economic objectives by which sustainable development can be defined.

8.7. Construction of developments

Despite the current economic downturn and funding uncertainties many developments are still being planned in Portsmouth in the next 5 to 15 year period and these are just some of the major schemes that could come forward:

- Somerstown regeneration;
- The Hard Interchange;
- North Harbour – Lakeside;
- Fratton Park (Portsmouth Football Club);
- Tipner Interchange (M75 slip);
- Tipner Regeneration;
- Tipner Park and Ride;
- Port Solent and Horsea Island (linked to Tipner Regeneration);
- City Centre regeneration.

All of the above schemes will need to address air quality as part of the planning application process and show how they conform to the AQAP, SPD and the LDF.

8.8. Portsmouth's Local Strategic Partnership (LSP)

Portsmouth's LSP is the city's umbrella partnership which brings together representatives from the public, private, voluntary and community sectors. The LSP's overall aim is to improve the quality of life for people who live, work or visit Portsmouth by delivering outcomes through improved partnership working. After extensive community and stakeholder consultation, the LSP has produced the Vision for Portsmouth 2008 - 2018. The Vision is what the LSP has called its new Sustainable Community Strategy, which replaced the 2004 - 2009 Community Strategy.

The vision is for Portsmouth to be "the premier waterfront city with an unrivalled maritime heritage – a great place to live, work and visit". In order to achieve this, partners will be working toward 10 priorities.

Priority 2 states: Make Portsmouth an accessible city, with sustainable and integrated transport.

By 2018 LSP will endeavour to make Portsmouth a city where:

- there is an exciting sense of arrival in the city, which is connected to adjacent areas and the wider world using all transport modes, with stimulating, safe, and modern interchange sites;

- water travel has become key to improved mobility around the whole city. It is a major factor in the success of the integrated transport system and provides new and alternative routes in and out of the city. Reliance on car use is reduced, with effective and safe Park & Ride / Float provision. People can rapidly travel between key sites and areas with frequent services. The city is attracting more cruise liners;

- public transport is of high quality and encourages city living. Services are more responsive to local needs, tailored to rapidly changing patterns of demand, and reviews are led by transport users. Public transport is seen as affordable to all;

- there is a fully integrated network, with centralised public commissioning, priority-setting and co-ordination of the total transport system, linked into the wider area, whilst allowing private operators to innovate and run services. Integrated ticketing solutions have been implemented;

- walking and cycling are the first choice way for people to get around. Employers provide incentives and encourage staff to walk and cycle to work and provide collective transport schemes. Bike hire is readily available in all parts of the city, with more cycle lanes, improved cycle networks, better security and locking up points for bikes and better signage for walkers and cyclists.

8.9. Portsmouth Local Transport Plan (LTP)

PCC, as the local transport authority for Portsmouth, is currently preparing the third Local Transport Plan (LTP3) for the city. This will replace Portsmouth's LTP2 when it expires on the 31st March 2011.

The LTP3 will:

- set out PCC's transport policies and overall strategy for Portsmouth and wider sub-regional centres;

- addresses local transport priorities and indentify transport improvements for the local area through the short term implementation plan;

- addresses cross-boundary issues through joint working with Southampton City Council and Hampshire County Council;

- provide guidance on transport issues for PCC's LDF.

The long lifespan of the LTP3 will help ensure consistency with the timescale for the new Regional Strategy and the LDF which is currently being

developed. The longer timeframe will also enable PCC to set, and help deliver, longer term strategic priorities.

PCC is currently working with Hampshire County Council and Southampton City Council to establish common sub-regional transport issues and problems, and to set cross-boundary priorities for transport across the 3 local transport authority areas.

A Scoping Report has been prepared for PCC as part of the SEA of the LTP3 for Portsmouth. The report has been published for consultation with the consultation bodies as required by Regulation 12(5) of the UK SEA Regulations 2004. Scoping is the process of deciding the scope and level of detail of an SEA, including the relevant background and environmental issues, the assessment methods to be used, and the structure and contents of the Environmental Report. Documenting this process, the Scoping Report sets out the scope of, and methodology for the SEA of the LTP3 and summarises the tasks and outcomes of the first stage of the SEA process.

8.10. 2010 AQAP - Actions for cleaner air

In addition to the work conducted at a national and sub-regional level, in accordance with the overarching objectives in the LTP2 to improve and increase the use of sustainable modes, a comprehensive programme of improvements is underway.

A holistic approach to cleaner air is being considered, however priorities will be also achieved through projects designed to specifically target poor air quality within hotspots AQMA 6 and AQMA 11.

9. Action Priorities

9.1. Priority 1: Heavy Goods Vehicles (HGVs) – Restriction of HGV within AQMA 6

The A2047, London Road between Stubbington Avenue and Kingston Crescent, forms the North End High Street and corresponds with the northern sector of AQMA 6 (see Appendix 3). This area is heavily used by both through traffic and as a local distributor road. The road is currently arranged as a southbound bus lane, forming the southern end of the ZIP corridor between Petersfield and Portsmouth city centre, north and southbound general traffic lanes and a length of parking on the western side of the road to the north of its junction with Kingston Crescent.

Observations of the day-to-day traffic movements in the area, made by the Traffic Management Centre operators, suggest that much of the HGV movement in this area is due to local drivers taking ‘short cut’ access to the ferry port.

In 2008 the North End Business Forum initiated a design feasibility study through PCC Asset Management Design Architects to look into potential design improvements for this area. As these concept ideas incorporated improvements around traffic movements and pedestrian access, discussions

were held which identified concerns over traffic movements and congestion levels. As a result of these discussions a project board was set up to look into addressing the concerns around traffic safety and air quality. This project was funded within the 2009 / 2010 LTP2 budget.

To address these issues, a steering group was established in May 2009. The steering group includes representation from the business association, local church, chairmen from the North End and Stamshaw & Tipner neighbourhood forums, the Cabinet member for Traffic & Transportation and Ward Councillors in addition to members from the Environment and Public Protection Service, and from local transport and freight networks. The steering group then began work on a number of options to take forward and consult with the local community and traders.

Way forward and options for consideration to improve air quality in this area include:

- Applying a weight restriction to prevent HGV's entering London Road south of Stubbington Road. Air quality in North End would be improved by imposing a weight restriction to the north of the city to encompass London Road and Northern Parade, thus ensuring that Stamshaw Avenue is not used as an alternative route by HGV's.

- Improving traffic light signals to speed traffic movement. The operation of the signals at the junction of Kingston Crescent and London Road would benefit from improved efficiency, through the implementation of the improved signal traffic control systems. These would be more responsive to vehicle demand and be able to immediately react to changing vehicle flows, reducing queuing and congestion and leading to an improvement in air quality;

- Removing on-street car parking. With regard to on-street parking it is proposed that the parking bay to the north of the junction with Kingston Crescent be removed. This will improve the movement of traffic and offer air quality benefits;

- Improving signage to car parks. Currently Stubbington Avenue car park is only operating at around 40–50% capacity. PCC will seek to review pricing policies, improve signage, lighting and security in order to increase take up of this underused facility.

9.2. Priority 2: Reducing emissions from cars – easing congestion

To reduce traffic in Portsmouth PCC's main objectives are:

- to reduce reliance upon the private car;

- to improve public transport reliability and it's regularity (AQAP Priority 3);

- to improve conditions for non-motorised modes (AQAP Priority 7);

- to designate routes / restrict access for HGV's (AQAP Priority 1).

The key elements involved in reducing the numbers of vehicles are:

- ensuring that development which have the potential to generate significant volumes of traffic are located in areas with good public transport such as town centres;
- to support and encourage improvements to public transport;
- to introduce and implement policies which favour sustainable transport modes such as walking and cycling;
- to support only those road improvement schemes and traffic management measures which contribute to traffic fluidity, restraint and the objectives of sustainable transport policy;
- to move away from providing car parking to meet demand and towards using parking policy to implement traffic restraint policies;
- to introduce car parking standards for new developments which contribute to traffic restraint policies;
- to distinguish between the legitimate roles of short stay visitor parking and long term commuter parking.

9.2.1. Junction improvements – AQMA 6 and AQMA 11

PCC Traffic Management is responsible for proposing and implementing traffic schemes on roads in Portsmouth. New traffic management systems have been introduced at key locations and have been successful in reducing congestion and pollution.

Some heavily trafficked junctions located within AQMAs have significant variations in traffic flows throughout the day. The Microprocessor Optimised Vehicle Actuation (MOVA) system has been developed for just these types of locations and can automatically alter the traffic signal settings to suit the volume of traffic on each approach.

Traffic Management have a number of MOVA installations and will continue to install this technology at appropriate locations, particularly within AQMA 6 and AQMA 11, but will initiate a re-evaluation of all signalling throughout the city as part of their transport strategies.

The key locations for consideration for upgraded traffic management installations at junctions throughout AQMA 6 and AQMA 11 are:

- Stubbington Road / London Road - AQMA 6 (as part of the NE regeneration scheme)*;*

- Kingston Crescent / London Road junction - AQMA 6 (as part of the NE regeneration scheme)*;*

- Lake Road / Fratton Road junction - AQMA 6 (review of completed improvements carried out in March 2009 - approximate cost £225,000);

- New Road / Kingston Road junction - AQMA 6 New Road / Kingston Road junction - AQMA 6 (scheme proposed);

- St Marys Road / Fratton Road junction - AQMA 6 (phase 1 completed March 2009 [linked to Lake Road scheme] approximate cost £10,000);

- Fratton Road / Winston Churchill Avenue / Goldsmith Avenue / Fawcett Road roundabout - AQMA 6 (feasibility study funding available);

- Kingston Road / M275 south-bound slip - AQMA 11 (implementation as part of Tipner regeneration scheme);

- Mile End Road - New entrance to HM Naval Dockyard Portsmouth – AQMA 11 (£7.6m approved March 2010);

- Mile End roundabout, improving flow southbound (preventing access east into Church Road from northbound traffic) - AQMA 11.

9.2.2. Junction improvements – AQMA 7

St Michael's gyratory effectively operates as a roundabout. Traffic travelling north on Hampshire Terrace gives way to traffic on the circulatory carriageway of the gyratory. Due to the high volumes of traffic exiting Portsmouth, predominately during afternoon peak hour, large traffic queues form on Hampshire Terrace. The pedestrian crossing signals, a short distance to the north of the junction, exacerbate the problem, as circulatory traffic does not have the appropriate forward visibility. The introduction of traffic signal control at this point would improve traffic flow on Hampshire Terrace, reduce the existing queue and provide air quality improvements.

