



# Air quality action plan – consultation draft

City of Bradford MDC

**Report to City of Bradford Metropolitan District  
Council**

Restricted Commercial  
ED04975  
Issue Number 5  
July 2009


<b>Title</b>	Air Quality Action Plan – Consultation Draft
<b>Customer</b>	City of Bradford Metropolitan District Council
<b>Customer reference</b>	
<b>Confidentiality, copyright and reproduction</b>	
<b>File reference</b>	AEAT/ENV/R/2862
<b>Reference number</b>	ED04975- Issue 5

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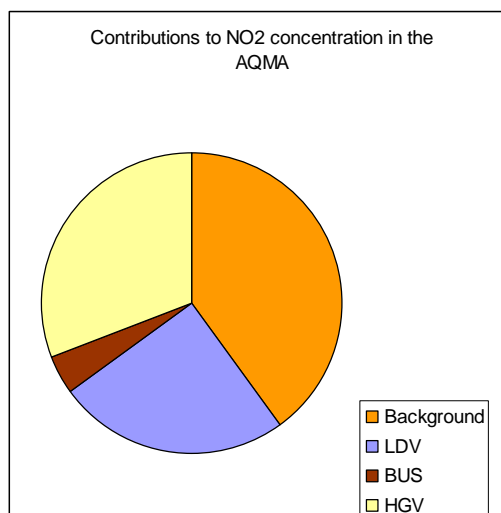
## Executive summary

This report has been prepared to consult the public, central government and other interested stakeholders on the actions that City of Bradford Metropolitan District Council (“Bradford”) and others will take to address air quality problems identified in Bradford. As such it is Bradford’s current Air Quality Action Plan (“AP”). Comments from these stakeholders will be considered prior to preparing a final version that will be submitted to central government, for approval, and then subsequent adoption by Bradford.

### Air Quality in Bradford

Poor air quality can contribute to poor health particularly among vulnerable people such as the very young, the old and anyone with underlying cardio-vascular health issues such as asthmatics and others. It is national and local policy to reduce these health impacts by achieving air quality objectives that have been set to protect the health of vulnerable people. Air quality in relevant locations within Bradford has been found over several years to comply with all of the air quality objectives except for the annual mean and short-term objectives for nitrogen dioxide (NO<sub>2</sub>). Analysis suggests that this objective is currently exceeded at four locations and these have been designated as air quality management areas (AQMAs). This being the case Bradford has prepared an action plan that aims to make progress towards achieving the annual mean NO<sub>2</sub> objective within the district as whole and the AQMAs in particular. This is the draft action plan on which the council is now consulting widely. The council will consider comments provided on this draft prior to submitting and adopting a final version of the plan.

Road transport is found to be the dominant local source of pollutant emissions. For example the following pie chart illustrates the contribution to annual mean nitrogen dioxide concentrations on the Shipley Airedale Road. Heavy goods vehicles and cars on this road in particular contribute significantly to total concentration in addition to background concentration which is defined as the contribution from all transport, industrial and domestic emission sources across the District.



Measurements and projections of air quality suggest that the air quality objective for NO<sub>2</sub> may be achieved by 2010 in the Manningham Lane and Thornton Road AQMAs under business as usual projections meaning additional local measures to reduce emissions in these AQMAs are of lower priority in terms of local air quality management. However, air quality in the remaining two AQMAs – Mayo Avenue and Shipley Airedale Road is predicted to exceed the objective through until at least 2015 unless action is taken to reduce pollutant contributions (NO<sub>2</sub> in particular) from road transport by 25-40%. Therefore additional measures to reduce emissions in these AQMAs are a higher priority in terms of local air quality management.

## Draft action plan

The Mayo Avenue and Shipley Airedale Road AQMAs are on strategic routes that traffic and HGVs in particular are encouraged to use. In these cases Bradford takes the view that it needs to work in partnership with other agencies to implement significant measures to achieve the required pollution reduction and it sees part of its role as informing regional and national agencies such as the West Yorkshire Integrated Transport Authority, the Highways Agency, Yorkshire Forward and Defra that it believes additional measures introduced at the regional and/or national level are also required to achieve the air quality objectives in these locations. Such additional measures could focus either on accelerating the uptake of cleaner newer vehicles or on a change in strategy to re-route some of the traffic via alternative routes.

At the same time Bradford recognises that it also has an important role to play to ensure that air quality remains good in areas that are not AQMAs and to ensure that air quality improves in all locations across the district. To ensure that air quality is managed appropriately Bradford believes it should commit to:

- Developing an Air Quality Strategy. This would have the key aims that development planning and local transport planning should continue to adopt appropriate policies and measures aimed at improving air quality wherever possible (across the district and within the AQMAs in particular) and that planning decisions should not lead to the declaration of new AQMAs.
- Implementing complementary local measures such as:
  - Adopting a low emission strategy when procuring and operating vehicles and services requiring the use of vehicles
  - Adopting practices within a Freight Strategy that focus on reducing emissions from freight within Bradford by helping freight move efficiently and to encourage the uptake of cleaner vehicles and
  - Reducing congestion in the AQMAs
 Such measures may allow fleet operators to cut costs in addition to reducing emissions.
- Achieving better travel choices in the District by making information on purchasing and travel choices more readily available and by continuing to actively engage with all parts of the community (individual, institutional and commercial) to implement more sustainable travel plans.

Bradford highlights its belief that only through the contribution of regional and/or national measures that significantly reduce flows on the strategic roads through the District or that significantly accelerate the uptake of cleaner vehicles to operate on those roads will there be sufficient progress to achieve the annual mean objective for NO<sub>2</sub> in all relevant locations.

However, it believes that the other cost-effective measures it has set out in its plan could improve air quality in the AQMAs and across the borough. Bradford therefore estimates that its own measures may achieve an approximate 10% reduction in local NO<sub>2</sub> contribution from road transport and while this may help towards compliance with the air quality objective in the Thornton Road and Manningham Lane AQMAs (perhaps as early as 2010), the objectives may be exceeded in the Shipley Airedale Road and Mayo Avenue AQMAs for the foreseeable future without the regional/national interventions.

The following table provides summary details of the measures proposed for the draft action plan. The proposed action plan is focused on making progress towards achieving the objective for NO<sub>2</sub>, but it will potentially have additional value by simultaneously reducing exposure to PM<sub>10</sub> (for human health benefits) and reducing emissions of carbon dioxide (helping climate change mitigation efforts).

In developing this action plan, additional options have been rejected that were assessed as being either too expensive or insufficiently focused on the problem sources of emissions (i.e. HGVs and cars) to be effective at reducing the pollution levels. However, during work to develop the air quality strategy, the integrated transport strategy and the local development framework some of these measures may be considered again for adoption. If this were the case then they would be added to the action plan and included in the annual progress reports that provide updates on implementation of the plan.

Number	Title	Lead authority	Key intervention	Source of funding	Planning phase	Implementation phase	Target	Potential direct air quality benefits
1	Additional national and/or regional measures	CBMDC	Inform relevant agencies of the scale of problem and need for lower traffic flow or lower emitting vehicles	Not applicable	Not applicable	Now onwards	A 25-40% reduction in NO2 contribution from local traffic by 2015 in the AQMAs	Large and potentially compliance by 2015
2	An air quality strategy	CBMDC	Adoption of corporate air quality strategy to address current and future air quality issues.	Internal and potentially the Air Quality Grant	2009-2010	2010 onwards	No new AQMAs and opportunities to improve air quality across the borough identified	Significant in avoiding worsening problems
3	Integrate the AQAP into the LTP/ITS	ITA	Measures to address the current poor air quality in the AQMAs and to avoid future problems are implemented via the LTP. le measure 5 onwards.	Existing LTP funding	2009-2010	2010 onwards	Targets associated with measures 5 onwards	Small-medium and not achieving compliance on their own
4	Additional use of planning system for air quality management	CBMDC	Local planning policies are revised to mitigate the cumulative negative air quality impacts of new development	Existing funds and S106 funding scheme	2009-2010	2010 onwards	If appropriate, to set site conditions and a budget for S106 contributions that could be used for LAQM and formulae for determining how each development would contribute to this.	Significant in avoiding worsening problems and in creating funding to implement other mitigation measures
5	Low emission strategy for procuring council and service fleets	CBMDC	Emission standards and attainment dates are set for vehicles operating on Council business.	Internal or potentially the AQ Grant	2009-2011	2011 onwards	Emission standards adopted and number of compliant vehicles and their activity monitored	Small since contribution to problems in the AQMAs may be small
6	Freight Strategy	ITA	Policies to reduce emissions from freight within the Bradford urban area	Existing LTP funding	2009-2011	2011 onwards	Road schemes identified, emission standards adopted and compliance monitored	Small-medium and not achieving compliance on their own
7	Provide environmental and travel information	ITA/CBMDC	Giving people the awareness of the impacts their travel choices have and the more sustainable options open to them.	Existing LTP funding	2009-2010	2010 onwards	Quantitative surveys to evaluate the impact of the measure (linked to measure 8)	Small-medium and not achieving compliance on their own
8	Travel planning (personal, institutional and commercial sectors)	ITA/CBMDC	Reduce car usage within the personal, institutional and commercial sectors by up to 10%	Existing LTP funding	2009-2011	2011 onwards	Surveys to confirm overall car journeys reduced by 10% and potentially higher during peak travel periods	



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# 1 Introduction

This report has been prepared to consult the public, central government and other interested stakeholders on the actions that City of Bradford Metropolitan District Council (“Bradford”) and others will take to address air quality problems identified in Bradford. As such it is Bradford’s current Air Quality Action Plan (“AP”).

The plan has been developed through discussions within a steering group and on the basis of guidance from Bradford’s contracted consultants, AEA Technology (AEA). The report sets out Bradford’s statutory duties in relation to local air quality management, the reasons why Bradford must adopt an action plan that addresses air quality problems in the district and the steps Bradford is proposing to take to manage these problems.

This draft has been submitted to the Department for Environment, Food and Rural Affairs (Defra), which is the central government department with overall responsibility for managing air quality in the UK. Bradford is also consulting the public and other interested stakeholders on this draft. Comments received will be addressed prior to preparing a final action plan that will be submitted to Defra. Once accepted by Defra, the plan will be adopted and implemented by Bradford.

## 1.1 The action plan – consultation draft

Later chapters in this report discuss the air quality problems and options to reduce them in more detail. However, the draft action plan is presented here in summary in the following paragraphs and table.

Poor air quality can contribute to poor health particularly among vulnerable people such as the very young, the old and anyone with underlying cardio-vascular health issues such as asthmatics and others. For many years, European, national and local policy has followed a path of reducing or eliminating poor air quality where possible. A key strand of this policy has been to set air quality objectives. These objectives are set for the pollutants that are of most concern in relation to health. Health experts have examined the evidence and set concentrations or levels that, if achieved, should protect even the most vulnerable from the worst effects of these pollutants. In addition deadlines have been set at which point the objectives should be achieved in order to minimize the current health impacts from poor air quality – essentially the UK and other European countries are attempting to achieve the objectives as soon as is practicable.

Air quality in relevant locations within Bradford (i.e. where people may be exposed) has been found, over several years, to comply with all of the air quality objectives except for the annual mean objective for nitrogen dioxide (NO<sub>2</sub>). This pollutant is an odourless, colourless gas at concentrations found in the air, it can exacerbate cardio-vascular symptoms in certain individuals exposed to ambient levels and also has a role in long-range pollution problems (i.e. beyond Bradford). Analysis suggests that this objective is currently exceeded in four locations within Bradford and these areas have been designated as air quality management areas (AQMAs).

This being the case Bradford must develop an action plan to make progress towards achieving the annual mean NO<sub>2</sub> objective within the district as whole and the AQMAs in particular. Under legislation set down in relation to Local Air Quality Management, Bradford does not have a *legal* requirement to achieve the air quality objective. However, Bradford takes environmental and quality of life issues very seriously. In light of this plan sets out the actions that Bradford will take to achieve the objectives as soon as practicable.

Road transport is found to be the dominant local source of pollutant emissions in the AQMAs and across the district. However, Bradford is not the authority with responsibility for all roads where action needs to be taken, hence Bradford will need to work in partnership with other agencies to achieve the air quality objectives. Since transport emissions and policies are so important for effective air quality management in Bradford the AP will be integrated into the West Yorkshire Integrated Transport Authority (ITA) Local Transport Plan since this may be the most effective framework for implementing measures aimed at reducing road transport emissions while being integrated with other transport and

development policies in the LTP, at the Highways Agency (HA) and Yorkshire Forward. These authorities may need to consider regional-scale actions in order to achieve the air quality objectives.

Measurements and projections of air quality suggest that the air quality objective for NO<sub>2</sub> may be achieved by 2010 in the Manningham Lane and Thornton Road AQMAs with no additional actions to reduce emissions. Bradford will continue to monitor the situation in these locations in case the predictions are over-optimistic but the current conclusion, based on the best available information, is that additional local measures to reduce emissions in these AQMAs are of lesser priority since it is projected that the air quality issue will have been eliminated by 2010. .

However, air quality in the remaining two AQMAs – Mayo Avenue and Shipley Airedale Road is predicted to exceed the objective, until at least 2015, unless action is taken to reduce pollutant contributions (NO<sub>2</sub> in particular) from local road transport by 15-40%. Therefore additional measures to reduce emissions in these AQMAs are of higher priority in terms of local air quality management. These two AQMAs are on strategic routes that traffic, and HGVs in particular, are encouraged to use. Therefore Bradford takes the view that it must work in partnership with ITA and other agencies to implement significant measures to achieve the required pollution reduction.

Bradford's role in managing air quality in these two AQMAs is to inform regional and national agencies such as the ITA , the Highways Agency, Yorkshire Forward and Defra that it believes additional measures, introduced at the regional and/or national level, are required to achieve the air quality objectives in these locations. Such additional measures could focus either on accelerating the uptake of cleaner newer vehicles or re-routing or reducing the volume of traffic.

Bradford recognises that it has an important role to play to ensure that air quality remains good in areas where AQMAs have not needed to be declared and to ensure that air quality improves in all locations across the district. This is a potentially challenging role as there are pressures in other areas of the council's work that would need to be considered and balanced along side action on air quality. For example, Bradford has been set challenging targets for new residential developments and there are several shared priorities within local transport planning that do not necessarily lead to improvements in air quality.

To ensure that air quality is managed appropriately Bradford is committing to:

- Developing an Air Quality Strategy with the key aims that development planning and local transport planning should contribute to improving air quality wherever possible (across the district and within the AQMAs in particular) and that planning decisions should not lead to new AQMAs being declared.
- Implementing complementary local measures such as adopting a low emission strategy when procuring and operating vehicles and services requiring the use of vehicles and adopting practices within a Freight Quality Partnership that focus on reducing emissions from freight within Bradford - helping freight move efficiently and encouraging the uptake of cleaner vehicles.
- Achieving better travel choices in the District by making information on accessing more sustainable modes of travel more readily available and by continuing to actively engage with all parts of the community (individual, institutional and commercial) to implement sustainable travel plans.

The proposed action plan is focused on making progress towards achieving the objective for NO<sub>2</sub>, but it will potentially have additional value by attempting to simultaneously reduce exposure to PM<sub>10</sub> (for human health benefits) and reducing emissions of carbon dioxide (helping climate change mitigation efforts). The following table provides summary details of the measures proposed for the draft action plan.

