



PRESTON CITY COUNCIL

AIR QUALITY ACTION PLAN

2009



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a. Executive Summary

Currently, the air quality objectives are being breached in both of the Air Quality Management Areas declared in September 2005, with Nitrogen Dioxide levels above those which have been set by Central Government and Europe. There are a range of plans and policies already in place within Preston City Council and at Lancashire County Council level, which consider transport planning, parking, cycling, public transport and land use planning. However, it is still evident that the air quality objectives are unlikely to be achieved.

Following the declaration of the Air Quality Management Areas the Council is required to develop an action plan and this plan will:

- Identify and assess potential actions for improving the local air quality in the Air Quality Management Areas and to a certain extent the Councils area.
- Propose for implementation those suggested actions that are relevant to air quality management and capable of bringing about the improvements required.

Following discussions with partner agencies 18 actions were identified and all partners agreed to their implementation and timescales were proposed. These actions will be monitored over the time period of the plan and will also be reviewed following the publishing of the Preston, Chorley and South Ribble Transport Study, which will look at the longer term transport needs of this area.

A consultation exercise was carried out in relation to the content of this plan and unfortunately little responses were received.

1.0 Introduction

The purpose of the Air Quality Action Plan (AQAP) is to provide a framework for improving the air quality within Preston City and more specifically within the two Air Quality Management Areas (AQMA), which were declared in September 2005.

The principal aims of this document are to:

- Raise awareness of Preston's air quality issues and the proposed solutions to improve air quality.
- Promote constructive dialogue with all stakeholders on air quality.
- The prioritisation of measures to improve air quality and quantify the impacts of the proposed actions.
- Assignment of responsibility for each of the actions.
- Clarification of time-scales.
- Monitoring and Evaluation of the effectiveness of the plan.

2.0 The Air Quality Management Process

2.1 Legislative Background

Part IV of the Environment Act 1995 introduced a framework for Local Air Quality Management (LAQM) across England and Wales. This placed a requirement on local authorities to periodically review air quality in their area and assess the predicted future air quality against prescribed air quality objectives for seven key pollutants detailed in the Air Quality (England) Regulations first laid down in 1997, with the latest amendment in 2007.

2.2 The National Air Quality Strategy

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS) was first published in January 2000 (updated in July 2007) and superseded the original National Air Quality Strategy (NAQS) published in March 1997. It provided a framework for reducing air pollution at national and local level from a wide range of emission sources.

Central to the Strategy are health-based standards for the eight local air pollutants of current greatest concern. These standards are based on recommendations made by the Government's Expert Panel on Air Quality Standards (EPAQS). From these standards air quality objectives have been derived, which take account of the costs and benefits, as well as of the feasibility and practicality of moving towards the standards. The relevant dates for achieving each of the objectives range from 2003 to 2010.

The eight pollutants are:

Benzene
1,3-butadiene
Carbon Monoxide (CO)
Lead
Nitrogen Dioxide (NO₂)
Particulates (PM₁₀)
Sulphur Dioxide (SO₂)
Ozone

(There is no local air quality objective for ozone as it is predominately a trans-boundary pollutant. Its formation and effects are normally observed many miles from the original source of the parent pollutants and as such, local measures will not directly have any effect on the levels of ozone with an area. It is therefore being dealt with at a national level.)

3.0 The Review and Assessment Process

Government guidance issued under the Environment Act recommends a phased approach to air quality Review and Assessment. This process involves two phases with each subsequent phase being increasingly focused and detailed in order to more accurately assess local air quality.

Each phase considers the likelihood of exceedences of the air quality objectives at relevant locations (i.e. those at which people are likely to be exposed) over the relevant exposure period.

For example, an annual average may be used to assess impact at residential locations, where as one hour averages might be used at an urban roadside location, such as a shopping area, where people might reasonably be expected to spend an hour.

The above phases are known as the Updating and Screening Assessment and the Detailed Assessment.

The aim of the first phase, the Updating and Screening Assessment (USA), is to review the changes in air quality that have occurred within each local authority since the previous round of review and assessment and to re-examine locations and sources that were highlighted as issues at that stage. Where the USA has identified a risk that an air quality objective may be exceeded, the local authority must then undertake a Detailed Assessment.

The aim of this assessment is to determine with as much certainty as is possible whether or not an air quality objective will be exceeded. If an exceedence is predicted, the local authority should designate an AQMA to cover the area of the exceedence.

After the declaration of an AQMA the local authority is required to undertake a Further Assessment of the air quality, to re-assess the area of the AQMA and to determine its suitability. Following the conclusions of the Further Assessment it may be necessary to revoke or amend the declared AQMA.

In addition, local authorities are required to produce annual air quality Progress Reports, but only for years when no Updating and Screening or Detailed Assessments are due. All monitoring data and other information important with regard to local air quality are included in the Progress Reports.

4.0 Review and Assessment of Air Quality in Preston

During the second round of Review and Assessment, the 2003 Updated and Screening Assessment concluded that a Detailed Assessment was required due to the risk of the NO₂ annual mean standard being exceeded at two locations from road traffic.

Following the completion of the Detailed Assessment, two AQMAs were declared in September 2005:

- **AQMA 1:** A59 Ringway/Church Street/Percy Street
- **AQMA 2:** Blackpool Road/Plungington Road

AQMA 1 is located just to the east of the city centre, alongside a major junction and encompasses a group of approximately 30 properties.

AQMA 2 is located 1-2 km to the north of the centre and encompasses approximately 55 properties, the majority of which are on Plungington Road. This is a narrow road and on a bus route where traffic is frequently slow moving or stationary on the approach to junction.

The AQMAs are shown in Figure 1 and Figure 2.

