Barnsley MBC
Air Quality Action Plan

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

April 2017 (updated 2019)

CLEAR VISION AND VALUES • CUSTOMER FOCUS • COMMERCIAL AND BUSINESS ACUMEN • EFFECTIVE DELIVERY OF PROJECTS AND PROGRAMMES • INNOVATIVE AND MANAGED RISK TAKING • LEARNING ORGANISATION • LEADERS AT EVERY LEVEL • FLEXIBLE WORKFORCE • WORKING WITH OUR PARTNERS, COMMUNITIES AND RESIDENTS • ENABLING ORGANISATION

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Foreword

We are rightly proud of our borough as we continue to work towards a brighter future and a better Barnsley. As part of the Sheffield City Region, we are keen to grow our economy in order to create more jobs and housing. Our rich industrial heritage compliments the stunning scenery and countryside that Barnsley offers.

Air pollution has improved significantly over the years, but the smogs of the past, caused by coal smoke from industry and domestic chimneys have been replaced by emissions from road transport.

Increasing knowledge of the impact of poor air quality on our health and declaration of our air quality management areas in the borough have re-invigorated our determination to reduce air pollution.

This plan provides the means of *how* we intend to achieve this aim and contains the actions that will reduce polluting emissions and improve air quality. These vary from ensuring that new development does not unnecessarily worsen air quality, to working with businesses to reduce emissions, promoting active travel and the uptake of low emission vehicles, amongst others.

We have consulted on the plan's proposals, and where comments have been made, we have taken these into account and amended the plan accordingly.

We are proud of our air quality success – the entire borough is covered by smoke control orders. Two of our air quality management areas have already been revoked, whilst schemes such as South Yorkshire Care4Air and the ECO Stars heavy duty fleet recognition scheme which was developed in Barnsley, have received national recognition.

There is however a lot more to do. We need to ensure that we meet legal air quality standards in the shortest possible time, whilst also continually driving down emissions to further protect the public.

We accept that economic growth can result in increased traffic, and it is therefore our task to ensure that our vision of a vibrant Barnsley economy is delivered, whilst also reducing emissions and improving air quality.

We all have roles to play for a cleaner and healthier Barnsley, for all who live, work or visit. This plan is an important step in achieving these aims.

Councillor Roy Miller, Cabinet Spokesperson, Place, Barnsley Metropolitan Borough Council

Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Barnsley between 2017 and 2021, and contains a number of actions designed to improve air quality in our air quality management areas, and in the Borough as a whole.

This action plan replaces the previous action plan for the period 2012 to 2016. Projects delivered from the previous action plan include:

- Delivery of a Quality Bus Corridor traffic management scheme resulting in the revocation of an air quality management area (AQMA).
- Continued development of the ECO Stars fleet recognition scheme in order to reduce road traffic fleet emissions.
- Development of the Barnsley MBC Air Quality and Emissions Good Practice Planning Guidance, in order to mitigate against the air quality impact of future development in the borough.
- Implementation of intelligent traffic management systems to ease traffic flow and congestions, and hence reduce emissions

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Air pollution is increasingly considered to have a contributing role with asthma, stroke, diabetes, obesity and changes linked to dementia[1]. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[2,3].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[4]. Barnsley MBC is committed to reducing the exposure of people in the Barnsley borough to poor air quality in order to improve health.

[1] Royal College of Physicians, February 2016, Every breath we take: the lifelong impact of air pollution
[2] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[3] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[4] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Barnsleys' air quality issues are typical of an urban location, with emissions from road transport being a major source of air pollution, and the underlying reason for declaration of all our air quality management areas. Emissions from industrial and domestic sources are still of importance however, and continue to be subject to the relevant regulation, where appropriate.

Previous assessment of the borough's air quality revealed the breaching (exceedance) of the annual average objective (standard) for nitrogen dioxide gas (NO_2) at receptors (mainly houses). These areas are close to several arterial roads and junctions near to Barnsley town centre, and close to the M1 motorway. Nitrogen dioxide is strongly associated with traffic emissions. This polluting gas is associated with respiratory symptoms in particular[5].

We are developing actions under five key themes, which have been developed and agreed by the Barnsley MBC Air Quality Action Plan Steering Group, chaired by our Director of Public Health. These are:

Reduce Traffic

Behavioural Change

Increase Efficiency

Improve Fleet

Regulation

Underlying these key themes are aims which provide the focus and commitment for each of the themes, ensuring that all stakeholders understand the overall aims of this Plan.

5 Defra, February 2015 – Getting to grips with air pollution – the latest evidence and techniques – A briefing for Directors of Public Health

Whilst we understand that national actions and legislation are expected to deliver road traffic emission reduction, primarily our priorities will be to compliment these national actions with local air quality improvement, particularly at local residual air pollution hot spots, such as our AQMAs.

In this AQAP we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond Barnsley MBC's direct influence.

Barnsley has several AQMAs, and this plan includes actions for all of these, rather than producing individual action plans for each AQMA.

Responsibilities and Commitment

This AQAP was prepared by the Regulatory Services department of Barnsley Council with the support and agreement of the following officers and departments:

Regulatory Services	
Transport and Highways	
Planning	
Public Health	

This AQAP has been approved by members of Air Quality Steering Group:

This commitment to local air quality improvement has been further demonstrated by the Council developing a new Corporate Plan performance indicator for air quality. This is *CO25 Air quality nitrogen dioxide levels – microgrammes per cubic metre under Outcome 11 – Strong and Resilient Communities, Protecting the borough for future generations (target date for achievement being 2020)*. The target of 40 microgrammes per cubic metre relates to the annual average European Limit Value, the standard that is

being breached within our AQMAs, and the standard that the actions within the action plan are attempting to meet.

Furthermore, actions which will impact on Highways England's' road network (especially the M1 motorway in the Barnsley borough and the A616 in Langsett where we have declared AQMAs), will receive sign-off from Highways England officers, following joint working between the Council and Highways England in developing actions, and subsequent consultation.

The below table details the actions the Council wishes to pursue, subject to securing appropriate funding, and securing stakeholder approval.

No.	Proposed Action	Effectiveness
1	Congestion management	High
2	Barnsley Voluntary Bus Agreement	High
3	Encourage uptake of lower emission vehicles and alternative fuels (EVs, CNG, H_2)	High
4	Langsett	High
5	Planning applications – air quality assessment and mitigation	High
6	Speed restrictions on gradient Feasibility Study	High
7	Procurement	High
8	Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes	High
9	Enforcement of the Clean Air with regards to industrial smoke	High
10	Enforcement of the Clean Air with regards to domestic smoke control	High
11	Investigation of nuisance complaints, including appropriate action to resolve the problem	High
12	BMBC fleet improvement	High
13	Priority parking for LEVs	High
14	Freight and Delivery Management	High
15	ECO Stars HDV Recognition Scheme	Medium
16	ECO Stars Taxi Recognition Scheme	Medium
17	ECO Driving	Medium
18	Consolidation Centre	Medium
19	Barnsley Intelligent Transport System (MOVA / SCOOT)	Low
20	Encourage cycling and walking (developing infrastructure and campaigns)	Low
21	Care4Air	Low
22	Assessment of air quality impact of major traffic schemes	Low
23	Smoky diesel hotline	Low
24	Car and Lift sharing programmes	Low
25	Promoting Travel Alternatives (Workplace travel planning; encourage / facilitate home-working; personalised travel planning; school travel plans)	Low

26	Anti-idling enforcement	Low

These actions have been ranked low, medium or high on their effectiveness to reduce air pollution emissions, based on Government guidance.

This AQAP will be subject to an annual review, appraisal of progress and reporting to the relevant Council Committee. Progress each year will be reported in the Annual Status Reports (ASRs) produced by Barnsley MBC, as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP please send them to Pollution Control at:

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Introduction

This report outlines the actions that Barnsley MBC intends to deliver between 2017 and 2021 in order to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the Barnsley borough.

It has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within Barnsley MBC's air quality ASR (Annual Status Report).

Summary of Current Air Quality in Barnsley

Please refer to the latest Annual Status Report (ASR) from Barnsley MBC, available at https://www2.barnsley.gov.uk/services/environment-and-planning/pollution/air-quality, which details progress with current actions in improving air quality, along with our latest air quality monitoring data.

Barnsleys' air quality issues are typical of an urban location, with emissions from road transport being a major source of air pollution, and the underlying reason for declaration of all our air quality management areas. Emissions from industrial and domestic sources are still of importance however, and continue to be subject to the relevant regulation, where appropriate.

Previous assessment of the borough's air quality revealed the breaching (exceedance) of the annual average objective (standard) for nitrogen dioxide gas (NO_2) at receptors (mainly houses). These areas are close to several arterial roads and junctions near to Barnsley town centre, and close to the M1 motorway. Nitrogen dioxide is strongly associated with traffic emissions in particular. This polluting gas is associated with respiratory symptoms[7].

These areas have been declared air quality management areas (AQMAs).

Currently, Barnsley MBC has the following AQMAs, all declared due to exceedance of the annual average objective for nitrogen dioxide gas.

Table 1 - Existing AQMAs in the Barnsley Borough

AQMA No.	Adjacent roads / junctions	Year declared	Estimated no. of domestic dwellings within AQMA
1	M1 Motorway, 100 metres either side of the central reservation within the Barnsley Borough	2001	265
2A	A628 Dodworth Road	2005	285
4	A61 Harborough Hill Road	2008	42
5	Junction of A633 Rotherham Road and Burton Road	2008	16
6	A616 passing through Langsett	2012	7
7	Junction of A61 Sheffield and A6133	2012	2

7 Defra, February 2015 – Getting to grips with air pollution – the latest evidence and techniques – A briefing for Directors of Public Health

	Cemetery Road		

During 2012 we revoked the Barnsley 2B AQMA (Barnsley Road, Dodworth), as our detailed assessment submitted to Defra in 2011 concluded that due to the construction of a nearby by-pass, NO_2 concentrations had reduced sufficiently within this AQMA to merit revocation.

Following this, in Summer 2016, we revoked the Barnsley No. 3 AQMA (junction of Wakefield Road and Burton Road near to Barnsley town centre), following a detailed assessment in 2015. Both of these AQMAs were declared due to exceedance of the annual average objective for nitrogen dioxide gas (NO_2).

In Summer 2016 also, we have amended the order for the Langsett No. 6 AQMA to include exceedance of the 1-hour mean for NO_2, as well as previously declared exceedance of the annual mean.

A map showing the location of the current AQMAs is contained within appendix C.

In addition, several road links have been identified by Defra from their national assessment of air quality as exceeding the European Limit value for NO_2. These road links can be viewed at https://uk-air.defra.gov.uk/data/gis-mapping[8]. Some of these road links are found within in borough, with some of these then broadly corresponding to AQMA areas in Barnsley. Local Authorities are required to have due regard for these areas, particularly as the Government's national air quality plans rely heavily on current and proposed local actions (including actions taken from Barnsley MBC air quality action plan) to meet the European Union limit values for NO_2.

Those areas which have been determined as "national exceedance areas" in Barnsley, but have **not** been declared AQMAs by the Council, are primarily the result of the Council, when reviewing these areas, finding no relevant exposure (e.g. affected nearby houses etc.).

[8] Defra, UK Ambient Air Quality Interactive Map

Barnsley MBC's Air Quality Priorities

1.1 Public Health Context

The local public health agenda is very closely linked to improving air quality. Several of the known health aspects of poor air quality (linked with cardiovascular and respiratory disease amongst others for instance) are important local Public Health issues, whilst promotion of active travel can reduce emissions, as well as improve general physical health.

Government guidance now requires all local authorities to have regard to reducing emissions of a pollutant referred to as $PM_{2.5}$. $PM_{2.5}$ comprises all airborne particles smaller than 2.5 microns (A micron is 1 millionth of a metre, or 1000th of a millimetre) and is the pollutant which has the strongest links to ill health and is used for the Public Health Outcomes Framework indicator (3.01). At this size these particles can be inhaled deep into the lungs. **Previous work by Public Health England to quantify the local health burden of $PM_{2.5}$ within local authorities estimated this to be equivalent to 124 deaths per annum in the Borough, or 5.6% of total mortality per annum.** Although Barnsley is meeting the standards for $PM_{2.5}$, there is no known safe concentration for this pollutant, hence, the Government's desire that emissions of this pollutant are tackled at local, as well as national level. As local sources of $PM_{2.5}$ particles are very similar to sources of nitrogen dioxide gas (traffic, houses, industry), it is important also to assess any action to reduce emissions of nitrogen dioxide for their impact on $PM_{2.5}$ emissions. It is currently understood that the Government is considering a similar indicator for nitrogen dioxide to $PM_{2.5}$.

Barnsley MBC Public Health has therefore shown a keen interest in the effects of local air pollution on health. As a consequence, an investigation into local $PM_{2.5}$ concentrations was undertaken in 2014-15, with a report produced in 2016[9]. This report made a number of recommendations, these being:

[9] Barnsley MBC, Regulatory Services, January 2016, $PM_{2.5}$ Monitoring in Barnsley 2015-15, report to Barnsley MBC, Public Health

- Public Health note the contents of this report and consider, along with Regulatory Services (and other stakeholders), how $PM_{2.5}$ may be tackled in future, and report on this within the June 2016 Barnsley MBC annual status report.
- Public Health continue to report on PHOF indicator 3.01 – Fraction of mortality attributable to particulate air pollution.
- Public Health and Pollution Control continue their ongoing dialogue so that Public Health can offer assistance when appropriate in promoting actions to reduce $PM_{2.5}$ concentrations and improve air quality in general.

The report can be viewed at https://www2.barnsley.gov.uk/services/environment-and-planning/pollution/air-quality. The report details the joint working between Public Health and other services dealing with air quality in the Council. This has been further recognised by the agreement of Barnsley's Director of Public Health to chair the Barnsley MBC Air Quality Steering Group, with air quality also being discussed in the latest Director of Health Annual Report[10].

In addition, it is now acknowledged that there are considered to be health impacts at concentrations below the limit values and objectives for both particulate matter and NO_2. Consequently, Public Health are keen that concentrations of both of these pollutants are addressed generally within the borough where feasible and not just within our AQMAs, in order to give wider protection to public health.

Other public health outcome framework indicators (PHOF) for the borough highlight the prevalence of poor health (e.g. cardiovascular disease, respiratory disease), which can be associated with poor air quality (one of many factors), or are a co-benefit of actions to improve air quality (such as promotion of the active travel agenda on levels of obesity)[11].

The public health links with poor air quality have been further highlighted within the Royal College of Physicians report[12], which explores the impact of poor air quality across

[10] https://www.barnsley.gov.uk/media/2616/barnsley-dph-annual-report-2015_16.pdf
[11] http://www.phoutcomes.info/
[12] Royal College of Physicians, February 2016, Every breath we take: the lifelong impact of air pollution

the life-course. This report further strengthens the link that the most vulnerable groups in society are those most affected by air pollution, through the combined impact of poor air quality and deprivation, along with longer term health inequalities. This report also details the ongoing costs of air pollution to the NHS and the wider social care system.

1.2 Planning and Policy Context

The air quality impact of development is recognised nationally and locally. Nationally, the National Planning Policy Framework (NPPF)[13] provides guidance as to how planning can take account of the impact of new development on air quality. Paragraphs 35, 109 and 124 specifically require that developments: (i) exploit opportunities for sustainable transport modes; (ii) incorporate facilities for charging plug-in and other ultra-low emission vehicles; (iii) do not cause unacceptable impacts; (iv) contribute towards compliance with EU limit values and national air quality objectives; (v) properly consider the impact on AQMAs and AQAP; and (vi) consider cumulative impacts.

Supporting the NPP,F and in order to ensure that the air quality impact of future development in the borough is appropriately mitigated, this Service has developed the Barnsley MBC Air Quality and Emissions Good Practice Planning Guidance[14] (https://www2.barnsley.gov.uk/services/environment-and-planning/pollution/air-quality). The guidance provides a template for integrating air quality considerations into land-use planning and development management policies that can influence the reduction of road transport emissions. The air quality assessments follow a three stage process:

- Stage 1: Determining the classification of the development proposal
- Stage 2: Assessing and quantifying the impact on local air quality
- Stage 3: Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements.

Consequently, this guidance has been incorporated as an action into this plan, a complete copy of this guidance can be found in appendix D.

[13] Department for Communities and Local Government, March 2012, National Planning Policy Framework, ISBN 978-1-4098-3413-7
[14] Barnsley MBC, September 2014, Air Quality and Emissions Good Practice Guidance

1.3 Source Apportionment

The AQAP actions presented in this report are intended to be targeted towards the predominant sources of emissions within the Barnsley area.

A road traffic source apportionment exercise has been carried out by Barnsley MBC in 2016, using the latest emission factors[15] and 2015 traffic counts[16].

Source apportionment was undertaken using the Council's "Airviro" emissions database and dispersion modelling system, following a procedure agreed by South Yorkshire local authorities (see appendix E).

This process identified that within each AQMA, the percentage road traffic source contributions were as follows:

Table 2 - Barnsley urban area (general emissions profile of the urban area)

Description	Percentage Contribution
Urban Area - All Road Sources - NOx	100
Urban Area - 2WMV - NOx	0.2
Urban Area - BUS - NOx	16.4
Urban Area - DIESEL CAR - NOx	44.5
Urban Area - PETROL CAR - NOx	7.1
Urban Area - ARTIC- NOx	3.6
Urban Area - RIGID - NOx	10.6
Urban Area - LGV DIESEL - NOx	17.2
Urban Area - LGV PETROL - NOx	0

Table 3 – Emissions Profile AQMA 1, M1 Motorway

Description	Percentage Contribution
M1 - All Road Sources - NOx	100
M1 - 2WMV - NOx	0.3
M1 - BUS - NOx	6.1
M1 - DIESEL CAR - NOx	36.5
M1 - PETROL CAR - NOx	3.6
M1 - ARTIC- NOx	28.2
M1 - RIGID - NOx	13.4
M1 - LGV DIESEL - NOx	11.2
M1 - LGV PETROL - NOx	0.5

Table 4 – Emissions Profile - AQMA 2A, Dodworth Road

Description	Percentage Contribution
Dodworth Rd - All Road Sources - NOx	100
Dodworth Rd - 2WMV - NOx	0.3
Dodworth Rd - BUS - NOx	20.6
Dodworth Rd - DIESEL CAR - NOx	37.7
Dodworth Rd - PETROL CAR - NOx	5.9
Dodworth Rd - ARTIC- NOx	7.9

[15] http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html
[16] http://www.dft.gov.uk/traffic-counts

Dodworth Rd - RIGID - NOx	11.6
Dodworth Rd - LGV DIESEL - NOx	15.5
Dodworth Rd - LGV PETROL - NOx	0.4

Table 5 – Emissions Profile - AQMA 4, Harborough Hill Road

Description	Percentage Contribution
Harborough Hills - All Road Sources - NOx	100
Harborough Hills - 2WMV - NOx	0.1
Harborough Hills - BUS - NOx	20.6
Harborough Hills - DIESEL CAR - NOx	31.2
Harborough Hills - PETROL CAR - NOx	4.9
Harborough Hills - ARTIC- NOx	10.0
Harborough Hills - RIGID - NOx	19.9
Harborough Hills - LGV DIESEL - NOx	13.0
Harborough Hills - LGV PETROL - NOx	0.2

Table 6 – Emissions Profile - AQMA 5, Junction of Burton Road and Rotherham Road

Description	Percentage Contribution
Rotherham Road / Burton Rd - All Road Sources - NOx	100
Rotherham Road / Burton Rd - 2WMV - NOx	0.1
Rotherham Road / Burton Rd - BUS - NOx	19.4
Rotherham Road / Burton Rd - DIESEL CAR - NOx	39.9
Rotherham Road / Burton Rd - PETROL CAR - NOx	5.8
Rotherham Road / Burton Rd - ARTIC- NOx	6.5
Rotherham Road / Burton Rd - RIGID - NOx	14.6
Rotherham Road / Burton Rd - LGV DIESEL - NOx	13.1
Rotherham Road / Burton Rd - LGV PETROL - NOx	0.5

Table 7 – Emissions Profile - AQMA 6, Manchester Road, Langsett

Description	Percentage Contribution
Langsett All Road Sources - NOx	100
Langsett - 2WMV - NOx	0
Langsett - BUS - NOx	3.1
Langsett - DIESEL CAR - NOx	27.5
Langsett - PETROL CAR - NOx	5.6
Langsett - ARTIC- NOx	14.2
Langsett - RIGID - NOx	19.9
Langsett - LGV DIESEL - NOx	29.4
Langsett - LGV PETROL - NOx	0

Table 8 – Emissions Profile - AQMA 7, Sheffield Road

Description	Percentage Contribution
Sheffield Road - All Road Sources - NOx	100
Sheffield Road - 2WMV - NOx	0
Sheffield Road -BUS - NOx	19.5
Sheffield Road -DIESEL CAR - NOx	45.9
Sheffield Road - PETROL CAR - NOx	7.5
Sheffield Road - ARTIC- NOx	0.6
Sheffield Road - RIGID - NOx	6.9
Sheffield Road - LGV DIESEL - NOx	17.6
Sheffield Road - LGV PETROL - NOx	0

A summary of the above source apportionment data (NOx emissions) is detailed in the below table:

Table 9 – Summary of Source Apportionment

AQMA	% Petrol Car	% Diesel Car	% LGV (diesel)	% Bus	% HGVs (arctic and rigid)
All urban	7.1	44.5	17.2	16.4	27.8
1	3.6	36.5	11.2	6.1	41.6
2A	5.9	37.7	15.5	20.6	19.5
4	4.9	31.2	13.0	20.6	32.9
5	5.8	39.9	13.1	19.4	27.7
6	5.6	27.5	29.4	3.1	34.1
7	7.5	45.9	17.6	19.5	7.5

The data in the above table are presented in three pie charts, these being the Barnsley urban area AQMAs ("average" of AQMAs 2,4,5 and 7), the M1 motorway (AQMA 1) and Langsett (the A616 trans-pennine road, AQMA 6).