Bradford highlights its belief that only through the contribution of regional and/or national measures that significantly reduced flows on the strategic roads through the District, or that significantly accelerate the uptake of cleaner vehicles to operate on those roads, will there be sufficient progress to achieve the annual mean objective for NO<sub>2</sub> prior to 2015. It believes that the other cost-effective measures it has set out in its plan could improve air quality in the AQMAs and across the borough but that they would be insufficient to achieve compliance with the objective in all locations. Bradford therefore estimates that its own measures may achieve an approximate 10% reduction in local NO<sub>2</sub> contribution from road transport and while this may help towards compliance with the air quality

objective in the Thornton Road and Manningham Lane AQMAs (perhaps as soon as 2010), the objectives may be exceeded in the Shipley Airedale Road and Mayo Avenue AQMAs for the foreseeable future without regional/national intervention.

Number	Title	Lead authority	Key intervention	Source of funding	Planning phase	Implementation phase	Target	Potential direct air quality benefits
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## 2 Regulatory context and role of the action plan

This chapter sets out the duties that Bradford must undertake in relation to Local Air Quality Management.

### 2.1 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

The Air Quality Strategy sets out the UK vision for how good air quality can contribute to a good quality of life and the steps being taken to achieve this. Improvements are sought in air quality due to the impacts pollution has on human health and the environment.

The strategy aims to achieve the air quality objectives that have been set for a range of pollutants commonly found in ambient air. The objectives are expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedences within a specified timescale (see annex 1). The objectives have been set throughout the UK and European Union at levels that aim to protect the vulnerable in society from the harmful effects of breathing pollution.

Air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of 7-8 months. In response a number of measures have been introduced at an international level (including the UK) to reduce this impact. They include

- Incremental reductions in emissions from vehicles and industry
- Climate change programme policies
- Local air quality management (see following section)

The UK government recognises the important role that local authorities have and continue to play in helping deliver the air quality objectives. "Action taken at the local level can be an effective way of tackling localised air quality problems leading to an overall improvement of air quality."

### 2.2 Guidance relating to local air quality management

Guidance to local authorities on how to develop an AP is contained in:

- Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance: LAQM.PG(03)
- Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance Addendum: LAQM.PG(05)
- Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance Addendum: LAQM.PG(09)
- Additional documents referenced within these.

Due regard has been given to these documents in the preparation of this plan. The guidance indicates that Bradford is required to engage in and complete the following process.

#### **Environment Act 1995 Part IV**

The provisions in Part IV of the Act provide the framework for Local Air Quality Management (LAQM). The duties within the LAQM framework are now listed:

#### **Results of Review and Assessment**

Bradford along with all local authorities is statutorily obliged to assess current and future air quality within the authority's area from time to time. Assessments consider whether the UK air quality standards and objectives are likely to be achieved (see annex 1) and identify those areas where the standards and objectives are not likely to be achieved.

### Designation of air quality management areas

Where objectives are predicted not to be achieved Bradford is required to designate, by order, an air quality management areas (AQMA). Such orders can be varied or revoked as a result of a subsequent air quality assessment if it appears likely that the air quality standards and objectives will be achieved.

### Further assessment of air quality within AQMAs

Bradford is then required to make a further assessment of the air quality and the respects in which it appears that the air quality standards and objectives are unlikely to be achieved in the designated AQMA(s). The purpose of this assessment is to supplement information already gathered in earlier assessment work and to provide the technical justification for further measures to be implemented. Bradford must complete this further assessment within 12 months of an AQMA designation.

### Preparation of an action plan (AP)

The further assessment provides information to enable Bradford to prepare an action plan “for the exercise by the authority, in pursuit of the achievement of air quality standards and objectives in the designated area, of any powers exercisable by the authority”. **Note that Bradford is not obliged to meet the objectives alone - but must show that it is working towards them.** The AP must include:

- Quantification of the source contributions to the predicted exceedences of the objectives; this will allow the action plan measures to be effectively targeted.
- Evidence that all available options have been considered on the grounds of cost-effectiveness and feasibility
- How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives
- Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan
- Quantification of the expected impacts of the proposed measures and where possible an indication as to whether the measures will be sufficient to meet the air quality objectives and
- How the local authority intends to fund, monitor and evaluate the effectiveness of the plan.

Once the AP is adopted, Bradford has to submit to Defra an AP progress report annually and revise the AP from time to time depending on circumstances.

### Consultation on the AP

Bradford is obliged to consult, for a period recommended to be not less than 8 weeks, the following on the preparation (or revision) of an AP.

- The Secretary of State
- The Environment Agency
- The highways authority
- All neighbouring local authorities
- The county council (if applicable)
- Other public authorities as appropriate
- Bodies representing local business interests and other organisations as appropriate (potentially including representatives of the public)

Bradford should also proactively make copies of the AP available to the public.

### Integration with Local Transport Plan (LTP) /Integrated Transport Strategy (ITS)

Bradford should look to integrate the AP into the LTP (post-2010 the LTP will be replaced by an Integrated Transport Strategy, ITS) where local road transport is the primary source of predicted exceedences of the air quality objectives<sup>1</sup>. This would involve the exchange of information and discussion of policy between Bradford’s Environmental Protection and ITS functions such that the outcome of air quality assessments and national policy would be accounted for within the ITS. The

<sup>1</sup> Authorities with AQMAs relating to trunk roads or motorways should report within the LTP on any joint work with the Highways Agency. Authorities with other significant sources contributing to pollutant concentrations should report on any other key non-transport measures by attaching an annex to the LTP.

council ITS function would also put forward proposed actions that could be implemented in pursuit of the air quality objectives.

The aim of integration is to take a common approach to air quality management (and the other shared priorities of the ITS). The ITS should show a balance between schemes being implemented to tackle other priority areas (which can also have a beneficial impacts on air quality) and those schemes being implemented specifically to tackle air pollution.

The ITS should set out the same information as described above for the preparation of an AP. In addition it should set out:

- Intermediate road transport indicators which relate to pollutant emissions from road transport
- Targets for these intermediate indicators (i.e. the outcome that each measure in the LTP is attempting to achieve). The County is encouraged to set ambitious yet realistic targets for outcomes
- Baseline pollutant concentrations in 2010 (in the AQMAs).
- A target relating to pollutant concentrations in 2010 (in the AQMAs) based on the achievement of or progress related to the intermediate indicator targets.

### **Holistic approach**

The UK AQ strategy emphasises that the government strongly believes that AQ issues should be dealt with in a holistic and multi-disciplinary way. In developing an AP the local authority should engage officers across different departments, particularly, land-use and transport planners to ensure the actions are supported by all parts of the authority. It is vital that organisations, groups and individuals that have an impact on local air quality work towards the objectives of an adopted plan.



## 3 Conclusions of previous review and assessment in Bradford

This chapter provides a summary of previous work in Bradford to characterize air quality problems. Conclusions from this previous work have been used to develop the action plan and to ensure that the plan is proportionate and focused.

### 3.1 Summary of round 1 review and assessment

The results of the first round of review and assessment were as follows:

#### 3.1.1 Stage 1 (March 1999)

This study concluded that:

- That a progression to a second stage of review and assessment was required for lead, nitrogen dioxide, sulphur dioxide, PM<sub>10</sub> and carbon monoxide.
- That the risk of the air quality objectives being exceeded was negligible for benzene and 1,3-butadiene and a second or third stage of review and assessment was not required.

#### 3.1.2 Stage 2 and 3 (December 2000)

This study concluded that:

- That the risk of the air quality objectives being exceeded was unlikely for carbon monoxide and sulphur dioxide.
- It was concluded that although it was unlikely that the objective for lead would be exceeded further work would be required to assess lead emissions from one particular industrial source, however the company in question ceased operation shortly after completion of the stage three review.
- It was considered that although it was unlikely that the PM<sub>10</sub> objective would be exceeded further work would be required to develop an accurate and robust model to predict PM<sub>10</sub> levels in the District.
- It was concluded that it was unlikely that the nitrogen dioxide objective would be exceeded however, a number of limitations to the assessment were discussed and there were proposals for further work, which included more monitoring and improvements in model bias and uncertainty.

### 3.2 Summary of round 2 review and assessment

The results of the second round of review and assessment were as follows:

#### 3.2.1 Summary of Updating and Screening Assessment

This study concluded that:

- There is no need to progress to a detailed assessment for carbon monoxide, benzene, 1,3-butadiene or lead.
- It was considered necessary to proceed to a detailed assessment for nitrogen dioxide as there were 12 locations that required more detailed assessment before a decision could be made as to whether it would be necessary to declare one or more air quality management areas.
- Although it was considered there was no need to progress to a detailed assessment for sulphur dioxide, further work was required to assess the contribution from the steam trains that run between Haworth and Keighley. This work was to be reported as an appendage to the detailed assessments for nitrogen dioxide.
- Although it was considered there was no need to progress to a detailed assessment for PM<sub>10</sub>, further work was required to assess the contribution from Buck Park Quarry, which is a possible fugitive source of PM<sub>10</sub>. Also, an investigation into the lower than expected readings

for PM<sub>10</sub> was to be completed. This work was to be reported as an appendage to the detailed assessments for nitrogen dioxide.

### 3.2.2 Summary of detailed assessment (2005)

This study concluded that for:

#### Fine Particles PM10

- The investigation into the lower than expected readings for PM10 was reported. The investigation identified an error in the offset factors used for the TEOM data and the data was corrected. Concentrations were more in line with what would be expected at the sites where PM10 was being monitored.
- It was found that Buck Park Quarry (a fugitive PM10 source) was very unlikely to be the cause of an exceedence of the objective for PM10.

#### Sulphur Dioxide

- It was unlikely that there are any exceedences of the sulphur dioxide objective within the District. The steam trains at Keighley were investigated thoroughly using continuous monitoring and the results found no exceedences as a result of their operations.
- However, it will be necessary to inform the operators that any changes in fuel type, journey duration or frequency may require the issue to be reinvestigated.

#### Nitrogen Dioxide

- The investigation into nitrogen dioxide at 12 sites discounted the need for an air quality management area declaration at 8 of the locations, as it was judged unlikely that the objective will be exceeded in the 8 areas.
- Four AQMAs were declared as a result of the detailed assessment – the areas identified as having a potential problem meeting the nitrogen dioxide UK Air Quality Objective. The AQMAs declared are at the following locations:
  - Mayo Avenue/ Manchester Road junction, Bradford
  - Thornton Road, Bradford
  - Manningham Lane/ Queens Road junction, Bradford
  - Shipley Airedale Road/ Church Bank junction, Bradford

Maps of the four areas can be found in annex 2. The modeling results from the detailed assessment for the sites can be found in annex 3

### 3.2.3 Summary of further assessment (2006) – source apportionment

In all four AQMAs the exceedences are identified as being mainly attributable to traffic pollution. There are no other significant sources within the locality of the four AQMAs and as such traffic is identified as being the main source and as such must be the focus of any work done to remediate the problems. The following table summarizes the result of the source apportionment study.

Results from source apportionment study							
Site	Estimated background contribution to annual mean NO <sub>2</sub> (%)	Estimated traffic contribution to annual mean NO <sub>2</sub> (%)	Reduction NO <sub>2</sub> required to meet objective (%)	LDV contribution to traffic flows (%)	HDV contribution to traffic flows (%)	LDV contribution to traffic emissions (%)	HDV contribution to traffic emissions (%)
Mayo Avenue	50	50	26	94	6	46	54
Thornton Road	64	36	9	93	7	40	60
Manningham Lane	55	45	15	95	5	48	52
Shipley Airedale Road	40	60	43	94	6	42	58

LDV = light duty vehicles HDV = heavy duty vehicles (lorries and buses)

The source apportionment results suggest the following:

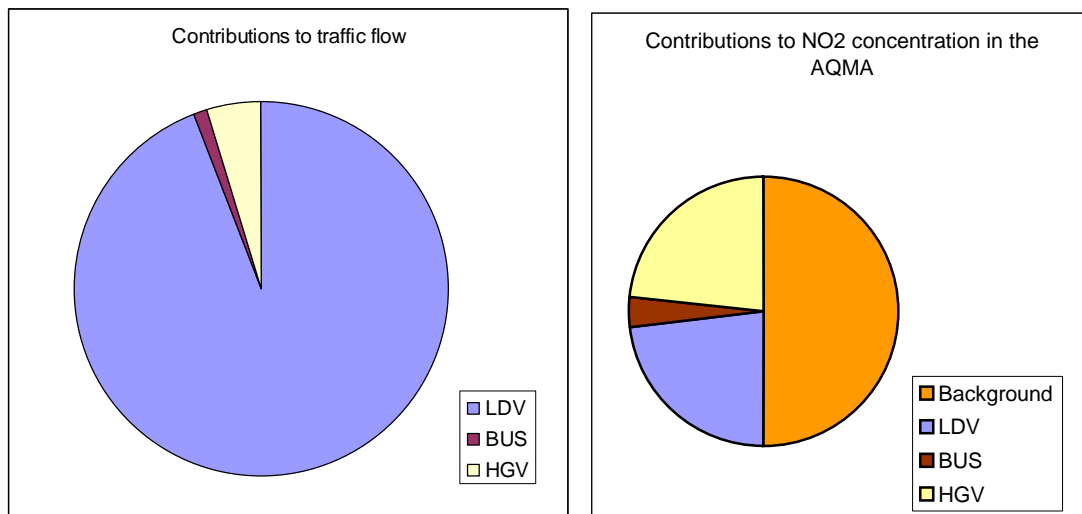
- Road traffic is the dominant local source of emissions
- Significant reductions in NOx emissions are required to achieve the objectives
- Heavy-duty vehicles, although small in number, contribute at least half of all road transport emissions.