9.2.3. Traffic exclusion – Park and Ride

Parking and its availability is a major contributor to poor air quality. Whilst there is an economic need to provide parking for residents, businesses, shoppers and tourists this conflicts with the need to dissuade vehicles from entering the city and improving air quality.

Since April 2009, a weekend park and ride trial has been undertaken to encourage visitors and out of town shoppers to use public transport to come into the city.

Although in its infancy increased provision and greater uptake of the park and ride is likely to have a number of beneficial effects upon the quality of air

particularly in AQMA 11. Well designed, quick, effective park and ride schemes can deliver improvements in air quality particularly if clean bus technologies are also employed. The expansion of this scheme is essential to delivering improvements in air quality.

Establishing a permanent park and ride site with at least 1,000 spaces by 2012 is a Key Delivery Target (KDT) of the corporate plan. Unfortunately a site has yet to be introduced for a weekday park and ride site and therefore the weekend park and ride is an interim solution.

The Solent Transport Sub-regional Strategy appendix of LTP2 identifies a park and ride scheme at the Tipner site including a bus priority route into the city. As it is uncertain when Tipner will be delivered, along with a permanent full time park and ride, the interim solution is being maintained.

9.2.4. Traffic exclusion – Planning

Car parking associated with new development should not exceed the PCC parking standards. These standards seek to provide a balance between reasonable expectations of car ownership and the need to encourage a more sustainable approach to meeting future transport needs.

Planning policies set parking standards which are determined by accessibility to public transport and local factors (such as economic regeneration, environmentally sensitive locations, cycle accessibility, existing public parking stock and shared use). The size of development (sq m) determines the need for transport assessments and site travel plans.

In 2008 PCC published a SPD setting out guidance on parking standards for residential development which stated that development with less than the expected level of parking provision will be regarded as acceptable if accompanied by suitable evidence. Factors might include proximity to bus and train services, cycle routes, availability of on-street or off-street public parking close by, tenure of prospective residents, proximity to local services and / or exceptional provision within the development to facilitate and encourage more sustainable transport choices, e.g. car clubs.

Where development is proposed within 800 metres walking distance of a railway station and 400 metres walking distance of a high frequency bus corridor, the SPD suggests that minimal or even no parking may be acceptable. These developments are considered as part of a 'car-free' development, subject to an appropriate legal agreement to manage this.

9.2.5. Traffic exclusion – Charging

On the 1st April 2010 parking charges in Portsmouth increased in most areas, a notable exception is within the North End regeneration area. Many increases were greater than 25% and although this may go some way to reduce car miles travelled and increase travel by other means, it is unlikely to resolve congestion or the air quality problems. What is more, free street

parking is available in areas within close proximity to train stations and bus routes which encourages short distance car trips rather than greener alternatives.

PCC is responsible for most of the off and on street parking in the city. A number of Residents' Parking Schemes (RPS) have been implemented since 1999, with the sole aim of optimising parking opportunities for residents, whilst ensuring businesses are catered for. Once there is sufficient support for a scheme, PCC conducts surveys of residents' views, which asks how they would prefer their scheme to operate. If sufficient support is demonstrated, the legal process of advertising for public consultation takes place, followed by the implementation of the scheme. All schemes are enforced by civil enforcement officers employed by PCC.

Currently, discounted prices for monthly car-park season tickets are unavailable for car-sharers to encourage greener travel and lessen congestion however, season ticket discounts are unavailable for drivers of greener vehicles. Within its actions this 2010 AQAP therefore introduces the possibility of offering season ticket buyers preferential parking rates for smaller engine sizes or engines which emit lower levels of pollutants. Similar schemes have been introduced within cities suffering from vehicular generated pollution. London boroughs such as Richmond, Camden, Hackney, Haringey, Islington, Kensington & Chelsea, Lambeth, Tower Hamlets and Waltham Forest have all successfully introduced these schemes. Although these have generally received a negative reaction from the vehicle owners affected, often they are well supported by members and the majority of the general public. Importantly, these schemes have successfully raised the public's awareness of air pollution, its harmful effects and the importance of encouraging the use of greener modes of transport.

On-street parking congestion generally arises through the competition between the local resident population searching for space to park at or close to their homes, local worker parking and visitors. Government guidance suggests Controlled Parking Zones (CPZs) as the way forward. CPZs (known in Portsmouth as RPS) have already been introduced in 28 areas to provide safer and adequate access for emergency and other vehicles, deter car use, provide space conveniently located for residents who have no off-street provision, control the short and long term balance of on and off-street parking by time and charging and to maximise the usage of convenient space to contribute to the economic strength of the town centres. Sometimes our RPS cover quite a large area but in other cases problems are concentrated in just a few streets.

Every year more and more cars use Portsmouth's streets increasing pressures on already overcrowded roads. In many places residents now find it difficult to park anywhere near their homes. Areas where there is very heavy pressure on parking are near the 5 railway stations, the regional retail areas, the 2 hospitals and around the University Campus and these could be subjected to CPZ.

The main purpose of CPZs is to manage overcrowding as they help to control intrusive parking by limiting or eliminating commuter parking and giving priority to residents and to short term parking for shoppers, visitors and social users. Using CPZs can also help the regeneration of town centres such as North End as all space other than for residents and business parking can be made short stay space. This ensures that more space is available for people making short trips to the shops or to use local facilities.

The use of CPZs fits within the larger traffic management policies of both central government and of PCC. By limiting 'end destination' parking, either for commuters who finish their journey to work in one of the town centres, or for those who leave their cars here and travel onwards, PCC could further encourage the use of public transport and begin to reduce the amount of local short trip travel.

9.3. Priority 3: Public Transport

Improving public transport within the city is identified as a key target within the LTP and is a corporate priority for PCC. Poor air quality will be difficult to overcome so long as the private car remains the dominant mode of transport in Portsmouth. The provision of efficient effective public transport can offer a realistic and sustainable alternative to the private car, whilst supporting economic prosperity and an improved environment for residents and visitors alike.

Targeted schemes to improve bus services, increase usage and reduce emissions levels continue, both in co-ordination with bus operators and partner authorities within TfSH.

These schemes consist of measures to improve the infrastructure for buses - including new stops and shelters, implement further bus priority measures, improve customer information and ticketing provision, focus on reducing fuel consumption and the redevelopment of transportation hubs.

The following list of proposed schemes was approved in principle by PCC in September 2008 and although many for these schemes have been deferred due to recent spending efficiencies it is hoped that further funding will be sourced in the future:

- Spur Road / Northern Road;
- Winston Churchill Avenue;
- St Georges Road, Old Portsmouth;
- Tangier Road / Eastern Road Junction
- Isambard Brunel Road;
- Northern Road Bridge
- Old London Road.

The future implementation of these measures will build on the work done by the bus companies to improve their own operational management and confirms PCC's commitment and support to the Punctuality Improvement Partnership which seeks to improve the reliability of bus services as dependable services are a key determinant of passenger satisfaction and a prerequisite for growth in usage.

The introduction of these schemes will improve the performance, efficiency, cost and the image of bus travel which will generate greater use of public transport and encourage modal shift from private car to bus and to the wider public transport network.

PCC are committed to working with operators to reduce emissions from the bus fleet. Currently Euro 5 compliant buses have been introduced on the 700 route, and Euro 4 compliant buses on the 40/41 and the 23 routes. This effectively means that almost all bus movements through AQMA 6 and AQMA 11 are Euro 4 compliant or better.

9.4. Priority 4: Background emissions

Reductions in energy use equate to reductions in pollutant and therefore PCC is working hard to progressively reduce energy use within the city and develop a more sustainable approach to lifestyles.

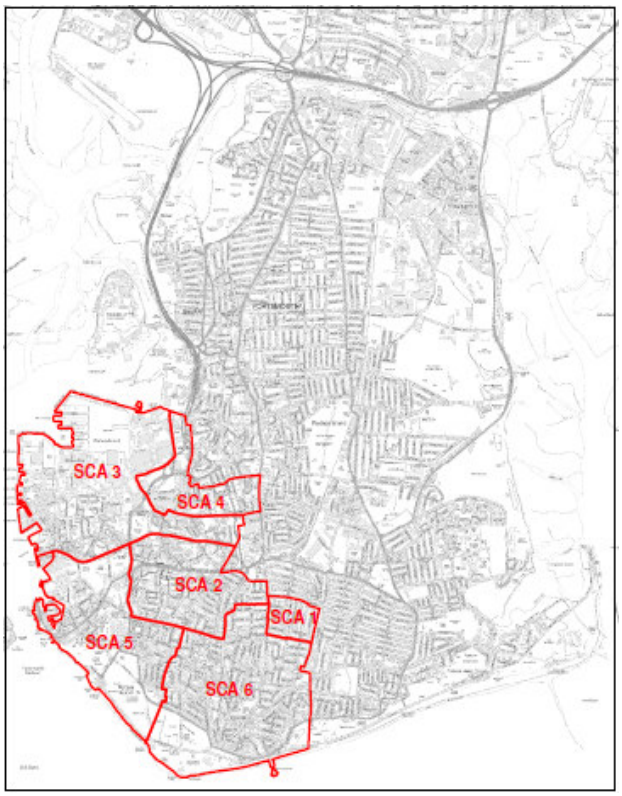
Part of Portsmouth is a Smoke Control Area (SCA) (Map 1), which restricts the types of fuels that can be burnt in premises or sold in the area. The 6 SCAs are located in the south west part of the city and have been in force since 1/11/1973 (Table 5).

PCC will continue to enforce the Clean Air Act under which it is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance.

