



# Broxburn Air Quality Action Plan

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Report for West Lothian Council

**Customer:**

**West Lothian Council**

**Customer reference:**

WLC

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## Executive summary

This Air Quality Action Plan (AQAP) for Broxburn, West Lothian has been prepared by West Lothian Council in line with its statutory obligations under Section 84 (2) of the Environment Act 1995. The Council has a statutory duty to manage local air quality within its designated boundaries. Under the Strategic Policy Framework for Local Air Quality Management published by the Scottish Government, West Lothian Council has undertaken a programme of air quality assessments. The strategy requires each authority to undertake a series of air quality assessments to determine the current situation regarding local air quality, and to outline the progress of their local air quality management procedures to date.

Where an authority identifies that a given air quality objective is likely to be exceeded at a relevant location, it is obliged to declare an Air Quality Management Area (AQMA) and undertake a further assessment of existing and likely future air quality. The Authority must then develop an Air Quality Action Plan, setting out the local actions that will be implemented to improve air quality and work towards meeting the objectives.

What is the cause of the problem?

In the Broxburn AQMA, exceedances of the annual mean objectives for NO<sub>2</sub> and PM<sub>10</sub> have been identified, and a source apportionment exercise undertaken to identify the principal sources contributing to local exceedances of both pollutants. In reference to NO<sub>2</sub>, the source apportionment indicated that cars and buses represent the principal sources of NO<sub>x</sub> within Broxburn AQMA. However, in terms of local concentrations of PM<sub>10</sub>, modelling indicated that background concentrations constitute the most significant source of PM<sub>10</sub> within the AQMA, with emissions from local road traffic are estimated to contribute the remaining 19-22%, with this being split almost evenly between moving and stationary traffic. More generally, the further assessment considered that it is the sheer volume of traffic passing through the AQMA that is contributing to the local air quality issue.

### Air Quality Action Plan

A steering group including key representatives from relevant services of West Lothian Council has been formed to develop the AQAP. The steering group have considered the measures listed above and the wide range of potential options for improving air quality within the Broxburn AQMA. Subsequently the steering group will undertake an assessment of each of these options. The options will be assessed against the following criteria:

- How much support was there initially within the steering group for the option?
- Potential air quality impact;
- Potential costs;
- Overall cost-effectiveness;
- Potential co-environmental benefits, risk factors, social impacts and economic impacts;
- Feasibility and acceptability.

Following on from the assessment, the options were prioritised for action. The AQAP has been approved by the Steering Group and West Lothian Council, the draft plan was reviewed by the statutory consultees and also included a public consultation process. The Plan is summarised in tabular form below.

No	Measure	Timescale
<b>Strategic Measures</b>		
1	Incorporating consideration of Air Quality in the Local Transport Strategy Update	Medium-term
2	Improving links with Local Planning and Development framework	Medium-term
3	Integrate Air Quality with other Council Policies	Medium-term
4	Liaise with Scottish Gov regarding national air quality policy	Short-term

No	Measure	Timescale
Direct measures		
5	Traffic signal phasing – possibly linking AQ monitoring	Short-term
6	Changes to pedestrian crossings and junctions to reduce congestion	Short to Medium - term
7	Broxburn Distributor Road Phasing – North to West	Medium to Long-term
8	Broxburn Distributor Road Phasing – North to East	Medium to Long-term
9	Broxburn Distributor Road Phasing – Winchburgh M9 junction	Medium-term
10	Winchburgh rail station	Medium-term
11	Update of Local Bus Quality Partnership	Short to Medium-term
12	ECO stars scheme	Short to Medium-term
13	Green Procurement (Council), fuel management and Eco-driving training policy and assessment of new technology	Short-term
14	Taxi Quality Partnership emissions	Medium-term
15	Electric Vehicle charging points to tie in with Climate change	Short to Medium-term
16	Encourage Private and Public Operators to pursue cleaner vehicles and abatement	Short-term
17	Vehicle emission testing and Idling enforcement	Short-term
18	Provision of information regarding air quality	Short-term
19	Provision of travel information and Promotion of alternative modes (cycling + walking) and Infrastructure	Short-term
20	Encourage Developers to put cycle paths walkways in to link up together to encourage walking, cycling	Short to Medium-term
21	Travel Plans for large institutions and businesses	Medium-term
22	Environmental Nuisance (including dust and smoke)	Short-term
23	Home Energy Efficiency	Short-term

Note: AQMA = Air Quality Management Area. In this document the AQMA comprises of an area of Broxburn which has been subject to a formal order defining it as an area where an air quality objective is not being achieved. The map is available on line at

<http://www.wlonline.org.uk/media/downloadaddoc/1799514/1875233/AirQualityArea2011>

The plan aims to work towards reducing transport emissions of NO<sub>x</sub> and PM<sub>10</sub> in the AQMA by approximately 24% and 31% respectively. It is anticipated that a reduction of this scale will lead to the achievement of the annual mean NO<sub>2</sub> air quality standard (40 µg m<sup>-3</sup>) and Scottish annual mean objective for PM<sub>10</sub> (18 µg m<sup>-3</sup>) within the Broxburn AQMA in future years. West Lothian Council will continue to review and assess air quality to monitor the situation and success of the plan. Following adoption, reports on progress of the implementation of the action plan will be submitted to the Scottish Government and SEPA on an annual basis.

What happens next?

West Lothian Council has prepared this action plan with relevant stakeholders and has consulted with the public and other statutory consultees on its intention to implement this plan. Consultation responses have been integrated into the final plan that will be adopted in 2017.

This Plan has been produced by West Lothian Council and constitutes the Air Quality Action Plan (AQAP) designed to address the air quality problems identified in Broxburn. It is a statutory duty for West Lothian Council to develop an Air Quality Action Plan following the declaration of an Air Quality Management Area (AQMA) in response to identified exceedances(s) of one or more of the air quality strategy objectives. Before the plan can be adopted it must be subject to consultation with the general public, and must also be appraised and accepted by the Scottish Government and the Scottish Environment Protection Agency as being suitable for purpose. The purpose of the Air Quality Action

Plan is, on the basis of the evidence available, to set out the local actions that will be implemented to improve air quality and work towards meeting the objectives.

This Action Plan has been developed from discussions within a steering group and on the basis of guidance from West Lothian Council's contracted consultants, Ricardo Energy Environment. Following approval by the steering group and the Council, the Plan was also subject to formal consultation and has been submitted to the following organisations and groups for comment:

- The Scottish Government
- The Scottish Environment Protection Agency (SEPA)

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# 1 Introduction

This Plan has been produced by West Lothian Council and constitutes the Air Quality Action Plan (AQAP) designed to address the air quality problems identified in Broxburn. It is a statutory duty for West Lothian Council to develop an Air Quality Action Plan following the declaration of an air quality management area (AQMA) in response to identified exceedances(s) of one or more of the air quality strategy objectives. Before the plan can be adopted it must be subject to consultation with the general public, and must also be appraised and accepted by the Scottish Government and the Scottish Environment Protection Agency as being suitable for purpose. The purpose of the Air Quality Action Plan is, on the basis of the evidence available, to set out the local actions that will be implemented to improve air quality and work towards meeting the objectives.

The Action Plan has been developed from discussions within a steering group and on the basis of guidance from West Lothian Council's contracted consultants, Ricardo Energy Environment. The Plan has been subject to consultation, having been submitted to:

- West Lothian Council;
- The Scottish Government;
- The Scottish Environment Protection Agency (SEPA);
- Statutory consultation, where the document will be made available to the general public and other stakeholders for scrutiny and general comment.

Comments received during the consultation process have been taken into consideration and where possible incorporated into the Plan. The final version of the Plan will be submitted to the Scottish Government and SEPA for appraisal, and if accepted will then be adopted as a formal authority plan and will be implemented via the efforts of West Lothian Council and other stakeholders.

## 1.1 Objectives

This Air Quality Action Plan summarises the air quality review and assessments that have been undertaken by West Lothian Council in recent years, focussing on exceedances of the Air Quality Strategy Objectives, and outlining the mechanisms and the targeted measures proposed by West Lothian Council that aim to improve local air quality. The plan focuses on air quality within Broxburn, where an Air Quality Management Area (AQMA) came into force in March 2011 as a result of elevated concentrations of nitrogen dioxide. Twenty action plan measures have been incorporated within the Action Plan.

## 1.2 Report Contents and Structure

Policy Guidance LAQM.PGS (16) was published by the Scottish Government in 2016 and provides statutory guidance on the development of air quality action plans. As a minimum, the AQAP is expected to include the following:

- Demonstration that the local air quality issues are clearly understood;
- An explanation of how the action plan will help to deliver the aims and objectives of CAFS;
- Quantification of the source contributions to the predicted exceedances 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 objectives

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

The Scottish Government recommends that further assessment of air quality should be undertaken in parallel with the development of the Action Plan to provide the technical justification for the measures an authority later includes in its Action Plan. This will allow authorities to:

- calculate more accurately how much of an improvement in air quality will be needed to achieve the air quality objectives within the AQMA
- refine their knowledge of the sources of pollution so that air quality action plans can be properly targeted;
- take account of national policy developments which may come to light after the AQMA declaration;
- take account as far as possible of any local policy developments which are likely to affect air quality and which were not fully factored into earlier assessment. These might include, for example, changes to national or local planning policy, the implications of any new transport schemes that are likely to be implemented in or close to the AQMA, or of any new major housing or commercial developments;
- carry out new or additional real time monitoring; and • respond to any comments made by statutory consultees on any aspect of the AQMA declaration process, particularly where these have highlighted that insufficient attention has been paid to, for example, the validation of modelled data.

This further assessment has been undertaken and the findings have been summarised in this plan.

The remainder of this report is structured as follows:

- **Chapter 2** provides a brief overview of the significance of local air quality management on human health, the statutory duties placed on local authorities, and a summary of existing plans and strategies which may influence air quality within Broxburn;
- **Chapter 3** presents a summary of recent reviews of local air quality undertaken by West Lothian Council, and the results of the source apportionment exercise undertaken for the Broxburn AQMA including the improvement required to meet the air quality objectives;
- **Chapter 4** describes how the Broxburn AQAP has been developed by West Lothian Council;
- **Chapter 5** presents the range of potential options that were considered to improve local air quality in the Broxburn AQMA and wider Broxburn area generally, and a summary of proposed measures to be assessed against a variety of criteria;
- **Chapter 6** provides an overview of the assessment process and the results of an assessment of each option;
- **Chapter 7** summarises the AQAP, outlining measures proposed for implementation and makes reference to important factors that require to be considered prior to the adoption of the plan.

## 2 Ambient Air Quality and Local Air Quality Management

This chapter outlines the significance of local air quality management in the context of human health, the legislation in place to protect human health, and the statutory duties placed on local authorities in relation to Local Air Quality Management. This information is included to provide readers with a general overview of air quality issues and the Local Air Quality Management process in Scotland.

### 2.1 Potential Impacts of Air Pollution on Human Health

Air pollution has been associated with a wide range of effects on human health and the wider environment. However, it is the potential negative impacts of ambient air pollution on human health that is the primary focus of local air quality management. Air pollution has been associated with both long- and short-term effects on human health (COMEAP, 2009, 2010), with the nature of the effects influenced by factors such as the type and concentration of the pollutant and the duration of exposure. Short-term exposure to high concentrations of common outdoor pollutants has been linked with a temporal increase in hospital admissions (Anderson et al. 2001). There has also been the recent Health Protection Scotland Paper "Air Quality (PM<sub>2.5</sub> particulate air pollution) and Mortality in Scotland"<sup>1</sup>.

In the long-term, the available scientific evidence indicates that air pollution can have a significant effect on human health, although the effects will vary depending on where an individual lives (urban or rural) and the type of pollutant(s) to which they are exposed. Whilst the full extent of these impacts across the population is difficult to quantify, in the UK, poor air quality is considered to reduce the average life expectancy by several months (COMEAP, 2009). In general, air quality in the UK is considered to have improved significantly since the smogs of the 1950s, with improvement primarily resulting from the increased regulation of domestic and industrial emissions. However, in recent years, emissions from motor vehicles have been shown to be having an increasing impact on urban air quality. As a result, a large number of authorities across the UK have declared Air Quality Management Areas in response to identified exceedances of the air quality strategy objectives and are developing plans to improve air quality at the local level.

Furthermore, action is also being taken at national and international levels to reduce exposure to air pollution. National Government, through the Air Quality Strategy for England, Scotland, Wales and Northern Ireland and the Integrated Transport Policy, is setting the framework for local action to be taken to reduce levels of pollution (AQS, 2007).

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

The Environment Act 1995 placed a responsibility on UK Government to prepare an Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland. The most recent version of the strategy (2007)<sup>2</sup> sets out the current UK framework for air quality management and includes a number of air quality objectives for specific pollutants.

The most recent version of the Air Quality Strategy sets out the UK vision for clean air for a good quality of life and the steps being taken to achieve this. The Strategy also outlines the established framework

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<sup>1</sup> <http://www.documents.hps.scot.nhs.uk/environmental/briefing-notes/air-quality-and-mortality-sup-info-2014-04.pdf>

<sup>2</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf)

of local air quality management and details a series of air quality objectives to be achieved with the aim of protecting human health and the environment. The objectives have been set throughout the UK at levels that aim to protect the vulnerable in society from the harmful effects of breathing pollution (AQS, 2007), although more stringent national objectives have been established in Scotland (annual mean objective for PM<sub>10</sub>).

Part IV of the Act, also requires that local authorities “review and assess” air quality within their respective boundaries. The 1997 Air Quality Strategy introduced the Local Air Quality Management (LAQM) model and associated Review and Assessment process. The Review and Assessment process is intended to locate and spatially define areas where the AQS objectives are not being met. In such instances the Local Authority is required to declare an Air Quality Management Area (AQMA), carry out a Further Assessment of Air Quality, and develop an Air Quality Action Plan (AQAP) which should include measures to improve air quality so that the objectives may be achieved in the future. The timetables and methodologies for carrying out Review and Assessment studies are prescribed in the statutory Technical Guidance document LAQM.TG (16)<sup>3</sup>.

A list of health Objectives relevant to Scotland are presented in Table 1.

**Table 1: Air Quality Objectives**

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	3.25 µg m <sup>-3</sup>	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg m <sup>-3</sup>	Running annual mean	31.12.2003
Carbon Monoxide <sup>2</sup> Authorities in Scotland only	10.0 mg m <sup>-3</sup>	Running 8-hour mean	31.12.2003
Lead	0.5 µg m <sup>-3</sup>	Annual mean	31.12.2004
	0.25 µg m <sup>-3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg m <sup>-3</sup> not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric) <sup>4</sup>	40 µg m <sup>-3</sup>	Annual mean	31.12.2005
	50 µg m <sup>-3</sup> not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
Particles (PM <sub>2.5</sub> ) (gravimetric) <sup>5</sup>	18 µg m <sup>-3</sup>	Annual mean	31.12.2010
	10 µg m <sup>-3</sup>	Annual mean	2020
Sulphur dioxide	350 µg m <sup>-3</sup> not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	125 µg m <sup>-3</sup> not to be exceeded more than 3 times a year	24 hour mean	31.12.2004
	266 µg m <sup>-3</sup> not to be exceeded more than 35 times a year	15 minute mean	31.12.2005

<sup>3</sup> <http://laqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf>

<sup>4</sup> Objectives relevant to Local Authorities in Scotland only.

<sup>5</sup> Objectives relevant to Local Authorities in Scotland only.

The Objectives apply at locations where members of the public are likely to be exposed over the averaging period of the objective. Table 2 below summarises the locations where these objectives should and should not apply respectively.

**Table 2: Typical locations where the objectives should and should not apply**

Averaging period	Pollutants	Objectives should apply at ...	Objectives should not generally apply at ...
Annual mean	Butadiene Benzene Lead Nitrogen dioxide PM <sub>10</sub> PM <sub>2.5</sub>	All background locations where members of the public might be regularly exposed.	Building facades of offices or other places of work where members of the public do not have regular access.
		Building facades of residential properties, schools, hospitals, libraries etc.	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
24 hour mean and 8-hour mean	Carbon monoxide PM <sub>10</sub> Sulphur dioxide	All locations where the annual mean objective would apply.	Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
		Gardens of residential properties.	
1 hour mean	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.	Kerbside sites where the public would not be expected to have regular access.
15 minute mean	Sulphur dioxide	Any outdoor locations to which the public might reasonably be expected to have access. All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

Whilst it is anticipated that measures adopted at a national and international level will enable the objectives to be attained in the majority of relevant locations, measures adopted at a local level can

make a significant contribution to improving air quality in specific locations. The UK government acknowledges the significant role that local authorities play in helping to achieve the air quality objectives.

## 2.3 The Local Air Quality Management Regime

Part IV of the Environment Act, 1995, places numerous statutory duties on local authorities in relation to local air quality management, a summary of which is outlined below:

1. Local authorities are required to undertake annual assessments of current and future air quality within their respective authority boundary and determine whether any of the air quality objectives are likely to be exceeded.
2. Where an authority identifies an area where one or more of the objectives are likely to be exceeded, the authority is required to designate the identified area, by official Order, as an Air Quality Management Area (AQMA). Such Orders may be amended or revoked as a result of the findings of later air quality assessments where these indicate a change in the extent of the exceedance, or that the relevant objective(s) are likely to be attained.
3. Following the declaration of an AQMA, the Local Authority is required to undertake further assessment of air quality within the AQMA, and to develop an Air Quality Action Plan (AQAP) outlining the measures that will be implemented at a local level in pursuit of the air quality objectives.

The Air Quality Strategy states that air quality issues should be dealt with in a holistic and multi-disciplinary way. In developing an Air Quality Action Plan it is therefore important that the Local Authority engages with officers across relevant Services, notably strategic-, development- and transport-planners, to ensure that any measures included in the plan are supported by the relevant parts of the authority. It is vital that organisations, groups and individuals that have an impact on local air quality work together to help attain the aims of an adopted plan. Furthermore, it is essential that the AQAP considers existing policies and programmes in operation within the region that may have important implications for the plan.

## 2.4 Cleaner Air for Scotland (CAFS)

In November 2015 Scottish Government published the Cleaner Air for Scotland Strategy. The Road to a Healthier Future (CAFS) is a national cross-government strategy that sets out how the Scottish Government and its partner organisations propose to reduce air pollution further to protect human health and fulfil Scotland's legal responsibilities as soon as possible.

Key areas it is targeting are:

- Creating a supportive business environment
- Achieving a low carbon economy
- Tackling health and wellbeing and social problems.
- Maintaining a high-quality environment
- Passing on a sustainable legacy for future generations

Key areas of CAFS future development in which the Council will be involved and can influence:

- To develop a two level National Modelling Framework (NMF) to provide a standardised approach for air quality modelling to support transport and planning decision making.

- To develop a National Low Emission Framework (NLEF) for appraisal and implementation of transport and land use options to improve air quality.