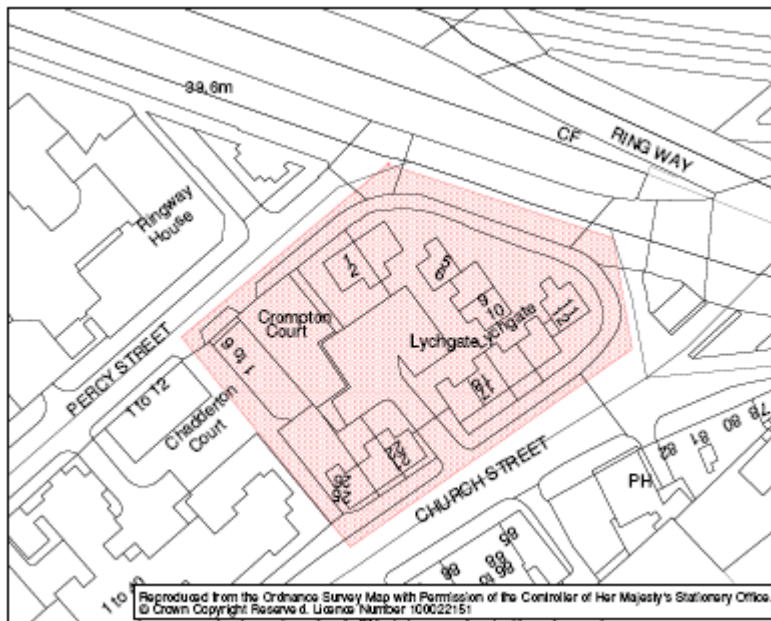


Figure 1 - **AQMA 1**, A59 Ringway/Church Street/Percy Street

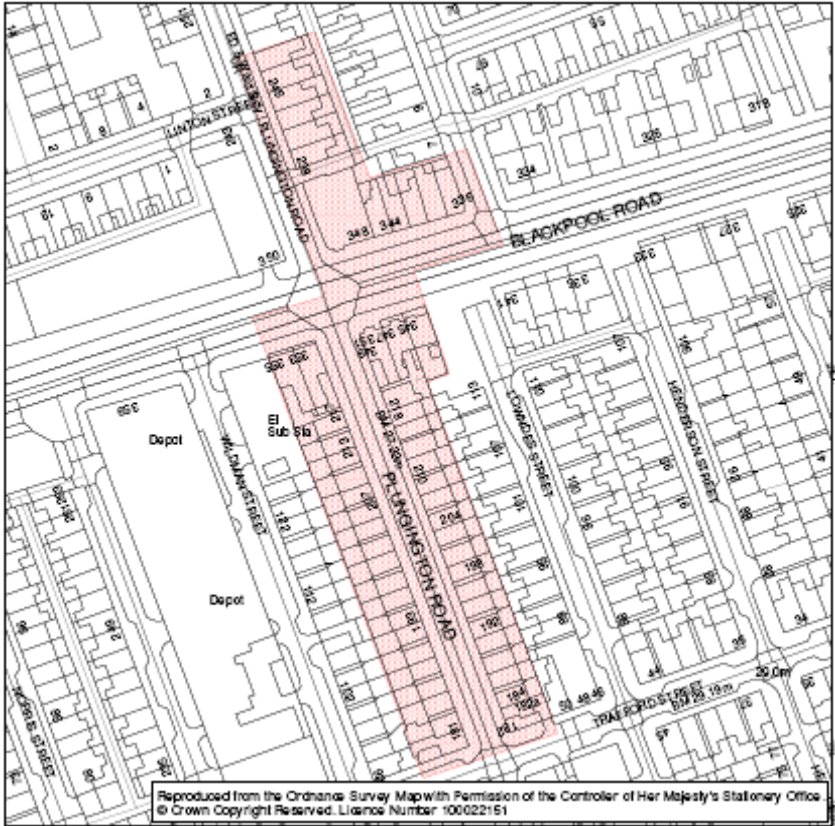


Figure 2 - AQMA 2, Blackpool Road/Plungington Road

During the third round of review and assessment, the 2006 USA concluded that an additional Detailed Assessment was not required for any of the seven pollutants assessed. However it did identify one monitoring site at a non residential location in close proximity to AQMA 1, where the NO₂ annual mean objective had been exceeded. No further action was required at this site.

5.0 Stage 4 – Further Assessment

In March 2007 Preston City Council carried out a Stage 4 Further Assessment to verify the extent of the AQMAs, identify the source contribution to the modelled Nitrogen Dioxide levels and the percentage reduction in vehicle numbers required to reduced pollution levels to the National Air Quality Objective.

The report concluded the following for each AQMA:

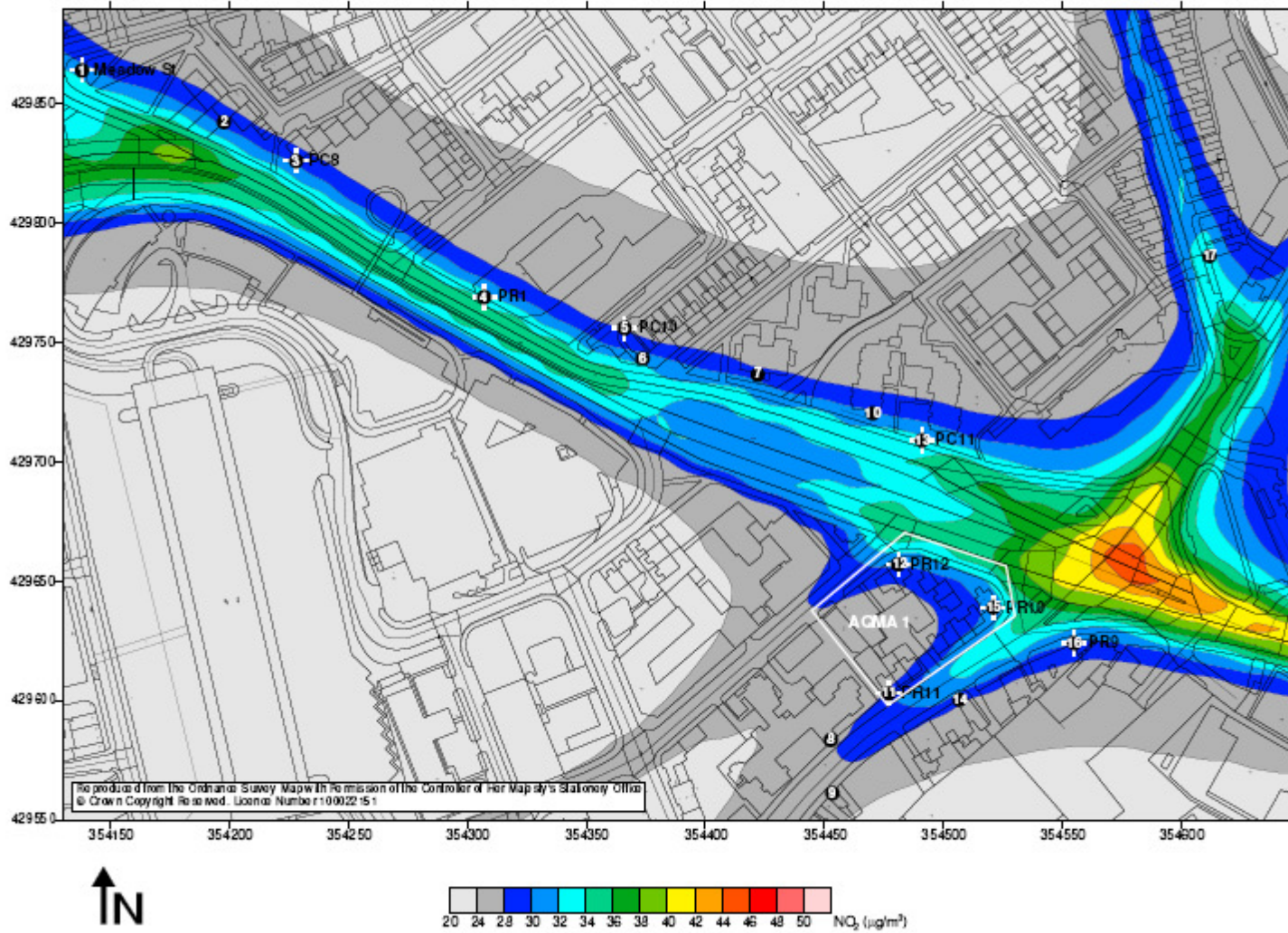
- **AQMA 1**, A59 Ringway/Church Street/Percy Street