Table 5: Operating dates for SCA

SCA	Start operative date
SCA 1	1/11/1973
SCA 2	1/10/1975
SCA 3	1/07/1977
SCA 4	1/07/1978
SCA 5	1/10/1983
SCA 6	1/07/1982

Map 1: Locations of SCA in Portsmouth



9.4.1. Climate change and air quality – impact upon background concentrations

The links between air quality and climate change have been highlighted within section 8.1.3. PCC hopes to meet the climate change targets of 2012, 2020 and 2050 as set out within the Kyoto Protocol (KP). The KP is a protocol devised by the United Nations Framework Convention on Climate Change (UNFCCC) aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving stabilisation of greenhouse gas concentrations in the atmosphere at a level that would minimise dangerous anthropogenic interference with the climate system. The KP was initially adopted in December 1997 in Kyoto, Japan and entered into force in February 2005. The UK was the first country to agree a Climate Change Act in November 2008, which commits the UK to reducing CO2 emissions by at least 80% of 1990 levels by 2050.

Portsmouth a city climate change strategy. This document is a multi-agency strategy, produced by Portsmouth Sustainability Action Group (PSAG). PSAG was formed to ensure that there is a consistent approach to tackling climate change and sustainability issues in Portsmouth. This group is now a partnership board on the LSP. Membership of PSAG includes public sector organisations such as the University of Portsmouth, Portsmouth Primary Care Trust, NHS Trust, Environment Agency, Natural England, Higher Education colleges and the Naval Base. Businesses such as John Lewis, Gunwharf and The Hampshire and Isle of Wight (IOW) Sustainable Business Partnership

along with the voluntary and community sector e.g. Portsmouth Climate Action Network (PCAN), Friends of the Earth and Portsmouth Cycle Forum are also members.

PCC is ensuring that communities within the city are aware of the impacts of climate change on Portsmouth and what actions they can personally take. Schools are a particular area of focus as any actions taken within schools will help towards reducing their carbon footprint and also raise awareness within the community and especially with the children and the city's future generations. Engaging the business community is also a high priority, with 45% of the city's carbon emissions coming from the industrial and commercial sector. PSAG is working closely with the Hampshire & IOW Sustainable Business Partnership to engage with the small and medium enterprises within the city.

The climate change strategy sets out a number of priorities including the reduction of carbon emissions and reducing the demand for energy and aims to ensure:

- all sectors of the community understand climate change issues and will take action;
- people are aware of their responsibilities and know their own carbon footprint;
- residents actively reduce their carbon footprint;
- businesses and organisations know their carbon footprint and have a carbon reduction plan.

9.4.2. Carbon Management Programme - Strategy Context and Vision

Through systematic carbon management, PCC will be in an improved position to control emissions, which contribute to climate change and poor air quality, and to control costs associated with energy use or resource use.

Local and national policies provide the key context for responding to climate change and reducing carbon emissions. PCC has signed the Nottingham Declaration on climate change reinforcing our commitment to environmental sustainability. Prior to commencing the Carbon Management Programme, in collaboration with the Carbon Trust PCC had already identified carbon management and sustainability as high priorities in the Vision for Portsmouth 2008-2018, the Corporate Plan 2008-2011 and the council's Sustainability Strategy.

PCC is committed to reducing its carbon emissions by 30% from operational buildings, transport and waste by 2014.

9.4.3. Main areas of focus of the Climate Change Strategy

9.4.3.1. Buildings

Businesses need to improve the energy efficiency in their buildings and consider options for renewable energy. New developments, both domestic and commercial, will need to be as sustainable as possible and enable sustainable living. The biggest challenge for Portsmouth however is that approximately 18,000 of the homes in our city, most of which are in the private sector, are not energy efficient due to lack of adequate heating systems and insulation.

9.4.3.2. New Development

Portsmouth has been working at a regional level with the Partnership for Urban South Hampshire (PUSH) to produce the South Hampshire Sub Regional Strategy, which is included in the SE Plan. Within this plan there is guidance on how to ensure that all new development in the area will be sustainable and consider issues such as sustainable transport. Portsmouth will deliver these objectives through our LDF and CS. This has resulted in a Sustainable Development Policy (SDP) being developed.

Within the SDP there are proposals for new developments to meet set levels on the Code for Sustainable Homes or BREEAM, maximise passive solar energy, and make a contribution towards the provision of renewable energy and the carbon neutrality of Portsmouth.

9.4.3.3. Existing stock

New development accounts for a small proportion of the building stock in Portsmouth although the target of 15,000 new homes within the next 15 years will significantly increase this percentage. The majority of homes in Portsmouth will have been built over successive generations of urban expansion, and these properties will be responsible for the majority of carbon emissions from buildings.

The energy efficiency of properties is measured against the Home Energy Conservation Act target SAP rating of 65. The SAP rating is a nationally recognised measure of energy efficiency, where a score out of 100 is awarded. The higher the score, the better the energy efficiency.

Encouraging private sector residents and landlords is key to improving the overall energy efficiency of the city's homes. Owner occupied and privately rented homes account for 80% of the homes in the city and they tend to have lower energy efficiency ratings than the local authority and housing association owned properties. The average SAP rating in the private sector housing stock is 51, much lower than the average local authority housing SAP rating of 71.

For over 20 years, PCC has invested significant financial resources in planned programmes to improve the insulation to homes by installing loft and cavity wall insulation and has replaced single glazed timber and steel framed windows with more energy efficient UPVC double glazed units more recently with Low E glass. Heating systems have also been renewed as part of a major planned programme by PCC. Not only have older gas systems been renewed with modern gas central heating but also many electric heating systems have been replaced with individual controllable gas central heating systems. In Buckland, a major district heating system including Combined Heat and Power has been installed to replace electric under floor heating to multi storey blocks and an old central boiler plant supplying heating to other buildings nearby. The system not only supplies these buildings with heating and hot water but also a local school. A total of 520 homes benefit from this scheme.

Looking at the private sector housing stock, the energy efficiency of Portsmouth properties is slightly above the national average, and it has improved over the last 5 years. However, most of our homes are still rated below the government target SAP rating of 65. A study carried out by government suggests that a 50% reduction in carbon emissions could be achieved in existing domestic housing stock by 2020 and that this area provides the greatest opportunity for reducing an areas carbon footprint. The Energy Strategy produced by PUSH highlights the fact that retro-fitting existing properties is the biggest opportunity for reducing carbon emissions in the area.

A range of measures is needed to raise a home's energy efficiency. These include: insulating the loft, wall cavities and hot water cylinder, and installing a high efficiency boiler and full central heating. The challenge for Portsmouth is that a large number of the city's homes are classified as 'hard to treat' because their wall cavities are too narrow to be filled or they have flat roofs, preventing loft insulation from being fitted.

To help and encourage people to improve the energy efficiency of their homes, PCC offers a range of practical and financial assistance tailored to their individual circumstances. The in-house Home Improvement Agency aims to provide practical help. We also plan to extend the work of the home energy advisor to have more households visited and advised on what they can do to save energy at home.

The following support helps people to finance home energy efficiency measures:

- Decent homes assistance;
- Affordable warmth assistance;
- Home energy assistance;
- Home warmer assistance;

- Warm front top-up grant;
- Renewable energy loan.

PCC also has a partnership agreement with an external provider for them to insulate homes and access government funding on behalf of householders. For non-domestic buildings the opportunity for energy efficiency is much harder to assess. A study carried out by PUSH highlighted that a high proportion of non-domestic properties were built between 1940 and 1970 during a period when energy efficiency was not a high priority. PCC's civic offices are a good example of this and is council's most energy intensive building.

9.4.3.4. Transport

The consultation on the Portsmouth Plan gave an overwhelming response for the 'greener approach'. This involves focusing most additional development at key development sites, around town centres and public transport hubs and routes. This will allow residents, employees and visitors to access everyday services on foot, by cycling or public transport, and so reduce reliance on the private car. PCC's transport strategy and emerging LTP3 is focused on encouraging a modal shift to non-car based transport in order to help solve the problems of congestion and poor air quality, to comply with the principles of sustainable development and to contribute towards the health agenda and cleaner air.

The Portsmouth plan will be one of encouraging initiatives that promote sustainable forms of travel and ensuring development is located where it will be easily accessible. The city is ideally suited to cycling and walking because it is flat and compact, with facilities and services in close proximity to residential areas, as well as having a mild climate. Important developments have recently taken place in active travel, which are covered in more detail in 12.7.1. Action 1 – Active travel.

9.4.3.5. Waste

It is increasingly important to reduce the amount of waste produced in the city. Better management of our waste can significantly reduce Green House Gas (GHG) emissions to the atmosphere. By encompassing the principles in the waste hierarchy of reduction, re-use, recycle and recover, we can turn waste materials into resources to be valued, reducing the need for increasing extraction of raw materials and fossil fuels - the use of which increases background pollution levels.

9.4.4. Sustainability and air quality - impact upon background concentrations

Sustainability is about environmental protection, sustainable economic growth and social equity. Air pollution is largely a consequence of our unsustainable consumption of natural resources and the mismanagement of waste products.

The air quality indicator is one of the 68 indicators of the government's Sustainable Development Strategy. It measures annual levels of pollution from particulates (PM_{10}) and ozone (O_3), the 2 pollutants thought to have the greatest health impacts, as well as the number of days on which levels of any one of a basket of 5 pollutants were moderate or higher.

PCC has a key role to play in helping to deliver a more sustainable city: as an employer with responsibility for staff and buildings; as a provider of local services; and as a community leader working in partnership with other organisations and local communities.

PCC's sustainability strategy sets out our commitment to put sustainability at the heart of everything we do. Our objectives are to:

PCC sustainability strategy principles:

- Ensure sustainable use of natural resources, such as energy and water, and increase use of renewable energy sources;
- Enable a sustainable transport system in the city, and promote sustainable travel choices across PCC;
- Promote sustainable purchasing policies that respect economic, social and environmental limits;
- Promote a sustainable waste strategy focused on reducing waste and increasing re-use and recycling;
- Ensure that the city's built environment is developed and managed sustainably, through sustainable use of land and sustainable design and construction practices, particularly for the council's own projects;
- Protect Portsmouth's natural environment including enhancing local biodiversity and open spaces, improving local bathing water quality and tackling climate change;
- Promote economic and social sustainability.

Partnership working has been a key part of Portsmouth's approach to sustainable development. The city has taken a strong partnership approach to tackling social, economic and environmental concerns, led by the city's LSP. Our first priority is to reduce the demand for energy in Portsmouth and then to ensure that our sources of energy are sustainable.

This will include looking in to renewable energy and decentralised energy schemes such as community heating, Combined Heat and Power and energy from waste. Our energy strategy for the city focuses on an increase in renewable energy sources in order to reduce background emissions of

pollutants, improve our carbon footprint and also provide the city with energy security through diversifying our energy sources.