## 2.5 Existing Strategies and Policies relevant to Air Quality in Broxburn

Numerous existing policies and strategies adopted at a local, regional and national level can exert significant effects, both positive and negative, on air quality in West Lothian. It is important that these plans and strategies are considered at an early stage of the development of the plan, as these will likely establish the context in which any specific options for improving air quality can be implemented. This Chapter identifies the most important of these.

### 2.5.1 The National Transport Strategy

The National Transport Strategy for Scotland was published in December 2006. The Strategy identified the need to provide an efficient, integrated and reliable transport network that successfully promotes economic growth, protection of the environment, health and social inclusion, and introduced three key strategic objectives:

1. To reduce journey times between Scotland's towns/ cities and global markets, tackle congestion and provide access to key markets;
2. To reduce emissions to tackle climate change;
3. To improve the quality, accessibility and affordability of transport, to give people the choice of public transport as an alternative to the car.

These key objectives have been designed to support the role of Government and respond to the strategic objectives, namely a Wealthier, Fairer, Smarter, Healthier, Safer, Stronger and Greener Scotland. The plan includes a wide range of commitments aimed at tackling each of the key strategic objectives. Commitments identified as being of particular significance to Broxburn and the AQMA are:

- Investing to tackle congestion from the School Run;
- Promoting SMART<sup>6</sup> measures on all journeys, focusing especially on the commute to work through developing travel awareness and marketing campaigns;
- Exploring with key partners' sustainable travel demonstration towns across Scotland to reduce car use and promote cycling and walking;
- Promoting and encouraging new vehicle technologies;
- Supporting sustainable distribution strategies through the Scottish Road Haulage Association;
- Publishing a Bus Action Plan to help achieve a step change in the quality of bus service provision;
- Support the introduction of integrated ticketing pilots to enhance the passenger journey.'

The Strategy clearly states that Regional Transport Partnerships, local authorities and transport operators will be key partners in delivering the strategic outcomes.

### 2.5.2 Regional Transport Strategy (2008-2023)

The Council is a member of the South East of Scotland Transport Partnership (SEStran)<sup>7</sup> which is one of seven statutory regional transport partnerships set up under the Transport (Scotland) Act 2005. The

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<sup>6</sup> SMART Measures: Specific, Measurable, Achievable, Realistic and Timed.

<sup>7</sup> <http://www.sestran.gov.uk/>



SEStran Regional Transport Strategy<sup>8</sup> was developed to complement the objectives of the National Transport Plan and includes 17 sub-objectives that stem from the four high level objectives of: Economy, Accessibility, Environment and Safety and Health. The Strategy Framework comprises three different types of projects and initiatives:

- |  |  |
|--|--|
| 1. Region-wide initiatives                   | Region wide initiatives that affect the area measures affecting the whole SEStran area e.g. travel behaviour/ planning, integrated ticketing, regional freight initiatives, awareness campaigns and frameworks for parking (standards and management). |
| 2. Initiatives for specific areas and groups | Initiatives targeting accessibility and providing minimum levels of service to specific localities and groups, and rural areas.  |
| 3. Network-based initiatives                 | Covering specific infrastructure schemes and public transport services on principal travel corridors. These include a wide range of measures proposed for movements of strategic importance to the SEStran area.                                       |

The regional Strategy makes specific reference to the increasing importance of local air quality, its effects on human health and the role that transport plays in air quality issues in urban areas.

### 2.5.3 Local Transport Strategy for West Lothian

The current Local Transport Strategy (LTS) for West Lothian was developed in 2000 and incorporates the local traffic reduction plan. The plan was designed to run from 2000 to 2010 and a new strategy is due to be developed. The Strategy makes specific reference to the UK's Air Quality Strategy, and incorporates a range of objectives that target reductions in road traffic in West Lothian, but which could also contribute to reducing emissions of air pollutants from road traffic sources, and consequently reduce ambient concentrations of air pollutants such as nitrogen dioxide and particulate matter. The LTS includes the following objectives which could contribute to improving local air quality in West Lothian:

- Maximise accessibility for all by shifting the balance towards public transport
- Encouraging walking and cycling as alternatives to the private car
- Improve environmental conditions by reducing traffic intrusion in residential areas easing conditions for public transport and providing for pedestrians and cyclists
- Provide new roads where they bring substantial environmental and safety benefits and support the development strategy.

Due to the age of the current LTS, it is difficult to link to the existing situation within West Lothian and in particular the Broxburn AQMA. However, the steering group recognise that the AQMA should be considered in detail during the development of the updated LTS for West Lothian. Moreover, the Local Development Plan for West Lothian is the most up-to-date statement of transport and planning policy for West Lothian. The Proposed Plan (2015) proposes an approach to development that considers the air quality impacts of traffic generation within the decision-making process.

### 2.5.4 The West Lothian Council – Green Transport Strategy

The Green Travel Strategy is a measure that is being delivered by West Lothian Council to enable the Council to work more efficiently. The travel strategy targets reduced emissions from Council-associated travel by (1) challenging the need to make a journey, (2) promoting alternative forms of travel such as

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<sup>8</sup> <http://www.sestran.gov.uk/files/Regional%20Transport%20Strategy.pdf>

car sharing and the use of public transport, and (3) through the leasing of 265 low carbon cars and vans. The use of low carbon vehicles will maximise the benefits from reduced business travel, fuel consumption, fuel costs, road tax and carbon emissions.

It has been anticipated that the Green Travel Strategy will also help the council to reduce the Council's environmental impact by a third or 236 tonnes of carbon dioxide and based on 2009/10 figures is equivalent to 1,137,596 business miles.

### 2.5.5 West Lothian Local Plan

The West Lothian Local Plan was adopted by the Council and became operative on the 13<sup>th</sup> January 2009. The plan takes a balanced approach to accommodating development whilst protecting and enhancing the environment. The Strategy seeks to:

- Implement the requirements of the Edinburgh and the Lothians Structure Plan 2015
- Maintain development momentum and continue to attract high quality investment
- Promote the principles of sustainable development
- Protect and enhance the natural and built heritage of West Lothian
- Continue to enhance the image of West Lothian in order to assist in encouraging economic investment and improve the quality of life for its residents
- Enhance accessibility to services, jobs and other activities important to the needs of the community
- Secure the widest possible economic and employment base in West Lothian
- Improve services and facilities to meet the need of all the community.

Providing guidance on location of development across West Lothian, it has two underpinning strategies. The first is to encourage the economic regeneration of West Lothian, while the second is to protect and enhance the district's built and natural heritage. These two underlying strategies fall under the general theme of following the principles of sustainability. The document details development plans across all potential areas, so that West Lothian Council is aligned to the same strategy and policy. As well as Strategy and Implementation, the report sets out development plans for the specific areas:

- |                                    |  |
|------------------------------------|--|
| • Countryside                      | • Town Centres & Retailing                                 |
| • Built and archaeological history | • Community, sport and education facilities and open space |
| • Employment                       | • Natural resources, waste management & renewable energy   |
| • Housing                          | • Town Centres & Retailing                                 |
| • Core development Areas           | • Community, sport and education facilities and open space |
| • Transport and accessibility      | • Natural resources, waste management & renewable energy   |

Many of the development strategies for these areas could have an impact on Air Quality – either positively or negatively. In fact, the potential negative Air Quality impact due to construction development has been explicitly highlighted and acted upon by through the Policy IMP 09, revealing the council's attentiveness to potential Air Quality issues.

West Lothian Council is at an advanced stage in replacing the WLLP and it is anticipated that a new local development plan (LDP) will be adopted during 2017. It focused on eight key issues, i.e., economic development; community regeneration; housing growth, delivery and sustainable housing locations/areas of restraint; infrastructure requirements and delivery; town centres and retailing; the natural and historic environment; climate change and renewable energy; and waste and minerals. The LDP covers the ten-year period from 2014 to 2024 but it also sets out a longer term planning strategy for West Lothian.

### 2.5.6 West Lothian Council Carbon Management Plan

West Lothian Council collaborated with the Carbon Trust, as part of the Scottish Local Authority Carbon Management Programme, to develop a Carbon Management Plan<sup>9</sup> for the Council. This has been reviewed recently and a new Carbon Management Plan is now in Place for 2015 – 2020. The plan looks to identify measures which will further reduce West Lothian's Carbon emissions, as well providing financial savings. An overall target has been established alongside a suite of projects and initiatives to reduce the council's carbon footprint by 20% by the end of the financial year 2020/21, rebased to a 2013/14 carbon footprint baseline year. The plan details medium to long term projects that will help West Lothian Council reduce its carbon emissions. In addition to reduced emissions and cost-savings, this plan forms an important part of West Lothian's response to the Scottish Government's Climate Change Bill.

The vision of the plan is to enable West Lothian Council to reduce carbon emission from their activities and services, while also acting as a motivator to help partner organisations and businesses within West Lothian achieve similar reductions.

The Plan targets reductions from Council Property, owned housing, transport fleet, external lighting and commercial waste. Some of these measures may link with this Air Quality Action Plan, particularly the targeted reduction in emissions from the Council's fleet of vehicles.

### 2.5.7 West Lothian Council Active Travel Plan

In accordance with the Cycling Action Plan for Scotland (CAPS), West Lothian Council has prepared an Active Travel Plan for West Lothian (2016 - 2021). This Plan sets out a strategic approach to mainstreaming walking, cycling and any non-motorised means of travel for every day, functional journeys. CAPS promotes a central vision for cycling in Scotland - by 2020, 10% of everyday journeys taken in Scotland will be by bike.

The Active Travel Plan will see the development of Local Active Travel Network Plans. These local Plans will present an existing network to support walking and cycling for functional journeys, and identify key gaps in the network which will support future funding bids for capital investment in active travel infrastructure. A Local Active Travel Network Plan will be produced for Broxburn initially, given the importance of modal shift from single car occupancy trips to active modes to support the aims of this Air Quality Action Plan for Broxburn.

The Active Travel Plan also sets out a range of measures to encourage modal shift to active travel through behavioural change, and these will also be relevant to the AQMA in Broxburn, and all other areas being monitoring for air quality issues related to traffic.

The Active Travel Plan was published in its final form in 2016. It is referred to within the Local Development Plan, and has the potential to become Supplementary Planning Guidance".

## 2.6 Consultation on the Action Plan

Authorities in Scotland must consult the agencies and organisations listed below following the preparation or revision of their Air Quality Action Plan:

- Scottish Ministers
- The Scottish Environment Protection Agency
- Neighbouring local authorities

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<sup>9</sup> <http://www.westlothian.gov.uk/media/downloadaddoc/1799514/Climatechange>

- Other public authorities as appropriate
- Bodies representing local business interests and other organisations as appropriate (potentially including representatives of the public e.g. community councils)
- Any National Park authority within or adjacent to the Local Authority area.

Authorities should also proactively make copies of the Action Plan available to the public, and undertake other efforts deemed necessary to adequately consult members of the public on the content and significance of the plan. It is recommended that the consultation period be no less than 6 weeks in duration to enable consultees the opportunity to contribute to the process.

Following consultation and the formal adoption of the Action Plan, the Council is also required to submit annual Action Plan progress reports to the Scottish Government and SEPA, and also revise the Action Plan appropriately when circumstances influence the content and progress of the plan.

## 3 Conclusions of previous rounds of LAQM review and assessments

West Lothian Council has completed its Local Air Quality Management duties in compliance with the guidance provided in Chapter 2 of this report. This work has reviewed air quality within the West Lothian geographical area and assessed whether any exceedances of the health based air quality objectives have been identified or have been predicted for future years. This chapter provides a brief summary of the work undertaken since 2010 and the conclusions drawn.

### 3.1 Summary of Relevant LAQM Review and Assessment in West Lothian Council prior to declaration of AQMA

#### 3.1.1 2010 Local Air Quality Management Progress Report

In 2010, West Lothian Council prepared an LAQM Progress Report as required under the local air quality management regime. The Report concluded that “monitoring data from the monitoring station located at East Main Street Broxburn exceeded the 2010 annual Air Quality Objective for PM<sub>10</sub>. Annual mean NO<sub>2</sub> concentrations in excess of the annual mean objective were also measured at the automatic monitoring site in 2010, and at some diffusion tube locations in Broxburn.

Based on the monitoring data, it was agreed with the Scottish Government that a Detailed Assessment be carried out for annual mean concentrations of both PM<sub>10</sub> and NO<sub>2</sub>, to assess the area of East Main Street, Broxburn.

#### 3.1.2 2011 Detailed Assessment

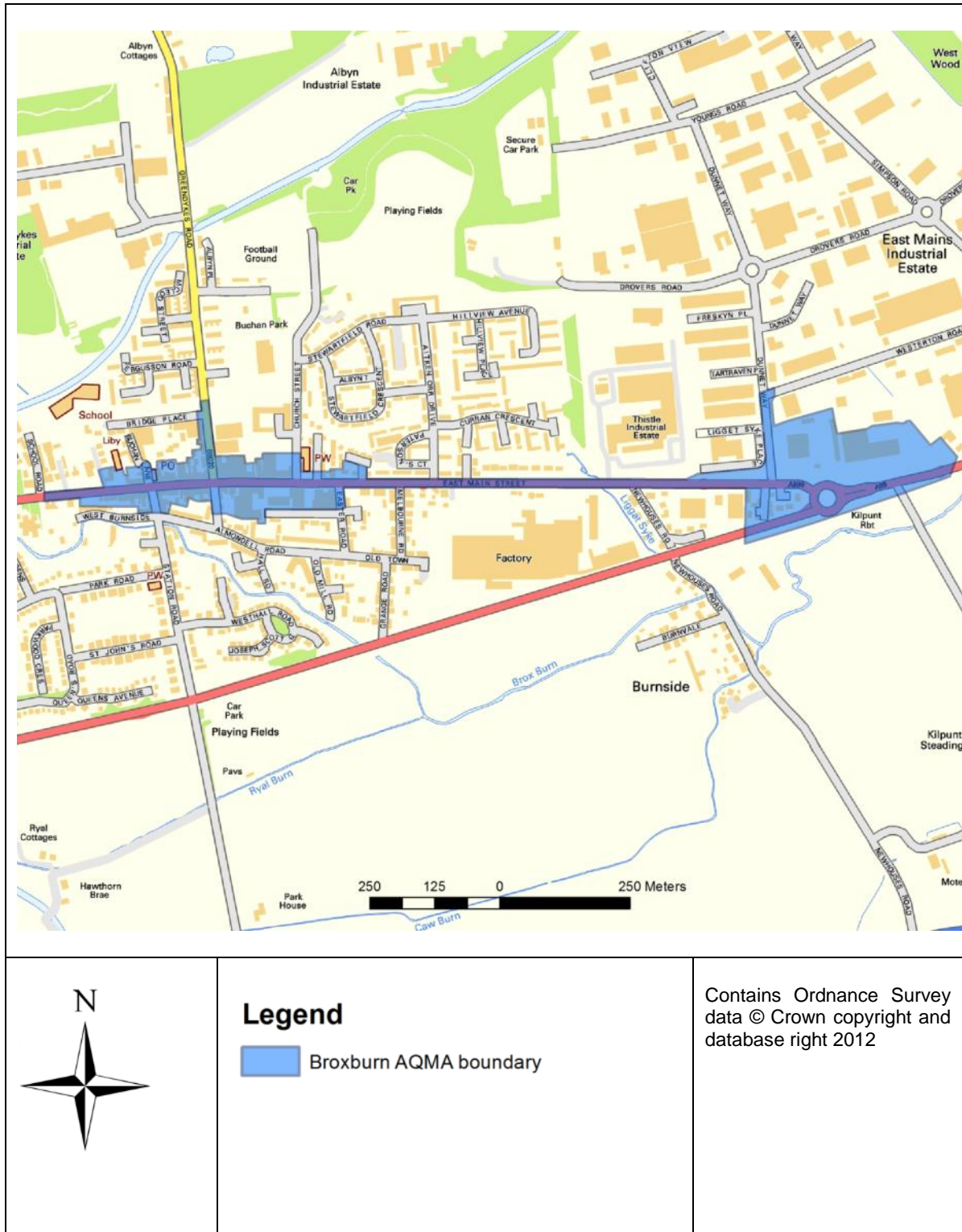
A Detailed Assessment for Broxburn conducted in 2011 confirmed the findings of the 2010 Progress Report for West Lothian, namely, that exceedances of the Scottish annual mean PM<sub>10</sub> and NO<sub>2</sub> objectives were occurring at locations of relevant human exposure. Within the study area it was estimated that there were approximately 8 properties within the area of NO<sub>2</sub> exceedance equating to an exposed population of 20; and approximately 43 properties within the area of PM<sub>10</sub> exceedance equating to an exposed population of 102.

The report recommended that an AQMA should be declared in Broxburn.

#### 3.1.3 Broxburn AQMA Declaration

The Broxburn AQMA for annual mean concentrations of both NO<sub>2</sub> and PM<sub>10</sub> was declared on 29<sup>th</sup> March 2011. The boundary of the AQMA is presented in Figure 1.

Figure 1: Broxburn AQMA



### 3.1.4 2012 LAQM Update and Screening Assessment

The Updating and Screening Assessment report highlighted that air quality monitoring data from the monitoring station located at East Main Street Broxburn, within the declared AQMA, continued to exceed the annual mean Air Quality Objective for both PM<sub>10</sub> and NO<sub>2</sub>. It was therefore confirmed that the AQMA declaration process should therefore proceed as planned.

## 3.2 Consultants' observations from site visits to Broxburn AQMA

Prior to the development of the Air Quality Action Plan for Broxburn, representatives from Ricardo Energy Environment have visited the AQMA on several occasions in order to observe local conditions and considerations that could help to guide the development of the action plan.

The visits to the Broxburn AQMA confirmed that the pollution hotspot area comprises of a busy commercial street with shops and other commercial properties occupying the ground level and residential properties located on 1<sup>st</sup> floor level. The location does not fit the description of a typical street canyon, as the road and pavements are fairly wide, and the buildings along the edges of the street are typically 2 stories high.

Traffic lights control traffic movement around the A899/ Greendykes Road/ Strathbrock Place crossroads and traffic queuing was evident at various times during the visits to the AQMA. This congestion was identified as potential significant contributor to local air pollution identified in the area. During one visit, a degree of double parking in some of the parking bays was observed and noted to cause additional congestion within the street. Photographs taken at the time of the visit are presented in Figure 2 and Figure 3.

**Figure 2: Broxburn site visit**



**Figure 3: Broxburn site visit**

The visits supported the view that the volume and nature of the flow of traffic through the AQMA is primarily responsible for the air quality exceedances identified in the previous review and assessment reports.