As shown in Table 1 and figure 3, the modelled results predicted that by 2010 Nitrogen Dioxide levels experienced at the relevant sensitive receptors would fall below the National Air Quality Objective of 40ug/m³ Annual Mean. However due to uncertainties with the modelling and diffusion tube monitoring data, it was recommended that the AQMA remained in its current state.

Receptor No.	Monitoring Site	X	Y	Base year 2006	EU Objective year 2010
1 ^a	Meadow St.	354138	429864	36.0	30.6
2		354198	429842	34.4	29.2
3	PC8	354228	429826	34.4	29.2
4 ^a	PR1	354307	429769	39.2	33.6
5	PC10	354366	429756	32.5	27.7
6		354374	429743	35.9	30.6
7		354422	429737	33.7	28.6
8		354453	429583	31.4	26.7
9		354453	429561	32.1	27.3
10		354470	429720	35.5	30.4
11	PR11	354477	429603	33.2	28.2
12	PR12	354481	429657	35.1	29.9
13 ^a	PC11	354491	429709	38.6	32.8
14		354507	429600	33.7	28.5
15	PR10	354521	429639	36.3	30.8
16	PR9	354555	429624	35.0	29.8
17		354612	429786	39.1	33.4

Table 1 – Predicted concentrations of NO₂ in sensitive receptors at AQMA 1

Figure 3 – Annual Mean NO₂ Concentration Plot, Ringway, 2010



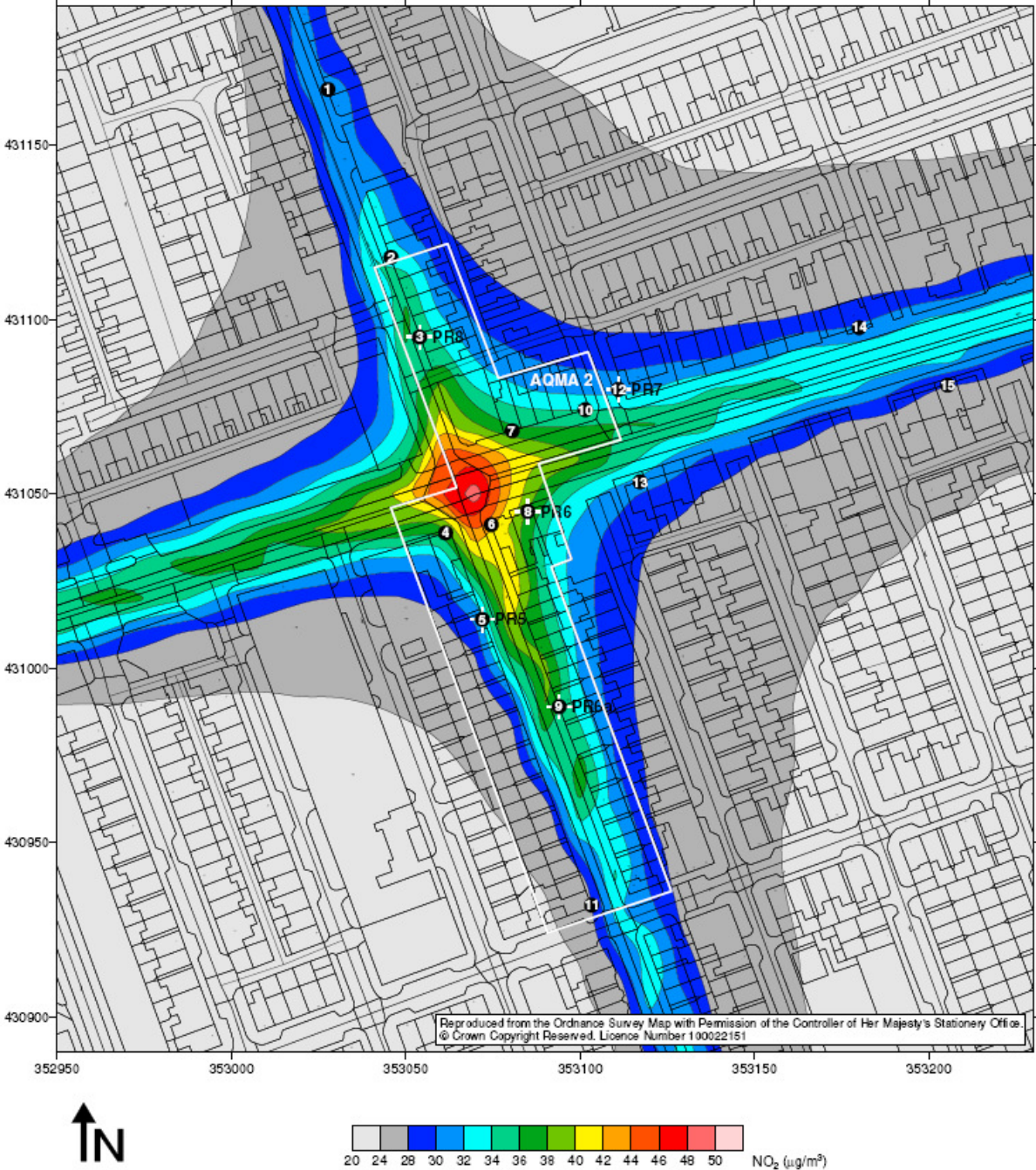
- **AQMA 2**, Blackpool Road/Plungington Road

As Shown in Table 2 and Figure 3, the modelled results predicted that by 2010 Nitrogen Dioxide levels experienced at one of the sensitive receptors would exceed the National Air Quality Objective of 40ug/m³ with an Annual Mean of 44.4ug/m³. Therefore it was recommended that this AQMA remained in its present state.