Figure 1

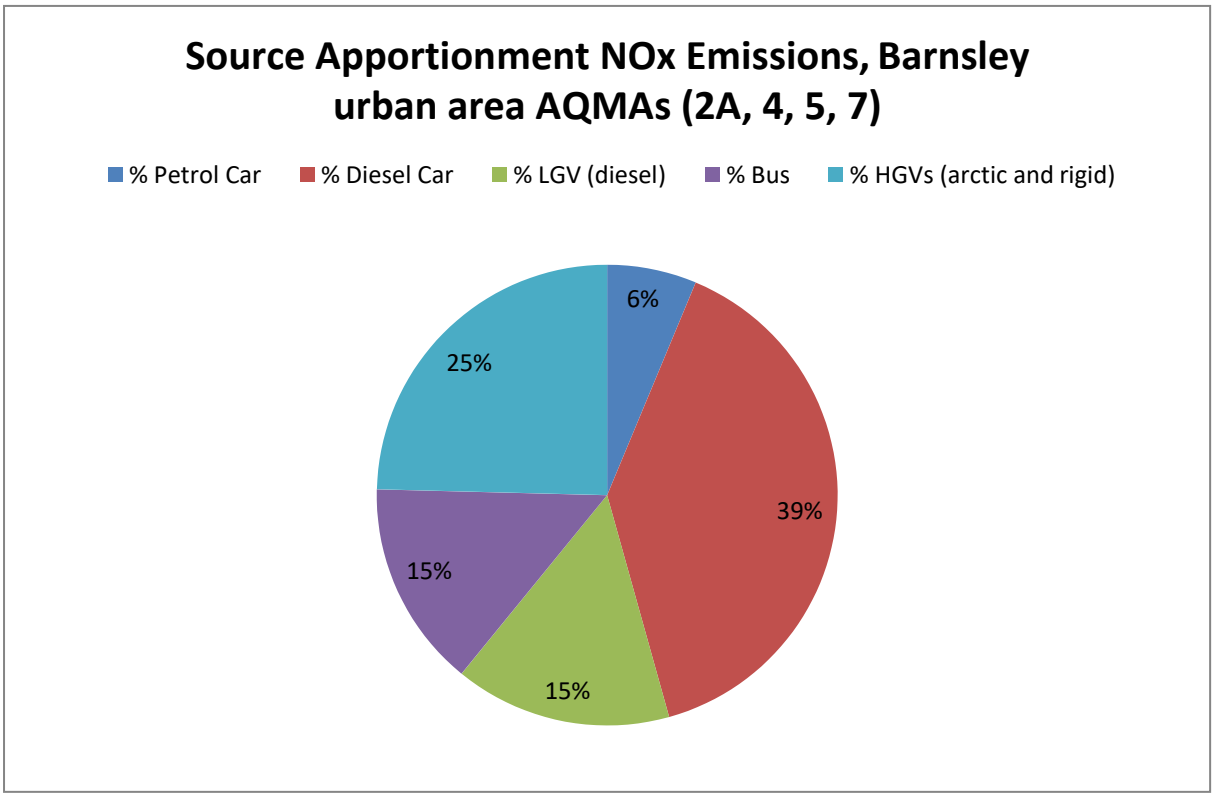


Figure 2

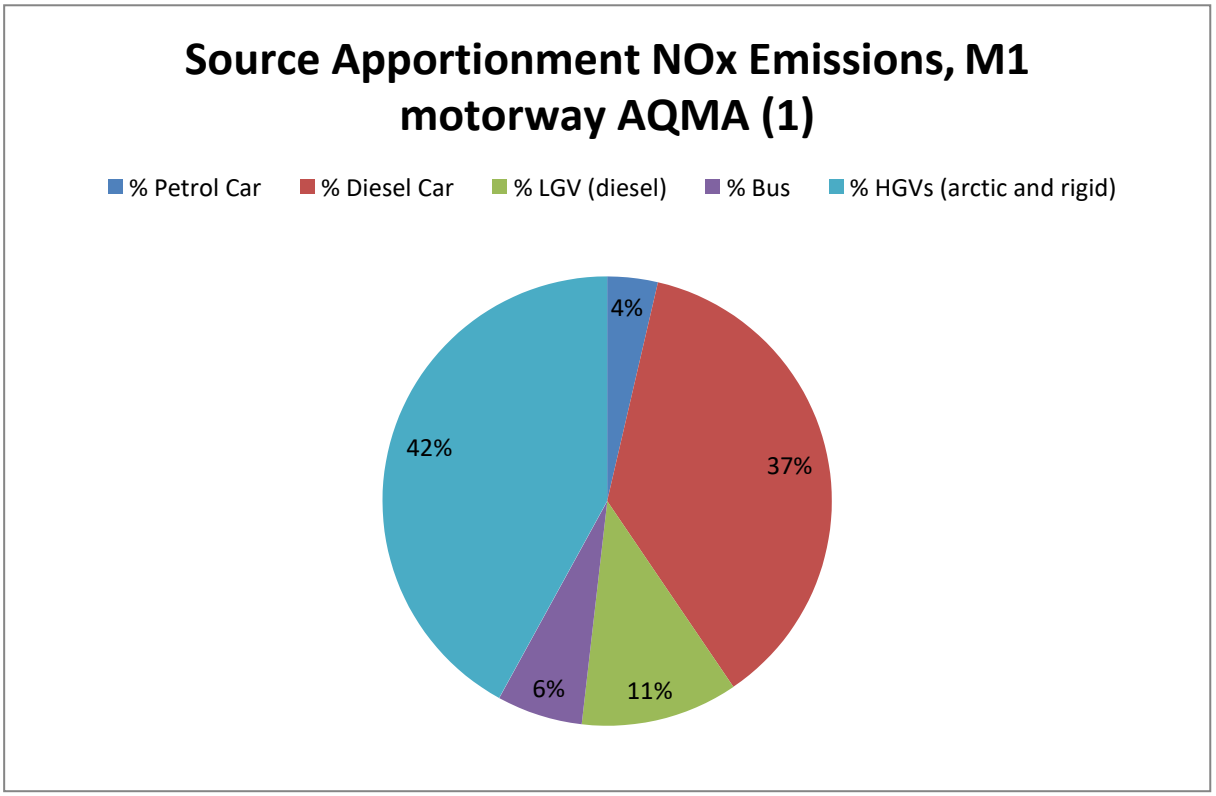
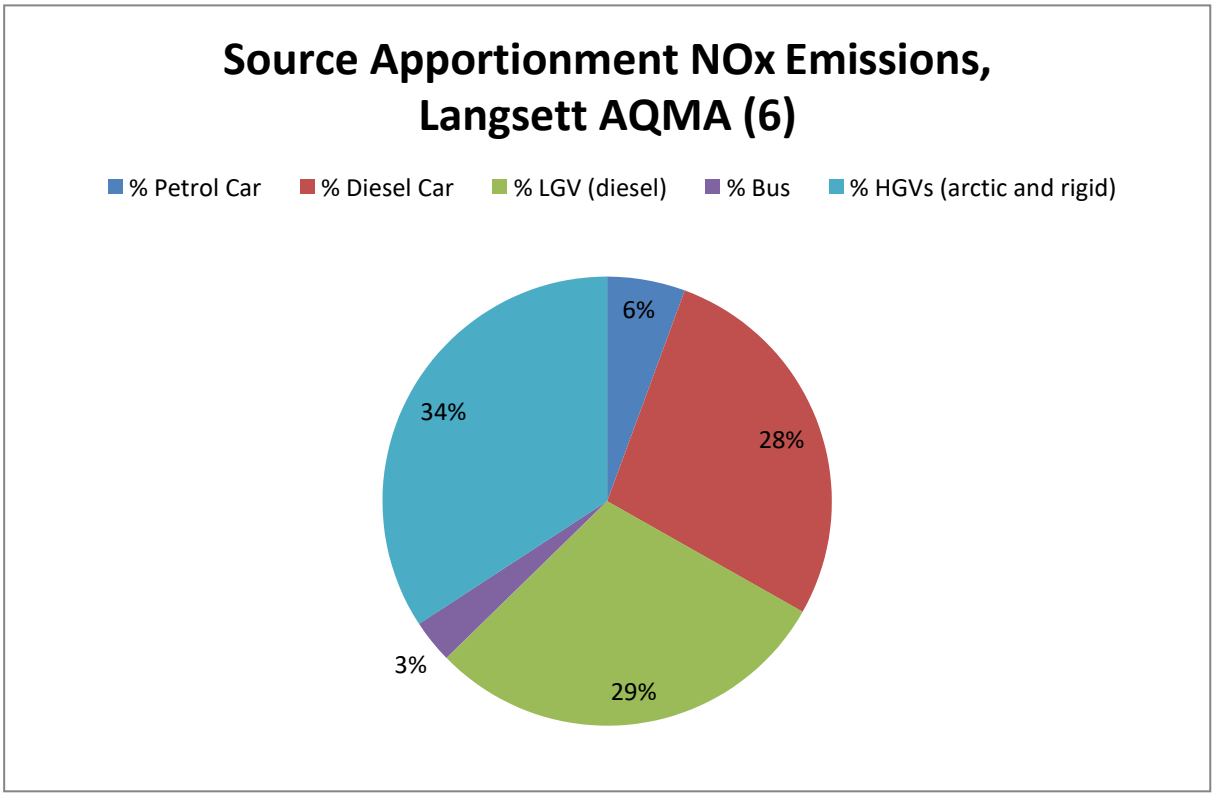


Figure 3



Further interpretation of the above data reveals the following:

The contribution of petrol cars to NOx emissions is relatively insignificant, whilst the total contribution from diesel cars and diesel lights good vehicles is typically approximately 50% of all road emissions.

Emissions from buses are more variable, however where an AQMA includes part of a bus route, then contributions are typically 15-20% of all emissions, with bus emissions being a significant contributor generally within the Barnsley urban area. HGV emissions are also variable, but are still a contributor to road traffic related NOx emissions in the borough, with their impact being greatest on the strategic road network in the Barnsley area (i.e. M1 motorway – AQMA 1; A616 – AQMA 6).

There are circumstances local to two AQMAs within the Barnsley urban area (i.e. gradient affecting AQMA 4; congestion outside of peak hours at locations within AQMA 2 etc.), which will have further impact on these very localised emission profiles, however this source apportionment exercise does give a strong indication where actions need to be taken.

Primarily, reduction of road transport emissions is subject to the successful implementation of progressively tighter engine emission standards (EURO standards),

and the operation of strict testing regimes. These issues have been the subject of recent considerable debate. Clearly however, local authorities have no control over these particular regimes, being the remit of national and international authorities.

However, Central Government have made it clear to local authorities that local measures to tackle road traffic emissions are required, as well as relying on national / international actions to reduce emissions. This has been highlighted by Central Government, by the inclusion of local authority actions (including actions taken from our 2012-2016 action plan) within their national plan, submitted to the European Commission in December 2015[17],[18]. The importance of local actions are stressed within these documents.

It should also be recognised that traffic emissions are not the only source of emissions, as typically, in urban areas, industrial and domestic emissions account for a proportion of overall emissions. Defra's 2004 report (Air Quality Expert Group: Nitrogen Dioxide in the UK – Summary)[19] discusses this issue further.

In order for this plan to be effective and feasible, it is important that actions are targeted to their sources. It should also be noted that the source apportionment exercise does not take account of other circumstances within each of our AQMAs (e.g. the impact of gradient or excessive localised congestion within a particular AQMA).

1.4 Required Reduction in Emissions

An emission reduction exercise has been undertaken, following the requirements of Technical Guidance LAQM.TG16 Chapter 7. The following results were obtained:

Table 10 – Required Reduction in NOx Emissions, AQMAs

AQMA	Required reduction in road NOx (µg/m^3) to achieve annual mean objective	% reduction required
2A	7	9.9

[17] Defra, December 2015, Improving air quality in the UK. Tackling nitrogen dioxide in our towns and cities – UK overview document
[18] Defra, December 2015, Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO_2) in Yorkshire and Humberside (UK0034)
[19] https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/nd-summary.pdf

4	19.1	40
6	89.2	52.7
7	11.6	16.3

These data show that very significant road NOx reductions are required in AQMAs 4 and 6. It should be noted that there are local circumstances for these AQMAs which reflect these required reductions. Both AQMAs are subject to significantly increased emissions due to gradient, whilst Langsett, due to its remote location, (adjacent to the Peak District National Park in the Pennines) has relatively low concentrations of background NOx, compared to the Barnsley urban area. Proposed actions within these AQMAs therefore need to reflect these particular emission profiles. Subsequently additional local actions, specific to these two AQMAs will be required to achieve compliance.

No emission reduction calculations have been undertaken for AQMAs 1 and 5, as NO_2 concentrations within these AQMAs are meeting the objective. Our 2016 Annual Status Report[20] recommended that we proceed to a detailed assessment, with a view to revoking AQMA 5, due to several years compliance. In contrast, due to proposals for a managed motorways scheme along the M1 motorway in Barnsley, we await further information on the air quality impact of this scheme, before we proceed further.

Achieving sufficient reduction in NOx emissions in order to comply with the NO_2 annual mean objective / EU limit is not the sole aim of this plan. The prevention of any deterioration in air quality in those areas of the Borough which are close to the objective / limit value will also continue, regardless of achieved compliance in our AQMAs, along with continued protection of health.

1.5 Key Themes

We have developed actions under five key themes. These have been developed and agreed by the Barnsley MBC Air Quality Action Plan Steering Group, chaired by our Director of Public Health. These are:

[20] Barnsley MBC, June 2016, 2016 Annual Status Report, https://www2.barnsley.gov.uk/services/environment-and-planning/pollution/air-quality

- Reduce Traffic
- Behavioural Change
- Increase Efficiency
- Improve Fleet
- Regulation

Underlying these themes are aims which provide the focus and commitment for each of the themes, ensuring that all stakeholders understand the overall aims of the Plan. The key themes are detailed in Table 11 below:

Barnsley MBC

Table 11 – Key Priorities

Key Theme	Reduce Traffic	Behavioural Change	Increase Efficiency	Improve Fleet	Regulation
Aim	**We aim to improve air quality by promoting public transport and other travel alternatives to the use of the private car**	**We aim to improve air quality by encouraging people who live, work or learn in Barnsley to take steps to reduce their impact**	**We aim to improve air quality by ensuring our transport networks operate as efficiently as possible by smoothing traffic flows and reducing congestion**	**We aim to improve air quality by reducing emissions from our Barnsley MBC fleet and other assets**	**We aim to improve air quality by ensuring that industrial and domestic air pollution is correctly and fairly regulated, and ensuring that businesses are aware of their statutory requirements**
Action	Barnsley Bus Agreement Promoting Travel Alternatives	Encourage Active Travel Car and Lift sharing programmes Eco Driver Training Scheme Care4Air Anti-idling Encourage uptake of lower emission vehicles and alternative fuels ECO Stars HDV Fleet Recognition scheme ECO Stars Taxi Fleet Recognition Scheme Priority parking for LEVs	Carriageway Improvements Specific scheme for AQMA 6 Planning applications - air quality mitigation and assessment Barnsley Intelligent Transport Systems Assessment of air quality impact of major traffic schemes	Procurement BMBC Fleet improvements	Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes Enforcement of Clean Air Act with regards to industrial smoke Enforcement of Clean Air Act with regards to domestic smoke Investigation of nuisance complaints, including appropriate action to resolve the complaint

We have also reviewed the draft NICE air quality guidance for local authorities, which recognises (amongst other proposed air quality mitigations), the impact of the introduction of 20 mph zones and vegetation barriers on improving air quality. We therefore note from the draft NICE guidelines that:

"evidence showed that street trees and green walls or roofs have a mixed effect on street air quality – in some cases they restrict street ventilation causing poorer air quality, in others they improve it".

"where speed reduction is needed to reduce road danger and injuries, take account of the potential adverse impact on air pollution. Consider 20 mph zones in residential areas characterised by stop-go traffic where this will reduce accelerations and decelerations. Where physical measures are needed to reduce speed, such as humps and bumps, ensure they are designed to minimise sharp decelerations and consequent accelerations".

Development and Implementation of Barnsley MBC AQAP

1.6 Consultation and Stakeholder Engagement

In developing/updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community who have a stake in improving local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 12. We have also undertaken a review of local, regional and national existing strategies[22,23,24], plans and policies which have direct or indirect links to air quality. The local plans referenced below have assisted in the development of this plan, while supporting continued and sustainable growth in the borough.

The Plan also aligns with the aims and objectives of the Council's Housing Strategy (2014-2033)[25], in particular the objective to deliver a more sustainable housing stock. For instance, the objective to reduce carbon emissions from housing will also assist with reduction of local air quality pollutant emissions generally, through the progressive use of more energy efficient ways to heat and power local housing.

Furthermore, through the planning regime, appropriate mitigation will be required for any future development which may be located in areas of air quality concern.

Examples of such mitigation include the provision of residential electric vehicle charging points and other Travel Plan interventions.

In addition, this process has included a review of our previous action plan[26].

The Plan also recognises other Council aspirations, notably restructuring the economy through economic regeneration. Increasing economic activity to maintain enough jobs and businesses to support the working population will potentially generate increased traffic on the local road network, which can then impact on congestion and road traffic emissions. This issue has been acknowledged. Regionally, the emerging Sheffield City Region Integrated Infrastructure Plan[27] recognises air quality as an issue, and identifies opportunities to reduce transport related emissions. Locally, the developing Local Plan identifies sites in the Borough which may be allocated for future development; whilst also within the Local Plan, there is a policy specifically relating to mitigation of air

[22] Barnsley MBC, 2014, Barnsley MBC, Highways and Transportation, Barnsley MBC Transport Strategy, 2014-2033
[23] Barnsley MBC, Housing and Energy, 2016, Energy Strategy 2015-2025
[24] Barnsley MBC, Public Health, 2016, Our Public Health Strategy 2016-18
[25] Barnsley MBC, Housing and Energy, 2014, Housing Strategy 2014-2033
[26] Barnsley MBC, 2012, Air Quality Action Plan
[27] Sheffield City Region, 2016, Sheffield City Region Integrated Infrastructure Plan

quality impact from future development, in locations where there are potential air quality concerns.

Importantly, this plan follows the development of a Sheffield City Region (SCR) Air Quality Action Plan (see appendix F). Consequently this plan is very closely linked to the SCR Air Quality Action Plan, as this regional plan identifies mechanisms for air quality related actions which may be undertaken at this level, with associated funding bids also undertaken regionally. The development of regional funding bids is currently expected to be carried out by officers from the Combined Authority, in partnership with officers from Barnsley MBC. This arrangement is likely, as any subsequent funding awards for schemes which would benefit Barnsley, would very likely be lodged and administered by the Combined Authority. The actions proposed within the SCR action plan are very similar to this plan, with the regional plan acting as a supporting document to this plan. Barnsley MBC's air quality Steering Group will have the final decision regarding any regional actions to be pursued within the borough.

A formal consultation exercise on the draft plan was undertaken in late 2016. All relevant information was made available on the Barnsley MBC website (www.barnsley.gov.uk). Stakeholders were directed to the Barnsley MBC consultation web page (http://consult.barnsley.gov.uk/portal), where they were invited to comment online on the draft plan.

In addition, stakeholders who were considered to have a significant role in developing and implementing the plan were contacted directly. Besides those stakeholders listed in Table 12 below, there will be further consultation with stakeholders internal to the Council via the Steering Group, and it is expected that current dialogue with other external stakeholders (e.g. Highways England) will continue.

The response to our consultation stakeholder engagement is given in appendix A.

Table 12 – Consultation Undertaken

Yes/No	Consultee
	the Secretary of State (to be undertaken after completion of final draft)
Yes	the Environment Agency
Yes	Highways England

Yes	all neighbouring local authorities
Yes	other public authorities as appropriate, such as Public Health officials
Yes	bodies representing local business interests and other organisations as appropriate

1.7 Steering Group

This draft action was presented to the inaugural meeting of the Steering Group, following approval of the draft plan by Council. The composition of the Steering Group is detailed in table 13:

Table 13 – Composition of the Steering Group

Chair	Director of Public Health, Barnsley MBC
Secretariat and Administration	Regulatory Services, Barnsley MBC
Directors and Heads of Transport and Highways	Ian Wilson, Group Manager, Environment and Transport
Directors and Heads of Development	Phillip Spurr, Service Director, Culture, Housing and Regulation
Directors and Heads of Planning	Joe Jenkinson, Head of Planning
Directors and Heads of Public Health	Julia Burrows, Director of Public Health Diane Lee, Head of Public Health Julie Tolhurst, Public Health Principal

The Steering Group will meet twice a year to gauge progress with the actions, promote new actions (where appropriate) and ensure that the local air quality management process in Barnsley is delivering and evolving.

The inaugural meeting of the Steering Group considered the actions within the draft of this plan and consequently approved the list of actions to go forward to wider consultation.

Regardless of actions being approved by stakeholder consultation, or by the Steering Group, some of these actions are yet subject to the securing of suitable funding.

1.8 AQAP Actions

Table 14 shows the proposed Barnsley MBC Air Quality Action Plan measures. It contains:

- a list of the actions that form the plan
- the responsible individual and departments/organisations who will deliver this action
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of pollutant emission and/or concentration reduction
- the timescale for implementation
- how progress will be monitored

Furthermore, the table in appendix G provides further evaluation of our proposed actions, particularly identifying definite or potential funding sources; their impact on NOx and particulate matter (including $PM_{2.5}$) emissions; and the sectors of the vehicle fleet that these are actions are targeting.