### 3.3 Summary of Further Assessment for the Broxburn AQMA (2012)

<sup>10</sup>Following the declaration of the Broxburn AQMA, the LAQM process required a Further Assessment of air quality to be undertaken for the area. The objective of the Further Assessment was to re-assess the conclusions of the Detailed Assessment and to include any new information since the completion of the Detailed Assessment. The Further Assessment included a source apportionment exercise, the aim of which was to identify the sources of emissions that contribute to local concentrations of NO<sub>2</sub> and PM<sub>10</sub>. The source apportionment provided a significant technical input to the action plan by identifying the principal local sources that can be targeted and considered within the action plan. The report also included a provisional assessment of the potential impact of traffic management scenarios on annual mean concentrations of NO<sub>2</sub> and PM<sub>10</sub>.

#### 3.3.1 Source Apportionment

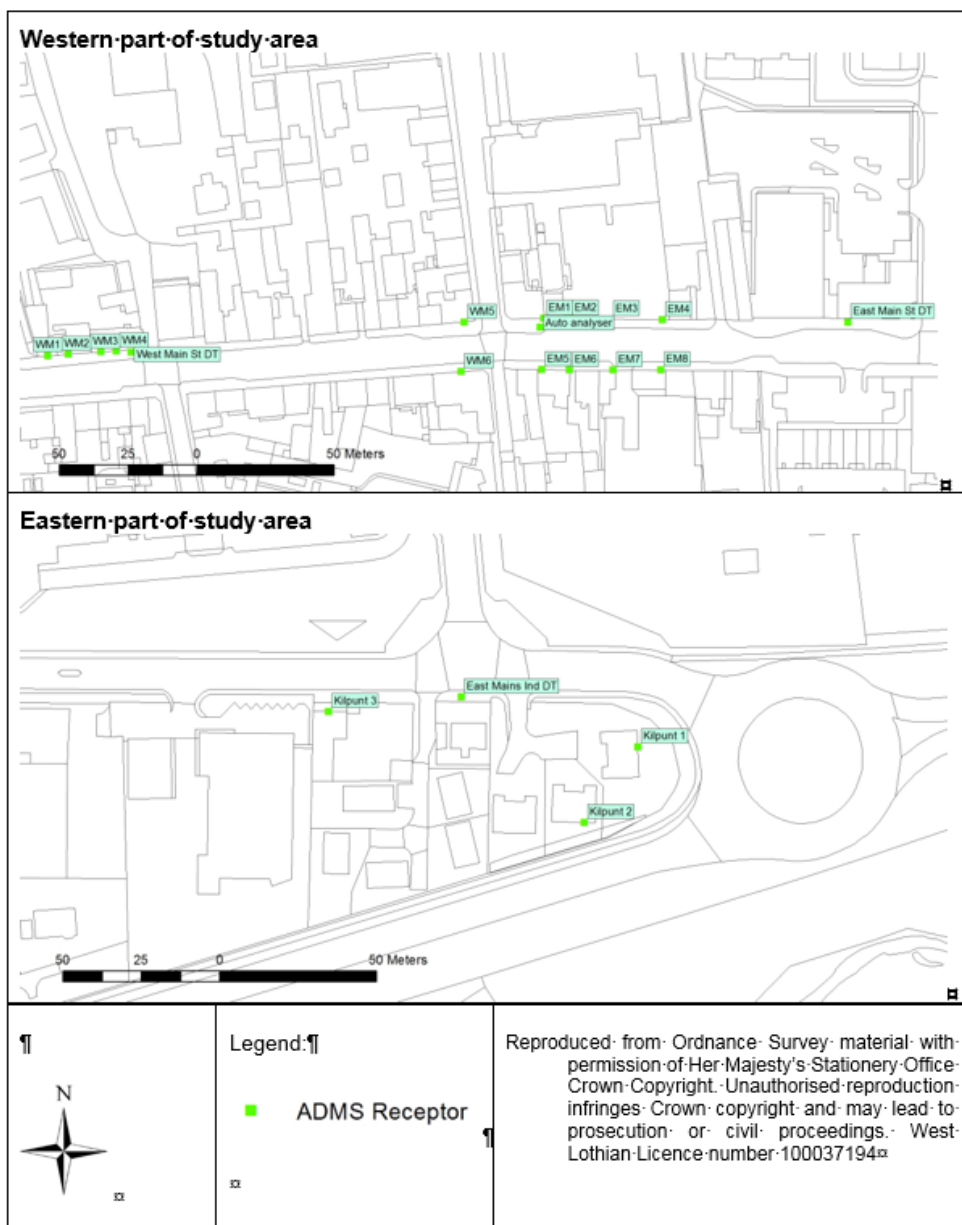
Source apportionment is the process whereby the contributions of different pollutant sources to ambient concentrations are quantified. This aims to allow the Local Authority's action plan to target specific sources when attempting to reduce pollutant concentrations in the AQMA. In local air quality, the relevant sources typically include: road transport, local background concentrations, industrial, domestic and commercial sources. In AQMAs where road transport is identified as the principal source of emissions, the relative contributions from the different types of vehicles (e.g. cars, HGVs and buses) can also be determined to identify which vehicle types represent the most significant sources of pollution. Thus, the source apportionment allows the most important source or sources to be identified and options to reduce ambient concentrations of pollutants can then be considered and assessed.

<sup>10</sup> AQAP was prepared under LAQM TG(09) it has been updated to be in line with LAQM TG(16)



The source apportionment exercise was undertaken using an air dispersion model<sup>11</sup> which modelled the contributions of emissions of NO<sub>x</sub> and PM<sub>10</sub> from various sources at relevant exposure locations. The receptors of relevant exposure utilised within the study were correlated with the data from the automatic monitoring sites located within the study area. These receptor locations (East Main St (EM) 1 – 8), are presented in Figure 4. These receptors were chosen as locations where the public were likely to be regularly present and exposed over the averaging period of the objectives. Further details can be found in the Further Assessment.

**Figure 4: Receptor locations considered within the source apportionment**



<sup>11</sup> ADMS-Roads

The results of the source apportionment exercise have helped the Broxburn AQAP Steering Group to identify the most appropriate measures to include within the Action Plan. This exercise has enabled the prominent sources of emissions to be targeted, to help bring about the most effective reduction in emissions and subsequently annual mean concentrations of both NO<sub>x</sub> and PM<sub>10</sub>.

In the AQMA the exceedance of the annual mean NO<sub>2</sub> objective has been identified as being mainly attributable to emissions generated from road transport sources (>70%). There are no other significant sources within the AQMA, and as such, emissions from road traffic should be the focus of any action plan measures in the AQMA.

### 3.3.2 Sources of Nitrogen Dioxide

Nitrogen Dioxide is mainly a secondary source i.e. the result of the oxidation of Nitrogen Oxides. Therefore, source apportionment analysis considers the emission of NO<sub>x</sub> (Nitrogen Oxides) which are assumed to be representative of the main sources of NO<sub>2</sub>.

The source apportionment study was undertaken at eight specified receptor locations as detailed in section 3.3.1. The contributions from each of the following sources have been quantified:

- Background
- Moving vehicles
- Queuing vehicles
- Cars
- Light Goods Vehicles
- Heavy Goods Vehicles
- Buses

The estimated percentage contributions to ambient concentrations of NO<sub>x</sub> within the Broxburn AQMA are presented in Figure 5.

**Figure 5: Estimated percentage contributions to local concentrations of NO<sub>x</sub> within Broxburn AQMA**

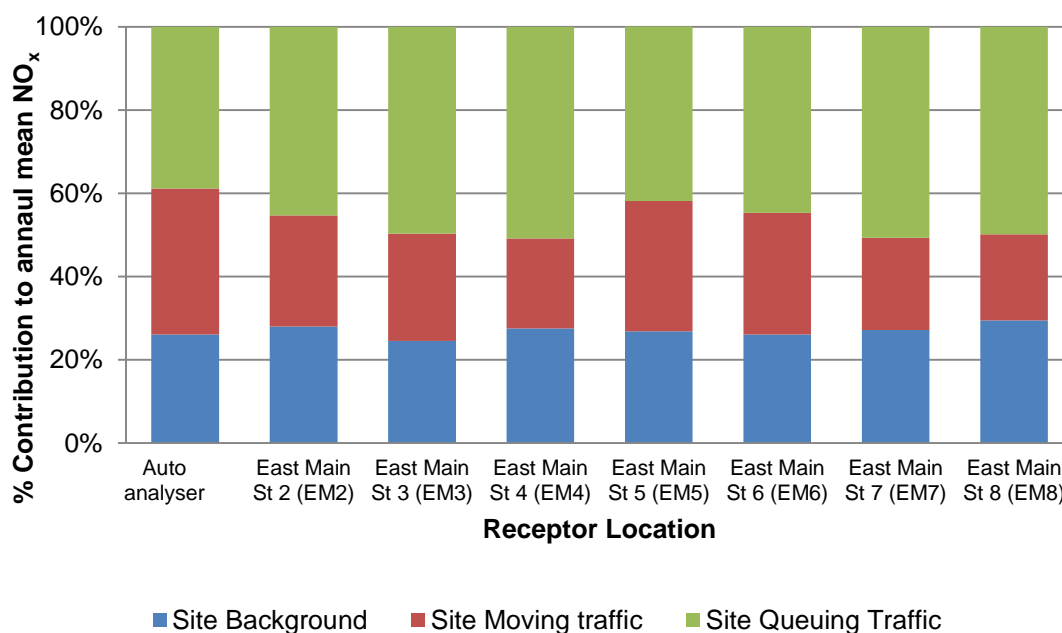
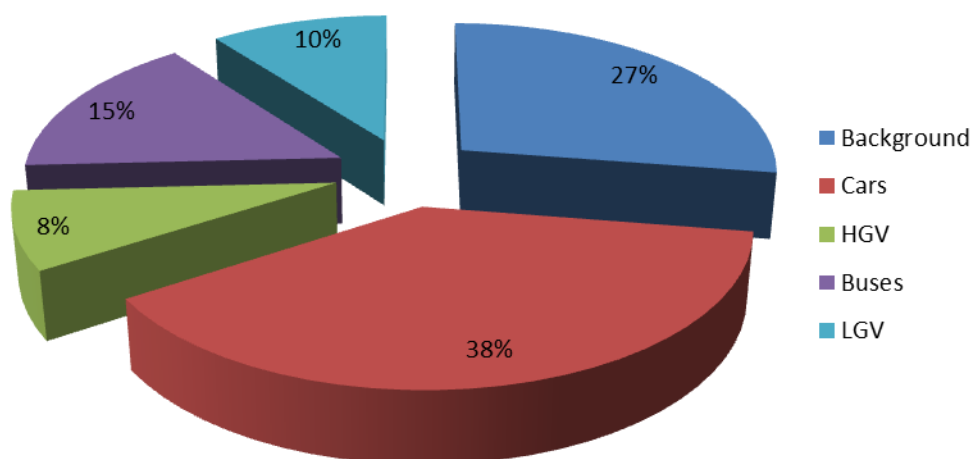


Figure 5 indicates that local transport emissions have the most significant contribution to local concentrations of NO<sub>x</sub>, with background sources contributing less than 30% at all eight receptor locations. Analysis of the contributions from moving and stationary traffic suggested that queuing or

congested traffic have the most significant contribution to local concentrations of NO<sub>x</sub>, contributing between 39-51% of emissions at each of the eight receptor locations. Moving traffic also have a significant contribution to NO<sub>x</sub> emissions, contributing on average 27% to local NO<sub>x</sub> concentrations. These findings indicated that actions that target reductions in emissions from queuing traffic should contribute to reducing local concentrations of NO<sub>2</sub> within the Broxburn AQMA and should be considered within the Action Plan.

It is also useful to assess the emissions attributable to different classes of vehicles, to enable the action plan to target the vehicle classes that contribute most to local emissions. Hence analysis was undertaken to assess emissions contributions from various categories of the traffic fleet, namely cars, Light Goods vehicles (LGV), Heavy Goods Vehicles (HGVs) and buses. A summary of the results of the analysis for NO<sub>x</sub> in the Broxburn AQMA is presented in Figure 6.

**Figure 6: Sources of ambient NO<sub>x</sub> concentrations within the Broxburn AQMA**



The results indicated that all vehicle classes make a significant contribution to local NO<sub>x</sub> emissions, with cars being estimated to contribute approximately 38% on average. Buses were found to make the second most significant contribution to local NO<sub>x</sub> concentrations, contributing approximately 15% on average and LGV estimated to contribute approximately 10%. Heavy goods vehicles were estimated to contribute 8% to local concentrations.

Taken collectively, these findings indicate that cars and buses represent the principal sources of NO<sub>x</sub> emissions within Broxburn AQMA. More generally it may be considered that it is the sheer volume of traffic that is contributing to the local air quality issue. However, it should also be noted that these figures relate to larger numbers of cars than other vehicle types, and that on an individual vehicle basis, HGVs and buses will generally produce more emissions of NO<sub>x</sub> than cars.

All of these vehicle sources represent potential targets for measures aimed at reducing emissions of NO<sub>x</sub>. In general; measures aimed at reducing the amount of traffic whether free-flowing or stationary will have a beneficial effect on local NO<sub>x</sub> concentrations.

### 3.3.3 Required Reduction in NO<sub>x</sub> Concentrations

LAQM.PGS (16) states that a Local Authority must calculate more accurately how much of an improvement in air quality will be needed to achieve the air quality objectives within the AQMA. West Lothian Council has calculated the reduction in emissions required to achieve the objectives of concern, as this will enable the authority to consider whether the measures proposed to achieve these reductions

are proportionate and cost effective. Based on the modelling undertaken as part of the Further Assessment, analysis was undertaken to quantify the reduction required in annual mean NO<sub>x</sub> concentrations from road transport to meet the annual mean objective. The results of this analysis indicated that the maximum reduction required is 24%. The results of this analysis are also presented in Table 3.

**Table 3: Reductions required in NO<sub>x</sub> concentrations to achieve the annual mean objective**

Receptor	Current NO <sub>x</sub> ( $\mu\text{g m}^{-3}$ )	Road- Required Road-NO <sub>x</sub> ( $\mu\text{g m}^{-3}$ )	Road NO <sub>x</sub> Reduction required (%)
Auto analyser	71.4	59.2	17.1%
East Main St 2 (EM2)	64.7	59.2	8.5%
East Main St 3 (EM3)	77.4	59.2	23.5%
East Main St 4 (EM4)	66.2	59.2	10.6%
East Main St 5 (EM5)	68.6	59.2	13.7%
East Main St 6 (EM6)	71.5	59.2	17.2%
East Main St 7 (EM7)	67.4	59.2	12.2%
East Main St 8 (EM8)	60.1	59.2	1.5%

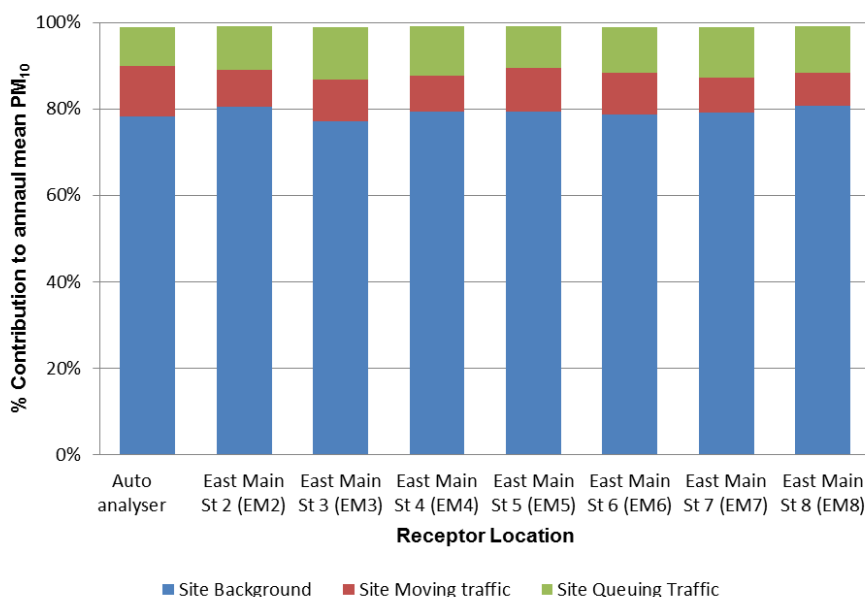
### 3.3.4 Sources of Particulate Matter (PM<sub>10</sub>)

The results of the source apportionment exercise regarding ambient concentrations of PM<sub>10</sub> are summarised in Figure 7.

The results of the analysis indicate that background concentrations constitute the most significant source of ambient concentrations of PM<sub>10</sub> within Broxburn AQMA, being estimated to contribute between 78 and 81% of ambient concentrations at various points within the AQMA. Emissions from local road transport are estimated to contribute the remaining 19-22%, with this being split almost evenly between moving and stationary traffic.

The high percentage contribution of PM<sub>10</sub> from background sources represents a challenge for West Lothian Council, as it is difficult to implement measures at a local level that will result in a significant reduction in background concentrations. The background concentration of PM<sub>10</sub> represents the contribution from sources outside of the Broxburn AQMA. Common sources of background PM<sub>10</sub> include industrial, road transport, and domestic / commercial combustion sources (heating), but natural sources and particulates produced through atmospheric reactions can also contribute significantly.

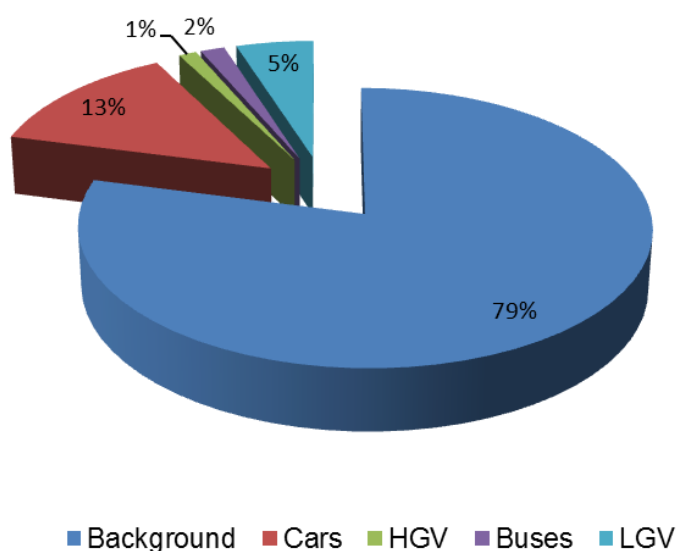
**Figure 7: Estimated percentage contributions to local concentrations of PM<sub>10</sub> within Broxburn AQMA**



The results of the estimated contribution from different vehicle types to ambient annual mean PM<sub>10</sub> concentrations are presented in Figure 8. The analysis indicated that cars represent the most significant road transport source of PM<sub>10</sub> within the AQMA, being estimated to contribute 13% to ambient concentrations on average. LGVs were estimated to contribute a further 5% to local concentrations, with buses and HGV estimated to contribute just 2% and 1% respectively. These findings indicate that whilst background concentrations represent the principal source of elevated PM<sub>10</sub> concentrations within Broxburn, road transport also makes a contribution to local concentrations. In particular, cars and light goods vehicles were found to make significant contributions to local concentrations and thus represent prime targets for measures aimed at reducing concentrations of PM<sub>10</sub> within the AQMA.

