

## 4 Interim Action Plan

### 4.1 Introduction

4.1.1 This interim action plan will address air quality both from the AQMA perspective, and also in line with the LTP guidance for air quality, which takes a broader approach, demanding consideration of other pollutants and greenhouse gases, such as carbon dioxide. Although the two transport related AQMAs will be prioritised, it is recognised that air quality problems in other locations may arise in the future and for this reason a city-wide approach needs to be taken. It is essential that the effects of transport on health are recognised, and that the potential to maximise positive effects of transport on health are realised through encouraging travel by more sustainable modes.

### 4.2 Objectives

The objectives for the action plan are as follows:

**Objective 1: To reduce recorded levels of nitrogen dioxide in the two AQMAs to below national air quality objectives.**

**Objective 2: To improve the Council's own performance in terms of emissions and to provide strong leadership**

**Objective 3: To raise awareness of the links between health and travel, in respect of both air quality, and personal fitness.**

**Objective 4: To improve the air quality in the city as a whole by increasing travel by more sustainable modes.**

### 4.3 Targets and Trajectories

4.3.1 Achievement of these objectives will be measured through monitoring indicators against targets and trajectories as outlined in Table 4. 2. The use of annual trajectories for air quality is not particularly useful as air quality can vary from one year to the next due to weather conditions, and these variations occur regardless of any transport improvements. For this reason, intermediate annual trajectories will be used. There will be overall targets relating directly to air quality but these will be for the 5 year period. Reporting against trajectories relating to air quality will take place via the APR process.

4.3.2 For the air quality modelling work to date, traffic forecasts of 1% growth per year have been assumed. This predicted growth will be monitored against levels reported through the APR process and reassessed as part of the continuing assessment work. For areas of the City identified for growth such as the Eastern and Northern Corridors, work will need to be undertaken to provide realistic growth levels based on expected development.

4.3.3 More extensive traffic modelling related to the expected population and economic growth forecast for the city for the next 5 years was undertaken to inform the Local Transport Plan 2006-11. This resulted in the figures shown in Table 4.1 for the predicted traffic volume growth on the northern and eastern corridors, which will impact on the AQMAs of Mutley Plain and Exeter Street respectively.

**Table 4. 1: 2006-11 Predicted Traffic Volume Growth for AQMAs**

<b>AQMA</b>	<b>Traffic Volume Growth – Over LTP2 Period (2006-11)</b>	<b>Corresponding Traffic Volume Growth per Year</b>	<b>Traffic Volume Growth per Year – Used in LAQM Detailed Assessment and NO<sub>2</sub> Predictions</b>
<b>Mutley Plain</b>	8%	1.6%	1%
<b>Exeter Street</b>	16%	3.2%	1%

4.3.4 This predicted growth in traffic volumes per year is greater than that used in the LAQM Detailed Assessment to predict the NO<sub>2</sub> levels in 2005 and 2010, particularly for Exeter Street. These more realistic growth figures will be used to inform the next LAQM report and the subsequent final AQAP to be produced later in 2006.

**Table 4. 2: Targets and Trajectories**

<b>Indicator</b>	<b>Current (2004) levels</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Overall target - 2010</b>
Nitrogen dioxide recorded in AQMA1 (Mutley Plain)	50.34µg/m <sup>3</sup>	48.62	46.89	45.17	43.45	41.72	Below national objective of 40µg/m <sup>3</sup>
Nitrogen dioxide recorded in AQMA2 (Exeter Street)	40.95µg/m <sup>3</sup>	40.79	40.63	40.48	40.32	40.16	Below national objective of 40µg/m <sup>3</sup>
<b>Intermediate Outcome Indicator</b>	<b>Current (2004/5) levels</b>	<b>2006/7</b>	<b>2007/8</b>	<b>2008/9</b>	<b>2009/10</b>	<b>2010/11</b>	<b>Overall target</b>
Thousands of bus passenger journeys per year in the authority	19,048						
Total million vehicle km for Plymouth (DfT estimates)	1,360						
Average daily traffic flow for Mutley Plain	30,000 (5 day average neutral month)						
Average daily traffic flow for Exeter Street	46,000 (5 day average neutral month)						
Kids Count - % of students travelling to school by car	37%						

- 4.3.5 In order to achieve these targets, the following section contains the measures that could be implemented plus a cost-benefit analysis. These are measures in addition to those mentioned in other sections of the LTP, for example those relating to congestion, accessibility and road safety initiatives that will affect the air quality of the City as a whole.
- 4.3.6 Each measure has been assessed for its cost over the 5 year LTP period, and the likely benefit that it will have for air quality. The measures will be ratified and reviewed during the next phase of the air quality work for submission as part of the Final Local Transport Plan in March 2006.
- 4.3.7 Measures that will have an overall impact on congestion levels and therefore local air quality and greenhouse gases have not been included here, unless they can be specifically enhanced to focus on the AQMAs.