N.B. Please see future Annual Status Reports for regular annual updates on implementation of these measures

Table 14 – Proposed Air Quality Action Plan Measures

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Carriageway improvements	Traffic Management	Congestion Management	BMBC	TBC, subject to any future funding bids	TBC, subject to any future funding bids	Completion of scheme	To be determined, and dependent on any future scheme feasibility study	To be determined	TBC, subject to any future funding bid	Previous construction of road management schemes adjacent / within AQMAs has resulted in revocation
2	Barnsley Bus Partnership Agreement	Transport Planning and Infrastructure	Public Transport Improvements	BMBC, H&T	2016	2017	Penetration of Euro V or VI buses in the Fleet	Dependent on agreement and any subsequent retrofit funding	Consultation on proposed agreement 2016	2022	Agreement based on previously signed ones elsewhere in South Yorkshire, but opportunity to update emission requirement (EURO specification)
3	Encourage uptake of lower emission vehicles and alternative fuels (EVs, CNG, H_2)	Promoting low emission transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging Public vehicle procurement – prioritising uptake of low emission vehicles	BMBC, H&T, Reg Services,	Dependent on specific projects	2016-2021, subject to funding bids etc.	Use of charging points in borough	The results of the 2011 FA modelling exercise for the this action indicate, that, after application of certain assumptions has resulted in a decrease of between 10% and 14% in NO_2 concentrations. It must be borne in mind that these are likely to be best case scenarios, which will only be achieved by a significant shift to low emission vehicles in the vehicle fleet	See 2016 ASR	2021, subject to securing funding	See 2016 ASR. It is hoped that this project can build upon other existing projects elsewhere in South Yorkshire
4	Specific schemes for the Langsett AQMA (AQMA No. 6)	Traffic Management	Congestion Management	Highways England	2016-2017	Subject to outcomes of the planning phase	Reduction in concentrations (see 2013 detailed assessment)	Reduction in concentrations (see 2013 detailed assessment)	Setting up of working group	Subject to identification of appropriate actions and funding	The joint HE-BMBC working party has identified potential actions, which now require further consideration and consultation

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Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5	Planning applications – air quality assessment and mitigation	Policy Guidance and Development Control	Air Quality Planning and Policy guidance	BMBC, Regulatory Services	Completed	Ongoing	Unable to determine	Unable to determine	Development of appropriate guidance for developers. Subsequent implementation of this guidance	Ongoing	Number of planning applications in 2016 where we have requested and agreed mitigation with the developer
6	Speed restrictions on gradient Feasibility Study	Traffic Management	Congestion Management	BMBC, Regulatory Services	2016-17	On completion of planning phase, securing of funding and approval of relevant stakeholders	Implementation of scheme	Subject to conclusions of assessment (supporting dispersion modelling exercise)	Initial modelling exercise undertaken, which will require further refinement following dialogue with stakeholders	Subject to approval of scheme	This AQMA has been declared due to increased emissions using a steep uphill carriageway. Concentrations adjacent to the downhill carriageway are meeting EU limit values
7	Procurement	Policy Guidance and Development Control	Sustainable Procurement Guidance	BMBC Procurement	2016-17	Subject to production of revised Procurement policy taking account of air quality	Production and implementation of revised policy	Unable to determine	None	Ongoing	Process will involve the review of other local authority procurement policies
8	Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes	No EU category / classification	No EU category / classification	BMBC Regulatory Services	Completed	Ongoing	Unable to determine	Unable to determine	Ongoing	Ongoing	Ongoing statutory duty for local authorities
9	Enforcement of the Clean Air Act with regards to industrial smoke	No EU category / classification	No EU category / classification	BMBC Regulatory Services	Completed	Ongoing	Unable to determine	Unable to determine	Ongoing	Ongoing	Ongoing statutory duty for local authorities
10	Enforcement of the Clean Air Act with regards to domestic smoke control	No EU category / classification	No EU category / classification	BMBC Regulatory Services	Completed	Ongoing	Unable to determine	Unable to determine	Ongoing	Ongoing	Ongoing statutory duty for local authorities

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Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
11	Investigation of nuisance complaints, including appropriate action to resolve the problem	No EU category / classification	No EU category / classification	BMBC Regulatory Services	Completed	Ongoing	Unable to determine	Unable to determine	Ongoing	Ongoing	Ongoing statutory duty for local authorities
12	BMBC fleet improvements	Vehicle Fleet Efficiency	Vehicle retrofitting programmes	BMBC	Not yet determined, as subject to future funding bids	Not yet determined, as subject to future funding bids	Not yet determined	Not yet determined	None	Not yet determined	Dependent on future opportunities
13	Priority parking for LEVs	Promoting low emission transport	Priority parking for LEVs	BMBC	2016-17	Post planning phase, so 2017 onwards	Not yet determined	Not yet determined	Working towards consultation of revised Car Parking Strategy	Not yet determined	Consultation process should provide opportunity to comment on priority parking for LEVs
14	Freight and Delivery Management	Freight and Delivery Management	Delivery and Service plans	BMBC H&T	Not yet determined	Not yet determined	Not yet determined	Not yet determined	Not yet determined	Not yet determined	
15	ECO Stars HDV Fleet Recognition Scheme	Vehicle Fleet Efficiency	Vehicle Fleet efficiency and recognition schemes	BMBC, H&T	Completed	2016-2021	Number of new operators and vehicles per annum	Our 2011 FA indicated that a 25% scheme uptake by commercial fleet operators will indicate a 1% average percent reduction in NOx concentrations when averaged across all the receptor locations in our AQMAs.	See 2016 ASR	2021	http://www.ecostars-uk.com/
16	ECO Stars Taxi Fleet Recognition Scheme	Vehicle Fleet Efficiency	Vehicle Fleet efficiency and recognition schemes	BMBC, H&T	2016-17	2017-21	Number of new operators and vehicles per annum, if implemented	Expected to be similar to ECO Stars HDV Recognition Scheme	None	2021	Subject to obtaining suitable funding. http://www.ecostars-uk.com/

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Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
17	Eco Driving	Vehicle Fleet Efficiency	Driver training	BMBC, SYPTE?	2016-17	2017-21	Number of companies / drivers	Evaluation report may be able determine target reduction	Reviewed South Yorkshire driver training scheme	2021 (subject to funding)	Subject to obtaining suitable funding. Review of evaluation of 2016 Inmotion scheme required as first step (Evaluation Report released Spring 2016)
18	Consolidation Centre	Freight and Delivery Management	Freight Consolidation Centre	BMBC	Not yet determined	Not yet determined	Not yet determined	Not yet determined	None	Not yet determined	Dependent on future opportunities
19	Barnsley Intelligent Transport Systems	Transport Management	Congestion Management	BMBC, H&T	Completed	2016-2018	As the system is responsive to demand management requirements, it is considered difficult to prescribe a key performance indicator, however ITS (SCOOT/MOVA[28]) has been installed within several of our AQMAs	As the system is responsive to demand management requirements, it is considered difficult to prescribe a target annual emission reduction	See previous PRs. Installation of SCOOT within AQMAs, 2A, 4 and 7. Installation of MOVA in AQMA 5	2018	Intend to continue beyond 2018, subject to securing of further funding in future years
20	Encourage cycling and walking (developing infrastructure and campaigns)	Promoting Travel Alternatives Transport Planning and Infrastructure	Promotion of Cycling Promotion of Walking Public cycle hire scheme Cycle network	BMBC, H&T	Ongoing	2016-2021	To be determined	Table A.1 Action Toolbox of LAQM 16 indicates low impact on reducing PM and NOx emissions	Barnsley Cycle Hub (web link), Barnsley Cycle Boost (web link)	2021	Successful Sustainable Transport Transition Fund (STTF) award in 2016-17, with bids for funding thereafter
21	Care4Air	Public Information	Via the internet, leaflets, radio, television and other mechanisms	BMBC, Regulatory Services	Completed	2016-2021	Unable to determine	Unable to determine	See website for details of progress	Subject to funding	http://www.care4air.org/

28 SCOOT – Split Cycle and Offset Optimisation Technique; MOVA – Microprocessor Optimised Vehicle Actuation, both designed to maximise traffic flow

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Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
22	Assessment of air quality impact of major traffic schemes	Traffic Management	Congestion Management	BMBC Regulatory Services	Completed	Ongoing	Unable to determine?	Unable to determine?	Assessment of previous schemes	Ongoing	Assessment of schemes to ensure that design and layout has beneficial impact on emission reduction
23	Smoky diesel Hotline	Public Information	Via the internet, leaflets, radio, television and other mechanisms	BMBC Reg Services	Completed	Ongoing	Unable to determine	Unable to determine	Ongoing	Ongoing	See (https://www.gov.uk/report-smoky-vehicle)
24	Car and Lift sharing programmes	Alternatives to private vehicle use	Car and Lift sharing schemes	BMBC, SYTPE	Completed	Ongoing	Unable to determine	Unable to determine	Not yet determined	Not yet determined	See (https://southyorkshire.liftshare.com)
25	Promoting Travel Alternatives (Workplace travel planning; encourage / facilitate home-working; personalised travel planning; school travel plans)	Promoting Travel Alternatives	(Workplace travel planning; encourage / facilitate home-working; personalised travel planning; school travel plans)	BMBC H&T	Completed	Ongoing	Not yet determined	Not yet determined	Not yet determined	Not yet determined	Ongoing projects
26	Anti-idling policy feasibility study	Traffic Management	Anti-idling enforcement	BMBC H&T	2016-17	Following completion of feasibility study and adoption of the policy	Not yet determined	Not yet determined	Not yet determined	Not yet determined	Feasibility study to determine if an anti-idling policy is appropriate for Barnsley

These proposed actions are discussed in more detail below:

Carriageway Improvements

As well as current congestion issues, it is hoped that the Borough will be subject to further employment and housing growth in future, in order to continually drive local economic regeneration and secure a more prosperous future. Such development and increasing economic activity, by its very nature, will generate increased traffic on the local network. This can have impact on congestion and emissions. In

order to mitigate against this, previous transport modelling work undertaken has demonstrated that carriageway improvements can be undertaken to improve vehicle flows and hence reduce emissions. This has proven successful in the past in Barnsley, resulting in the revocation of two AQMAs.

Barnsley Bus Partnership Agreement

The Council and South Yorkshire Passenger Transport Executive (SYPTE) are currently negotiating a bus agreement with local operators and with regard to revised bus network throughout Barnsley. A consultation process forms part of this process, with the intention to introduce a new bus network in January 2017. Previously, similar agreements have been signed by our South Yorkshire neighbouring local authorities, with the agreement including stipulated emissions standards. The proposed Barnsley agreement intends to also include emission standards (EURO specification), and discussions are ongoing regarding the most appropriate standards.

Barnsley Intelligent Transport Systems

SCOOT and MOVA have been installed at various junctions in the Barnsley urban area, including AQMAs 2A, 4 and 5. These systems are used to "try to minimise the traffic problems by using a variety of traffic management methods. SCOOT (Split Cycle Offset Optimisation Technique) is a tool for managing and controlling traffic signals in urban areas. It is an adaptive system that responds automatically to fluctuations in traffic flow through the use of on-street detectors embedded in the road"[29]. MOVA tends to be used at more isolated junctions, but the principle is the same as SCOOT. Reducing congestion has beneficial effects on road transport emissions, and is quoted within Table A1 of Annex A of the LAQM Action Toolbox (TG 16) as an action with air quality benefit.

Encourage uptake of lower emission vehicles and alternative fuels (EVs, CNG, H_2)

[29] http://www.scoot-utc.com/

Electric Vehicles (EVs), as well as those powered by compressed natural gas (CNG) and hydrogen (H_2) are essentially zero tailpipe emission. Clearly these will have great air quality benefit. Regionally, the Sheffield City Region Air Quality Action Plan states "at present the uptake of low emission vehicles amongst the public has been limited, as with most products in their infancy, although there has recently been some acceleration in the number of nationally registered EVs. Growth in uptake is forecast over the next 25 years as car manufacturers move to develop low emission alternatives. The gradual shift to low emission, electric and hybrid vehicles will only be possible if research and investment in an infrastructure that can support them is undertaken at national and local level. The partners have a key role to play by directing resources to encourage the shift to a low emission economy."

The Energy Savings Trust website (http://www.energysavingtrust.org.uk/travel/electric-vehicles) provides a detailed discussion around the use of low emission vehicles, including electric vehicles. This site includes information relating to available grants for purchasing electric vehicles, running costs, range issues and location of re-charging facilities. The UK's government's official advisers, the Committee on Climate Change, say 60% of new car sales in the UK should be electric by 2030, in order to deliver the nation's carbon cuts at the least cost.

With this expected major shift in sales of new electric vehicles (especially cars), the Council (along with all other local authorities) is keen to ensure that there will in future be an appropriate infrastructure to meet this demand, in addition to meeting the emission reduction and air quality benefit. Appendix D contains the Barnsley MBC Air Quality and Emissions Good Practice Guidance, which recommends to developers suitable mitigation to offset the air quality impact of future development. This guidance recommends, where appropriate, the installation of electric vehicle charging points for these future developments.

The Council is trialling an electric vehicle, previously purchased from Defra air quality grant funding, in order to demonstrate the suitability of such technology to undertake routine Council business. The Council is therefore keen to facilitate the uptake of such low emission vehicles.

In addition, Doncaster MBC have submitted a Defra air quality grant bid on behalf of all four South Yorkshire local authorities in 2016 to produce a countywide communication and education package of measures aimed at increasing awareness and dispelling myths on a local scale to escalate the uptake of Ultra Low Emission Vehicles across the region. At the time of writing this Plan we await the outcome of this bid, but if successful, Barnsley MBC will be partners for this campaign.

Encourage cycling and walking (developing infrastructure and campaigns)

Cycling and Walking programmes are listed Table A1 of Annex A of the LAQM Action Toolbox (TG 16) as an action with air quality benefit. Specifically, the guidance states that "Investing in cycling (….and walking….) can help bring about a modal shift away from use of private vehicles, thereby reducing emissions of relevant air pollutants. There are also co-benefits in encouraging cycling, e.g. on health". Regionally, the city region has bid for a number of cycle and walking schemes in 2016-17 via the DfT's Sustainable Transport Transition Fund (STTF), and note the recent DfT announcements with regard to future "Access" funding opportunities beyond 2016-17 for these initiatives.

Care4Air

Care4Air is the South Yorkshire air quality campaign, owned by the four South Yorkshire local authorities and the SYPTE. This scheme has been operating for several years (see http://www.care4air.org/). This campaign aims to encourage behavioural change using a positive "social marketing" message in order for individuals and organisations to reduce emissions. In the past, this campaign has been very successful and has received national recognition. Consideration needs to be given regarding the direction of the scheme, and again, identify appropriate funding.

ECO Stars Heavy Duty Vehicle (HDV) Recognition Scheme

The ECO Stars fleet recognition scheme is a free scheme that aims to help fleet operators improve efficiency and reduce fuel consumption, with the subsequent benefit of reducing emissions. This scheme was originally set up by Barnsley and neighbouring South Yorkshire local authorities as a means of working with this fleet sector (HGVs, buses, coaches and vans) in order to improve air quality. The scheme works by assessing vehicle fleets for their operational practice and age and their subsequent fuel consumption and environmental impact, and then offering advice (roadmap) on how to make further improvements. The scheme is currently trialling a toolkit which enables operators and scheme managers to assess changes in fuel consumption and subsequently emissions. The scheme has now extended beyond South Yorkshire to other UK local authorities and to Europe. Further information can be found at http://www.ecostars-uk.com. Funding has been obtained to continue with the scheme in 2017-18, with a strong desire to continue further beyond these dates.

ECO Stars Taxi Recognition Scheme

Following on from the success of the ECO Stars HDV Recognition Scheme, a similar taxi scheme has been set up, which other authorities (notably Mid Devon and Dundee) have undertaken. This Service will therefore explore the feasibility of undertaking a Barnsley ECO Stars Taxi Recognition Scheme, including the identification of funding. As with the HDV scheme, the scheme will be free to operators. A Defra air quality grant bid was submitted in 2016 for this project, and, at the time of writing of this Plan, we await outcome of this bid.

Eco Driving

In 2015-16, using Local Sustainable Transport Funding (LSTF), the South Yorkshire Inmotion project (http://www.inmotion.co.uk) undertook an eco driver trainingscheme, targeted at LDV fleets. We therefore intend to assess the feasibility of operating a further scheme in Barnsley, once we have studied the evaluation report[30] for the Inmotion scheme. As stated earlier, our source apportionment work has

[30] eDriving Solutions Ltd., June 2015, An Evaluation of the South Yorkshire Safer Roads Partnership ECO-Business Driving Scheme

highlighted the significant contribution to local NOx concentrations from diesel cars and diesel lights goods vehicles using local roads. A Defra air quality grant bid was submitted in 2016 for this project, and, at the time of writing of this Plan, we await outcome of this bid.

Specific schemes for the Langsett AQMA (AQMA No. 6)

The air quality issues within Langsett have been discussed within our 2013 detailed assessment[31]. To summarise, a major trans-pennine road (A616) passes through the village of Langsett. A significant number of HGVs use this road, which is subject to a gradient and right hand turn junction within the village. The A616 is a Highways England administered road. This road is also part of proposed an enhanced trans-pennine connectivity scheme, and initial discussions have been held with Highways England on appropriate air quality mitigations within the context of the proposed scheme. Further work is required to progress this issue, but it is hoped that this work will continue in 2017-18, with the outcomes and way forward to be reported in next years' Annual Status Report. It must be stressed however that improvement in air quality in Langsett requires the active involvement and commitment of Highways England.

Planning applications – air quality assessment and mitigation

In order to mitigate more effectively against the air quality impact of future development, this service will continue to implement local guidance. The guidance provides a template for integrating air quality considerations into land-use planning and development management policies that can influence the reduction of road transport emissions. Consequently, this has been added to this Barnsley MBC Air Quality Action Plan.

The air quality assessments follow a three stage process:

- Stage 1: Determining the classification of the development proposal
- Stage 2: Assessing and quantifying the impact on local air quality

[31] Barnsley MBC, November 2013, Air Quality Further Assessment Report

• Stage 3: Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements

This local guidance is complimented nationally by the requirements of the National Planning Policy Framework.

In addition, the planning process can consider the siting of any new large industrial sources. Underpinning the planning process are the relevant planning policies. Currently these are contained within the Core Strategy of the Unitary Development Plan. This is expected to be replaced by a new Local Plan, which intended to be formally adopted this year. All relevant planning policies relating to air quality can be viewed at https://www.barnsley.gov.uk/services/planning-and-buildings/local-planning-and-development/our-new-local-plan/barnsleys-local-plan/.

These policies require an applicant to consider air quality in these circumstances. Should this assessment (which is appraised by the local authority) indicate exceedance of any UK air quality objectives / EU limit values, then the proposed development will require appropriate mitigation, or the application may then be refused on air quality grounds.

Subsequent to the planning process, it is likely that the siting of a large industrial process would then be subject to the issue of an environmental permit, by either the Environment Agency or Barnsley MBC, dependent on the nature and size of any installation. This process would introduce further scrutiny of any air quality issues.

Similarly, the impact of introducing exposure close to these installations can be assessed (such as the encroachment of domestic housing on large industrial sources). Should this assessment indicate exposure to air pollution exceeding UK objectives / EU limit values, then any application for any such development would require suitable mitigation or would be refused on air quality grounds.

There is a finite number of large industrial installations in the borough, and this authority is also aware of large industrial installations in neighbouring authorities, so the impact of these can also be considered, such this prove necessary.

Speed restrictions on gradient Feasibility Study (Specifically AQMA 4, Harborough Hill Road)

In 2017-18, we propose to undertake a feasibility study on the impact of reducing speeds on Harborough Hill Road on emissions. Besides undertaking a study into change in emissions as a consequence of speeds reduction, a separate consultation will be required with all stakeholders (e.g. South Yorkshire Safer Roads Partnership), along with identification of suitable funding. Any such proposals could be trialled for a period of time, to then assess effectiveness.

Procurement

Consideration can be given to adoption of Barnsley MBC procurement procedures, which take account of the opportunities to encourage, require or acquire lower emission vehicles.

Assessment of air quality impact of major traffic schemes

The air quality impact of any future major traffic schemes is considered in detail and recommendations for mitigation are made when appropriate.

Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes

Continuing control over those industrial processes which require an environmental permit ensures that air emissions are kept at a legislative minimum or below. Barnsley MBC are also becoming aware of the proposed Medium Combustion Plant Directive. We are already considering this issue, especially for planning applications for the installation of "short term operating reserve" (STORs), and the subsequent impact of these on air quality in the borough. We note however that the UK's transposition of the directive is still under consultation, so any future implementation of the directive by the local authority will be addressed in our future air quality Annual Status Reports.

In addition, consideration has been given to the potential effects of the proposed combustion activity (diesel engines with a net rated thermal input of 1-50 MW), intended to be introduced into the Environmental Permitting Regulations 2010 (as amended) by January 2019.

This relates to the possible growth of diesel arrays, and the use of standby generators. We are already considering this issue, especially for planning applications for the installation of "short term operating reserve" (STORs), and the impact of air quality in the borough. We are asking for appropriate air quality assessments, with the methodology agreed with the local authority. These assessments are required to assess these installation's predicted emissions on local air pollution concentrations, including comparison against UK air quality objectives / EU limit values. Should this assessment (which is appraised by the local authority) indicate exceedance of any UK air quality objectives / EU limit values, then the proposed development will require appropriate mitigation, or the application may then be refused on air quality grounds.

Enforcement of the Clean Air with regards to industrial smoke

Continuing control of industrial air emissions.

Enforcement of the Clean Air with regards to domestic smoke control

Continuing control of domestic air emissions. In addition, Barnsley MBC is aware of the growing impact of domestic sources on $PM_{2.5}$ emissions from biomass burning. The entire Barnsley borough is covered by smoke control orders, and Barnsley MBC offer advice to householders who are considering using biomass and solid fuel appliances. Further information can be found at https://www.barnsley.gov.uk/services/pollution/air-pollution/smoke-control. All stoves or boilers intended for domestic use in the Barnsley borough therefore will have to be exempted appliances or the householder will need to use an authorised fuel. Furthermore, Barnsley MBC investigate complaints regarding domestic smoke under the requirements of the Clean Air Act 1993. Action ten of this Plan consequently deals with enforcement of the Clean Air Act with regards to domestic smoke control, which include emissions from domestic solid fuel stoves and boilers.

Barnsley MBC have also undertaken monitoring of $PM_{2.5}$ concentrations within parts of the borough[32], which may be subject to domestic $PM_{2.5}$ emissions. This monitoring concluded that air quality standards relating to $PM_{2.5}$ were not being exceeded.

Investigation of nuisance complaints, including appropriate action to resolve the problem

Continuing control of domestic air emissions.

Smoky diesel Hotline

Central Government still operate their web page for the reporting of excessively smoking heavy goods vehicles, coaches and buses (https://www.gov.uk/report-smoky-vehicle). The Council can publicise this hotline locally, and lobby Central Government, whether it would be feasible to develop a similar hotline for light duty vehicles.

Consolidation Centres

Should opportunity for these arise in the Borough, then the air quality benefits of these should be encouraged.

Barnsley MBC fleet improvement

Barnsley Council's fleets are already members of the ECO Stars HDV fleet recognition scheme. Consequently, they are trialling an "enhanced roadmap" for the ECO Stars scheme, with the aim of identifying opportunities to further reduce emissions.

Car and Lift sharing programmes

The Liftshare scheme (https://southyorkshire.liftshare.com) is already operating in South Yorkshire. There is opportunity to further publicise this scheme to fleets in the Barnsley area.

[32] Barnsley MBC, Regulatory Services, January 2016, $PM_{2.5}$ Monitoring in Barnsley 2015-15, report to Barnsley MBC, Public Health

Barnsley MBC

Priority parking for Low Emission Vehicles

Barnsley MBC is currently reviewing its car parking policies. There will therefore be opportunity to consider the feasibility of preferential parking for low emission vehicles, as means of encouraging their use in the Barnsley urban area.

Promoting Travel Alternatives

Continuation of workplace travel planning requirements for new development; encouraging and facilitating home working and personalised travel plans.

