Draft Newton Air Quality Action Plan

West Lothian Council

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Executive summary

This draft Air Quality Action Plan (AQAP) for Newton, 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 policy framework requires the Council 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 Newton AQMA, exceedance of the annual mean PM_{10} has been identified, and source apportionment has been undertaken to identify the principal sources contributing to local exceedances of both pollutants. Modelling indicated that background concentrations constitute the most significant source of PM_{10} within the AQMA. When excluding the background contribution, the largest contribution at each receptor comes from domestic fuel combustion of up to 93% depending on location.

Air Quality Action Plan

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

- Support 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 the assessment, the options were prioritised for action. The draft AQAP will be reviewed by statutory consultees and will be subject to public consultation. The draft AQAP is summarised in tabular form below.

No	Measure	Timescale
	Strategic Measures	
1	Liaise with the Scottish Government regarding the consideration of National measures to reduce background concentrations of PM	Short-term
2	Liaise with Scottish Government regarding national air quality policy	Short-term
3	Create approved Supplementary Planning Guidance for Air Quality	Short-term
	Direct measures	
4	Winchburgh M9 Junction	Medium-term
5	Traffic Signal Phasing and Junction Modification	Short-term
6	Encourage Private and Public Operators to Pursue Cleaner Vehicles	Short-term

No	Measure	Timescale
	and Abatement	
7	Development/Provision of a Local/Voluntary Bus Quality Partnership	Medium-term
8	Implement ECOStars Scheme for HGV and Bus Operators	Medium-term
9	Walking and Cycle Paths Infrastructure	Long-term
10	Travel Plans for Large Institutions and Businesses	Medium-term
11	Provision of Information/Marketing regarding Air Quality and Promotion of Travel Options	Short-term
12	Connect Residential Properties in Newton to the Main Gas Grid	Long-term
13	District Heating Solution	Short/Medium-term
14	Incentives for Changes to Domestic Fuel Burning	Long-term
15	Greening the Area with Trees	Short-term
16	Increase Monitoring Network	Short-term
17	Create a Smoke Control Area	Short-term

Note: AQMA = Air Quality Management Area. In this document, the AQMA comprises of an area of Newton 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 online at

https://www.westlothian.gov.uk/media/12625/2016-Newton-AQMA-Map/large/2016-newton-AQMA-map1.jpg

The AQAP aims to work at reducing transport and domestic emissions of PM_{10} in the AQMA. It is anticipated that a reduction of PM_{10} emissions is necessary for the achievement of the Scottish annual mean objective for PM_{10} (18 $\mu g.m^{-3}$) within the Newton 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 draft AQAP with relevant stakeholders. It is designed to address the air quality problems identified in Newton. It is a statutory duty for West Lothian Council to develop an AQAP following the declaration of an Air Quality Management Area (AQMA) in response to identified exceedance(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 AQAP 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.

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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 Newton. It is a statutory duty for West Lothian Council to develop an AQAP following the declaration of an air quality management area (AQMA) in response to identified exceedance(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 AQAP is, based on the evidence available, to set out the local actions that will be implemented to improve air quality and work towards meeting the objectives.

The 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 will be subject to consultation.

Comments received during the consultation process will be 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

The 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 Newton, where an AQMA came into force in July 2016 due to high concentrations of particulate matter (PM_{10}). 17 action plan measures have been incorporated within the 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. The Action Plan should consider the following key points:

- Develop the AQAP in stages;
- Undertake appropriate local monitoring and assessment (source apportionment)
- Decide what level of action is required
- Establish links to other key policy areas/ strategies
- Establish a Steering Group with key stakeholder groups at an early stage
- Undertake measure selection and impact assessment
- Agree monitoring and evaluation of success
- Undertake consultation

The Scottish Government recommends that a 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 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 at the study location;
- **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 Newton AQMA including the improvement required to meet the air quality objectives;
- **Chapter 4** describes how the AQAP has been developed by West Lothian Council;
- **Chapter 5** presents the range of potential options that were considered when aiming to improve local air quality within the designated AQMA and a summary of proposed measures to be adopted by West Lothian Council;
- **Chapter 6** provides an overview of the assessment process and the results of an assessment of each option;

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 places 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. Air pollution has also been associated with a wide range of effects on 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.

