Colne AQMA
Air Quality Action Plan

Pendle Borough Council

August 2015

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Air Quality Action Plan for the Colne AQMA

In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

Prepared by Bureau Veritas on behalf of Pendle Borough Council

August 2015

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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government guidance when undertaking such work.

Bureau Veritas has been commissioned by Pendle Borough Council to develop an Air Quality Action Plan (AQAP) following the declaration of an Air Quality Management Area (AQMA) for nitrogen dioxide (NO_2) for an area in the centre of Colne along the A6068 and A56.

This AQAP has been prepared in accordance with current Department for Environment, Food and Rural Affairs (Defra) guidance and tools available from the LAQM Support Website[1], which have been developed to assist in the preparation of robust and realistic action plans, taking local conditions and needs into account.

The aims of this AQAP are therefore to provide:

- Quantification of the source contributions to the predicted exceedences of the relevant objectives;
- Evidence that all available options have been considered;
- Details of how the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
- Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;
- Where possible, quantification of the expected impacts of the proposed measures and an indication as to whether the measures will be sufficient to meet the air quality objectives; and
- Details of how the local authority intends to monitor and evaluate the effectiveness of the plan.

[1] http://laqm.defra.gov.uk

This will allow the AQAP measures to be effectively targeted, thereby improving local and regional air quality with the overall objective of ensuring future air quality within the Colne AQMA is brought in line to comply with the NO_2 air quality objectives.

Multiple potential measures have been identified within this AQAP, which can be broadly categorised within the following groups:

- Transport measures – provision of additional transport infrastructure, changes to road layout or operation, formulation of , with the aim being to encourage the use of greener modes of transport and/or reduce congestion and associated vehicle emissions;
- Leading by example measures – measures that Pendle Borough Council will implement to encourage wider behavioural changes;
- Education, community and partnership measures – provision of information to increase community awareness to facilitate behavioural change;
- Statutory measures – use of legislation and targeted enforcement to control air pollution; and
- Air quality monitoring measures – ensure satisfactory air quality monitoring data and evidence base is available to allow effective management of air quality.

A simple assessment of the cost and air quality benefit of each proposal has then been undertaken, with measures also rated based upon their feasibility and then ranked in order of suggested prioritisation.

The recommendations of this AQAP have been prepared following draft consultation with the Action Planning Steering Group and the other identified statutory and non-statutory consultees. The measures presented herein will now be taken forward following finalisation and implementation.

1 Introduction and Aims of the Action Plan

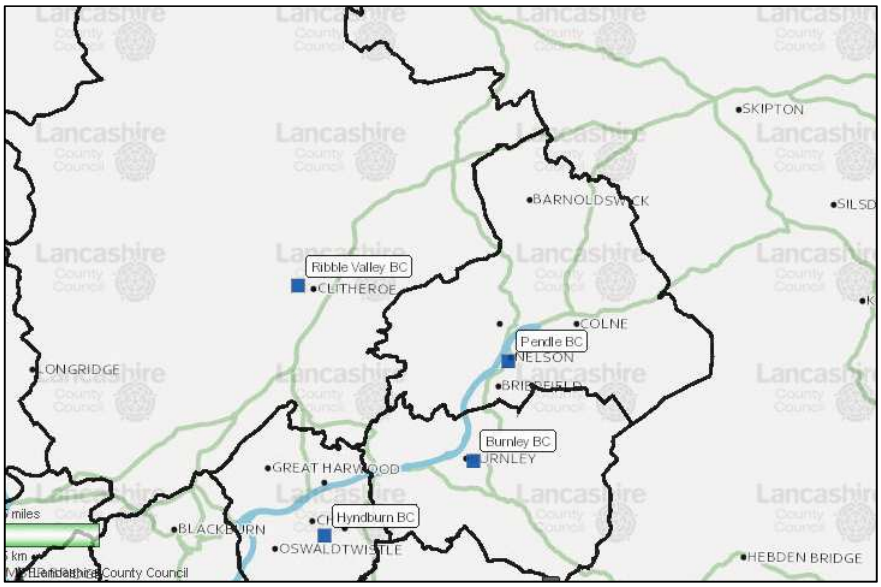
1.1 Context

Pendle Borough Council has prepared this Air Quality Action Plan (AQAP) following the declaration of an Air Quality Management Area (AQMA) for nitrogen dioxide (NO_2) for an area in the centre of Colne along the A6068 and A56.

1.2 Description of the Local Authority Area

Pendle Borough comprises the main population centres of Nelson, Colne, Brierfield, Earby and Barnoldswick, with a housing stock of 38,456[2]. Local industry in the area is varied and includes textiles, aerospace engineering, light engineering and printing. Topography is varied, including the Pennine border hills. The neighbouring authorities are Burnley, Ribble Valley, Craven, Bradford and Calderdale. The main pollution source in the Borough is from road traffic along the main routes, M65, A6068, A56, and A682.

Figure 1 - Pendle Borough Council and Surrounding Area



Source: Lancashire County Council's MARIO interactive mapping website.

[2] Pendle Profile, 2011.

1.3 Legislative Background

The Air Quality Strategy (AQS) for England, Scotland, Wales & Northern Ireland provides a framework for air quality control through air quality management and air quality standards. The review and assessment of air quality is the first step in the Local Air Quality Management (LAQM) process. Local authorities have to designate those parts of their areas where the prescribed objectives for the seven pollutants regulated as part of the LAQM regime (see Table 1) are not likely to be met by, or at, any point beyond the relevant deadline, as AQMAs. This applies only to those locations where members of the public might reasonably be exposed.

Table 1 - UK AQS Objectives Applicable in England for LAQM

Pollutant	Objective		Date to be Achieved By
	Concentration	Measured As	
Benzene (C_6H_6)	16.25 µg/m^3	Running annual mean	31/12/2003
	5 µg/m^3	Running annual mean	31/12/2010
1,3-butadiene (C_4H_6)	2.25 µg/m^3	Running annual mean	31/12/2003
Carbon monoxide (CO)	10.0 mg/m^3	Maximum daily running 8-hour mean	31/12/2003
Lead (Pb)	0.5 µg/m^3	Annual mean	31/12/2004
	0.25 µg/m^3	Annual mean	31/12/2008
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year (99.8th percentile)	1-hour mean	31/12/2005
	40 µg/m^3	Annual mean	31/12/2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year (90.4th percentile)	24-hour mean	31/12/2004
	40 µg/m^3	Annual mean	31/12/2004
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year (99.7th percentile)	1-hour mean	31/12/2004
	125 µg/m^3, not to be exceeded more than 3 times a year (99.2nd percentile)	24-hour mean	31/12/2004
	266 µg/m^3, not to be exceeded more than 35 times a year (99.9th percentile)	15-minute mean	31/12/2005

1.4 Scope of the Action Plan

Where local authorities have designated AQMAs, they have a duty to produce an AQAP. This plan must set out what measures the authority intends to introduce in pursuit of the AQS objectives. The principal aim of the AQAP is to minimise the effects of air pollution on human health within the local authority area using all reasonable measures, within reasonable timeframes and by working towards achieving the AQS objectives and standards. In order to comply with the AQS objectives it may be necessary to include measures beyond the boundaries of the AQMAs. Some of the measures may also benefit areas not included within AQMAs, thereby also improving the health of the population in those areas.

The Further Assessment, required to be completed within 12 months of designating an AQMA, provides the technical backup for the measures to be included within the AQAP. The AQAP should refer to the findings of the Further Assessment in terms of source apportionment (i.e. where emissions are coming from) so that action plan measures may be targeted appropriately.

An AQAP should include the following elements:

- Quantification of the source contributions to the predicted exceedences of the relevant objectives; this will allow the AQAP measures to be effectively targeted;
- Evidence that all available options have been considered;
- How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
- Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;
- Where possible, quantification of the expected impacts of the proposed measures and an indication as to whether the measures will be sufficient to meet the air quality objectives. Where feasible, data on emissions could be included as well as data on concentrations where possible; and

- How the local authority intends to monitor and evaluate the effectiveness of the plan.

Pendle Borough Council has responsibility under Section 84 of the Environment Act 1995 to prepare and submit an AQAP to the Department for Environment, Food and Rural Affairs (Defra). The Environment Act 1995 does not prescribe any timescale for preparing an AQAP. However, the Government expect them to be completed between 12-18 months following the designation of any AQMAs. The prime responsibility for preparing and submitting the AQAP rests with Pendle Borough Council; however, there is a requirement on other relevant authorities to identify proposals in pursuit of the AQS objectives within their respective responsibilities and functions.

This AQAP has been prepared and developed in partnership with other relevant bodies, particularly the transport department of Lancashire County Council and the transport and planning departments of Pendle Borough Council to incorporate localised engineered measures in the AQMA. The completed AQAP will be circulated by Pendle Borough Council to all relevant authorities and strategic partners and to the members of the public.

2 Overview of Air Quality in Pendle

2.1 Local Air Quality Management – Review and Assessment

Progress Reports and Updating and Screening Assessments since 2008 have found exceedences of the annual mean NO_2 objective in Colne, with traffic pollution identified to be the only source of significance with regards to compliance with the air quality objectives.

A Detailed Assessment was completed in 2010 and as a result an AQMA was declared on 1 April 2011. The Detailed Assessment also investigated exceedences at the Burnley Road/Whitewalls Drive area of Colne, but found that there were not likely to be future exceedences of the air quality objectives at this location.

NO_2 diffusion tube monitoring during 2010 indicated exceedences of the annual mean air quality objective at six sites. Three sites were within the AQMA, one was within Colne town centre, and the remaining two were in Barrowford and Brierfield. As a result extra diffusion tube monitoring sites were added. It has since been acknowledged that monitored NO_2 concentrations were generally high in urban areas during 2010.

Diffusion tube monitoring results for 2011 indicated exceedences of the annual mean air quality objective for NO_2 at three sites: one in Colne within the AQMA, one in Barrowford and one in Brierfield. The Updating and Screening Assessment (2012) indicated a fall in pollutant concentrations within the AQMA. The sites with exceedences in Barrowford and Brierfield were close to other diffusion tube monitoring sites that did not exceed the objective. Monitoring was therefore continued for a further year before deciding whether further detailed assessments were needed.

Results from 2012 indicated no exceedences outside of the AQMA. The Further Assessment completed in January 2013 recommended the AQMA be extended to the west. The Council installed additional monitoring to determine if the extension is necessary.

Results from 2013 indicated that eight sites exceeded the annual mean NO_2 AQS objective; three of these are within the AQMA and two sites were those added part way through the year to investigate whether the AQMA needed to be expanded. The other three sites are outside the AQMA; of these, only one is of concern in terms of the proximity of housing and monitoring will be further increased in this area.