Receptor No.	Monitoring Site	X	Y	Base year 2006	EU Objective year 2010
1		353028	431166	37.1	31.8
2		353046	431118	41.0	35.1
3	PR8	353054	431095	43.0	36.9
4		353061	431039	42.8	36.7
5	PR5	353072	431014	37.4	31.9
6		353075	431041	51.4	44.4
7		353081	431068	43.5	37.2
8	PR6	353085	431045	43.2	37.0
9	PR6a	353094	430989	44.1	37.6
10		353101	431074	39.5	33.8
11		353103	430932	32.3	27.4
12 ^a	PR7	353111	431080	36.9	31.4
13		353117	431053	36.1	30.8
14		353180	431098	35.9	30.7
15		353205	431081	33.1	28.2

Table 2 – Predicted concentrations of NO₂ in sensitive receptors at AQMA 2

Figure 3 – Annual Mean NO2 Concentration Plot, Ringway, 2010



5.1 Source Apportionment

A source apportionment study was carried out in each of the two AQMAs at the sensitive receptors where the highest concentrations were predicted. The contributions made by cars, HGVs (including buses) and the background sources to the predicted Oxides of Nitrogen (NO_x) concentrations were calculated. Following this, a further study was undertaken to assess the reduction in the contribution of NO_x concentrations made by local traffic, to meet the NO₂ annual mean objective in 2006 and 2010. The results of the study are summarised in Table 3.

Receptor Number	Year	Cars		HGVs and Buses		Total Traffic	Background		required % traffic contribution reduction
		µg/m ³	%	µg/m ³	%	%	µg/m ³	%	
15 (AQMA 1)	2006	13.7	15	16.6	25	40	33.1	60	N/A
6 (AQMA 2)	2006	17.1	16	53.4	51	67	34.2	33	51
	2010	14.0	17	39.4	48	65	28.6	35	25

Table 3 – NO_x Source Apportionment Study

From the above table it can be seen that:

- Within AQMA 1 the greatest contributor to the NO_x concentrations experienced at the sensitive receptors was associated with the general background and therefore there was no need to calculate the percentage of traffic reduction required.
- Within AQMA 2 the greatest contributor to the NO_x concentrations was from the local traffic (65% 2010), which consisted of 48% HGV's and buses and 17% cars. For 2010, a 25% reduction in emissions from local traffic was calculated to be necessary to reduce the NO₂ concentrations at the worst case sensitive receptor below the National Objectives. Since HGV's and buses are the largest contributor to the predicted NO_x concentrations it is likely that small reductions in these numbers would result in significant reductions in pollutant contributions. This can be clearly demonstrated by the following figures below, which show the total NO_x generated in grams per kilometre at various speeds for a typical bus and car. The Bus produces higher levels of NO_x in start stop traffic conditions compared to the equivalent speeds for the car.

Figure 4 – NOx emissions from an average Petrol car by vehicle speed

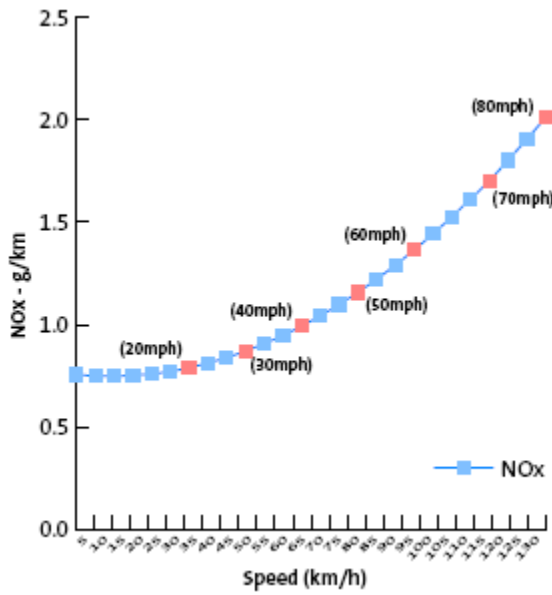
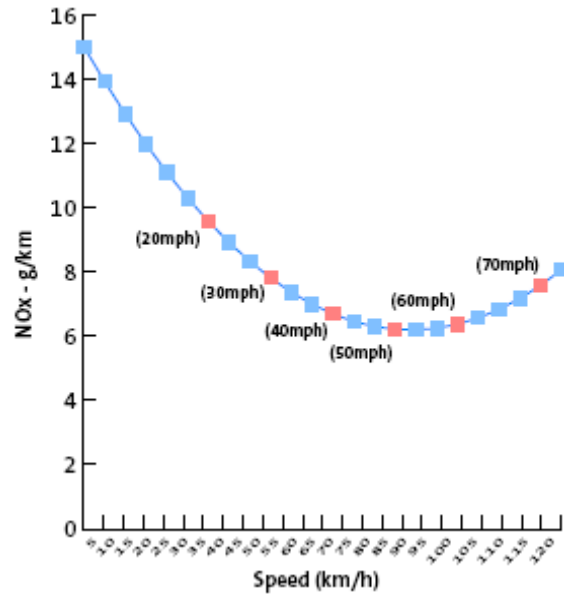


Figure 5 – NOx emissions from a typical bus by vehicle speed



6.0 Air Quality Action Plan

6.1 What is an Air Quality Action Plan (AQAP)?

Local authorities are required to produce an Air Quality Action Plan (AQAP) where they have designated an AQMA and should also include a timetable for implementing the plan. The AQAP should contain a list of actions to improve air quality, based on scenarios identified in previous review and assessment reports.

The action plan should also contain a simple cost and benefit analysis for each action identified and the feasibility of implementing the individual actions. Non-health benefits may also be identified, e.g. reduction of traffic accidents and may be included as a secondary benefit of an action.

Having established a series of scenarios to improve air quality, Councils need to identify which actions offer the most cost effective or cost beneficial way of improving air quality.

Once the cost-effectiveness of each action has been assessed, the Action Plan should then seek to prioritise the various measures, assign responsibility for each action and identify proposals for funding the implementation.

6.2 Aims and Objectives of the AQAP

The overall aim of an AQAP is to provide a framework to minimise the effects of air pollution on human health.

This action plan provides the mechanism to enable a concerted approach from Preston City Council, Lancashire County Council and the Preston Strategic Partnership to address air quality issues within the City.

6.3 Existing Policies and Strategies

6.3.1 Preston City Council

The Council is already engaged in a range of policy and strategy areas relevant to the Preston AQMA's, both individually and working together with partner agencies, stakeholders and the community. These are detailed below.