The World Health Organisation (WHO) has been consolidating, evaluating and publishing information relating to the impact of air pollution on human health since 1957 (WHO, 2017) and has published a series of Air Quality Guideline values (AQGs). They are intended to provide a basis for "protecting public health from adverse effects of air pollutants and for eliminating, or reducing to a minimum, those contaminants of the air that are known or likely to be hazardous to human health and well-being" (WHO Regional Office for Europe, 1987). The AQGs were designed to be relevant and applicable worldwide while also being specifically designed to address large regional inequalities in exposures to air pollution and the associated burden of disease (Krzyzanowski & Cohen, 2008).

As such, the WHO AQGs constitute an important and technically robust resource of air quality and health information that can be used by government authorities around the World to inform health-based standards. The WHO emphasises that before standards are adopted, the guideline values should be considered in the context of prevailing exposure levels and environmental, economic, and social conditions. In preparing the AQG, the WHO recognises that in certain circumstances there may be valid reasons for implementing policies and/ or standards which will permit pollutant concentrations above the guideline values. As such, it was assumed by the WHO that governments and regulatory authorities would consider economic and social factors when using the AQG as the basis for setting ambient standards, and thus placing responsibility for justifying standards above the AQG firmly with relevant national authorities.

The impacts of particulate matter on human health have been evaluated by assessing a wide range of different parameters and metrics. The most common include PM_{10}, $PM_{2.5}$, PM_1 and black smoke. The key studies that informed the derivation of WHO AQGs for PM focused on the health impacts of long-term exposure to $PM_{2.5}$ (COMEAP, 2011). The annual average WHO AQG of 10 $\mu g.m^{-3}$ of $PM_{2.5}$ was set as it was identified as a concentration that was considered to be below the most likely effect levels. As outlined above, key cohort studies such as the American Cancer Society cohort study (Pope et al., 2002) and the Harvard Six Cities study (Dockery et al., 1993) were important in the

development of this guideline value. The guideline was selected as it represented the lower end of the concentration range at which statistically significant (> 95% confidence) effects on survival (total, cardiopulmonary and lung cancer mortality) were observable in the American Cancer Society Study. This was also supported by the findings of the Six Cities study which indicated that effects were likely observable within the range of 11-15 $\mu g.m^{-3}$.

In order to determine short-term (24 h mean) guideline values for $PM_{2.5}$ and PM_{10}, the relationship between annual and 24 h average concentrations of particulate matter were used by the WHO. This resulted in the derivation of guidelines of 50 $\mu g.m^{-3}$ for PM_{10} and 25 $\mu g.m^{-3}$ for $PM_{2.5}$ respectively

The WHO identified that where these short-term guidelines were met, peaks of pollution that would result in significant excess illness were unlikely to be observed (COMEAP, 2011)

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 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.

2.2 Cleaner Air for Scotland - The Road to a Healthier Future

The Cleaner Air for Scotland (CAFS) was published in November 2015. This Strategy identifies the Scottish Government's policies focused on air quality and sets out a series of actions to improve air quality across Scotland. The document sets out six main objectives:

1. To reduce transport emissions by implementing low and zero emissions zones, promoting a modal shift away from the car, through active travel (walking and cycling), and reducing the need to travel;

2. To comply with the European and the Scottish legal requirements relating to air quality;

3. To inform, engage and empower the population to improve air quality;

4. To protect citizens from the harmful effects of air pollution and to reduce health inequalities;

5. To make sure that new or existing developments are not compromising air quality requirements and that places are designed to minimise air pollution and its effects;

6. To reduce greenhouse gas emissions and achieve Scotland's renewable energy targets whilst delivering co-benefits for air quality.

In addition to the six main objectives, CAFS outlines new initiatives to be implemented to compliment the objectives set, these initiatives include a National Modelling Framework and Low Emissions Framework. CAFS outlines further changes such as the adoption of the WHO guideline values for $PM_{2.5}$; this was transposed by the Air Quality Scotland Amendment Regulations 2016 when the annual mean objective for $PM_{2.5}$ was set at 10$\mu g\ m^{-3}$.