2.2 Colne Air Quality Management Area

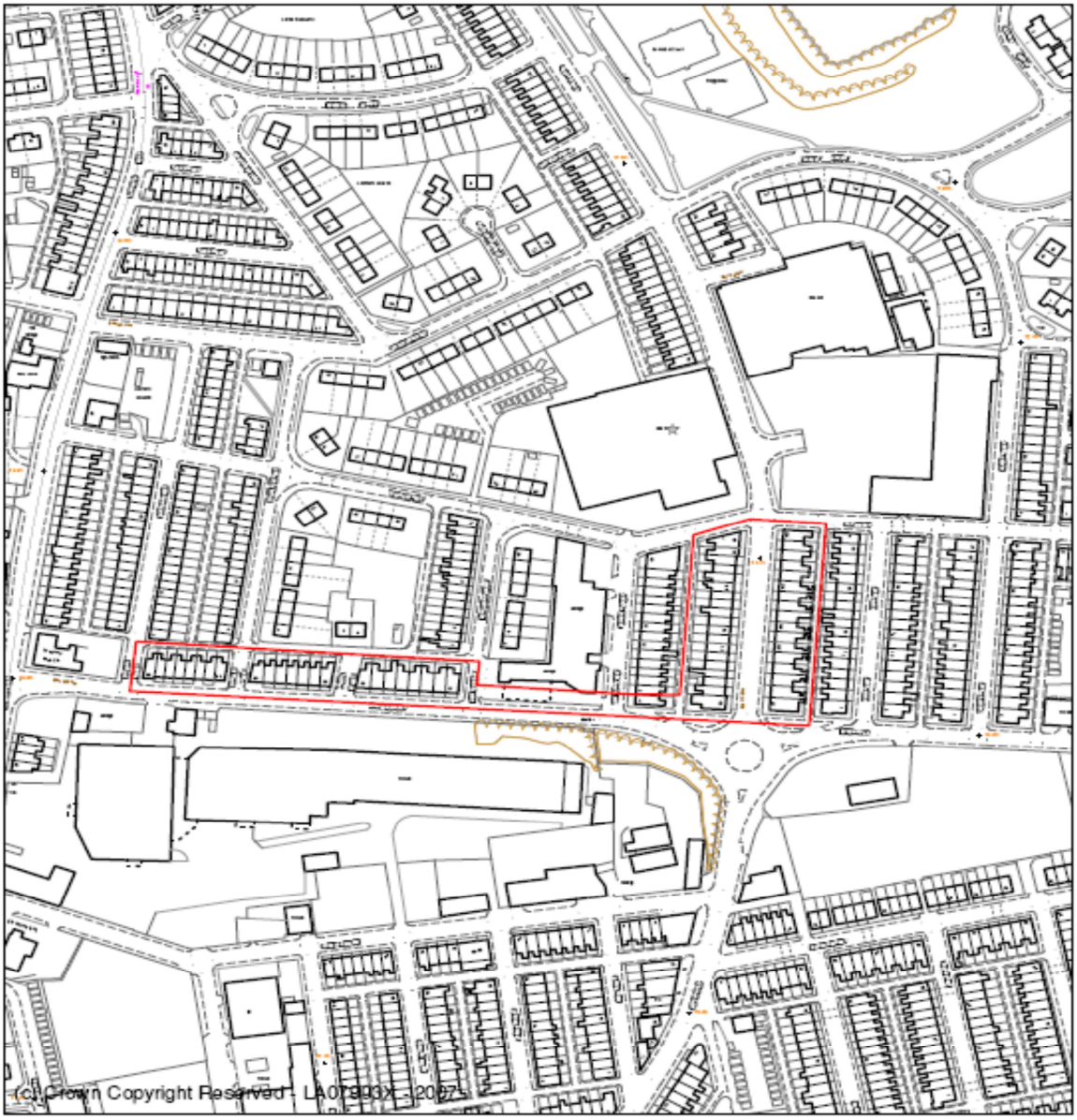
In 2011, Pendle Borough Council declared an AQMA for the area encompassing the houses to the north side of the A6068 between Langroyd Road and Skipton Road and properties along the A56 (Skipton Road) from the roundabout to Oak Street.

The A6068 and A56 are the main access roads through the centre of town; as such they experience high volumes of commuter and goods traffic. This causes congestion during peak hours.

The Further Assessment completed in January 2013 concluded that within the Colne AQMA study area, 66 homes lie within the exceedence area, equating to an exposed population of around 132. The necessary ambient reductions required in order to achieve compliance with the annual mean NO_2 objective at the worst-case location is approximately 8%.

Source apportionment indicated that emissions from local moving traffic are the main contributor to overall NO_2 concentrations. Heavy-duty vehicles (HDVs) were shown to be the main source type although important contributions are also noted from other vehicles (cars and Light Duty Vehicles (LDVs)).

Figure 2 - Pendle Air Quality Management Area



Source: Defra website (http://aqma.defra.gov.uk/1aqma/aqma_detail.php?aqma_id=3).

Notes: In red, AQMA boundary.

2.3 Monitoring Data

Pendle Borough Council operates one continuous air quality monitoring site within their Borough in the Colne AQMA, located at the Skipton Road roundabout. This

monitors real-time NO_2 concentrations and was installed in 2010. The details of the monitoring site are given in Table 2.

Table 2 - Annual Mean Monitoring Data at Automatic Monitoring Site (2010 to 2013)

Site Name	Site Type	OS Grid Reference (X, Y)		Within AQMA?	Annual Mean Concentrations (µg/m^3)			
					2010	2011	2012	2013
Colne AQMA, Skipton Rd	Roadside	389410	440463	Y	**41.1**	36	31	38

Notes: Bold values denote exceedence of the AQS objective.

The continuous monitoring results do not show exceedences of the annual mean objective for NO_2 in the past three years. Similarly, no exceedences of the short-term hourly mean objective for NO_2 were recorded during 2011 to 2013. However, whilst the monitor is located within the AQMA, it is not considered to be in the worst-case location for traffic build up and therefore may not be representative of the poorest air quality within the AQMA.

In addition to continuous monitoring for NO_2, the Council deployed diffusion tubes at 33 sites in 2013. Diffusion tubes are prepared and analysed by Gradko. The tube preparation method is 20% triethanolamine (TEA) in water. The triplicate diffusion tubes co-located with the continuous NO_2 monitor are used to derive a local bias adjustment factor, which is used to adjust the diffusion tube NO_2 data.

Table 3 - NO_2 Diffusion Tube Monitoring Results (2009 to 2013)

Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias				
				2009 (Bias Adjustment Factor = 0.9)	2010 (Bias Adjustment Factor = 0.95)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.83)	2013 (Bias Adjustment Factor = 1.02)
1/2	1 Ruskin Ave	Roadside	N	30.02	30.96	30.55	27.41	32.93
3/4/54	92 Skipton Rd	Roadside	Y	37.92	**40.31**	35.24	32.66	39.41
5/6	Town Hall	Roadside	N	35.96	39.85	37.17	33.28	**40.53**
7/8	Lord St/Albert Rd	Roadside	N	31.65	30.61	31.15	27.73	33.98
11/12	25 Gisburn Rd	Roadside	N	32.83	**40.83**	32.51	31.81	35.54
13/14	Brunswick St	Roadside	N	32.56	32.84	31.52	27.83	34.53
16	224 Colne Rd	Roadside	N	29.91	32.15	27.86	26.53	31.66
17	62 Burnley Rd	Roadside	N	38.29	**44.44**	36.72	32.42	**40.42**
28	Pendle Business Centre	Urban background	N	18.68	22.58	19.30	17.22	20.06
31	1 Varley St	Roadside	N	33.30	**40.93**	33.74	31.76	37.36
32	117 Skipton Rd	Roadside	N	27.46	30.59	27.98	24.64	29.05

Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias				
				2009 (Bias Adjustment Factor = 0.9)	2010 (Bias Adjustment Factor = 0.95)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.83)	2013 (Bias Adjustment Factor = 1.02)
36	22 Langroyd Rd	Roadside	N	32.48	38.59	32.43	31.02	38.66
37	15 Langroyd Rd	Roadside	N	29.42	32.18	31.09	27.28	32.96
38	91 Langroyd Rd	Roadside	N	28.37	30.22	29.46	27.37	33.20
41	Bottom Wordsworth Rd	Urban background	N	30.63	31.60	33.98	28.12	33.16
46	Jowett	Roadside	N	34.60	**43.25**	37.62	33.42	**41.23**
47	Jaipur	Roadside	N	31.69	38.33	35.08	25.68	38.80
50	59 Burnley Rd, Colne	Roadside	N	31.99	**44.41**	34.60	29.53	37.15
55/56/57	Colne AQMA, Skipton Rd	Roadside	Y	-	**44.87**	33.94	28.85	38.12
58	32 Alkincoats Rd	Urban background	N	-	-	26.91	28.67	26.64
61/62	61 Skipton Rd	Roadside	Y	-	-	31.89	28.63	36.24

Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias				
				2009 (Bias Adjustment Factor = 0.9)	2010 (Bias Adjustment Factor = 0.95)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.83)	2013 (Bias Adjustment Factor = 1.02)
63/64	100 Skipton Rd	Roadside	Y	-	-	29.24	33.37	35.51
65/66	60 Windsor St	Roadside	Y	-	-	**40.30**	36.39	**41.30**
67/68	44 Windsor St	Roadside	Y	-	-	38.87	34.93	**44.72**
69/70	32 Windsor St	Roadside	Y	-	-	37.05	25.41	**40.74**
71	Rowlands	Roadside	N	-	-	33.82	29.14	38.49
72	82 Burnley Rd	Roadside	N	-	-	37.70	31.99	37.49
73	92 Burnley Rd	Roadside	N	-	-	35.32	30.55	39.06
74	14 Gisburn Rd	Roadside	N	-	-	34.11	32.19	36.06
75	17 Gisburn Rd	Roadside	N	-	-	39.22	34.93	39.49
82/83	257 North Valley Rd	Roadside	Y	-	-	-	-	34.72
84/85	Junc Langroyd/ N Valley Rd	Roadside	Y	-	-	-	-	**47.75**

Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias				
				2009 (Bias Adjustment Factor = 0.9)	2010 (Bias Adjustment Factor = 0.95)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.83)	2013 (Bias Adjustment Factor = 1.02)
86/87/88/89	Likkle Monkeys, Langroyd Rd	Roadside	Y	-	-	-	-	**48.24**

Notes: Bold values denote exceedence of the AQS objective.