- 4.3.8 The intention is to identify a suitable package of measures for the AQMAs so that a reduction in pollution levels will begin and a framework will be in place to inform the final AQAP, where there will be a full screening assessment of all possible options.
- 4.3.9 Research into the effectiveness of 'soft measures' on changing travel behaviour has shown that around a 10% decrease in traffic flows can be achieved by an intensive soft measure campaign. However, these benefits can be quickly lost as people start to drive more to take advantage of the freer flowing traffic conditions. Therefore benefits from soft measures need to be locked in with hard measures to make sure that the change is maintained. A package of measures approach is therefore of most benefit.

#### 4.4 Risks to Achieving Targets

There are a number of potential risks to this strategy:

- There is potential for traffic to grow at higher levels than are forecast, with consequent impacts on emissions and air quality, particularly in areas identified for development. Implementing LTP policies that promote and enhance public transport, reduce congestion and improve accessibility and modal choice will mitigate this. Providing robust data for the assessment process will also contribute to alleviating this risk by allowing accurate forecasting.
- Major road works by the utilities companies could cause localised congestion. Works are currently underway on Mutley Plain that are scheduled to last for 6 months to early 2006. This will have an effect on traffic movements and therefore nitrogen dioxide levels that could influence the 12 month average.
- Construction work and associated highway works such as at the Drake Circus development will also have an impact on localised congestion. The City Council will monitor works carried out on the highway and consider their impact when completing the air quality assessments.

#### 4.5 Table of Measures

4.5.1 On the following pages is the table of measures (Table 4.3) that can be taken to improve air quality across the City. A description is given of each measure, and a crude cost benefit analysis is carried out for each measure. This uses the following code:

For costs:

Code	Estimated cost of scheme over 5 year LTP period
1	£3m +
2	£1-3m
3	£500k – 1m
4	£100k – 500k
5	<£100k

For benefits:

<b>Code</b>	<b>Likely impact of scheme on air quality over 5 year LTP period</b>
<b>1</b>	Very little impact in AQMAs
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	Medium impact in AQMAs
<b>6</b>	
<b>7</b>	
<b>8</b>	
<b>9</b>	
<b>10</b>	Greatest impact in AQMAs

- 4.5.2 The cost benefit is then calculated by multiplying the two scores together for the scheme. Judgement has been used in cases where it is difficult to predict what the effects of a scheme will be on air quality within the AQMAs.
- 4.5.3 An indication of the timescale for each measure is included (short, medium or long-term), as well as who has the main responsibility for ensuring it is implemented. Details of each action are given, and the wider impacts are detailed, for example on quality of life, climate change, noise levels and so on. This includes negative impacts if there are any. Finally a ranking in Table 4.4 is given to each measure based on its score in the cost benefit analysis.

**Table 4. 3: Proposed Air Quality Measures**

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
1.0 Information and Education										
1.1	Information and awareness raising regarding effects of driving on health (both pollution and lack of exercise)	Intensive awareness raising initiatives to encourage behavioural changes that could lead to reduced car use and greater acceptance of alternatives.	4	4	16	S/M/L	PCC	Develop programme of measures to raise awareness and influence travel behaviour. The LTP and component strategies contain measures to promote walking and cycling. In addition to this, there will be a focus on raising awareness of air quality issues, promotion of the link between health and travel behaviour through the Walkabout Initiative, and real time information provided relating to pollution.	Reduced car use would reduce noise levels, improve road safety, reduce CO <sub>2</sub> emissions, improve quality of life, and improve people's health. Potential to save people money on petrol bills, and for greater social interaction. Reduction in fossil fuel use. Disbenefits: Personal safety issues of using alternatives to the private car.	3
2.0 Leading by Example										
2.1	PCC Staff Green Travel Plans	Potential reductions in car trips to work, encouragement of clean/zero emission modes, promotion of car pooling and car sharing. Could have knock on effect for non-work related travel.	1	5	5	S	PCC	PCC will develop its own Green Travel Plan for staff for all main Council sites, including Civic Centre, Windsor House, Prince Rock Depot and Midland House.	Reduced congestion and parking requirements. Improved health amongst workforce. Demonstrates PCC's commitment. Improves PCC's environmental profile and credentials. Improved relations with clients, employees and public. Disbenefits: Insensitive implementation could alienate staff. May require upgrade of existing cycling/walking facilities and locker/shower facilities.	7