### 3.2.4 Further data made available

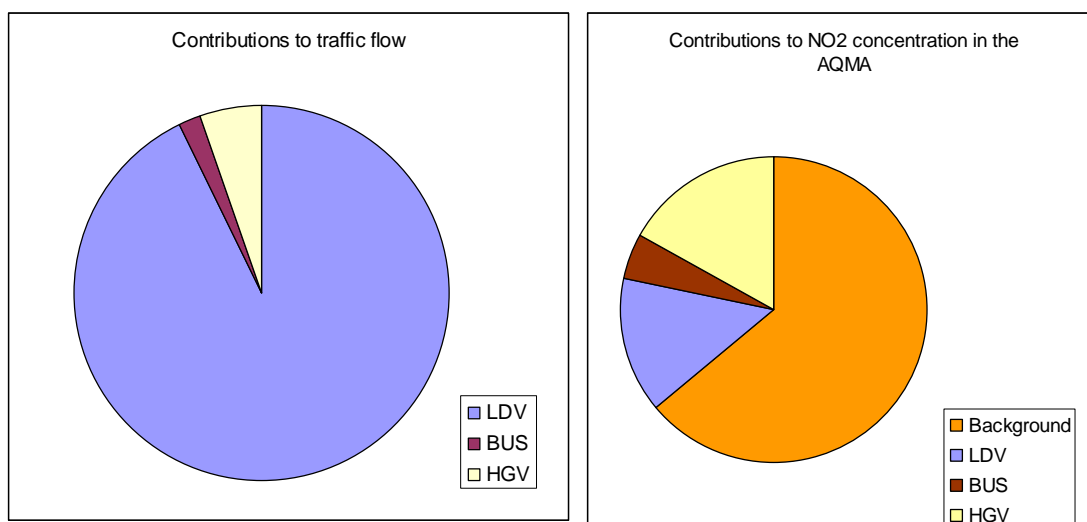
#### Source contributions from different types of vehicle

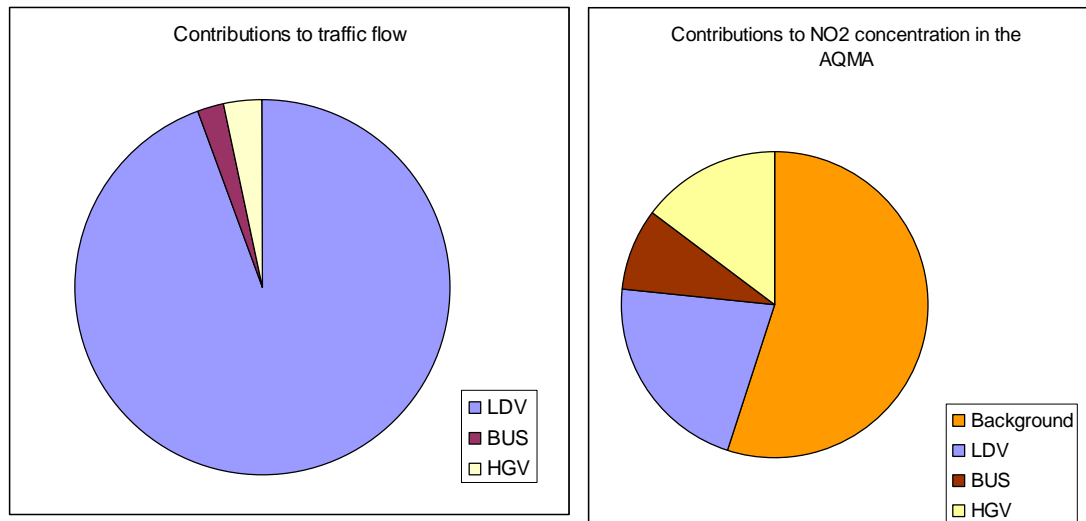
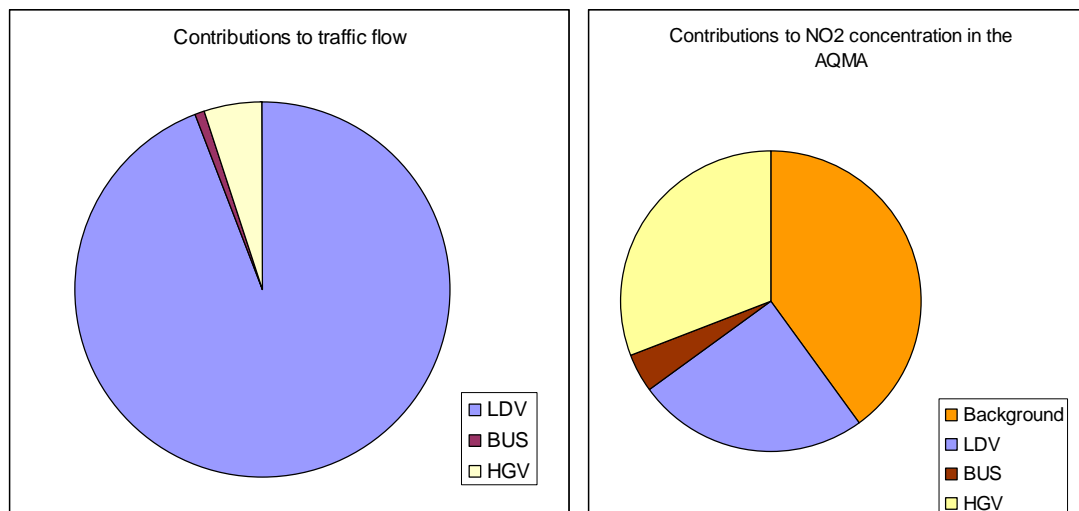
At the outset of the AP process, further data on the split of buses and heavy goods vehicles within the AQMAs was made available. These data were used to estimate the contribution from each vehicle type to emissions. The results are summarized in the figures below:

**Figure 1 Contributions to traffic flows and NO2 concentrations on Mayo Avenue 2006.**



**Figure 2 Contributions to traffic flows and NO2 concentrations on Thornton Road 2006.**



**Figure 3 Contributions to traffic flows and NO2 concentrations on Manningham Lane 2006.****Figure 4 Contributions to traffic flows and NO2 concentrations on Shipley Airedale Road 2006.**

These figures indicate:

- Background contributions to NO2 levels are variable and significant. These contributions are not from any specific source of NOx but are from all sources of NOx in the Bradford region including all road traffic activity in Bradford.
- Road traffic on roads in the AQMAs contributes the remainder of observed NO2 levels.
- Light duty vehicles (cars and small vans) dominate the traffic flows. But these vehicles contribute only half of the estimated NO2 from roads in the AQMAs.
- Buses contribute only 1-2% of vehicle flows but contribute up to 20% of the estimated NO2 from roads in the AQMAs.
- Freight vehicles contribute only 3-5% of vehicle flows but contribute 15-30% of the estimated NO2 from roads in the AQMAs.

### Relevant Transport Factors in the AQMAs

At the outset of work to develop an AP, Bradford provided a statement of relevant transport factors in the AQMAs. This statement is reproduced below.

#### Manningham Lane/ Queens Road Junction Approaches

- Manningham Lane between Bradford City Centre and Saltaire already benefits from the provision of extensive lengths of bus only lanes, both in and out bound, to maximise the attractiveness of bus use on this corridor.
- Further assessment of these facilities is under way to determine if their periods and extent of operation are adequate. Extension of these periods will require further consultation with affected members of the public and adjustments to the relevant traffic orders etc.
- In an attempt to provide further benefits to bus traffic on this corridor, advanced vehicle recognition equipment is in the process of being built into the control facilities in signalled pedestrian crossings and a limited number of minor traffic signal junction locations on this corridor. This is planned to link with the geographical positioning equipment recently installed in the bus fleet on this corridor. Through our urban traffic control system this is planned to further minimise the delays and improve the service regularity experienced by buses on this corridor.
- This corridor is one of three identified in Bradford where congestion and delay issues are monitored and targeted through the Local Transport Plan process.
- Other measures such as targeted bus information; signal improvements and enforcement measures will also be considered given the availability of the necessary manpower and financial resources.
- Adjacent alternative routes are also heavily trafficked. The capacity to accommodate displaced traffic from this corridor is likely to be limited, particularly in peak periods.

#### Manchester Road/ Mayo Avenue/ Smiddles Lane Junction Approaches

- The junction caters for the traffic generated by three major routes.
  - Manchester Road is a link to the city centre and communities to the north of the city from the south west of the city and communities such as Brighouse and Huddersfield in the southwest area of West Yorkshire.
  - Mayo Avenue links the city centre and the west and north of the city to the M606 and M62 motorways and the rest of the strategic national road network. It also serves as a route from southern sectors of the city to communities in the north and west of the adjacent Leeds District.
  - Smiddles Lane is a section of the city's Outer Ring Road. This serves areas of north and west Bradford accessing destinations using Manchester Road and Mayo Avenue identified above.
- Smiddles Lane and Mayo Avenue do not generate significant amounts of public transport patronage. Bus service levels on these routes are therefore light. There is significant bus activity on Manchester Road. As a consequence, the route has had extensive bus priority measures put in place. This includes lengths of both bus only lane, both peak period and all day, and guided bus lane facilities which are permanent all day priorities. These are in place for both inbound and outbound movements. Patronage levels have increased following the completion of these works.
- The importance of both Manchester Road and Mayo Avenue in respect of the link provided by them for the community to the strategic motorway network is recognised by Bradford

#### Thornton Road between Princes Way and Listerhills Road

- This route links west Bradford communities to the city centre and other important southern and eastern destinations.
- Adjacent alternative routes have limited unused capacity, particularly in peak periods. They also have areas where the authority would be unwilling to add further traffic to relieve this route, due to the sensitivity of their adjacent built environment.

The authority has recently closed a significant route in the city centre. This has been a deliberate move by the authority to provide enhancements to the central area and has meant that traffic has been diverted to surrounding routes, including Thornton Road.

#### ShIPLEY Airedale Road between Leeds Road and Barkerend Road

- This section of Shipley Airedale Road is part of Bradford's preferred route between the strategic road network to the south of the city and communities in the north of the district. Directions to traffic on our network reflect this fact.

- The above city centre road closure has also diverted traffic to this route. This has been a deliberate choice by the authority in terms of the importance of enhancing the importance of the city centre to the community and increasing its attractiveness and catchment.
- The actual number of routes available to divert traffic from Shipley Airedale Road is limited. The capacity available on these routes to accommodate diverted traffic is also limited. One of the major alternative routes available is Manningham Lane which also has a declared AQMA at its junction with Queens Road.
- The authority has masterplan redevelopment proposals for the city centre, the Canal Road area and the Aire Valley to the north of Bradford. Realisation of the measures included in these masterplans is important to the growth, economy and success of the District. Completion of the proposals involved will add to the traffic activity in this sector of the community.

## Site visit to the AQMAs

Previous technical work has attempted to take account of congestion as a contributory factor in the poor air quality observed in the four AQMAs. Dispersion modeling has been carried out, but its conclusions were limited due to a lack of data on the characteristics of the congestion.

A site visit to the AQMAs, even outside peak hours, is sufficient to provide anecdotal evidence that traffic sits in congested conditions close to junctions in the AQMAs for a significant portion of the time. Vehicle engines emit pollutants due to engines idling at this time. Therefore, it can be concluded that congestion is a significant issue even if there is no current quantitative data to identify its contribution to NO<sub>2</sub> concentrations in the AQMAs.

## Projected air quality

Although measurements have indicated exceedences of the air quality objective in the past, local air quality in the UK is projected to improve during future years particularly due to national scale measures to reduce emissions from road transport. In simple terms newer vehicles emit less pollutants per kilometer than older ones do. As older vehicles in the fleet are replaced then newer lower emitting ones take their place. LAQM Technical guidance provides authorities with the means to project air quality measurements forwards to 2010 and beyond to estimate how air quality may evolve as a result of this and other national measures. The table below summarizes these projections for the monitoring sites within the AQMAs.

**Table 1 Measured and mean projected annual mean NO<sub>2</sub> concentrations at Bradford monitoring sites**

AQMA	Site	Measured			Mean projected	
		2005	2006	2007	2010	2015
Mayo Avenue	CM	55				
	CM (Manchester Rd)		64	-	50.8	43.2
	T1	48				
	T2	46				
	T3	40				
Manningham Lane	T4	39				
	CM	46	37.7	42.7	36.5	30.8
	T1	46				
Thornton Rd	CM	44	34.5	25.0	29.37	25.2
	T1	47				
Shipley Airdale Rd	CM		77.2	68.4	64.1	52.8

Projections of annual mean roadside NO<sub>2</sub> concentrations have been calculated for each year of monitoring data using methods provided in the LAQM technical guidance (2009). The mean of the projected results is presented in this table.

These projections suggest that the national downward trends in road transport emissions may lead to air quality improvements such that the objective for NO<sub>2</sub> may be achieved within the Manningham Lane and Thornton Rd AQMAs by 2010, although there is a risk that road and building construction works associated with city centre developments may delay the improvement of air quality on Thornton Road.

However, improvements within the other two AQMAs may be insufficient to achieve the objective, even by 2015. An additional 10% reduction in NO<sub>2</sub> concentration may be required in the Mayo Avenue AQMA and a 30% reduction in NO<sub>2</sub> concentration may be required in the Shipley Airedale Rd AQMA to achieve the objective at all locations by 2015. At sites of relevant exposure, the required reductions may be less. In addition, although data capture rates were low, monitoring at Shipley Airedale Road and Manchester Road AQMAs indicates that the 1-hour objective for nitrogen dioxide is being exceeded in addition to the annual mean. The Air Quality Management Order for Bradford does not specify which nitrogen dioxide objective is being exceeded so no changes are necessary to the order. This finding indicates that the problems within these AQMAs may be of greater concern since even short-term exposure to the ambient air at these locations may be detrimental to health. However, action to reduce transport emissions will benefit both the long-term air quality problems highlighted in the table above as well as the short-term objective exceedences.

### 3.3 Conclusions

Consideration of the results of previous assessments and the guidance on developing an AP the following conclusions have been reached.

1. Air quality in relevant locations within Bradford complies with all of the air quality objectives except for the annual mean objective for nitrogen dioxide (NO<sub>2</sub>). Analysis suggests that this objective is currently exceeded in four locations and these have been designated as air quality management areas (AQMAs).
2. Measurements and projections of air quality suggest that the air quality objective for NO<sub>2</sub>:
  - May be achieved by 2010 in the Manningham Lane and Thornton Road AQMAs under business as usual projections meaning additional local measures to reduce emissions in these AQMAs are of lesser priority in terms of local air quality management.
  - May not be achieved even by 2015 in the Mayo Avenue and Shipley Airedale Road AQMAs meaning additional local measures to reduce emissions in these AQMAs are of higher priority in terms of local air quality management. Looking ahead to 2015, local traffic contributions to total NO<sub>2</sub> may need to be reduced by up to 15% on Mayo Avenue and up to 40% on the Shipley Airedale Road to achieve compliance with the objective by 2015
3. Bradford should develop an AP to make progress towards achieving the annual mean NO<sub>2</sub> objective within the district. However, Bradford should continue to have regard to the air quality across the whole District to avoid the need to declare additional AQMAs.
4. Road transport is the dominant local source of pollutant emissions. Therefore it is suggested that the Bradford AP is integrated into the West Yorkshire ITS since this may be the most effective framework for implementing measures aimed at reducing road transport emissions.
5. However, both Mayo Avenue and Shipley Airedale Roads are strategic links (either connecting Bradford to the national network or as a north-south link) hence traffic and HGV traffic in particular is specifically encouraged to use these routes, which relieves others. There is therefore potentially a very limited opportunity to introduce local measures within Bradford alone to achieve the air quality objective. Therefore Bradford potentially will be dependent on additional national and regional-scale measures to achieve the air quality objective in these two AQMAs.
6. Evidence suggests that the more effective measures that could make progress towards the air quality objective at Mayo Avenue and Shipley Airedale include:
  - Reducing traffic flows overall
  - Eliminating congestion (this may be particularly effective at addressing the short term air quality problems recently identified in these AQMAs)
  - Reducing heavy goods vehicle emissions
7. The AP will focus on making progress towards achieving the objective for NO<sub>2</sub>, but it will have additional value if it can simultaneously reduce exposure to PM<sub>10</sub> (for human health benefits) and reducing emissions of carbon dioxide (for climate change mitigation).

These conclusions will be referred to throughout the process of developing the AP.



## 4 Development of the draft action plan

This section reports on how the AP has been developed to date.

### 4.1 Formation of steering group

The development of the AP began with a formal kick-off meeting which was attended by a number of local authority officers. These officers will be informed and consulted throughout the development of the AP. In this way the AP was influenced by their local knowledge and area of responsibility.