In general, measures aimed at reducing the amount of traffic whether free-flowing or stationary will have a beneficial effect on local PM<sub>10</sub> concentrations but these impacts will be lower for PM<sub>10</sub> than NO<sub>x</sub> due to the comparatively high background PM<sub>10</sub> concentrations.

**Figure 8: Sources of ambient PM<sub>10</sub> concentrations within the Broxburn AQMA**



### 3.3.5 Required Reduction in PM<sub>10</sub> Concentrations

As part of the Further Assessment the Council calculated the required reduction in annual mean PM<sub>10</sub> concentrations in order for the objective to be met. The calculation took into consideration the current annual mean concentrations of PM<sub>10</sub> and the Scottish annual mean objective of 18 µg m<sup>-3</sup>. The results of the calculation indicate that a 31% reduction in road- PM<sub>10</sub> concentrations is required within the AQMA and are presented in Table 4.

**Table 4: Reductions required in PM<sub>10</sub> concentrations to achieve the annual mean objective**

Receptor	Current PM <sub>10</sub> (µg m <sup>-3</sup> )	Road	Required Road-PM <sub>10</sub> (µg m <sup>-3</sup> )	Road PM <sub>10</sub> Reduction required (%)
Auto analyser	3.9		2.9	26%
East Main St 3 (EM3)	4.2		2.9	31%

### 3.3.6 Conclusions of Source Apportionment

On the basis of the findings of the source apportionment exercise, West Lothian Council have considered measures that will target reductions in emissions from road traffic in general, but have focused on measures that target reductions in emissions from traffic queuing/ congestion. In terms of the impact of various components of the traffic fleet, it is clear that cars represent the principal source of local emissions of both NO<sub>x</sub> and PM<sub>10</sub> and should be targeted by measures within the air quality action plan.

### 3.3.7 Scenario Analysis

In addition to modelling baseline annual mean concentrations of NO<sub>2</sub> and PM<sub>10</sub> for the Broxburn AQMA, the Further Assessment modelled the potential impact of three potential scenarios (measures) to ascertain their potential impact on local concentrations of NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub> and in terms of compliance with the relevant objectives. The scenarios assessed were:

1. Reduction of queuing times at the traffic lights for traffic facing west at the junction of East Main Street, West Main Street and Greendykes Road i.e. next to the location where exceedances of both the NO<sub>2</sub> and PM<sub>10</sub> annual mean objective are predicted. Queuing times at the traffic lights were reduced by approximately 20% per hour of daytime operation to represent a potential alternative phasing scheme for the traffic lights.
2. Reduction of congestion during peak hours at all known locations where congestion occurs. Traffic congestion has been reduced from 2-hours to 1-hour in the morning and evening rush hour periods; and the lunchtime and school run i.e. mid-afternoon periods have been removed.
3. Reduction of overall traffic flows by 5%. This aims to demonstrate how reducing the volume of free flowing traffic will affect ambient pollutant concentrations

These scenarios were modelled to inform future management decisions, but do not speculate on how the necessary reductions may be achieved. The scenarios were selected to obtain an indication of what impact various changes in traffic volume and queuing could have on concentrations of NO<sub>2</sub> and PM<sub>10</sub> within Broxburn. For scenarios 1 and 2, a range of reductions were assessed to inform the action plan. The lower reductions were included to assess the impact of what were considered to be more realistic changes in both parameters, 5% reduction in traffic volume and 20% reduction in queuing. It was considered that these reductions could feasibly be implemented with the appropriate consideration and therefore could be used to give an indication of what could feasibly be achieved by measures that could bring about such changes. A summary of these scenario analyses is presented below together with anticipated impacts on concentrations of NO<sub>x</sub> and PM<sub>10</sub> at relevant receptors.

#### 3.3.7.1 Predicted Reductions – scenario analysis

These scenarios involve reducing congestion and queue times due to the results of Table 4, while also considering reducing the flow of vehicles in the AQMA. To model this, a new set of emissions factors

were derived for all modelled roads using the Emissions Factor Toolkit<sup>12</sup>(EfT) with the new scenarios. Table 5 and Table 6 show the results of the analysis.

**Table 5: NO<sub>2</sub> concentrations at receptors for the ‘do-nothing’ and Scenarios**

Location	2011 Baseline ( $\mu\text{g m}^{-3}$ )	Scenario 1 – Reduction of queuing times at traffic lights ( $\mu\text{g m}^{-3}$ )	Scenario 2 – Reduction of congestion at peak times ( $\mu\text{g m}^{-3}$ )	Scenario 3 – Reduction of traffic flows by 5% ( $\mu\text{g m}^{-3}$ )
Auto analyser	44.0	39.4	41.2	43.5
East Main St 2 (EM2)	41.9	36.4	39.0	41.5
East Main St 3 (EM3)	45.9	39.3	42.8	45.5
East Main St 4 (EM4)	42.3	36.0	39.4	42.0
East Main St 5 (EM5)	43.1	38.2	40.3	42.7
East Main St 6 (EM6)	44.0	38.5	41.2	43.6
East Main St 7 (EM7)	42.7	36.4	39.8	42.4
East Main St 8 (EM8)	40.3	34.3	37.5	40.0

Values presented in bold indicate modelled exceedances of the annual mean objective.

**Table 6: PM<sub>10</sub> concentrations at receptors for the “do-nothing” and Scenarios 1-3**

Location	Do-nothing scenario ( $\mu\text{g m}^{-3}$ )	Scenario 1 – Reduction of queuing times at traffic lights ( $\mu\text{g m}^{-3}$ )	Scenario 2 – Reduction of congestion at peak times ( $\mu\text{g m}^{-3}$ )	Scenario 3 – Reduction of traffic flows by 5% ( $\mu\text{g m}^{-3}$ )
Auto analyser	18	17.3	17.6	17.9
East Main St 3 (EM3)	18.3	17.3	17.8	18.2

### 3.3.7.2 Values presented in bold indicate modelled exceedances of the annual mean objective

As anticipated, the queue reduction scenarios improve the likelihood of compliance with the NO<sub>2</sub> and PM<sub>10</sub> annual mean objectives in Broxburn. Both queue reduction scenarios reduce NO<sub>2</sub> and PM<sub>10</sub> concentrations and it is indicated that adoption of either of the queue reduction scenarios would result in compliance with the annual mean PM<sub>10</sub> objective. In contrast, reducing traffic volume by 5% is not anticipated to result in compliance with the annual mean PM<sub>10</sub> objective. In relation to exceedances of the NO<sub>2</sub> annual mean objective, only scenario 1 (reduction in queuing times by approximately 20% per hour of daytime operation) was indicated to result in compliance with the annual mean objective. Both scenarios 2 and 3 resulted in reduced concentrations of NO<sub>2</sub> at all receptor locations, but exceedances were still anticipated at limited number of receptor locations.

### 3.3.8 Conclusions and recommendations from the further assessment

The findings of the Further Assessment confirmed that there are continued current exceedances of the NO<sub>2</sub> annual mean objective in Broxburn, West Lothian. Comparison of the extent of the current AQMA boundary (presented in Figure 1) with the predicted NO<sub>2</sub> and PM<sub>10</sub> annual mean contours, indicates that the locations where exceedances of the respective objectives are predicted are within the existing AQMA boundary. This confirms that, based on the monitoring conducted in 2011 and the subsequent

<sup>12</sup> Emissions Factor Toolkit for Vehicle Emissions: <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#ef>

modelling, that the existing AQMA boundary is appropriate. The assessment also indicated that there are borderline exceedances of the Scottish annual mean PM<sub>10</sub> objective within the Broxburn AQMA.

The results of the source apportionment indicate that for PM<sub>10</sub> existing background concentrations are thought to be predominant in the overall concentrations at all locations within the Broxburn AQMA. For NO<sub>x</sub> and NO<sub>2</sub> the contribution from road traffic dominates.

The contribution from moving and queuing vehicles was tested. For NO<sub>x</sub>, the contribution from queuing traffic is thought to predominate, although emissions from moving vehicles are also significant. For PM<sub>10</sub>, the background sources dominate contributions to local concentrations with local traffic estimated to contribute approximately 20%. The contributions from stationary and moving traffic to local PM<sub>10</sub> concentrations are broadly similar. Of the vehicle classes tested, cars and buses are the most significant sources of vehicular NO<sub>x</sub>, whilst cars and LGVs have been identified as the most significant sources of vehicular PM<sub>10</sub>.

The study investigated the potential impact of several mitigation scenarios tested to provide insight into what influence they would likely have on ambient air quality and the likelihood of compliance with the NO<sub>2</sub> and PM<sub>10</sub> annual mean objectives in Broxburn. The scenarios modelled assessed reductions in queue times, reductions in congestion at peak times and a reduction of the overall traffic flow. All scenarios tested were, as expected, found to reduce NO<sub>2</sub> and PM<sub>10</sub> concentrations. The most effective scenario, predicting concentrations lower than the objective for both pollutants at each receptor, was the reduction of queuing times at traffic lights. In comparison, the reduction of traffic flow predicted limited impact on the pollutant levels.

From consideration of the source apportionment and scenario analyses, it is recommended that the action plan should include measures aimed at:

- Minimising queuing times at traffic lights within the AQMA
- Aiming to reduce congestion at peak times
- Encouraging a general reduction in traffic flow through the AQMA
- Reducing the background concentration of PM<sub>10</sub> through encouragement of efforts at the national level.

## 4 Development of the Action Plan

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

### 4.1 Formation of Action Planning Steering Group

The development of the Action Plan began with an inception meeting, which was attended by a number of Local Authority officers. These officers have guided and been consulted on the development of the Action Plan. In this way the Action Plan has been influenced by their local knowledge and area of responsibility.

This steering group comprises:

- David Brewster, Senior Environmental Health Officer, West Lothian Council
- Tom Burr, Vehicle Emissions Officer, West Lothian Council
- Caitlin Hamlett, Climate Change Policy Officer, West Lothian Council
- John Lamb, Scottish Environment Protection Agency
- Paul Matassa, Technical Officer, West Lothian Council
- Wendy McCorriston, Senior Planning Officer, West Lothian Council
- Chris Nicol, Transportation Officer, West Lothian Council



The steering group was formed to provide an appropriate forum for developing the Air Quality Action Plan. The composition of the group was carefully considered to include representatives from relevant Local Authority Services and representatives from external professional organisations with an interest in air quality and who may have an influence on the measures being considered within the plan. The composition of the steering group may be extended during the development of the action plan.

## 4.2 Action Plan Development Process

The steering group first met in February 2013 and met several times during 2013. The content of these meetings and discussions have included the following issues:

- Overview of the requirements of the action planning process
- Review of air quality management options for the steering group to consider as potential measures within the AQAP
- Selection of initial measures for inclusion, consideration and assessment within the initial draft air quality action plan
- Development of draft air quality action plan for Broxburn for submission to statutory consultees and general public

The steering group will meet several more times during the evolution of the air quality action plan prior to and post consultation.

The Scottish Local Air Quality Management Policy Guidance document LAQM.PG(S) (16) provides statutory guidance on the content and development of air quality action plans. This document outlines that the AQAP should include the following as a minimum:

1. Demonstration that the local air quality issues are clearly understood;
2. An explanation of how the action plan will help to deliver the aims and objectives of CAFS;
3. Quantification of the source contributions to the predicted exceedances of the objectives; this will allow the action plan measures to be effectively targeted;
4. Evidence that all available options have been considered on the grounds of cost effectiveness and feasibility;
5. How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
6. Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;
7. 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 objectives
8. How the local authority intends to monitor and evaluate the effectiveness of the plan.

The Steering Group has taken the content of this guidance into consideration during the development of the plan.

## 4.3 Actions to date

To date the steering group has completed five main actions:

- Overview of the requirements of the action planning process;
- Provisional review of wide range of options for inclusion within the action plan with reasoning behind why certain options have not been deemed appropriate for inclusion
- Selection of an initial 'shortlist' of measures for inclusion within the plan
- Finalise list of measures
- External and internal consultation complete

The following sections of this report present the outcomes of these actions.

## 5 Action Plan Options and their Assessment

During the development of the Action Plan, the steering group has considered a full range of relevant options aimed at reducing ambient concentrations of NO<sub>2</sub> and PM<sub>10</sub> within the Broxburn AQMA. To date, the action plan drafting process has comprised of a gradual refinement of the range of potential options under consideration, to enable the focus to be centred on measures that directly address the principal problems but are also feasible and cost-effective compared to other potential options. This section describes how this was achieved and outlines some of the considerations of the steering group. However, in addition to targeting reductions in emissions from the current situation within Broxburn, the Steering group identified that numerous proposals within the Local Plan (e.g. Winchburgh Core Development area) may result in increased traffic flows on key transport routes within Broxburn, including those within the AQMA. Consequently, the steering group recognise that there exists the potential for the situation within Broxburn to deteriorate unless such development and the action planning implementation are carefully managed.

This chapter provides more information on the options selected for inclusion within the plan and their subsequent assessment. The measures in the Action Plan are presented in the next chapter.

### 5.1 Initial Assessment of Options

This section reports on the work undertaken to consider the full range of Air Quality Action Plan options available in line with the requirements outlined in LAQM.PG(S) (16), to enable the identification of feasible and effective measures that can be developed in the Action Plan.

#### 5.1.1 Range of Possible Options

The Policy Guidance LAQM.PG(S) (16) states that Air Quality Action Plans must focus on 'effective, feasible, proportionate and quantifiable measures' and provide 'evidence that all available options have been considered on the grounds of cost effectiveness and feasibility'.

A wide range of potential options may be available to West Lothian Council and other stakeholders to improve local air quality within the Broxburn AQMA. Therefore, at the onset of the action planning process it is appropriate to consider all potential options. The identification of potential measures for the consideration of the Steering Group was undertaken through a review of existing local and regional plans, consideration of measures referenced in LAQM.PG(S) (16) and relevant guidance documents as well as recommendations of members of the Steering Group. Whilst West Lothian Council may not have the necessary powers to implement all such options, they may work with, or encourage other organisations and agencies that have the capacity to take such options forward.

Presented in Table 7 is a list of six 'Option Categories' presented to the Steering Group. The Group was invited to provide an initial assessment of their feasibility and applicability. Each Option category includes several specific options that were considered by the Steering Group.

**Table 7: Potential Options to Improve Air Quality within the Broxburn AQMA**

Type	Description	Notes
1	Strategic measures	Road transport emissions constitute a significant source of air pollution across the UK, and have contributed to the declaration of numerous Air Quality Management Areas. Due to the prevalence of road transport, a local long-term strategy is required to bring about a progressive reduction in emissions from the road transport sector in future years and encourage improvements in local air quality as a result.

Type	Description	Notes
		<p>Furthermore, in Scotland, a more stringent annual mean objective for PM<sub>10</sub> is in place. Consequently, background concentrations of particulate matter make a significant contribution to local PM<sub>10</sub> concentrations.</p> <p>A long-term strategy aimed at reducing concentrations from these sources 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>• Specific commitments or targets within local development and transport planning policy to significantly reduce the impacts of new development.</li> <li>• Liaising with the Scottish Government to encourage the consideration/ implementation of national actions to reduce background concentrations of PM<sub>10</sub> in Scotland, including contributions from other parts of the EU.</li> <li>• Undertaking more detailed 'feasibility assessments' of complex actions or measures that would otherwise be eliminated from consideration.</li> </ul>
2	Move sources away from the AQMA	<p>Road transport emissions have been shown to represent the principal source of NO<sub>x</sub> within the AQMA and make a significant contribution to local PM<sub>10</sub> concentrations. The construction of new roads could divert traffic away from the roads in the AQMA. Less traffic on these roads results in lower pollution levels in the AQMA. 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 AQMAs in turn. Alternative new roads are proposed associated with planned development in the area.</p> <p><b>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.</b></p>
3	Traffic Management – optimisation of traffic movement through AQMA	<p>Changes in how the roads in the AQMA are signed or otherwise managed may reduce emissions from road transport a) by diverting some traffic onto better routes for them, or b) by reducing congestion/ stationary traffic. <b>Note that the opportunity to take such action is frequently limited.</b></p>
4	Reduce emissions from sources by technical means	<p>The majority of vehicles using roads in the AQMA 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.</p> <p><b>Note that technology does not always work in a positive sense for all emissions. They sometimes trade benefits for one pollutant against negative aspects for another one.</b></p>
5	Reduce emissions from sources by reducing the demand for travel or	<p>An important way to reduce emissions from transport is to reduce the number of journeys made through the AQMA. This could be achieved either through reducing the need to make 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</p>

Type	Description	Notes
	achieving better travel choices	increasing emphasis placed on such policies and that they work holistically by reducing emissions of all pollutants and greenhouse gases.
6	Other	May include a variety of measures e.g. targeting reduced emissions from domestic sources, industry or statutory nuisance.

### 5.1.2 Initial responses to the options

For each of the provisional options considered by the Steering Group, a decision has been made to eliminate several options from further consideration, or to consider the option further. This decision has been made with reference to:

1. Comments received from the steering group
2. The conclusions from the source apportionment exercise presented in Chapter 3
3. Additional comments from West Lothian Council's external specialist advisor based on experience in prior assessments.

Taking into consideration the situation in the Broxburn AQMA, the findings of the source apportionment exercise (Section 3) and existing Council Policy, several of the measures included within the provisional list of measures were eliminated from further consideration at this time. These measures are presented in Table 8.