During 2012 there were no exceedences of the annual mean NO_2 objective; however, some sites were close to the 40µg/m^3 limit. Exceedences were recorded at sites 5/6, 17, 46, 65/66, 67/68, 69/70, 84/85 and 86/87/88/89 during 2013; site 86/87/88/89 located on Langroyd Road experienced the highest recorded concentration with a value of 48.2µg/m^3 (although it is noted that this is an annualised value based upon 8 months of actual monitored data and therefore has additional uncertainty associated).

2.4 Source Apportionment

A source apportionment study was carried out for the AQMA as part of the Further Assessment completed following declaration, as required by the LAQM regime. The source apportionment was carried out for the following vehicle classes:

- Cars;
- Light Goods Vehicles (LGVs);
- Buses; and
- Heavy Goods Vehicles (HGVs).

Defra's Local Air Quality Management Technical Guidance LAQM.TG(09) also recommends the calculation of regional background (over which local authorities do not have control) and local background contribution (over which authorities should have some influence).

Proportions of each background source category from the Defra modelled background maps[3] have been used to categorise the regional and local background NO_x and NO_2 concentrations in the assessment area.

The figures below summarise the results at the worst-case receptor (located on Windsor Street near the junction with Dickson Street) representing worst-case public exposure in the Colne AQMA for NO_x and NO_2 respectively. The source apportionment results for various sources of total NO_x concentration are summarised below:

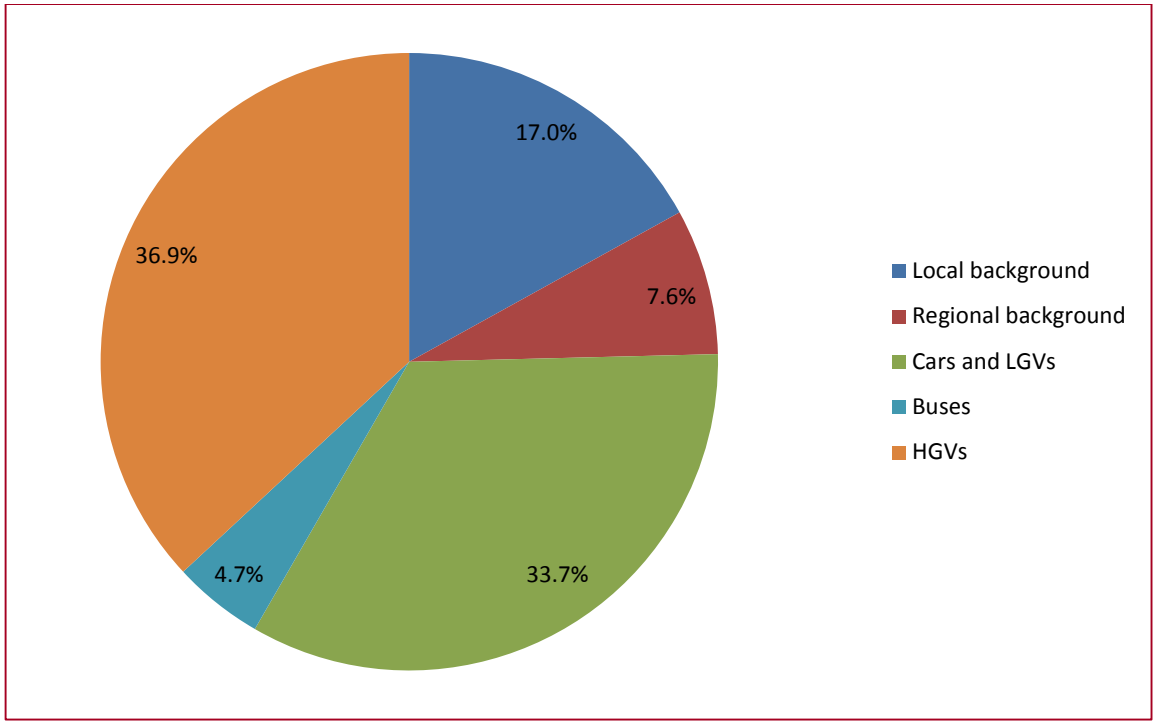
[3] Defra website (laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html)

- Road traffic emissions of NO_x account for 75% of the total NO_x concentration;
- Local background sources contribute to 17% of the total NO_x concentration, while regional background sources (outside the local authority's control) contribute to 8% of the total NO_x;
- The breakdown of road-traffic contribution shows that HGVs account for about 37% of the overall NO_x concentration, followed by Cars and LGVs (33%), and Buses (5%); and
- Combined contribution of HDVs (Heavy Duty Vehicles, based on both buses and HGVs) account for 42% of the total NO_x concentration.

Table 4 - Source Apportionment of NO_x Concentrations

Receptor (Maximum Modelled Concentration)	Worst-case Receptor
Total NO_x in µg/m^3 (Total Background + Local Road Source)	88.8
NO_X Total Background (Local + Regional) in µg/m^3	21.8
NO_X Local Background in µg/m^3	15.1
NO_X Regional Background in µg/m^3	6.8
Local Road Source Contributions in µg/m^3	66.9
NO_X Car and LGV	29.9
NO_X Bus	4.2
NO_X HGV	32.8
% Local Background	17.0%
% Regional Background	7.6%
% Road Traffic	75.4%
% due to Car and LGV traffic	33.7%
% due to Bus traffic	4.7%
% due to HGV traffic	36.9%
% Car and LGV contribution of total road traffic	44.7%
% Bus contribution of total road traffic	6.3%
% HGV contribution of total road traffic	49.0%

Figure 3 - NO_x Source Apportionment Graph



The source apportionment results for various sources of total NO_2 concentration are summarised below:

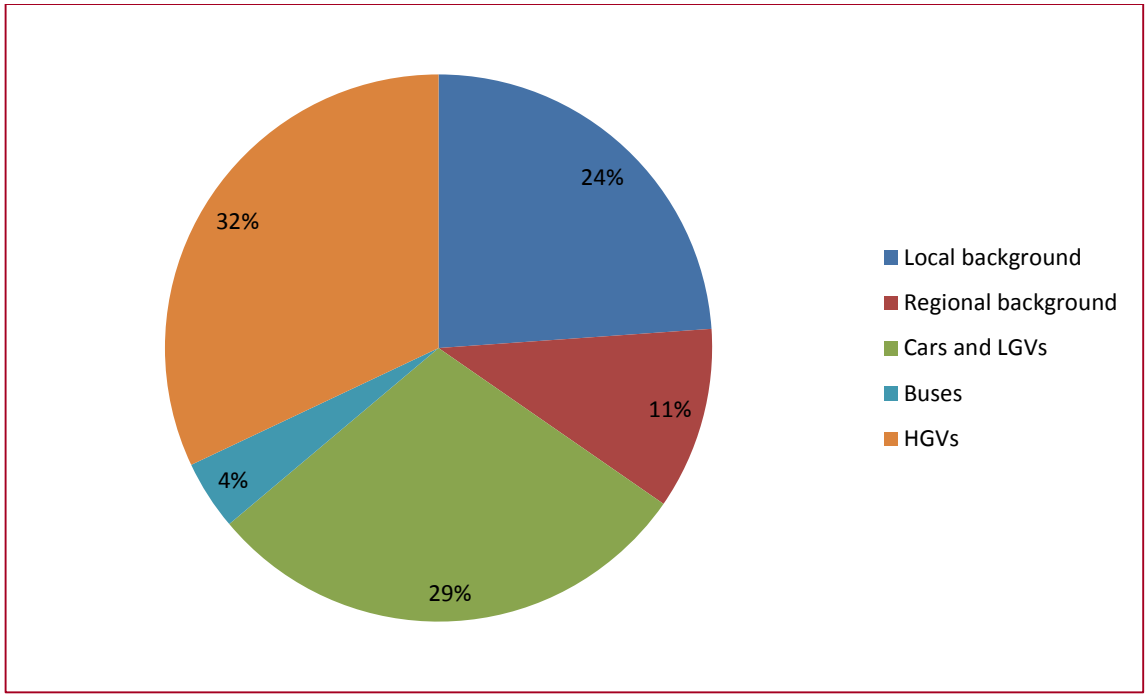
- Road traffic emissions of NO_2 account for 65% of the total NO_2 concentration;
- Local background sources contribute to 24% of the total NO_2 concentration, while regional background sources (outside the local authority's control) contribute to 11% of the total NO_2;
- The breakdown of road-traffic contribution shows that HGVs account for about 32% of the overall NO_2 concentration, followed by Cars and LGVs (29%), and Buses (4%);
- Combined contribution of HDVs (Heavy Duty Vehicles, based on both buses and HGVs) account for 36% of the total NO_2 concentration.

The contribution of HDVs to the total NO_x and NO_2 concentrations is quite significant, especially if compared to the proportion of the vehicle fleet they represent (between 6% and 4% for the A6068).

Table 5 - Source Apportionment of NO_2 Concentrations

Receptor (Maximum Modelled Concentration)	Worst-case Receptor
Total NO_2 in µg/m^3 (Total Background + Local Road Source)	43.6
NO_2 Total Background (Local + Regional) in µg/m^3	15.1
NO_2 Local Background in µg/m^3	10.4
NO_2 Regional Background in µg/m^3	4.7
Local Road Source Contributions in µg/m^3	28.5
NO_2 Car and LGV	12.7
NO_2 Bus	1.8
NO_2 HGV	14.0
% Local Background	23.9%
% Regional Background	10.8%
% Road Traffic	65.4%
% due to Car and LGV traffic	29.2%
% due to Bus traffic	4.1%
% due to HGV traffic	32.0%
% Car and LGV contribution of total road traffic	44.7%
% Bus contribution of total road traffic	6.3%
% HGV contribution of total road traffic	49.0%

Figure 4 - NO_2 Source Apportionment Graph



2.5 Required Reductions in NO_x and NO_2

In order to make a decision on the best options to employ, it is first necessary to calculate the exact reduction of NO_2 (as NO_x) that would be required in order to meet the AQS objectives. The assessment is made for the worst-case receptor. This approach highlights the maximum reduction in NO_2 required (as NO_x, in $\mu g/m^3$) to comply with the AQS objective, and assumes that other receptors will require less of a reduction.

The methodology to determine the required reduction in NO_x and NO_2 is described in Section 7.21 of LAQM.TG(09). For NO_x, it requires the calculation of "current" and "required" road-NO_x concentrations.

The "required" road-NO_x is the road NO_x concentration required to give a total NO_2 concentration of $40\mu g/m^3$. It has been calculated based on the NO_x/NO_2 calculator and the local NO_2 background concentration.