9.4.4.1. Renewable energy

Last spring the UK agreed with other Member States to an EU-wide target of 20% renewable energy by 2020, including a binding 10% target for the transport sector. The European Commission has proposed that the UK share of this target would be to achieve 15% of the UK's energy from renewables by 2020, which is equivalent to almost a ten-fold increase in renewable energy consumption from current levels. An energy study carried out by PUSH shows that currently less than 1% of energy in South Hampshire comes from renewable sources.

One of the major obstacles to renewable energy is public perception, although studies have shown that once developments have been completed residents' views are much more favourable. PCC therefore plans to enable a better public understanding of renewable energy options and the benefits they can provide.

9.4.4.2. Decentralised energy schemes

Energy from the National Grid is very inefficient, and the PUSH study shows that for every unit of electricity delivered to South Hampshire, around 2 further units are lost through heat loss and transmission. Decentralised energy schemes such as combined heat and power increase efficiency by capturing and using the heat produced in electricity production and reducing waste through transmission, although their use must be carefully assessed and weighted against their possible negative impacts upon air quality as previously identified.

The PUSH study emphasises this as a particular opportunity for the South East. Outcomes of the strategy are:

- Higher proportion of energy used will come from renewable / decentralised sources;
- Renewable / decentralised energy installations, both domestic and commercial, will be developed;
- Better public understanding and take up of renewable / decentralised energy;
- Reduced tariffs for renewable / decentralised energy produced in the Portsmouth plan;
- A Sustainable Development Policy (SDP) is included within the LDF;

- Within the SDP there are proposals for new developments to maximise passive solar energy and contribute towards the provision of renewable energy and the carbon neutrality of Portsmouth;

- Research - A full study will be carried out to identify all the renewable energy options;

- Encourage installation - Businesses and residents will be encouraged to install renewable energy technologies;

- Enable growth in green technologies - Local businesses will be supported to promote their green technologies by enabling networks across the city.

9.5. Priority 5: Shipping

Shipping emissions are difficult to control locally as the industry is international. The MARPOL (International Convention for the Prevention of Pollution from Shipping) the UN International Maritime Organisation aims to reduce shipping emissions of NO_x and SO_2.

MARPOL will oversee a progressive reduction in sulphur oxide (SOx) emissions from ships, with the global sulphur cap reduced initially to 3.50% (from the current 4.50%), effective from 1st January 2012; then progressively to 0.50 %, effective from 1st January 2020, subject to a feasibility review to be completed no later than 2018. The limits applicable in Sulphur Emission Control Areas (SECAs) will be reduced to 1.00%, beginning on 1st July 2010 (from the current 1.50 %); being further reduced to 0.10 %, effective from 1st January 2015. Progressive reductions in NOx emissions from marine engines has also been agreed, with the most stringent controls on so-called "Tier III" engines, i.e. those installed on ships constructed on or after 1st January 2016 operating in Emission Control Areas.

Portsmouth Harbour has experienced tough trading conditions in recent years and the use of higher grade fuel could be an economic burden on international companies and therefore very difficult to implement without disadvantaging the commercial viability of the port. PCC does not have jurisdiction to take specific action in respect of general operating emissions from vessels which sail regularly in the harbour. PCC will however continue to monitor locations that are potentially affected by contributions from shipping.

Some vessels, including all naval vessels, use a higher grade fuel for operational reasons and in normal circumstances these are likely to provide a negligible contribution to the overall pollution levels in AQMA 6 and 11. In addition, the Navy use shore-side electricity to power the vessels when they are in dock.

Ship movements in the harbour are classed in 3 different types of movement; manoeuvring, sailing and docked as each is likely to generate a different level

of emission. Emissions of dark smoke from vessels are restricted by the Clean Air Act 1993 and the Dark Smoke (Permitted Periods) Regulations 1958 which allow dark smoke to be emitted for limited periods during certain operating conditions. Shipping fuel is generally a lower grade oil and emissions tend to comprise greater levels of particulate emissions than diesel oil used for road transportation.

9.6. Priority 6: Emissions from Industrial sources

Emissions to atmosphere from industrial sites will continue to be regulated under the Pollution Prevention and Control Regulations (PPC) and monitored by PCC and the Environment Agency. Air pollution contributions to air quality in relevant areas are taken into account in permits and risk assessment under this regime. Portsmouth currently has 44 facilities regulated under PPC ranging from major coating, spraying and printing process, through cement batching plants to waste oil burners and petrol stations.

Although the direct contribution of NO_x from industry is minimal, contributions of emissions of other pollutants such as organic solvent vapours can lead to higher concentrations of ozone when reacting under photochemical reaction. Ozone is a pollutant in its own right. It is also a major reactant that leads to secondary formation of NO_2. Organic solvent emissions are being progressively reduced through the solvent emission regulations under the PPC and the more recent Paints and Varnishes Directive.

9.7. Priority 7. City wide actions contributing to improved air quality

9.7.1. Action 1: Active travel

Promoting active travel (walking and cycling) for everyday journeys is a critical element in reducing NO_2, carbon emissions and promoting active lifestyles which contribute to improved health.

Aspects which make Portsmouth attractive for active travel are:

9.7.1.1. Topography

The compact, flat geography of Portsmouth means it is ideally suited to non-car modes. This natural advantage has been enhanced through investment in facilities to promote active travel.

9.7.1.2. Linkage

This is the extent to which the walking and cycling networks are linked to key attractors like public transport interchanges, homes, places of work, leisure and tourist destinations in addition to the degree that the routes themselves connect.

PCC is continuing to work hard to improve and identify these routes and linkages. Portsmouth became the first city in Britain to have a 20mph speed limit on almost all residential roads which allows cyclists to cycle relatively

safely on many of these quieter, low traffic roads. Utilising these mainly residential roads, a strategic network of routes will be identified and signed. These routes will be designed to appeal to families, new, less confident, younger and returning cyclists to encourage them to travel by bicycle for short work, school, leisure and utility journeys. Immediate access to schools, colleges and the university will be improved. Opportunities to improve access to play and other open spaces will be utilised and routes that encourage family cycling will be developed.

PCC will expand and improve the cycle network, including the implementation of schemes such as:

- Consideration to two-way cycling on appropriate and strategic existing one-way roads and new one-way roads;
- Proposal for controlled cycling through Guildhall Square;
- Consultation on allowing cycling through the precincts out of hours;
- Appropriate routes through parks and open spaces to enhance the network and encourage cycling will be identified.

The seafront route is strategically important and forms an incomplete part of the National Cycle Network Route 2 as well as being an integral part of the Healthy Towns Access2Cycling - Bike4Life programme to encourage more families to cycle as a means of improving health and reducing obesity. Furthermore, the recent completion of this route has the potential to increase leisure cycling and the numbers of cycle tourists that visit the city. PCC will therefore seek to make improvements that will enhance this route to make it more attractive and safe for cyclists to use.

Portsmouth has developed website facilities to enable journey planning by both walking and cycling, enabling people to make informed decisions about their mode of travel - encouraging the use of sustainable modes. This, combined with measures to improve the legibility of the city, will help improve the logic and coherence of the walking / cycling networks.

9.7.1.3. Convivial

The extent to which walking is a pleasant activity in terms of interaction with people and the built and natural environment, including other road users is relative to degree to which it is undertaken.

PCC has devoted significant resource to improve the active travel environment by reducing litter, graffiti and creating of high quality public spaces that make being ‘out and about’ a pleasurable activity. An excellent example of this is the development and pristine maintenance of 6km of promenades completed in 2002 as part of the Millennium Renaissance project, which opened up areas closed off to the public for centuries by naval developments.

PCC provides a street and neighbourhood warden service throughout the city. These wardens, together with an active anti social behaviour unit with form part of PCC Safer Portsmouth Partnership and form part of an 'extended police family'. PCC also operates a network of CCTV cameras from its central control room covering certain streets and open areas. PCC provides both an abandoned vehicle removal service and a graffiti removal. The aim of all these measures is to keep and ensure that streets remain welcoming places – places that are respected, and places that do not engender safety and security concerns.

9.7.1.4. Conspicuous

This relates directly to the extent to which walking routes and public spaces are safe and inviting, with attention paid to lighting, visibility and surveillance. This also includes the availability of mapping and signage.

PCC has invested huge sums in upgrading street lighting and providing increased lighting in public areas. In addition improvements in the design of new buildings and regeneration of areas have increased natural surveillance providing improved levels of visibility and a sense of increased security.

9.7.1.5. Comfortable

This is the extent to which walking and cycling is made more enjoyable through high quality pavement surfaces, attractive landscaping and architecture, the efficient allocation of road space and control of traffic.

PCC has invested in a programme of resurfacing road surfaces, improving pavements and making the public realm a more attractive place to spend time. Investments in open landscapes, seating provision and improved toilet facilities all make our outside spaces a more attractive place to spend time and increase the attractiveness of doing so on foot or by bicycle.

Road safety is of paramount importance and an array of traffic calming and safety measures have been incorporated within the design of our roads to encourage active travel.

9.7.1.6. Convenient

The extent to which walking is able to compete with other modes relates to the ability of make short travel trips more attractive by cycling or foot and other less sustainable options. These measures include all of the measures highlighted above.

9.7.2. Action 2: Other policies and programmes to encourage and promote active travel

Traffic congestion and pollutant levels peak around the morning and afternoon schooling hours when pupils travels to and from their place of study. Evidence of significantly reduced traffic generation, reduced congestion and low pollutant levels during holiday periods demonstrates the significant impact

that these car journeys have these periods, and highlights the improvements which could be developed if these trips were significantly reduced.

PCC is working in schools with pupils, teachers, parents and carers to develop school travel plans, to investigate and overcome barriers to walking to school and promote the social, environmental and health benefits of walking. PCC is also undertaking or facilitating similar work with its own staff and with other employers, promoting walking and cycling as an alternative to the car for the journey to work or trips during work. Promoting behaviour change and enabling people to make informed choices about their mode of travel is essential to fully utilise the infrastructure improvement measures. Two broad types of travel planning are undertaken within Portsmouth - workplace and school travel planning.