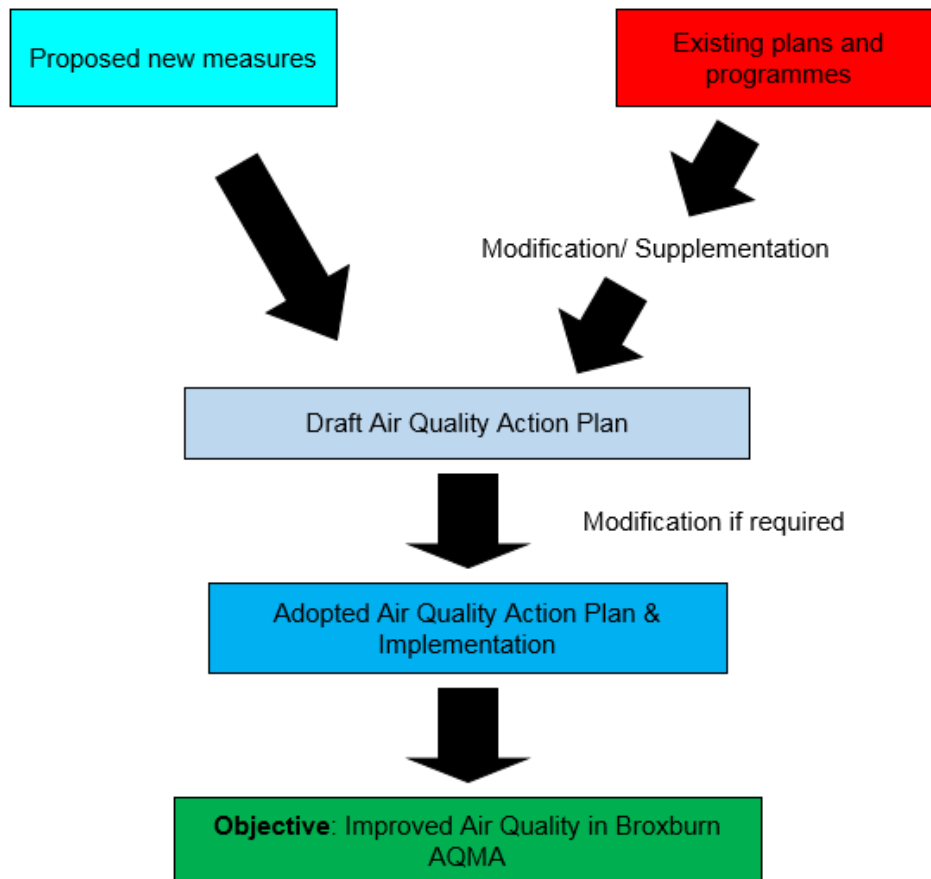
**Table 8: Options eliminated from further consideration in the Broxburn AQMA**

<b>Options – Move Sources away from AQMA</b>
Local ban on freight, car or bus traffic
Pedestrianisation of route
<b>Move receptors away from AQMA</b>
Remove homes from existing AQMA
<b>Optimise how sources transit the AQMA</b>
Road user charging and workplace levy
Revised Speed controls
Commercial deliveries - loading/ unloading restrictions
Urban Clearway
Signage
<b>Reduce the emissions from sources by technical means</b>
Retrofitting Council Fleet
Freight quality partnerships
Development of infrastructure for cleaner vehicle fuels
Increased Parking Management and Control
<b>Better travel choices/ behavioural change</b>
Bus lane
<b>Other</b>
Consideration of novel approaches to reducing concentrations of pollutants

The measures listed in Table 8 have been excluded from further consideration at this time, as they were either not considered feasible, or were not believed to have an appropriately targeted impact on the predominant sources of emissions identified in the Further Assessment. West Lothian Council intends

to consider and further develop all of the remaining measures for inclusion within the Air Quality Action Plan. These measures include several new measures that require to be developed further prior to implementation. Also included are numerous measures that are in the process of being implemented by West Lothian Council but which may require some modification or supplementation in order to make a more significant contribution to improving local air quality in the Broxburn AQMA and also meet future reporting requirements.

**Figure 9: Overview of measures included within the Action Plan**



A summary of the remaining **new** and **existing** measures proposed for inclusion in the Action Plan are presented in Table 9. Further details of the measures and their assessment are presented in the following sections.

**Table 9: Measures selected for further assessment and potential inclusion in the Broxburn AQAP**

<b>1. Strategic Measures</b>
Incorporating consideration of Air Quality in the Local Transport Strategy Update
Improving links with Local Planning and Development framework
Integrate Air Quality with other Council Policies
Liaise with Scottish Government regarding national air quality policy
<b>2. Traffic Management – optimisation of traffic movement through the AQMA</b>
Traffic signal phasing and junction modification

Changes to pedestrian crossings
<b>3. Measures aimed at moving road traffic away</b>
Broxburn Distributor Road Phasing – North to West
Broxburn Distributor Road Phasing – North to East
Winchburgh M9 junction
Winchburgh Train Station
<b>4. Reduce the emissions from sources by technical means</b>
Provision of Local Bus Quality Partnership
ECO stars scheme
Green Procurement (Council), fuel management and Eco-driving training policy, and assessment of new technology
Taxi Quality Partnership
Electric Vehicle charging points
Encourage Private and Public Operators to pursue cleaner vehicles and abatement
Vehicle emissions testing and Idling vehicle enforcement
<b>5. Better travel choices/ behavioural change</b>
Provision of information regarding air quality
Promotion of alternative modes (cycling + walking) and Include the improvement of cycling and walking infrastructure
Encourage Developer to put cycle paths and walkways
Travel Plans for large institutions and businesses.
<b>6. Other</b>
Environmental Nuisance (including dust and smoke)
Home Energy Efficiency

## 5.2 Development of proposed measures

Each of the measures short-listed for further consideration in the plan are discussed in more detail below, together with a summary of potential sub-measures, the relevant authorities responsible for implementation, and the powers available to implement the given measures. Options were identified as being within the responsibility of the following authorities:

1. West Lothian Council further subdivided into:
  - a. Education
  - b. Planning and Economic Development
  - c. Corporate
  - d. Operational and Housing Services
  - e. Community Health and Care Partnership (CHCP)
2. The Regional Transport Partnership (SEStran)
3. Police Scotland

The assessment of the measures including their perceived cost-effectiveness and wider impacts together with the methodology utilised to undertake the assessment are discussed in Section 6. The proposed measures have been broken into relevant categories as presented in Table 9, and discussed in further detail below.

## 5.2.1 Strategic Measures

It is important that Air Quality Action Plans support and consider existing and or forthcoming transport and development plans, and vice versa. Therefore, some integration of the AQAP with the current and any future local transport strategy and the local development plan is considered essential and represents a strategic and integrated approach to local air quality management.

### 5.2.1.1 Improving links with Local Transport Strategy

Road transport has been identified as the principal source of NO<sub>x</sub> and a significant source of PM<sub>10</sub> in the Broxburn AQMA. Consequently, future versions of West Lothian Council's Local Transport Strategy represent key mechanisms for delivering initiatives aimed at improving local air quality and minimizing the detrimental effects of development/ growth.

Measure	Title	
1	Incorporating consideration of Air Quality in the Local Transport Strategy Update	
<b>Definition</b>		<b>Key Intervention</b>
Future versions of LTS to be revised to include: <ol style="list-style-type: none"> <li>Reference to Broxburn AQMA and measures included in Air Quality Action Plan. Integration of plan with updated LTS.</li> <li>Develop action plan options that will be implemented via future versions of the local transport strategy.</li> </ol>		Measures to ensure the current poor air quality in the AQMA is improved where possible and to avoid future problems are implemented via the Local Transport Strategy.
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> <li>Planning and Economic Development</li> </ul>		Voluntary

### 5.2.1.2 Improving links with Local Planning and Development Framework

Development Planning and Control play an important role in minimising the potential detrimental impacts that new developments may have on local air quality. This Strategic measure is intended to minimise the potential impact of future developments on local air quality across West Lothian, but initially within the Broxburn area. As a strategic measure it has a broader remit that is not specific to Broxburn but West Lothian more generally. Whilst it is important that all large-scale developments are considered in terms of their potential impact on local air quality, it is particularly important that proposed developments that may exert an impact on the Broxburn AQMA are subject to particular consideration in terms of their potential impact on local air quality, and that all effective mitigation measures are implemented where practicable.

This measure also includes the intention to develop and adoption of a West Lothian Council Air Quality and Development Guidance note for developers, followed by the development and adoption of Supplementary Planning Guidance. The Council propose a 2 stage approach to the development of such guidance as it recognises that the adoption of formal planning guidance in relation to air quality may take some time to be developed and adopted. The intention to provide a guidance note initially is designed to minimise any delays in the provision of guidance to developers until formal documentation can be adopted. It is proposed that the guidance note will outline the potential requirement to undertake an Air Quality Impact Assessment for certain developments and the required content of such assessments. The guidance note should enable a consistent approach to air quality impact assessment to be adopted in the Council and minimise the potential effects of future development on air quality across West Lothian.

Measure	Title	
2	Improving links with Local Planning and Development framework	
<b>Definition</b>		<b>Key Intervention</b>
<ol style="list-style-type: none"> <li>Integration of Broxburn AQAP with future versions of Local Plan.</li> <li>Ensure that development proposals with the potential to exert an impact on the Broxburn AQMA are assessed for air quality</li> </ol>		Local planning considerations aim to mitigate the cumulative negative

<p>impacts and where necessary, appropriate mitigation measures adopted.</p> <p>c. Continue to promote sustainable development.</p> <p>d. Maintain and make available - air quality and development guidance note for developers.</p> <p>e. Develop and adopt supplementary planning guidance relating to air quality</p> <p>f. Encourage developers to phase new road links to mitigate the effect of new traffic sources on the AQMA.</p> <p>g. Encourage developers to install cycle paths in and linking with existing in new developments.</p> <p>h. Encourage the installation of the of a rail station at Winchburgh to reduce increases in vehicle travel within AQMA</p>	air quality impacts of new development
<b>Responsible authority and other partners</b>	<b>Powers to be used</b>
<p>West Lothian Council:</p> <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul>	Voluntary

### 5.2.1.3 Encourage Integration of Air Quality with other Council Strategies

West Lothian Council recognises the benefit of increasing the general awareness of air quality issues throughout the Council and the need to integrate air quality considerations within existing and future Council plans and strategies. West Lothian Council’s Single Outcome Agreement (SOA) with the Scottish Government outlines the intention to protect and enhance the natural and built environment for future generations. Whilst the agreement does not specifically make reference to air quality, it can be considered to be included under this headline aim. In the future, the Broxburn AQAP could represent a key tool for helping West Lothian Council to deliver on environmental improvement objectives outlined in the SOA agreement. Furthermore, the Council is focused on the delivery of the Carbon Management Plan which seeks to reduce emissions of greenhouse gases from the Council estate. As emissions of CO<sub>2</sub> and air quality pollutants often have a strong relationship, there are distinct benefits of integrating both the air quality action plan and the carbon management plan in order to maximise any benefits and minimise any conflicts between the two schemes.

Measure	Title
3	Integrate Air Quality with other Council strategies
<b>Definition</b>	<b>Key Intervention</b>
<p>a. Develop a broad AQMA steering group (for the Broxburn AQAP) and maintain regular and on-going communication between members of the group during the plans implementation.</p> <p>b. Look for opportunities to enhance joint working between Council Services to encourage potential air quality implications of existing and future Council strategies.</p>	<p>Encourage opportunity for contributions towards improving local air quality and minimising negative impacts from existing and future Council strategies.</p> <p>Increase awareness of local air quality.</p>
<b>Responsible authority and other partners</b>	<b>Powers to be used</b>
<p>West Lothian Council:</p> <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Corporate Services</li> <li>• Operational Services</li> </ul>	Voluntary

### 5.2.1.4 Liaise with the Scottish Government regarding additional national policy in relation to the control of Particulate matter

The source apportionment study undertaken as part of the further assessment identified that background sources make a significant contribution to local concentrations of PM<sub>10</sub>. Background sources of particulate matter include a wide range of natural and man-made processes including industry, residential and commercial combustion and transport sources. However, local authorities have very limited opportunities to address background concentrations of pollutants and instead must rely on regional and national measures to address these and contribute to improving local concentrations.



West Lothian Council proposes to liaise with the Scottish Government regarding the consideration and adoption of new measures that will contribute to reducing background concentrations of PM and other pollutants.

Measure	Title
4	Liaise with the Scottish Government regarding additional national policy
<b>Definition</b>	
Maintain contact with the Scottish Government regarding the adoption of national air quality measures.	<b>Key Intervention</b>
	Increase focus on background concentrations of PM and encourage national action.
<b>Responsible authority and other partners</b>	
West Lothian Council:	<b>Powers to be used</b>
<ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul>	Voluntary

### 5.2.2 Traffic Management – optimisation of traffic movement through AQMA

As discussed in the source apportionment exercise, emissions from road traffic within the Broxburn AQMA make a significant contribution to local annual mean concentrations of NO<sub>2</sub> and PM<sub>10</sub>. In order for the AQAP to be successful, West Lothian Council recognises that the plan must include measures that will reduce emissions from vehicles travelling through the AQMA, by numerous means including reducing the volume of traffic and minimising congestion.

#### 5.2.2.1 Improved traffic signal phasing within the Broxburn AQMA

The further assessment of air quality within the Broxburn AQMA identified that traffic congestion, particularly at the junction of A899/ Greendykes Road/ Strathbrock, where traffic queuing makes a potentially significant contribution to local emissions of air pollutants. In order to help alleviate this, the steering group has decided that it is an essential requirement for the air quality action plan to investigate options to optimise traffic light phasing within the AQMA in order to reduce traffic queuing/ congestion and subsequently improve local air quality. West Lothian Council will investigate the options for enhancing the signal phasing within the AQMA and surrounding network to ensure that the changes will not simply result in moving the problem from one area to another part of Broxburn. Furthermore, the steering group considered that it may be beneficial to investigate mechanisms by which traffic signalling can be altered in response to elevated levels of NO<sub>x</sub> and PM<sub>10</sub>, and that this option will be included in the initial feasibility stage assessment.

Measure	Title
5	Traffic signal phasing and junction modification
<b>Definition</b>	
a. Assessment of options to optimise traffic signal phasing within the AQMA and reduce local traffic-based emissions of air pollutants. b. Implementation of identified traffic management option – following feasibility stage.	<b>Key Intervention</b>
	Action targets reduced traffic queuing and emissions within the AQMA with the intention of reducing local ambient concentrations of NO <sub>2</sub> and PM <sub>10</sub> .
<b>Responsible authority and other partners</b>	
West Lothian Council:	<b>Powers to be used</b>
<ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Corporate Services</li> <li>• Operational Services</li> </ul>	Voluntary

#### 5.2.2.2 Changes to pedestrian crossings through improved signalling

During the development of the action plan, the steering group examined examples of good practice adopted by other Scottish Local Authorities in terms of air quality action planning. Following this, the Broxburn AQMA steering group have identified that it may be beneficial for local air quality to examine the options for moving some of the pedestrian crossings within the AQMA to areas where emissions from queuing traffic could be dispersed more readily, and to help control traffic flow through the AQMA.

Measure	Title	
6	Changes to pedestrian crossings	
<b>Definition</b>		<b>Key Intervention</b>
a. Undertake a feasibility assessment on the potential benefits and impacts of moving pedestrian crossing points to alternative locations. b. Implementation of option – if deemed appropriate.		Traffic control and improved dispersal of air pollutants from queuing vehicles.
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul>		Voluntary

### 5.2.3 Reduce the emissions from sources by technical means

#### 5.2.3.1 Phasing of Broxburn Distributor Road – North to West

There are a number of new developments which have planning approval. As part of the approval there will be a developer contribution to build a new infrastructure. The new road layout through future development area will allow the new traffic from the new developments to avoid travelling through the AQMA. However, travel into the AQMA would still be possible therefore having no detrimental impact on the shops.

Measure	Title	
7	Broxburn Distributor Road Phasing – North to West	
<b>Definition</b>		<b>Key Intervention</b>
Secure development of north to west distributor road to West Main Street via “Candleworks” site and Clarkson Road		Alternative traffic route avoiding Greendykes Road/East Main Street junction.  Permits alternative outlet to west for traffic arising from new housing to north of Broxburn.  Permits alternative outlet to west for traffic arising from new housing in Winchburgh
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Private landowners Developer		Planning condition 6 of 0502/FUL/11

#### 5.2.3.2 Phasing of Broxburn Distributor Road – North to East

There are a number of new developments which have planning approval. As part of the approval there will be a developer contribution to build a new infrastructure. The new road layout through future development area will allow the new traffic from the new developments to avoid travelling through the AQMA. However, travel into the AQMA would still be possible therefore having no detrimental impact on the shops.

Measure	Title	
8	Broxburn Distributor Road Phasing – North to East	
<b>Definition</b>		<b>Key Intervention</b>
a. Provision for distributor road in Core Development Area of masterplan b. Planning consent in place for distributor road c. Funding in place to provide for construction of distributor road throughout to allow for through traffic d. Until open for through traffic, phasing of development to favour construction from east/south end		Alternative traffic route avoiding Greendykes Road/East Main Street junction.

Measure	Title	
8	Broxburn Distributor Road Phasing – North to East	
e.	Until open for through traffic, provision for pedestrian access to proposed new primary school and Greendykes Road (to remove the need for car and bus journeys to access proposed new primary school)	Permits alternative outlet to east for traffic arising from new housing to north of Broxburn.  Permits alternative outlet to east for traffic arising from new housing in Winchburgh
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Private landowners Developer		Planning condition of 0485/P/10

### 5.2.3.3 Winchburgh M9 junction

The Winchburgh development is conditioned for the developer to provide a binding commitment for the implementation of a new junction on the M9 junction at specific stages in the development.

Measure	Title	
9	Winchburgh 9 junction	
<b>Definition</b>		<b>Key Intervention</b>
a. Provision for distributor road in Core Development Area masterplan b. Planning consent in place for M9 junction c. Funding in place to provide for construction of M9 junction to allow access both eastbound and westbound		Permits alternative outlet to east and west for traffic arising from new housing in Winchburgh
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Private landowners Developer		Planning condition 33 of 1012/P/05

### 5.2.3.4 Provision of Winchburgh railway station

There are a number of new developments which have planning approval. As part of the approval there will be a developer contribution to build a new railway station on the Glasgow to Edinburgh line with associated park and ride and public transport interchange. This is planned to be completed during 2018.

Measure	Title	
10	Winchburgh railway station	
<b>Definition</b>		<b>Key Intervention</b>
a. Provision of a railway station at Winchburgh b. Secure permission from Transport Scotland and Network Rail		Reduce potential commuting road traffic through AQMA
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Developers Transport Scotland Network Rail		Planning condition 44 of 1012/P/05

### 5.2.3.5 Development/Provision of a Local/Voluntary Bus Quality Partnership

Buses and coaches constitute an essential component of public transport, representing an important alternative to cars. Consequently, the encouragement of the development of public transport options forms an important part of transport strategies from a national to local level in Scotland. Bus services can represent a valuable and viable alternative to the use of private cars and the contribution of local services across West Lothian are considered to plan an increasingly important role in supporting the Council's promotion of sustainable transport. However, in some circumstances buses can also make a

significant contribution to emissions of NO<sub>x</sub> and PM<sub>10</sub>, and consequently it is important to assess what can be done to reduce emissions from fleet vehicles where possible. Local or Voluntary Bus Quality Partnerships can be set up to allow bus companies to negotiate agreements with local authorities regarding issues such as bus infrastructure, vehicle specification, ticketing and fares with a view to encouraging more people to travel by bus rather than car. Some bus partnership working may already be in place.

Measure	Title	
11	Provision of a Local Bus Quality Partnership	
<b>Definition</b>		<b>Key Intervention</b>
a. Liaise with local bus operators to establish the potential for developing local bus quality agreements. b. Liaise with bus operators regarding emissions from the bus fleet and improvements to bus service infrastructure.		Encourage increased bus usage through the improvement of bus infrastructure and services
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul> Bus Operators		Voluntary

#### 5.2.3.6 ECOstars

ECOStars is a voluntary scheme that provides recognition and guidance on environmental best practice to operators of goods vehicles, buses and coaches whose fleets regularly serve within a Council area.