Appendix A: Response to Consultation

Table A.1 – Summary of Responses to Consultation and Stakeholder Engagement on the AQAP

Consultee	Category	Response
Langsett Parish Council	Transport	Concern was raised by Langsett Parish Council that the proposed actions to improve air quality within AQMA 6 (Langsett) were too vague and without timelines. Highways England are the authority for the A616 through Langsett. Barnsley MBC will endeavour to set up a joint working party involving BMBC, LPC and HE to address these concerns.
Environment Agency	Industry	Further consideration to be given in the Plan to emissions from stationary sources. This has been addressed in section 1.8 above.
Barnsley MBC, Public Health	Transport	Consideration of 20 mph zones and vegetation barriers as detailed in the draft NICE guidance – addressed in section 1.8 above. Strengthen links with NHS and social car partners – will be addressed by Barnsley MBC Public Health and Regulatory Services as implementation of the Plan progresses. Driver training to reduce speeds and emissions, particularly working with NHS / social care / voluntary sector fleets. Action 17 above proposes a an eco driver training programme, subject to the securing of funding. A bid was submitted to Defra for air quality grant funding in 2016 for such a scheme.
Local resident	Transport	Consideration of an assisted purchase scheme for low emission vehicles – currently the Council has no facility for such schemes.
Local resident	Transport	Concern that the Plan did not address the air quality impact of new development and that the Plan did not consider other sources of traffic emissions as well as diesel cars. The resident has been directed to those sections of the Plan where these issues have been addressed.

Local ward member	Transport	A local ward member requested that the Plan had more consideration of the role of electric vehicles have in securing future road traffic emission reduction. This has subsequently been undertaken in the Plan.
Local ward member	Other	A local ward member raised the issue of public smoking. The member has been responded to directly with the Council's Public Health plans to deal with this issue. This issue is separate to the aims and purpose of this Action Plan.

External consultees contacted directly

Neighbouring local authorities (Doncaster, Rotherham, Sheffield, Wakefield, Kirklees, High Peak)

Environment Agency

Highways England

Stagecoach

South Yorkshire Passenger Transport Executive

Sheffield City Region Combined Authority

Peak District National Park

Freight Transport Association

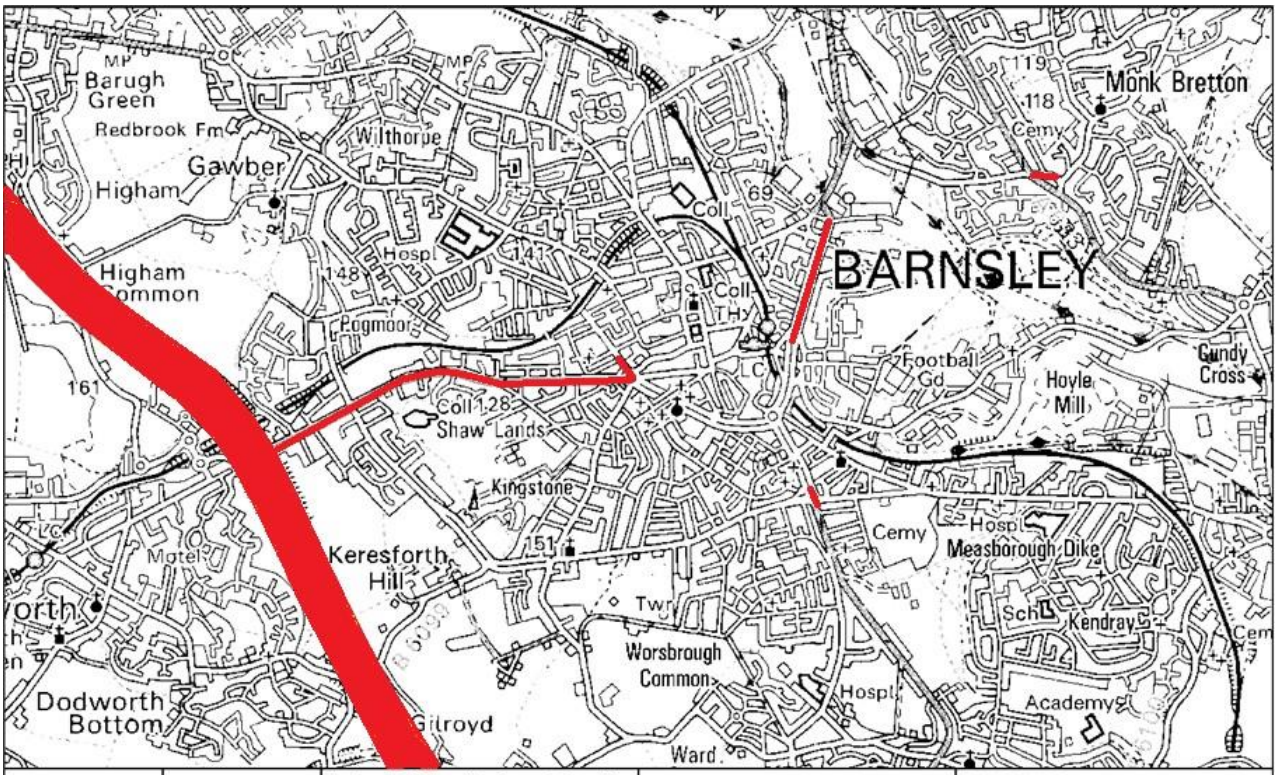
Barnsley and Rotherham Chamber of Commerce

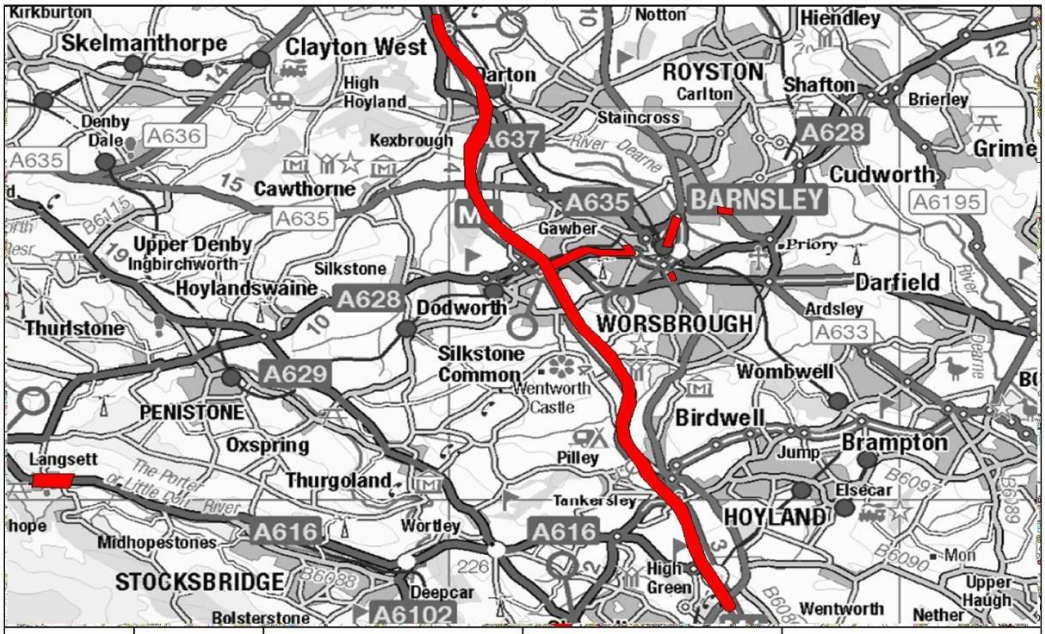
Appendix B: Reasons for Not Pursuing Action Plan Measures

Table B.1 – Action Plan Measures Not Pursued and the Reasons for that Decision

Action category	Action description	Reason action is not being pursued (including Stakeholder views)

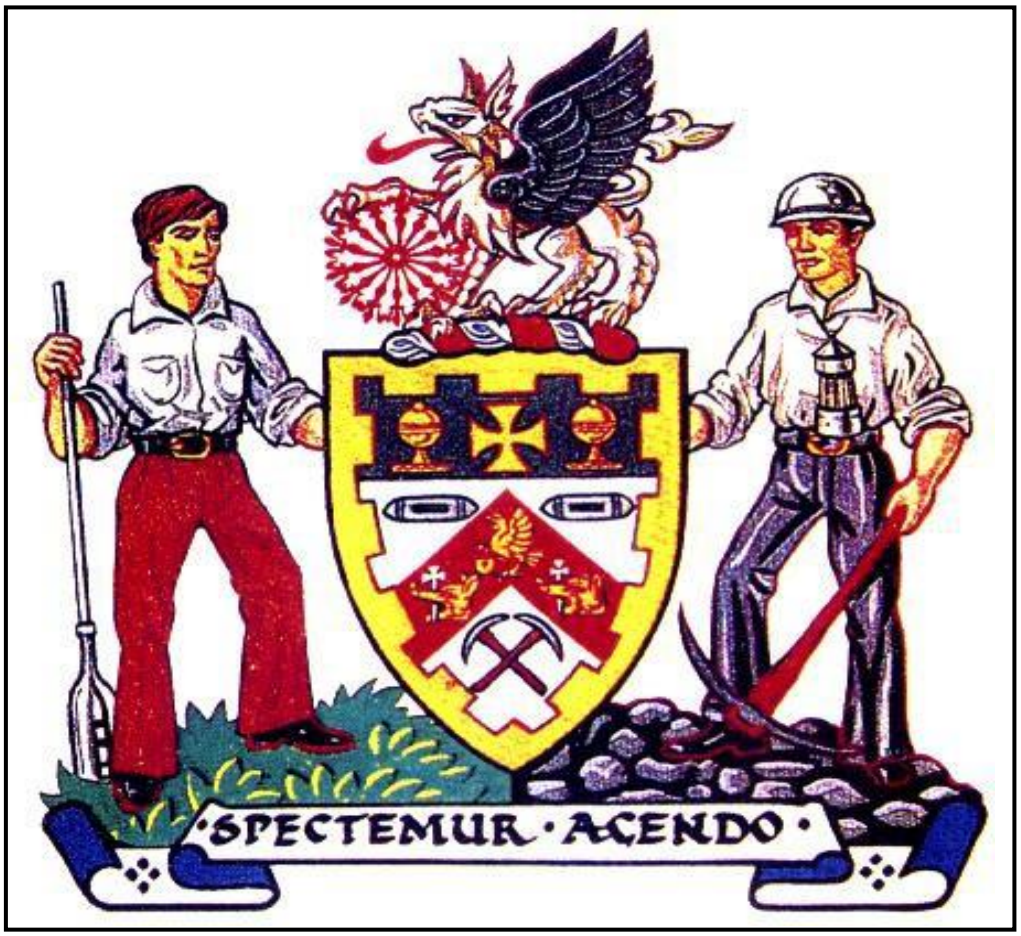
Appendix C: Maps of Existing AQMAs





Appendix D - AIR QUALITY AND EMISSIONS GOOD PRACTICE PLANNING GUIDANCE

Barnsley Metropolitan Borough Council



AIR QUALITY AND EMISSIONS

GOOD PRACTICE PLANNING GUIDANCE

September 2014

This technical guidance is aimed at helping planning authorities deliver national air quality objectives through cost effective service planning

CONTENTS

1. Summary

1.1 The spatial planning system has an important role to play in improving air quality and reducing exposure to air pollution. Whilst planning policy cannot solve immediate air quality issues, it has a role to play so that any likely scheme impacts are reasonably mitigated and future scheme occupants are able to make more sustainable vehicle choices.

1.2 This technical guidance deals primarily with those pollutants regulated under the local air quality management (LAQM) regime and the impact of traffic emissions, although the increasing use of biomass boilers is now becoming an important planning issue. The assessment and control of dust impacts during demolition and construction is also considered, as dusts contribute to airborne particulate matter, as well as being dust soiling. Greenhouse gas emissions are not addressed explicitly, as they are covered by other initiatives, but synergies exist between measures to minimise climate change and local air quality impacts.

1.3 The guidance provides a template for integrating air quality considerations into land-use planning and development management policies that can influence the reduction of road transport emissions. Consequently, it will be added to the existing Barnsley MBC Air Quality Action Plan.

1.4 The air quality assessments follow a three stage process:

- Stage 1: Determining the classification of the development proposal
- Stage 2: Assessing and quantifying the impact on local air quality
- Stage 3: Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements

1.4 This technical guidance deals with those pollutants regulated under the local air quality management (LAQM) regime and are associated with the impact of traffic emissions. Greenhouse gas emissions are not addressed explicitly, as they are covered by other initiatives, but synergies exist between measures to minimise climate change and local air quality impacts.

1.5 The guidance provides a template for integrating air quality considerations into land-use planning and development management policies that can influence the reduction of road transport emissions and to be used to update air quality action plans.

The air quality assessment process follows a three stage process:
1. Determining the classification of the development proposal;
2. Assessing and quantifying the impact on local air quality;
3. Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements.
The assessment process is summarised in the flow chart in Appendix 6.

2. Pre-Planning Discussions

2.1 In order to avoid unnecessary delays in the planning process and ensure optimum scheme design and sustainability, it is vital for communication at an early stage in any significant proposal. It is therefore essential that pre-application discussions with the relevant air quality personnel to confirm the scale of development and the assessment requirements are undertaken.

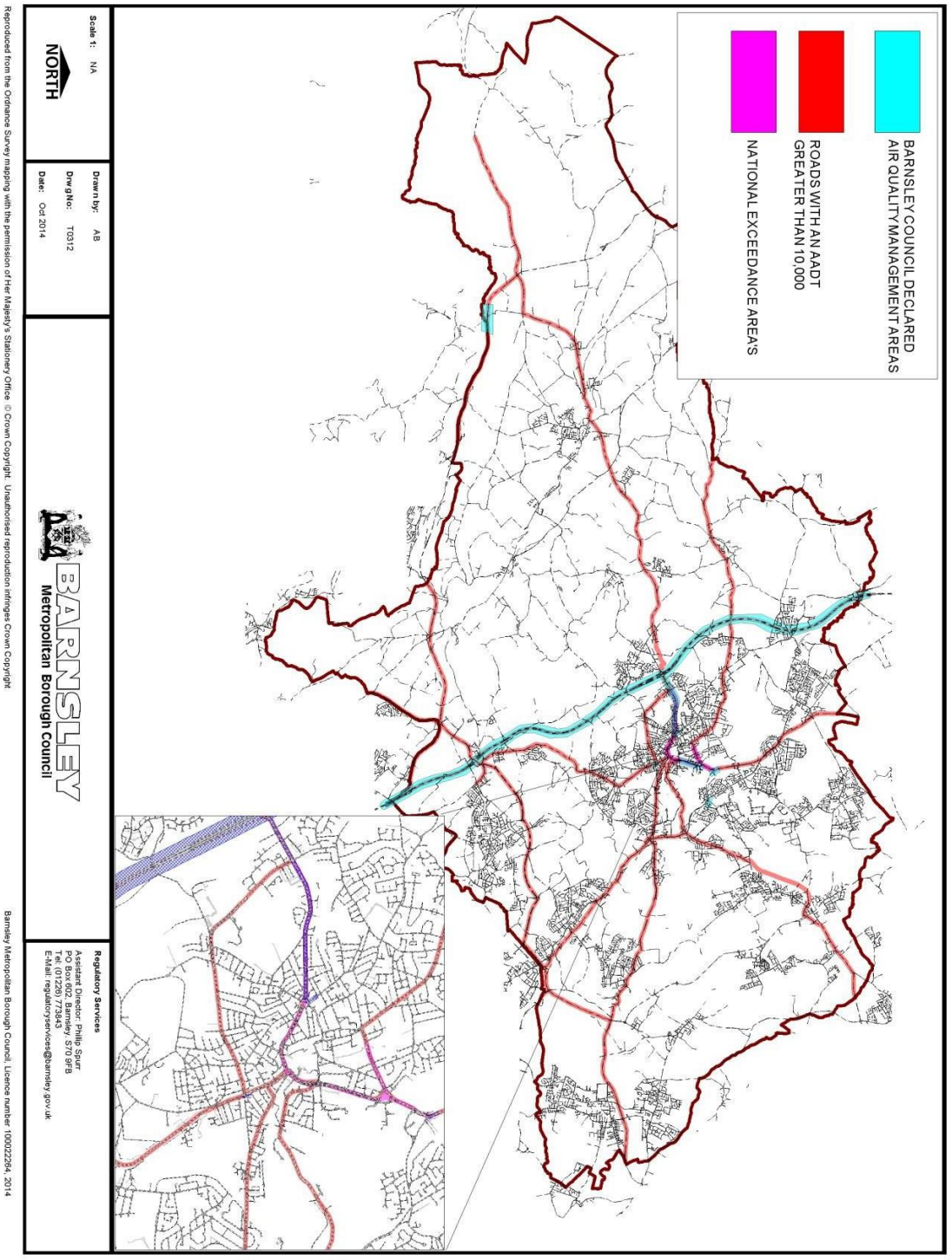
Air Quality Assessment and Mitigation Development Control

When will an Air Quality Assessment be required?

1. *When the proposal meets or exceeds the criteria in Table 2 (page 8)*
2. *When the proposed development **of any size** is classed as C1 to C4 or D1 and is proposed for the Air Quality Assessment Area identified on Map 1*

The flow chart in Appendix 6 assists in this identification process.

Map 1: Barnsley Air Quality Assessment Areas



3. Introduction

3.1 New developments have the potential to affect air quality. Local planning policy will play a significant role in ensuring that development schemes are designed to be sustainable. This guidance has been developed to:

- Introduce an air quality assessment scheme which includes the quantification of impacts, formulating damage costs and identifying mitigation measures to be implemented to negate the impact.
- Tackles cumulative impact.
- Provides clarity and consistency of the process to developers, planners and local communities.

3.2 The major air pollution concern within the Barnsley borough is poor air quality due to transport emissions. Barnsley has seven air quality management areas (AQMAs), all declared due to exceedance of the annual average objective for nitrogen dioxide (NO_2), a pollutant strongly associated with transport emissions. Barnsley's AQMAs are listed in the table below:

Table 1: Barnsley's AQMAs

AQMA No.	Adjacent roads / junctions	Year declared
1	M1 Motorway, 100 metres either side of the central reservation within the Barnsley Borough	2001
2A	A628 Dodworth Road	2005
3	Junction of A61 Wakefield Road and Burton Road	2005
4	A61 Harborough Hill Road	2008
5	Junction of A633 Rotherham Road and Burton Road	2008
6	A616 passing through Langsett	2012
7	Junction of A61 Sheffield and A6133 Cemetery Road	2012

3.3 In addition, the publication of national exceedance areas (http://uk-air.defra.gov.uk/data/gis-mapping) has highlighted roads within the borough above the NO_2 annual average objective, which require further consideration.

3.4 The public health impacts of air pollution are also becoming clearer; particularly the impact of $PM_{2.5}$ particles. $PM_{2.5}$ refers to the airborne particle fraction less than 2.5 microns in size. This particle fraction directly relates to the Public Health Outcomes Framework Health Protection indicator 3.01 "Fraction of Mortality attributable to Particulate Air Pollution". Extensive research has shown that these particles are the major outdoor air pollution contributor to poor health and it is currently considered that there may no known absolute safe level of exposure.

4. Planning Policy Framework

4.1 National Policy

4.1.1 National planning policy is now set by the National Planning Policy Framework (NPPF) NPPF. The NPPF places a general presumption in favour of sustainable development, stressing the importance of local development plans. One of its 12 Core Planning Principles states that planning should:
"contribute to conserving and enhancing the natural environment and reducing pollution", by: (paragraph 109) "preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability".

4.1.2 It goes on to state (paragraphs 120 and 124) that:
"To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.
"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with local air quality action plans".

4.1.3 To support the NPPF, Defra have produced National Planning Policy Guidance (NPPG), including one relating to air quality. Paragraph eight of this guidance (reference ID: 32-008-20140306) deals specifically with mitigating air quality impact and states:

"Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. **It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented.** Planning conditions and obligations can be used to secure mitigation where the relevant tests are met.

Examples of mitigation include:

- the design and layout of development to increase separation distances from sources of air pollution;
- using green infrastructure, in particular trees, to absorb dust and other pollutants;
- promoting infrastructure to promote modes of transport with low impact on air quality;
- controlling dust and emissions from construction, operation and demolition; and
- contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development."

4.2 Local Planning Policy

4.2.1 The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011 requires planning authorities to prepare Local Plans (previously known as Local Development Frameworks), which may be made up of a single or number of documents such as:

- Core strategy;
- Development Plan Policies;
- Site Specific Proposals;
- Area Action Plans;
- Other documents including supplementary planning documents.

4.2.2 The Local Plan will identify land areas for future development and include a number of strategic and development policies relating to local air quality management that will fulfil the National Planning Policy Framework sustainable development criteria. This technical guidance supports the implementation of the strategic and development policy framework. An example of current/emerging policy context is included in Appendix 1.

5. Local Air Quality Management

5.1 The Environment Act 1995 established a local air quality management regime. It requires local authorities to review and assess ambient air quality in their areas against health based standards for a number of specific pollutants prescribed in the Air Quality Regulations 2000 and Air Quality (Amendment) Regulations 2002. If there is a risk that levels of air pollution in any part of the authority's area will be higher than the prescribed objectives, the authority is required to designate an Air Quality Management Area (AQMA). It is then required to produce an Action Plan which sets out the measures it intends to take in pursuit of the objectives.

5.2 It is not necessarily the case that a proposed development in an area of poor air quality will have a negative impact. However, it is important to recognise when such development might introduce additional people into an area of poor air quality. The declaration of an AQMA does not mean that there will be no new development within that area. Rather, it means that greater weight must be given to the consideration of air quality impacts and their mitigation.

5.3 In addition, the boundary of an AQMA does not necessarily define the limit of the area of poor air quality. The only constraint on the boundary definition is that it should be at least as large as the area of exceedance, where there is relevant exposure.

5.4 The fact that a development is within or close to an AQMA does not mean that it is necessarily affecting an area of exceedance of the objective, or that it is being affected by air pollution that exceeds the objective. On the other hand, a development could introduce new exposure into an area of poor air quality, which has not been identified and declared as an AQMA, as previously there was no relevant exposure.

6. Air Quality and Emissions Mitigation Assessment Process

6.1 Stage 1: Development Type Classification:

Three levels of development classification are determined using adapted criteria from the Department for Transport[33].

Table 2: Criteria for Development Classification

Land Use	Description	TA Required
Food Retail (A1)	Retail sale of food goods to the public – supermarkets, superstore, convenience food store	>800 m^2 (GFA)
Non-Food Retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars or other cold food purchased and consumed off site	>1500 m^2(GFA)
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops.	>2500 m^2(GFA)
Restaurants and Cafes (A3)	Use for the sale of food for consumption on the premises.	>2500 m^2(GFA)
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises.	>600 m^2(GFA)
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises.	>500 m^2(GFA)
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional). (b) Research & development – laboratories, studios. (c) Light industry	>2500 m^2(GFA)
General industrial (B2)	General industry (other than B1).	>4000 m^2(GFA)
Storage or Distribution (B8)	Storage or distribution centres – wholesale warehouses, distribution centres & repositories.	>5000 m^2(GFA)
Hotels (C1)	Hotels, boarding houses & guest houses	>100 bedrooms
Residential Institutions (C2)	Hospitals, nursing homes used for residential accommodation and care.	>50 beds
Residential Institutions (C2)	Boarding schools and training centres	>150 students
Residential institutions (C2)	Institutional hostels, homeless centres.	>400 residents
Dwelling Houses (C3)	Dwellings for individuals, families or not more than six people in a single household.	>50 units
Non-Residential Institutions (D1)	Medical & health services, museums, public libraries, art galleries, non-residential education, places of worship and church halls.	>1000 m^2(GFA)
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo, and other facilities not involving motorised vehicles or firearms.	>1500 m^2(GFA)
Other		
1. Any development generating 30 or more two-way vehicle movements in any hour		
2. Any developments generating 100 or more two-way vehicle movements per day		
3. Any development proposing 100 or more parking spaces		
4. Any relevant development proposed in a location where the local transport infrastructure is inadequate		
5. Any relevant development proposed in a location adjacent to an Air Quality Management Area (AQMA)		

1. MINOR Proposal: Development proposals that fall below the above criteria.

[33] http://webarchive.nationalarchives.gov.uk/20100409053417/http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontaappendixb

2. MEDIUM Proposal: Development proposals that meet the above requirements.
3. MAJOR Proposal: Development proposals that meet the above requirements and the additional criteria set out in table 2.