Significant progress has been made in school travel planning, with the vast majority of schools now having a school travel plan. Travel plans are undertaken both as a requirement of planning permission for a development or as a voluntary activity from a company or developer. The plans themselves are designed to reduce dependence on travel by car, especially single car occupancy, through advising people of the alternative travel options which exist and encouraging the development of more sustainable travel habits which are less polluting.

Within the LTP2, PCC pledged to reduce single occupancy vehicle use and to support local organisations doing this. Travel Plan Initiatives Fund (TPIF) was set up in 2007. Since then £37,500 has been made in matched funding grants of up to £3,000. The TPIF is available to businesses in Portsmouth and signpost travel forum members. Where a travel plan has been requested as part of a planning permission, match funding will be considered for items over and above what is laid out in their Workplace Travel Plan (WTP), as long as original measures have been achieved.

Safer Routes to School is a project that aims to encourage and enable children to walk or cycle to and from school. This is achieved through the introduction of targeted traffic calming and the creation of safer walking and cycling routes. The idea is to identify and discuss the problems with the whole school community and the local community, then to work with them to find solutions. A programme of school based education and training initiatives supports the project. Its aims are to:

- reduce the number of pedestrian and cyclist injuries;
- improve the safety of the journey to and from schools;
- reduce the number of car trips to and from schools;
- encourage walking and cycling to and from schools;
- educate children to cope with their local road environment;
- work with the community to create a safer environment;

- introduce engineering measures to reduce vehicle speeds and to create a safe environment around the school.

The measures proposed to achieve these aims are identified and included within a school travel plan. Partnerships formed between pupils, staff, parents, governors, the wider community and the local authority assist in the development and implementation of objectives within the travel plan. The school travel plan can include many ideas and initiatives such as those presented in Table 6.

Table 6: School travel plan Initiatives

Walking	'Walking bus'; personal / road safety training; 'walk to school' campaigns; alternative entry points; identify safer alternative walking and cycling routes; develop and create 'safe routes'; maps of safer routes; marking safer routes.
Cycling	Secure visible storage; bike lockers & showers; cycling safety education; permits, policies & allowances; cycle maintenance training; cycle training / proficiency; lockers for helmets etc.; alternative entry / access points; improved lighting around cycle storage; safer cycling routes.
Promoting use of Bus & Rail	Concessionary fares; parental escorts; provide improved information; driver & customer training; private minibuses; consultation with bus company.
Road safety training & education	Road safety training - cycling & walking & presentations; parent escort training; cycle helmet promotion initiative; road safety curriculum work; junior road safety officer scheme.
Classroom work	Safe route planning/map work in geography; bike storage design in CDT; poster and decorative design in art; survey analysis in maths & computing; health benefit analysis & environmental consequences in science; theatre in education; GNVQ 6th form research projects; in school awareness campaigns: competitions, posters, songs, jingles, brochures, leaflets, newsletters, web page design, displays, presentations.
Classroom work	Health benefit analysis & environmental consequences in science; theatre in education; GNVQ 6th form research projects; in school awareness campaigns: competitions, posters, songs, jingles, brochures, leaflets, newsletters, web page design, displays, presentations.
Involving parents	Family cycle training; road safety fashion show; exploring routes to school; volunteer trainers; shared journeys by car; shared journeys; walking bus escorts.
Highway and traffic engineering measures	Improve pedestrian crossing points, especially at sites where pupils have identified their preferred route to school; build speed reducing features such as road humps, junction tables, speed cushions, chicanes and pedestrian refuges to reinforce the reduced speed limits; cycle lanes & tracks; improved street lighting on busy road and quiet paths.

This year 27 schools took part in the Walk Once a Week (WoW) and Pedal Once a Week (PoW) program which encourages children to walk to school for Walk to School Month. The winning junior school covered a staggering 1,862.46 miles which is enough miles to walk from Portsmouth to John O'Groats in Scotland and back and then back up to Birmingham and back too. The winning infant school covered an amazing 10.5 miles per child over the month. These distances are examples of the potential savings in vehicle miles possible through the implementation of school travel plans and developing the will of parents and students alike to develop a car free approach to travel.

All schemes to develop to discourage the use of private vehicles, for whatever reason, have beneficial impacts upon the level of pollutant within the air. To further promote walking, PCC has developed a healthy walking programme to support people to walk socially alongside trained volunteers to encourage participants. Currently there are 15 organised healthy walks around the city.

Cycling is not just a recreational pursuit, it has an important role in meeting the transport needs of the community. Action to create a pro-cycle culture is being developed in a range of areas that includes land-use planning, transport, business and industrial regeneration, leisure, health, education and law enforcement. The 3rd revision of the PCC cycling strategy 2009 - 2012 outlines the approach to be taken over the next 3 years. Its aim is to increase the numbers of people cycling for leisure and utility by implementing a strategy centred on families and delivered through pre-schools, nurseries, schools, colleges, the university and workplaces. Cycling is promoted as a form of active travel that should be integrated into everyday routines to help prevent short car journeys and reduce NO_2 emissions.

PCC views cycling as a clean, efficient and healthy mode of travel, is committed to increasing the number of cycle miles travelled each year and will continue to encourage cycling as an attractive mode of transport for a large number of journeys. A pilot at Queen Alexandra hospital has been developed to encourage adult cycling by providing additional road safe training. It is proposed that this may be tailored to businesses and includes safe cycling, route planning, guided rides and bike maintenance. In addition, bike recycling schemes designed to provide low-income families who would not normally have access to a bike with the opportunity are planned. These are likely to provide advice on maintenance, appropriate training and documentation to pass on responsibility for the bikes. It is intended that ‘bike amnesties’ will be launched to bring in the initial stock and under 10’s cycle training carried out in schools to increase confidence in cycling in under 10’s. In 2010, PCC's road safety and sustainable travel team secured central government funding for a new national standard cycle scheme called Bikeability. Bikeability is the cycling proficiency for the 21st century, designed to give the next generation the skills and confidence to ride their bikes on today's roads. There are 3 Bikeability levels and children will be encouraged and inspired to achieve all 3 levels, recognising that there is always more to learn and to enjoy on a bike.

9.7.3. Action 3: Car clubs

Car clubs can achieve a significant reduction in the number of car miles driven, through changes in travel behaviour and in the number of cars on the road. The combined effect is a reduction in local air pollution and emissions of climate change gases.

Given the possibility of significant housing schemes being delivered in the coming years, then the opportunity exists to build car clubs into some of these developments, enabling a reduction in private car parking provision.

Where the scale of development permits, car clubs will form part of the list of S106 aspirations aimed at mitigating against air pollution and climate change gas emissions arising from the development. Enshrining the principle of car clubs into policy documents such as this AQAP, the LTP and the LDF can help to ensure the implementation of car clubs in some new developments.

Commonwheels is a car club, which is a community interest company operating in Portsmouth. Leading by example, PCC seeks to reduce carbon emissions and traffic congestion by encouraging our own staff to travel to work by means other than their car. Offering car club vehicles as pool cars to staff also supports our commitment to reduce our carbon footprint and NOx emissions by 30% over the next 5 years.

9.7.4. Action 4: Public awareness

Roadside emission tests will be carried out as part of a public awareness campaign. Where emissions exceed the permitted level a fixed penalty notice may be issued; however, PCC will ask the driver to provide a certificate showing that the vehicle has been undergone maintenance to reduce emissions.

PCC has carried out several such events in the past and will, in conjunction with the police and Vehicle Operators Services Agency (VOSA), consider reinstatement of this work.

Idling engines cause unnecessary pollution. By adopting and enforcing regulations provided under the Road Vehicles Construction and Use Act and the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 PCC could help to improve local air quality.

The principles of enforcement were debated as part of the 2007 AQAP and were not incorporated into that plan. PCC will therefore raise awareness regarding the impact of idling engines through targeted campaigns in areas where vehicles are found idling unnecessarily, such as taxi ranks and school pick-up areas (i.e. where significant pollution might coincide with public exposure).

Such campaigns will include signage in locations where drivers should be encouraged to switch off engines when stationary for more than a minute or 2.

Locations of particular interest are:

- Outside the Hard, Portsmouth & Southsea, Fratton and Cosham railway stations;
- At the railway crossing point Cosham;
- Outside our 4 largest schools;
- At the vehicle waiting areas at / within the Continental and Isle of Wight ferry terminals.

In 2007 a website, www.portair.co.uk, was set up to provide a hub for interactive activity.

The website has attracted much interest and has formed the key information tool for the air quality assessment reporting and the action planning process. This will continue to be the principal information source for air quality in Portsmouth. The site enables access to real-time monitoring data fed directly from our 4 continuous monitoring stations.

9.7.5. Action 5: Use of new technologies

Paint that can absorb some of the noxious gases from vehicle exhausts has been on sale in Europe for nearly a decade. These products are designed to absorb NO. Their secret lies in spherical nano-particles of titanium dioxide and calcium carbonate. These are embedded in the paints base, polysiloxane, a silicon-based polymer. The base is porous enough to allow the NO to diffuse through it and adhere to the titanium dioxide particles. These particles absorb ultraviolet radiation in sunlight and use this energy to convert nitrogen oxides to nitric acid. The acid is then either washed away in rain, or neutralised by the alkaline calcium carbonate particles, producing carbon dioxide, water and calcium nitrate.

In 2002, 7,000 square metres of road surface were covered with catalytic cement in Milan, Italy and consequently residents reported that it was noticeably easier to breathe. It is possible that this technology could help to reduce pollution levels in AQMA 6 and AQMA 11 particularly as regeneration begins.

Prior to using these technologies there are a few key questions:

- Will there be a drop in NO_x concentrations after these technologies have been employed?
- Is the change in NO_x concentrations seen only during daytime and not at night?
- Is the change in level something that would not be seen at untreated sites where air quality monitoring is taking place?

The results of a year's trial carried out in a street in Camden, London in 2007 showed that annual mean NO_x concentrations had reduced by 12% after this technology was employed upon new paving.

NO_x concentrations at a number of roadside air quality monitoring stations across London also reported a 12% reduction in NO_x over the same time period.

The Camden trial did not therefore produce the results that were hoped for in terms of improving air quality. The impact of the paving was likely to be more effective at reducing NO_x concentrations very close to the surface of the paving where the photo-catalytic reaction is taking place but was less effective in reducing air pollution at the height at which people breathe. The cost benefits of this technology are therefore unproven.