ECOStars rates individual vehicles and the overall operation of a vehicle fleet, using a star rating system, to recognise levels of operational and environmental performance. It aims to reduce the energy used by commercial and passenger transport fleets by encouraging increased adoption of fuel efficiency measures. This will bring about benefits for members through more efficient operations, reduced fuel costs and emissions.

Measure	Title	
12	ECOStars Scheme	
<b>Definition</b>		<b>Key Intervention</b>
a. Contact ECO Stars regarding feasibility of setting up a local scheme b. Secure funding c. Deliver scheme		Encourage commercial fleet operators to run their vehicles more efficiently, reducing their fuel consumption, which in turn will reduce vehicle carbon, nitrogen oxides (NO <sub>x</sub> ) and particulate matter (PM) emissions.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> <li>Planning and Economic Development</li> </ul> ECO Stars Fleet Operators		Voluntary

#### 5.2.3.7 Green Procurement (Council), fuel management and Eco-driving training policy, and assessment of new technology

West Lothian Council recognises that it should lead by example and target reductions in emissions from their transport fleet activities as much as practicable.

The Council currently operates in the region of 1000 vehicles, comprising of:

- Cars (305)
- Light Commercial Vehicles (391)
- Passenger Vehicles (54)
- Items of Heavy Plant and HGV vehicles (112)

- Other/ miscellaneous vehicles (144)

### 5.2.3.7.1 Procurement of Lower Emission Vehicles

The Council have developed and started to implement a Green Travel Strategy, which is one of the measures that are being delivered by West Lothian Council to enable the council to work more efficiently. The new vehicles include a mix of cars and vans that have been procured via leasing agreements. The use of low carbon vehicles will maximise the benefits from reduced business travel, fuel consumption, fuel costs, road tax and carbon emissions.

The strategy is driven by the carbon reduction targets of Climate Change (Scotland) Act 2009 so very much targeting GHG. However, one of the strategy objectives is a reduced overall business mileage which would reduce WLC vehicle emissions and therefore benefit AQ.

The travel strategy includes the following actions:

- challenging the need to make a journey
- promotion of alternatives such as car sharing and the use of public transport
- leasing 265 cars and vans

### 5.2.3.7.2 Alternative Fuelled Vehicles

There are a number of alternative fuels and technologies available that offer the potential to lower emissions of air pollutants and CO<sub>2</sub> from road transport sources. West Lothian Council already operates a small fleet of electric only pool cars, for which a charging network exists and is being expanded.

### 5.2.3.7.3 Safe and Fuel Efficient Driving Training

West Lothian Council is currently investigating safe and fuel efficient driver training to ensure that drivers on Council business drive in a more efficient way.

The Vehicle Drivers (Certificates of Professional Competence) Regulations 2007 requires the continuous training of vocational bus, coach and lorry drivers with part of the syllabus covering Safe and Fuel Efficient Driving (SAFED). The Council have approximately 1000 members of staff will require to undertake and complete this training. However, the Council are undertaking internal discussions regarding which services within the Council may benefit from undertaking fuel-efficient driver training.

Measure	Title	
13	Green Procurement (Council), fuel management and Eco-driving training policy, and assessment of new technology	
<b>Definition</b>		<b>Key Intervention</b>
a. Continue periodic procurement of low emission vehicles; b. Monitor and assess viable options for alternative fuels, technologies and fuel additives as these become available; c. Investigate periodic training for vocational fleet drivers including Safe and Fuel Efficient Driving (SAFED); d. Installation of vehicle telematics to allow monitoring of driver behaviour, route planning, idling, etc.		Target reduced emissions from Council fleet vehicles and Council contract fleet vehicles.
Responsible authority and other partners		Powers to be used
West Lothian Council: • Operational Services		Voluntary/Policy

### 5.2.3.8 Consider the development of a local Taxi Quality Partnership

The Council controls taxis and private hire cars through separate licensing conditions which promote the use of more efficient vehicles. The licensing also prohibits unnecessary idling. (See [www.westlothian.gov.uk/1523/taxi-phc/taxi\\_licence](http://www.westlothian.gov.uk/1523/taxi-phc/taxi_licence) "Conditions attached to hire cars and car hire drivers (October 2011)")

Measure	Title	
14	Taxi Quality Partnership – e.g. investigate preferential licensing for taxis with low emissions	
<b>Definition</b>		<b>Key Intervention</b>
Assess opportunity to reduce emissions of air quality pollutants from Taxis and Private Hire vehicles within West Lothian.		Reduce emissions from taxi and private hire fleet
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>• Corporate Services</li> <li>• Planning an Economic Development</li> </ul> Taxi and Private Hire Operators		Voluntary and use of taxi licensing conditions

### 5.2.3.9 Electric Vehicle charging points in conjunction with Climate Change and Roads and Transportation Departments

West Lothian Councils Climate Change Unit have successfully secured funds to install charging points in the Council area. There is a plan to add charging units in the future. West Lothian Council have adopted new engine and low emission technologies in council fleet vehicles and currently there are a number of electric vehicle charging points at council buildings.

Measure	Title	
15	Electric Vehicle charging points	
<b>Definition</b>		<b>Key Intervention</b>
Promote installation of electric vehicle charging points through secured funding and private investment.		Reduce vehicle emissions through increasing electric vehicle fleet
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Operational Services</li> </ul> Private providers		Voluntary

### 5.2.3.10 Encourage Private and Public Operators to pursue cleaner vehicles and abatement

West Lothian Council recognises that it has limited powers to control emissions from vehicles other than those within the Council fleet. However, the Broxburn AQMA steering group recognise that raising awareness of the air pollution issues and encouraging the use of cleaner and lower emissions vehicles can contribute to improving local air quality in the short- and long-term. The Council therefore intends to liaise with local public transport operators to encourage the use of lower emission vehicles within the AQMA and in West Lothian more generally.

Measure	Title	
16	Encourage Private and Public Operators to pursue cleaner vehicles and abatement	
<b>Definition</b>		<b>Key Intervention</b>
a. Liaise with local bus and freight operators regarding vehicle fleets and encourage use of lower emission vehicle. Provision of information. b. Provide information for private car users on the Council website to encourage the use of sustainable forms of transport and cleaner procurement options.		Target reduced emissions in general from vehicle fleet in West Lothian.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Operational Services</li> </ul> East Central Scotland Vehicle Emissions Partnership		Voluntary

#### 5.2.3.11 Vehicle emissions testing and Idling enforcement

West Lothian Council has been undertaking voluntary vehicle emission testing since 2004. The aim of Vehicle Emission Testing is to emphasise the importance of well-maintained, clean and efficient vehicles which are cheaper to run, and will emit less pollution. Furthermore, the vehicle emission testing campaign provides West Lothian Council with a powerful awareness raising message for air pollution, the current system involving an officer with a van visiting pre advertised venues to carry out testing is currently under review. A pilot deployment involving the use of remote sensing testing equipment is due at the end of March and depending how that goes will influence the direction future testing programs are likely to take. In addition, the Council also intends to extend the awareness raising to include vehicle idling enforcement. The Road Traffic (Vehicle Emissions) (Fixed Penalty) (Scotland) Regulations 2003 empower Councils to appoint officers who can request drivers of stationary vehicles to switch off engines being run unnecessarily and issue fixed penalties of £20 to drivers who fail to co-operate. West Lothian Council propose to investigate adopting these powers and use the mechanism to not only tackle emissions of air quality pollutants from stationary vehicles, but also to raise awareness of air pollution generally. West Lothian Council is already in an idling vehicle campaign, being a key partner in the drive to reduce vehicle emissions' campaign. The campaign, carried out by The East Central Scotland Vehicle Emissions Partnership which is hosted and managed by West Lothian Council also includes East Lothian, Falkirk and Midlothian Councils and is aimed at tackling drivers' attitudes to harmful emissions and rising fuel costs.

The Campaign operates a system whereby if members of the public witness a vehicle idling (approx. 3 minutes or over) they can call an **idling/smoky hotline** leaving the date, time, location and vehicle registration number on **01845 451888**. Members of the public can also leave this information or information on vehicles which are producing excessive exhaust smoke, on a form which can be found on the website "switchoffandbreathe.org"

Measure	Title	
17	Vehicle emissions testing and Idling enforcement	
<b>Definition</b>		<b>Key Intervention</b>
a. Carry out remote sensing testing to provide data to help reduce vehicle produced pollution". b. Seek the powers to undertake idling vehicle enforcement. c. Use vehicle emission testing and idling enforcement work to raise public awareness of air pollution.		Reduce emissions from stationary and moving vehicles within West Lothian, and increase awareness of air pollution problems.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul> East Central Scotland Vehicle Emissions Partnership Police Scotland		Voluntary and enforcement The Road Traffic (Vehicle Emissions) (Fixed Penalty) (Scotland) Regulations 2003

## 5.2.4 Reduce emissions from sources by means of encouraging better travel choices/ behavioural change

West Lothian Council aims to enhance the provision of information targeting increased public awareness of air pollution issues and the actions that individuals can take to improve the local situation. This measure is intrinsically linked to the promotion of cycling and walking and the encouragement of the use of sustainable public transport options in preference to the private car.

### 5.2.4.1 Provision of Air Quality Information

The Broxburn AQMA steering recognises that behavioural change forms a key component of the long-term plan to improve air quality and health within Broxburn and West Lothian generally. In order to get public buy in to improving the situation, it is crucial that the public is informed and aware of the problem and its nature. West Lothian Council operates an extensive air quality monitoring network, with data from several of these monitoring sites made available to the public through the Scottish Air Quality Database and website<sup>13</sup>. In addition, the most recent air quality management reports prepared by the Council are available through the Council website<sup>14</sup>. However, the Council propose to investigate ways in which the visibility of air pollution as a local problem can be raised within the local authority area.

In order to continue to raise the profile of Air Quality Management across West Lothian, the Council propose to undertake a public awareness exercise aimed at improving awareness of local air quality issues and encouraging members of the public to participate in improving local air quality.

Measure	Title	
18	Provision of Information regarding air quality	
<b>Definition</b>	<b>Key Intervention</b>	
a. Continue to make information relating to local air quality management available through the Council website. b. Undertake a publicity campaign to raise awareness of the Broxburn AQMA.	To increase awareness of local air quality issues and encourage changes in behaviour that will contribute to improving local air quality.	
Responsible authority and other partners	Powers to be used	
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Scottish Government East Central Scotland Vehicle Emissions Partnership	Voluntary	

### 5.2.4.2 Promotion of travel information and travel options

Public Transport is a key priority for all local authorities and West Lothian Council works proactively to encourage members of the public to utilise public transport instead of private vehicles. The Council provides information on public transport services operating within West Lothian and also environmentally friendly forms of transport (travel planning, car sharing and cycling/ walking buddy schemes). The Council also operates in partnership with Traveline, which operates a mobile phone texting service for information on bus times at specific bus stops.

West Lothian Council aims to encourage members of the public to consider walking or cycling instead of using their car, and as a consequence, promote healthy lifestyle choices as well as encouraging environmental improvement by reducing the number of cars on the road. West Lothian Council and West Lothian on the Move have produced a new set of cycle maps<sup>15</sup> to help you get around the main

<sup>13</sup> <http://www.scottishairquality.co.uk/index.php>

<sup>14</sup> <http://www.westlothian.gov.uk/law-licensing/1101/airquality2/>

<sup>15</sup> <http://www.westlothian.gov.uk/1523/1504/385/>



towns in the district by bike. The maps show cycle path and traffic-free shortcuts as well as quiet streets, which are recommended for cycling. By following the routes on the maps, users should be able to get to most places in their town without having to mix with busy traffic.

Measure	Title
19	Promotion of alternative modes of travel including cycling and walking
<b>Definition</b>	
<ul style="list-style-type: none"> <li>a. Continue to provide information about public transport services through the Council website.</li> <li>b. Ensure cycle networks and facilities are provided, as a matter of course, within existing and new networks and developments.</li> <li>c. To improve integration between cycling, walking and public transport.</li> <li>d. Increase cycling trips to employment, education and leisure facilities.</li> <li>e. Improve pedestrian facilities such as new footpaths and crossings</li> <li>f. Encourage installation of changing and shower facilities in Council buildings to encourage walking and cycling.</li> </ul>	
<b>Key Intervention</b>	
To encourage changes in behaviour that will contribute to improving local air quality.	
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>• Operational Services</li> <li>• Planning and Economic Development</li> </ul> SEStran Scottish Government	
<b>Powers to be used</b>	
Voluntary	

#### 5.2.4.3 Encourage developers to put cycle paths walkways in to the link up the existing and new developments to encourage walking and cycling

In order to help facilitate West Lothian Council's aims to encourage members of the public to consider walking or cycling, developers are encouraged to provide cycle paths and walkways which would link up with existing or planned cycle paths and walkways.

Measure	Title
20	Encourage developers to include cycle paths walkways
<b>Definition</b>	
a. Require developers to integrate cycle paths and walkways into the infrastructure of new developments and ensure connections to existing surrounding infrastructure	
<b>Key Intervention</b>	
Provide continuous networks of cycle paths and walkways	
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>• Operational Services</li> <li>• Planning and Economic Development</li> </ul> Scottish Canals SEStran	
<b>Powers to be used</b>	
Voluntary Planning Policy Planning conditions and agreements	

#### 5.2.4.4 Travel Plans for large institutions and businesses

Travel plans aim to address the negative impacts of car travel, notably single occupancy vehicles, by encouraging car sharing, or a shift to more sustainable forms of transport, such as walking, cycling and public transport; or reducing the need for travel. Such plans typically recognise that one solution is unlikely to be suitable for everyone and thus focus on encouraging the consideration of alternative forms of travel through the provision of incentives such as improved cycle facilities, flexible working arrangements and discounted public transport.

Travel plans have been widely adopted across the UK and have been shown to be cost-effective at reducing car usage in numerous situations. As a result, the adoption of Travel Plans is now widely promoted by the UK Government. As part of the action plan, West Lothian Council proposes to investigate measures that will encourage large institutions and businesses located within West Lothian to develop and implement sustainable travel plans.

Measure	Title	
21	Travel Plans for large institutions and businesses	
<b>Definition</b>		<b>Key Intervention</b>
a. Identify and contact a selection of large businesses and institutions operating within West Lothian to identify whether they have active travel plans in place. b. Work with large institutions and businesses to develop sustainable travel plans that will contribute to reducing emissions of air quality pollutants within West Lothian.		Reduce traffic and associated air pollution originating from travel activities associated with large institutions and organisations operating in West Lothian.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul> Large institutions and businesses Sustrans		Voluntary

### 5.2.5 Encourage a reduction in emissions from non-transport sources

In addition to emissions of pollutants from road transport sources, a number of other source sectors including commercial and domestic combustion are known to contribute to local concentrations of pollutants such as PM<sub>10</sub> and NO<sub>2</sub>. Contributions from these sources typically originate from combustion processes (e.g. gas and biomass heating systems), and as such the West Lothian Council are proactively looking to reduce contributing emissions from these sources. Scottish Government policy on the avoidance of replacement of mains gas or electrical heating systems with biomass combustion should be followed.

#### 5.2.5.1 Environmental Nuisance (including dust and smoke)

Emissions of dust and smoke from activities such as local bonfires and development activities are often difficult to control but can represent a nuisance and in some cases can also contribute to local air quality problems. Dust control during construction is dealt with by recommended planning conditions which require no on-site burning and dust management plans during the construction phase. Local authorities are empowered to investigative and enforcement powers in relation to statutory nuisance under Part III of the Environmental Protection Act 1990. West Lothian Council already utilises its powers under the 1990 Act and propose to focus particular attention on any such nuisance issues that may contribute to the air quality management issue identified in the Broxburn AQMA.

Measure	Title	
22	Environmental Nuisance (including dust and smoke)	
<b>Definition</b>		<b>Key Intervention</b>
Utilise powers conferred under part III of the Environmental Protection Act 1990 (statutory nuisance) to minimise the contributions from bonfires and relevant activities that may contribute to local air quality problems identified in the Broxburn AQMA		Reduce emissions of dust and smoke from relevant activities within West Lothian (and within the Broxburn AQMA in particular).
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul>		Voluntary and Statutory Enforcement

#### 5.2.5.2 Home Energy Efficiency

West Lothian Council has an on-going commitment to improve the energy efficiency of the local housing within the Council area. The Council works with the Scottish Government and a range of partners to improve heat retention within properties and consequently reduce the consumption of fuel and associated production of pollutants (both air quality and carbon dioxide). One ten-year strategy aims to invest close to £250million in council housing in West Lothian and will see over £94million spent to bring existing council housing up to the Scottish Housing Quality Standard (SQHS) by 2015.

National actions to support the use of renewable forms of heating to support the Scottish Government's Climate Change targets has promoted the uptake of small scale biomass burning in residential, commercial and institutional properties across Scotland. Whilst this action may support climate change

initiatives, if not managed properly, such 'biomass boilers' can contribute to local air quality problems through emissions of pollutants such as PM<sub>10</sub>. In order to reduce this potential detrimental impact, West Lothian Council propose to provide guidance on the use of biomass boilers within the Air Quality and Development Guidance document and work with Building control officers to seek formal adoption of Council requirements for the installation of such boilers within existing properties.

Measure	Title	
23	Home Energy Efficiency	
<b>Definition</b>		<b>Key Intervention</b>
a. Work with key stakeholders to target and deliver improvements in energy efficiency and reduced emissions from the local housing stock. b. Develop guidance in relation to the use of biomass within residential, commercial and institutional properties (existing and new build) within guidance document and seek to see this adopted within supplementary planning guidance.		Reduce emissions of air quality pollutants from residential properties
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>• Area Services</li> <li>• Housing Construction and Building Services</li> </ul>		Voluntary

## 6 Methodology Utilised to Assess Shortlisted Measures

In accordance with the government guidance, the measures short-listed for inclusion within the action plan have been assessed against a wide range of criteria in order to assess their suitability for inclusion within the plan and enable suitable measures to be prioritised. At this stage a number of measures are still in development, and it is likely that as these measures are further defined their contribution to the plan will require to be assessed in further detail. The criteria against which options were assessed were:

1. Potential air quality impact;
2. Implementation costs;
3. Cost-effectiveness;
4. Potential co-environmental benefits, risk factors, social impacts and economic impacts;
5. Feasibility and Acceptability.

The following paragraphs outline how the assessment has been undertaken.

### 6.1 Potential Air Quality Impact

This is a key assessment in that the AQAP must focus on prioritising options that improve air quality most effectively. The assessment is complex in that the detailed assessment of any given option could normally be subject to a study of its own requiring significant resources.