6.3.1.1 Community Strategy

The Community Strategy was produced by the Preston Strategic Partnership. Membership of this includes representatives from community groups, the voluntary and business sectors and organisations in the public sector, such as the City Council, Lancashire County Council, the Police, Fire Service, Primary Care Trust and the University.

The current Community Strategy contains a number of relevant actions; however the High Level Target is as follows:

To achieve the National Air Quality Objectives for nitrogen dioxide by 2010.

6.3.1.2 Local Plan

The current adopted local plan does not contain a policy statement concerning the air quality or pollution generated by transport sources. However, the following objectives are contained within the transport section:

- To provide convenient and safe access to all facilities, for all sections of the community.
- To reduce reliance on private transport.
- To minimise growth in motor vehicle traffic.

Achieving these objectives will reduce congestion on Preston's roads and therefore help to improve the air quality within the Council's boundaries.

The Local Development Framework is currently being progressed through a partnership approach of the Central Lancashire Authorities, which includes Preston City Council, South Ribble Borough Council and Chorley Borough Council. The Core Strategy Document is still in development.

6.3.1.3 Preston Cycling Strategy

Preston's current cycling strategy was first approved in 2002, with a further revision in 2003. It states a number of aims in which the Council would be looking to achieve, with the support of the County Council, and also sets the following target (Table 4) in relation to the percentage of cycling trips :

	Baseline 2001	2006	2016
Countywide	2%	4%	8%
Preston	3%		9%

Table 4 – Percentage of cycling trips

In 2008 a study of future cycle routes was carried out by Mayer Brown in Preston recommending a development of primary and secondary cycle route network.

6.3.1.4 European Project CIVITAS

CIVITAS stands for City-VITALity-Sustainability. With the CIVITAS Initiative, the EC aims to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies that should make a real difference for the welfare of the European citizen.

The project as the following objectives:

- to promote and implement sustainable, clean and (energy) efficient urban transport measures
- to implement integrated packages of technology and policy measures in the field of energy and transport
- to build up critical mass and markets for innovation

Preston is one of the participating cities within this European project and work is currently being undertaken in Partnership with Lancashire County Council in all the following work packages.

- Freight Partnership
- Planning for alternative transport modes
- Implement new infrastructure for alternative transport modes
- Personal Travel Planning
- Business Travel Planning
- School Travel Planning
- Information Dissemination
- Traffic Control
- Data Collection
- Integrated transport ticketing - Smart Card
- Cleaner Vehicles
- Air Quality
- Clear Zones
- Parking Strategy
- Improved Parking Management
- Public Transport Information and Promotion
- Overground Branding
- Demand Responsive Transport
- Public Transport Infrastructure
- Car Share / Car Clubs

Further information on the detail of the work packages within Preston can be found on the following website:

http://www.civitas-initiative.net/city_sheet.phtml?id=5&lan=en

6.3.1.5 CIVITAS SUCCESS

Following on from the above project the Preston has also become a member of the SUCCESS project, which stands for Smaller Urban Communities in Civitas for Environmentally Sustainable Solutions.

This project is currently in its 3rd Year and its aims for the cities involved are:

- To use the latest technologies of clean vehicles allied with other measures to create places where citizens can enjoy a high quality environment and travel easily and safely
- To build local partnerships to tackle sustainable mobility issues.

- To develop efficient management systems.
- To adopt a new approach to urban transport.

Its objectives will be to:

- Demonstrate that vehicles using clean and alternative fuels can be an efficient choice for urban transport
- Demonstrate that, with an ambitious package of mobility and traffic management measures, significant results can be seen regarding sustainable transport and energy policy:
- Demonstrate that accession countries, soon to be new member states, can learn from our previous mistakes and contribute to urban collective transport issues, while implementing at the same time actions promoting alternative transport modes

Further information can be obtained from the following website:

http://www.civitas-success.org/e_about.htm

6.3.2 Lancashire County Council

Lancashire County Council has responsibility for the highways management, road and public transport policy within the Preston district. It maintains and/or supports travel advice, information, marketing and promotion of public transport. Those policies, plans and strategies that are relevant to the Preston AQMAs are detailed below.

6.3.2.1 Local Transport Plan (LTP)

In 2006 Lancashire County Council finalised and published its Local Transport Plan for 2006-2010. The plan identifies a number of possible actions for the Preston area and these have been reproduced in the following table (Table 5), highlighted to show whether there will a possible affect on the Air Quality Management Areas.

Table 5 LTP - Summary of Key Schemes in Preston and their expected Impact

Scheme	Scheme Area	Impact Area	Modes Affected	Shared Priority			
				Congestion	Accessibility	Safer Roads	Air Quality
Preston North Park And Ride schemes	Broughton and M6 Junction 31 A	City Centre, Eastway and Royal Preston Hospital	Bus	Car Journeys Transferred to P&R will reduce traffic levels and Congestion.	Improved access to City Centre Employment and services From N and E,	Car Journeys transferred to P&R will reduce traffic levels and risk of accidents	Car Journeys Transferred to P&R will reduce traffic levels And pollutants
CIVITAS Sustainable Transport Project	Preston	Preston	Bus Walking Cycling	Car Journeys Transferred to Sustainable Transport , will Reduce traffic Flows and congestion	Traffic management will improve access on foot and by cycle to the university and city centre services	Traffic management and car journeys transferred to sustainable transport will reduce the risk of accidents	Hybrid buses and car journeys transferred to sustainable transport will reduce traffic flows and pollutants
Preston Cycle Network and hub	Preston	Preston	Cycling	Cycling improvements will improve accessibility to local and city centre services	Off road cycle and footpaths will reduce risk of accidents to cyclists and pedestrians	Off road cycle and footpaths will reduce risk of accidents to cyclists and pedestrians	Car Journeys transferred to cycling will reduce traffic flows and pollutants
Preston air quality junction improvements	Selected junctions including the AQMA`s	Selected junctions on the A6,A59 and A5085	All Modes	Junction improvements will improve the flow of traffic and reduce congestion	Junction Improvements will give priority to buses and reduce journey times	Junction improvements will increase safety for pedestrians and cyclists	Junction improvements will improve the flow of traffic and reduce queuing and pollutants
Preston Bus Station	City Centre	City Centre	Bus	Car Journeys transferred to bus will reduce traffic flows and congestion	Increased access to employment and city centre services	Car Journeys transferred to bus will reduce traffic flows and road accidents	Car Journeys transferred to bus will reduce traffic flows and pollutants.
	May Affect AQMA 1 – A59 Ringway/Church St/Percey St						
	May Affect AQMA 2 – Blackpool Rd/Plungington Rd						
	May Affect Both						

6.3.2.2 Lancashire Environment Strategy 2005-2010

The Lancashire Environment Strategy has objectives relating to environmental sustainability, providing an overarching framework to protect and enhance Lancashire's environment.