Table 3: Additional Trigger Criteria for Major Developments

- Where the proposed development falls within the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 and includes air quality and/or transport as a specific likely impact.
- Proposals located within the area identified in Map1
- Proposals that include additional HGV movements by more than 10% of total trips.

Where significant demolition and construction works are proposed.

6.2 Stage 2: Air Quality Impact Assessment

MINOR and MEDIUM Classified Proposals:

6.2.1 Smaller development proposals may not in themselves create an additional air quality problem but traffic emissions from these developments will add to local air pollution and the developments themselves could potentially introduce more people likely to be exposed to existing levels of poor air quality. An assessment of the likelihood of introducing additional exposure will be determined using the following criteria:

- The proposal is one of the Land Use types:
    - C1 to C3 in table 2;
    - C4 (Homes of Multiple Occupation);
    - D1 in table 2.

And:
The proposal is within the area identified on Map 1 (this includes the area within or adjacent to an AQMA; applicable roads; and includes roads at or above the relevant national objective highlighted on the Defra GIS modelled maps - *http://uk-air.defra.gov.uk/data/gis-mapping*).

6.2.2 The outcome of the exposure assessment will determine the level of mitigation required make the development acceptable. Should there be no acceptable mitigation the recommendation to the planning officer will be to consider refusing the proposal on air quality grounds. A planning application will not be validated until such an Air Quality assessment is submitted.

MAJOR Classified Proposals

6.2.3 The scale and nature of this type of proposal is such that a detailed air quality assessment will be required to determine the impact on public health and the local environment. Once again, a planning application will not be validated until such an assessment is submitted. The assessment requires:

A. The identification of the level of exposure through the change in pollutant concentrations including cumulative impacts arising from the proposal, during both demolition/construction operations and operational phases. Mitigation measures should be identified and modelled where practicable.
B. The calculation of pollutant emissions costs from the development.

A. The methodology to be used for the determination of pollutant concentration change should meet the requirements of the Department for the Environment, Food and Rural Affairs (Defra) Technical Guidance Note LAQM TG(09)[34]. Further details of the air quality assessment requirements are shown in Appendix 2.

B. The pollutant emissions costs calculation will identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected to be spent on measures to mitigate the impacts. The calculation utilises the most recent Defra Emissions Factor Toolkit[35] to estimate the additional pollutant emissions from a proposed development and the latest DEFRA IGCB Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage cost[36]. The calculation process includes:

- Identifying the additional trip rates generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NOx and PM_{10}) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from Defra IGCB);
- The result is totalled for a five year period to enable mitigation implementation.

6.2.4 The calculation is summarised below with further details of the process along with an example calculation are shown in Appendix 3.

Box 1: Road Transport Emission Calculation Summary

Road Transport Emission Increase = ∑[Estimated trip rate for 5 years X Emission rate per 10 km per vehicle type X Damage Costs]

5.6 To clarify, the derived calculated damage costs for each major development are not for local authority use, but to assist the developer in assessing the proportionate financial commitment for the required mitigation.

[34] http://laqm.defra.gov.uk/technical-guidance/index.html
[35] http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#eft
[36] https://www.gov.uk/air-quality-economic-analysis

6.3 Stage 3: Mitigation

6.3.1 The outcome of Stage 2 (Assessment) identifies the level of air quality impact and is then used to determine the level of mitigation required to negate the potential effects upon health and the local environment.

6.3.2 The scale of damage cost will determine the level of appropriate mitigation required for specific proposals. Measure identification will be assisted by:

- Outcomes from the Transport Statement/Assessment and any Travel Plan
- Specific needs identified in site specific spatial policy allocations;
- Travel Awareness/Planning and Highway Development requirements;
- Defra air quality guidance (Defra Measures Guidance)

6.3.3 Where mitigation is not integrated into a proposal, the Local Planning Authority will require this through planning conditions. The NPPF (paragraph 152) suggests that “where adequate mitigation measures are not possible, compensatory measures may be appropriate”. If on-site mitigation is not possible then the Local Planning Authority will seek compensation for the identified air quality impacts through a section 106 agreement.

6.3.4 Default mitigation measures are presented for each type of proposal that demonstrate a minimum requirement. This is not an exhaustive list and will be adapted for particular locations and needs identified by relevant officers and the scale of damage costs. The authority would welcome the opportunity to work to devise innovative measures that will lead to improving local air quality. To confirm, when type 2 mitigation is required, type 1 will also be required. For type 3 mitigation, type 1 and 2 will also be required.

TYPE 1 (Minor) Proposal Mitigation:

6.3.5 If the proposal meets the exposure criteria in Stage 2, further mitigation is required to reduce the level of exposure. This will be in the form of:

- Possible short term screening monitoring or utilising the distance calculation provided by Defra (Defra Distance) at the proposed location to identify the level of exposure;
- Redesigning the proposal to reduce the ingress of pollution;
- Including a stand-off distance and/or vegetation boundary from the development.

6.3.6 A key theme of the NPPF is that developments should enable future occupiers to make "green" vehicle choices and (paragraph 35) "incorporate facilities for charging plug-in and other ultra-low emission vehicles". Therefore, an electric vehicle recharging provision rate is expected in addition to mitigation arising from the exposure assessment. To prepare for increased demand in future years, appropriate cable provision should be included in the scheme design and development, in agreement with the local authority and include the default mitigation listed below.

Box 2: TYPE 1 (Minor) Suggested Mitigation Options

Residential:
1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking).
The use of such mitigation measures as designing the layout of the site taking into account air quality; and the use of green infrastructure or contributing to the funding of green infrastructure at schools etc.
Provision of secure cycle storage
Provision of incentives for the use of public transport

Details of the electric charging specification are shown in appendix 4.

6.3.7 This list is not meant to cover all possible mitigation measures. Where innovative measures are proposed, these should have demonstrable air quality benefits. If measures are provided in mitigation of potential traffic impacts, these will be permitted to count towards the air quality mitigation measures.

TYPE 2 (Medium) Proposals Mitigation:

6.3.8 Proposals meeting the Type 2 criteria in table 2 will require a detailed Travel Plan. Travel Plan guidance is provided in Appendix 5.
In respect of the Travel Plan it is essential that:

- The content of the travel plan is fully assessed prior to its approval in conjunction with local authority travel plan and highway development control officers. Pre-application advice will be essential.
- The agreed targets and objectives included in the travel plan are secured for implementation by mutual agreement of the local authority and the developer/applicant (normally by means of a Section 106 agreement).
- The outputs of the travel plan (typically trip levels and mode split) are annually monitored against the agreed targets and objectives.
- Should the travel plan not deliver the anticipated outputs or meet the targets and objectives further mitigation/alternative/compensation measures need to be identified and implemented.
- A named co-ordinator is essential to the success of the travel plan. For larger schemes a commitment in terms of staff resource allocation will be expected.

6.3.9 The NPPF identifies a Travel Plan as a “key tool” to promoting and delivering sustainable transport and that all transport mitigation measures may be included within the Travel Plan. The default mitigation measures to be incorporated into the scheme design include those listed below. The list is not exhaustive and there may be additional issues that are site-specific and reflect local conditions, as well as other material considerations.

Box 3: TYPE 2 (Medium) Suggested Mitigation Options

All minor proposal mitigation measures could be considered (as set out in Box 2)
Commercial / Retail – 10% of parking spaces to be provided with an electric vehicle charging point, this may be phased with an initial 5% provision and the remainder at an agreed trigger level
Industrial – 10% of parking spaces to be provided with an electric vehicle charging point; this may be phased with an initial 5% provision and the remainder at an agreed trigger level
All – Travel Plan This could include: An agreed strategy for discouraging high emission vehicle use and encouraging modal shift (i.e. to public transport, cycling and walking), as well as uptake of low emission fuels and technologies Improved pedestrian access to public transport New or improved bus stop infrastructure; Provision of ticketing Site layout designed to encourage walking; Cycle paths to link to local cycle network
Commercial specific All commercial vehicles should comply with current or the most recent European Emission Standards from scheme opening, to be progressively maintained for the lifetime of the development Fleet operators should provide a strategy for reducing emissions, including the uptake of low emission fuels and technologies such as ultra-low emission service vehicles Fleet operators should consider joining schemes such as the South Yorkshire ECO Stars scheme

TYPE 3 (Major) Proposal Mitigation

6.3.10 The pollution damage costs attributed to the proposal emission changes will determine the level of mitigation compensation required to offset the impact of the development. A suite of default compensation measures beyond the proposal scheme design are listed below. This is not an exhaustive list and may be adapted for particular locations and needs identified by relevant officers. The type, scale and specificity of measures will be agreed with the planning authority.

Box 4: TYPE 3 (Major) Suggested Mitigation Options

MEDIUM proposal measures

Support measures to reduce the need to travel:

- Local sourcing of staff, products and raw materials.
- Development and use of hub distribution centres employing low emission deliveries.
- Explore alternative working practices – flexitime, teleworking, homeworking, videoconferencing, compressed working hours.

Support measures to reduce private car use:

- Development of car clubs and car sharing with financial incentives and promotion.
- Use of workplace car clubs and car sharing with financial incentives and promotion.
- Use of workplace pooled low emission vehicles – cars, vans, taxis, bicycles.
- Provision of dedicated low emission shuttle bus including managed pick-up and drop-off.
- Contribution to the emerging low emission vehicle infrastructure.
- Contribution to site low emission waste collection services.
- Incentives for the take-up of low emission vehicle technologies and fuels.
- Support driver training schemes.

Measures to support improved public transport:

- Provision of new or enhanced public transport services to the site.
- Shuttle services to public transport interchange, rail station or park and ride facilities.
- Support improving information services for public transport.
- Promoting low emission bus service provision.
- Support air quality monitoring programmes.

Further measures to promote cycling and walking:

- Improvements to district walking and cycling networks including lighting, shelters, and information points and timetables.
- Bike/e-bike hiring schemes.
- Guaranteed ride home in emergencies.
- Provision of secure and safe cycle parking facilities.
- Support cycle training.
- Supporting community / local organisation groups to promote sustainable travel.

6.3.11 It is likely that there will be additional Travel Plan measures required outside the air quality requirements. Air quality measures should not be seen as the complete number of measures.
Such agreed measures will be taken forward by condition where possible, or through the use of Section 106 agreements.

Proposal mitigation statement

6.3.12 Each development will require a brief mitigation statement which must include:

- The calculated damage cost (Major proposals).
- Proposed mitigation/compensation measures.

- Estimated mitigation cost (Major proposals) that is equivalent to the value of the emissions calculation (appropriate to the type and size of development and local policy requirements);
- A proposed demolition/construction management plan that includes:
    - A brief project description and likely sources of dust emissions;
    - Measures to be adopted to minimise dust emissions;
    - Emergency measures to be adopted in the event of unforeseen circumstances;
    - Incident logging and reporting procedures.

7. Planning Recommendation

7.1 The impact on air quality is a material planning consideration in the determination of a planning application. Each decision must be a balance of all material considerations depending upon the individual merits and circumstances. The weight to be given to the impact on air quality in the consideration of a planning application and the acceptability of proposed mitigation measures lies with the relevant local planning authority. Any agreed measures will be taken forward by condition where possible, or through the use of Section 106 agreements.

Appendix 1: Barnsley MBC Planning Context

The Barnsley Local Development Framework (LDF) provides a spatial planning policy for the Barnsley borough up to 2026, and brings together all those planning policies and the spatial planning strategy into this overarching document.

Contained within the LDF is the Core Strategy (Barnsley MBC, 2011). This document contains polices (CSPs) which inform the development process in the borough. Two CSPs relate directly to air quality, these being:

CSP40 Pollution Control and Protection

"Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and groundwater, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people. We will not allow development of new housing or other environmentally sensitive development where existing air pollution, noise, smell, dust, vibration, light or other pollution levels are unacceptable and there is no reasonable prospect of that these can be mitigated against."

CSP41 has been revised in light of development of this guidance and is detailed below:

Policy AQ1 Development in Air Quality Management Areas

Development which impact on areas sensitive to air pollution[(a)] will be expected to demonstrate that it will not have a harmful effect on the health or living conditions of any future users of the development in terms of air quality (including residents, employees, visitors and customers), taking into account any suitable and proportionate mitigation required for the development.

We will only allow residential development which impact on areas sensitive to air pollution where the developer provides an assessment that shows living conditions will be acceptable for future residents, subject to any required mitigation.

We will only allow development which impact on areas sensitive to air pollution which could cause more air pollution, where the developer provides an assessment that shows there will not be significantly harmful effect on air quality, again subject to any required mitigation.

Furthermore, development which impact on areas sensitive to air pollution due to traffic emissions will be expected to demonstrate suitable and proportionate mitigation relative to the increased traffic emissions generated by the development. Such areas sensitive to traffic emissions are defined within Map 1 of the Barnsley MBC Air Quality and Emissions Good Practice Planning Guidance

(a) Areas sensitive to air pollution include (but are not limited to) the Borough's air quality management areas; "exceedance" areas within the Borough derived from the national assessment of air pollution by defra and reported to the European Commission; and housing within 20 metres of roads > 10k AADT (as defined within the Barnsley MBC Air Quality and Emissions Good Practice Planning Guidance)

Appendix 2

Air Quality Assessment Protocol to Determine the Impact of Vehicle Emissions from Development Proposals

An air quality assessment should clearly establish the likely change in pollutant concentrations at relevant receptors resulting from the proposed development during both the construction and operational phases. It must take into account the cumulative air quality impacts of committed developments (i.e. those with planning permission).

Key Components of an Air Quality Assessment

The assessment will require dispersion modelling utilising agreed monitoring data, traffic data and meteorological data. The modelling should be undertaken using recognised, verified local scale models by technically competent personnel and in accordance with LAQM TG.09. The study will comprise of:

1. The assessment of the existing air quality in the study area for the baseline year with agreed receptor points and validation of any dispersion model;
2. The prediction of future air quality without the development in place (future baseline or do-nothing);
3. The prediction of future road transport emissions and air quality with the development in place (with development or do-something).
4. The prediction of future road transport emissions and air quality with the development (with development or do-something) and with identified mitigation measures in place.

The assessment report should include the following details:

A. A detailed description of the proposed development, including:
    - Identify any on-site sources of pollutants;
    - Overview of the expected traffic changes;
    - The sensitivity of the area in terms of objective concentrations;
    - Local receptors likely to be exposed;
    - Pollutants to be considered and those scoped out of the process.
B. The relevant planning and other policy context for the assessment.
C. Description of the relevant air quality standards and objectives.
D. The assessment method details including model, input data and assumptions:
    For traffic assessment;
    - Traffic data used for the assessment;
    - Emission data source;
    - Meteorological data source and representation of area;
    - Baseline pollutant concentration including any monitoring undertaken;
    - Background pollutant concentration;
    - Choice of base year;
    - Basis for NO_x:NO_2 calculations;
    - A modelling sensitivity test for future emissions with and without reductions;

    For point source assessments:
    - Type of plant**;**
    - Source of emission data and emission assumptions;
    - Stack parameters – height, diameter, emission velocity and exit temperature;
    - Meteorological data source and representation of area;
    - Baseline pollutant concentrations;
    - Background pollutant concentrations;
    - Choice of baseline year;
    - Basis for deriving NO_2 from NOx.
E. Model verification for all traffic modelling following DEFRA guidance LAQM.TG (09):
F. Identification of sensitive locations:

G. Description of baseline conditions:
H. Description of demolition/construction phase impacts:
I. Summary of the assessment results:
    - Impacts during the demolition/construction phase;
    - Impacts during the operation phase;
    - The estimated emissions change of local air pollutants;
    - Identified breach or worsening of exceedances of objectives (geographical extent)
    - Whether Air Quality Action Plan is compromised;
    - Apparent conflicts with planning policy and how they will be mitigated.

J. Mitigation measures.

Air Quality Monitoring

In some case it will be appropriate to carry out a short period of air quality monitoring as part of the assessment work. This will help where new exposure is proposed in a location with complex road layout and/or topography, which will be difficult to model or where no data is available to verify the model. Monitoring should be undertaken for a minimum of six months using agreed techniques and locations with any adjustments made following Defra technical guidance LAQM.TG (09).

Assessing Demolition/Construction Impacts

The demolition and construction phases of development proposals can lead to both nuisance dust and elevated fine particulate (PM_{10} and $PM_{2.5}$) concentrations. Modelling is not appropriate for this type of assessment, as emission rates vary depending on a combination of the construction activity and meteorological conditions, which cannot be reliably predicted. The assessment should focus on the distance and duration over which there is a risk that impacts may occur. The Institute of Air Quality Management (IAQM)[37] has produced a number of definitive guidance documents to which this guidance refers. The document `Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance' should be the reference for reporting the construction assessment.

Cumulative Impacts

The NPPF (paragraph 124) recognises that a number of individual development proposals within close proximity of each other require planning policies and decisions to consider the cumulative impact of them. Difficulties arise when developments are permitted sequentially, with each individually having only a relatively low polluting potential, but which cumulatively result in a significant worsening of air quality. This will occur where:

- A single large site is divided up into a series of units, such as an industrial estate or retails park;
- A major development is broken down into a series of smaller planning applications for administrative ease; and
- There are cumulative air quality impacts from a series of unrelated developments in the same area.

The first two cases the cumulative impact will be addressed by the likelihood that a single developer will bring forward an outline application for the whole site which should include an air quality assessment as part of an Environmental Assessment. For major developments that are broken down into a series of smaller planning applications, the use of a `Master or Parameter Plan' that includes an air quality assessment will address the cumulative impact.

[37] IAQM www.iaqm.co.uk

Appendix 3

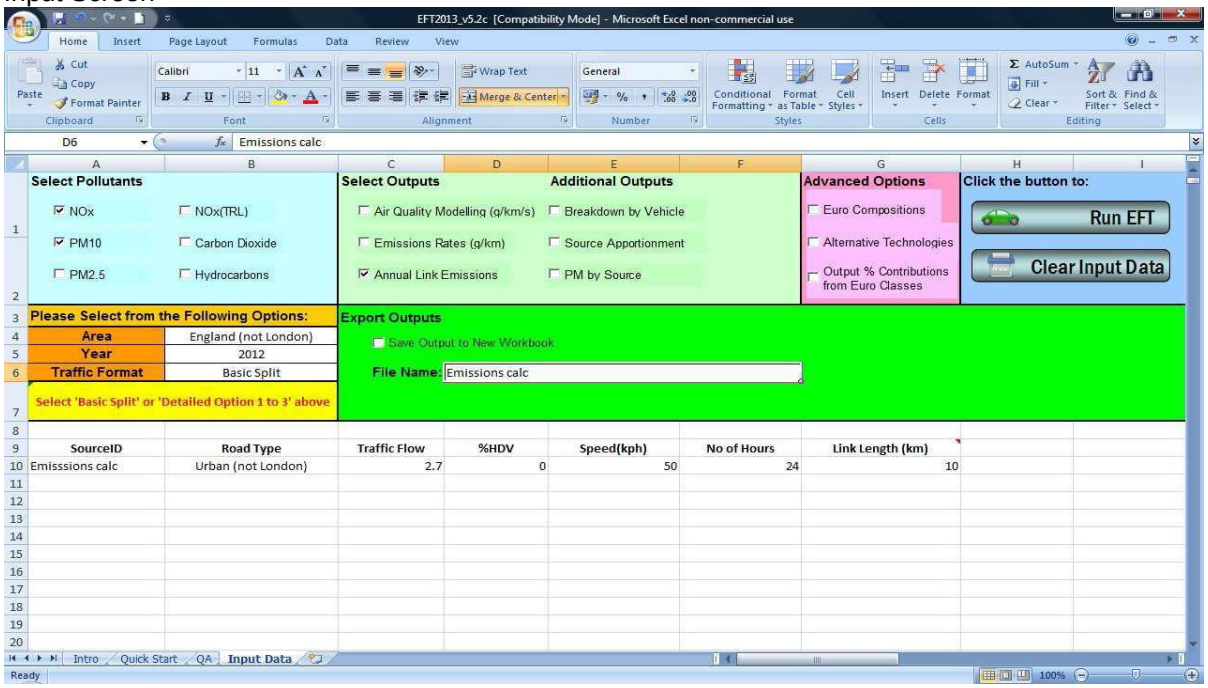
Emissions Assessment Calculator

The calculation utilises the current Emissions Factor Toolkit (EFT)* to determine the transport related emissions from a development proposal. If the proposal is to include alternative fuels or technology i.e. LPG, EV etc, then there are "advanced options" within the EFT to accommodate this.

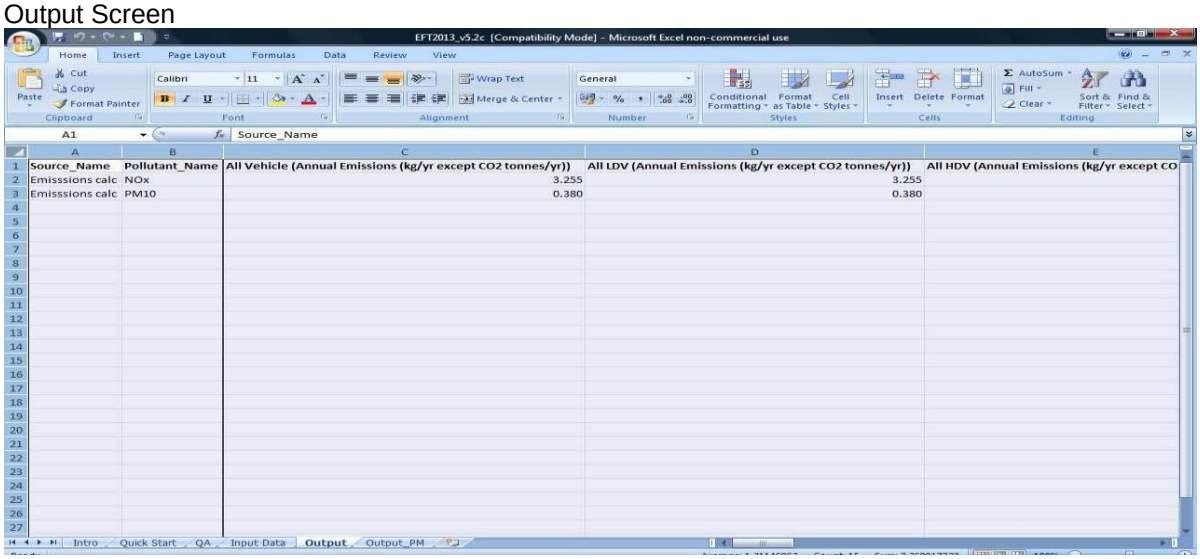
*http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#eft

A screen shot of the input and output pages are shown below:

Input Screen



Output Screen



The output is in kg of specified pollutant per year and requires converting to tonnes per year. This is then multiplied by the IGCB damage costs for the specified pollutant.