The maximum predicted road-NO_x reduction required within the AQMA to comply with the NO_2 AQS objective is 10µg/m^3 along Windsor Road, equivalent to a reduction of 15% in road-NO_x concentrations. This equates to a 3.6µg/m^3 reduction in NO_2 (equivalent to a reduction of 8% in total NO_2 concentrations). This is at the worst-case location, and therefore required reductions at all other receptors will be less. Consequently, the formulation of the AQAP should aim to reduce the concentrations of NO_x/NO_2 within the AQMA by these amounts.

3 Local and Regional Policies and Strategies

There are a number of related policies and strategies at the local and regional level that can be tied in directly with the aims of the AQAP. A majority of these policies and strategies are focused on transportation issues and, therefore are likely to help contribute to overall improvements in air quality across the Pendle Borough Council area. The review of these strategies and policies also assists in not duplicating the work within the AQAP, but instead focus on measures outside those considered within these strategies and policies.

3.1 Local Transport Plan 2011-2021

The transport strategies for Lancashire County for the next eight years will be directed by the Lancashire Local Transport Plan (LTP) 2011-2021.

Air quality is a main consideration of the Transport Plan with the following aim being stated: *"Achieving value for money, reducing carbon emissions, and the encouragement to get out of the car and participate in more active ways of travel, and improving quality of life for those using or experiencing the effects of transport, will sit across all our transport and travel activities."*

The Plan comprises of seven transport priorities (see Figure 5 below).

Figure 5 - Seven Priorities of the LTP 2011-2021

Six of these priorities have sections that relate to air quality. A summary of the six priorities, along with the details of each action, are provide below.

1. **Improving access into areas of economic growth and regeneration:**

- Reduce congestion and delay and increase road capacity on our most congested transport corridors, improve highway links and junctions.
- Develop bus stations and interchanges where these can be a catalyst to town centre regeneration.
- Introduce Park and Ride sites serving major employment areas or supporting city centre development, principally in Preston and Lancaster.
- Promote sustainable travel options to important visitor destinations.

- Work with district councils to deliver adequate parking to allow access to services and ensure that it is priced and managed to support strong retail economies within our towns and cities whilst ensuring that public transport is a viable alternative for many journeys.

2. **Providing better access to education and employment:**

- Develop innovative ways of promoting and implementing travel plans with major employers, with secondary schools, colleges and universities, and in clusters of small employers to deliver more journeys by sustainable transport.
- Work with developers and district councils to influence locations for major new developments to reduce the need to travel and to secure and ensure adequate accessibility through improvements to the transport networks to serve and promote new development.

3. **Improving people's quality of life and wellbeing:**

- Expand our network of footways and cycleways where it will contribute to the wider objective of creating quality neighbourhoods.

4. **Improving the safety of our streets for our most vulnerable residents:**

- Roll out 20mph schemes across residential areas and outside schools in Lancashire where these speed reduction measures can be accommodated, consistent with maintaining the free movement of the highway network.
- Work with communities, review and implement appropriate speed limits to manage the speed of drivers and riders to safe and acceptable levels.

5. **Providing safe, reliable, convenient and affordable transport alternatives to the car:**

- Provide safe and convenient new infrastructure for walking and cycling where it will reduce reliance on private car journeys between home and work, schools,

and leisure activities, and particularly along congested routes, and improve opportunities for regular exercise.

6. **Reducing carbon emissions and their effects:**

- Improving the range of sustainable transport options available, including trains, buses, coaches, trams, cycling and walking, ensuring that these are as affordable and convenient as possible.
- Looking to ways of actively managing peak traffic flows to reduce queuing and congestion, and improving journey time reliability.
- Engaging with planners and with developers to ensure that new developments are in sustainable locations and benefit from a range of sustainable transport options.
- Complement regional initiatives for new electric vehicles charging points, through the infrastructure provided in new developments.
- Promote viable alternatives to road transport for freight.

This plan is accompanied by an implementation plan, which details the work programme for the next three years and is reviewed annually; the latest version being the Implementation Plan for 2012/13 to 14/15.

3.2 Lancashire Climate Change Strategy 2009-2020

Lancashire has developed a climate change strategy following the Climate Change Act 2008. Policies for climate change reduction will, in many cases, have a positive effect upon air quality.

The Strategy focuses upon four key sectors:

- Domestic;
- Transport;
- Business and Public Sector; and

- Land use.

The main sector where impacts upon air quality will be realised is transport, through the implementation of the transport plans. The objectives for the transport sector outline how through climate change strategies air quality may be improved:

- Develop and maintain an integrated, efficient and sustainable transport system.
- Increase the use of public transport, walking and cycling.
- Promote the use of more efficient vehicles and alternative transport fuels, including sustainable bio-fuels.

3.3 Pendle Local Plan Core Strategy

The Core Strategy establishes the planning framework for development in Pendle over the next 15 years. Consultation on the Pendle Borough Council Core Strategy Publication Report was completed in December 2012. During spring 2014, the Further Options Report provided an opportunity to consider new requirements for housing and employment land – identified through an update of the evidence based, along with the allocation of strategic sites to help facilitate delivery. Following the formal six-week consultation, the Core Strategy will be submitted to the Secretary of State for Examination. The following policies are likely to be retained and will impact air quality in the Borough:

Policy ENV 4 – Promoting Sustainable Travel

"Council will lobby for the following strategic transport schemes:

- *Provision of the A56 villages bypass.*
- *Re-instatement of the Colne to Skipton railway line.*

In supporting these schemes this policy will protect the route of the former Colne-Skipton railway for future transport use."

"New developments should, where possible, connect to existing pedestrian and cycle routes and, where appropriate, create new links to help increase connectivity and close gaps in the network. The provision of new or improved public transport systems may be required to increase accessibility levels. A CIL [Community Infrastructure Levy] *charge may be sought to help finance these options.*

For major developments applicants should submit a travel assessment to highlight any potential impacts of the development on the existing transport network. A travel plan (including green travel options) may be required to indicate what measures will be taken to reduce and mitigate against such impacts."

Policy ENV 5 – Pollution and Unstable Land

"The Council will work with its partners to minimise air, water, noise, odour and light pollution and to address the risks arising from contaminated land, unstable land and hazardous substances.

In particular, new development will be required to […] improve air quality by minimising pollutant emissions and public exposure to pollution, both during and after construction, particularly in any areas identified as having poor air quality. Criteria for assessing applications will be set out in the Pendle Local Plan Part 2: Site Allocations and Development Policies. Area Action Plans and Neighbourhood Plans will consider how pollution can be reduced or successfully mitigated against at a local level."

Policy SUP 2 – Health and Well-being

"The Council will work with partners to deliver key developments which will improve the health and well-being of people in Pendle, and will […] support and develop healthy ways to travel."

4 Consultation

Local authorities are required to consult on their AQAP. To facilitate this process, an Action Planning Steering Group was formed to provide an appropriate forum for developing the AQAP. The composition of the Steering Group was carefully considered to include representatives from all local authority services with an interest in air quality and who may have an influence on the measures being considered within the draft plan; this therefore includes relevant environmental and planning representatives from Pendle Borough Council and the highways authorities at Lancashire County Council and the Highways Agency.

It is also important for the success of the AQAP to seek involvement from all local stakeholders including local residents, community groups and local businesses in the drawing up of the AQAP, in addition to their active participation in achieving the AQAP measures.

A draft AQAP was prepared December 2013. The following is a list of statutory and non-statutory consultees to which the draft AQAP was sent for comment:

- Lancashire County Council;
- Pendle Borough Council Councillors and Officers;
- Local residents within and bordering the AQMA;
- Relevant local businesses, community groups and forums; and
- Other relevant local stakeholders.

As soon as the draft AQAP was available, the Council proceeded to consulting the above stakeholders on the various AQAP options. It is recommended that the consultation period on the draft plan be no less than 6 to 8 weeks in duration to provide consultees the opportunity to contribute to the process. Following finalisation of the AQAP and acceptance by Defra, the final AQAP will be presented to Pendle Borough Council for endorsement and subsequently placed on the Pendle Borough

Council website[4]. Following the formal adoption of the AQAP, the Council is then required to submit annual AQAP progress reports, and also revise the AQAP appropriately when circumstances influence the content and progress of the plan.

All comments received from both statutory and non-statutory consultees on the draft AQAP have been considered and incorporated where appropriate into this final AQAP.

4.1 Summary of Public Consultation

Public consultation took place in August 2014. A survey inviting comment on the draft AQAP was delivered to 1,300 households in the vicinity of the Colne AQMA. The survey consisted of three sections, which sought views on travel patterns and mode of transport of the respondents (section 1), measured respondent awareness of air quality issues in Colne (section 2) and sought feedback on the measures proposed in the AQAP (section 3). Two hundred responses were received in total, mainly from residents living in the immediate vicinity of the AQMA.

The main mode of transport to work for the respondents was private car (65%), followed by walking (27%) and public transport (17%). Only 2% of respondents cycled to work.

Asked whether they agree or disagree with the actions proposed by the AQAP, the largest percentage of respondents (81%) would support a scheme to build a new road/bypass from the end of the M65 to the Lancashire/North Yorkshire border. Other measures which gained most support (received an 'Overall Agree' response) were:

- Re-opening the Colne to Skipton railway line (79%);
- Encouraging bus operators to make changes to their vehicles to reduce pollution (76%);
- Educate local people about air pollution issues and ways to minimise this (76%);
- Improve public transport (75%); and

[4] http://www.pendle.gov.uk/

- Use things such as traffic light sensors to improve the flow of vehicles (74%).

The least favourable measures (which received the lowest percentage of 'Overall Agree' responses) were:

- Introducing 'No idling' zones (52%);
- Introducing 20mph zones in and around the AQMA (48%); and
- Introducing a park and ride scheme for Colne (33%).

A public consultation drop-in session was also held 9th September 2014 at the Byron Road Community Centre in Colne. This provided further opportunity for local residents and businesses to share thoughts and pass comment with regards to the air quality proposals as detailed within the draft AQAP.

These public responses have therefore been considered in formulising the final AQAP.

5 Action Plan Proposals for Pendle Borough Council

A summary of the measures considered for the AQAP is outlined in the following pages, including the likely impact, timescales and feasibility of these proposals.