This contains the following objectives and actions which may be relevant to the AQMAs within Preston.

Reducing dependence on private car use

- Provide a more integrated transport network with even provision across different locations.
- Provide accurate and up-to date travel information including real-time information at rail stations and bus stops.
- Ensure cycle and pedestrian provision is integrated into highway improvement schemes and is well monitored and maintained.
- Provide appropriate well maintained facilities for non-car users, e.g. bus shelters, cycle parking.
- Encourage the development and implementation of green travel plans, particularly school travel plans.
- Reduce the need to travel, e.g. promotion of teleworking, video conferencing, provision of council services electronically.
- Promote 'good health' via sustainable transport.
- Promote the 'Road User Hierarchy'.
- Promote local tourist destinations for local groups to reduce dependence on travel and stimulate the local tourist economy.

Reducing the levels of air pollution from transport

- Promote responsible car use and maintenance to minimise emissions from motor vehicles'.
- Develop Air Quality Management Plans where appropriate.
- Encourage uptake of alternative fuels in commercial vehicle fleets.
- Encourage rail freight and other alternative freight delivery methods.
- Reduce food miles through local food projects.

6.3.2.3 Draft Lancashire Climate Change Strategy

During 2007 Lancashire County Council established a Lancashire Climate Change Partnership with the aim of developing a Lancashire Climate Change Strategy and Preston City Council has taken an active part in this development process. At the time of writing this air quality action plan there had only been a first draft of the strategy and action plan. However it is likely that it will include measures associated with the reduction of private car use and the promotion, increased efficiency and accessibility of public transport within Lancashire.

It is hoped that once the strategy is complete all the district authorities in Lancashire will sign up to the document and produce their own delivery plans through

their own Strategic Partnerships and as Preston City Council's Community Strategy has actions relating to climate change, this will occur within Preston.

6.4 Air Quality Measures Considered

6.4.1 Sources of identified air quality measures

Guidance on preparing AQAPs does not specify which measures should be included or excluded. It only requires that they should be available and meet standard tests for inclusion. These state that options should be clear, reasonable, workable and achievable.

Suggested measures were sought through the arrangement of an Air Quality Steering Group, which met on several occasions and involved participants from all the relevant partners associated with transport sources of air pollution. It was agreed during this meeting that public consultation on the measures contained within the action plan would occur following the writing of a first working draft.

6.4.2 Consideration of suggested air quality measures

During the meetings of the steering group a number of suggested measures, which were known as the long list (appendix 1) were considered and debated to eventually produce a short list of actions detailed below.

The individual assessment of the actions in relation to their cost and benefit will be dealt with in the following section.

6.4.3 Short-listed actions for reducing air pollution within the Preston AQMAs

The Council working with partner agencies has decided to take forward the following 18 actions for improving the air quality within the Preston AQMAs.

1. To review the highway network associated with AQMA 1 as part of the Tithebarn Regeneration Planning Application, to reduce congestion and improve air quality.
2. To model the affect on air quality at the AQMA 2 junction, with various speeds and queue times, to help with action 3.
3. To undertake a validation exercise of the UTC SCOOT system (which controls the flow of traffic via the signals) of the junction associated and those nearby AQMA 2.
4. To review the possibility of displaying real time congestion and air quality levels on the existing signage network and LCC website.
5. To provide high quality, secure cycle parking in appropriate locations within the Tithebarn Regeneration Area to incentivise journeys into Preston by bicycle.

6. The Review of Preston City Council's corporate travel plan to minimise the number of avoidable private car journeys contributing to traffic flows and congestion in Preston.
7. To implement the main cycle route network recommended in Mayer Brown's study. (which detailed additional cycle routes within Preston, commissioned by Lancashire County Council)
8. To improve the cycle access to the city centre from all directions by the date of the Tithebarn development.
9. To Increase the length of road cycle path network in the City by 2 km a year.
10. To improve the cycle access to the Docks area.
11. To complete the Preston Guild Wheel cycle route.
12. To sign the route from the end of the old railway cycle path at West View Leisure Centre to the City centre.
13. To complete the cycle path from the Hills to Grimsargh.
14. To extend the cycle path on the old railway to St Pauls Road.
15. To implement at least one safe cycle route to school scheme a year in the city.
16. To implement all the actions detailed within Preston City Council's, Climate Change Action Plan – Mitigation.
17. Local Transport Plan Measure – Park and Ride scheme for North Preston (Broughton).
18. Local Transport Plan Measure – Park and Ride scheme for East Preston, Junction 31a M6.

6.5 Assessment of air quality measures

6.5.1 Assessment of actions 1 to 18

As part of the action planning process, the Council with its partner agencies was required to assess the impacts and costs of the proposed actions for reducing air pollution in working towards meeting the air quality objectives. This process was conducted as detailed below and summarised in the action checklist contained in Appendix 2

6.5.2 Anticipated air quality improvements

At the time of completing this document and due to the fact that a number of actions look at reviewing certain proposed measures, it was not practicable to provide an

accurate assessment of the nitrogen dioxide reductions achievable by each action. Instead an approach was taken where improvements are rated according to how favorable they are towards facilitating future air quality improvements.

The potential air quality positive impact of each action, both within and outside the Preston AQMA's, were rated using the following key:

✓✓✓✓	Large
✓✓✓	Moderate
✓✓	Small
✓	Very small
-	None/negligible

6.5.3 Cost of each action

Costs have been estimated for each action using the following key:

> £10 million	££££££££
£1-10 million	££££££
£100k -1 Million	££££
£10-100k	£££
£1-10k	££
< £1k	£
None/negligible	-

6.5.4 Cost effectiveness of actions

The general cost effectiveness of each of the 18 actions was assessed considering the positive impact within the Preston AQMAs, using the matrix described earlier. The results of this cost effectiveness assessment can be seen in figure 6, where each numbered measure is identified in the appropriate scoring box.