This steering group comprises:

- Chair: Brian Anderson (Environmental Health Manager)
- Sally Jones (Environmental health)
- Jim Coles (Environmental health)
- Ian Gallagher (Principal transport planning officer)
- Fiona Limb (Travel plan officer)
- Richard Isaac (Bradford environmental management and fleet management in particular)
- Craig Wilson (Bradford environmental management)
- Jane Scott (Local development framework planning with responsibility for environment)
- Lucy Ashall (Environmental partnership policy officer)

As a statutory duty Bradford will consult widely outside of this group at an appropriate stage in the AP process. Therefore other stakeholders will have the opportunity to influence the plan before it is adopted.

### 4.2 Steering group briefings and consultation

A number of briefings have been held with the steering group to inform them of progress with the action plan. The steering group was briefed on:

- The air quality problems experienced in the AQMAs in terms of the concentrations and the road transport sources of emissions.
- The guidance available on developing an AP.
- The full range of options for improving air quality in the AQMAs and more widely.
- Updates including recent monitoring and projection results of air quality in the AQMAs

Bradford commissioned a technical consultant to help develop the AP. They collated information on air quality and the comments of the steering group members. In addition the steering group has been consulted on the content of this draft and the consultant has edited responses such that Bradford council supports the submission of this draft to Defra for appraisal.

### 4.3 Stages in the development of the draft action plan

#### **Stage 1: Briefing on air quality problems in Bradford**

The Steering Group was informed of the results of monitoring and assessments. This information is provided in chapter 3 of this draft and the conclusions have been referred to in subsequent consideration of action plan options.

#### **Stage 2: Preliminary assessment of the full range of options**

A full range of options for the action plan were introduced in a generic sense and discussed in relation to the specific issues in Bradford. Following this a number of options were rejected on grounds of unsuitability either since they were thought to be disproportionate, infeasible or not well aligned with Bradford's core strategies. These options are discussed in chapter 5 of this draft.

#### **Stage 3: More detailed assessment of remaining options**

The remaining options were discussed in the steering group and additional assessments, based on experience and expert judgement, were completed. These discussion and assessments allowed more

specific context to be added to the options and for a more complete estimate of the air quality, costs and wider implications of the options to be presented.

**Stage 4: Turning options into action plan measures**

The options adopted in Stage 3 were developed into action plan measures. For this a set of timetable, milestones, potential targets and indicators have been suggested for each option along with other key information such as which authority department will be responsible to implementing the measure. The aim has been to provide clarity for each measure. The measures are defined in chapter 6 of this report.

**Stage 5: Consultation**

The draft action plan is now undergoing public consultation and appraisal by central government. The plan may be influenced by comments received at this stage. The final draft will be produced once the comments have been considered.

## 5 Action Plan options and their assessment

This section reports on the full range of AP options considered. It shows the work undertaken in rejecting options and selecting others for further study and more detailed assessment of preferred options.

### 5.1 Range of possible options

There is a very wide range of options available to reduce the emissions from road transport. Bradford does not necessarily have the power to implement them all directly but potentially it does have a role in attempting to influence those bodies or individuals who could implement them. Therefore, it is appropriate for Bradford to initially consider all options.

Bradford's consultants have structured the options into a typology, which is presented in the table below.

Typology of potential options to reduce emissions in AQMAs		
Type	Description	Notes
1	Strategic actions	<p>The underlying reason why AQMAs have been declared is the increase in road transport activity over decades and the fact that this activity is very largely unregulated. Road transport has created local environmental stress in urban areas and global stress due to its contribution to climate change.</p> <p>A local long-term strategy is required for an overall reduction in pollutant and greenhouse gas emissions. Such a strategy might include:</p> <ul style="list-style-type: none"> <li>• Building the capacity to better assess and manage the environmental impacts from road transport</li> <li>• Introducing local development planning and transport planning policies to manage the impacts of new development</li> <li>• Recognising the influence that regional transport policy and management has on the management of road transport emissions on the strategic road network within Bradford and developing effective partnerships to address this issue.</li> <li>• Incorporation of the AQ management strategy within the West Yorkshire Integrated Transport Strategy and the refresh of the Bradford Transport Strategy</li> </ul>
2	Move receptors away from the AQMA	<p>Receptors are the people exposed to adverse pollutant levels in the AQMAs. If they were no longer resident in the AQMAs then there would be less pressure to do anything further to reduce pollution in the AQMAs. Note that this option does not reduce emissions in any way. In this situation there is a danger that traffic activity will continue to increase and new locations will need to be declared as AQMAs.</p>
3	Move sources away from the AQMA	<p>The source is road transport. Construction of new roads could divert traffic away from the roads in the AQMAs. Less traffic on these roads results in lower pollution levels in the AQMAs. However, the opportunity to build such roads is frequently absent. In cases where such roads can be built, care needs to be exercised that the locations where the new roads are built do not become</p>

Typology of potential options to reduce emissions in AQMAs		
Type	Description	Notes
		AQMAs in turn. Note that this option moves emissions from one location to another with no requirement to reduce them. Overall emissions may be increased by such actions.
4	Optimise how sources move through the AQMA	Changes in how the roads in the AQMAs are signed or otherwise managed could reduce emissions from road transport a) by diverting some traffic onto better routes for them or b) by reducing the amount of time that traffic is stationary with engines idling. Note that the opportunity to take such action is frequently limited.
5	Reduce emissions from sources by technical means	The majority of vehicles using roads in the AQMAs are conventional petrol or diesel powered vehicles with a range of ages. There are many technical options to convert such vehicles into ones using cleaner engine and fuel technology. By accelerating the uptake of these technologies the emissions in the AQMAs would be reduced. Note that technology does not always work in a positive sense for all emissions. They sometimes trade benefits for one pollutant against disbenefits for another one.
6	Reduce emissions from sources by reducing the demand for travel or achieving better travel choices	An important way to reduce emissions from transport is to reduce the number of journeys made through the AQMAs. This could be achieved either through avoiding making some journeys or by ensuring that these journeys are made via a less polluting form of transport. The success of such measures depends on policies that influence how people make travel choices. Note that there is increasing emphasis placed on such policies and that they work holistically by reducing emissions of all pollutants and greenhouse gases.
7	Other options	It may be that Bradford feels that it cannot implement sufficient measures or influence others to implement measures alone. In this case it may appeal to central government or its agencies (such as the Highways Agency) to take further steps to bring about the necessary improvements in air quality. Note that national measures take many years to be negotiated, implemented and finally to have a significant effect. They are also frequently a less cost-effective way to solve problems in an AQMA than local measures.

## 5.2 Initial assessment of the options

Within each type described above there are several possible sub-options. These have been introduced to the steering group who were then invited to provide an initial assessment of their feasibility and applicability. The responses received are presented in annex 4 along with comments from Bradford's consultants.

For each option a decision has been made to eliminate the option from further consideration or to consider the option further. This decision has been made with reference to:

- The conclusions of Chapter 3 (defining the air quality problem and its chief sources)
- Comments received from the steering group and
- Additional comments from Bradford's consultant, based on experience in prior assessments.

The results of this initial assessment are listed below.

<b>Summary of options considered in the Bradford AP</b>	
<b>Accepted</b>	<b>Rejected</b>
<b>1 Strategic Actions</b>	
1.1 AQ Strategy i.e. <ul style="list-style-type: none"> <li>○ Maintain the AQAP steering group and communication with other key stakeholders for ongoing review of the Action Plan and to improve the capacity to manage air quality</li> <li>○ Integrate AQAP into the LTP</li> <li>○ Supplementary planning guidance to avoid new development causing additional air quality problems</li> </ul>	
<b>2. Move receptors away from AQMA</b>	
	Options to remove homes and businesses via compulsory purchase were considered unpopular and unfeasible.
<b>3. Move sources away from AQMA</b>	
3.1 Better engagement with the Highways Agency and the regional development agency [ie for long-term policies to manage traffic volumes]	The following options were considered irrelevant as the AQMAs are on routes that traffic is encouraged to use to access the city centre: <ul style="list-style-type: none"> <li>○ Bypasses [e.g. a new route or road to re-direct some of the traffic that traverses the AQMAs]</li> <li>○ Control access for freight [ie a 24-hour or timed ban on freight access through the AQMAs]</li> <li>○ Control access for cars [e.g. a 24-hour or timed ban on car access through the AQMAs]</li> <li>○ Control access for buses [e.g. a 24-hour or timed ban on bus access through the AQMAs]</li> </ul>
<b>4. Optimise how sources transit the AQMA</b>	
Note that once work begins in Bradford to develop an overall Air Quality Strategy and on the Integrated Transport Strategy then the currently rejected options and others may come back into consideration and may ultimately play an important role in managing air quality in the district. Evidence suggests that reducing congestion in the AQMAs may be a particularly effective way to address the long and short-term air quality problems.	The following options were considered to be either negligible (since effort is made to optimise flow already) or insufficiently developed at this stage to include in the AP as concrete actions: <ul style="list-style-type: none"> <li>○ City centre movement strategy [e.g. changes to allow smoother flow through the city centre]</li> <li>○ Speed controls [e.g. to reduce queuing and create smoother flow through the AQMA junctions]</li> </ul>
<b>5. Reduce the emissions from sources by technical means</b>	
5.1 Green procurement [ie improving the emissions performance of the council's own fleet, the fleets of service providers via contract conditions or voluntary agreement]	The following options were considered potentially expensive or ineffective ways to either promote the use of cleaner vehicles in the key AQMAs or to have a significant effect on air quality in the AQMAs: <ul style="list-style-type: none"> <li>○ Low Emission Zone [e.g. an automated or manual system implemented via TROs which penalises vehicles of one or more types that do not comply with given emission standards yet circulate within the city]</li> <li>○ Differentiate parking charges [e.g. charge higher emitting vehicles more to park on council-run car parks]</li> </ul>
5.2 Freight quality partnerships [ie voluntary agreements with significant local fleet managers to achieve set emission standards]	
Planning conditions policy (see 1.1 above) [ie site operation conditions for large mixed-use developments and controlled parking for residential development to achieve set emission standards]	

<b>Summary of options considered in the Bradford AP</b>	
<b>Accepted</b>	<b>Rejected</b>
Lobby for additional national policy (see 3.1 above) [ie If Bradford MBC and local partners cannot achieve the air quality objectives alone then the government to consider additional national policies such as further controls on industrial and vehicle emissions]	<ul style="list-style-type: none"> <li>○ Local vehicle scrappage incentives [e.g. public travel passes or cash sum in return for removal of older cars from the roads]</li> <li>○ Infrastructure for cleaner fuels [e.g. creation of infrastructure for the delivery, storage and sale of non-conventional fuels in order to encourage a switch towards alternative-fuelled vehicles in targeted fleets such as freight and or public transport]</li> <li>○ Bus quality partnerships [ie voluntary or regulated (Traffic Regulation Conditions) agreement with commercial and contracted bus and coach operators to achieve set emission standards in return for improved commercial environment (bus priority or other facilities) in which they operate]</li> <li>○ Public Carriage Office policy [i.e. an age limit on licensed taxis and public hire vehicles] since such a policy is already in place.</li> <li>○ Focussed Eco-driving training [i.e. raising awareness of the techniques through which significant fuel savings can be achieved and hence to reduce emissions]since national policies to some extent address this issue</li> <li>○ Roadside emissions testing [e.g. roadside police presence to pull drivers over for spot checks on the emissions performance of their cars]</li> </ul>
5.3 Additional potential actions Note that once work begins in Bradford to develop an overall Air Quality Strategy and on the Integrated Transport Strategy then the currently rejected options and others may come back into consideration and may ultimately play an important role in managing air quality in the district.	
<b>6.Reduce the emissions from sources by means of better travel choices</b>	
6.1 Provision of information [ie survey and marketing campaigns to raise awareness of the true extent of travel choices, impacts of these choices on the environment and advice on how to reduce these impacts]	<p>The following options were considered potentially expensive or ineffective ways to achieve lower pollutant emissions in the key AQMAs (i.e. via more sustainable travel choices)</p> <ul style="list-style-type: none"> <li>○ Local policies to increase the proportion of the population travelling via cycling + walking in the key AQMAs. [i.e.</li> <li>○ Additional parking provision or Park and Ride facilities [i.e. creation of new P&amp;R sites with the aim of reducing the number of vehicles using the AQMA routes] It is noted that a new rail park &amp; ride is being developed at Apperley Bridge and Low Moor which could impact positively on the AQMAs on Shipley Airedale Road and Mayo Av/Manchester Road respectively.</li> <li>○ Commercial delivery strategy [ie policies to reduce the impact of deliveries to the city centre such as controlled delivery times or an integrated delivery strategy]</li> <li>○ Vehicle idling regulations [ie encourage the practice of switching off idling engines]</li> <li>○ Road use charging and workplace parking levy [e.g. introduce charges for using the roads during peak travel times or bringing an end to free parking]</li> </ul>
6.2 Access to public transport [ie policies to increase the proportion of the population a) for whom public transport is a realistic travel option and b) who then choose to travel via public transport]	
6.3 Green Travel Plans for large businesses and institutions [ie targets for each commercial and institutional site above a given size threshold to introduce GTPs including manageable targets for the effects of the plans]	
<b>7.Others</b>	
	Develop a mass transit network.

**Note that if options are rejected at this time this does not preclude their emergence as effective options at some future time were the action plan to be revised potentially during work to develop an overall Air Quality Strategy and the Integrated Transport Strategy.**

## 5.3 Detailed assessment of preferred options

Those options taken forward for further consideration have undergone a more detailed assessment based on expert judgement rather than additional quantitative assessment to better characterise the likely effects of those options. These assessments are presented below.

### 1.1 Air Quality Strategy for Bradford

An air quality strategy for Bradford could be a key measure for the long-term management of air quality in the district. Key aspects of a successful strategy might include:

- Maintaining the action plan steering group and communication with other key stakeholders for ongoing review of the Action Plan
- Specific review of local transport plan to ensure it does not worsen air quality in the AQMAs or lead to new AQMAs being declared and contributes appropriately to improving air quality by implementing measures to reduce road transport emissions. This would include work to integrate the air quality action plan and strategy with the forthcoming integrated transport strategy (ITS).
- Specific review of local development planning policy to ensure it does not worsen air quality in the AQMAs or lead to new AQMAs being declared in the district and contributes appropriately to improving air quality by implementing policies to manage exposure to road transport and other emissions. This would include ensuring that the air quality strategy and strategies in the current UDP/emerging LDF and ITS complement each other, development plan allocations and local transport and investment are closely linked and that relevant documents include statements to promote the importance of air quality within the AQMAs and across the district.
- Enhancing the capacity to manage air quality via development, transport, emissions and dispersion models used in conjunction with monitoring equipment.