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
2.2	Greener Council fleet	Reductions in PCC's pollutant and greenhouse gas emissions.	2	5	10	S	PCC	The purchasing policy will be amended to ensure that fuel efficiency and emissions are a priority when choosing new vehicles for the fleet. Information will be regularly updated in line with new developments. Clean up for existing Council vehicles will be investigated and filters fitted as appropriate. A commitment will be made to using reformulated fuels which reduce emissions, such as City Diesel, City Petrol, Clean Diesel, Clean Petrol, Low sulphur petrol, ultra low sulphur diesel, low benzene petrol.	Sensitive fuel and vehicle purchasing can increase fuel effectiveness and energy efficiency. Reduction in number of trips and distances travelled. Money saved on more efficient vehicles. Shows leadership. Disbenefits: More environmentally sensitive vehicles may be more expensive.	6
2.3	Promote / pilot alternative fuels / vehicles	New fuels and vehicle technologies have potential to reduce emissions, but encouragement necessary to increase take-up.	Dependent on technology / fuel developments			S/M/L	PCC	National schemes and incentives will be promoted e.g. EST Clean Up grants. Expansion of PCC 'green fleet'. Continue to trial new vehicles. Incentives for low emission vehicles will be investigated and implemented where appropriate, such as free car parking in the city centre.	Reduced noise, CO <sub>2</sub> , pollutants, potential cost savings. Disbenefits: Long term reliability not proven. National schemes currently being reviewed; uncertain future.	-
<b>3.0 Absorbing Emissions</b>										
3.1	Tree Planting in the AQMAs	Potential to reduce greenhouse gas emissions and improve local air quality in AQMAs by absorption and increased turbulence which encourages mixing and dispersion of pollutants	5	4	20	S/M/L	PCC	Tree Planting in AQMAs along Exeter Street and Mutley Plain where possible, extending to other areas as necessary. Trees act as a carbon sink, absorb pollutants and increase turbulence thus encouraging mixing and dispersion of pollutants.	Reduced CO <sub>2</sub> , townscape, amenity, provide shade, microclimatic amelioration, health benefits, improved quality of life. Disbenefits: Continued maintenance required. Potential problems with sight lines and safety, and shading of dwellings.	2

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
3.2	Tree Planting included at design stage for new road building / improvements to existing roads.	Potential to reduce greenhouse gas emissions and improve local air quality in areas where new road schemes are planned, by absorption and increased turbulence which encourages mixing and dispersion of pollutants	1	5	5	S-L	PCC	Include trees in the design stage for new roads and road layouts. The benefits of trees for the urban environment will offset the effects of road building and present a solution at the earliest stage.	Reduced CO <sub>2</sub> , townscape, amenity, provide shade, microclimatic amelioration, health benefits, improved quality of life. Disbenefits: Continued maintenance required. Potential problems with sight lines and safety, and shading of dwellings.	7
4.0 Promotion and provision of alternatives										
4.1	Travel Plans targeted at AQMAs	Potential reductions in car trips to work, work related car trips, encouragement of cleaner modes, promotion of alternatives. Can have knock on affect for non-work travel behaviour	4	5	20	S-L	PCC / Businesses and Schools	Progress made already with previous LTP, travel plans required for new developments and voluntary plans being implemented. Some scope for specific work in AQMAs, most notably on School Travel Plans (STP's). Expect limited impact because much of the traffic in AQMAs is through traffic rather than specifically related to schools or businesses within the area. Expect larger overall impact through city-wide travel plan scheme.	Reduced congestion, reduced CO <sub>2</sub> , improved travel choices, savings for employees, green credentials for organisations, reduced number of cars on school run, healthier workforce and children. Disbenefits: Potential cost to employers.	2
4.2	Safer Routes to School (SRTS) focus on AQMAs.	Encourages safe walking and cycling, thus reducing emissions and congestion. Can encourage wider travel behaviour change.	3	4	12	S-L	PCC / Schools	Programme of SRTS through LTP, to prioritise AQMAs.	Reduced congestion, reduced CO <sub>2</sub> , improved safety and travel options. Improved health and social interaction.	5