The following example demonstrates the calculation based on a development with 10 domestic properties[38].

EFT Input:

[38] Sussex Air Quality Partnership "Air Quality and Emission Mitigation Guidance for Sussex Authorities 2013"

	10 household (urban not London) (NOx and PM_{10})	
	X	27 (trip/traffic ratio for 10 houses)
	X	cars only (0% HGV)
	X	50kph (avg. speed)
	X	10km (NTS UK avg.)
EFT Output = 32.55kg/annum (NOX) & 3.795kg/annum (PM_{10})		
	=	0.0325tonnes/annum (NOX) & 0.003795tonnes/annum (PM_{10})
	X	£955/tonne (NOx) + £48,517/tonne (PM_{10})
	=	£31.08 = £184.15
	X	5 (years)
	=	£155.42 = £920.76
Total	**=**	**£1,076**

Notes:

1. Trip Rates are sourced from the Transport Assessments and local authority where available.
2. Trip Length uses the National Travel Survey[39] - (UK average = 10km).
3. The IGCB damage costs are the central estimates (currently NOx = £955/tonne & PM_{10} transport average £48,517).

[39] https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey

Appendix 4

Electric Vehicle Charging Point Specification:

EV ready domestic installations

Cable and circuitry ratings should be of adequate size to ensure a minimum continuous current demand for the vehicle of 16A and a maximum demand of 32A (which is recommended for Eco developments).

- A separate dedicated circuit protected by an RCBO should be provided from the main distribution board, to a suitably enclosed termination point within a garage, or an accessible enclosed termination point for future connection to an external charge point
- The electrical circuit shall comply with the Electrical requirements of BS7671: 2008 as well as conform to the IET code of practice on Electric Vehicle Charging Equipment installation 2012 ISBN 978-1-84919-515-7 (PDF)
- If installed in a garage all conductive surfaces should be protected by supplementary protective equipotential bonding. For vehicle connecting points installed such that the vehicle can only be charged within the building, e.g. in a garage with a (non-extended) tethered lead, the PME earth may be used. For external installations the risk assessment outlined in the IET code of practice must be adopted, and may require an additional earth stake or mat for the EV charging circuit. This should be installed as part of the EV ready installation to avoid significant on cost later.

EV ready commercial installations

Commercial and industrial installations may have private 11,000/400 V substations where a TN-S supply may be available, simplifying the vehicle charging installation design and risk analysis. It is therefore essential for developers to determine a building's earthing arrangements before installation.

Commercial vehicles have a range of charge rates and it is appropriate to consider a 3-phase and neutral supply on a dedicated circuit emanating from a distribution board. More than one EV charging station can be derived from a source circuit, but each outlet should be rated for a continuous demand of 63Amps. No diversity should be applied throughout the EV circuitry. 3 phase RCBOs should be installed and the supply terminated in a switched lockable enclosure. If an external application (for example car park or goods yard) is selected, the supply should be terminated in a feeder pillar equipped with a multi-pole isolation switch, typically a 300mA RCD, a sub-distribution board (if more than one outlet is fed from the pillar). If an additional earthing solution is required, the earth stake can be terminated within this pillar. See IET guideline risk assessment.

Appendix 5

Travel Planning Guidance

Introduction

This document outlines how the planning process can be used to secure Travel Plans to improve and promote sustainable travel and to reduce the need to travel. Travel Plans are an integral part of Government policy on sustainability. Their aim is to improve the quality of life for everyone by facilitating development that is socially and economically beneficial and also environmentally sustainable. As such they are one of the most important tools in reducing the unnecessary use of vehicles and in turn the emission of harmful Nitrogen Dioxide and Particulate Matter.

This guidance has been produced to help ensure that Travel Plans contain both the necessary detailed measures for encouraging sustainable travel and that these measures are seen through to delivery and implementation.

What is a Travel Plan?

According to recent government guidance on Travel Plans (NPPF) they are, "long-term management strategies for integrating proposals for sustainable travel into the planning process. They are based on evidence of the anticipated transport impacts of development and set measures to promote and encourage sustainable travel" They are long term management tools particularly aimed at reducing the need to travel, gaining economic efficiencies, reducing the impact of car travel and encouraging greater use of public transport, cycling and walking.

When is a Travel Plan required?

The need for a Travel Plan is influenced by the scale of development. The decision as to the requirement for a travel plan lies with the relevant district planning authority.

The requirement for a Travel Plan would generally be in association with proposals for sites which require Type 2 mitigation measures and above, however Travel Plans may be required for developments below this threshold. Travel Plans apply to the whole of sites and the thresholds can be triggered by extensions to sites.

Travel Plan Procedure

There are six stages in the Travel Plan process:

Stage A – Scoping - Early consultation with the Council is recommended to discuss Travel Plan requirements and agree with the Council, which type of Travel Plan is most appropriate. If a Full Travel Plan is required (some districts will, in the earliest stages of an application accept Interim Travel Plans or, in the case of large missed use sites, Framework Travel Plans) this stage will also involve discussing the key issues to be addressed, the process and timetable to be followed, the scope and content of the Travel Plan and the outcomes sought.

Stage B - Pre-Application Discussions – Where a Full Travel Plan is required it should be submitted at this stage in draft form, so the detail may be discussed and agreed with the Council prior to submission.

Stage C – Submission - The Travel Plan (Full, Interim or Framework) should be submitted with the planning application which will not be validated until this document is received. The respective council will assess the Travel Plan, conduct any required statutory consultation and provide the applicant with written comments.

Stage D – Post-determination and Pre-occupation – Implementation of the Travel Plan should commence prior to the completion or opening of the development. This is to ensure that the measures are in place to positively influence and affect travel choices by all site users before their travel behaviour becomes fixed. The developer is responsible ensuring the Travel Plan is delivered.

Stage E – Post-opening - Many elements of the Full Travel Plan will be implemented once the development has opened and is occupied. The success in achieving identified targets is measured through appropriate surveys. Baseline monitoring should occur within three months of occupation.

Stage F – On-going Monitoring - All Travel Plans need to be monitored and annual reports submitted to the relevant Council. The Council will ensure Travel Plans are monitored and reported annually.

Securing a Travel Plan

The implementation and enforcement of Travel Plans is an essential part of the planning process. Legal Agreements (section 106 of the Town & Planning Act 1990) will be used to secure Travel Plans for larger and more complex developments; others will be secured by planning conditions.

Monitoring Travel Plans

A robust monitoring strategy must be incorporated into every Full Travel Plan and agreed with the Local Authority. The Travel Plan must be regularly reviewed by the travel plan co-ordinator and the local authority to assess performance against the targets specified in the Travel Plan, and to decide if alternative measures or approaches are to be pursued.

Enforcement and Sanctions

Where Travel Plan measures have not met the agreed targets and some remedy is necessary, the default mechanisms specified in the Travel Plan will be deployed. Enforcement action may be required where non-compliance with a Section 106 agreement or planning condition occurs and this causes harm. The relevant Council will take a proportionate approach, based on evidence.

Charges

Councils may require developers to contribute to the cost of monitoring Travel Plan progress. Charges would usually take the form of an annual fee for five years for this service, with rates based on the size of the development.

Appendix E: South Yorkshire AQCG Source Apportionment Methodology

It is necessary to update the source apportionment exercise for the Air Quality Management Areas (AQMAs) in South Yorkshire to contribute to the evidence base for prioritising measures within the Sheffield City Region air quality action plan.

The approach is based on Statutory Defra guidance[1] to assess air quality by Local Authorities in their Local Air Quality Management (LAQM) Review and Assessment duties and details the standard methodology advised for conducting modelling exercises.

This methodology represents a consistent approach which is available to all Local Authorities, using locally operated modelling systems.

It shall be noted that all modelling comes with inherent uncertainty and although a standard methodology looks to reduce this uncertainty, any modelling results come with a +/-25% accuracy.
The exercise will be conducted using the latest available Airviro Model developed in South Yorkshire over the last 16 years. Officers from each South Yorkshire local authority have received appropriate training for Airviro emissions database work and dispersion modelling, and are active members of a national Airviro User Group. Furthermore, officers have vast experience of undertaking their LAQM duties. There is therefore sufficient local expertise to ensure an agreed and consistent approach within the sub region.

The agreement is to use a baseline source apportionment of 2014. Therefore the following data sets are used;

- EDB – Rotherham/jk/EDB_0715_Base (database developed by AEAT using the Sheffield LEZ[2] vehicle split with updated EF from COPERT4 v10.0 and NAEI v6.0.1)
- Weather data – Scenario for 2014
- Traffic – AADT for 2014 from DfT[3]

The following factors will also be applied to any source apportionment model runs;
- Resolution will be at 25m grid squares
- Nitrogen dioxide conversion using the Derwent-Middleton equation

Model runs are performed for each AQMA and results are presented at sensitive receptors and/or at the worst case location where the following will be calculated;

Stage 1 – Source Apportionment of Sector Emissions
The percentage contribution of the following sectors will be calculated for South Yorkshire:
Industrial; Domestic; Background and Transport.

Stage 2 – Source Apportionment by Vehicle Type
The percentage contribution of each vehicle type to the transport sector emissions in each AQMA, the vehicle types are as follows:

Petrol Car, Diesel Car, LGV (100% considered diesel), Bus, HGV Rigid and HGV Articulated.
The % contribution will be calculated by performing a model run with one vehicle type in turn being omitted and subtracted from the total road transport emissions.

References;
[1]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf
[2]https://www.sheffield.gov.uk/environment/air-quality/LEZ-feasibility.html
33http://www.dft.gov.uk/traffic-counts/cp.php?

Appendix F: Sheffield City Region Air Quality and Climate Group Action Plan

SHEFFIELD CITY REGION
AIR QUALITY AND CLIMATE ACTION PLAN 2016-2021
February 2016

AIR QUALITY AND CLIMATE ACTION PLAN 2016-2021

MISSION STATEMENT
TO IMPROVE LOCAL AIR QUALITY AND REDUCE CARBON EMISSIONS THROUGH LOCAL AND REGIONAL INTERVENTIONS

Introduction

This action plan aims to deliver air quality improvement and carbon reduction in the Sheffield City Region (SCR), by mitigating the impact of transport related emissions. The plan proposes and details actions which will assist in delivering better air quality and carbon reduction, and identifies potential indicative scheme costs, funding streams and timescales for delivery. In addition, quantification of emission and concentration reduction benefit has been undertaken, in order to develop a working prioritisation matrix for the plan.

Importantly, the rationale for these actions is underpinned by an extensive traffic based "source apportionment" exercise undertaken for the region's air quality management areas (AQMAs). This enables a clear understanding of the traffic related air quality problems in each AQMA, and subsequently informs the most appropriate actions to be undertaken.

The Air Quality and Climate Group (AQCG) has successfully delivered a number of projects over the last 10 years and laid the foundations for future work to reduce emissions of air pollutants and carbon from transport. There have also been significant developments during this time; in particular, the evidence regarding the harmful impact on health from air pollution resulting from transport emissions has become clearer and more significant.

The goal of reducing emissions from vehicles to air which result in poor air quality is central to the SCR Transport Strategy and presents partners with the challenges of reducing the emission from vehicles of both carbon dioxide (which contributes to climate change) and harmful gases such as nitrogen dioxide and fine particles that cause poor air quality locally (and which affects human health).

Transport is responsible for around 20% of direct greenhouse gas emissions in South Yorkshire. Developing and maintaining a private and public transport network that efficiently utilises and adopts new, low emission transport technologies will contribute to the economic success of South Yorkshire and the Sheffield City Region as a whole. This is recognised in the emerging transport strategy being developed by the Sheffield City Region Local Transport Body.

This plan is in four sections. The first section sets the scene for action, including discussion of the transport related air quality and climate change issues affecting the region, along with the context of air quality and carbon reduction within the emerging regional Transport Strategy.

The second section details the proposed actions to be undertaken, including assessment and prioritisation, along with identification of potential funding streams, links to SCR Transport Strategy groups and synergies with other SCR agendas, such as GVA uplift.
Section three details performance indicators for the plan, whilst Section four details the links and interfaces with other LTP groups.

This action plan will be subject to ongoing refinement and development in response to future opportunities and challenges (identification of additional funding sources, emphasis of future priorities, updated government guidance, the emergence of future opportunities to develop

additional schemes etc.), and will therefore be updated in response to any of the above, as and when required.

Section One; Setting the Scene

1.1 The Sheffield City Region in Context

The Sheffield City Region (SCR) is located at the strategic heart of the country. It is comprised of the nine local authority areas of Barnsley, Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales, Doncaster, North East Derbyshire, Rotherham and Sheffield.

The Sheffield City Region has a diverse economy comprising a dynamic core city, important towns and market towns, fabulous countryside and a significant rural economy. The City Region encompasses more than 1.8 million people and approximately 700,000 jobs.

In January 2013, the Department for Transport announced a ten-year allocation of major scheme transport funding for Sheffield City Region. This funding is to be spent on major infrastructure projects and will form part of the Sheffield City Region Investment Fund (SCRIF). SCRIF is a framework of funding streams to deliver essential strategic infrastructure to increase economic growth and jobs in the Sheffield City Region.

To satisfy the Department for Transport that Sheffield City Region is able to allocate and spend the funding appropriately, Sheffield City Region has established a body to make key decisions regarding this funding and to oversee investments. This body was known as the Sheffield City Region Local Transport Body (SCR LTB) and is now incorporated within the remit of the Combined Authority.

Economic growth and major new road infrastructure could result in worsening of poor air quality, which has negative impacts on our health and environment. Conversely, a green and healthy environment can increase the attractiveness of a region to inward investment, and delivers a very positive perception of a region, particularly so with the increasing awareness and high profile of the public health impact of poor air quality.

Previously, the strategic context for air quality was contained in the South Yorkshire Local Transport Plan (SYLTP) 3 Evidence Base Document 7 (Reducing Emissions). This Action Plan summarises progress in current projects and identifies actions and options for further investigation so as to meet short, medium and long term air quality targets and reduce health impacts from poor air quality in our region/conurbation.

In terms of development and delivery the following challenges have been identified:

- Achieving economic growth and building major infrastructure whilst mitigating effects on our health and environment (without worsening already poor air quality.)
- Reducing emissions on the busiest parts of the transport network
- Increasing the efficiency of transport use to reduce vehicle miles on the network
- Supporting the uptake of low emission vehicles and fuels
- Reducing emissions from freight transport, buses and taxis
- Promoting active travel for shorter journeys

In October 2015, SCR agreed the terms of a proposed agreement between Government and the leaders of the Sheffield City Region to devolve a range of powers and responsibilities to the Sheffield City Region Combined Authority. As part of the devolution deal process, an ambition document was submitted to HM Treasury as part of the devolution deal process, which spans six key themes, one of which relates to transport - an integrated 21st Century Transport Network with greater intra-city region and pan-City Region connectivity.

Whilst air quality was not referenced in the deal, this does not mean that this Group cannot bid to access future funding from this particular source. As part of the agreement, it is proposed that £30m per annum for 30 years will be released to the region.

1.2 Air Quality

1.2.1 The Problem

In South Yorkshire the highest levels of pollutants are recorded close to major roads. Many people live in areas of elevated air pollution. All four local authorities in South Yorkshire have declared Air Quality Management Areas (AQMAs) for the gaseous pollutant nitrogen dioxide, and Sheffield City Council has also declared an AQMA for fine inhalable particles (PM_{10}).

In its guidance on Local Transport Plans, the Department for Transport (DfT) expects authorities to consider their contribution to national transport goals as overarching priorities for their local transport plans. These include reducing the social and economic costs of transport to public health, including air quality impacts, in line with EU obligations.

Over recent years the evidence of the damage caused by air pollution continues to grow stronger. But the UK is still failing to meet European targets for safe air pollution limits across many parts of the country. Thirty Eight out of the UK's 43 assessment zones are failing to meet EU targets on levels of annual mean nitrogen dioxide (which should have been met across the UK by 2010) and poor air quality has now been found to be shortening the lives of up to 200,000 people by an average of 2 years. These zones include the Sheffield-Rotherham and Yorkshire-Humber zones, encompassing the four South Yorkshire local authorities.

Additional evidence for the significant impact of air quality on health is detailed elsewhere[40], clearly however air quality is a very significant issue requiring attention.

1.2.2 Statutory Obligations and National Context

There is a statutory obligation in place on all local authorities to regularly review and assess the air quality in their areas, as set out in Part IV of the Environment Act (1995) and to determine whether or not the National Air Quality Strategy standards are likely to be achieved. Air quality is becoming one of the most important public health issues in the UK.

The European Commission has formally launched infraction proceedings against the UK for a breach of nitrogen dioxide limit values under the EU Air Quality Directive. The EU Limit values for air quality are not being met at many places in the Sheffield City Region, and currently air quality does not comply with EU and national law. There is potential for the UK Government to be fined for breach of the EU limit values post 2015, and infraction proceedings have already been instigated by the **European Commission which has sent the UK a 'Letter of formal notice' for breaching nitrogen dioxide (NO_2) limit values in 16 of 43 zones.** In April 2015, the Supreme Court ordered the Government to develop revised Air Quality Plans to tackle air pollution in the UK. These plans were published in December 2015.

The UK Government is responsible for ensuring compliance with EU air quality obligations, although local authorities do play an important role in managing local air quality. There is a discretionary power in Part 2 of the Localism Act under which the Government could require responsible authorities to pay all or part of an infraction fine. This would be subject to parliamentary process.

1.2.2.1 M1 J28-35a Smart Motorway

[40] http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18580

The operation of the M1 SM-ALR scheme operating at 70mph was considered to have significant, adverse air quality impacts for the opening year of 2017. A mitigation option of 60mph weekday am and pm peak, 70mph IP, 70mph OP and weekend was therefore proposed and modelled by Highways England (HE). This will impact on air quality, even with the mitigation in place.

HE concluded however that the mitigated operating regime would not affect the overall achievement of the compliance date with the EU Directive on ambient air quality for the Sheffield Urban Area, because there are road links within the Sheffield Urban Area (a reporting zone for defra's reporting purposes to the EU) which are predicted to have higher roadside concentrations for the same year, than those impacted on by the scheme.

The mitigated scheme will cause an adverse impact on air quality and, in particular, delay Rotherham MBC's ability to comply with the EU Directive on ambient air quality within its M1 Air Quality Management Area. For the Sheffield Urban Area, a compliance date of before 2020 is predicted by Defra in the latest National Plan. However, the M1 J28-J35 SM-ALR EAR modelling predicts that compliance with the EU limit value will be later than the year 2020 in Rotherham's M1 Air Quality Management Area.

1.3 Climate Change

In 2008 the UK Climate Change Act established legally binding targets for the reduction of greenhouse gas emissions of 80% by 2050. According to figures calculated from the 2009 UK Greenhouse Gas inventory, HGVs (including buses) account for over 23% of emissions from the road transport sector and 4.6% of the total UK greenhouse gas emissions. In achieving the 80% reduction, there are some sectors that will be unable to meet this target (for example aviation and agriculture). Consequently, where possible, all other sectors of the economy will have to work towards total decarbonisation.

1.4 Air Quality Policy Context within the SCR

The role of the AQCG is to facilitate the delivery of the emissions reduction policies outlined in the SCR Transport Strategy (figure 1) and to support the delivery of the Strategic Economic Plan (SEP), by managing the environmental impact of economic growth across the region.

Included in the Air Quality and Climate Group's remit is to continue to address the need to evaluate and assess progress and performance through ongoing monitoring and measurement of emissions as required by Government. The Air Quality and Climate Group has the strategic lead for the air quality and climate change aspects of the **Sheffield City Region Transport Strategy (2011 – 2026)**, with overall responsibility for evaluation as well as those measures directly aimed at reducing emissions from vehicles and energy use. The Transport Strategy is currently centred on four goals:-

Figure 1

Underpinning these four goals are twenty-six policies, defined to achieve delivery of our Strategy. The AQ&CG has lead responsibility for the following three policies:-

Table 1

R	To work to improve the efficiency of all vehicles and reduce their carbon emissions and local air pollutants
U	To support the generation of energy from renewable sources and use energy in a responsible way
V	To improve air quality, especially in designated Air Quality Management Areas

As the LTP Implementation Plan has now expired, consideration is now being given to the preparation of a "Transport Delivery Plan", with the adoption of three time scales in the plan, these being:

- Short (2017-18)
- Medium (2018-19 to 2020-21)
- Long (post March 2021)

The timescales for actions contained within this plan will therefore reflect the proposed timescales for the future Transport Delivery Plan. Should these timescales change in any future Transport Delivery Plan, these timescales can be altered accordingly.

Consideration is also being given to refresh the overarching Transport Strategy (2011-2026); however at the time of drafting of this plan, it is understood that this refresh has been put on hold, pending a wider review of the City Region's infrastructure and investment ambitions.

At the time of the writing of this draft (January 2016), the definitive positioning of the AQC Group has yet to be finalised.

Section Two; Actions 2015-2021 and Potential Funding

2.1 Actions / Interventions

It should be noted that this plan is not an exploration of leading modal shift (this has been traditionally tackled by other LTP groups) but rather about incorporating the low emission technologies being developed for public and private transport. At present the uptake of low emission vehicles amongst the public has been limited, as with most products in their infancy, although there has recently been some acceleration in the number of nationally registered EVs. Growth in uptake is forecast over the next 25 years as car manufacturers move to develop low emission alternatives. The gradual shift to low emission, electric and hybrid vehicles will only be possible if research and investment in an infrastructure that can support them is undertaken at national and local level. The partners have a key role to play by directing resources to encourage the shift to a low emission economy.

Funding is needed for the SCR to reduce emissions from transport and to enable the city region to achieve sustainable economic growth.

