Approved by PCC Cabinet 5th Nov 2014

PRESTON CITY COUNCIL

AIR QUALITY ACTION PLAN 2014

Contents

Executive Summary

Currently the air quality objectives are being breached within Air Quality Management Area 3 declared in May 2012, 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. These consider transport planning, parking, cycling, public transport and land use planning. With those detailed in the Central Lancashire Highways and Transport Master Plan likely to have the greatest affect on improving the air quality in this area.

This air quality action plan will aim to:

Provide the mechanism for a joint approach between Preston City Council, Lancashire County Council and any interested parties to address the air quality issues affecting Broughton.

Following discussions with the Steering Group Members 6 actions were produced and all partners agreed to their implementation and timescales were proposed. One action in particular, the construction of the Broughton Bypass, was modelled and if implemented would reduce the Nitrogen Dioxide levels below the annual and hourly national air quality objectives

These actions will be monitored over the time period of the plan, with progress reported to Central Government.

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 Air Quality Management Area (AQMA) 3 (Broughton), which was declared in May 2012.

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 eight key pollutants. These are detailed in the Air Quality (England) Regulations 2000 as amended and can be seen below.

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 provides a framework for reducing air pollution at national and local level from a wide range of emission sources.

Central to the strategy are the health-based standards for the eight local air pollutants. These are based on recommendations made by the Government's Expert Panel on Air Quality Standards (EPAQS) and have been used to derive the air quality objectives, which take account of the costs and benefits, as well as the practicality of moving towards cleaner air for all. 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 (NO_2)

Particulates (PM_{10})
Sulphur Dioxide (SO_2)
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, therefore local measures will not directly have any effect.)

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 stages with each subsequent phase being increasingly focused and detailed in order to more accurately assess the local air quality.

Each part of the process 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 or more. The two stages are known as the Updating and Screening Assessment and the Detailed Assessment.

The Updating and Screening Assessment (USA) reviews the changes in air quality that have occurred within each local authority since the previous round of reviews and it re-examines any 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.

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

The updating Screening Assessment carried out in July 2009, found that there were 4 new areas within the city that required further investigation and monitoring. These areas were as follows:

1. An area of Garstang Road, Broughton, near to the junction of Whittingham/Woodplumpton Lane.
2. The Junction of Newhall Lane and London Road.
3. The Junction of Newhall Lane and Blackpool Road.
4. The Junction of Corporation Street and Marsh Lane.

The monitoring of these sites showed that there were two further areas that would need to be declared as AQMA's and a detailed assessment was carried out in 2011 to establish the extent of these air quality management areas. This detailed assessment also established that the Council needed to investigate and monitor the Nitrogen Dioxide levels on London Road.

In 2012, Preston City Council declared two further AQMA`s, known as :

AQMA 3 – Broughton (Figure 1)
AQMA 4 – New Hall Lane, near London Road (Figure 2)

The USA carried out in the same year, re-confirmed the need to monitor the pollution levels on London Road and no other areas outside of the AQMA`s were identified as having the potential to exceed the National Air Quality Objectives. The results of the Nitrogen Dioxide monitoring performed on London Road during 2012 were detailed in the 2013 Progress Report, with the need for a further declaration of an AQMA.

This action plan however only provides mitigation measures for AQMA 3 (Broughton).