This technology and those connected with cleaner vehicles such as hybrid and hydrogen fuel cell technology is likely to improve and PCC will be monitoring research results and conclusions carefully.

10. Consultation on the 2010 AQAP

In 2007, PCC consulted the public as well as statutory consultees upon the draft AQAP. That version has evolved considerably and to some extent has been adopted and implemented through the various strategies, policies and actions already discussed.

In view of the considerable measures already employed by PCC to combat air quality problems, and as public participation in many of our ongoing strategies is a necessity, PCC does not consider further public consultation of this AQAP to be necessary.

This 2010 version outlines the package of measures that are most likely to achieve the further improvements in air quality necessary to meet the NAQO, while balancing their economic and social benefits.
Although the following measures have the potential to achieve a significant improvement, air quality is also influenced by the weather and therefore achievement of the NAQO is by no means certain. PCC will however continue to undertake regular reviews of air quality and publish our results upon our various web pages.

10.1. Impact assessment of proposed measures

Defra requires local authorities to rank measures they have identified within their action plans according to the improvements to air quality that each measure might bring.

A detailed cost benefit analysis is not required as it would be both impracticable and technically difficult to quantify the air quality impacts associated with every proposed measure in the AQAP.

The majority of the measures listed within Table 7 which starts on page 65 are classified as highly realistic. Options which were considered impractical were excluded during the screening stage undertaken during the 2007 consultation phase. Options which have already been approved and following implementation require no / little ongoing funding / action have been excluded.

The measures proposed to restrict the level of HGV movement within AQMA 6 and their potential impact upon adjoining areas will be modelled prior to implementation. Further, more detailed modelling may be carried out over wider areas of the city during our future assessments of air quality.

Despite our focus upon the air quality within AQMA 6 and AQMA 11 many of the actions proposed in this AQAP are generic, neither targeting specific vehicle types nor groups of people, aimed at delivering continuous whole city improvements.

The impact of such measures directly upon AQMA 6 and AQMA 11, are difficult to predict with any accuracy. Our statutory obligations and those set out within LTP2 and LTP3 dictate that future air quality trajectories will be assessed and, should shortcomings be found, further targets are likely to be produced. It is likely therefore that this plan will continue to develop and evolve over time.

It is extremely difficult to estimate, with any degree of accuracy or confidence, the impact that this AQAP will have, particularly as many of the actions are dependent upon future funding. Nevertheless, all measures are predicted to have a positive impact, particularly as the PCC Transport Management team have considerable experience in implementing measures designed to increase traffic flow, vehicle dispersion and manage vehicular restriction. We therefore predict that implementation of the actions will bring forward compliance with NAQOs prior to the 'do–nothing dates' set out within Table 4.

10.2. Indicators for actions

Defra advises that each action should have a defined quantifiable indicator that will be the main evidence presented in statutory annual reports to demonstrate progress.

With respect to AQMA 6 and AQMA 11 we propose to report particularly on the percentage model vehicle split within each area, focusing primarily on the concentration of HGVs, expecting that the percentage will significantly decrease in AQMA 6.

10.3. Targets for actions

Defra advises that targets should be set for key indicators. The targets should indicate:

- how far the actions are intended to be implemented;
- the potential air quality benefits;

- when the actions are likely to be completed.

Following consultation with traffic planners and engineers in 2007, target indicators were set to assess the performance of the air quality remedial measures included within the 2007 AQAP.

These targets were devised to report progress against delivery of the AQAP, LTP2 and LTP3 in terms of air quality which were:

- reduction of HGV movements within AQMA 6 against base study in March 2007;
- reduction in the age of buses routed through all AQMA's and therefore reduce emissions from this source;
- reduction in the number of car movements through 4 AQMA's.

These targets have been reviewed to ensure their relevance and effectiveness, given that:

- the target year was originally set for January 2010;
- one of the target was almost fully achieved as most buses travelling through AQMAs are Euro 4 compliant or better;
- other targets were partly or completely achieved as PCC revoked 8 of the 13 declared AQMAs;

The 2010 AQAP will still aim primarily at influencing the source of emissions in order to reduce exposure to poor air quality and therefore will continue to target the reduction of road traffic related pollutants.
The indicators, which assess the effectiveness of the 2010 AQAP, are confined to appraise the:

- road traffic sources;
- exposure of individuals based monitoring against the overall NAQOs.

Annual reporting against all indicators will take place using traffic surveys and air quality monitoring data.

11. Funding the 2010 AQAP

The majority of the £millions of funding needed to implement this AQAP, particularly the traffic infrastructure and control measures, will be obtained through delivery of the LTP2, the LTP3, capital monies and grants from the DfT.

11.1. Defra air quality grant programme

Since 2007, some £35,000 has been obtained through the Defra grant programme. A proportion of this sum is likely to be spent on further modelling, particularly of HGV 'origin and destinations' and their impact upon AQMA 6 and AQMA 11.

11.2. Town and Country Planning Act S106

PCC planners manage a fund of S106 contributions intended to mitigate the transport-related impacts of development. Contributions will arise from developments such as those listed upon page 34 which are likely to be completed within the next decade.

12. Implementation of the AQAP

As stated earlier, the AQAP's implementation of remedial measures began in 2007 and will continue beyond achieving the NAQO.

This document states clearly within Table 7:

- Ownership for implementation;
- Objective year for implementation;
- Predicted costs;
- Evidence of consultation;
- Means of monitoring the implementation

Performance will be appraised against the targets, shall be reported through the statutory reporting mechanisms and will be communicated to both Defra and the public.

Following formal adoption by stakeholders, the measures set to deliver the principal actions of restricting movement of HGVs and improve fluidity of vehicles passing through AQMA 6 will begin.

13. Conclusions

13.1. The 2010 AQAP aims to:

- clarify pollutants of concern and define their health implications, improve cross service liaison to tackle these issues and develop guidance and policy through planning / development control and climate change / sustainable development to minimise and wherever possible reduce emissions;
- improve air quality city wide but target specific measures to deliver significant progress towards achieving the NAQO, particularly within AQMA 6 and AQMA 11 where public exposure is highest;

- restrict the movement of HGVs through AQMA 6 and reduce congestion within all AQMAs;
- improve awareness of the problems associated with traffic generated air pollution and allow informed choices about travel;
- continue to increase the use of public transport and alternative modes of transport;
- propose measures which are balanced against social, environmental and economic effects;
- consider implementation, wherever possible, through integration with the LTP programme.

Table 7 - Implementation plan

Costs (based on projected and committed expenditure mainly through LTP programme): £ = <£100k, ££ = £100-250k, £££ = £250k-500k, ££££= 500k-£1m, £££££ = >1m

☼ = very low AQ improvement ☼☼ = low AQ improvement ☼☼☼ = moderate AQ improvement ☼☼☼☼ = high AQ improvement

Details	Non traffic related measures (background emissions)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Review and assess air quality	**Review and assess the air quality in the city using 4 continuous monitoring stations and numerous diffusion tubes. Produce annual action plan progress reports to assess implementation against indicators.**	**CW**	**On going**	**£**	**EPPS**	**Y**		
Regulation of industrial processes	**Regulation of industrial emissions through integration of air quality considerations into local authority regulation of Pollution Prevention and Control Regulations. Reduction of organic solvent emissions in accordance with the solvent emission regulations.**	**CW**	**On going**	**£**	**EPPS**	**Y**	☼	
Domestic heating emissions	**Control of replacement gas fired boilers and central heating systems through building control and private sector housing teams. Providing advice to consumers and landlords on investment in condensing gas fired boilers where possible. Implement sustainable development strategies – careful consideration of CHP.**	**CW**	**On going**	**£££**	**Corporate priority team - building control – public sector housing**	**Y**	☼	**Possible negative impacts of CHP**
Energy saving measures	**Promotion of energy saving measures leading to reductions in combustion emissions across the city. To be conducted through PSAG. Continued implementation of Portsmouth climate change strategy to reduce energy use for both organisations and housing across the city.**	**CW**	**On going**	**££**	**PSAG**	**Y**	☼	

Details	Non traffic related measures (background emissions)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Workplace travel plans (WPTP)	Work continues - WPTP required as part of planning process.	CW	On going	£	Greener living- traffic management	Y	☼	
Promote walking	Work continues – audit of walking routes commenced – development of 'walking map' linking places of interest. Work continues to improve safety in regional shopping areas with traffic engineers to identify and improve pedestrian crossing facilities. Raise public awareness of issues relating to AQ.	CW	On going	££	Greener living- traffic management	Y	☼☼	
Promote cycling	Work continues – reduction of speed on side roads to 20 mph – Cycling strategy being implemented as part of LTP programme. Implementation of schemes to promote the advantages of cycling as well as ensuring routes and secure storage provisions are enhanced. Raise public awareness of issues relating to AQ.	CW	On going	£££	Greener living- traffic management	Y	☼☼	
AQ information	Provision of information regarding AQ, including real time monitoring data and information regarding assessments of AQ to enable public awareness of issues and success of actions implemented.	CW	On going	£	EPPS	Y	☼	
School travel plans	Work continues to reduce single-pupil journeys and encourage alternatives to car travel such as route improvements, walking buses, cycle storage. Raise AQ awareness in schools.	CW	On going	£	Greener living- traffic management	Y	☼	

Details	Transport Schemes	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Creation of PCC transport manager	In place January 2010 – ensuring all council vehicles are pooled to maximise sharing opportunities; all vehicle purchasing (including improving emissions) and leasing arrangements to be subject to a financial appraisal and involve consultation with the transport manager, rationalisation of the vehicle fleet with the elimination of spare capacity, evaluate the feasibility of social care utilising bus lanes.	CW	On going	£	Traffic management	Y	☼	
High occupancy vehicle lanes	Assess specific routes and consider feasibility of locations. Develop and undertake feasibility study. Implementation linked to TfSH traffic management strategy.	CW	+2	£	Traffic management	N	☼	Possible negative impact on bus journey time
Park and Ride (P&R)	Through redevelopment / regeneration of Tipner and Horsea Island, secure a P&R facility offering circa 1,000 spaces together with a fast low emission bus service running regularly to city centre, Gunwharf and Southsea. Interim solution in operation on Sat and BH and Portsmouth Football Club home match days.	AQMA11	On going +5	££	Traffic management	Y	☼☼	Success in terms of AQ depends upon use and capacity
Traffic control southbound M275 slip	Consider feasibility and introduction of priority signalling at M275 slip on to roundabout to prevent / control peak hour queuing, preventing 'queue jumping' and additional associated impacts upon Kingston Crescent and AQMA 6.	AQMA 11 + AQMA 6	+1 to 2	£	Traffic management	N	☼	