Figure 6 – Cost effectiveness of implementing the identified air quality actions, in the context of securing the reductions in Nitrogen Dioxide levels within the Preston AQMAs (Rank is in brackets)

Effectiveness	None/neg.	Very small	Small	Moderate	Large
Cost					
None/Neg		6(7)	5(4)	1 (1)	
< £1k					
£1-10k		4(8)		2 (2)	
£10-100k		15(9)	12(5)	3 (3)	
£100k – 1 million		10(12),13(11),14(13)	8(6)		
£1-10 million		11(14)	7(10)		
> £10 million					

NB. A number of actions were not assessed and therefore cannot be seen in the table above, the reasons for this are detailed in the Action Plan Checklist in Appendix 2

6.5.5 Wider impacts

The wider, negative impacts of each of the actions were assessed and noted. These impacts have been summarized in words on the table in Appendix 2 and rated using the following key:

Large	x x x x
Moderate	x x x
Small	x x
Very small	x
None/negligible	-

6.5.6 Ranking of actions

Following the air quality impact assessment, cost rating and wider impact identification, the proposed actions 1-18 were ranked as follows

- The order of cost effectiveness, according to the colour shading of the box in figure 6 in which it was placed:

Green – Higher
Yellow – Medium
Red – Lower
- For actions of equal colour shading, ones with the higher rated effectiveness in reducing the air pollution within the AQMAs scored highest.
- For actions that continued to score equally, ones with the higher rated effectiveness outside the AQMAs scored highest.
- For actions that could still not be differentiated in ranking, an inspection of the negative impact was used.
- If this still would not separate the actions, then rankings were assigned according to any policies or strategies that would support the implementation of the action.

6.5.7 Air quality actions to be taken forward in this action plan

The Council and the partner agencies within the Steering Group were satisfied that none of the proposed actions had a disproportionately negative wider impact so as to rule it out. Similarly, no action had been ruled out due to disproportionately high cost compared to benefit. The ranking of the options serves for information only in this AQAP because the Council and its partners have assigned responsibility for their implementation and have also assigned deadlines for their completion.

The lists of actions to be taken forward to the consultation process are those identified in section 6.4.3.

The responsible organisation and timescale for the action is detailed in Appendix 2

7.0 Consultation Process

Consultation at all levels and to a large enough audience as possible is essential in developing the AQAP. This ensures that all stakeholders have a degree of ownership of the document and in turn improves the likelihood of the plan succeeding in reducing pollution levels. Comments have therefore been encouraged on all aspects of the plan.

7.1 Action Plan Consultees

In order for the AQAP to become an enabling report, consultation with major and interested stakeholders is required. The list of those consulted on the draft document was as follows:

- Secretary of State
- Members of the Public
- Internal Departments within Preston City Council and its Members
- Preston Strategic Partnership
- Primary Care Trust
- Lancashire County Council
- Neighbouring District Councils

7.1.1 Responses from interested Stakeholders (Excluding Public Consultation)

There were only 4 responses received from those relevant organisations and partners consulted above. These responses have been noted and individual sections were modified as per the individuals response. These represented the following organisations:

NHS Central Lancashire (Primary Care Trust)
Lancashire County Council x 2
Lancashire Wildlife Trust

7.1.2 Public Consultation

All residents within the two Air Quality Management Areas were consulted during the month of January 2009 via a leaflet which was hand delivered to each property. A copy of this leaflet can be seen in Appendix 3.

Unfortunately at the end of the consultation period the Council received no public responses.

APPENDIX 1 - Long list (example) for transport

Road/Traffic Management

- Review existing highway network, its use and hierarchy.
- Severance of routes
- City Centre Parking Strategy;
 - Zonal
 - Interceptor car parks
- Strategic signing review (tourist/freight).
- Remove/reduce traffic to improve public realm
- Expansion of Home Zones/20mph areas.
- Development of attractive Gateways
- Parking - Clarification/reuse of land (e.g. multi-storey, removal of front car parks).
- Urban Traffic Management Control (UTMC)
- Real Time Information system (RTIS)
- Freight/servicing of the retail centre;
- Better freight signage
- Potential for park and ride schemes or alternatively a formalised car sharing/car club scheme for commuters
- Tackle collision hot spots
- Reduce congestion
- Link/Junction improvements

Bus

- Park & Ride (Bus based);
- Bus Priority
 - Review of existing routes.
 - Suggestions for new Priority Routes.
- 'Metro Shuttle' (linking Rail & Bus stations).
- Demand Responsive Transport (DRT) Expansion.
- Workplace PT Provision Review (Evenings, shift patterns etc).
- Utilise other corridors such as historic railway routes for shared PT/cycle use.
- Consolidation and simplification of routes based upon a hierarchy including core routes, feeder services, rural scheduled routes, and DRT.
- Reprioritise sections of the network in favour of buses to provide a clear, two-way, core bus route (shared surface route with bus gates etc)

Rail

- Park & Ride;

Sustainable Travel Modes

- Further improvements to the network for cycling and walking, city centre, development zones, schools etc (as the amount of traffic/ congestion around the town centres may put people off cycling/ walking)
- Encourage rural routes as potential leisure/ tourism destinations (harder to get people to use sustainable modes in rural areas.)
- Provide infrastructure and routes where its currently lacking
 - Enhance Pedestrian/ Cycle facilities in and around Expand pedestrianised zones.
 - Improve links to the university (from all directions)
 - Introduce high quality cycle parking
- District cycle hire scheme
- Promote the development of travel plans and personalised travel planning. Make people aware of existing infrastructure
- Cycling and Walking programme within Economic Development Zones (EDZ) Regional investment Sites (RIS) etc.

Cycling

- 20mph zone in city centre.
- Park and Cycle?
- Cycle Hire schemes, pick up drop off points through the district.
- High quality, highly visible parking facilities at strategic locations including showers changing rooms etc.
- Use of planning obligations to lever funds for infrastructure.
- District Signing Strategy.
- Cycle rickshaws.

Pedestrian Schemes

- Pedestrian Signage Review.
- Traffic free centre.
- Further pedestrianised and Shared Surface Schemes
- Additional Home Zone schemes (or similar infrastructure) especially in regeneration areas.
- Target schools for increasing walking and cycling.

Travel Planning

- Personalised Travel Planning;
- Travel Plan Review/Monitoring for both existing and new developments/employers etc
- Car club/sharing scheme;
- School Travel Planning Review/Monitoring.