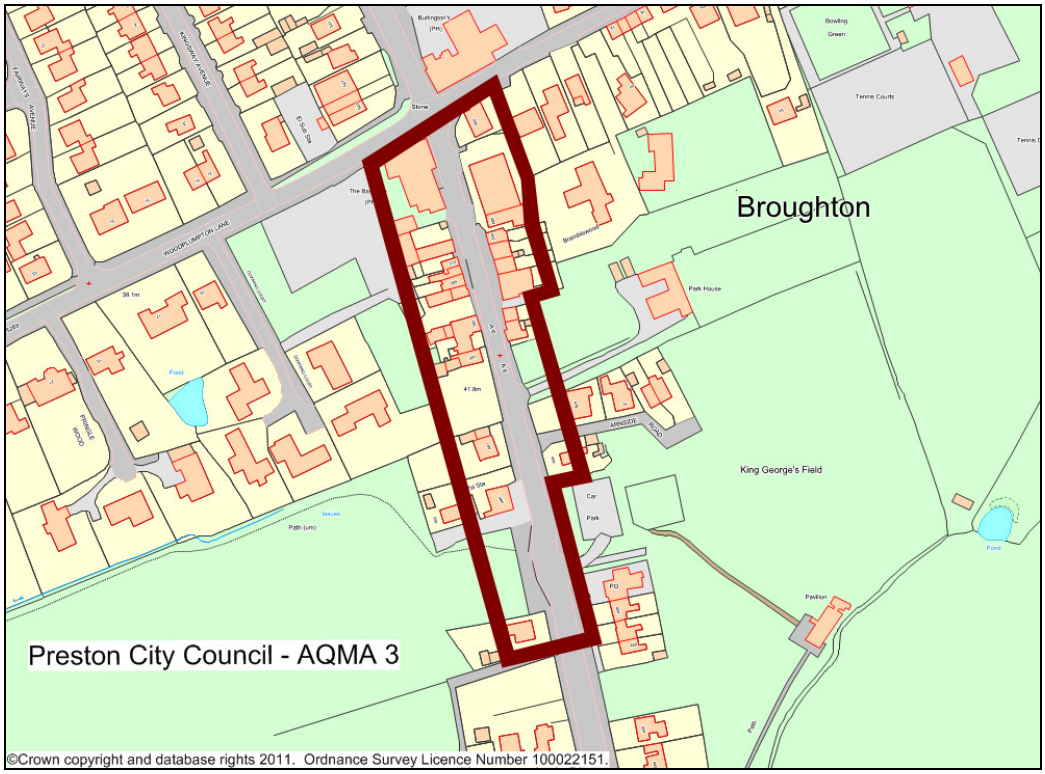


Figure 1 – **AQMA** 3, Broughton

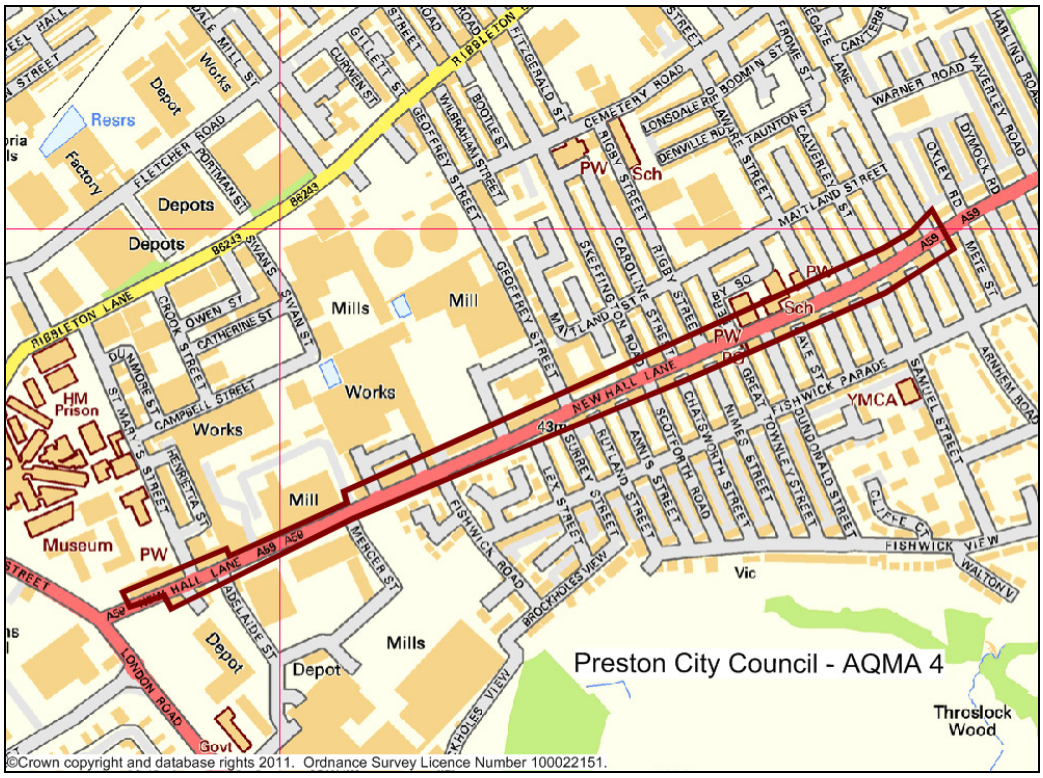


Figure 2 – **AQMA** 4, New Hall Lane

5.0 Detailed Assessment and Source Apportionment

The Detailed Assessment carried out in 2011 modelled, with the support of diffusion tube data, the area of concern within Broughton. It concluded that there were a number of sensitive locations exceeding the Air Quality Objectives, which can be seen in the figure below. This information was used to confirm the boundaries of the Air Quality Management Area.