Details	Transport Schemes (continued)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Traffic control Mile End roundabout	Introduction of measures to improve southbound traffic by introducing signals at Church Street, preventing traffic accessing Church Street from Hope Street. Elimination of 'queue jumping' by making All Saints Street one way (west).	AQMA 11	+2	£	Traffic management	N	☼☼	
Junction improvements	Possible improvements of all traffic controlled junctions throughout AQMA 6 (all 3 sections). Co-ordination of signal operation through MOVA (or similar). Particular attention paid to: ▪ London Road / Stubbington Road through roundabout; ▪ London Road / Kingston Crescent; ▪ Kingston Road / New Road; ▪ Fratton Road / Arundel Street; ▪ Roundabout at Fratton Road – Victoria Road North – Goldsmith Avenue; ▪ Review all junctions city-wide, starting with AQMAs, to increase effectiveness and prevent unnecessary congestion.	AQMA 6	+1 to 5	Total £££££	Traffic management	Y- In part	☼☼☼☼☼	Possible negative impact upon other areas in Southsea as traffic movement increase
Variable message signs (VMS)	Several already in place – further to be rolled at car parks and providing route guidance.	CW	+1	£	Traffic management	Y	☼	

Details	Transport Schemes (continued)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Freight quality partnership	Working closely with freight supplies (particularly local) to ensure the most appropriate routes are undertaken through AQMAs and via PIGY and particularly AQMA 6 (Norway Road – Continental Ferry Port).	AQMA 6, 11 & 7	On going +1	£	Traffic management	Y	☼☼	Possible negative impact upon AQMA 11 – Possible disadvantage to freight partners
Regeneration of North End shopping area Traffic initiatives	Combination of above and complex proposals designed to facilitate regeneration, improved road safety and to improve AQ. Scheme to include: ▪ Implementation of traffic control systems; ▪ Restriction of HGV access / movements [as above]; ▪ Introduction of speed restrictions; ▪ Time related vehicular prohibitions; ▪ Parking / delivery controls [consideration given to the removal of on street parking to improve hourly flow rates] offset by increased patronage of local off-street parking potential [short term free parking].	Northern section AQMA 6	+1 to 3	Total £££££	Traffic management	N	☼☼☼	Possible negative impact upon AQMA 11 – Possible disadvantage to freight partners

Details	Transport Schemes (continued)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Hampshire Terrace junction with St Michael's gyratory	St Michael's gyratory effectively operates as a roundabout. Traffic travelling north on Hampshire Terrace must give way to traffic on the circulatory carriageway of the gyratory. Due to the high volumes of traffic exiting the city, predominately during PM peak hour, large traffic queues form on Hampshire Terrace. The pedestrian crossing signals, a short distance to the north of the junction, exacerbates the problem, as circulatory traffic does not have the appropriate forward visibility. The introduction of traffic signal control at this point would improve traffic flow on Hampshire Terrace and reduce the existing queue.	AQMA 7	+1	£	Traffic management	Y	☼☼	
Queen Street junction with Anglesea Road	Traffic management improvement at lights – linked to above scheme to prevent desire to 'queue jump' / navigate queue causing congestion and traffic stacking in other areas.	AQMA 12	+1	£	Traffic management	N	☼	
Public transport initiative I	Re-development of The Hard gateway and Portsmouth & Southsea (Commercial Road) interchange – Sub-regional Hubs. Providing improved links to rail and ferry services and improving pedestrian, cycle links to Gunwharf Quays and city centre principal shopping areas.	CW	Adoption of SPD +1 Completion +10	£££££	Planning services + traffic man + public transport providers + transport planning	Y In part	☼☼☼	Potential localised AQ issues within area of redevelopment and into AQMA 12

Details	Transport Schemes (continued)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Public transport initiative II	LTP to deliver improved and integrated network of public transport services that give priority to delivering better local bus services in partnership with operators by making more use of bus quality partnerships. Continue to improve transit systems (additional to express services), increase opportunities for interchange between the public transport network and all other modes of transport (further introduction of local hub at Portsmouth & Southsea rail station) and promote demand-responsive transport services to sectors and areas with low accessibility.	CW	On going +5	£££££	Planning services +traffic management + public transport providers + transport planning	Y In part	☼☼☼	
	Public information / enforcement							
Idling engines	Introduction of signage at key location where drivers should be encouraged to switch off engines when stationary for more than a minute or 2.	4 locations	+1	£	Traffic management Funded by EPPS	Y	☼	

Details	Public information / enforcement	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
VOSA emission testing	Undertake 4 emissions tests per year and publish the results on the *portair* website	CW	+1	£	EPPS	Y	☼	
Bus transport & patronage	▪ Continue to increase vehicle miles and bus patronage through improvements to services particularly feeder and express. Deliver increased punctuality; ▪ Continue to upgrade fleet and improve emission technologies; ▪ Delivery improvements in ticketing, implement public information systems and increase use of website; ▪ Continue to work towards improvements to zip routes – particularly through AQMA 6.	CW	On going	£££££	Traffic management + public transport providers	Y	☼☼	
	Policy							
Implementation / incorporation of AQAP	Inclusion of AQAP into national and regional policies and strategies to deliver the NAQO – target 2014 (providing cleaner air to AQMA 6, 2 years quicker than otherwise expected). Improved service liaison – quarterly working party meetings.	CW	On going	£	Traffic management + planning services	N	☼☼☼	

Details	Policy (continued)	City wide (CW) / AQMA	Objective year +	Cost	Ownership	Committed	Predicted Impact upon AQ	Negative impacts
Planning / service liaison initiatives beyond SDP	Development of stronger focused policy to deliver cleaner air / development of clearer links between climate change and AQ. A SPD was adopted in 2006 for air quality and air pollution. This is seen to be at the forefront of such guidance. Review SPD taking account of impact and guidance within SEA, LES & AQS. Consider the inclusion of guidance (Section 106 and CIL) on financial contributions to address air quality issues.	CW	On going + 2	£	EPPS + planning services		☼☼☼	
	Parking							
Variable parking charges / CPZ	▪ Consider implementation of reduced cost parking for less polluting vehicles; ▪ Consider implementation of Control Parking Zones (CPZ) for all on street parking / or all parking within 500m of train stations / priority bus routes / regional retail centres.	CW	+ 1	££	Parking + traffic management	N	☼☼☼	Unlikely to be supported by public or members
	Technology							
Explore new technology	Undertake research into new technologies to reduce levels of NOx and consider their potential use within future strategies.	CW	On going	£ Funded through Defra grants	EPPS	Y	☼	

Appendix 1
National Air Quality Objectives (NAQOs)

The NAQOs are set out in the Air Quality (England) Regulations 2000 (SI 928) and in the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). These cover 9 ambient air pollutants that have the potential to cause harm to human health. These pollutants are associated with local air quality problems with the exception of ozone, which is instead considered to be a regional problem. The Air Quality Regulations implementing European Union Directive limit values are:

- The Air Quality Standards Regulations 2007 (SI 64);
- The Café Air Quality Directive adopted in April 2008 (IP/08/570).

The Regulations set standards and objectives for 7 of the 9 pollutants that are prescribed within LAQM. These objectives aim to reduce the associated health impacts of the pollutants to negligible levels. The current NAQO and EU limit values are listed in Tables A and B respectively. The remaining pollutant identified within the strategy, polycyclic aromatic hydrocarbons is presently assessed, as a national target so is not covered within LAQM.

As set out in paragraph 1.12 of the LAQM.TG(09), PCC is under no statutory obligation to assess air quality against the EU limit values, and the NAQOs remain the target for delivering clean air to the residents of Portsmouth.

Tables A and B show the NAQOs in units of microgram's per cubic metre $\mu g/m^3$ (milligrams per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table A: National Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England

Pollutant	Air Quality Objective		Date
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running Annual Mean	31.12.2003
Benzene	5.0 µg/m^3	Annual Mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running Annual Mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Maximum Daily Running 8-hour Mean	31.12.2003
Lead	0.5 µg/m^3	Annual Mean	31.12.2004
	0.25 µg/m^3		31.12.2008
Nitrogen Dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1 Hour Mean	31.12.2005
	40 µg/m^3	Annual Mean	
Nitrogen Oxides	30 µg/m^3	Annual Mean	31.12.2000
Particles (PM_{10}) (gravimetric)	50 µg/m^3 not to be exceeded more than 35 times a year	24 Hour Mean	31.12.2004
	40 µg/m^3	Annual Mean	31.12.2004
Particles ($PM_{2.5}$)	25 µg/m^3	Annual Mean	2020
Particles ($PM_{2.5}$)	Target of 15% reduction in concentrations at urban background	Annual Mean	Between 2010 and 2020
Sulphur Dioxide	266 µg/m^3 not to be exceeded more than 35 times a year	15 Minute Mean	31.12.2005
	350 µg/m^3 not to be exceeded more than 24 times a year	1 Hour Mean	31.12.2004
	125 µg/m^3 not to be exceeded more than 3 times a year	24 Hour Mean	31.12.2004

NB: a 25 µg/ m^3 is a cap to be seen in conjunction with 15% reduction.