APPENDIX 2 - Checklist for Proposed Air Quality Actions

No	Description	Cost of measure	Person/Org. Responsible	Benefit on declared pollutant within AQMA	Wider benefit outside AQMA	Target Transport Modes	Completion Dates	Non-air quality negative impacts identified	Other issues / problems / comments	Community Strategy objectives	Realistic to implement measure	Rank
1	To review the highway network associated with AQMA 1 as part of the Titebarn Regeneration Planning Application, to reduce congestion and improve air quality	Planning application, Part of EIA.	LCC/PCC and Developers Grosvenor and Lend Lease	✓✓✓	-	Road Transport	Ongoing	-	No, review process at this stage, localised to AQMA 1	Yes, covered by General AQ Community Star. Obj.	Y	1
2	To model the affect on air quality at the AQMA 2 Junction, with various speeds and queue times, to help with action 3	££	PCC	✓✓✓	-	Road Transport	November 2009	-	No, only modelling at this stage	Yes, covered by General AQ Community Star. Obj.	Y	2
3	To undertake a validation exercise of the UTC SCOOT system of the junction associated and those nearby AQMA 2	£££	LCC	✓✓✓	-	Road Transport	July 2010	-	No, Validation only at this stage.	Yes, covered by General AQ Community Star. Obj.	Y	3

4	To review the possibility of displaying real time congestion and air quality levels on the existing signage network and LCC website.	££	LCC/PCC	✓	✓	Road Transport (info to public)	March 2010	*	Maybe a very small negative impact with the display of info on VMS.	Yes, covered by General AQ Community Star. Obj.	Y	8
5	To provide high quality, secure cycle parking in appropriate locations within the Tithebarn Regeneration Area to incentivise journeys into Preston by bicycle	Planning application	LCC/PCC and Developers Grosvenor and Lend Lease	✓✓	✓	Road Transport (cyclist)	2014	-	No	Yes, covered by General AQ Community Star. Obj.	Y	4
6	The Review of Preston City Council's corporate travel plan to minimise the number of avoidable private car journeys contributing to traffic flows and congestion in Preston	-	PCC	✓	✓	Road Transport (PCC Staff)	January 2010	-	Part of ongoing work by PCC, implementation may have cost implications	Yes, covered by General AQ Community Star. Obj.	Y	7
7	To implement the main cycle route network recommended in Mayer Brown's study	£££ ££	LCC/PCC	✓✓	✓✓ ✓	Road Transport (cyclist)	2018	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	10

8	To improve the cycle access to the city centre from all directions by the date of the Tithebarn development	£££ £	LCC/PCC	✓✓	✓✓	Road Transport (cyclist)	2014	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	6
9	To increase the length of road cycle path network in the city by 2 km a year	Assessment included within other actions in the list.					Ongoing			Yes, covered by General AQ Community Star. Obj.	Y	Not ranked
10	To improve the cycle access to the Docks area	£££ £	LCC/PCC	✓	✓✓	Road Transport (cyclist)	2013	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	12
11	To complete the Preston Guild Wheel cycle route	£££ ££	LCC/PCC	✓	✓✓ ✓	Road Transport (cyclist)	2012	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	14
12	To sign the route from the end of the old railway cycle path at West View Leisure Centre to the city centre	£££	LCC/PCC	✓✓	✓	Road Transport (cyclist)	2009	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	5

13	To complete the cycle path from the Hills to Grimsargh	£££ £	LCC/PCC	✓	✓✓	Road Transport (cyclist)	2010	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	11
14	To extend the cycle path on the old railway to St Pauls Road	£££ £	LCC/PCC	✓	✓✓	Road Transport (cyclist)	2013	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	12
15	To implement at least one safe cycle route to school scheme a year in the city	£££	LCC/PCC	✓	✓✓	Road Transport (cyclist)	ongoing	-	Yes, external funding required	Yes, covered by General AQ Community Star. Obj.	Y	9
16	To implement all the actions detailed within Preston City Council's, Climate Change Action Plan – Mitigation	Commitment made via approval of the Action Plan by Council, therefore no need to assess.					2012			Yes, covered by General AQ Community Star. Obj.	Y	Not ranked
17	Local Transport Plan Measure – Park and Ride scheme for North Preston (Broughton)	Commitment made in LTP2, no need for any further assessment.					2012			Yes, covered by General AQ Community Star. Obj.	Y	Not ranked

18	Local Transport Plan Measure – Park and Ride scheme for East Preston, Junction 31a M6.						Spring 2009			Yes, covered by General AQ Community Star. Obj.	Y	Not ranked

Note: PCC – Preston City Council LCC - Lancashire County Council

Anticipated Air quality Improvements inside and outside AQMA (potential impact of the resulting actions)

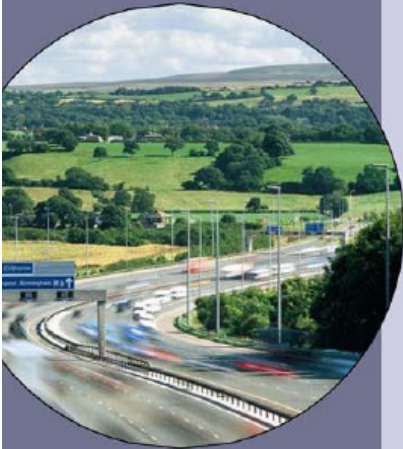
- ✓✓✓✓ Large
- ✓✓✓ Moderate
- ✓✓ Small
- ✓ Very Small
- Non/negligible

Cost of each actions

- > £10 Million ££££££
- £1-10 Million £££££
- £100 k – 1 Million ££££
- £1-10k £££
- > £1k ££
- None / Negl -

Wider Impacts - Negative

- xxxx Large
- xxx Moderate
- xx Small
- x Very Small
- Non/negligible



Air Quality - Have Your Say

During September 2005, following an assessment of the air quality within Preston. Your area was designated an Air Quality Management Area, for the pollutant Nitrogen Dioxide.

Nitrogen Dioxide is produced from the combustion of fossil fuels used in cars, buses, lorries etc.

Following this declaration, the Council has to complete and implement an Air Quality Action Plan to reduce the levels of this pollutant to meet the targets set by Central Government and Europe.

During the last few months a number of meetings have been held with Lancashire County Council and others, to identify a number of actions that could help improve the air quality. A Summary of these actions can be seen to the left.

We would like to hear your comments.

The full Air Quality Action Plan can be seen on the Councils Website at the following address:

[www.preston.gov.uk /environment-and-planning/ environmental-health/pollution--noise-and-other-nuisances/ air-quality-consultation/](http://www.preston.gov.uk/environment-and-planning/environmental-health/pollution--noise-and-other-nuisances/air-quality-consultation/)

If you would like to make any comments regarding the actions identified, please use the comments box online, email or write to the Environmental Health Department at :

info@preston.gov.uk

Environmental Health Department, Lancastria House
77/79 Lancaster Road, Preston, PR1 2RH.



Actions

There are 18 actions included in the full action plan, a summary of these actions can be seen below:

- 1. To Review the highway network at AQMA 1.
 - 2. To further model the air quality at AQMA 2.
 - 3. To validate the software controlling the junctions at and around AQMA 2.
 - 4. To provide high quality cycle parking in the Tithebarn Development.
 - 5. To provide a number of new cycle routes.
 - 6. To review the Councils own transport plan, to set an example.
 - 7. To review the displaying of real time air quality information to the public of Preston.
 - 8. To provide additional park and rides.
- Closing date for comments is the 31st Jan 2009