Figure 3, receptor locations, Broughton

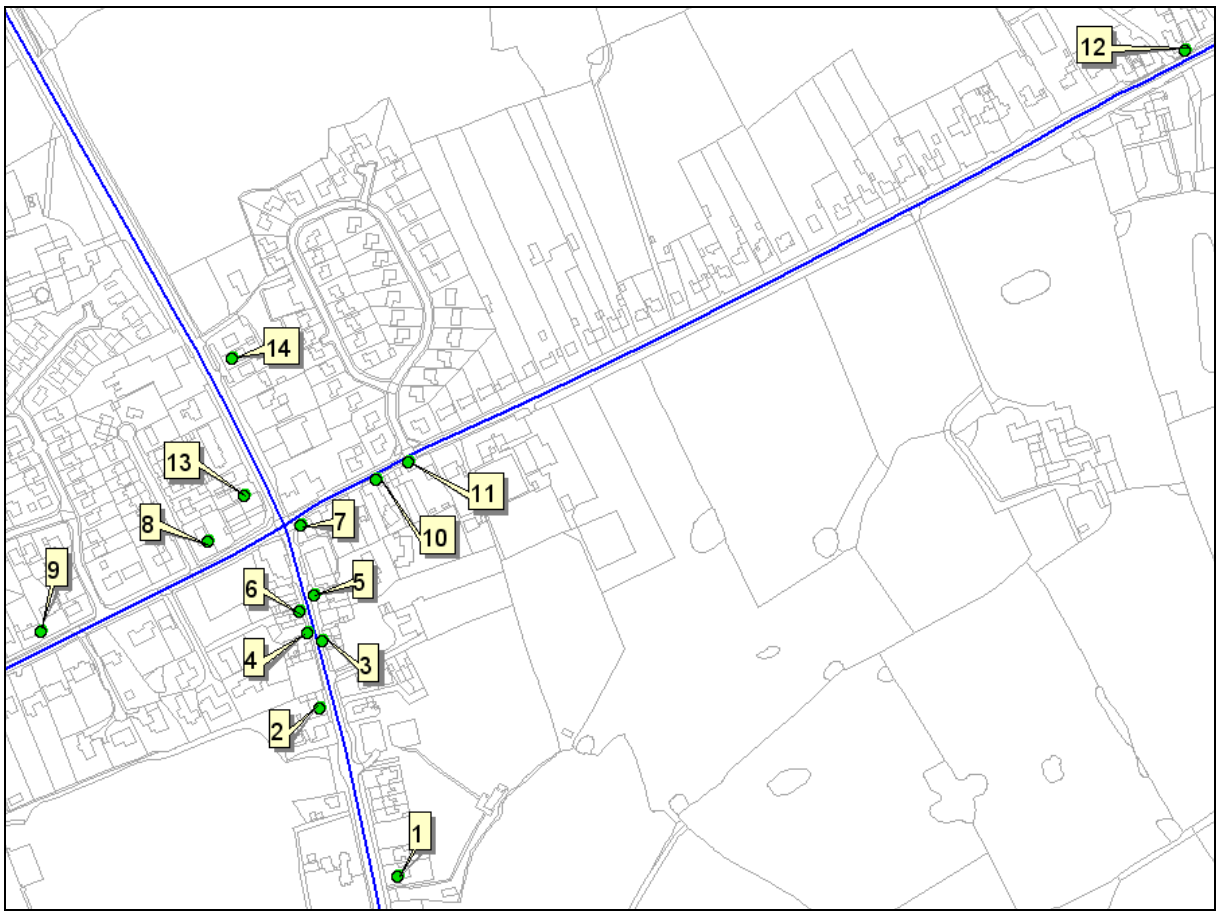