CAFS considers the impact of air quality on health and looks at the estimated costs as well as the premature deaths associated with poor air quality. It has been estimated that 2,000 premature deaths and around 22,500 lost life-years across the Scottish population are linked to fine particulate air pollution.

The measures detailed in this AQAP align and will deliver the six main objectives detailed in CAFS.

2.3 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)[1] 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 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_{10}).

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)[2].

Presented in Table 1 are the air quality objectives that are included in the Air Quality Standards (Scotland) Regulations 2010 (No 1001) and the Air Quality (Scotland) (Amendment) Regulations 2016 for the purposes of Local Air Quality Management (LAQM).

Table 1: Air Quality Objectives relevant in Newton AQMA

Pollutant	Concentration	Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg m^{-3}	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg m^{-3}, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg m^{-3}	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg m^{-3}	Annual mean	31.12.2020

[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

[2] http://www.scottishairquality.co.uk/assets/documents/technical%20guidance/LAQM-TG16-April-16-v1.pdf

Pollutant	Concentration	Measured as	Date to be achieved by
Sulphur Dioxide (SO_2)	350 µg m^{-3}, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg m^{-3}, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg m^{-3}, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

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	Nitrogen dioxide PM_{10}	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	PM_{10}	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.	

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.

2.4 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 a Further Assessment of current and likely future 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 Further Assessment should be completed within 12 months of the AQMA designation Order and provide the technical justification to enable the authority to prepare an AQAP "in pursuit of the achievement of air quality standards and objectives in the designated area". Note that authorities are not obliged to meet the objectives but must show that it is working towards them.

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 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.

2.5 Existing Strategies and Policies relevant to Air Quality in Newton

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 and updated in January 2016. 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 Newton and the AQMA are:

- Investing to tackle congestion from the School Run;
- Promoting SMART[3] measures on all journeys, focusing especially on the commute to work through developing travel awareness and marketing campaigns;
- Exploring with key partner's 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)[4] which is one of seven statutory regional transport partnerships set up under the Transport (Scotland) Act 2005. The SEStran Regional Transport Strategy[5] 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.

The strategy has been updated in July 2015 to take into account the new policy documents that have been produced by the Scottish Government since the preparation of the 2008 RTS. The update takes account of the most recent data and information and the more detailed strategy development that SEStran has undertaken since 2008.The substance of the strategy and suggested intervention have not changed.

[3] SMART Measures: Specific, Measurable, Achievable, Realistic and Timed.

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

[5] http://www.sestran.gov.uk/files/Regional%20Transport%20Strategy.pdf

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 Newton 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 Transport Strategy is a measure that is being delivered by West Lothian Council to enable the Council to work more efficiently. The transport 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 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 Transport 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.

The West Lothian Smarter Travel is part of the Green Transport Strategy and aims at giving an awareness on the different choices of travel such as walking, cycling or car sharing schemes for travelling to work, to school or in general. It also gives information on vehicle emissions.

2.5.5 West Lothian Local Plan

The West Lothian Local Plan was adopted by the Council and became operative on the 13thJanuary 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 (**The Structure Plan 2015 was revoked in June 2013 following approval by Scottish Ministers of the new Strategic Development Plan for South East Scotland (SESplan))**
- 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
- Built and archaeological history
- Employment
- Housing
- Core development Areas
- Transport and accessibility
- Town Centres & Retailing
- Community, sport and education facilities and open space
- Natural resources, waste management & renewable energy
- Town Centres & Retailing
- Community, sport and education facilities and open space
- 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 2009 WLLP and it is anticipated that a new local development plan (LDP) will be adopted at the end of 2017 or early 2018, it is currently examined by the Scottish Government's Reporters Unit (under Section 19(3) of the Town and Country Planning (Scotland) Act 1997 (as amended). 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 Local Development Plan 2015

The West Lothian Local Development Plan (LDP) was published in October 2015 and provides information on proposed development sites throughout West Lothian and policies to be considered when assessing planning applications. This document will in time replace the West Lothian Local Plan.

The LDP aims at supporting economic activity and to promote West Lothian as an attractive place to invest and do business. The LDP seeks to provide a framework for the growth which is necessary to provide direction and clarity for the determination of planning applications in West Lothian.

A supplementary guidance will be prepared so that developers try to implement transport mitigation measures for Linlithgow should a new development proceed.