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
4.3	Cycling facilities in AQMAs.	Encourage more cycling trips, zero emission mode that will reduce congestion and emissions.	3	4	12	S-M	PCC	Cycling network and promotion covered in PCC Cycling Strategy. Potential for improved cycle parking and routes within AQMAs. Prioritised for attention through PCC Cycling Strategy	Reduced congestion, reduced CO <sub>2</sub> , improved travel options, potential to save money. Improved health and social interaction. Disbenefits: Perceived danger from traffic. Potential increase in cycling casualties	5
5.0 Managing the Road Network										
5.1	Reallocation of road space and increased priority for buses, cyclists and pedestrians within AQMAs	Prioritising road space in order to benefit buses, cyclists and pedestrians could attract people on to more efficient modes, and discourage people from driving along this route.	7	4	28	S-L	PCC / Bus operators	Provide increased priority for buses, cyclists and pedestrians within AQMAs.	Bus lanes also benefit cyclists. Reduced congestion, reduced CO <sub>2</sub> , improved travel options, potential to save money. Improved access to city centre without using car. Disbenefits: Possible impact on parking availability on routes, loss of road space for general traffic, perceived negative impact on local trade	1
5.2	High Occupancy Vehicle Lanes (HOV).	More efficient use of road space. Encourages car sharing.	To be determined	To be determined	To be determined	M-L	PCC	Suitable locations need to be identified.	More efficient use of road space. Reduced CO <sub>2</sub> . faster journey times for car sharers. Disbenefits: Potentially slower journey times for single occupant vehicles.	To be determined
5.3	Traffic management at pollution hot spots. (UTMC)	Use technology such as SCOOT to optimise traffic flows and reduce congestion. Could use to favour other modes e.g. buses.	7	2	14	S-L	PCC	Investigation and detailed consideration of how ITS can be used to benefit the AQMAs will need to be undertaken.	Potential for traffic to be diverted and problem moved elsewhere. Disbenefits: Benefits could be short term only due to increases in traffic.	4

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
5.4	Parking and delivery restrictions in AQMAs	Time and duration of parking and loading restrictions can influence traffic flows, congestion and emissions.	4	4	16	S-M	PCC	Including taxis. Costs include policing scheme to ensure compliance. Review of Parking and Loading restrictions on routes leading in, within and exiting from AQMAs.		3
6.0 Emissions Management										
6.1	Incentives to scrap older vehicles	Potential to reduce number of high polluting vehicles by offering incentives to replace them.	4	4	16	S/M	PCC / Bus operators	A free scrapping scheme could remove more high polluting vehicles from the roads. Additional incentives could help, e.g. annual bus pass. Develop pilot scheme using bus tickets and car club membership as incentives.	Reduced vehicle dumping. Reduction in CO <sub>2</sub> . Disbenefits: Potential abuse of system.	3
6.2	Advice / incentives for cleaning up larger vehicles e.g. by retrofitting	Reduce number of high polluting vehicles by fitting exhaust treatments to reduce emissions.	5	4	20	S/M	PCC / Vehicle operators	Pilot retrofitting programmes for buses and HGVs. Investigate feasibility of extending to whole bus fleet, HGVs and smaller delivery vehicles.	Potential cost savings. Improved environmental image. Disbenefits: Potential additional costs	2
6.3	Cleaner taxi fleet	Reduce emissions from high polluting vehicles and encourage better maintenance of fleet, and switch off idling vehicles.	3	4	12	S	PCC / Taxi operators	Pilot Roadside Emissions Testing revealed that only a relatively small number of vehicles are polluting and rectifying these is unlikely to lead to a measurable contribution to air quality. However, taxis were identified as a particularly polluting sector, with average failure rates of 24%.	Reduced CO <sub>2</sub> emissions, and possibly noise. Disbenefits: May be difficult to achieve behavioural change working with taxi operators. Potential to enforce through Licensing.	5
6.4	Enforce law against idling vehicles	Reduce emissions from idling vehicles through enforcing law.	3	4	12	S	PCC	Idling for more than two minutes when parked at the roadside is an offence. More resources will be put in to publicising this law through the Switch Off campaign, and enforcing it. Using Council parking attendants to enforce this law will be investigated.	Reduced CO <sub>2</sub> emissions, and noise levels. Disbenefits: May be hard to enforce.	5