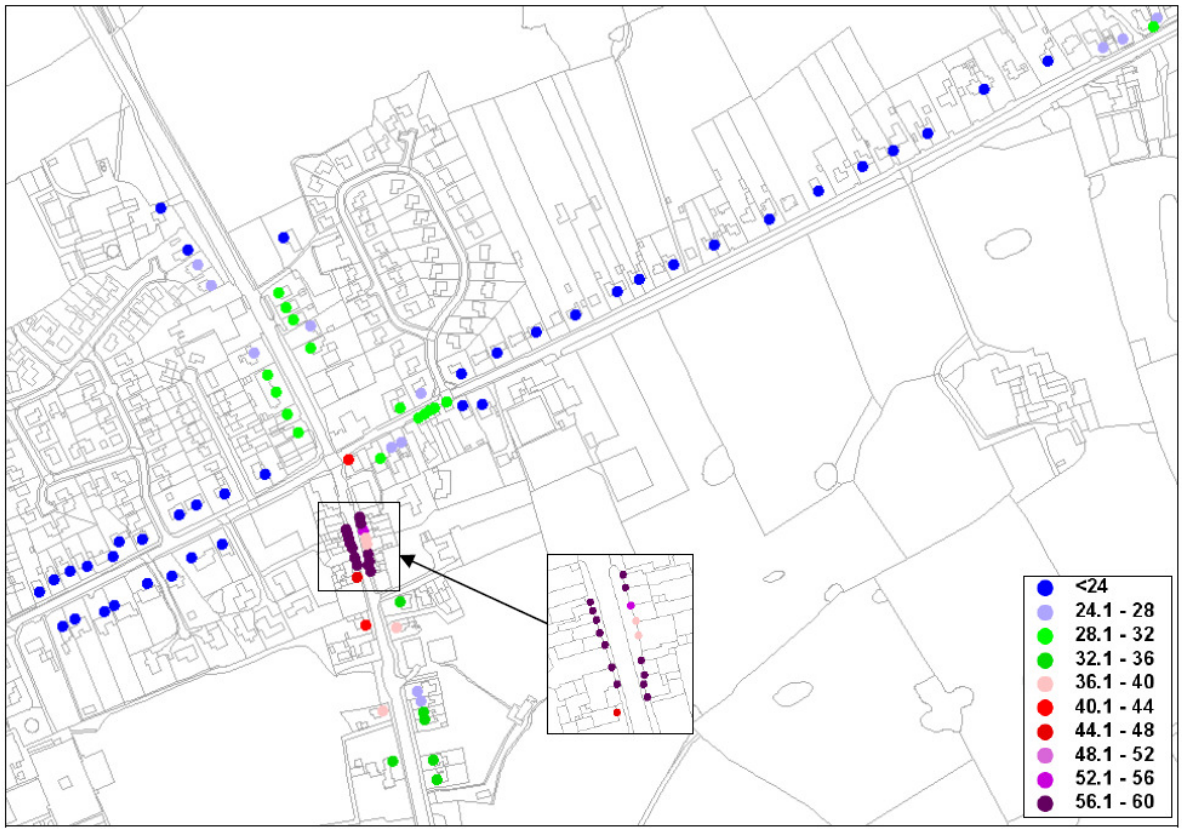