Potential direct impact on air quality in AQMAs	Negligible since it does not seek to implement an emissions reducing measure
Potential indirect impact on air quality in the AQMAs and across the district	Significant since it could guide development and transport planning decisions in future where necessary
Potential costs	1) District officer time to agree the strategy and to develop measures or policies within the local development and transport plans 2) costs of keeping road transport and dispersion models up to date and undertaking air quality assessments.
Potential cost-effectiveness	High in the longer term
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions
Potential impacts	Need to manage air quality may impact on current transport and local development plans and hence have an economic impact

### 3.1 Lobby national and regional planners

The AQMAs that are predicted to have problems potentially to 2015 and beyond are strategic road links. Bradford alone cannot take local action that is sufficient to eliminate poor air quality on these roads (Mayo Avenue and Shipley Airedale Road). Therefore this measure would potentially involve Bradford making regular contact with central and regional government and its agencies to specifically highlight the air quality issue on these roads. The Highways Agency and Bradford have signed a Memorandum of Understanding regarding the control of traffic between their respective networks. Specific local air quality management actions in this context would potentially include:

- o Regular updates on the results of air quality monitoring and assessment on these roads
- o Requesting that the government and agencies consider the potential air quality benefits of additional policies to accelerate the reduction of the unit emissions of road transport and HGVs in particular

#### Requesting that the government and agencies consider the potential air quality benefits of additional policies to manage traffic flows on these routes

Potential direct impact on air quality in AQMAs	Negligible since Bradford would not be implementing an emissions reduction measure directly
Potential indirect impact on air quality in the AQMAs and across the district	Significant since measures at the regional and national scale would be required for the 30-50% NO2 reduction on strategic routes.
Potential costs	District officer time to collate data and attend meetings to represent Bradford's interests
Potential cost-effectiveness	High in the longer term if additional measures are introduced
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions
Potential impacts	Need to manage air quality may impact on current regional transport policy

### 5.1 Green procurement

Bradford can have a direct influence on emissions from key fleets owned and operated either by themselves or by enterprises contracted to the authority to provide services (e.g. school buses). Local authorities can demonstrate their leadership in tackling emissions by increasingly setting emissions standards that these fleets should achieve and better managing the fleets' fuel use. These emission standards would tend to accelerate the uptake of more modern lower emitting vehicles and services. Although the number of vehicles involved may be small they do tend to undertake a lot of their annual mileage within Bradford. In addition the emissions benefit will depend on the vehicle being replaced. For example, replacing an old Euro 1 standard bus with a modern Euro 5 standard bus would represent a 75% reduction in NOx emissions and a 90% reduction in PM10 emissions under average urban driving conditions.

Potential direct impact on air quality in AQMAs	Small to medium since the vehicles involved may only be a small contributor to poor air quality in the AQMAs
Potential costs	In most cases costs would represent vehicles being replaced sooner than they would have been so are costs brought forward rather than increased overall
Potential cost-effectiveness	Medium
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions
Potential impacts	Requiring the fleets to achieve better emission standards will impact on the economics of fleet management in a complex way. Replacement costs may be brought forward but maintenance and fuel costs may be lower with a younger fleet



### 5.2 Freight Strategy

Heavy goods vehicles have a significant contribution towards the poor air quality within the AQMAs. A Freight Strategy would be a West Yorkshire-wide initiative hence its development would therefore be the responsibility of the ITS team (in partnership with the other West Yorkshire authorities). It would seek to address all aspects of freight usage in Bradford aiming to mitigate environmental impacts. For example, addressing congestion and delivery access routes and times may allow freight to move more freely and have lower emissions. There may also be the opportunity for operators run more modern lower emitting vehicles. Bradford could take the lead in creating and leading the partnership with air quality management as one of its aims.

Potential direct impact on air quality in AQMAs	Medium since HGVs are a significant contributor to poor air quality in the AQMAs.
Potential costs	District officer time to manage the partnership and to develop policies
Potential cost-effectiveness	High to medium
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions
Potential impacts	Requiring the fleets to achieve better emission standards will impact on the economics of fleet management in a complex way. Replacement costs may be brought forward but maintenance and fuel costs may be lower with a younger fleet. Also addressing congestion affecting delivery could reduce freight operator costs.

### 6.1 Provide environmental and travel information

Bradford can effectively provide information on the environmental impact of road transport and personal travel choices along with alternatives. By raising awareness and making such information readily accessible then the council may influence people's travel and purchasing choices in such a way to reduce the environmental impacts (including air quality). An effective way to do this might include providing a dedicated web page with links to nationally focussed services such as:

- o Transport direct (available travel choices)
- o Carclub.org (benefits of car sharing)
- o Act on CO2 (information on lower impact car models)

Potential direct impact on air quality in AQMAs	Medium since congestion and car emissions are a significant contributor to poor air quality in the AQMAs
Potential costs	District officer time to manage the information and its distribution, cost of specific printed materials
Potential cost-effectiveness	Medium to low since not many individuals may make any changes if there are no associated incentives or penalties
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions
Potential impacts	Individuals may not want to change travel habits

### 6.2 Better access to public transport

This option is not necessarily driven by air quality management policy. I.e. there are other equally strong or stronger drivers why Bradford would like more use of public transport. But if increase in use of public transport leads to reduced car usage then air quality benefits can be significant since congestion could be reduced in addition to emissions associated with free flowing transport.

Potential direct impact on air quality in AQMAs	Medium since congestion and car emissions are a significant contributor to poor air quality in the AQMAs
Potential costs	High in terms of providing infrastructure and environment for the successful commercial operation of public transport services
Potential cost-effectiveness	Low in terms of undertaking the costs on air

	quality grounds alone but potentially higher when including time savings and other benefits associated with reducing congestion
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions. Potential cost savings and additional health benefits through less use of the car and more physical activity
Potential impacts	Individuals may not want to change travel habits

### 6.3 'Green' travel planning for business, institutions and individuals

Complementary to options to provide more access to better public transport and information on the environmental impacts of travel choices, Bradford already actively engages with businesses, institutions such as schools and the council itself and with individuals to help them make the behaviour changes towards more sustainable travel choices. The DfT provides much guidance and support for authorities to undertake such travel planning programmes. However, such programmes do require a level of commitment both in terms of budget and in time (i.e. requiring effort over several years) in order to have a significant impact in the long term.

Potential direct impact on air quality in AQMAs	Medium since congestion and car emissions are a significant contributor to poor air quality in the AQMAs. Preliminary evidence from the DfT funded Sustainable Travel Towns project indicates that a 10% reduction in car journeys can be achieved from concerted travel planning and complementary policies.
Potential costs	May be cost neutral overall
Potential cost-effectiveness	Medium in terms of undertaking the costs on air quality grounds alone but potentially high when including time savings and other benefits associated with reducing congestion.
Potential co-benefits	Reducing exposure to PM10 and reduced road transport CO2 emissions. Potential cost savings and additional health benefits through less use of the car and more physical activity
Potential impacts	Individuals may not want to change travel habits

At this stage none of these remaining options have been eliminated so that each is represented in the draft action plan that is outlined in the following chapter.

## 6 Draft Action Plan

### 6.1 Introduction

This chapter presents the draft action plan for Bradford. In it the specific options that have been prioritised in earlier assessments (see previous chapter) are developed into measures within the plan.

This means that each option has the following associated with it:

- A simple title and definition of what the option is aiming to achieve
- The authority responsible for implementing and making progress with the measures
- A description of those powers that the authority will use to implement the measures
- A list of specific tasks and completion dates for tasks within each option
- An indicator (or indicators) that will be used to monitor progress with implementation
- A target for the extent to which the indicator(s) will be changed in pursuit of the air quality objectives within Bradford

This chapter therefore sets out what Bradford will do in pursuit of the air quality objectives in the district. The measures can be understood as comprising three distinct lists:

1. Strategic measures
2. Measures aimed at promoting the use of cleaner vehicles or more efficient use of existing vehicles
3. Measures aimed at promoting more sustainable travel choices

### 6.2 Strategic measures

Monitoring and assessments in Bradford indicate that air quality may be improving in the district. Air quality in two of the AQMAs may comply with the air quality objective by 2010 with no additional measures. However, air quality in the remaining two AQMAs – Mayo Avenue and Shipley Airdale Road is predicted to exceed the objective, to at least to 2015, unless action is taken to reduce pollutant emissions (NO<sub>x</sub> in particular) from road transport by 25-40% or more.

However, these two AQMAs are on strategic routes that traffic and HGVs in particular are encouraged to travel. Therefore Bradford takes the view that it cannot on its own implement significant measures to achieve the required pollution reduction. It sees part of its role as informing regional and national agencies such as the Integrated Transport Authority, the Highways Agency, the Department for Transport and Defra that it believes additional measures introduced at the regional and/or national level are required to achieve the air quality objectives in these locations.

Such additional measures could focus either on accelerating the uptake of cleaner newer vehicles that emit fewer pollutants per distance travelled or on a change in strategy to re-route some of the traffic by alternative routes and hence to relieve congestion and traffic flow through Bradford.

At the same time Bradford recognises that it has an important role to play to ensure that air quality remains good in areas where AQMAs have not needed to be declared and to ensure that air quality improves in all locations across the district. This is a potentially challenging role since there are pressures in other areas of the council's work that would need to be managed. For example, Bradford has been set challenging targets for new residential developments and there are several shared priorities within local transport planning that do not necessarily lead to improvements in air quality.

To ensure that air quality is managed appropriately Bradford believes it should commit to developing an Air Quality Strategy with the key aims that development planning and local transport planning should contribute to improving air quality wherever possible (across the district and within the AQMAs in particular) and that planning decisions should not lead to new AQMAs having to be declared.

There would be several strands to an Air Quality Strategy but potentially important among them would be:

- Maintaining an appropriate technical capability to assess air quality in the district and the potential impacts of new development and associated transport impacts.
- New procedures or policies within development and local transport planning so that air quality is appropriately considered in the planning process and options to mitigate air quality impacts are understood and potentially required as conditions of new development.
  - In the transport planning context this may include the re-consideration of options that have been rejected in this version of the action plan on the grounds that the situation changes in future with regard to the location and extent of any air quality problems or that the options are found to be more cost-effective than previously assessed.
  - In the development planning context all policies within the emerging Local Development Framework will be subject to 'Sustainability Appraisal' in order to ensure that development plan policies will not have adverse or unacceptable impacts on the environment including the air quality
- Integration of air quality action plan into the local transport plan (LTP) and forthcoming integrated transport strategy (ITS) i.e. they will be the main vehicle for implementing any additional local measures.

Measure	Title
1	Highlight a need for additional national and/or regional measures
Definition	
Local actions are not likely on their own to bring about compliance in the Mayo Avenue and Shipley Airedale Road AQMAs hence Bradford will make Defra and other agencies aware of the potential need for additional measures such as further Euro standards and financial incentives to accelerate their uptake	
Responsible authority and other partners	
1. CBMDC	
Key Intervention	
Indicate Bradford's support and need for additional national scale measures and their potential benefits in the AQMAs.	
Powers to be used	
Voluntary	

Actions	Implementation timetable <sup>1</sup>						Progress indicator	Target
	10	11	12	13	14	15		
1 Monitor policy development	Ongoing							Bradford's assessment indicates that a 25-40% reduction in NO2 contribution from local traffic is required by 2015 in the AQMAs. Achieving this may require the significant uptake of Euro V and VI heavy goods vehicles and other policies.
2 Normal progress reports	As per statutory timetable						Reports to Defra	
3 Provide updates and indicate need and support for policy	As and when necessary but at least annually						Letters to Defra and other agencies	

Notes
1. The implementation timetable is defined in financial year terms. ie '10 = end of March 10

Measure	Title
2	An Air Quality Strategy
Definition	
Key Intervention	
<p>A corporate strategy document including:</p> <ul style="list-style-type: none"> <li>Guidance from Directors of service on the governance of the strategy</li> <li>AQAP steering group to be supplemented as appropriate with additional stakeholders</li> <li>Plan for ensuring Bradford has the appropriate technical capacity to manage and assess the air quality impacts from new development.</li> <li>Consideration whether existing Local Transport Planning and Development Planning policies could be strengthened to avoid the threat of new AQMAs being declared and to take appropriate opportunities to improve existing air quality in the District.</li> <li>Policies of how Bradford will work with other relevant stakeholders</li> </ul>	
Responsible authority and other partners	
Powers to be used	
<p>1. CBMDC 2. Strategic partners</p>	
Voluntary (although government guidance recommends this measure)	

Actions	Implementation timetable <sup>1</sup>						Progress indicator	Target
	10	11	12	13	14	15		
1 Confirmation of a steering group								Not applicable
2 Development of the strategy								
3 Adoption of the strategy							Final document	
4 Periodic review and revision							Revised document	

Notes
<p>1. The implementation timetable is defined in financial year terms. ie '10 = end of March 10</p> <p>2. Technical capacity may include consideration of the Districts traffic model, pollution monitoring network, dispersion modelling/assessment capability, awareness of the cost-effectiveness of mitigation options, etc</p> <p>3. Local transport and development planning policies may potentially include emissions management conditions placed on new road schemes or developments if the risk of exceeding the air quality objectives is too high.</p>

Measure	Title
3	AQAP/ITS integration
<b>Definition</b>	
<p>The forthcoming ITS and refresh of the Bradford Transport Strategy will include the following:</p> <ul style="list-style-type: none"> <li>• An annex comprising the Bradford air quality action plan</li> <li>• Those action plan measures that will be implemented via the ITS</li> <li>• Adoption of air quality indicators and targets for those measures to be implemented</li> <li>• Any other revisions to policies</li> </ul>	
<b>Key Intervention</b>	
Measures to address the current poor air quality in the AQMAs and to avoid future problems are implemented via the LTP/ITS.	
<b>Responsible authority and other partners</b>	
<ol style="list-style-type: none"> <li>1. ITA</li> <li>2. CBMDC</li> </ol>	
<b>Powers to be used</b>	
Voluntary (although government guidance recommends this measure where road transport is the dominant cause of the AQMA declaration)	

Actions	Implementation timetable <sup>1</sup>							Progress indicator	Target
	09	10	11	12	13	14	15		
1 Development and adoption of the Bradford AQAP								Final document	Not applicable
2 Full integration into the ITS								Revised document	
3 Implementation of AQAP/ITS measures								See individual measures in sections 6.3 and 6.4	

Notes
<ol style="list-style-type: none"> <li>1. The implementation timetable is defined in financial year terms. ie '09 = end of March 09</li> <li>2. Measures that have been assessed as being effective in the AQMAs and that would be delivered via the ITS are detailed in sections 6.3 and 6.4. However, this does not preclude the possibility that additional effective measures that may also be delivered via the ITS may be discussed and adopted within the work under the Air Quality Strategy (measure 2). Reducing congestion in the AQMAs in particular may be an effective way to address both long and short term air quality problems.</li> </ol>

Measure	Title
4	Additional use of planning system for air quality management
Definition	Key Intervention
<p>Within the work to develop an air quality strategy, specific consideration of whether planning policies should be supplemented with emerging practice (elsewhere in the UK) for local air quality management that might include:</p> <ul style="list-style-type: none"> <li>• Consideration of when additional site conditions for managing emissions are required to avoid new AQMAs being declared or when an opportunity to improve air quality otherwise exists.</li> <li>• Consideration of formulae for deciding those developments that would be expected to provide S106 contributions that would be used to improve air quality in the District, and the size of those contributions</li> <li>• Preparation of a Supplementary Planning Document (SPD) on air quality assessment for proposed development planning consideration. An air quality SPD can provide prospective developers and their consultants with requirements on air quality impact assessments and highlight potential mitigation measures, which is of particular concern within the AQMAs.</li> </ul>	<p>Local planning policies are revised to mitigate short-term and long-term negative air quality impacts of new development.</p> <p>With intensive development the planning policies should consider the cumulative impact from many developments and, in particular, the effect of any additional pollution loading from further development proposals.</p> <p>Local Development Plans are to adhere to the PPS 23 (November 2004) which advises that Air quality is capable of being a material planning consideration and certainly is important within an Air Quality Management Area.</p> <p>Local Development Plans are to ensure active management of the pattern of urban growth to make the fullest use of public transport and to continue to maintain its policy of encouraging mixed use developments that assist in reducing the need to travel.</p>
Responsible authority and other partners	Powers to be used
1. CBMDC	Existing planning authority powers

	Implementation timetable <sup>1</sup>						Progress indicator	Target
	10	11	12	13	14	15		
1 Confirmation of steering group								If appropriate, to set a budget for S106 contributions that could be used for LAQM and formulae for determining how each development would contribute to this.
2 Development and adoption of new planning policies if appropriate							Final document	
3 Annual report on S106 contributions and their use if appropriate							Final document	

## Notes

1. The implementation timetable is defined in financial year terms. ie '10 = end of March 10



## 6.3 Cleaner and more efficient transport options

Although in Bradford's opinion strategic measures are also required to comply with the air quality objective the District could implement local measures that are complementary. Key reasons for doing so include:

- The aim to improve air quality in all four current AQMAs and across the District thereby reducing further the risk that air quality in the Manningham Lane and Thornton Road AQMAs as well as other locations in the District will exceed the air quality objective in future years.
- Taking action to deal with road transport problems other than poor air quality such as congestion
- Cutting fleet operation costs if possible.