A semi-quantitative assessment relying on a level of judgement has been adopted. The method used is outlined below:

1. The description of the option and the proposed change to be brought about by the option is used alongside the source apportionment analysis (Chapter 3) to define what proportion of road transport emissions would potentially be affected by the option.
2. A view is then expressed on how much of the traffic would actually be changed by the option.
3. The proportion of emissions potentially affected by the option and the view on how far they could be changed by the option are combined to express a view on how much transport emissions may be reduced in the AQMA due to the option.
4. A view is then expressed on how significant this change in emissions would be in terms of making progress towards the air quality standard in the AQMA.

For the purpose of the AQ assessment the result of the realistic intervention has been assessed as having a potentially:

- **Zero** local AQ benefit if the realistic intervention is 0% or worse
- **Small** local AQ benefit if the realistic intervention is 1%
- **Medium** local AQ benefit if the realistic intervention is 2-5%
- **Large** local AQ benefit if the realistic intervention is >5%.

### 6.2 Implementation Costs

The potential implementation costs of each option are assessed as follows:

- **Cost neutral** (measure already implemented through existing plans/ programmes)
- **Low** costs (up to £20k annually e.g. for small surveys or campaigns or other options using current resources)
- **Medium** costs (up to £60k annually e.g. for a full time officer and resources)
- **High** costs (up to £200k annually e.g. for small traffic management schemes)
- **Very high** costs (above £200k annually e.g. for new infrastructure)

The assessed costs attempt to include the costs to vehicle operators as well as to West Lothian Council. These cost bandings may be subject to revision depending on comments received from those consulted.

### 6.3 Cost-Effectiveness

The effectiveness of each measure in improving air quality is compared to the implementation costs in the following matrix:

AQ benefit \ Cost		Score	Zero	Small	Medium	Large
		Score	0	1	2	3
Neutral	5	0	5	10	15	
Low	4	0	4	8	12	
Medium	3	0	3	6	9	
High	2	0	2	4	6	
Very High	1	0	1	2	3	

In this table the assessed implementation costs and potential air quality impacts have been given a weighted score. The product of the weighted scores for each option is calculated. The results can be interpreted as follows:

1. If the product is **high** (10 or more) then the measure is more cost-effective (significant impacts for the cost involved) and perhaps favourably cost-effective
2. If the product is **medium** (between 5-9) then the measure is in the **medium** range of cost-effectiveness
3. If the product is **low** (4 or less) then the measure is less cost-effective (small impacts for the cost involved) and perhaps unacceptably poor in cost-effectiveness terms.

This method only estimates the *relative* cost-effectiveness of options rather than their *absolute* values. The method is useful during discussions of the relative priority of different options. The final cost-effectiveness value is sensitive to changes in the assumptions of how effective a measure might be in reducing emissions and how costly it is.

### 6.4 Potential Co-Environmental Benefits

In this assessment other environmental benefits are highlighted.

1. Greenhouse gases: The likely effect on greenhouse gas emissions is assessed as being an overall reduction or a local reduction perhaps with emissions being relocated elsewhere.
2. Noise.

Without detailed information on the true impacts of the options these assessments rely on judgement.

### 6.5 Potential Risk Factors

In this assessment risk factors are highlighted. These may be looked at more closely within a Strategic Environmental Assessment of any measure implemented. At this stage it is simply highlighted whether or not it is likely that the measure would:

1. Relocate emissions and hence lead to worsening air quality elsewhere
2. Require a change in land use
3. Place limits on pace of development, or increase costs of development significantly.

Without detailed information on the true impacts of the measures, these assessments rely on judgement.

## 6.6 Potential Social Impacts

Potential social impacts are highlighted. These may need to be examined more closely when developing the options further. At this stage it is simply highlighted whether or not it is likely that the option would potentially:

1. Provide health benefits in terms of lower exposure to pollutants or increased mobility
2. Increase road safety
3. Improve accessibility

Without detailed information on the true impacts of the options these assessments rely on judgement.

## 6.7 Potential Economic Impacts

Potential economic impacts are highlighted. These may need to be examined more closely when developing the options further. At this stage it is simply highlighted whether or not it is likely that the option would potentially:

1. Influence sustainable development or accessibility in Broxburn
2. Reduce or increase overall travel time
3. Place additional requirements on operators.

## 6.8 Feasibility and Acceptability

Each option has been assessed for its feasibility against three simple criteria. These are whether the authority has:

1. The executive powers under existing legislation to implement and enforce a measure. Alternatively, whether the authority has an existing mechanism to influence other agencies to implement a measure
2. Secured funding for the measure or a straightforward route for securing funding
3. Characterised the potential positive and negative impacts of the measure with sufficient evidence or confidence to make a decision to implement the measure.

Table 10 below sets out the criteria adopted for defining the option as being feasible over the short, medium or long term, or as being unfeasible. Each option is assessed against each criterion. The final feasibility timeframe is defined according to which of the three assessments results in the longest of the four possible terms (short, medium, long or unfeasible). For example, an option for which powers are clear and for which impacts are well characterised but for which funding will be difficult to obtain would be assessed as feasible over the long term.

**Table 10: Criteria for feasibility analysis**

Feasible in the:	Authority has the powers	Funding secured	Potential positive and negative impacts are well characterised
Short term (1-2 years)	Yes, clearly defined and already exercised	Yes potentially straightforward	Yes
Medium term (3-6 years)	Yes but novel or with an element of uncertainty	Yes with forward planning	Not without further study
Long term (>6 years)	Highly uncertain	No or extremely difficult	Not without further study

Feasible in the:	Authority has the powers	Funding secured	Potential positive and negative impacts are well characterised
Unfeasible	No	Will never attract funding	Hard to characterise and with high risks

In relation to the acceptability, a preliminary judgement is expressed on how acceptable each option might be to stakeholders according to the following criteria:

1. The option is considered potentially acceptable if: the option is unlikely to compel people to change behaviour or increase their costs significantly or at least some level of behaviour change or personal costs are required but the scheme is overall consistent with community policies;
2. The option is considered potentially unacceptable if: unacceptably intrusive changes in behaviour or large personal costs would be incurred.

Final judgements on acceptability will necessarily rest with the elected Council members.

A summary of the results of the assessment are presented in Table 11 below, with further details presented in Appendix 1.

**Table 11: Summary Assessment of Proposed Measures**

No.	Measure Title (CE Score)	Potential Air Quality Impact	Estimated Costs	Cost Effectiveness	Potential Co-Environmental Impacts	Risk Factors	Potential Social Impacts	Potential Economic Impacts	Lead Authority	Feasibility/ Acceptability
<b>Strategic measures</b>										
1.	Incorporating consideration of Air Quality in the Local Transport Strategy Update				Greenhouse Gas; Health improvements; Improve the local environment.	Low Risk	May be low risk depending on strategy re new cars/ vehicles.	Could impact local trade. Important this is not negative impact	Transport lead/ Climate Change / Env Health for AQ	Medium Term/ Yes
2.	Improving links with Local Planning and Development framework				Greenhouse Gas; Health improvements; Improve the local environment.	No	+ve nicer place to live	No	Planning	Medium Term / Yes
3.	Integrate Air Quality with other Council Policies				Greenhouse Gas; Health improvements; Improve the local environment.	No	As above		WLC	Medium to Long-Term/ Yes
4.	Liaise with Scottish Government regarding national air quality policy				Greenhouse Gas; Health improvements; Improve the local environment.	No	None	None	WLC	Short-term
<b>Traffic Management – optimisation of traffic movement through the AQMA</b>										
5.	Traffic signal phasing and junction modification	Large (3)	Signal settings low (4).	Signal Phasing (12)	Greenhouse Gas; Health improvements; Improve the local environment; Safety	Low Risk, could have -ve impact on station road	Low	May have +ve impact to shops	Transportation	Medium-term
6.	Changes to pedestrian crossings and junctions to reduce congestion	Medium (2)	50000 Medium (3)	Medium (6)	Greenhouse Gas; Health improvements; Improve the local environment; Safety	No	Pedestrians may complain about additional wait	None	Transportation	Medium-Term to Long Term/Yes
<b>Measures aimed at moving road traffic away from</b>										



No.	Measure Title (CE Score)	Potential Air Quality Impact	Estimated Costs	Cost Effectiveness	Potential Co-Environmental Impacts	Risk Factors	Potential Social Impacts	Potential Economic Impacts	Lead Authority	Feasibility/ Acceptability
7.	Broxburn Distributor Road Phasing - North to West	Large (3)	Very high (1) £2 million developer costs	Low (3) tbc by modelling	Greenhouse Gas; Health improvements; Improve the local environment	Might not work	Loss of green space and amenity for existing residents	+ve releases pressure on Greendykes Road	Planning and Transportation	Long-Term/ Yes
8.	Broxburn Distributor Road Phasing - North to East	Large (3)	Very high (1) £2 million developer costs	Low (3) tbc by modelling	Greenhouse Gas; Health improvements; Improve the local environment	Might not work	Loss of green space and amenity for existing residents	+ve releases pressure on Greendykes Road	Planning and Transportation	Long-Term/ Yes
9.	Winchburgh M9 junction	Large (3)	Very high (1) £2 million developer costs	Low (3) tbc by modelling	Greenhouse Gas; Health improvements; Improve the local environment	Might not work	Loss of green space and amenity for existing residents	+ve releases pressure on Greendykes Road	Planning and Transportation	Medium-Term/ Yes
10.	Winchburgh Railway Station	Large (3)	Very high developer costs	Low (3)	Greenhouse Gas; Health improvements; Improve the local environment				Planning and Transportation	Medium-Term/ Yes
Reduce the emissions from sources by technical means										
11.	Update of Local Bus Quality Partnership	Medium (2)	Low (4)	Medium (8)	Greenhouse Gas; Health improvements; Improve the local environment	No	Loss of connectivity from some areas	Costs to operators	Transportation	Short to Medium-Term/ Yes
12.	ECO stars scheme	Medium (2)	Medium (3)	Medium (6)	Greenhouse Gas; Health improvements; Improve the local environment	Low	None	+ve for businesses taking part	Enviro Health	Short-to MediumTerm / Yes
13.	Green Procurement (Council), fuel management and Eco-driving training policy, and assessment of new technology	Small (1)	Neutral or better (5)	Medium (5)	Greenhouse Gas; Health improvements; Improve the local environment	Low	Low	Medium	Fleet services/ Climate change	Short-Term/ Yes

No.	Measure Title (CE Score)	Potential Air Quality Impact	Estimated Costs	Cost Effectiveness	Potential Co-Environmental Impacts	Risk Factors	Potential Social Impacts	Potential Economic Impacts	Lead Authority	Feasibility/ Acceptability
14.	Taxi Quality Partnership	Small (1)	Low (4)	Low (4)	Greenhouse Gas; Health improvements; Improve the local environment	None	None	None	Legal services	Medium-Term/ Yes
15.	Electric Vehicle charging points	Small (1)	Low (4)	Low initially (4)	Greenhouse Gas; Health improvements; Improve the local environment	None	None	None	Climate change	Short to Medium-Term/ Yes
16.	Encourage Private and Public Operators to pursue cleaner vehicles and abatement.	Small (1)	Low (4)	Low (4)	Greenhouse Gas; Health improvements; Improve the local environment	None	None	Low	Enviro Health	Short-Term/ Yes
17.	Vehicle emission testing and Idling enforcement	Small (1)	Medium (3)	Low (3)	Greenhouse Gas; Health improvements; Improve the local environment	Potentially unpopular if enforced	Low, special needs of individuals taken into account	None	Enviro Health	Short-Term/ Yes
Better travel choices/ behavioural change										
18.	Provision of information regarding air quality	Small (1)	Low (4)	Medium (4)	Greenhouse Gas; Health improvements; Improve the local environment	No	Raise awareness	None	Enviro Health	Short-Term/ Yes
19.	Promotion of alternative modes of travel including cycling and walking	Small (1)	Medium (3)	Low initially (3)	Greenhouse Gas; Health improvements; Improve the local environment; Safety	Public perception of safety	As above	None	Transportation / Health improvements Team	Short-Term/ Yes
20.	Encourage Developers to put cycle paths walkways in to link up together to encourage walking, cycling	Small (1)	Low (4)	Low (4)	Greenhouse Gas; Health improvements; Improve the local environment; Safety	Public acceptability	As above	+ve financial benefits to business and personal	Planning	Short to Medium-Term/ Yes

No.	Measure Title (CE Score)	Potential Air Quality Impact	Estimated Costs	Cost Effectiveness	Potential Co-Environmental Impacts	Risk Factors	Potential Social Impacts	Potential Economic Impacts	Lead Authority	Feasibility/ Acceptability
21.	Travel Plans for large institutions and businesses.	Small (1)	Low (4)	Low (4)	Greenhouse Gas; Health improvements; Improve the local environment; Safety	Not monitored	Perception, burden on employee	Negligible	Transportation	Medium-Term/ Yes
Other										
22.	Environmental Nuisance (including dust and smoke)	Small (1)	Low (4)	Medium (4)	No	Low	Amenity and health	None	Enviro Health	Short-Term/ Yes
23.	Home Energy Efficiency	Small (1)	Medium (3)	Low (3)	Greenhouse Gas; Health improvements; Improve the local environment	Low uptake	+ve reduces fuel poverty, health benefits	Potentially reduced energy bills	Area Services	Short-Term/ Yes

## 7 Action Plan

West Lothian Council has already introduced several measures that will contribute to improving air quality within the Broxburn AQMA in future years. They are now seeking to implement further measures to bring about a greater improvement in local air quality and make progress towards meeting all of the respective air quality strategy objectives. This Chapter presents the measures that have been identified as being the most appropriate in addressing the local air quality problem identified within the AQMA and therefore the priority measures for inclusion within the Action Plan.

The measures identified via assessment as priorities and therefore included within the Action Plan can be understood as comprising two lists:

1. Strategic options aimed at integrating air quality into all relevant areas of decision making within West Lothian Council.
2. Direct actions which target improved air quality within the Broxburn AQMA, reducing emissions from the primary sources, promoting greater awareness of local air quality and encouraging more sustainable travel choices within West Lothian in general.

### 7.1 Prioritisation of Measures

Based on the assessment undertaken for each measure, a prioritised list of options has been produced. It is potentially complex to decide on priorities from such a wide range of criteria. However, for the purpose of the AQAP we have put particular weight on those options, which are supported by members of the Steering Group, and which provide good potential AQ benefits (with appropriate consideration of cost-effectiveness and the wider environmental benefits or risks). Due to their overarching nature, it is anticipated that the strategic measures will provide some of the frameworks by which measures 5-21 will be successfully implemented. Therefore, they are not assessed in the same way and are regarded as overall priorities for implementation.

To enable the prioritisation of measures, the score (1-3) assigned to the air quality impact has been multiplied by the score assigned to the anticipated cost implications (1-5). This approach provides a basic cost-effectiveness analysis which together with consideration of other factors and timescales has enabled the prioritisation of the measure included within the plan and has identified the following ranking of options, presented in Table 12.

**Table 12: Ranked Action Plan measures**

No	Measure	Timescale
<b>Strategic Measures</b>		
1	Incorporating consideration of Air Quality in the Local Transport Strategy Update	Short to Medium-term
2	Improving links with Local Planning and Development framework	Short to Medium-term
3	Integrate Air Quality with other Council Policies	Medium to Long-term
4	Liaise with Scottish Government regarding national air quality policy	Short-term
<b>Direct measures</b>		
5	Traffic signal phasing and junction modification	Medium to Long term
6	Changes to pedestrian crossings and junctions to reduce congestion	Medium to Long-term
7	Broxburn Distributor Road Phasing - North to West	Long term
8	Broxburn Distributor Road Phasing – North to East	Long- term
9	Winchburgh M9 junction	Medium-term
10	Winchburgh Railway Station	Medium-term
11	Provision of Local Bus Quality Partnership	Short to Medium-term
12	ECO stars scheme	Short to Medium-term

No	Measure	Timescale
13	Green Procurement (Council), fuel management and Eco-driving training policy and assessment of new technology	Short-term
14	Taxi Quality Partnership emissions	Medium-term
15	Electric Vehicle charging points	Short to Medium-term
16	Encourage Private and Public Operators to pursue cleaner vehicles and abatement	Short-term
17	Vehicle emission testing and Idling enforcement	Short-term
18	Provision of information regarding air quality	Short-term
19	Promotion of alternative modes of travel including cycling and walking	Short-term
20	Encourage Developers to include linked cycle paths and walkways	Short to Medium-term
21	Travel Plans for large institutions and businesses.	Medium-term
22	Environmental Nuisance (including dust and smoke)	Short-term
23	Home Energy Efficiency	Short-term

## 7.2 Funding Implementation of the Action Plan

The capacity to successfully implement an Air Quality Action Plan is heavily dependent upon obtaining adequate funding and resources to deliver the proposed measures. Many of the measures included within the plan are already supported through existing strategies (e.g. central government funding for electric vehicle charging infrastructure) but may require some additional funding to facilitate modification in line with the requirements of this Action Plan. For other measures, other sources of funding will require to be secured. Other potential sources of funding include:

- Scottish Government Air Quality Funding;
- Developer contributions;

The availability of such funding is likely to determine the how much of the Action Plan can be implemented, and thus it's potential success at improving air quality within the AQMA.

The final Action Plan will have to be approved by West Lothian Council and by the Scottish Government before it can become a fully adopted plan. Once it has been adopted, West Lothian Council will collaborate with relevant stakeholders regarding the implementation of identified measures and monitor the progress of their implementation. This information will be reported annually to the Scottish Government and SEPA in the statutory progress report.

Throughout the period that the plan is implemented West Lothian Council will:

- Continue to monitor and review air quality to assess whether the AQMA should be revised or revoked;
- Produce an annual progress report that sets out new information on air quality in West Lothian, which will also report on progress made with implementing the Action Plan;
- Continue to work closely with other stakeholders and partner organisations in implementing the Action Plan measures and in assessing whether the plan needs to be revised in the light of the findings from air quality review and assessments.

## Appendices

Appendix 1: Details of Action Plan Measures

Appendix 2: Consultation

## Appendix 1 – Details of Action Plan measures

In line with the requirements outlined in LAQM.PG(S) (16), the priority options have been developed into specific proposals, with associated timetables for implementation, responsible organisations, and where possible, progress indicators.