Figure 4, modelled output, Broughton



5.1 Source Apportionment

In order to develop an appropriate action plan it was necessary to identify the sources contributing to the objective exceedences within the AQMA. The data presented in table 1 and figure 5 was used in the action planning process and the data was calculated in line with guidance provided in LAQM.TG(09) (Defra, 2009).

The following categories were included in the source apportionment:

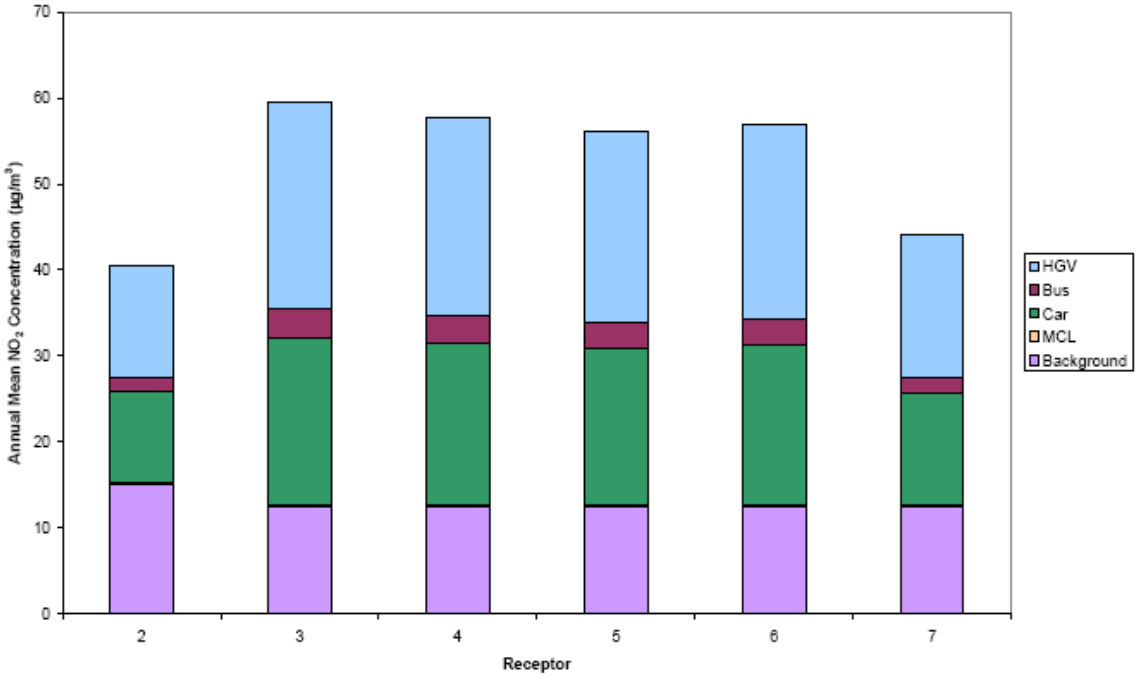
- Ambient Background (Bkgd)
- Motorcycle (MCL)
- Cars
- Light Goods Vehicles (LGV)
- Bus
- Heavy Goods Vehicles (HGV)

Six receptor locations identified as exceeding the objective in Broughton were used to provide an overview of the source contributions. It can be seen from Table 1 and Figure 5 that the most significant component at all the receptors was from the HGVs, followed by emissions from the cars. Receptor 2 was slightly different, as the significant component was from the background concentrations, followed by the HGVs and cars. This was likely due to the increased receptor distance from the A6 carriageway.

Table 1 - Predicted Annual Mean (2010) Nitrogen Dioxide Concentrations and the Contribution of Each Source Type to the Total in Broughton

No.	Annual Mean Concentration (µg/m^3)					
	Bkgd	MCL	Car	Bus	HGV	Total
2	15.1	0.1	10.7	1.7	12.9	40.4
3	12.5	0.1	19.6	3.2	24.1	59.5
4	12.5	0.1	19.0	3.1	23.2	57.8
5	12.5	0.1	18.3	2.9	22.4	56.2
6	12.5	0.1	18.7	3.0	22.7	57.0
7	12.5	0.1	13.1	1.7	16.6	44.0
	% Contribution to Total					
	Bkgd	MCL	Car	Bus	HGV	Total
2	37.4	0.1	26.5	4.1	31.9	100.0
3	21.0	0.2	32.9	5.4	40.5	100.0
4	21.6	0.2	32.8	5.3	40.1	100.0
5	22.2	0.2	32.5	5.2	39.8	100.0
6	21.9	0.2	32.8	5.2	39.9	100.0
7	28.4	0.2	29.8	4.0	37.6	100.0

Figure 5 - Relative Contribution of Each Source Type to the Total Predicted Annual Mean Nitrogen Dioxide Concentration (µg/m3) at Receptor Locations within Broughton



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, which should also include a timetable for implementing the plan. The AQAP should contain a list of actions to improve air quality, based on the scenarios identified in any 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 joint approach between Preston City Council, Lancashire County Council and any interested parties to address the air quality issues affecting Broughton.

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 this AQMA, both individually and working together with partner agencies, stakeholders and the community. These are detailed below.

6.3.1.1 Central Lancs Core Strategy

The adopted Central Lancashire Core Strategy has a specific air quality chapter, as well as other relevant chapters such as sustainable transport and health. Most of the policies within this document are general statements, however its does detail the need for a Broughton Bypass to enable to the development of North West Preston.

The Central Lancashire Core Strategy is available on the following link

http://www.centrallancashire.com/new/content/adopted_core_strategy.asp

6.3.1.2 Local Plan

The local plan is currently at the publication stage and mirrors the policies contained within the Core Strategy above. This publication version is available via the following link.

http://www.preston.gov.uk/yourservices/planning/planning-policies/local-development-framework/publication-local-plan/

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 2) in relation to the percentage of cycling trips :

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

Table 2 – 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.