Table B: Air Quality EU Limit Values

Pollutant	Objective	Measured as	Date
Benzene	5 µg/m^3	Annual Mean	1 January 2010
Carbon Monoxide	10.0 mg/m^3	Maximum Daily 8-Hour Mean updated hourly	1 January 2005
Lead	0.5 µg/m^3	Annual Mean	1 January 2005
Nitrogen Dioxide	200 µg/m^3 not to be exceeded more than 18 times per year	1 Hour Mean	1 January 2010
	40 µg/m^3	Annual Mean	
Nitrogen Oxides (assuming as nitrogen dioxide)	30 µg/m^3	Annual Mean	19 July 2001
Ozone (Target)	120 µg/m^3 not to be exceeded more than 25 times per year	Maximum Daily Running 8-hour Mean updated hourly	1 January 2010
Particles (PM_{10}) (gravimetric)	50 µg/m^3 not to be exceeded more than 35 times per year	24 Hour Mean	1 January 2005
	40 µg/m^3	Annual Mean	1 January 2005
Particles ($PM_{2.5}$)	Target value 25 µg/m^3	Annual Mean	2010
Particles ($PM_{2.5}$)	Target of 20% reduction in concentrations at urban background	Annual Mean	Between 2010 and 2020
Sulphur Dioxide	350 µg/m^3 not to be exceeded more than 24 times per year	1 Hour Mean	1 January 2005
	125 µg/m^3 not to be exceeded more than 3 times per year	24 Hour Mean	1 January 2005
	20 µg/m^3 (for the protection of vegetation)	Annual Mean	19 July 2001

Appendix 2

Summary of Previous Review and Assessments (R&A)

The summary of Portsmouth City Councils (PCC's) previous R&A of local air quality is clearly illustrated in Figure A.

In 2005, 13 AQMA's, were declared in the city as the 2004 DA predicted that the annual mean NO_2 NAQO would be exceeded in these areas in 2005. Detailed plans for individual AQMAs are posted on PCC's website.

In 2006, PCC carried out a FA. This report provided a tentative projected model of the NO_2 levels in the city in 2010.

The FA provided evidence to support the 2004 DA findings that the annual mean NO_2 NAQO was exceeded in 12 out of the 13 declared AQMA's, with the evidence for AQMA 10, Norway Road, Hilsea being inconclusive. Of the 13 AQMAs, 6 were predicted to fail the annual mean NO_2 NAQO in 2010:

- AQMA 3 (Copnor)
- AQMA 6 (North End & Fratton)
- AQMA 7 (City centre south - Cambridge junction)
- AQMA 9 (Milton)
- AQMA 11 (Mile End, City centre north),
- AQMA 13 (Cosham)

Where AQMA's have been declared, PCC is required to produce an AQAP identifying specific actions to be implemented in order to achieve air quality objectives by 2010. A draft AQAP was endorsed by the executive in July 2007 and published on PCC's website as part of an extensive consultation process.

The 2006 USA highlighted that further DAs were required for AQMA 11 in the vicinity of Mile End Road and the M275, and for Victoria Road North following high monitoring results. The DA requirements were for NO_2 and PM_{10} to be assessed.

A DA report was published in 2007 that concluded the following:

- It was predicted that the annual mean NO_2 or PM_{10} NAQO would not be exceeded in any part of Victoria Road North in 2010;
- There was evidence to support the 2006 FA findings that concluded that exceedences of the annual mean NO_2 NAQO are likely to remain in 2010 in AQMA 11. It is also predicted that the annual mean PM_{10} NAQO will not be exceeded in 2010 in AQMA 11.

In 2007, PCC discovered that all previous findings based on the detailed dispersion modelling were based on certain inaccurate input data based on the following:

- As part of the planning application for the northern quarter development, an EIA was produced by the applicants, which predicted that there would not be any exceedences of the NO_2 annual mean NAQO within the area affected by the development proposal. This was contrary to the findings of the 2007 DA, although the DA did predict a substantial reduction in the number of properties subject to exceedences between 2005 and 2010;

- The discrepancies resulted in additional consideration of the traffic data as it was initially suspected that the figure of HGVs had been under-estimated in the EIA. The head of transport and street management agreed revised traffic data with the developer for Northern Quarter and an updated air quality assessment was submitted as part of the reserved matters application for the development;

- The conclusions of the revised EIA were that no exceedences of the annual mean NO_2 NAQO were predicted either with or without the development in 2010 at relevant locations;

- As a consequence of the issues around traffic data, there was further consideration of the data used for the 2006 FA report. It was established that the HGV inputs were suspect and likely that these had been over-estimated. This could have resulted in an over prediction of the number and size of the AQMAs in the city. New updated traffic counts were therefore undertaken in the vicinity of the 6 AQMAs that were predicted to fail the annual mean NO_2 NAQO in 2010, and a FA of air quality took place, considering only NO_2;

- Assuming that a number of AQMAs are predicted to remain in 2010, it is likely that the majority of the 2007 AQAP proposals will still be relevant although the detail would need to be reviewed. It was considered unreasonable to progress the 2007 AQAP, which is based on inaccurate data, and therefore the 2010 AQAP has been developed;

- PCC consulted with the head of transport and street management on the new road traffic survey's data generated in 2008. The results of which were passed on to AERCOM, PCC's air quality consultants, that run the scenarios of air quality dispersion modelling scenarios upon which the findings of this report are based.

PCC carried out a USA in 2009. This concluded the following:

- Based on the monitoring data, it was assumed that air quality is improving in Portsmouth, and that PCC should start considering revoking AQMAs. However, according to PCC's road traffic management unit engineers, 2008 road traffic flows dropped

significantly in the city as result of the economic downturn, therefore may not be typical;

- PCC confirmed that the USA 2009 report did not identify a need to carry a DA for any of the pollutants covered by the report.

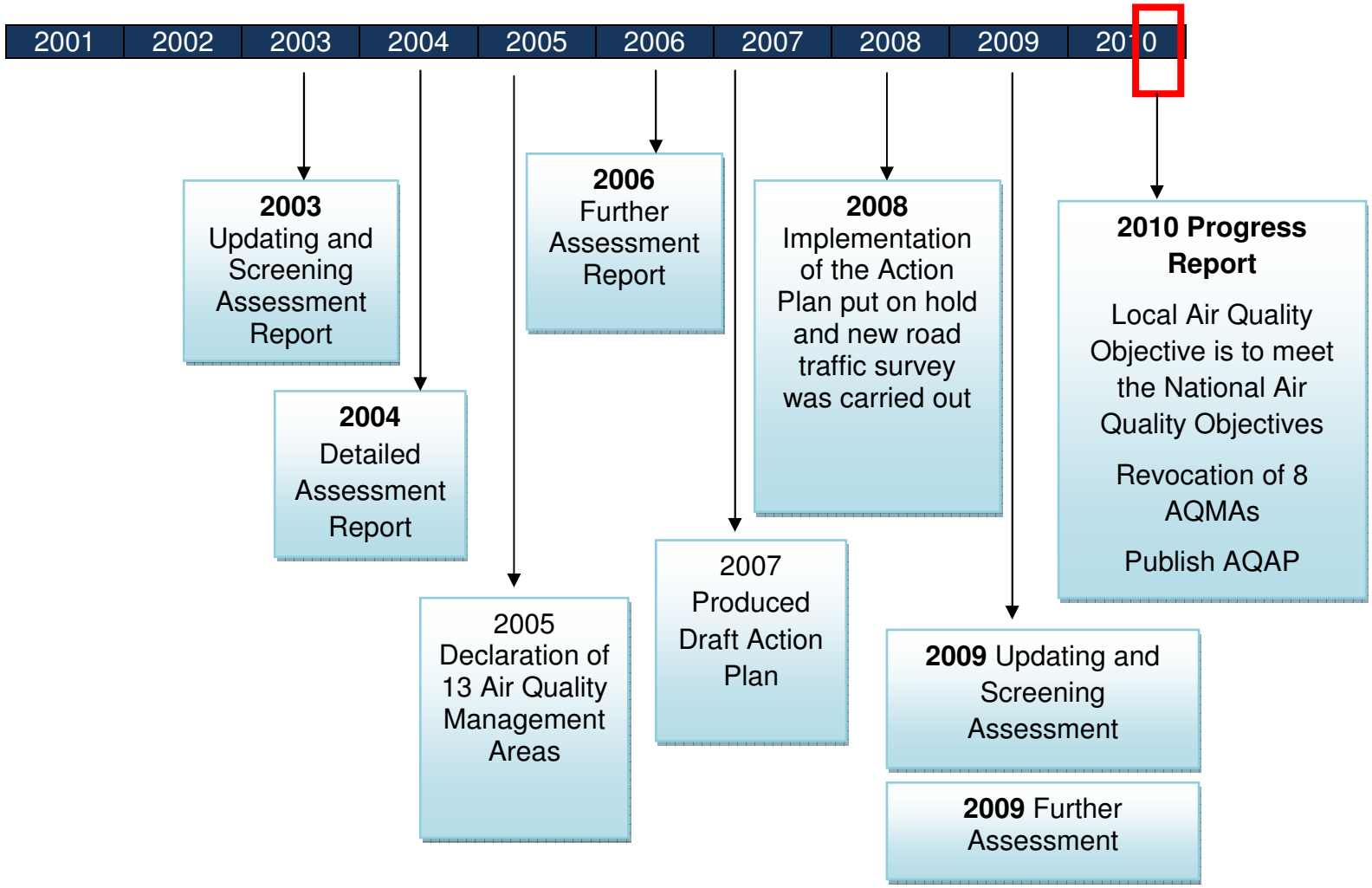
In 2009, PCC also carried out a FA. This concluded the following:

Revocation of 8 AQMAs (AQMA 1-5, 8, 10 and 13) based on 2008 monitoring data.

Retention of 5 AQMAs:

- AQMA 6 and 11, based on the predicted breach of the annual mean NO_2 NAQO;
- AQMA 7 and 9, based on the monitored breach of the annual mean NO_2 NAQO;
- AQMA 12, lack of enough historical monitoring data to justify the revocation at this stage;
- A review of the geographical extent of AQMA 11 based on 40 $\mu g/m^3$ contour line of the 2007 base-line dispersion modelling output;
- Based on monitoring data, the 24-hour mean PM_{10} was in excess of 50 $\mu g/m^3$ at all monitored stations in 2007 and 2008. However, the number of exceedances was not in excess of 35 exceedance, and the 2008 annual mean monitored PM_{10} at all stations was not in excess of 32 $\mu g/m^3$. Therefore, it is unlikely that there will be future exceedence of the 24-hour mean PM_{10} NAQO;
- However, in light of the above and low PM_{10} data capture at C7 (under 90%), it is difficult to state categorically that future exceedences of the 24-hour mean NAQO will not take place. Therefore, monitoring at both stations will continue, and PM_{10} pollutant will be addressed again in next progress report 2010;
- The 2010 AQAP has been developed according to the FA 2009 findings to focus on AQMA 6 and AQMA 11.

Figure B: Summary of Portsmouth's Previous Review and Assessments



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