The proposed AQAP measures have been divided into five categories, although there is often considerable overlap between some of the categories:

1. Transport measures – provision of additional transport infrastructure, changes to road layout or operation, formulation of , with the aim being to encourage the use of greener modes of transport and/or reduce congestion and associated vehicle emissions;
2. Leading by example measures – measures that Pendle Borough Council will implement to encourage wider behavioural changes;
3. Education, community and partnership measures – provision of information to increase community awareness to facilitate behavioural change;
4. Statutory measures – use of legislation and targeted enforcement to control air pollution; and
5. Air quality monitoring measures – ensure satisfactory air quality monitoring data and evidence base is available to allow effective management of air quality.

Several measures were considered as part of the development of the AQAP, but were not shortlisted as viable options for inclusion in the AQAP. These potential suggestions, considered but not adopted, are outlined along with the reasons for their omission.

5.1 Transport Measures

As discussed above, in the Colne AQMA approximately 65-75% of NO_x and NO_2 concentrations are contributed by road traffic. This source group should therefore be the primary focus of this action plan.

In order to aid the understanding of traffic movements in and around the town of Colne, a traffic study[5] was undertaken on behalf of Lancashire County Council during 2014. From this work, the following key trends in travel patterns and conclusions can be drawn:

- Around half of all inbound trips into Colne have a destination within Colne itself;
- The majority of 'through' trips intersecting Colne travel along two key routes: north–west and east–west;
- The north-west movements (in both directions) between M65/A56 west of Colne and A56 north of Colne represent approximately 43% of all through traffic over all time periods;
- The east-west corridor movements (in both directions) between the M65/A56 west of Colne and A6068 east of Colne represent approximately 46% of all through traffic over all time periods;
- Based on observed flow levels on the parallel A59 route there was no discernible impact on traffic flows observed during the study period as a result of road works on the M65 during July – December 2014; and
- Analysis of traffic routing on A59 to the north of Colne indicates up to 20% of traffic could theoretically be attracted to the route between A56 north of Colne and M65 if that route was significantly improved.

Therefore in essence, pollution concentrations in the AQMA can be tackled by reducing traffic volumes, smoothing the flow of traffic (to reduce the stopping / acceleration cycle), removing the most polluting vehicles and encouraging modal shift.

The feasibility of the following measures has therefore been considered for inclusion in the AQAP:

[5] Jacobs (2015) *Colne Traffic Study Preliminary Report for Lancashire County Council*

Measure M1: M65 to Yorkshire Relief Road (A56 Village Bypass Scheme)

Lancashire County Council has a longstanding proposal to construct a road between the M65 terminus in Colne and the Lancashire / North Yorkshire boundary north of Earby. Historically, the A56 Villages Bypass was the preferred scheme, as this was considered likely to remove a significant volume of through-traffic from Colne and the villages of Foulridge, Kelbrook and Earby, thereby benefiting the local communities in terms of improved air quality, road safety, and reduced noise.

Lancashire County Council's LTP Implementation Plan 2012/13 - 2014/15 identified the M65 to Yorkshire Corridor Study, and £150k of funding was allocated for delivery of the detailed feasibility study. Stage 1 (Data Collection and Problem Identification Report), Stage 2 (Option Development, Appraisal and Strategy Report) and Stage 3 (Review of Major Highway Proposals Report) of the study are now complete. The study concluded that there are several options worthy of further consideration to deliver a bypass of Colne and the villages along the A56 in Lancashire, each which met the key five study objectives and thus lead to air quality improvements:

1. Improve journey time reliability for vehicles travelling between the M65 and Yorkshire;
2. Improve air quality within the designated AQMA in Colne;
3. Reduce the impact of traffic using inappropriate roads;
4. Ensure any new transport infrastructure does not have a negative impact on the built environment within Colne and the surrounding villages; and
5. Maximise the effectiveness of the public transport network and facilities within the study area.

However, the findings of the recently completed Colne Traffic Study Preliminary Report[5] indicate that there is no clear case, based on existing traffic alone, to pursue a north-south bypass in preference to a more local solution that could potentially serve both Colne traffic and west-east 'through' traffic. Nevertheless, without undertaking detailed dispersion modelling and appraisal of the proposed bypass options, the likely

air quality benefits within the Colne AQMA as a consequence of a bypass are difficult to quantify, although it is considered likely that significant benefits would be achieved.

In light of the Colne Traffic Study Preliminary Report[5], Lancashire County Council will consider whether a case continues for a bypass of Colne to the north west of the town, providing a link between the M65 and the A56 (a Colne-Foulridge Bypass or similar route). Pendle Borough Council will continue to work proactively with Lancashire County Council to facilitate further discussions (and if considered relevant, further studies) on the wider economic and environmental benefits that such a scheme may bring, specifically with regards to the potential benefits to air quality within the Colne AQMA, so that these may be adequately considered in the decision making process.

Measure M2: Reinstatement of the Colne to Skipton Railway Line

Pendle Borough has railway stations at Brierfield, Nelson and Colne, where the East Lancashire line terminates. There have been longstanding aspirations to restore the rail link between Colne and Skipton. Such additional rail infrastructure would assist in reducing the reliance on the road network, likely reducing traffic flows on the roads passing through the Colne AQMA. However, without undertaking detailed feasibility studies, the precise impact on local air quality is not readily predictable.

A study commissioned by Skipton East Lancashire Railway Action Partnership (SELRAP) to explore the possible reinstatement of the Skipton-Colne rail line is underway. Phase 1a involved a review of previous work was undertake by a consultant in April 2013, whilst a needs assessment and economic appraisal was subsequently completed in February 2014 as part of Phase 1b. Following the WebTAG appraisal, the study concluded that for the central case, the Benefit Cost Ratio (BCR) for the scheme is 1.52, assuming a single track option is pursued; a single track scheme offers a greater BCR than a double track option.

Pendle Borough Council, Lancashire County Council and SELRAP will further explore the feasibility for the future reinstatement of the Colne to Skipton Railway Line, in

particular the likely environmental impacts and potential air quality benefits to be gained from such a scheme.

Measure M3: Urban Traffic Management and Control (UTMC)

The Council will consider implementation of an Urban Traffic Management and Control (UTMC) System for the roads surrounding the Colne AQMA. UTMC is instigated by the Department for Transport (DfT) to implement Intelligent Transport Systems (ITS) in urban areas to tackle traffic and air quality issues, and is already installed in several other urban centres in Lancashire. The UTMS for the Colne AQMA would aim to provide an overarching system to manage and control traffic in order to improve air quality. Additionally, it will provide integrated information to policy makers on relationships between traffic congestion and air quality, times and weather conditions. The main objectives of the UTMC will be to control traffic in order to:

- Reduce congestion;
- Improve traffic flows;
- Free traffic restraints;
- Provide information on route diversion; and
- Provide variable message signs and parking.

Various UTMC improvements have recently been secured via Section 106 agreements with local developers. Such measures include:

- Install UTMC Variable Message Signs (VMS) on eastbound M65 approximately 800m from Junction 14 roundabout – to minimise accidents and thus help maintain a more constant traffic flow;
- Install UTMS congestion monitoring on eastbound M65 on approach to Junction 14 roundabout – to help understand when congestion is occurring and thus how to optimise flow;

- Install microprocessor optimisation vehicle actuation (MOVA) system at various junctions/signals – to allow linking with other signalised junctions along the route to allow a green wave on all the signals to allow large amounts of traffic to be moved;

- Provide CCTV at the Crown Way/Vivary Way junction – to provide live images that shall be viewed by traffic management officers at Lancashire County Council to help optimise traffic management;

- Review signal linking opportunities at Crown Way/ Barrowford Road toucan crossing – so that they work together and do not impede traffic flows;

- Provide journey time monitoring system – to assess the effectiveness and level of success of the changes made to the signals along the route. It will also suggest any further alterations to the timing, staging and lining of the junctions.

Measure M4: Improvements in Traffic Flows and Speeds within the AQMA

Largely the pollution problem in the AQMA is a result of slow moving traffic, which results from a number of factors such as queuing at the A56/A6058 roundabout, traffic lights, pedestrian crossings, and large traffic volumes, particularly during peak hours. It is anticipated that improving the flow of vehicles in the AQMA would reduce emission and is therefore likely to reduce pollution concentrations.

Smaller scale interventions that the County Council and other agencies could introduce to mitigate traffic and environmental problems in Colne that are affordable and deliverable (in advance of any bypass, or if a bypass in this corridor does not emerge as a priority for major scheme funding) should therefore be considered. A range of complementary options could be combined together in a single strategy to help to mitigate some of the problems and issues currently experienced within the Colne AQMA and wider M65 to Yorkshire corridor area. The M65 to Yorkshire Corridor Study makes numerous suggestions as part of the development and appraisal of an alternative strategy to the A56 Villages Bypass Scheme.

Queuing traffic in the main hotspot areas is caused by the A56/A6058 roundabout and congestion; therefore moving the queuing traffic to areas where there are fewer receptors and controlling the flow of traffic though the Colne AQMA is likely to have a benefit upon local air quality and reduce associated exposure to poor air quality.

If, through the implementation of the various measures to reduce queuing and decrease journey times, a 10% increase in average vehicle speeds could be achieved at all junctions located within and around the Colne AQMA, decreases in annual mean NO_2 concentrations of up to 1.1µg/m^3 could be realised. Following Environmental Protection UK (EPUK) criteria[6] for the determination of significance of air quality impacts, such a change would be considered 'small' in magnitude, giving 'Slight Beneficial' impacts at many receptors. The maximum modelled NO_2 concentration is predicted to fall from 44.7µg/m^3 to 43.6µg/m^3 as a result of this measure. Similarly, if a 20% increase in average vehicle speeds could be achieved at all junctions located within and around the Colne AQMA, this would translate to a decrease in annual mean NO_2 concentrations of up to 2.2µg/m^3; a 'Medium' change giving 'Moderate Beneficial' impacts at the most positively affected receptors. Under the 20% scenario, the maximum modelled NO_2 concentration is predicted to fall from 44.7µg/m^3 to 42.7µg/m^3. The Further Assessment and Quantitative Appraisal undertaken for the Colne AQMA (2013) provides full details of the supporting dispersion modelling exercise.

Various measures that will improve the queuing of traffic at key junctions have recently been agreed to be implemented via Section 106 agreements with local developers. Pendle Borough Council and the County Council will ensure these are implemented in line with the proposed timescales.

The construction of a new single carriageway road from the A6068 Vivary Way in Colne to the A56 north of Foulbridge is currently a scheme under consideration within the development pool of Transport for Lancashire (TfL – the newly-formed local transport body incorporating the region's three transport authorities, Lancashire

[6] Development Control: Planning for Air Quality, (2010 Update).