The LTP and LSTF South Yorkshire projects which were led by the group for the period 2010-2016 include:

- The Care4air Campaign
- ECO Stars Fleet Recognition Scheme
- Air Quality Monitoring
- Air Quality Modelling
- Hydrogen refuelling infrastructure
- Electric vehicles
- CNG refuelling infrastructure

Following completion of the LTP3 implementation period (2011-2015), and the completion of LSTF projects by March 2016, the group will be required to provide support for LTP delivery, lead on projects and support bids for external funding streams such as the Ultra-Low Emission Vehicles (ULEV) and Clean Vehicle Technology Fund (CVTF).

The Office for Low Emission Vehicles (OLEV) announced funding to encourage the take up of ultra-low emission vehicles (ULEVs) in 2014. Bids for part of a £500m pot of funding are being assessed by DfT. These will support a range of measures and technologies that will assist the UK in meeting its low carbon commitments. Sheffield CC made a bid to the Go Ultra Low Cities Fund which offered £35m for 2-4 cities to commit to supporting a significant adoption of ULEV technology through 'softer measures' including free parking, car clubs, infrastructure provision and access to bus lanes. Although this particular bid has been unsuccesful, the lessons learned from this exercise will benefit the city region when developing future bids. In addition a feasibility study is being funded in 2015/16 for part of the £20m for local authorities to facilitate the uptake of ULEV taxis in Sheffield.

A key part of future work could be to try and encourage the de-dieselisation of the fleet. Sheffield CC's low emission zone (LEZ) study showed how significant diesel car emissions are in terms of causing poor air quality. (https://www.sheffield.gov.uk/environment/air-quality/LEZ-feasibility.html).

One project, which could form part of any ULEV bid could be the payment of a "scrappage" grant (as previously implemented nationally) for older diesel cars.

The SCR is an ideal place for funding from the £30m Low Emission Bus Fund. It is particularly important to fund the improvement of the SCR bus fleet as the impact of buses in AQMAs in the region is particularly high. In some AQMAs, buses contribute up to 40% of transport NOx emissions. Any improvement to the bus fleet will improve air quality. However, the bus operators need to be willing to take part in this, as the Councils do not run services directly.

There is a funding pot of £4m for a compressed natural gas (CNG) refuelling infrastructure, the details of which have not been released to date. A comprehensive survey of suitable sites for CNG refuelling stations in South Yorkshire has been undertaken by the group and the report is available on request from the group.

In September 2015, the Hydrogen Filling Station at Waverley close to M1 junction 33 was opened by ITM Power. The AQCG has worked closely on hydrogen refuelling with ITM Power. South Yorkshire is ideally placed to bid for the so far unspecified amount for hydrogen research being offered by OLEV.

It needs to be stressed that many of South Yorkshire schemes are already highly innovative compared to what else is currently being progressed nationally. Sites for CNG refuelling have been identified; we already have hydrogen powered vehicles running in South Yorkshire. An Electric Vehicle (EV) infrastructure is actively being encouraged through planning and also installed through LSTF schemes. The ECO Stars Fleet recognition scheme is nationally recognised and has over 100 members in South Yorkshire alone, as well as being rolled out throughout the UK. Care4air uses social marketing to get the key messages about transport and air quality out to the general public. But all these schemes need funding, and it is vitally important that such schemes continue if the SCR is to achieve sustainable economic growth.

If the work of the AQCG is successful, the SCR could potentially become one of a small number of areas which is a flagship region for the uptake of new technologies and ULEVs.
It would have a clean and attractive environment and benefit from good air quality, all of which would make the region more attractive to inward investment. The SCR will then be in a position to be a beacon for other regions looking to reduce their emissions and improve their local air quality. Successful regions will also attract international attention.

The AQCG will work closely with the SCR Combined Authority to secure the optimum level of funding for schemes to improve air quality and health for the people of the city region.

2.2 Programme Management / Governance

The Air Quality and Climate Group will continue to provide support and technical information for bids such as the Clean Vehicle Technology Fund, OLEV etc.

Following any refresh of the Transport Strategy (2011-2026) and development of Transport Delivery Plans, we will be able to better identify appropriate governance structures. In addition, the AQCG has considered programme management of proposed actions / schemes. Whilst members of this group can be nominated “leads” for individual projects, and the group as a whole possess considerable transportation knowledge and experience, the group proposes the acquisition of additional management resource to enable the successful production of funding bids and subsequent implementation of schemes. The group will therefore seek to include additional funding for management resource within funding bids as appropriate.

As a proportion of the identified funding of schemes is not administered by the SCR (e.g. OLEV, CVTF), working in obtaining this funding and subsequent implementation of these funded schemes can progress independently of the SCR to some extent.

2.3 Assessment and Prioritisation of Actions

Moving forward, we have developed an evidenced based and detailed action plan, which outlines the activities this Group would like to deliver in the short, medium and long term.
A technical exercise, detailed in Appendix A, was carried out identifying the contribution of different vehicle types to emissions in the South Yorkshire AQMAs. This evidence informs decisions on which actions should be taken forward to ensure they will provide the most cost effective improvements to air quality.

The broad conclusions of the exercise were that diesel cars (including taxis) are a particular major source of NOx within all of our AQMAs. Buses provide a significant contribution to road traffic related NOx emissions; however the proportion varies in each AQMA, depending on the

prevalence of buses and bus routes. This situation is similar for heavy goods vehicles (HGVs) emissions (again dependent on location of AQMAs in relation to prevalence of HGV movements), whilst light goods vehicles (LGVs) are making an increasingly significant contribution to NOx emissions within our urban areas, partly due to more home deliveries undertaken as a consequence of internet shopping.

Although the focus of the technical exercise has been on NOx emissions, the Group recognise the additional benefits of proposed activities / interventions. Where appropriate , associated particulate matter and carbon emission benefits are highlighted, along with other potential benefits, such as reduction in road traffic associated noise and the encouraging of safer driver techniques and active travel.

The technical work will further refine the application of activities and interventions to suit each AQMA accordingly. This further refinement and prioritisation will take place alongside the development of appropriate funding bids and the “scoping-out” of schemes.

Table two below lists existing and future proposed schemes, including potential funding mechanisms, likely timescales for delivery, indicative costs and summary assessment subsequent emissions and air pollutants concentrations reduction benefit. Table three therefore acts as a prioritisation matrix to ensure that the most cost effective, targeted and deliverable interventions are implemented.

Furthermore, table two has been broken down into specific project areas, these being:

- Awareness Raising
- Reduce Existing Vehicle Emissions
- Low Emission Vehicles and Fuels
- Project Assessment and Scenario Testing
- Implementation and Management

Each of the actions / interventions has been categorised into one of these project areas.

Table 2

SCR AQCG Previous Schemes

Project	Description	Status	Funding	Timeframe	Cost	Benefit		
						Emissions per vehicle	Concentrations	Additional Benefits
Awareness Raising								
Care4air	The South Yorkshire air quality campaign premise is to use social marketing to engage the public with the air quality subject. Launched in 2004 it has been highlighted as best practice nationally and continues as a strong brand to promote air quality in South Yorkshire.	Existing Scheme.	LSTF	Current until 31.03.16	L	L	L	Encourages carbon reduction, active travel
Public Information	Methods to inform the public on current local air quality levels and public health information.	Small scale local schemes delivered on a LA level.	Local Authorities	Current until 31.03.16	L	L	L	
Promote Travel Choices	InMotion funded by LSTF currently carries out this function providing advice to the public and businesses on the various public and sustainable transport choices available in South Yorkshire. Includes travel planning, bike loan and public transport ticket promotions.	Existing Scheme delivered by other groups.	LSTF	Current until 31.03.16	H	M	L	Encourages carbon reduction, active travel
Reduce Existing Vehicle Emissions								
ECO Stars	Eco Stars scheme provides recognition, guidance and advice to operators of goods vehicles, buses and coaches in the South Yorkshire area. Each member signing up receives tailor-made support to ensure that their fleet is running as efficiently and economically as possible, to help them progress to higher ratings	Existing Scheme.	LSTF	Current until 31.03.16	M	M	M	Encourages carbon reduction
ECO driving	LSTF main bid includes eco driving training / messages as part of the ECO Academy scheme. ECO driving information freely available with the ongoing commitment to the care4air website. PR campaign based on ECOdriving techniques delivered.	Existing Scheme delivered by other groups.	LSTF	Current until 31.03.16	L	L	L	Encourages carbon reduction, active travel
Retrofitting PSV	Two bus routes in the region have been selected for retrofitting using Thermo Management Technology (TMT) on Euro V buses, funded by the CVTF. The technology works by raising the engine temperature so that Ad-Blue is released which neutralises NOx emissions. The X78 and 75 rotes traverse a number of AQMAs in the region.	Pilot technology has been successfully carried out. Roll out to all buses commencing shortly.	CVTF	Current until 31.03.16	M	H	M	Reduction in PM10
Low Emission Vehicles and Fuels								
EV Infrastructure	**Local Sustainable Transport Fund – Electric Vehicle Project "Inmotion":** This is a unique project, circa £1m, funded through the Department for Transport's Local Sustainable Transport Fund. The project is delivered in conjunction with Npower and the 4 South Yorkshire metropolitan councils, and is co-ordinated by Sheffield City Council: http://www.inmotion.co.uk/schemes/electric-vehicles/ Electric Vehicle Project is promoting the uptake of EVs across small and medium size businesses in South	Existing Scheme.	LSTF	Current until 31.03.16	M	H	M	Reduction in PM10, reduction in road traffic noise

Project	Description	Status	Funding	Timeframe	Cost	Benefit		
						Emissions per vehicle	Concentrations	Additional Benefits
	Yorkshire.							
Hydrogen Re-fuelling	The project aim is to provide a refuelling infrastructure and demonstration vehicles to establish hydrogen as part of the mix of low emission technologies in the region. Establishment of a refuelling station will leverage private sector and government investment, increasing the use of Hydrogen in the local fleet	Previous project has seen investment in re-fuelling site and vehicles at the AMP.	LTP	Current until 31.03.16	**M**	**H**	**L**	
Sheffield Low Emission Study	Sheffield CC commissioned and completed a Low Emission Study in the city. The results have provided a detailed profile of emissions and helped quantify the scale of measures need to improve air quality. The proposal is to extend the study across South Yorkshire, using the methodology adopted in Sheffield. The results of the study would inform the future AQAP of the SCR and the Local Councils.	First study conducted for Sheffield only, has provided a lot of evidence for preferred options.	Defra	Current until 31.03.16	**M**	**n/a**	**n/a**	**Reduction in PM_{10}, reduction in road traffic noise**
Project Assessment and Scenario Testing								
Monitoring	Monitoring continues to take place across South Yorkshire as part of the LTP3 programme. The monitoring project focuses on road transport pollution and produces data which is used to measure progress towards the attainment of air quality targets.	Existing scheme.	LTP	Current until 31.03.16	**L**	**n/a**	**n/a**	
Modelling	Project to maintain and update an air quality model which is used to predict air quality and carbon emissions from traffic throughout South Yorkshire, following the development of a Countywide emissions database for all traffic, which includes the latest emission factors.	Existing scheme.	LTP	Current until 31.03.16	**L**	**n/a**	**n/a**	

Table 3 SCR AQCG Proposed Future Schemes

Project	Description	Status	Potential Funding Streams	Timeframe	Cost	Benefit		
						Emissions per vehicle	Concentrations	Addiional Benefits
Awareness Raising								
Public Information	Provision of information to the public on current local air quality levels, ways that individuals and businesses can contribute to improving air quality and public health information.	Small scale local schemes delivered on a LA level.	Local Authority	On-going	**L**	**L**	**L**	
Care4air	The South Yorkshire air quality campaign premise is to use social marketing to engage the public with the air quality subject. Launched in 2004 it has been highlighted as best practice nationally and continues as a strong brand to promote air quality in South Yorkshire.	Awaiting funding.	Government Grants SCR Devolved funding Developer contributions(As NPPF)	Subject to funding	**L**	**L**	**L**	**Encourages carbon reduction, active travel**
Promote Travel Choices	Previously InMotion funded by LSTF - provides advice to the public and businesses on the various public and sustainable transport choices available in South Yorkshire. Including travel planning, bike	Awaiting funding. Led by other groups but	DfT"Access" funds (2016/17?)	Subject to funding	**H**	**M**	**L**	**Encourages carbon reduction,**

Project	Description	Status	Potential Funding Streams	Timeframe	Cost	Benefit		
						Emissions per vehicle	Concentrations	Addiional Benefits
	loan and public transport ticket promotions.	contribute to improving air quality.	SCR Devolved funding DfT?					active travel
Reduce Existing Vehicle Emissions								
ECO Stars	The Eco Stars scheme provides recognition, guidance and advice to operators of goods vehicles, buses and coaches in the South Yorkshire area. Each member signing up receives tailor-made support to ensure that their fleet is running as efficiently and economically as possible, to help them reduce emissions and progress to higher ratings. The Scheme has been recognised nationally and rolled out to over 20 other areas in the UK. In Scotland it is supported by the Scottish Government.	Awaiting funding from April 2016	DfT"Access" funds (2016/17?) SCR Devolved funding	Subject to funding	M	M	M	Encourages carbon reduction
Bus measures	Funding such as that from the OLEV Low Emissions Bus Fund and CVTF provide opportunities to bid for funding to improve the bus fleet in South Yorkshire. The AQCG identify options and encourages operators to bid for these funds in partnership with SYPTE and the SCR team. Measures include retrofitting, fleet renewal, more stringent Quality Bus Partnerships (QBP), alternative fuelled vehicles.	Retrofitting with TMT bid already successful via CVTF. EV feasibility in Sheffield. QBP being rolled out across South Yorkshire.	DfT Funding from Low Emissions Bus Fund and CVTF; Subject to a competitive bidding process	Subject to funding Short/ Medium – Long term	M	H	M	PM_{10} reduction
Taxi Measures	The OLEV Taxi Fund is available for ultra-low emission taxis. Stricter licensing regime (Local Authorities) Provision of EV charging points convenient for taxi ranks.	Sheffield Feasibility Study identified Taxis emissions as an area for improvement.	OLEV Taxi Fund	Medium	M	H	M	PM_{10} reduction
Diesel Scrappage	A South Yorkshire scheme to provide a set monetary incentive to exchange old diesel vehicles for cleaner vehicles. The fund would apply only to those vehicles that were being scrapped and not sold on to be re-used elsewhere.	Feasibility stage. Subject to funding	Central Government	Long	M	M	M	PM_{10} reduction
Low Emission Vehicles and Fuels								
Low Emission Zones/Clean Air Zones	Feasibility studies carried out in Sheffield. Defra has proposed Clean Air Zones for 5 cities outside London. Sheffield is not one of them.	Feasibility Study completed. Subject to funding.	Local Authority Central Government (no funding has been announced for this to date)	Long	M	H	H	PM_{10} reduction
CNG Infrastructure	Implement CNG re-fuelling within the region as part of the mix of low emission technologies. Project could aim to lever in private sector and Government investment, increasing the use of CNG in the region and nationally. Requires private sector commitment	Feasibility study carried out identifying locations in South Yorkshire where CNG re-fuelling is suitable.	OLEV CNG re-fuelling Infrastructure Fund could be a source of potential funding.	Long	H	H	H	PM_{10} reduction
EV Infrastructure	Further infrastructure projects and promotion of the benefits of EV. Installation of public fast and rapid EV charging points to create a	Some EV points have been	Subject to funding from	Medium	M	H	M	Reduction in PM_{10},

Project	Description	Status	Potential Funding Streams	Timeframe	Cost	Benefit		
						Emissions per vehicle	Concentrations	Addiional Benefits
	viable network for both the residents of Sheffield City Region and visitors to the area.	installed through planning contributions and the Inmotion SME Electric LGV project.	Sheffield Go Ultra Low Cities Bid					reduction in road traffic noise
Hydrogen Re-fuelling	The project has already provided the first publically available refuelling station and demonstration vehicles to establish hydrogen as part of the mix of low emission technologies in the region. Aim to set up a hydrogen vehicle car club.	Re-fuelling station operational	Private sector funding.	Long	M	H	H	Reduction in PM_{10},
South Yorkshire Low Emission Study	Sheffield CC commissioned and completed a Low Emission Study in the city. The results have provided a detailed profile of emissions and helped quantify the scale of measures need to improve air quality. The proposal is to extend the study across South Yorkshire, using the methodology adopted in Sheffield. The results of the study would inform the future AQAP of the SCR and the Local Councils.	First study conducted for Sheffield only, has provided a lot of evidence for preferred options.	LTP/ DfT"Access" funds /AQ Grant	Short	**M**	**n/a**	**n/a**	
Project Assessment and Scenario Testing								
Monitoring	Monitoring continues to take place across South Yorkshire as part of the LTP3 programme. The monitoring project focuses on road transport pollution and produces data which is used to measure progress towards the attainment of air quality targets.	Existing scheme funded by LTP 2015/2016. Funding from 2016/17 needed.	LTP	On-going	**L**	**n/a**	**n/a**	
Modelling	Project to maintain and update an air quality model which is used to predict air quality and carbon emissions from traffic throughout South Yorkshire, following the development of a Countywide emissions database for all traffic, which includes the latest emission factors.	Existing scheme funded by LTP 2015/2016. Funding from 2016/17 needed.	LTP	On-going	**L**	**n/a**	**n/a**	
Implementation and Management								
Project Management Resource	To enable successful funding bids and implementation of elements of this programme, a funding contribution will be needed to fund project management.	Revenue Funding required.	No funding stream identified.	Short – Medium	**L**	**n/a**	**n/a**	

Timeframe: Current 2015-2016, Short-term 2016-2018, Medium term 2018-2021, Long term Post 2021.

Costs

Low	Medium	High
<£100,000	£100,000 - £1 million	>£1 million

Impact on Concentrations

Low	Medium	High
<0.3µg/m^3	0.3 – 1 µg/m^3	>1 µg/m^3

Impact on Emissions

Low	Medium	High
<10%	10-30%	>30%

Table 4: Potential Funding Streams

Department	Fund	Value	Description
OLEV	Low Emission Bus Fund (LEB)	£30m nationally with no cap on bids but if over £5m, must be scalable	Acts as a top up grant and payment towards infrastructure costs
	Cities Bid	£35m total, no indication of how this will be split between the 2 to 4 winners.	SCC are bidding into this to become an exemplar in encouraging the uptake and operation of ultra-low emission vehicles
	Gas Refuelling Infrastructure Fund	£4m nationally	Aimed at HGVs and the introduction of stations on the Strategic network i.e. motorway service stations
	Taxis	£20m nationally	For ultra-low emission taxis (acts as a top up grant and payment towards infrastructure costs like the LEB fund)
	Hydrogen Refuelling Infrastructure Fund	£6.6m nationally. With £0.25m awarded for AMP refuelling site	Sheffield based ITM Power received £1m funding for four upgrades to Sheff/Roth(x1) and London (x3) stations
DfT	Clean Vehicle Technology Fund (CVTF) (formerly Clean Bus Technology Fund - CBTF)	£5million nationally (up to £500,000 per authority area).	CBTF/CVTF was aimed at retrofitting NOx abatement technology. In 2015-2016 CBTF funding secured for £500,000 for upgrade of 25 buses.
	Green Bus Fund (now the LEB, see above)	The Green Bus Fund had four rounds and offered funding on a declining basis (£30m in round 1 reduced to £20m in round 4)	Covered the uplift cost between a standard bus and low carbon equivalent, now replaced by the Low Emission Bus (LEB) fund.
	Cycle Cities Ambition Grant	£114m extension made available to the 8 cities which originally applied (none in the SCR)	Previous SCR bid unsuccesful, but it is understood a plan is being developed to try to access this in the future.
	BSOG and the Low Carbon Vehicle Payment	BSOG is paid to the operators based upon their diesel consumption figures they submit to the DfT. On top of this an additional 6p per km is paid for operators of low carbon vehicles.	Although the amounts issued are not known, this is an area of greater influence to reduce the incentive to use more diesel.
	"Access" Fund	Government is considering committing £80M for revenue funding, over four years, after 2015-16 LSTF funding.	Pro rata (based on previous South Yorkshire LSTF settlements), this has been calculated as potentially being worth £1.4 per annum, which would be a reduction from previous LSTF funding. Awaiting further information.
DEFRA	Defra Air Quality Grant	The AQ Grant scheme has been annual since 1997. Funding offered has declined to £0.5m this year.	Supports expenditure by eligible local authorities on measures to improve air quality.

DECC			DECC have grants aimed at encouraging the uptake of renewable energy systems but this is at the periphery of air quality. This is more in the realms of carbon reduction
DH			The search of DH funding for transport was unsuccessful. In the past there have been partnerships to fund sustainable travel due to the health improvements. Possible area for development in the future, but local Public Health budgets are being reduced
LTP and EU Funding			ECO Stars was originally LTP funded, followed by LSTF. EU Intelligent Energy Funding has been used to roll it out across Europe according to the website. Care for Air is a communications campaign that has been supported by LTP funding

4. GVA Info for the Air Quality and Climate Change Action Plan

Across the North, our Cities and towns are engines of economic growth. As progress is made with implementation of the Northern Powerhouse, it is anticipated that our cities and towns will generate significant uplift in gross domestic product (GDP), including within the Sheffield City Region.

However this can bring about significant economic, social and environmental costs, which need to be managed and mitigated early in the planning process. As pioneering cities across the world are demonstrating, more compact and connected urban development, built around significant public transport, can create cities that are economically dynamic and healthier, and that have lower emissions. Such an approach to our planning and delivery of GVA[41] in the Sheffield City Region could enhance our environmental and Air Quality credentials now and into the future. Several of our actions within this plan will assist in mitigating the environmental impact of growth, without being a barrier to this increase of growth. These include the promotion of low emission infrastructures etc., to prepare for these future major shifts in how transport will operate in the region.

From an Air Quality/Climate Change perspective, it is difficult to provide figures in terms of its contribution to uplift in GVA. However well-designed policies in these fields can make growth and air quality and climate objectives mutually reinforcing in both the short and medium term. In the long term, if air pollution and climate change is not tackled, growth itself will be at risk. One way of monetising the impact of poor air quality is to look at the societal cost, many of which can impact on economic growth and the reputation of the region. This can be of real concern to businesses looking to establish themselves, expand or relocate to a new area. As part of business planning many companies take into account the wider implications and the potential for external costs which can impact on their businesses and workforce.

Examples of Societal Costs
In terms of wider impacts on the UK economy, DEFRA estimate that poor air quality costs between a total of £9 billion-£17 billion.

Congestion and poor air quality go hand in hand, with congestion costing our urban areas over £11bn each year, with the highest costs experienced during peak times of the day. This congestion is bad for cities and towns and bad for many businesses. In particular freight operators and their customers – over 25% of all road freight journeys, are delayed by congestion.

Air pollution is a major environmental risk to health. By reducing air pollution levels, regions can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma, which alone costs the NHS an estimated £1 billion a year.