6.3.2 Lancashire County Council

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

6.3.2.1 Central Lancashire Highways and Transport Master plan

This Highways and Transport Master plan sets out the County Council's ideas for the future of the highways and transport strategy for Central Lancashire up to 2026 and beyond.

The master plan:

- Outlines both current land and transport use in Central Lancashire.
- Considers the impact of adopted development plans on the area in the future.
- Suggests the strategic highway and transport measures that are needed to support plans for future growth and development.

- Outlines funding mechanisms, delivery programmes and associated risks.

Table 3 details the relevant actions contained within this master plan that relate to Broughton.

Table 3 – Central Lancashire Highways and Transport Master Plan (summary of key schemes in Preston and their expected impact)

Scheme	Benefiting Area	Proposed Implementation Date	Modes Affected	Impacts	
				Congestion	Air Quality
M55 Junction 1, Roundabout improvements	Broughton	2013/14	All vehicles	Improved vehicle flows through the roundabout, potential to reduce congestion at the AQMA	Slight improvements to the air quality due to improved vehicle flows
Broughton Bypass (Northern Link)	Broughton	2015/16	All vehicles	Improve vehicle flows through the AQMA	Improvements to air quality due to reduced congestion
Broughton Bypass (Southern Link)	Broughton	No date set Possibly 2017	All vehicles	Remove through traffic from the AQMA	Improvement in air quality due to the reduction of vehicle. Air Quality Objectives would be met.
M6 Junction 32 Improvements	Wider Preston, with some affect Broughton	2014/15	All vehicles	Improved vehicle flows on the M6, which may improve the flows at the M55 Junction 1	Maybe some improvements to the air quality due to increased vehicles flow
Preston Western Distributor Road	Wider Preston and Broughton	2021/22	All vehicles	New junction on the M55, therefore improved flows at the M55 Junction 1	Reduction in vehicles using junction 1 will improve the air quality at Broughton
Cottam Parkway Railway Station	Wider Preston	2022/23	Rail	Park and Rail, modal shift on to public transport	Modal shift to rail may have benefits to the whole of North Preston
Public Transport Priority Corridor	Broughton	2016/17	Buses	Improved bus routes, modal shift on to public transport	Modal shift to buses may reduce vehicle use and improve air quality

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 involved all the relevant officers from Lancashire County Council, Preston City Council, local councillors and a representative from the Broughton Parish Council. 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 Short-listed actions for reducing air pollution within the Preston AQMAs

It was agreed during the steering group meeting that the relevant actions contained within the Central Lancashire Highways and Transport Master Plan would form the basis of this air quality action plan. These actions can be seen in Table 3 above, with the most relevant being the construction of the Broughton Bypass.

6.5 Assessment of air quality measures

6.5.1 Assessment of the actions in Table 3

As part of the action planning process, the Council, with assistance from the Steering Group was required to assess the impacts and costs of the proposed actions for improving the air quality affecting Broughton. This process was conducted as detailed below and summarised in the action checklist contained in Appendix 1

6.5.2 Anticipated air quality improvements

At the time of completing this document, it was not practicable to provide an accurate assessment of the nitrogen dioxide reductions achievable for all the actions. Instead an approach was taken where improvements are rated according to how favourable 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 Wider impacts

The wider, negative impacts of each of the actions were assessed and noted. These impacts (if known) have been summarized in words on the table in Appendix 1 and rated using the following key:

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

6.5.4 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	-

6.5.5 Cost effectiveness and ranking of actions

The cost effectiveness of each action was assessed by the using the matrix below. The two criteria used were the positive impact on the Broughton AQMA and the total estimated cost of implementing the action. Figure 6 shows the outcome of the exercise using a traffic light system, with green being more cost effective than the red

Following this exercise, the proposed actions 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.

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 / Cost	None/neg.	Very small	Small	Moderate	Large
None/Neg					
< £1k					
£1-10k		7(4)			
£10-100k					
£100k – 1 million					
£1-10 million			6 (6)	1(3),2(1)	
> £10 million	5 (7)			4(5)	3(1)

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

The Air Quality Steering Group was satisfied that none of the proposed actions had a disproportionately negative wider impact so as to rule them out. Similarly, no action has been ruled out due to the disproportionately high cost compared to benefit.