County Council, Blackpool Council and Blackburn with Darwen Council, and the private sector led Lancashire Enterprise Partnership (LEP)). If taken forward, such a scheme would significantly improve traffic flows within the Colne AQMA.

A local Route Management Strategy (RMS) on the A6068 in Colne is being developed by officers seeking to enter into negotiations with developers in this area. This work is based on local conditions along the A6068 and on the predicted impact of local development.

Pendle Borough Council, together with the transport departments of the County Council, will identify and consider engineering traffic management solutions to allow more free-moving traffic in the vicinity of the A56/A6058 roundabout and the roads in the vicinity of the Colne AQMA, in order to improve the flow of traffic within the AQMA.

Measure M5: Freight Quality Partnership / Ban on HGVs in AQMA during Peak Periods

The Further Assessment for the AQMA suggests that HGVs constitute 49% of the total traffic in the AQMA and contribute about 37% of total NO_x and about 32% of total NO_2 concentrations. Therefore, any reduction in HGV flows is likely to decrease pollution concentrations. Options such as removing HGVs from peak hours, considering alternative delivery arrangements and how these may impact HGV flows during certain hours, or removing through traffic of HGVs could be considered.

Pendle Borough Council will explore the possibility of formulating a Freight Quality Partnership (FQP) with the support of relevant stakeholders such as local businesses and large operators. HGV time restrictions through the AQMA will be investigated as part of the FQP and review of HGV routes in the AQMA. Investigation of AQMA freight transport movements, notably with respect to the largest operators, to develop a freight transport strategy for the town and area, will also be considered.

Removing HGVs from traffic flows would have two key benefits that are likely to help improve air quality. HGVs are the most polluting vehicles, especially when moving at low speeds, so allowing them to only access the AQMA when traffic is flowing more

freely is likely to reduce emissions. In addition, removing HGVs from roads during peak hours is likely to reduce congestion when traffic flows are highest.

Dispersion modelling of this measure showed decreases in annual mean NO_2 concentrations of up to 3.6µg/m^3. Following EPUK significance criteria, 'Medium' changes are predicted at the most positively affected receptors, giving rise to extensive 'Moderate Beneficial' impacts. The maximum modelled NO_2 concentration is predicted to fall from 44.7µg/m^3 to 41.2µg/m^3 as a result of this measure. The Further Assessment and Quantitative Appraisal undertaken for the Colne AQMA (2013) provides full details of the supporting dispersion modelling exercise.

Given the effectiveness of this measure to lead to air quality improvements within the Colne AQMA, Pendle Borough Council will investigate the feasibility for implementing a HGV ban within peak hours and consider potential trial runs. Although this alone will not result in compliance with the AQS objective, it will go a long way towards its future achievement, accomplishing a significant proportion of the required reduction in a single measure.

Measure M6: Introduction of 20mph Speed Restrictions

Imposing a 20mph speed limit on the roads within and surrounding the AQMA would have a dual effect; it would likely lead to increases in pollutant concentrations in areas where traffic is currently free flowing at speeds averaging greater than 20mph, but would likely decrease concentrations in areas where there is currently congestion and average speeds are lower than 20mph. This is due to the lower speed limits 'smoothing' traffic flows and thereby reducing the degree of acceleration, which is when emissions are highest.

Dispersion modelling investigating the effectiveness of this measure[7] showed increases in annual mean NO_2 concentration of up to 2.1µg/m^3 at some receptors (located outside the Colne AQMA where traffic on adjacent roads is already free

[7] Assuming an average vehicle speed of 20mph along all roads within and surrounding the Colne AQMA, including all junctions.

flowing) and decreases of up to 3.9µg/m^3 at other receptors (located within the Colne AQMA where traffic on adjacent roads is congested). Following EPUK significance criteria, impacts at individual receptors therefore fall anywhere in the range between 'Slight Adverse' and 'Moderate Beneficial'. The maximum modelled improvement in NO_2 concentration is a predicted decrease from 43.6µg/m^3 to 39.7µg/m^3 as a result of this measure. This was modelled at a receptor located on Windsor Street near the junction with Dickson Street. This measure therefore has the potential for positive impacts in the Colne AQMA area, as none of the areas where the model predicted an increase in NO_2 concentrations were either within the Colne AQMA or close to the objective level of 40µg/m^3. The Further Assessment and Quantitative Appraisal undertaken for the Colne AQMA (2013) provides full details of the supporting dispersion modelling exercise.

The County Council has already made a commitment to introduce 20mph limits in all residential areas and outside all schools over the lifetime of the LTP 2012/13 to 2014/15 Implementation Plan, which includes the area within the Colne AQMA. The actual timetable for implementing individual 20mph areas will be flexible to allow for any objections lodged during the Traffic Regulation Order process.

Measure M7: Encouraging Modal Shift

Encouragement for visitors to the town centre to use different modes of transport to cars is likely to improve local air quality concentrations. The Council will consider potential for encouraging modal shift from Private Car to Public Transport, Cycling and Walking in the Town Centre by improved parking control and by developing alternative travel plans for town centre residents, achieved through the implementation of a Sustrans Personalised Travel Planning (PTP) project[8], which aims at reversing the trend towards increased car use and tackling its impacts on climate, public health and quality of life. Sustrans' PTP projects have succeeded in reducing car use,

[8] http://www.sustrans.org.uk/our-services/what-we-do/personalised-travel-planning

consistently achieving an 11% reduction in car driver trips and increases in walking, cycling and public transport trips of between 15% and 33%.

Implementation of travel concessionary schemes can also increase the shift from the use of the car to greener forms of public transport. The County Council is already committed to supporting such a scheme, through its on-going development of a prepayment NoWcard to work throughout the partnership area, with the aim to encouraging greater use of public transport through interoperable ticketing, better integration and simplified discounts and fare structures.

Measure M8: Improvements in Bus Fleet Emissions

The source apportionment results show that buses constitute 6.3% of the total fleet and contribute on average 5% of total NO_x and 4% of total NO_2 concentrations in the AQMA. Pendle Borough Council and Lancashire County Council will consider improvements in air quality as a result of feasible changes in the bus fleet composition to ensure buses passing through the Colne AQMA are cleaner and meet the highest emissions standards. The options to be considered will be dependent on the current bus fleet and the improvements in EURO standards that could be reasonably achievable. This could be implemented through the implementation of a Quality Bus Partnership (QBP) between the Council and bus operators.

These voluntary schemes are informal agreements between relevant bus operators and local authorities that are not enshrined in legislation. Such partnerships are usually formed between one or more local authority and bus operator(s) but may also include large organisations or institutions (e.g. businesses). In these partnerships, each party makes a commitment to improvements that will result in enhancements to bus services in a given area through measures such as better, cleaner vehicles. Numerous local authorities have already developed voluntary agreements with bus operators.

Exact scenarios would be determined when the current fleet has been analysed. For example, the impact of swapping all Euro II buses to Euro IV buses or better, or

retrofitting Selective Catalytic Reduction (SCR) technology to existing buses, could be considered and assessed.

Measure M9: Bus Park and Ride (P&R)

Car and LGV traffic makes up 45% of total traffic on road network within AQMA and contribute on average approximately 34% of total NO_x and 29% of total NO_2 concentrations. Although a significant proportion of this traffic will constitute through traffic travelling between the M65 and the Lancashire / North Yorkshire border, the Council will consider the need for a Park and Ride (P&R) facility for the town centre to help reduce car traffic. In addition to reducing car emissions, it will also increase road capacity for other sustainable forms of transport, improve traffic flow, reduce congestion and queuing. The Council should progress by identifying potential sites and investigate options and feasibility for the P&R for the town centre.

Measure M10: Improved Bus Services

As discussed above, car and LGV traffic makes up a significant proportion of total traffic on road network within AQMA. By increasing the available bus routes, improving journey times and reliability, the use of the public bus service will be seen as a more attractive alternative to travelling by car. Improved interchange facilities between bus and rail also improve the public transport experience. Bus services can play a significant part in improving this connectivity, with high frequency services operating along the east-west axis through Pennine Lancashire. The success of the Quality Bus service X43/X44 between Nelson and Manchester provides clear evidence that the right service can attract customers and extend travel opportunities, and the development of a QBP a discussed above would help build upon this initial success.

To support public transport provision in Pendle and encourage better access to jobs, education and services by alternatives to the car, the County Council will continue to

support Nelson Bus Station and provide financial support to key non-commercial bus services (17 currently in Pendle). To improve connectivity towards Manchester, a study on the Nelson-Rawtenstall bus corridor was programmed in Lancashire County Council's LTP implementation plan, to determine what improvements will provide the greatest benefit, particularly to the Nelson-Manchester (X43) bus service. Completed in February 2014, the study highlighted various prioritised interventions that could be made with regards to bus operation strategy, traffic signal performance optimisation strategy, pedestrian accessibility strategy, and parking management strategy, which may are likely to lead to increased use of the bus service and reduced road traffic in Pendle, including within the Colne AQMA. Each of the identified priority improvements would require further design work and scoping prior to being employed on site. The County Council will continue to explore and support these measures for subsequent implementation.

Measure M11: Reduction in Idling of Traffic

The emissions from idling vehicles result in unnecessary burden to pollutant concentrations. This is even more important in areas of poor air quality, such as AQMAs, where it is already deteriorated.

The Council, in implementing this measure, will consider the following options:

- To declare the Colne AQMA and surrounding roads as a 'No idling Zone';
- To provide 'No Idling' signage in the Colne AQMA and surrounding roads; and
- To prepare material for bus and taxi operators about idling and the benefits of not idling.

Measure M12: Freight Consolidation Centre

As mentioned above, about 49% of the total traffic comprises of HGVs, contributing up to 37% of total NO_x and about 32% of total NO_2 concentrations in the AQMA. To reduce HGV traffic in the AQMA, the Council will consider and explore options and

feasibility for a Freight Consolidation Centre (FCC). The FCC will aim to consolidate small loads and consignments into smaller number of full loads for delivery into the town centre. Low emission vehicles could be selected to deliver these full loads. The Council will benefit from the experience of such FCCs across Britain. In addition to reducing HGV emissions, a FCC will also improve flow of traffic and reduce congestion as a removal of large HGVs from the fleet within the town centre and the Colne AQMA.

Measure M13: Parking Strategies

Pendle Borough Council, together with the transport departments of the County Council, will identify and consider parking policies and strategies that will result in holding more vehicles outside the AQMA. These would include incentivise parking outside the AQMA or designating the whole of the AQMA as a no, or controlled (e.g. resident permits), on-street parking zone.