The following tables include:

- A simple title and definition of what the measure is aiming to achieve;
- The authority responsible for implementing and making progress with the measures;
- A description of those powers that this authority may use to implement the measures;
- A list of specific tasks and completion dates for tasks within each measure;
- 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 the Broxburn AQMA;

Measure	Title
1	Updating the Local Transport Strategy and incorporating consideration of Air Quality
<b>Definition</b>	
Future versions of LTS to be revised to include: <ol style="list-style-type: none"> <li>Reference to Broxburn AQMA and measures included in Air Quality Action Plan. Integration of plan with updated LTS.</li> <li>Develop action plan options that will be implemented via future versions of the local transport strategy.</li> </ol>	
<b>Key Intervention</b>	
Measures to ensure the current poor air quality in the AQMA is improved where possible and to avoid future problems are implemented via the Local Transport Strategy.	
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>Operational and Area Services</li> <li>Planning and Economic Development</li> </ul>	
<b>Powers to be used</b>	
Voluntary (although government guidance recommends this measure because road transport is the dominant cause of the AQMA Declaration)	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Include reference to Broxburn AQAP within LTS	Reference Published
(b)				X				Actions to be detailed in LTS	Actions Published

Notes

## Broxburn Air Quality Action Plan

Measure	Title
2	Improving links with Local Planning and Development framework
Definition	Key Intervention
a. Integration of Broxburn AQAP with future versions of Local Plan. b. Ensure that development proposals with the potential to exert an impact on the Broxburn AQMA are assessed for air quality impacts and where necessary, appropriate mitigation measures adopted. c. Continue to promote sustainable development. d. Maintain and make available - air quality and development guidance note for developers. e. Develop and adopt supplementary planning guidance relating to air quality f. Encourage developers to phase new road links to mitigate the effect of new traffic sources on the AQMA. g. Encourage developers to install cycle paths in and linking with existing in new developments. h. Encourage the installation of the of a rail station at Winchburgh to reduce increases in vehicle travel within AQMA	Local planning considerations aim to mitigate the cumulative negative air quality impacts of new development
Responsible authority and other partners	Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul>	Voluntary, but incorporated into the statutory timeframe for development of the Local Development Plan.  Voluntary to develop or amend Supplementary Planning Guidance, as necessary.

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	x							Include reference to Broxburn AQAP in Local Plan	Reference published in Local Plan
(b)	X							Air Quality Impact Assessment requested during planning process if applicable	Air Quality Impact Assessments provided by developer
(c)			X					Include reference to sustainable development in Local Development Plan	Local Development Plan published with reference to sustainable development
(d)							X	Produce draft guidance note on air quality for developers	Guidance note approved and published
(e)							X	Produce supplementary planning guidance	Supplementary planning Guidance approved and published
(f)		X						Produce standard paragraph for responses	Send standard paragraph to developer
(g)			X					Active travel plan for Broxburn developed	Active travel plan for Broxburn approved and published
(h)					X			Construction started on new railway	New railway station operating

Notes
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## Broxburn Air Quality Action Plan

Measure	Title
3	Encourage Integration of AQ with other Council Strategies
<b>Definition</b>	
a. Develop a broad AQMA steering group (for the Broxburn AQAP) and maintain regular and on-going communication between members of the group during the plans implementation.  b. Look for opportunities to enhance joint working between Council Services to encourage potential air quality implications of existing and future Council strategies.	
<b>Key Intervention</b>	
Encourage opportunity for contributions towards improving local air quality and minimising negative impacts from existing and future Council strategies.  Increase awareness of local air quality.	
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Corporate Services</li> <li>• Operational Services</li> </ul>	
<b>Powers to be used</b>	
Voluntary, but incorporated into the statutory timeframe for development of the Local Development Plan. Voluntary to develop or amend Supplementary Planning Guidance, as necessary.	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)			X					First steering group meeting arranged	Steering group meetings taking place
(b)			X					Evidence of joint working	Joint working between council services

Notes

Measure	Title
4	Liaise with the Scottish Government regarding additional national policy
<b>Definition</b>	
Maintain contact with the Scottish Government regarding the adoption of national air quality measures.	
<b>Key Intervention</b>	
Increase focus on background concentrations of PM and encourage national action.	
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul>	
<b>Powers to be used</b>	
Voluntary	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)						X		Evidence of consultation with Scottish Government	National air quality measures adopted by Council

Notes

Measure	Title	
5	Traffic signal phasing and junction modification	
<b>Definition</b>		<b>Key Intervention</b>
a. Assessment of options to optimise traffic signal phasing within the AQMA and reduce local traffic-based emissions of air pollutants. b. Implementation of identified traffic management option – following feasibility stage.		Action targets reduced traffic queuing and emissions within the AQMA with the intention of reducing local ambient concentrations of NO <sub>2</sub> and PM <sub>10</sub> .
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> <li>Corporate Services</li> <li>Operational Services</li> </ul>		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Evidence of internal consultation on traffic signal phasing	Traffic signal phasing options published
(b)					X			Specific traffic signal phasing option chosen	Traffic Signal Phasing option implemented

**Notes**

Changes to signal phasing at the junction of Greendykes Road and East Main Street will be paid for by developers at Winchburgh once 187 new homes have been occupied. If required beforehand, West Lothian Council may front fund the changes for recovery of costs once the 187 homes criterion is met.

Measure	Title	
6	Changes to pedestrian crossings and junction to reduce congestion	
<b>Definition</b>		<b>Key Intervention</b>
a. Undertake a feasibility assessment on the potential benefits and impacts of moving pedestrian crossing points to alternative locations. b. Implementation of option – if deemed appropriate.		Traffic control and improved dispersal of air pollutants from queuing vehicles.
<b>Responsible authority and other partners</b>		<b>Powers to be used</b>
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul>		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Written consultation to all relevant parties	Written responses received to feasibility consultation and decision taken
(b)						X		Planning application/Road and Transport Approval	Option delivered/no option feasible

**Notes**

## Broxburn Air Quality Action Plan

Measure	Title
7	Broxburn distributor Road Phasing – North to West
<b>Definition</b>	
a. Secure development of north to west distributor road from Greendykes Road to West main Street via 'candleworks' site and Clarkson Road	<b>Key Intervention</b> Alternative traffic route avoiding Greendykes Road / East Main Street junction. Permits alternative outlet to west for traffic arising from new housing to north of Broxburn. Permits alternative outlet to west for traffic arising from new housing in Winchburgh.
<b>Responsible authority and other partners</b>	
West Lothian Council: <ul style="list-style-type: none"> <li>• Planning and Economic Development</li> </ul> Private landowners Developers	<b>Powers to be used</b> Planning condition 6 of 0502/FUL/11

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)						x		Planning consent granted	Road Built

Notes

Measure	Title	
8	Broxburn North to East Distributor Road	
<b>Definition</b>		<b>Key Intervention</b>
a. Provision for distributor road in Core Development Area masterplan b. Planning consent in place for distributor road c. Funding in place to provide for construction of distributor road throughout to allow for through traffic d. Until open for through traffic, phasing of development to favour construction from east /south end e. Until open for through traffic, provision for pedestrian access to proposed new primary school and Greendykes Road (to remove the need for car and bus journeys to access proposed new primary school)		Alternative traffic route avoiding Greendykes Road / East Main Street junction.  Permits alternative outlet to east for traffic arising from new housing to north of Broxburn.  Permits alternative outlet to east for traffic arising from new housing in Winchburgh.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Private landowners Developers		Planning conditions of 0845/P/10

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	X							Draft masterplan includes reference to distributor road	Masterplan published with reference to distributor road
(b)	X							Planning application received	Planning consent granted
(c)							X	Funding agreed between private developers	Funding provided
(d)							X	Phasing included in masterplan	Construction of development phased
(e)							X	Construction started on pedestrian access to proposed primary school	Pedestrian access built

Notes

Measure	Title	
9	Winchburgh M9 bidirectional junction	
<b>Definition</b>		<b>Key Intervention</b>
a. Provision for distributor road in Core Development Area masterplan b. Planning consent in place for M9 junction c. Funding in place to provide for construction of M9 junction to allow access both eastbound and westbound		Permits alternative outlet to east and west for traffic arising from new housing in Winchburgh
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Private landowners Developers		Planning condition 33 of 1012/P/05

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	X							Reference to distributor road in draft masterplan	Masterplan published with distributor road reference
(b)	X							Planning application submitted	Planning consent in place

## Broxburn Air Quality Action Plan

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(c)					X			Agreement between developers on funding	Funding secured

### Notes

The Winchburgh Core Development Area planning consent requires that the junction be operational by the time 1000 new homes are occupied. Until that point, there is no requirement on the developers to provide this.

Measure	Title
10	Provision of Railway Station at Winchburgh
<b>Definition</b>	
a. Provision of railway station at Winchburgh b. Secure permission from Transport Scotland and Network Rail for railway station	
<b>Key Intervention</b>	
Reduce potential commuting road traffic through AQMA	
<b>Responsible authority and other partners</b>	
Powers to be used	
West Lothian Council: • Planning and Economic Development Private landowners Developers Transport Scotland Network Rail	
Planning condition 44 of 1012/P/05	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)					X			Developers start construction of railway	Railway station built and operational
(b)				X				Evidence of permission sought	Permission is granted

**Notes**

The Winchburgh Core Development Area planning consent requires that a station be provided, financed by the developers.  
Some difficulties had arisen due to the site being on a curve, Transport Scotland being concerned about impact on end to end journey times and changes to the scope of the EGIP rail project, including the removal of the planned alternative 'Dalmeny Chord' route.

Measure	Title	
11	Development of Local Bus Quality Partnership	
<b>Definition</b>		<b>Key Intervention</b>
a. Liaise with local bus operators to establish the potential for developing local bus quality agreements. b. Liaise with bus operators regarding emissions from the bus fleet and improvements to bus service infrastructure.		Encourage increased bus usage through the improvement of bus infrastructure and services
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul>		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)							X	Local bus operators consulted	Partnership established
(b)							X	Liaise with local bus operators who are welcoming partnership	Information and support provided on emissions from bus fleet

**Notes**

Measure	Title	
12	ECO Stars scheme	
<b>Definition</b>		<b>Key Intervention</b>
a. Contact ECO Stars regarding feasibility of setting up a local scheme b. Secure funding c. Deliver scheme		Encourage commercial fleet operators to run their vehicles more efficiently, reducing their fuel consumption, which in turn will reduce vehicle carbon, nitrogen oxides (NOx) and particulate matter (PM) emissions.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul>		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				x				Evidence of correspondence with ECO stars	Written agreement in place
(b)					X			Funding applied for	Funding secured
(c)							X	Contact operators regarding scheme/funding	Operators adopt scheme with funding

**Notes**

Measure	Title
13	Green Procurement (Council), fuel management and Eco-driving training policy, and assessment of new technology
<b>Definition</b>	
a. Continue periodic procurement of low emission vehicles; b. Monitor and assess viable options for alternative fuels, technologies and fuel additives as these become available; c. Investigate periodic training for vocational fleet drivers including Safe and Fuel Efficient Driving (SAFED); d. Installation of vehicle telematics to allow monitoring of driver behaviour, route planning, idling, etc.	
<b>Key Intervention</b>	
Target reduced emissions from Council fleet vehicles and Council contract fleet vehicles.	
Responsible authority and other partners	
Powers to be used	
West Lothian Council:	
<ul style="list-style-type: none"> <li>Operational Services</li> </ul>	
Voluntary/Policy	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)		X						Low Emission vehicles in fleet	All vehicles
(b)			X					Evidence of new technology available	Assessment and implementation of new technology in fleet
(c)				X				Periodic training approved	Drivers receive training
(d)	X							Equipment and fitters available for use	All vehicles fitted and monitored

Notes

Measure	Title
14	Taxi Quality Partnership – e.g. investigate preferential licensing for taxis with low emissions
<b>Definition</b>	
Assess opportunity to reduce emissions of air quality pollutants from Taxis and Private Hire vehicles within West Lothian.	
<b>Key Intervention</b>	
Responsible authority and other partners	
Powers to be used	
West Lothian Council:	
<ul style="list-style-type: none"> <li>Corporate Services</li> <li>Planning and Economic Development</li> </ul>	
Voluntary and use of taxi licensing conditions	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)							X	Liaise with private taxi companies	Opportunities assessed and viable options encouraged

Notes

Measure	Title
15	Electric Vehicle charging points in conjunction with Climate change dept.
<b>Definition</b>	
a. Promote installation of electric vehicle charging points through secured funding and private investment	
<b>Key Intervention</b>	
Reduce vehicle emissions through increasing electric vehicle fleet	
<b>Responsible authority and other partners</b>	
West Lothian Council:	
<ul style="list-style-type: none"> <li>• Planning and Economic Development</li> <li>• Operational Services</li> <li>• Private Providers</li> </ul>	
<b>Powers to be used</b>	
Voluntary	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)			x					Include reference to electric vehicles in Local Plan	Local plan published with reference to electric vehicles

Notes

Measure	Title
16	Encourage Private and Public Operators to pursue cleaner vehicles and abatement
<b>Definition</b>	
a. Liaise with local bus and freight operators regarding vehicle fleets and encourage use of lower emission vehicle. Provision of information.	
b. Provide information for private car users on the Council website to encourage the use of sustainable forms of transport and cleaner procurement options.	
<b>Key Intervention</b>	
Target reduced emissions in general from vehicle fleet in West Lothian.	
<b>Responsible authority and other partners</b>	
West Lothian Council:	
<ul style="list-style-type: none"> <li>• Operational Services</li> <li>• Planning and Economic Development</li> </ul>	
<b>Powers to be used</b>	
Voluntary	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				x				Identify all local bus and freight operators	Provide Information regarding lower emission vehicles
(b)		X						Draft text for website	Information published on website

Notes



Measure	Title	
17	Vehicle emissions testing and Idling enforcement	
<b>Definition</b>		<b>Key Intervention</b>
a. Continue to undertake vehicle emission testing. b. Seek the powers to undertake idling vehicle enforcement. c. Use vehicle emission testing and idling enforcement work to raise public awareness of air pollution.		Reduce emissions from stationary and moving vehicles within West Lothian, and increase awareness of air pollution problems.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> East Central Scotland Vehicle Emissions Partnership Police Scotland		Voluntary and enforcement The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	X							Staff and equipment available	Testing taking place
(b)				x				Report on use of powers drafted to go to PDSP	Idling enforcement approved by PDSP
(c)	X							Assess all advertising options	Adverts screened/published

Notes

Measure	Title	
18	Provision of Information regarding air quality	
<b>Definition</b>		<b>Key Intervention</b>
a. Continue to make information relating to local air quality management available through the Council website. b. Undertake a publicity campaign to raise awareness of the Broxburn AQMA.		To increase awareness of local air qualities issues and encourage changes in behaviour that will contribute to improving local air quality.
Responsible authority and other partners		Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Planning and Economic Development</li> </ul> Scottish Government East Central Scotland Vehicle Emissions Partnership		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	X							Draft text made available to be published on website	Information available on website
(b)				X				Publication of materials, events held and updated website material available	Increased publicity/awareness

Notes

Measure	Title
19	Promotion of alternative modes of travel including and walking
<b>Definition</b>	
<p>a. Continue to provide information about public transport services through the Council website.</p> <p>b. Ensure cycle networks and facilities are provided, as a matter of course, within existing and new networks and developments.</p> <p>c. To improve integration between cycling, walking and public transport.</p> <p>d. Increase cycling trips to employment, education and leisure facilities.</p> <p>e. Improve pedestrian facilities such as new footpaths and crossings</p> <p>f. Encourage installation of changing and shower facilities in Council buildings to encourage walking and cycling</p> <p>g. Investigate the potential for externally funded behaviour change programme to encourage mode shift to more sustainable and healthy travel</p>	
<b>Key Intervention</b>	
To encourage changes in behaviour that will contribute to improving local air quality.	
Responsible authority and other partners	
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> <li>Planning and Economic Development</li> </ul> SEStran Scottish Government	
Powers to be used	
Voluntary	

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Active travel network plan drafted	Information Provided on Council Website
(b)				X				Active travel network plan drafted with reference to cycle networks	Cycle networks/facilities provided
(c)				X				Active travel network plan drafted with reference to integration	As above
(d)				X				Active travel network plan drafted with reference to cycle trips	Rise in cycling trips
(e)				X				Active travel network plan drafted with reference to new footpaths etc.	Footpaths and crossings improved
(f)				X				Active travel network plan drafted with reference to changing facilities	Installation of changing/shower facilities in council buildings
(g)			X					Transport Policy Officer consulted on funding	Funding available/not available

Notes

Measure	Title
20	Encourage Developers to include linked cycle paths and walkways
<b>Definition</b>	<b>Key Intervention</b>
a. Require Developers to integrate cycle paths and walkways into the infrastructure of new developments and ensure connections to existing surrounding infrastructure	Provide continuous networks of cycle paths and walkways
Responsible authority and other partners	Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> <li>Planning and Economic Developments</li> </ul> Scottish Canals Sustrans	Voluntary Planning Policy Planning conditions and agreements

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)		X						Reference to cycle paths/walkways in Local plan	Local plan published with reference to cycle paths/walkways

Notes

Measure	Title
21	Travel Plans for large institutions and businesses
<b>Definition</b>	<b>Key Intervention</b>
a. Identify and contact a selection of large businesses and institutions operating within West Lothian to identify whether they have active travel plans in place. b. Work with large institutions and businesses to develop sustainable travel plans that will contribute to reducing emissions of air quality pollutants within West Lothian.	Reduce traffic and associated air pollution originating from travel activities associated with large institutions and organisations operating in West Lothian.
Responsible authority and other partners	Powers to be used
West Lothian Council: <ul style="list-style-type: none"> <li>Operational Services</li> </ul> Sustrans Large Institutions and Businesses	Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Large organisations approached regarding travel plans	Information provided from organisations on travel plans
(b)							X	Travel plans initiated and agreed	Travel Plans in place

Notes

Measure	Title	
22	Environmental Nuisance (including dust and smoke)	
<b>Definition</b>		<b>Key Intervention</b>
a. Utilise powers conferred under part III of the Environmental Protection Act 1990 (statutory nuisance) to minimise the contributions from bonfires and relevant activities that may contribute to local air quality problems identified in the Broxburn AQMA		Reduce emissions of dust and smoke from relevant activities within West Lothian (and within the Broxburn AQMA in particular).
Responsible authority and other partners		Powers to be used
West Lothian Council: Planning and Economic Development		Voluntary and Statutory Enforcement

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)	X							Complaints of statutory nuisance are investigated by authorised officer	Statutory Nuisances are abated

Notes

Measure	Title	
23	Home Energy Efficiency	
<b>Definition</b>		<b>Key Intervention</b>
a. Work with key stakeholders to target and deliver improvements in energy efficiency and reduced emissions from the local housing stock. b. Develop guidance in relation to the use of biomass within residential, commercial and institutional properties (existing and new build) within guidance document and seek to see this adopted within supplementary planning guidance.		Reduce emissions of air quality pollutants from residential properties
Responsible authority and other partners		Powers to be used
West Lothian Council: • Area Services Housing Construction and Building Services		Voluntary

Actions	Implementation timetable							Progress indicator	Target
	15-16	16-17	17-18	18-19	19-20	20-21	21-22		
(a)				X				Indication of planned improvements made by Housing Services	Improvements made in council housing
(b)							X	Draft guidance written	Guidance approved by council and published

Notes

## Appendix 2: Consultation

West Lothian Council have undertaken both an internal and external consultation exercise for the Draft AQAP. The consultation was placed on the Council website, social media and through Broxburn Town Centre management meetings. All comments have been taken into account in this Final version of the AQAP

The formal responses received through the external consultation have been included in this chapter.



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