Bradford is committing to implementing a two-strand approach

1. The Council adopting a low emission strategy when procuring and operating vehicles and services requiring the use of vehicles. This means that Bradford would consider setting emissions performance standards (i.e. Euro standards) for all vehicles it purchases and also setting such standards within service contracts that involve the use of vehicles. In addition Bradford would take steps to ensure that its vehicle fleet is being operated in the most efficient way.
2. Working with the ITA to develop a Freight Strategy that (among other aims) focuses on reducing emissions from freight within Bradford by helping freight move efficiently and potentially to encourage the uptake of cleaner freight vehicles. Such practices might include providing schemes to reduce congestion for freight, potentially controlling access routes and times for freight and consulting with operators to explore whether freight movements can be rationalised or if with the right incentive operators could switch to cleaner more modern vehicles.

Measure	Title
5	Low emission strategy for procuring council and service fleets
Definition	
Bradford to consider introducing performance specifications (pollutant and greenhouse gas emission standards) for: <ul style="list-style-type: none"> <li>Vehicles purchased for the council's own fleet</li> <li>Contracts procuring services including road transport activity e.g. school buses, etc.</li> </ul>	
Responsible authority and other partners	
1. CBMDC 2. Strategic partners 3. Contractors	
Key Intervention	
Emission standards and attainment dates are set for vehicles operating on Council business.	
Powers to be used	
Voluntary (although national policy is promoting this approach)	

Actions	Implementation timetable							Progress indicator	Target
	10	11	12	13	14	15	16		
1 Confirm steering group and sector champions								Responsibility assigned	N/A
2 List services with road transport activity and map against procurement plans								Final document	N/A
3 Develop a baseline emission inventory								Baseline inventory	N/A
4 Develop a sustainable procurement plan								Standards adopted	e.g. Euro V for HDVs by 2012
5 Implement the plan								No of compliant vehicles and their activity	100% compliance

Notes
<ol style="list-style-type: none"> <li>The implementation timetable is defined in financial year terms. ie '10 = end of March 10</li> <li>A baseline inventory would be an effective tool for assessing the current impacts of Council road transport activity and for assessing the potential benefits of setting emission standards for Council fleets and services</li> <li>Developing a sustainable procurement plan may include a specific study to consider the costs and impacts of a range of emission standards applied to the fleets and services in order to define priorities.</li> <li>Once a sustainable procurement plan has been adopted the authority could consider promoting and advising on similar measures within the business community and among other local public sector partners (e.g. police, health trusts, etc)</li> </ol>

Measure	Title
6	Freight Strategy
Definition	
The ITA and Bradford to consider additional freight-focussed policies to: <ul style="list-style-type: none"> <li>• Reduce the impact of congestion on freight</li> <li>• Control access to freight</li> <li>• Encourage the uptake of newer cleaner vehicles</li> </ul>	Key Intervention Policies to reduce emissions from freight within the Bradford urban area
Responsible authority and other partners	
1. ITA 2. CBMDC 3. Local freight operators	Powers to be used Voluntary (although national policy is promoting this approach)

Actions	Implementation timetable							Progress indicator	Target
	10	11	12	13	14	15	16		
1 Confirm steering group and freight sector champion								Responsibility assigned	N/A
2 Consult freight operators to develop lower emissions plan								Final document	N/A
4 Finalise and adopt the plan								e.g. Road schemes identified and emission standards adopted	e.g. Freight access scheme and euro V for HDVs by 2012
5 Implement the plan								Schemes completed and number of compliant vehicles and their activity	100% compliance

Notes
1. The implementation timetable is defined in financial year terms. ie '10 = end of March 10

## 6.4 Better travel choices

Evidence of travel patterns in the UK suggests that many car journeys are completed either over a very short distance or with only one occupant in the vehicle. If only these journeys were completed via a more sustainable form of transport (i.e. one with fewer emissions per head per journey) then emissions could be reduced and air quality potentially improved. More sustainable choices include:

- Walking/cycling
- Use of public transport
- Sharing the vehicle
- Using a lower emitting vehicle

Preliminary evidence from the DfT sponsored Sustainable Travel Towns project suggest that the first three options if successfully implemented could achieve a 10% overall reduction in car journeys and potentially much higher reductions during morning and afternoon peak travel periods. In addition replacing an old car with a newer one can mean even more significant emissions reductions since newer models operate at much higher environmental standards than models constructed even 5-10 years ago.

Bradford is committing to helping achieve better travel choices in the District by making information on purchasing and travel choices more readily available and by actively engaging with all parts of the community (individual, institutional and commercial) to implement more sustainable travel plans.

If car journeys could be reduced by 10% within the Bradford urban area then these measures could contribute to reducing congestion on the roads, reducing emissions from road transport and improving air quality within the AQMAs and across the urban area.

It is important to note that this action plan only introduces measures that are thought to be particularly cost-effective on grounds of air quality management. These and other measures within this agenda may also be adopted with drivers other than air quality management. The forthcoming Integrated Transport Strategy is likely to include a range of policies and measures to promote better travel choices.

For example it has been decided that the air quality action plan should not include a measure focussed on better access to public transport and supporting a mass transit system. Although they may contribute to reducing car usage and improving air quality these options are not necessarily primarily driven by air quality management policy. i.e. there are other equally strong or stronger drivers why Bradford would like more use of public transport. In these cases the view is taken that other plans and strategies should take up the implementation of these measures and the Bradford action plan is not making any commitments in relation to provision of public transport.

Measure	Title	
7	Provide environmental and travel information	
Definition		
Bradford provides via website or other appropriate means information on the environmental, health and potentially cost benefits of available sustainable travel options in Bradford including: <ul style="list-style-type: none"> <li>Walking/cycling infrastructure</li> <li>Local public transport, park &amp; ride services and transport direct (available travel choices)</li> <li>Car share schemes and carclub.org</li> <li>Act on CO2 (information on lower impact car models)</li> </ul>	Key Intervention	
Responsible authority and other partners		Powers to be used
1. ITA 2. CBMDC		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	10	11	12	13	14	15			
1 Confirm champion to collate all relevant information									N/A
2 Decide on strategy to disseminate and update information								Website and or documents	N/A
3 Make information available								Quantitative surveys to evaluate the impact of the measure	Linked to target for measure 8

Notes
<ol style="list-style-type: none"> <li>The implementation timetable is defined in financial year terms. ie '10 = end of March 10</li> <li>A baseline inventory would be an effective tool for assessing the current impacts of transport activity and for assessing the potential benefits of promoting travel planning</li> <li>Developing the PTP strategy may require a specific study to prioritise the most cost-effective actions in the short to medium term.</li> <li>Additional infrastructure (e.g. cycleways) may be required in an integrated travel planning strategy</li> <li>Progress indicators will be defined for each approach in the PTP strategy. e.g. <ul style="list-style-type: none"> <li>Car share, number of people registered, number of journeys matched and hence number of vehicle miles saved.</li> </ul> </li> </ol>

Measure	Title
8	Travel planning (personal, institutional and commercial sectors)
<b>Definition</b>	
Bradford continues to implement effective travel planning programmes for: <ul style="list-style-type: none"> <li>The local authority</li> <li>Other community facilities such as schools</li> <li>Other large employers</li> </ul> The ambition is for the programmes to reach more people year on year and targets travel through the AQMAs as a priority where possible.	
<b>Key Intervention</b>	
Reduce car usage within the personal, institutional and commercial sectors by up to 10%	
<b>Responsible authority and other partners</b>	
<ol style="list-style-type: none"> <li>ITA</li> <li>CBMDC</li> <li>Public sector: Schools, colleges, hospitals, etc.</li> <li>Large employers in the District</li> </ol>	
<b>Powers to be used</b>	
Mixture of statutory and voluntary	

Actions	Implementation timetable							Progress indicator	Target
	10	11	12	13	14	15			
1 Confirm steering group	■								N/A
2 Complete baseline travel surveys if required	■							Survey results and baseline inventory	N/A
3 Travel plan strategy defined and capacity developed		■						Document	N/A
4 First PTP group targeted			■					<ol style="list-style-type: none"> <li>Reduced use of car overall</li> <li>Reduced use of car at peak times</li> <li>Reduced use of car for journeys &lt;2km</li> </ol>	For example <ol style="list-style-type: none"> <li>10%</li> <li>20%</li> <li>20%</li> </ol>
5 First group surveyed, second group targeted				■					
6 First two groups surveyed, third group targeted					■				
7 etc						■			

Notes
<ol style="list-style-type: none"> <li>The implementation timetable is defined in financial year terms. ie '10 = end of March 10</li> <li>A baseline inventory would be an effective tool for assessing the current impacts of transport activity and for assessing the potential benefits of promoting travel planning</li> <li>Developing the PTP strategy may require a specific study to prioritise the most cost-effective actions in the short to medium term. For example, can the targeted outcomes be achieved within the AQMAs by focussing PTP measures in the correct locations? If they cannot then PTP under current resourcing and funding arrangements may not be able to achieve the indicated targets.</li> <li>Additional infrastructure (e.g. cycleways) may be required in an integrated travel planning strategy</li> <li>Progress indicators will be defined for each approach in the PTP strategy. e.g. <ul style="list-style-type: none"> <li>Car share, number of people registered, number of journeys matched and hence number of vehicle miles saved.</li> </ul> </li> </ol>

# Appendices

Appendix 1: UK air quality standards and objectives

Appendix 2: Maps of declared AQMAs in Bradford

Appendix 3: Maps of detailed assessment of air quality in the AQMAs.

Appendix 4: Initial assessment of the potential AP options

# Appendix 1

## UK air quality standards and objectives

Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
<b>Benzene</b> All authorities	16.25 µg/m <sup>3</sup>	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 µg/m <sup>3</sup>	annual mean	31.12.2010
Authorities in open areas and coastal areas should be cleaner as air changes more frequently and Northern Ireland only	3.25 µg/m <sup>3</sup>	running annual mean	31.12.2010
<b>1,3-Butadiene</b>	2.25 µg/m <sup>3</sup>	running annual mean	31.12.2003
<b>Carbon monoxide</b> Authorities in England, Wales and Northern Ireland only	10.0 mg/m <sup>3</sup>	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg/m <sup>3</sup>	running 8-hour mean	31.12.2003
<b>Lead</b>	0.5 µg/m <sup>3</sup> 0.25 µg/m <sup>3</sup>	annual mean annual mean	31.12.2004 31.12.2008
<b>Nitrogen dioxide<sup>b</sup></b>	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year 40 µg/m <sup>3</sup>	1 hour mean annual mean	31.12.2005 31.12.2005
<b>Particles (PM<sub>10</sub>) (gravimetric)<sup>c</sup></b> All authorities	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year 40 µg/m <sup>3</sup>	24 hour mean annual mean	31.12.2004 31.12.2004
Authorities in Scotland only <sup>d</sup>	50 µg/m <sup>3</sup> not to be exceeded more than 7 times a year 18 µg/m <sup>3</sup>	24 hour mean annual mean	31.12.2010 31.12.2010
<b>Sulphur dioxide</b>	350 µg/m <sup>3</sup> not to be exceeded more than 24 times a year 125 µg/m <sup>3</sup> not to be exceeded more than 3 times a year 266 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	1 hour mean 24 hour mean 15 minute mean	31.12.2004 31.12.2004 31.12.2005

b. The objectives for nitrogen dioxide are provisional.

c. Measured using the European gravimetric transfer standard sampler or equivalent.

d. These 2010 Air Quality Objectives for PM<sub>10</sub> apply in Scotland only, as set out in the Air Quality (Scotland) Amendment Regulations 2002.

Additional national particles objectives for England, Wales and Greater London (see table below) are not currently included in Regulations for the purpose of LAQM. The Government and the Welsh Assembly Government however intends that the new particles objectives will be included in Regulations as soon as practicable after the review of the EU's first air quality daughter directive. Whilst authorities have no obligation to review and assess against them, they may find it helpful to do so, in order to assist with longer-term planning, and the assessment of development proposals in their local areas.