The list of actions to be taken forward to the consultation process are those identified in appendix 1. All have an organisation responsible for the implementation of the action and suggested dates for completion.

7.0 Consultation Process

7.1 Reponses from partner organisations, councillors and interested parties

All the organisations involved in the Steering Group were consulted on the draft action plan and comments were received from all involved. The action plan was amended to reflect the comments that were received.

7.2 Reponses from the Public Consultation

All residents within the Air Quality Management Areas where consulted during the month of June 2014 via a leaflet which was posted 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 - 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	Realistic to implement measure	Rank
1.	M55 Junction 1, Capacity improvements to the roundabout.	£££ ££	Highways Agency (funding committed)			Road Transport	2013/14	-	Affect on AQMA has not been modelled, but will improve congestion S. Bound	Y	3
2.	Construction of the Broughton Bypass (Northern Link)	£££ ££	Lancashire County Council (funding committed)			Road Transport	2015/16	×	Northern section has not been modelled, congestion will be reduced, improving AQ.	Y	1
3.	Construction of the Broughton Bypass (Southern Link)	£££ £££	Lancashire County Council (funding committed)			Road Transport	2016/17	×	Full bypass has been modelled, improvements will remove the AQMA. (See Appendix 2)	Y	1

4.	The Construction of the Preston Western Distributor Road	£££ £££	Lancashire County Council, (linked to City Deal funding and development of NW Preston)			Road Transport	2021/22	×	Not Modelled, however without it the North West Preston development will affect the current AQMA and reduce the benefit of any Bypass.	Y	5
5.	The construction of Cottam Parkway Railway Station	£££ £££	Network Rail	-		Rail Network	2022/23	×	Not modelled, similar to above action, improves commuting infrastructure	Y	7
6	New Public Transport Priority Corridor	£££ ££	Lancashire County Council			Bus Network	2016/17	-	Affect not modelled, improvements to infrastructure, may increase passenger numbers, reduce vehicle use	Y	6

7	To explore ways of involving the community in understanding the consequences of air pollution in their neighbourhood and supporting them to avoid walking/cycling in the area particularly at peak times.	£££	Lancashire County Council			-	Ongoing	-	Awareness raising exercise for those residents living in close proximity to the AQMA.	Y	4

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 / Negligible	-

Wider Impacts - Negative

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

Appendix 2 - Actions 2 and 3, completion of the North and South sections of the Broughton Bypass (affect of the AQMA)

Projected reductions using 2012 monitoring data (annual limit 40ug/m3)

PR44 – 507 Garstang Road – 52.6ug/m3 to 34.2ug/m3

PR45 – 503 Garstang Road - 37.7ug/m3 to 24.5ug/m3

PR46 – 482 Garstang Road - 77.3ug/m3 to 38.7ug/m3

Projected reductions using 2017 forecasted data (annual limit 40ug/m3)

PR44 – 507 Garstang Road 40.4ug/m3 to 34.2ug/m3

PR45 – 503 Garstang Road 28.9ug/m3 to 18.8ug/m3

PR46 – 482 Garstang Road 59.3ug/m3 to 29.7ug/m3

Appendix 3 – Public Consultation leaflet

Preston City Council

Air Quality—Have Your Say

Following the declaration of the Air Quality Management Area in Broughton, the Council is required to complete and implement an Air Quality Action Plan to reduce the levels of pollution.

During the last few months the Councils Air Quality Steering Group has identify a number of actions that could improve the air quality. These can be seen below

Actions

The M55 Junction 1, Capacity improvements to the roundabout.

The construction of the Broughton Bypass (Northern Link).

The construction of the Broughton Bypass (Southern Link).

The construction of the Preston Western Distributor Road.

The construction of the Cottam Parkway Railway Station

A new Public Transport Priority Corridor (Broughton to the City Centre)

To explore ways of involving the community in understanding the consequences of air pollution in their neighbourhood and supporting them to avoid walking/ cycling in the area particularly at peak times.

We would like to hear your comments

A copy of the Draft Air Quality Action Plan can be downloaded from the Council website at the following web address.

http://www.preston.gov.uk/yourservices/environmental-health/pollution--noise-and-other-nuisances/air-quality-consultation/

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

info@preston.gov.uk

or

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

This consultation will be open until the 30th June 2014