There are also economic benefits. Government estimates that the economic cost of the health impacts of poor air quality in the UK is around £15 billion per annum. Accordingly, reductions in emissions and exposure can generate significant savings in health budgets and reduced costs for employers.

Clean air attracts investment. Business services and international relocation agencies (such as Forbes) frequently ranks cities on how "toxic" or polluted they are. These and other rankings influence investment and location decisions by major firms. For instance, these quality of life issues affect the most economically valuable jobs, which are essential to London status as a preeminent global business center. Whilst the Forbes criteria applies to "international" cities, such as London, there can be a perception from businesses on the environmental attractiveness of a region, and, in the

[41] **Gross value added** (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy, in economics. In national accounts GVA is output minus intermediate consumption; it is a balancing item of the national accounts' production account.

past, there have been such enquiries in the Sheffield City Region with regard to air pollution.

Section Three; Performance Indicators

In monitoring the outcomes and overall impact of our activity, the South Yorkshire LTP Partners developed a suite of performance measures aligned to our Transport Strategy. This Plan contains the results for Tier 2 indicators:

Tier 2: Delivery / Implementation – LTP related outcome indicators, including mode share of travel, public transport patronage, highway maintenance and road casualty numbers.

The Tier 2 indicators ascribed to AQ&CG activities are “Mode Share of Journeys” measure (2-01a), which relates to travel to / from the four main South Yorkshire urban centres. The other relevant Tier 2 indicator reports “Levels of NO_2 and PM_{10} in Air Quality Management Areas” (2-06a). Our ambition is for a slight improvement during the period of our Implementation Plan, with reported results actually exceeding projections.

Results from our designated Performance Indicators show that recorded levels of NO_2 are as predicted, remaining at a constant 44 -45 $\mu g/m^3$. Levels of PM_{10} have fallen further than originally projected, i.e. 22 - 23 $\mu g/m^3$, as compared to the forecasted 25 $\mu g/m^3$. These totals, however, are reported against a background of falling traffic levels.

Levels of monitored annual mean nitrogen dioxide and PM_{10} in South Yorkshire are decreasing gradually in the county’s AQMAs. Between 2005 and 2013, the average nitrogen dioxide annual mean measured by the group in AQMAs fell from 49 $\mu g/m^3$ to 43 $\mu g/m^3$. The average annual mean PM_{10} in South Yorkshire’s AQMAs fell from 31 $\mu g/m^3$ to 24 $\mu g/m^3$.

TABLE 5: South Yorkshire Air Quality and Climate related Performance Indicators (updated August 2014)

INDICATOR	COMPONENT	RESULTS							PERFORMANCE	
									RAG	Notes
	Calendar Year	2008	2009	2010	2011	2012	2013	2014	RAG	Notes
2-01a : MODE SHARE OF JOURNEYS TO / FROM URBAN CENTRES People (%)	Single occupancy cars	426,305 (30.9)	433,639 (31.3)	438,154 (31.8)	423,101 (31.8)	421,344 (32.4)	432,069 (33.1)		**N/A**	No forecasts have been established for this indicator
	Multi occupancy cars	367,981 (26.6)	376,608 (27.2)	364,850 (26.5)	361,432 (27.1)	342,107 (26.3)	326,363 (25.0)			
	Light Goods Vehicles	108,288 (7.8)	102,006 (7.4)	103,127 (7.5)	102,725 (7.7)	102,598 (7.9)	100,553 (7.7)			
	Medium / Heavy Goods Vehicles	33,154 (2.4)	28,968 (2.1)	28,374 (2.1)	26,745 (2.0)	25,331 (1.9)	25,648 (2.0)			
	Buses	264,057 (19.1)	243,524 (17.6)	237,547 (17.2)	219,035 (16.4)	209,682 (16.1)	225,364 (17.3)			
	Trams	38,665 (2.8)	35,709 (2.6)	42,421 (3.1)	33,382 (2.5)	32,574 (2.5)	34,112 (2.6)			
	Trains	49,068 (3.6)	53,937 (3.9)	54,558 (4.0)	54,887 (4.1)	60,020 (4.6)	56,696 (4.3)			
	Motor Cycles	6,101 (0.4)	6,932 (0.5)	5,623 (0.4)	5,362 (0.4)	6,039 (0.5)	4,331 (0.3)			
	Pedal Cycles	6,468 (0.5)	7,330 (0.5)	7,150 (0.5)	7,805 (0.6)	7,554 (0.6)	7,037 (0.5)			
	Pedestrians	81,577 (5.9)	95,996 (6.9)	97,528 (7.1)	98,010 (7.4)	91,926 (7.1)	91,470 (7.0)			
	All	1,384,649 (100.0)	1,386,812 (100.0)	1,379,332 (100.0)	1,332,484 (100.0)	1,299,175 (100.0)	1,303,643 (100.0)			

	Calendar Year	2008	2009	2010	2011	2012	2013	2014	RAG	Notes
2-06a: LEVELS OF NO2 AND PM10 IN AQMAs ug/m3	NO2 (Actual)	44	45	45	44	45	43		**G**	Forecasts have been suggested to 2013 only at the present time. Projections for 2014 will be investigated once the implications of "Euro6" engines have been assessed.
	NO2 (Forecast)	N/A	N/A	N/A	45	45	44	TBC		
	PM10 (Actual)	24	22	25	23	22	24		**G**	
	PM10 (Forecast)	N/A	N/A	N/A	25	25	24	TBC		

RAG

R	Red: Performance not achieving forecast level and / or worse than reported in the previous year.
A	Amber: Performance improving but still not achieving forecast level and / or worse than reported in the previous year but improved since the ‘base year’.
G	Green: Performance matching or exceeding forecasts and / or better than in the previous year.
N/A	Not Available.

Section Four; Interfaces with Other LTP Groups and External Agencies

SUBJECT	ISSUE
ASSET MANAGEMENT & MAINTENANCE GROUP (Lead officer - Lee Garrett, DMBC)	
Energy efficiency	Reduce the carbon impact of our assets.
Low carbon energy	Exploit our existing and future assets for the generation of low carbon energy.
Low carbon travel	Ensure our assets support the promotion of travel modes such as cycling, walking and public transport.
Alternative / Low Carbon fuels	Maintenance implications of installing new infrastructure for alternative / renewable fuels for vehicles. Ensure our infrastructure supports the provision of refuelling facilities in recognition of the increasing shift towards low emission fuels including gas, electric and hydrogen. Specifically we will, together, develop a low carbon energy strategy across the LTP's assets, including the identification of sites within our asset base suitable for gas and electric recharging.
Lighting	Trialling / use of LED type lighting and associated capital costs; reducing the number and time lamps are on.
Use of assets for energy generation	Full assessments required on the scope and nature of assets for energy generation, e.g. use of signs and fixtures as sites for the generation of electricity, such as solar panels.
Better maintained roads	A better understanding required on the carbon and low emission impacts of "better" road surfacing.
NETWORK MANAGEMENT GROUP (Lead officer – Peter Vickers, SCC)	
Air pollution & other emissions	Make informed decisions to mitigate air pollution and other emissions and develop our collective modelling capability.
Journey reliability	A focus on journey reliability (rather than journey speed) is helpful to both agendas.
Project Assessment	There is a need for a more joined up process of formulating / assessing schemes. Carbon / air quality impacts need to be written specifically into scheme assessments of all significant schemes.
sylTS	There would be productive interfaces between sylTS and air quality assessments.
Highway incidents	Consideration needs to be given to the management of incidents on the highway and which agencies need to do what.
Carbon impact	Climate policies are very broad - consideration should be given to appropriate indicators of carbon impact.
FREIGHT PARTNERSHIP GROUP (Lead officer – Anne Beddoes)	
Engage with the freight community	Shape and complete the Freight Strategy so that air quality and carbon are mitigated.
Eco Stars	Promote Eco Stars to all fleet operators.
PUBLIC TRANSPORT BOARD (Lead officer – Louise Fannon)	
Fleet performance	Establish the current make-up and performance of the operator fleet.
	Develop a plan with emissions performance improvement over the next 10 years in line with collective AQAPs.
Eco Stars	Promote Eco Stars to all fleet operators.
Drive Green	
CYCLING AND ACTIVE TRAVEL GROUP (Lead Officer – TBC)	
Achieve modal shift	Develop an integrated communications plan.

SUBJECT	ISSUE
	Influence support packages for organisations Travel Plans e.g. advice on using vehicles efficiently / alternative fuels.
	Understand the impact of initiatives to promote more efficient vehicles on modal shift.
	Understand the opportunities to further reduce emissions related to initiatives such as car clubs / electric bikes.

SAFER ROADS PARTNERSHIP (Lead officer – Joanne Wherle)	
Eco-driving	Continue to integrate eco-driving into the safer roads programme.
Vehicle technology	Understand the safety issues associated with changes to vehicle technology, especially for electric, gas, hybrid and hydrogen vehicles.
HIGHWAYS ENGLAND (Sheffield and Rotherham Councils for M1 motorway))	
M1 speed limits.	Continue to work with the HE in relation to speed limits on the M1 motorway at Tinsley for air quality reasons, and other issues on the HE network, such as air quality issues on the A616 Transpennine route.

Appendix A: Source Apportionment of Emissions

South Yorkshire AQCG
Source Apportionment Methodology

It is necessary to update the source apportionment exercise for the Air Quality Management Areas (AQMAs) in South Yorkshire to contribute to the evidence base for prioritising measures within the Sheffield City Region air quality action plan.

The approach is based on Statutory Defra guidance[1] to assess air quality by Local Authorities in their Local Air Quality Management (LAQM) Review and Assessment duties and details the standard methodology advised for conducting modelling exercises.

This methodology represents a consistent approach which is available to all Local Authorities, using locally operated modelling systems.

It shall be noted that all modelling comes with inherent uncertainty and although a standard methodology looks to reduce this uncertainty, any modelling results come with a +/-25% accuracy.

The exercise will be conducted using the latest available Airviro Model used in South Yorkshire over the last 16 years. Officers from each South Yorkshire local authority have received appropriate training for Airviro emissions database work and dispersion modelling, and are active members of a national Airviro User Group. Furthermore, officers have vast experience of undertaking their LAQM duties. There is therefore sufficient local expertise to ensure an agreed and consistent approach within the sub region.

The agreement is to use a baseline source apportionment of 2014. Therefore the following data sets are used;

- EDB – Rotherham/jk/EDB_0715_Base (database developed by AEAT using the Sheffield LEZ[2] vehicle split with updated EF from COPERT4 v10.0 and NAEI v6.0.1)
- Weather data – Scenario for 2014
- Traffic – AADT for 2014 from DfT[3]

The following factors will also be applied to any source apportionment model runs;

- Resolution will be at 25m grid squares
- Nitrogen dioxide conversion using the Derwent-Middleton equation

Model runs are performed for each AQMA and results are presented at sensitive receptors and/or at the worst case location where the following will be calculated;

Stage 1 – Source Apportionment of Sector Emissions

The percentage contribution of the following sectors will be calculated for South Yorkshire: Industrial; Domestic; Background and Transport.

Stage 2 – Source Apportionment by Vehicle Type

The percentage contribution of each vehicle type to the transport sector emissions in each AQMA, the vehicle types are as follows:
Petrol Car, Diesel Car, LGV (100% considered diesel), Bus, HGV Rigid and HGV Articulated.
The % contribution will be calculated by performing a model run with one vehicle type in turn being omitted and subtracted from the total road transport emissions.

Subsequent breakdown of total NOx emissions in South Yorkshire, using Airviro estimates that 53% of emissions with the county are attributable to industrial, commercial and domestic sources, whilst the remainder (47%) are due to road transport emissions.

Road traffic emissions have consequently been further assessed, using the above methodology, in order to calculate the percentage contribution of each vehicle type to the transport sector emissions in each AQMA. These results are presented below for each of the four South Yorkshire districts.

References;

[1]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf
[2]https://www.sheffield.gov.uk/environment/air-quality/LEZ-feasibility.html
[3]http://www.dft.gov.uk/traffic-counts/cp.php

Appendix G: Further Evaluation of Actions

Proposed Actions Table

Low, Medium and High classification from Table A.1 – Action Toolbox LAQM.TG(16)

Low effect – action focused on a small proportion of sources contributing to an exceedance

Medium effect – action focused on only one key emissions source

High effect – action focused on dealing with key high emitting sources, or a number of emissions sources

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
1	Carriageway improvements	Traffic Management	Congestion Management	Dependent on location	To be confirmed	BMBC, H&T	Alleviate congestion, reduce emissions	All	Yes	Table A1 deems the impact as being low. However, previous traffic management schemes in the borough have had a more significant impact	**Potential**, subject to future funding bids
2	Barnsley Bus Partnership Agreement	Transport Planning and Infrastructure	Public Transport Improvements	Where bus routes located (2A, 4, 5, 7)	Bus Operators (?) and DfT (retrofit / upgrade)	BMBC, H&T	Bus emission standards, reliable journey time, less congestion, modal shift from car?	Bus	Yes	High	**Definite** Development of agreement currently ongoing, expected to be implemented by 2017

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
3	Encourage uptake of lower emission vehicles and alternative fuels (EVs, CNG, H_2)	Promoting low emission transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging Public vehicle procurement – prioritising uptake of low emission vehicles	All and boroughwide)	SCR gainshare LTP Developer contributions (planning application conditioning)	BMBC, H&T	LEVs	All	Yes	High	**Potential** Subject to current funding bids
4	Langsett	Traffic Management	Congestion Management	6	HE AQ fund, Trans Pennine scheme	HE	Traffic management schemes	All	Yes	High, as Barnsley MBC detailed assessment (2013) indicated a more significant emission reduction	**Potential**, subject to funding and stakeholder approval

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
5	Planning applications – air quality assessment and mitigation	Policy Guidance and Development Control	Air Quality Planning and Policy guidance	All and boroughwide	Existing budget	BMBC Reg Services	Encourage and require Low Emission Strategy mitigations for new development	All	Not detailed in Table A1, but Low Emissions Strategy indicated as having +ve impact on $PM_{2.5}$ concentrations	Not detailed in Table A1, but Low Emissions Strategy indicated as having High impact on reducing NOx and PM_{10} emissions	**Definite** Ongoing since 2015
6	Speed restrictions on gradient Feasibility Study	Traffic Management	Congestion Management	4	Existing budget	BMBC Reg Services	Imposition of speed controls	All	Yes	Subject to conclusions of assessment (supporting dispersion modelling exercise)	**Potential** Subject to identification of appropriate funding, feasibility study and stakeholder approval
7	Procurement	Policy Guidance and Development Control	Sustainable Procurement Guidance	All and boroughwide	Procurement budget (See WYLES?)	Procurement / Assets	Lower emission vehicles for Council fleets / supply chain	All?	Not detailed in Table A1, but Low Emissions Strategy indicated as having +ve impact on $PM_{2.5}$ concentrations	Not detailed in Table A1, but Low Emissions Strategy indicated as having High impact on reducing NOx and PM_{10} emissions	**Potential**, subject to discussion and negotiation with Procurement

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
8	Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes	No EU category / classification	No EU category / classification	All and boroughwide	Contained within existing budget	BMBC Reg Services	Reduction in NOx and PM emissions	Industrial	Yes	Not detailed in Table A1, but will have +ve impact on reducing NOx and PM_{10} emissions	**Definite**, ongoing from previous Action Plans
9	Enforcement of the Clean Air Act with regards to industrial smoke	No EU category / classification	No EU category / classification	All and boroughwide	Contained within existing budget	BMBC Reg Services	Reduction in NOx and PM emissions	Industrial	Yes	Not detailed in Table A1, but will have +ve impact on reducing NOx and PM_{10} emissions	**Definite**, ongoing from previous Action Plans
10	Enforcement of the Clean Air Act with regards to domestic smoke control	No EU category / classification	No EU category / classification	All and boroughwide	Contained within existing budget	BMBC Reg Services	Reduction in NOx and PM emissions	Domestic	Yes	Not detailed in Table A1, but will have +ve impact on reducing NOx and PM_{10} emissions	**Definite**, ongoing from previous Action Plans
11	Investigation of nuisance complaints, including appropriate action to resolve the problem	No EU category / classification	No EU category / classification	All and boroughwide	Contained within existing budget	BMBC Reg Services	Reduction in NOx and PM emissions	Domestic	Yes	Not detailed in Table A1, but will have +ve impact on reducing NOx and PM_{10} emissions	**Definite**, ongoing from previous Action Plans

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
12	BMBC fleet improvements	Vehicle Fleet Efficiency	Vehicle retrofitting programmes	All and boroughwide	Subject to future funding opportunities and meeting funding criteria	BMBC	Reduction in NOx and PM emissions	HGVs, LGVs	Yes	Medium	**Potential**, dependent on future opportunities
13	Priority parking for LEVs	Promoting low emission transport	Priority parking for LEVs	All and boroughwide	BMBC	BMBC	Reduction in NOx and PM emissions	Petrol and Diesel Cars	Yes	High	**Potential**, subject to BMBC Car Parking Strategy requirements (Strategy being reviewed in 2016)
14	Freight and Delivery Management	Freight and Delivery Management	Delivery and Service plans	All and boroughwide	To be confirmed	BMBC H&T	Reduction in NOx and PM emissions	HGVs, LGVs	Yes	Medium	**Potential**, subject to future opportunities for dialogue with operators

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
15	ECO Stars HDV Fleet Recognition Scheme	Vehicle Fleet Efficiency	Vehicle Fleet efficiency and recognition schemes	All and boroughwide	STTF – Access fund	BMBC, H&T	Fleet operation best practice	Buses, HGVs, Vans	Yes	Medium	**Definite** Subject to Sustainable Travel Transition funding 16-17, and future Access funding
16	ECO Stars Taxi Fleet Recognition Scheme	Vehicle Fleet Efficiency	Vehicle Fleet efficiency and recognition schemes	All and boroughwide	STTF – Access fund	BMBC, H&T	Taxi Fleet operation best practice	Taxis, Private Hire Vehicles	Yes	Medium	**Potential** Subject to suitable funding
17	ECO Driving	Vehicle Fleet Efficiency	Driver training and ECO driving aids	All and boroughwide	STTF – Access fund, and others?	BMBC, H&T	Public and Private sector LDV best practice	Diesel and Petrol LDVs (Cars)	Yes	Medium	**Potential** Subject to future funding

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
18	Consolidation Centre	Freight and Delivery Management	Freight Consolidation Centre	All and boroughwide	Subject to opportunity to develop these facilities as part of future development in the borough	BMBC	Reduction in NOx and PM emissions	HGVs	Yes	Medium	**Potential**, dependent on future opportunities
19	Barnsley Intelligent Transport System (MOVA / SCOOT)	Traffic Management	Congestion Management	2A, 4, 5	Maintenance of systems cost met until 2018	BMBC, H&T	Alleviate congestion	All	Yes	Low	**Definite** Implemented, ongoing maintenance to 2018
20	Encourage cycling and walking (developing infrastructure and campaigns)	Promoting Travel Alternatives Transport Planning and Infrastructure	Promotion of Cycling Promotion of Walking Public cycle hire scheme Cycle network	All and boroughwide	SCR, Developer contributions, STTF (future access funds)	BMBC, H&T	Modal Shift	Diesel and Petrol LDVs (Cars)	Yes	Low	**Potential** Subject to Sustainable Travel Transition funding 16-17, and future Access funding

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
21	Care4Air	Public Information	Via the internet, leaflets, radio, television and other mechanisms	All and boroughwide	To be identified	BMBC Reg Services	Awareness raising campaigns facts Health benefits of cycling and walking	All (in this case, traffic, industrial and domestic)	Not detailed in Table A1	Not detailed in Table A1	**Potential** South Yorkshire regional action, subject to funding
22	Assessment of air quality impact of major traffic schemes	Traffic Management	Congestion Management	All and boroughwide	Existing budget	BMBC Reg Services	Ensure air quality impact of the scheme is minimised	All	Not detailed in Table A1	Not detailed in Table A1	**Definite**, ongoing from previous Action Plans
23	Smoky diesel Hotline	Public Information	Via the internet, leaflets, radio, television and other mechanisms	All and boroughwide	Contained within existing budget	BMBC Reg Services	Reduction in NOx and PM emissions	HGVs, Buses	Yes	Not detailed in Table A1, but will have +ve impact on reducing NOx and PM_{10} emissions	**Definite**, previous action, but consideration given to resurrecting this action due to current concerns regarding diesel emissions

No.	Proposed Action	Measure Category	Measure Classification	AQMA	Potential Funding	Lead Authority	Impact	Targeted Fleets / sources	Table A.1 Action Plan Toolbox TG(16) Effect on reducing $PM_{2.5}$ concentrations	Table A.1 Action Toolbox TG(16) Effect on reducing NOx and PM_{10} emissions Low, Medium, High Classification	Definite / Potential (as detailed Summer 2016)
24	Car and Lift sharing programmes	Alternatives to private vehicle use	Car and Lift sharing schemes	All and boroughwide	STTF, Access	BMBC, SYTPE	Reduction in NOx and PM emissions	Petrol and Diesel Cars	Yes	Low	**Definite**, see https://southyorkshire.liftshare.com
25	Promoting Travel Alternatives (Workplace travel planning; encourage / facilitate home-working; personalised travel planning; school travel plans)	Promoting Travel Alternatives	(Workplace travel planning; encourage / facilitate home-working; personalised travel planning; school travel plans)	All and boroughwide	Local Transport Plan?	BMBC H&T	Reduction in NOx and PM emissions	Petrol and Diesel Cars	Yes	Low	**Definite**, ongoing
26	Anti-idling policy feasibility study	Traffic Management	Anti-idling enforcement	All and boroughwide	To be confirmed	BMBC	Reduction in NOx and PM emissions	All	Yes	Low	**Potential**, subject to assessment of feasibility

Glossary of Terms

Abbreviation	Description
Airviro	Sophisticated software, operated by the four South Yorkshire local authorities, which enables the modelling of air pollution concentrations over a geographical area
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CNG	Compressed Natural Gas
Defra	Department for Environment, Food and Rural Affairs
ECO Stars	Efficient, Cleaner Operation
EU	European Union
HDV	Heavy Duty Vehicle
HGV	Heavy Good Vehicle
LAQM	Local Air Quality Management
LGV	Light Goods Vehicle
NPPF	National Planning Policy Framework
MOVA	Microprocessor Optimised Vehicle Actuation
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
Part A1, Part A2 and Part B processes	Facilities which are regulated under the Environmental Permitting (England and Wales) Regulations 2010 SI 2010/675 (as amended ("the Regulations"). Part A2 and Part B processes are regulated by the Local Authority

PHOF	Public Health Outcome Indicator
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
SCOOT	Split Cycle and Offset Optimisation Technique
STTF	Sustainable Transport Transition Fund

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