**Proposed new particles objectives for England, Wales and Greater London (not included in Regulations)**

Region	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
London	50 µg/m <sup>3</sup> not to be exceeded more than 10 times a year	24 hour mean	31.12.2010
London	23 µg/m <sup>3</sup>	annual mean	31.12.2010
London	20 µg/m <sup>3</sup>	annual mean	31.12.2015
Rest of England and Wales	50 µg/m <sup>3</sup> not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
Rest of England and Wales	20 µg/m <sup>3</sup>	annual mean	31.12.2010

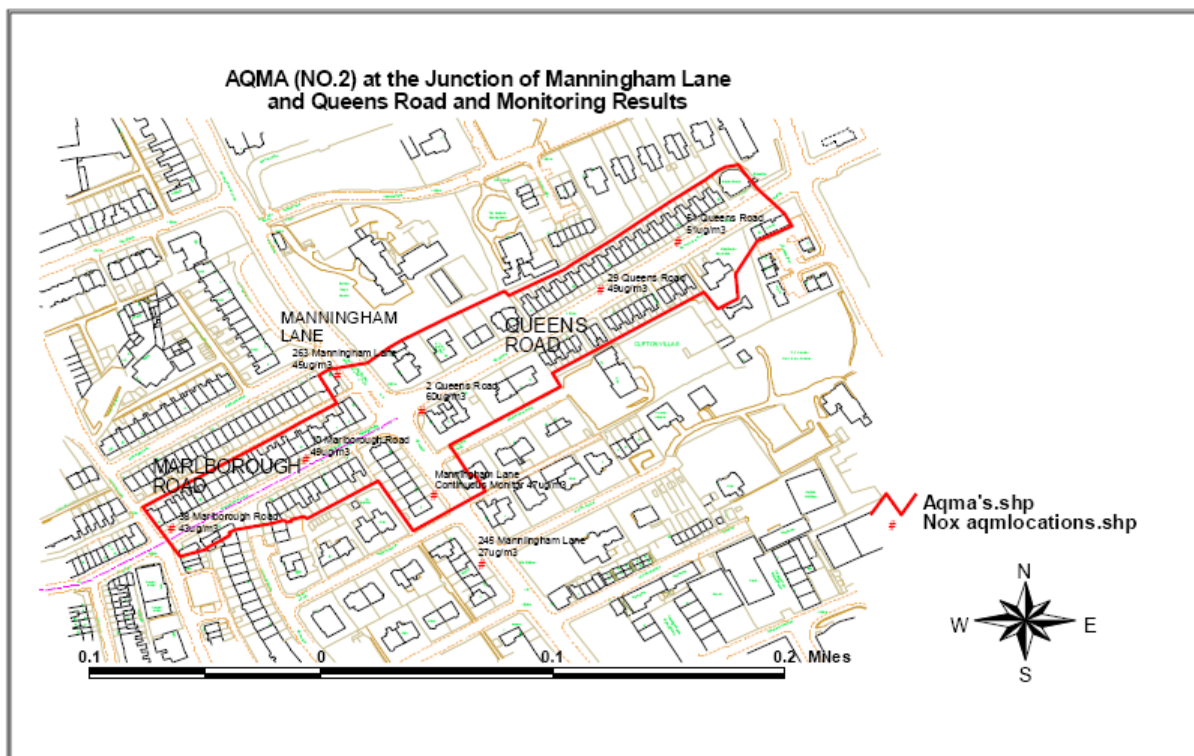
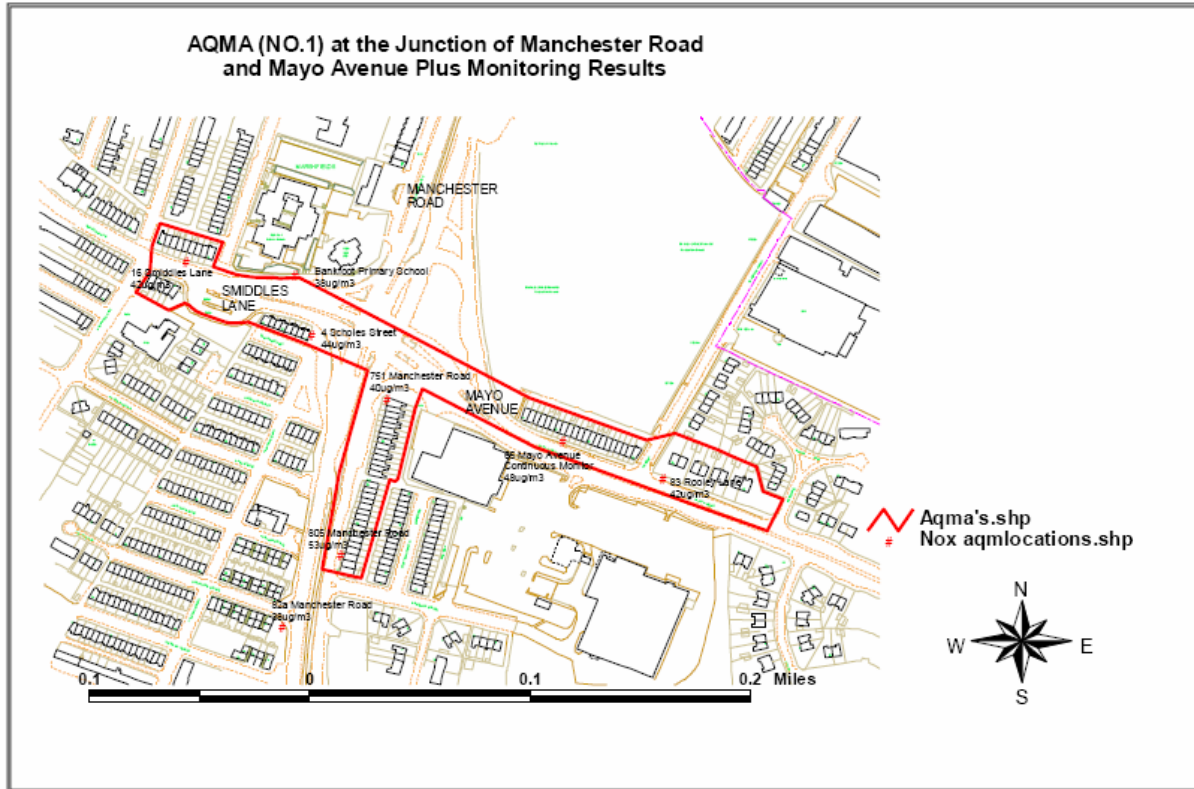
Efforts to achieve these objectives should be focussed on locations where members of the public are likely to be exposed over the averaging period of the objective. The table below summarises the locations where these objectives should and should not apply.

<b>Typical locations where the objectives should and should not apply</b>			
<b>Averaging Period</b>	<b>Pollutants</b>	<b>Objectives <i>should</i> apply at ...</b>	<b>Objectives <i>should not</i> generally apply at ...</b>
<b>Annual mean</b>	1,3 Butadiene Benzene Lead Nitrogen dioxide PM <sub>10</sub>	All background locations where members of the public might be regularly exposed.  Building facades of residential properties, schools, hospitals, libraries etc.	Building facades of offices or other places of work where members of the public do not have regular access.  Gardens of residential properties.  Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term
<b>24 hour mean and 8-hour mean</b>	Carbon monoxide PM <sub>10</sub> Sulphur dioxide	All locations where the annual mean objective would apply.  Gardens of residential properties.	Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
<b>1 hour mean</b>	Nitrogen dioxide Sulphur dioxide	All locations where the annual mean and 24 and 8-hour mean objectives apply.  Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed. Any outdoor locations to which the public might reasonably be expected to have access.	Kerbside sites where the public would not be expected to have regular access.
<b>15 minute mean</b>	Sulphur dioxide	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

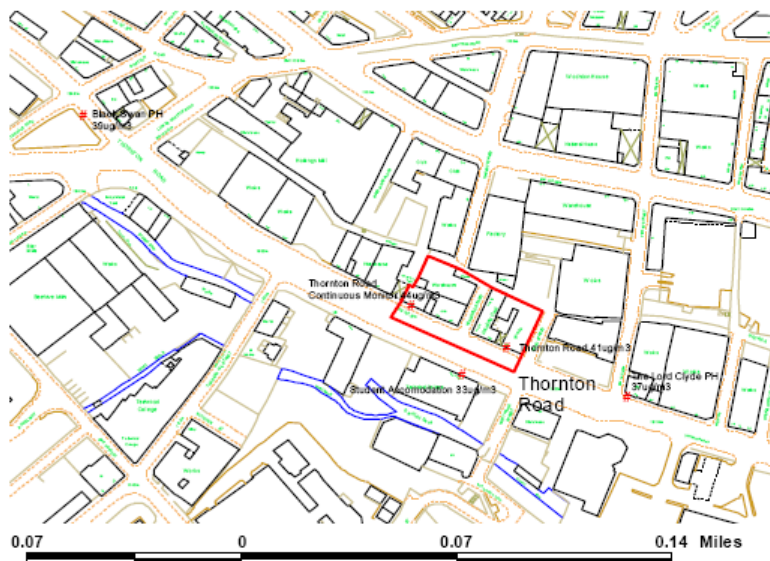
# Appendix 2

## Maps of declared AQMAs in Bradford

Reproduced from Bradford's Further Assessment report



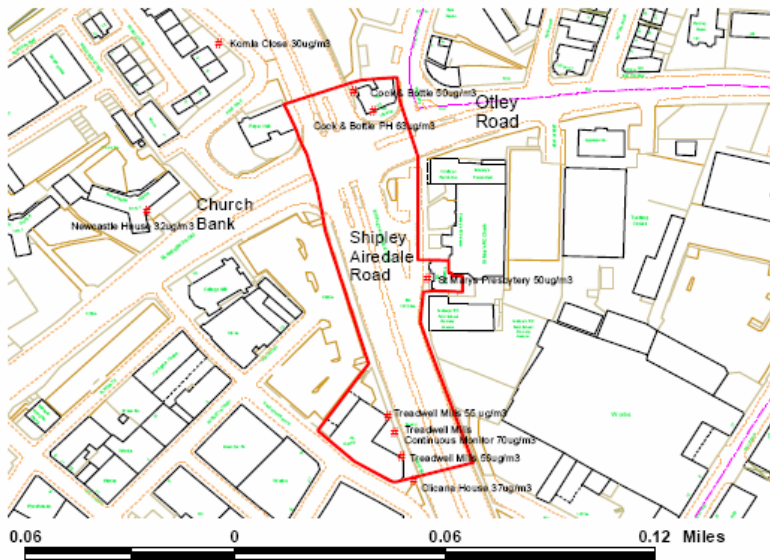
### AQMA (NO.3) at Thornton Road Plus Monitoring Results



Aqma's.shp  
Nox aqmlocations.shp



### AQMA (NO.4) at the Junction of Shipley Airedale Road and Church Bank and Monitoring Results



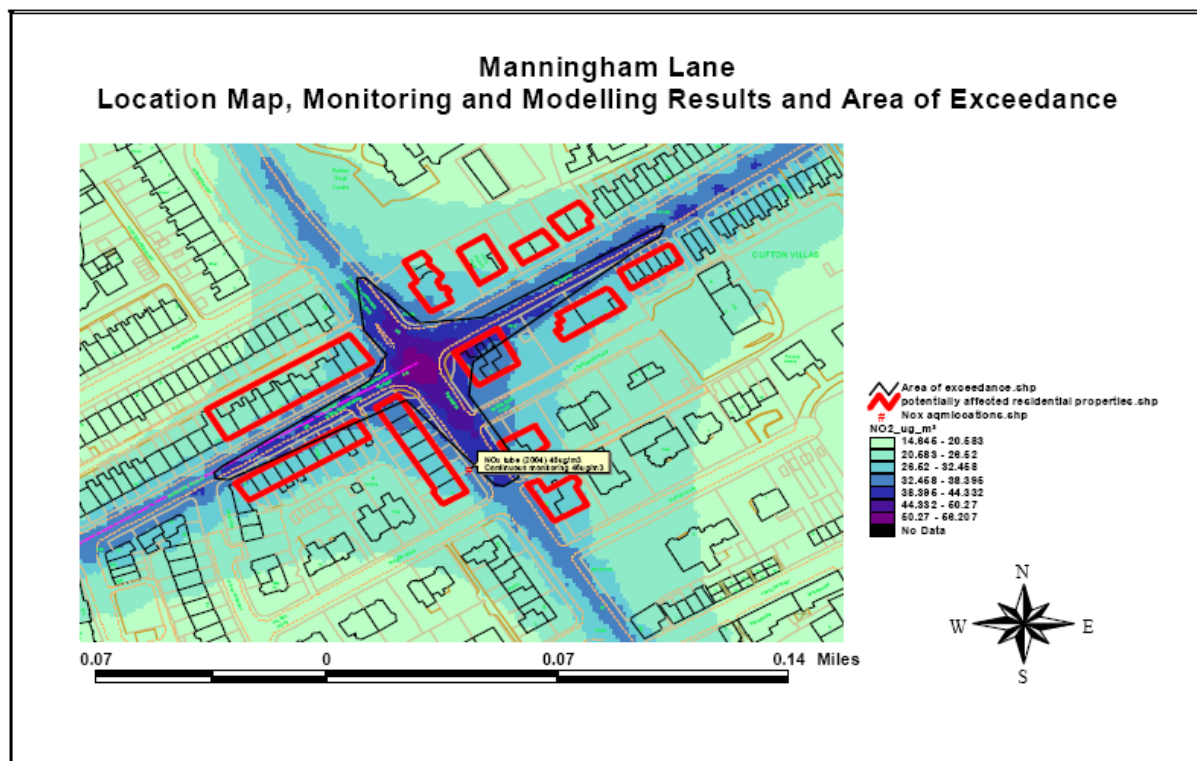
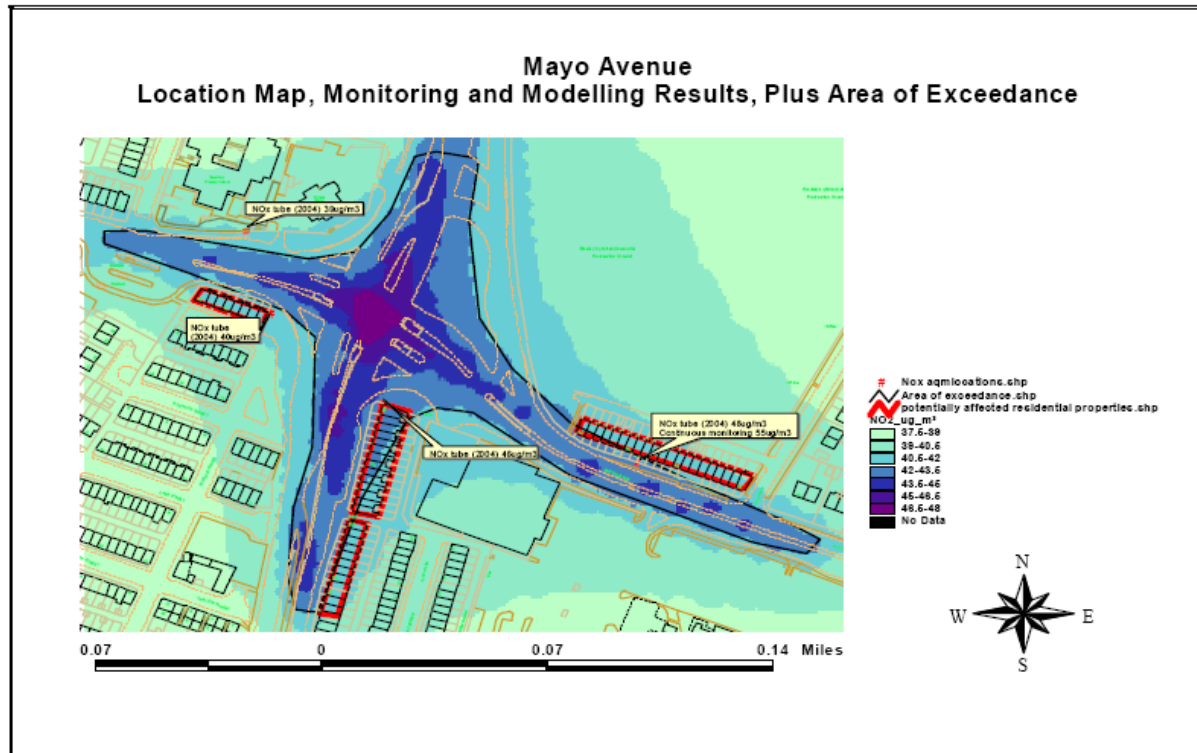
Aqma's.shp  
Nox aqmlocations.shp