5.2 Leading by Example Measures

To minimise and control air pollution from the fleet, Pendle Borough Council gives a commitment to:

Measure M14: Carry out regular emissions testing of vehicle fleet to ensure that all vehicles comply with the law

The possibility of testing council vehicles and requiring that all vehicles undergo more rigorous Public Service Vehicles (PSV) and emissions testing against compliance with MOT criteria when routine servicing is carried out should be considered.

Measure M15: Fit pollution abatement equipment if necessary to older Heavy-Goods Vehicles to help minimise pollution

Retrofitting of old Council owned HGVs with pollution abatement equipment will be considered by the Council.

Measure M16: Promote the use of cleaner or alternative fuels where possible including the introduction of electrically powered vans

Pendle Borough Council will look to adopt a Sustainable Procurement Strategy, which will include a commitment to look to reduce pollution or the risk of pollution from purchased vehicles. Future vehicle purchases will be made giving due consideration to the environmental impact of the vehicle prior to purchase.

Measure M17: Establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles

The Council will look to replacing old vehicles within the fleet with more modern cleaner vehicles, which comply with the prevailing EURO standard.

Measure M18: Improve the Council's vehicle fuel consumption efficiency by better management of fleet activities

Improved fuel efficiency will lead to less pollutant emissions from vehicles and therefore small improvements in local air quality.

Measure M19: Investigate options for better travel planning amongst Pendle Borough Council employees

This measure would aim at reducing vehicle pollution from staff travelling to and from work. Additional benefits involve cost savings and a healthier workforce, although it is acknowledged that this can be challenging due to factors such as reluctance to give up car, the lack of cycling facilities and safety concerns, which need to be overcome.

Proposed options include the following:

- Develop a workplace travel plan for Pendle Borough Council;
- Undertake staff travel surveys to establish current travel patterns to and from Council premises;
- Establish car-sharing practices by implementing a car-sharing database;
- Encourage use of public transport among staff;
- Encourage walking and cycling among staff;
- Video conferencing; and
- Flexible working practices such as remote working enabled by remote IT access.

5.3 Education, Community and Partnership Measures

To ensure that members of the public have access to information about air pollution and can make informed choices, Pendle Borough Council gives a commitment to:

Measure M20: Implement initiatives to educate communities on air pollution issues and ways to minimise impacts on air quality

Pendle Borough Council will consider the development of additional web materials as a resource for air quality documents and local air quality news.

Measure M21: Work with Sustrans to ensure that walking and cycling initiatives are promoted and supported

Cycling is a particularly good option for short trips. Efforts are already underway to develop a cycling network to provide opportunities to cycle to work, local schools and shops. The main cycle route runs from Colne to Brierfield, with links to a number of key centres. The addition of further cycle routes/lanes will be considered by Pendle Borough Council to improve the local and regional network.

Measures that should be considered include:

- School and workplace travel plans to include measures such as cycle training, lockers, secure cycle parking and the setting up of cycle trains and other cycling incentive schemes;
- Provision of cycle training to provide parents and children with the necessary skills, confidence and awareness to cycle safely on today's roads; and
- Promotional campaigns around National Bike Week.

The recent Section 106 agreement secured to provide joint use footway on the southern side of Byron Street in front of Youth Centre and southern side of North Valley Road in front of the retail park will encourage more cyclists as they would be away from traffic and thus feel and be safer.

Measure M22: Encourage Pendle Borough Council employees to consider the use of bicycles in their daily duties by providing cycle usage mileage

A Cycle to Work Scheme should be considered with a view to encourage Council employees to use bicycles. An increased mileage allowance for business miles cycled would incentivise use of bicycle travel instead of other modes of transport.

Measure M23: Provide public with 'real time' travel and air quality information

Real time passenger information (RTPI) systems can assist by making greener alternative modes of transport as attractive as possible and increase rates of uptake. Bus stops, new developments in public spaces and new residential schemes are areas where such schemes can be targeted. Coupled with 'real-time' information on local air quality, this will enable commuters to make informed choices about their transport options.

Measure M24: Work in partnership with the County Council to increase uptake and implementation of School Travel Plans, Workplace Travel Plans and Residential Travel Plans

This would aim to reduce the traffic movements within the AQMA. For example, a School Travel Plan would help minimise the impact of school pick up times. There are a number of schools in the area which would likely involve travelling through the AQMA area, all of which start and end at the same time each day. Large coaches are used to transport pupils and these coaches cause congestion during pick up and drop off times. Idling coaches can also add a significant contribution to local pollution concentrations.

5.4 Statutory Measures

To ensure that air pollution is controlled by legislation and targeted enforcement, Pendle Borough Council will continue to:

Measure M25: Comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible

The Council will ensure the effective use of planning conditions and obligations to help mitigate the transport and air quality impacts of development. Section 106 agreements and CIL charges can be used to improve air quality and make other environmental improvements, or offset the air quality impacts of a proposed development, and have been effective elsewhere in aiding with the implementation of AQAP measures and providing investment for air quality monitoring activities.

As part of any new schemes that are likely to influence traffic flows through the Colne AQMA (e.g. the Riverside Business Park next to the M65 Junction 13), conditions of planning permission should include provision for workplace, residential and personalised travel plans. All new residents should be made aware of the travel plan through the property information pack received with new properties. Public transport (e.g. bus) travel vouchers can be offered as part of these packs.

Measure M26: Contribute to and influence forthcoming development policies for Lancashire County Council and Pendle Borough Council

This will ensure that future policies give increased consideration to air quality issues, thus paving the way to improving local air quality.

Measure M27: Authorise and regularly inspect industrial premises under the Environmental Permit regulatory regime

The Council continues to use its powers to control industrial premises and ensure they comply with the regulations.

Measure M28: Enforce relevant legislation to reduce burning of commercial and domestic waste

The Council continues to use its powers to the burning of commercial and domestic waste.

5.5 Air Quality Monitoring Measures

To ensure that there is adequate air pollution monitoring data with which to manage air quality within the AQMA, Pendle Borough Council will adopt the following measures:

Measure M29: Continued air quality monitoring throughout the Pendle Borough Council area

The Council will continue monitoring a range of air pollutants and will make the monitoring information freely available to the public in an easily understood form. The monitoring data from the Council's continuous monitoring site on Skipton Road in Colne is already published on the internet[9]. The Council's also continue to review their passive diffusion tube monitoring locations on an annual basis and, where necessary, responds to evidence based requirements for further air quality monitoring.

Measure M30: Ensure that all air quality monitoring data is both accurate and precise by implementing quality control measures

Monitoring data from the continuous monitoring analyser and the passive diffusion tubes are compliant with best practice guidance on Quality Assurance / Quality Control (QA/QC). Comprehensive information in relation to QA/QC is provided every year in statutory air quality reports (LAQM Progress Reports or Updating and Screening Assessments).

5.6 Measures Considered but Dismissed on the Grounds of Cost-Effectiveness and/or Feasibility

Measure M31: Compulsory Purchase

Compulsory purchase of properties located within the AQMA is not considered to be feasible and would not address the underlying air pollution problem.

Measure M32: Road Closures

No practicable road closures that would benefit air quality are currently identified. All AQMA roads carry significant volumes of traffic and no practicable alternative roads are identified that would benefit air quality.

[9] http://www.ukairquality.net/StationInfo4.aspx?ST_ID=47

Measure M33: Low Emission Zone/Congestion Charging

Such measures are considered impracticable and not proportional to the air quality issues within the Colne AQMA.

6 Impact Assessment of Proposed Measures

Defra requires local authorities to rank measures they have identified within their AQAPs according to their cost (in terms of both financial and other environmental impacts) and the improvements to air quality that each measure might bring.

Therefore, in order to inform the action planning process a simple assessment of the cost and benefit of each proposal has been undertaken. A detailed cost benefit analysis is not required as it would be both impracticable and technically difficult to quantify the air quality impacts associated with every proposed measure in the AQAP. The likely impacts of several potential measures were quantified using dispersion modelling, full details of which are presented in the Further Assessment and Quantitative Appraisal undertaken for the Colne AQMA earlier in 2013.

The following table provides details of the scoring system implemented.

Table 6 - Scoring Used to Assess and Prioritise Proposals

Costs		Air Quality Impacts		Timescale	
Score	**Approximate Cost (£)**	**Score**	**Indicative Reduction in NO_2 Concentration**		**Years**
7	<100k	7	>5 µg/m^3	Short (S)	< 2
6	100-500k	6	2-5 µg/m^3	↓	↓
5	500k-1million	5	1-2 µg/m^3		
4	1-10 million	4	0.5 - 1 µg/m^3		
3	10-50 million	3	0.2 – 0.5 µg/m^3	Medium (M)	2-5
2	50-100 million	2	0 - 0.2 µg/m^3	↓	↓
1	>100million	1	0 µg/m^3	Long (L)	>5

A simple multiplication of the cost and air quality impact gives some indication as to the cost-effectiveness of the proposals.

Cost Effective Score = Cost Score × Impact Score

Each option is then subjectively assessed for its feasibility, which considers both feasibility for implementation (e.g. does the Authority have the required executive power, or mechanism to influence the necessary organisation, under existing legislation to implement and enforce a measure) and feasibility for securing the necessary funding (e.g. is funding already available or can funding be secured through straightforward routes); a score being assigned between 1 to 10 for each measure, with 1 being the least feasible and 10 being the most feasible.

An overall prioritisation score for each proposed measure of the AQAP was determined, as a function of the cost effectiveness score and the feasibility score:

Prioritisation Score = Cost Effective Score x Feasibility Score

The proposed measures, together with cost-effectiveness, prioritisation and targets / indicators to track their progress, are listed in Table 7.