No	Measure	Description	Impact (I)	Cost (C)	Cost Benefit (IxC)	Time - Scale	Lead Organisation	Action	Wider Impacts	Rank
6.5	Promote and assist freight emissions agreements	Work with freight partnerships to establish minimum emission standards for HGVs in Plymouth	3	4	12	S-M	PCC / Freight operators	Establish Freight Quality Partnership. Discuss potential agreements with freight operators. Begin retrofitting programme for older vehicles. Offer assistance for retrofitting.	Potential cost saving, improved environmental image. Disbenefits: Potential additional costs	5
7.0 Continuing Air Quality Management										
7.1	Support production of the AQAP for Plymouth's AQMAs, to be included with 2006/07 APR.	Transport Strategy section will provide input and support to Health and Environmental Regulation Service in completing the AQAP.	-	-	-	M	PCC	Form part of Steering Group overseeing final AQAP, and provide practical support where applicable.		
7.2	Implement actions and AQAP include in APR.		3	4	12	M	PCC	Report through APR progress on implementing AQAP and the indicators in this strategy.		5
8.0 Wider planning Framework										
8.1	Land Use Planning	Use planning system to ensure developments do not contribute to a deterioration in air quality, or ensure mitigation measures are provided.	4	5	20	M-L	PCC	Ensure air quality considerations are taken into account in planning decisions. Produce Planning Guidance Note relating to air quality, with focus on the AQMAs and how proposed developments should provide measures to mitigate the impacts e.g. tree planting.	Potential socio-economic impacts. Possible general environmental improvements. Disbenefits: Perceived reduction in development opportunities. Mitigation measures may increase cost of development.	2

**Table 4. 4: Results of Ranking**

<b>Rank</b>	<b>Measure</b>	<b>Comments</b>
1	Reallocation of road space and increased priority for buses, cyclists and pedestrians in AQMA's	Subject to feasibility and consultation
2	Tree Planting in the AQMAs	Links to Mackay Vision for tree-lined boulevards and reduction of road space
	Travel Plans in the AQMAs	Potential for SPG to be developed with a focus on AQMA
	Land Use Planning	The LDF acknowledges the importance of reducing the need to travel
	Advice / incentives for cleaning up larger vehicles e.g. by retrofitting	Could be progressed as part of a Freight Quality Partnership through PCC's Sustainable Distribution Strategy
3	Information and Awareness Raising	Could form part of a package of soft measures and publicity / incentives
	Parking and delivery restrictions in AQMAs	Limited impact in identified areas
	Incentives to scrap older vehicles	Could be progressed in partnership with car dealers?
4	Traffic management at pollution hotspots	Should be considered alongside scheme Rank No.1. Benefits for whole network
5	Taxi emissions	Could be promoted through publicity and in partnership with Licensing Dept
	Safer Routes to School focus in AQMAs	Consideration of how SRTS can benefit AQMAs
	Cycling facilities in AQMAs	Potential to improve provision on Mutley Plain. Exeter St has bus lanes and alternative routes via Waterfront / Ebrington Street
	Roadside Emissions Testing in AQMAs	Progress in partnership with the Vehicle and Operator Service Agency
	Enforce law against idling vehicles	Publicity campaign could be influential - backed with enforcement
	Promote and assist freight emissions agreements	Could be progressed as part of a Freight Quality Partnership through PCC's Sustainable Distribution Strategy
	Implement actions in AQAP by including in APR updates.	Part of the monitoring and evaluation process
6	Greener Council fleet	Good practice and part of leading by example
7	PCC Staff Green Travel plans	Good practice, part of leading by example
	Tree Planting included at design stage for new road building / improvements to existing roads.	Tree planting to form part of road design. There may be safety issues (sightlines).