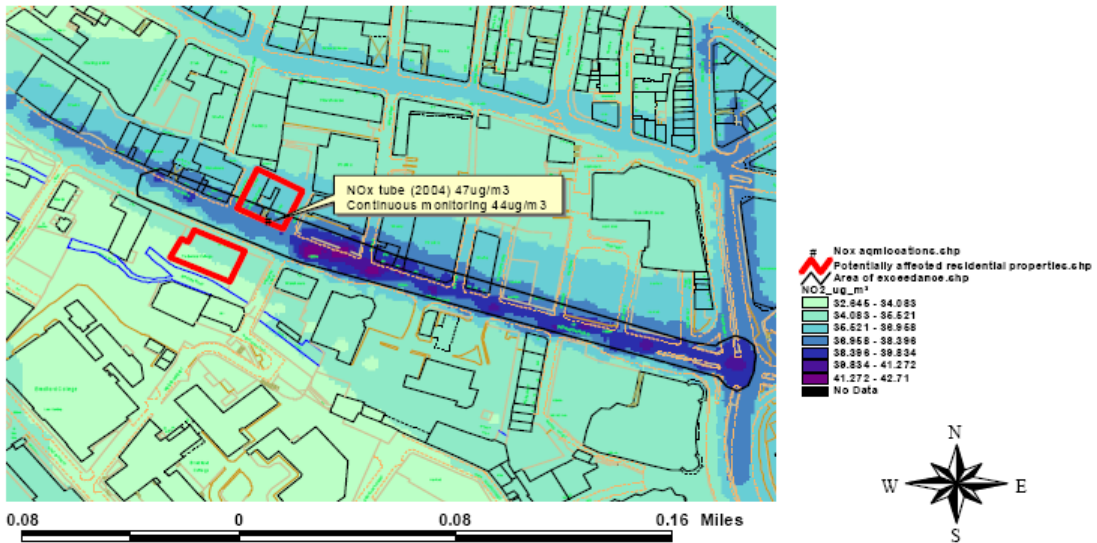
# Appendix 3

## Maps of detailed assessment of air quality in the AQMAs

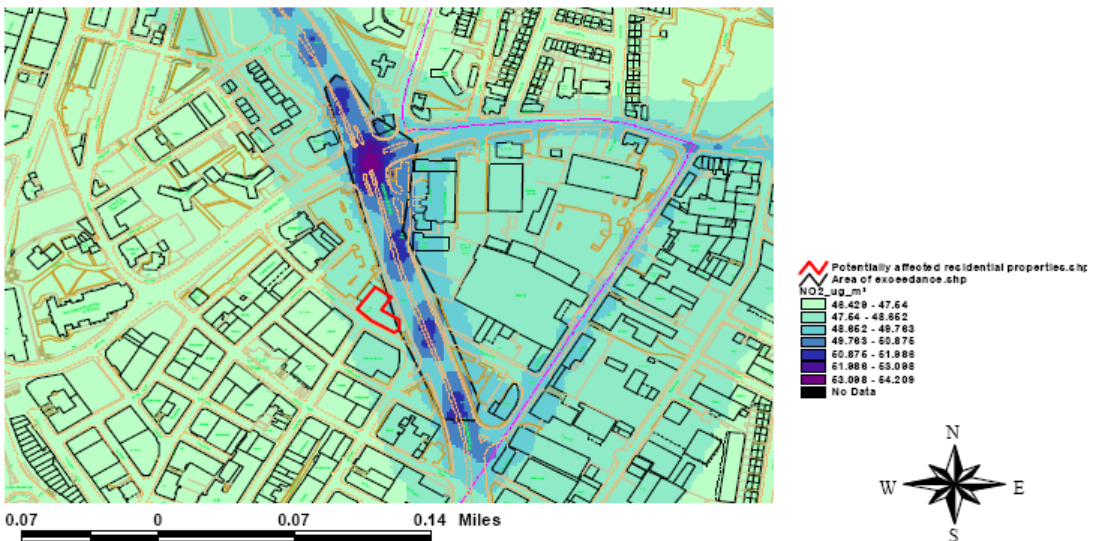
Reproduced from Bradford's Further Assessment report



### Thornton Road Location Map, Monitoring and Modelling Results and Area of Exceedance



### ShIPLEY Airedale Road, Location Map, Modelling Results and Area Of Exceedance



# **Appendix 4**

**Initial assessment of potential AP options**

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
1 Strategic Actions			
AQ Strategy [ie maintain the AQAP steering group and communication with other key stakeholders for ongoing review of the Action Plan and to improve the capacity to manage air quality]	The AQAP will continue. The need for an AQ strategy has been identified, but not much progress has been made on producing a document.	Government guidance is for authorities to develop AQ Strategies. This could be a potentially important mechanism for trying to ensure local air quality does not get worse in future.	Further consideration
Integrate AQAP into the LTP [ie integrate the Action Plan into the Council strategy/plan with the greatest potential to influence the dominant pollution source in a beneficial way]	We are committed to integrating AQAP into WYLTP, and some work has already begun on this.	Government guidance is for authorities to integrate the AQAP and LTP where road transport is the dominant local source of emissions. This could be a potentially important mechanism for trying to ensure local air quality does not get worse in future.	Further consideration
Supplementary planning guidance [ie creation of planning guidance that a) triggers detailed air quality assessments b) considers the cumulative impacts of development and c) sets out site operation conditions with the aim of significantly mitigating the emissions impacts of larger commercial or residential developments.]	The Local Development Scheme, the 3-year rolling programme of planning documents to be produced, has recently been updated and does not currently propose an Air Quality SPD. However, we are probably not maximising the potential of the existing policy framework due to a lack of political will. Where we are producing Supplementary Planning Documents to exercise a higher degree of control over major development schemes eg the Bingley Road and Derry Hill sites at Menston, then we have asked for Green Travel Plans. An SPD on Air Quality could perhaps be considered when we next update the LDS, but this happens as part of an ongoing debate with Government Office and needs to take account of progress with the production of documents currently in the scheme and staff resources.	Government guidance is for authorities to appropriately consider air quality among other factors within the local planning framework. This could be a potentially important mechanism for trying to ensure local air quality does not get worse in future.	Further consideration
2. Move receptors away from AQMA			
Remove homes and businesses [ie compulsory purchase of some or all affected properties]	Politically and practically a non-starter.	The number of properties affected is seemingly too high for this to be feasible. It also would give no guarantee that air quality would not worsen in other	No further consideration

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
		locations	
3. Move sources away from AQMA			
Bypasses [ie a new route or road to re-direct some of the traffic that traverses the AQMAs]		Roads in more than one AQMA already serve as important linking routes onto which through traffic is encouraged. Therefore, there appears little opportunity for this approach to have any effect	No further consideration
Control access for freight [ie a 24-hour or timed ban on freight access through the AQMAs]	Freight is restricted from delivering in the city centre either too late or too early on noise nuisance grounds but it is not known whether this affects traffic in the AQMAs.	Not feasible for the Mayo and Shipley Airedale Rd AQMAs.	No further consideration
Control access for cars [ie a 24-hour or timed ban on car access through the AQMAs]		AQMAs are on major routes so that timed access is likely to have a large negative impact on the road network and air quality elsewhere.	No further consideration
Control access for buses [ie a 24-hour or timed ban on bus access through the AQMAs]		Buses are only a small contributor to emissions in the AQMAs and should be encouraged during peak hours	No further consideration
Lobby the Highways Agency and the regional development agency [ie for long-term policies to manage traffic volumes]		Potential benefits are possible from national policy to manage the impacts from freight.	Priority consideration
4. Optimise how sources transit the AQMA			
Traffic light phasing [ie changes to signal timing across the network to allow smoother flow through the AQMAs while avoiding new AQMAs to be created]		Light phasing is already judged to be optimal	No further consideration
City centre movement strategy [ie changes to allow smoother flow through the city centre]		The City centre does not suffer from poor air quality so that this approach is not called for on air quality grounds	No further consideration
Improve signage [ie to guide freight along priority routes and cars towards key destinations and		Signage already encourages traffic onto the routes of the AQMAs to reduce their impact on other parallel routes. Freight	No further consideration



Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
parking]		already uses one AQMA as its priority route into the city.	
Speed controls [ie to reduce queuing and create smoother flow through the AQMA junctions]		There is no evidence to suggest that queuing would be reduced in the AQMAs by speed controls	No further consideration
5.Reduce the emissions from sources by technical means			
Green procurement [ie improving the emissions performance of the council's own fleet, the fleets of service providers via contract conditions or voluntary agreement]	Some work has been done in this area and moves are being made to improve the emission performance of our fleet.	This approach is aligned with national policy to reduce the impact of the local authority estate and its contracted services. The local authority can use this approach to show leadership.	Further consideration
Low Emission Zone [ie an automated or manual system implemented via TROs which penalises vehicles of one or more types that do not comply with given emission standards yet circulate within the city]	Unlikely to get support at a political level.	Studies in UK cities show that LEZ depending on a significant infrastructure development for compliance are not cost-effective relative to other approaches.	No further consideration
Bus quality partnerships [ie voluntary or regulated (Traffic Regulation Conditions) agreement with commercial and contracted bus and coach operators to achieve set emission standards in return for improved commercial environment (bus priority or other facilities) in which they operate]	There have been no discussions on emissions with major operators so far.	Bus emissions are a minority contributor to poor air quality in Bradford AQMAs particularly the Mayo Avenue and Shipley Airedale Road AQMAs. Hence this is not a strong priority	No further consideration
Freight quality partnerships [ie voluntary agreements with significant local fleet managers to achieve set emission standards]	There not thought to be an easy way to engage freight operators.	No evidence has been presented yet to suggest progress has been made in this approach. However, this again offers a potentially beneficial approach to managing the apparent negative impacts of freight in the Mayo Avenue and Shipley Airedale Road AQMAs.	Further consideration
Public Carriage Office policy [ie an age limit on licensed taxis and	Such an approach is possible	Taxi emissions are a minority contributor to poor air quality in Bradford AQMAs	No further consideration

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
public hire vehicles]		particularly the Mayo Avenue and Shipley Airedale Road AQMAs. Hence this is not a strong priority	
Differentiate parking charges [ie charge older vehicles more to park on council-run car parks]	Unlikely to get support at a political level. Only around 28% of city centre parking is directly regulated by the authority.	Parking is often an entirely commercial concern hence the influence of such an approach in existing car parks will be limited	No further consideration
Vehicle scrappage incentives [ie public travel passes or cash sum in return for removal of older cars from the roads]	Unlikely to get support at a political level.	Previous studies have shown this approach to be unattractive in cost-effectiveness terms and to have slight overall air quality benefits	No further consideration
Planning conditions policy [ie site operation conditions for large mixed-use developments and controlled parking for residential development to achieve set emission standards]	Technically possible but would depend on whether politically acceptable & practical depending on number of different users involved. Controls on parking for residential development could be realistic close to principal centres & as part of a move to more sustainable standards of design & changing lifestyles. Without education could prove unpopular, making enforcement time-consuming & difficult. NB UDP Policy TM12.		Further consideration
Lobby for additional national policy [ie If Bradford MBC and local partners cannot achieve the air quality objectives alone then the government to consider additional national policies such as further controls on industrial and vehicle emissions]		The UK government and European Union are almost certainly going to continue to legislate against emissions from new vehicles. The evidence suggests that Bradford is unlikely to achieve the air quality objectives without further national policies of this kind.	Priority consideration
Eco-driving training [ie raising awareness of the techniques through which significant fuel savings can be achieved and hence to reduce emissions]	Currently under consideration within the council fleet.	This is now part of national driver training policy mainly driven by cost cutting and CO2 reduction pressures. This project would not consider this option in any detail but simply highlight its potential to relieve pressures on air quality.	No further consideration
Infrastructure for cleaner fuels [ie creation of infrastructure for the delivery, storage and sale of non-		The issue with this approach is to have a critical share of the heavy-duty vehicles adopting these technologies. Since there	No further consideration although this approach could be

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
conventional fuels in order to encourage a switch towards alternative-fuelled vehicles in targeted fleets such as freight and or public transport]		are so many commercial operators it might be more efficient for the open market to drive this approach forward rather than Bradford.	discussed via the Quality Partnership approaches listed above.
Roadside emissions testing [ie roadside police presence to pull drivers over for spot checks on the emissions performance of their cars]	Resourcing this would be problematic, both from CBMDC and WY Police point of view	Previous study has shown this approach to be relatively cost-ineffective. Police time is expensive and very few vehicles are found to fail in-service emissions tests.	No further consideration
6.Reduce the emissions from sources by means of better travel choices			
Provision of information [ie survey and marketing campaigns to raise awareness of the true extent of travel choices, impacts of these choices on the environment and advice on how to reduce these impacts]		This approach is aligned with national policy to reduce the impact of the local authority estate and its contracted services. The local authority can use this approach to show leadership. However, it could have a very limited impact on the strategic routes.	Further consideration
Access to public transport [ie policies to increase the proportion of the population a) for whom public transport is a realistic travel option and b) who then choose to travel via public transport]	We could consider taking a tougher stance with developers on access to public transport, cycling & walking and Green Travel Plans. UDP Policies TM8 & TM6 allow some leeway to do this.	This approach is aligned with national policy to reduce the impact of the local authority estate and its contracted services. The local authority can use this approach to show leadership. This approach is part of the Smarter Choices agenda.	Further consideration
Access to alternative modes (cycling + walking) [ie policies to increase the proportion of the population a) for whom walking and cycling are realistic travel options and b) who then choose to travel via these modes]	There are policies to encourage this. (More details can be provided.)	This approach is aligned with national policy to reduce the impact of the local authority estate and its contracted services. The local authority can use this approach to show leadership. This approach is part of the Smarter Choices agenda. However, it could have a very limited impact on the strategic routes hence may not be an efficient use of action planning resources.	No further consideration
Green Travel Plans for large businesses and institutions	Green Travel Plans have been produced by some of the larger employers. CBMDC is	This approach is aligned with national policy to reduce the impact of the local	Further consideration

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
[ie targets for each commercial and institutional site above a given size threshold to introduce GTPs including manageable targets for the effects of the plans]	<p>preparing it's own GTP.</p> <p>GTP is a significant function within the authority with activities such as travel surveying, target setting, encouraging a variety of schemes such as car clubs.</p>	<p>authority estate and its contracted services. The local authority can use this approach to show leadership.</p> <p>This approach is part of the Smarter Choices agenda.</p>	
Parking provision, Park and Ride [ie creation of new P&R sites with the aim of reducing the number of vehicles using the AQMA routes]	Existing UDP Policy TM7 allows the Council to pursue opportunities to provide park & ride facilities when these arise, but does not identify specific sites.	For this approach to work then P&R sites outside the urban area on the key routes through the AQMAs would need to shift a significant share of cars off these routes while preventing other vehicles filling up the capacity created. Is this realistic?	No further consideration
Commercial delivery strategy [ie policies to reduce the impact of deliveries to the city centre such as controlled delivery times or an integrated delivery strategy]		A far-reaching strategy for freight delivery to Bradford could provide long-term benefits if it could influence HGV activity on the strategic roads.	No further consideration
Road use charging and workplace parking levy [ie introduce charges for using the roads during peak travel times or bringing an end to free parking]	Politically this is likely to be a non-starter. Congestion is not perceived to be too bad. Other nearby urban centres (Leeds) would surely adopt first.	A number of UK urban centres will pilot test road user charging and national policies are likely to emerge. Bradford will monitor these developments	No further consideration
Vehicle idling regulations [ie encourage the practice of switching off idling engines]	Not sure this is relevant to the AQMAs declared.	Vehicle queuing is likely to be a contributing factor to poor air quality in the AQMAs. However, it is impractical on the strategic routes through the Mayo Avenue and Shipley Airedale Road AQMAs.	No further consideration
7.Others			
Develop a mass transit network	A potential long-term aim for Bradford	Mass transit via light rail, tram or guided bus expressways could be a beneficial approach to shifting travel to more sustainable modes along the main commuter routes through the AQMAs. This project would not consider this option in any detail but simply highlight its potential to relieve pressures on air	No further consideration

Initial assessment of AP options			
Options	Steering group's comments	Consultant's comments	Conclusion
		quality.	





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