Table 7 - Summary and Prioritisation of Action Plan Measures to be Implemented

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Transport Measures										
Measure 1: M65 to Yorkshire Relief Road (A56 Village Bypass Scheme)	Undertake further development work on a bypass, including economic and environmental assessments of the four preferred bypass options proposed by the M65 to Yorkshire Corridor Study, with ultimate aim of leading towards its construction	LCC	L	Initial M65 to Yorkshire Corridor Study investigating potential bypass options completed late 2013. Colne Traffic Study Preliminary Report published June 2015.	7	3	21	4	84	Progression of discussions and further studies (if considered relevant), including preliminary environmental assessments. Construction to ultimately lead to significantly reduced traffic flows and associated air quality improvement within the Colne AQMA
Measure 2: Reinstatement of the Colne to Skipton Railway Line	Undertake studies to explore the feasibility for the future reinstatement of the Colne to Skipton Railway Line, in particular the likely environmental impacts to be gained from such a	LCC/PBC/SELRAP	L	Reinstatement of the Colne to Skipton Railway Line was a minor component of the M65 to Yorkshire Corridor Study. A Phase 1a review of	4	3	12	2	24	Progression of further studies in addition to the Phase 1a and 1b feasibility studies already undertaken. Construction to ultimately lead to increased rail use

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
	scheme, with ultimate aim of leading towards its construction			previous work and Phase 1b needs assessment and economic appraisal were completed in 2031/2014 respectively. Further studies warranted to identify feasibility of such a scheme						and hence reduced traffic flows in region and through AQMA.
Measure 3: Urban Traffic Management and Control (UTMC)	Identify where improved traffic management can lead to reduced congestion and therefore improved traffic flow - implement signalling to allow flow of traffic	LCC/PBC	M	Design and feasibility stage	3	6	18	6	108	Reduced congestion
Measure 4: Improvements in Traffic Flows and Speeds within the AQMA	Identify where traffic can be stacked out of the AQMA and implement signalling to allow flow of traffic, leading to increase in average	LCC and PBC	M	Initial M65 to Yorkshire Corridor Study identified numerous smaller scale highway improvements	6 (assumes a 20% increase in average	4	24	6	144	Reduced congestion and increases in average vehicle speeds through the Colne AQMA

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
	vehicle speeds			which could reduce congestion and improve traffic flows – further work to be done on the back of the initial studies.	vehicle speed can be achieved)					
Measure 5: Freight Quality Partnership / Ban on HGVs in AQMA during Peak Periods	Identify HGV routes with main stakeholders within the AQMA and consider options for HGV ban in AQMA during peak hours	PBC, local companies and freight operators	M	Inception stage	6 (assumes an HGV ban in the Colne AQMA during peak hours)	6	36	3	108	Reduction of HGVs especially at peak times
Measure 6: Introduction of 20mph Speed Restrictions	Implement 20mph speed limit in the AQMA and surrounding roads	LCC and PBC	S	LCC LTP includes a commitment to introduce 20mph limits in all residential areas and outside all schools over the lifetime of the LTP 2012/13 to	6	6	36	8	288	Reduced acceleration, which is when emissions are highest, and therefore improved air quality in Colne AQMA

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
				2014/15 Implementation Plan						
Measure 7: Encouraging Modal Shift	Work with LCC and Sustrans to encourage a modal shift	PBC/LCC	L	County Council already developing a prepayment NoWcard to work throughout the partnership area	3	6	18	7	126	Reduced vehicle use and increased use of public transport
Measure 8: Improvements in Bus Fleet Emissions	Work with bus companies to upgrade buses	LCC, PBC and bus companies	M	Inception stage	2	5	10	4	40	Improved bus fleet composition but no direct traffic reduction. Bus use more attractive to potential users – increased bus use
Measure 9: Bus Park and Ride (P&R)	Investigate feasibility for P&R	PBC/LCC	L	Feasibility stage	3	4	12	4	48	Reduce car use in the town centre and through the Colne AQMA
Measure 10: Improved Bus Services	Provision of additional bus routes and improvement of existing service	PBC/LCC	L	LCC will continue to support Nelson Bus Station and provide	2	5	10	6	60	Increased use of public bus services, thereby reducing car usage

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
				financial support to key non-commercial bus services (17 currently in Pendle).						
Measure 11: Reduction in Idling of Traffic	Implement 'No idling zones' and signage	PBC	S	Feasibility stage	2	7	14	5	70	Reduced idling in key areas
Measure 12: Freight Consolidation Centre	Investigate feasibility for a FCC	PBC	L	Feasibility stage	2	5	10	3	30	Reduce HGV use
Measure 13: Parking Strategies	Incentivise parking outside of the existing AQMA areas	PBC	S	Feasibility stage	2	7	14	5	70	Reduce traffic in AQMA area
Leading by Example Measures										

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 14: Carry out regular emissions testing of Council vehicle fleet to ensure that all vehicles comply with the law	Test all Council owned vehicles	PBC	S	Feasibility stage	2	7	14	7	98	All vehicle compliant with law
Measure 15: Fit pollution abatement equipment if necessary to older Heavy Goods Vehicles to help minimise pollution	Retrofitting of old Council owned HGVs	PBC	S	Feasibility stage	2	6	12	5	60	Improve average euro class of Council owned HGV fleet

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 16: Promote the use of cleaner or alternative fuels where possible including the introduction of electrically powered vans	Council to adopt a Sustainable Procurement Strategy	PBC	S	Feasibility stage	2	7	14	8	112	Introduce new electric or hybrid vehicles to the council fleet
Measure 17: Establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles	Replace old vehicles with new cleaner vehicles.	PBC	M	Feasibility stage	2	7	14	8	112	Improve average euro class of the whole Council owned fleet
Measure 18: Improve the Council's vehicle fuel consumption efficiency by better management of fleet activities	Plan for all fleet activities. Review routes and other uses	PBC	S	Feasibility stage	2	7	14	8	112	Reduce amount of Council vehicle trips within the AQMA

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 19: Investigate options for better travel planning amongst Pendle Borough Council employees	Develop workplace travel plan, undertake staff travel surveys and make remote working available where possible	PBC	S	Feasibility stage	2	7	14	8	112	Reduce number of Council staff driving to work
Education, Community and Partnership Measures										
Measure 20: Implement initiatives to educate communities on air pollution issues and ways to minimise impacts on air quality	Hold community forums/ school meetings, other social or media events and development of web-tools to increase air quality awareness	PBC	S	Feasibility stage	2	7	14	7	98	Increased public awareness of air quality issues and ultimate shift to less polluting forms of transport
Measure 21: Work with Sustrans to ensure that walking and cycling initiatives are promoted and supported	Meet with Sustrans to discuss issues	PBC	S	Feasibility stage	2	7	14	7	98	Increased uptake of bicycle use and walking by local residents

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 22: Encourage Pendle Borough Council employees to consider the use of bicycles in their daily duties by providing cycle usage mileage	Consider the cycle to work scheme for employees	PBC	S	Feasibility stage	2	7	14	8	112	Increased uptake of bicycle use by Council employees
Measure 23: Provide public with 'real time' travel and air quality information	Set up a website or twitter account to provide real-time air quality information, combined with real time passenger information (RTPI) for public transport at bus stops and new developments	PBC	M	Feasibility stage	2	6	12	5	60	Increased public awareness of air quality issues, increased attractiveness of public transport and possible increased rates of uptake

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 24: Work in partnership with the County Council to increase uptake and implementation of School Travel Plans, Workplace Travel Plans and Residential Travel Plans	Engage with schools, businesses and developers to implement new travel plans	PBC/LCC	M	Build upon existing Travel Plan provisions	3	7	14	7	147	Removal of existing road traffic from the road network and minimisation of that introduced by new schemes
Statutory Measures										
Measure 25: Comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	Ensure all planning applications which could impact air quality are properly assessed	PBC/LCC	S	Increase current scrutiny of planning application review with regards to predicted air quality impacts	3	7	21	9	189	Minimisation of air quality effects of new schemes and generation of funds for implementing measures as set out in this AQAP

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 26: Contribute to and influence forthcoming development policies for Lancashire County Council	Regularly liaise with LCC to increase air quality considerations within policy development	PBC/LCC	S	Build upon existing relationships and influence with policy developers	3	7	21	9	189	Increased inclusion of air quality considerations within County and Borough wide policy development
Measure 27: Authorise and regularly inspect industrial premises under the Environmental Permit regulatory regime	Ensure all industrial premises are complying with regulations	PBC	S	Build upon current inspection activities	2	7	14	8	112	Potential reductions of industrial emissions as a result of tighter/more regular inspection
Measure 28: Enforce relevant legislation to reduce burning of commercial and domestic waste	Identify any locations where commercial or domestic waste is regularly burnt	PBC	S	Feasibility stage	2	7	14	8	112	Reduced emissions to air from combustion of waste
Air Quality Monitoring Measures										

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measure 29: Continued air quality throughout the Pendle Borough Council area	Continue to monitor in hotspot areas and expand the monitoring network if/where necessary	PBC	S	PBC already undertake air quality monitoring as part of their LAQM obligations at numerous sites, as discussed earlier in this report	1	7	7	9	63	Whilst not directly leading to improvements in air quality, sufficient monitoring is key to understanding the extent of any air quality issues and allowing appropriate management measures to be effectively implemented and monitored
Measure 30: Ensure that all air quality monitoring data is both accurate and precise by implementing quality control measures	Continue to implement the best practice guidance on QA/QC process	PBC	S	PBC already implement best practice guidance with respect to QA/QC processes for air quality monitoring	1	7	7	9	63	Whilst not directly leading to improvements in air quality, ensuring accurate monitoring data is key to providing robust data and understanding the extent of any air quality issues

7 Implementation and Monitoring

Pendle Borough Council will work jointly on the AQAP measures with the relevant partners in Lancashire County Council, transport operators, schools and local businesses. To secure the necessary air quality improvements, there must be involvement by all local stakeholders who should actively work to encourage community participation in the process.

In addition to the preparation of this AQAP, the Council will consider preparing a Supplementary Planning Document for Air Quality. Such guidance can greatly assist in encouraging a consistent approach to considering the air quality impacts of proposed developments, whilst also providing a mechanism by which developer contributions to support the implementation of intervention measures outlined in this AQAP can be secured and air quality improved in the Colne AQMA and wider Pendle Borough Council area.

The implementation and effectiveness of the AQAP will be carefully monitored through monitoring of NO_2 at relevant receptor locations within the AQMA. In addition, traffic flow changes in the AQMA (including queue lengths, average speeds and fleet composition), will also be assessed through the review and assessment process, and the uptake of local measures. There will also be regular review and assessment of the AQAP proposals to evaluate progress and this will be reported annually as part of the LAQM Action Plan Progress Report.

8 Glossary of Terms

Abbreviation	Full name
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
CIL	Community Infrastructure Levy
FCC	Freight Consolidation Centre
FQP	Freight Quality Partnership
HDV	Heavy-Duty Vehicle
HGV	Heavy-Goods Vehicle
LAQM	Local Air Quality Management
LCC	Lancashire County Council
LGV	Light-Goods Vehicle
LTP	Local Transport Plan
NO	Nitric Oxides
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
PBC	Pendle Borough Council
PM_{10}	Particles of up to 10 µm in aerodynamic diameter
PTP	Personalised Travel Planning
QBP	Quality Bus Partnership
RTPI	Real Time Passenger Information
SELRAP	Skipton East Lancashire Railway Action Partnership
TEA	Triethanolamine
UTMC	Urban Traffic Management and Control
$\mu g/m^3$	Micrograms per cubic metre