Policy EMG 4 (reproduced below) of the West Lothian LDP states how air quality will be considered within the planning process. Policies DES1 and HOU4 also include requirements regarding air quality.

POLICY EMG 4 Air Quality

Where appropriate, developers will be required to provide additional information on the impact of their proposed development on air quality.

Development promoting behaviour change programmes in Linlithgow and Broxburn/Uphall to facilitate modal shift of shorter journeys to walking and cycling is supported in principle.

Development will not be supported where it is not possible to mitigate the adverse effects of that development on air quality effectively or where development proposals cause unacceptable air quality or dust impacts, or would result in sensitive uses, which give rise to air pollution concerns, being located within or close to uses with potential to generate such pollution.

Where appropriate, planning conditions will be imposed which require air quality monitoring apparatus to be installed.

Extract from POLICY DES1 Design Principles

When assessing development proposals, the developer will be required to ensure that:

- There is no significant adverse impact on amenity as a result of noise or particulates
- There are no significant adverse effects on air quality (particularly in and around Air Quality Management Areas) and, as appropriate, mitigation to minimise any adverse effects is provided.

POLICY HOU4 Windfall Housing Development in Linlithgow and Linlithgow Bridge

Linlithgow and Linlithgow Bridge are particularly sensitive to the impact of new infill housing development by virtue of unique historic character, environmental constraints (landscape setting, air quality and drainage), traffic congestion and the availability of education capacity.

Proposals for windfall housing development within the settlement boundary of Linlithgow/Linlithgow Bridge will therefore be subject to additional scrutiny and will only be supported where it can be demonstrated that their impact can be satisfactorily managed and would not singularly or cumulatively exacerbate these matters.

2.5.7 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[6] 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.

[6] http://www.westlothian.gov.uk/media/downloaddoc/1799514/Climatechange

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.

2.5.8 West Lothian Council Active Travel Plan 2016-2021

In accordance with the Cycling Action Plan for Scotland (CAPS), West Lothian Council has prepared an Active Travel Plan for West Lothian (2015). 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.

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 Newton, and all other areas being monitoring for air quality issues related to traffic.

The Active Travel Plan referred to within the Local Development Plan, and has the potential to become Supplementary Planning Guidance".

2.5.9 Single Outcome Agreement

A ten-year Single Outcome Agreement has been updated in September 2016 and has been developed for 2013-2023. The document sets out outcomes, indicators and activities that will be delivered and that will have an impact on the short term, medium and longer term – ensuring sustainability and transformational change.

One of those outcome is to "make the most efficient use of resources by minimising our impact on the built and natural environment". The two indicators to assess the delivery of this outcome are:

- Tonnes of CO_2 emissions per capita for the West Lothian District
- Percentage reduction in emissions from the council's activities and services (transport, fleet and business mileage, non-domestic buildings, street lighting, waste and water).

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
- 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 conclusion drawn.

3.1 Summary of Relevant LAQM Review and Assessment in West Lothian Council 2010 to 2016

3.1.1 2014 Progress Report

In 2014, West Lothian Council prepared an LAQM Progress Report as required under the local air quality management regime. The report concluded that “Newton automatic monitoring indicates an exceedance of the PM_{10} annual objective and will need to proceed to a Detailed Assessment”.

3.1.2 2015 Updating and Screening Assessment

In 2015, an Updating and Screening Assessment was prepared by West Lothian Council and concluded that “West Lothian has measured concentrations of PM_{10} above the annual mean objective at a relevant location and is proceeding with a Detailed Assessment, for Newton Main Street”.

3.1.3 2016 Detailed Assessment

A Detailed Assessment for Newton conducted in 2016 confirmed the findings of the 2015 Updating and Screening Assessment for West Lothian, namely, that exceedances of the Scottish annual mean PM_{10} were occurring in most of Newton.

The report concluded that an AQMA should be declared in Newton.

3.1.4 Newton AQMA Declaration

The Newton AQMA for annual mean concentrations of PM_{10} was declared on 30th June 2016. The boundary of the AQMA is presented in Figure 1.

Figure 1: Newton AQMA

3.2 Summary of Detailed Assessment for Newton (2016)

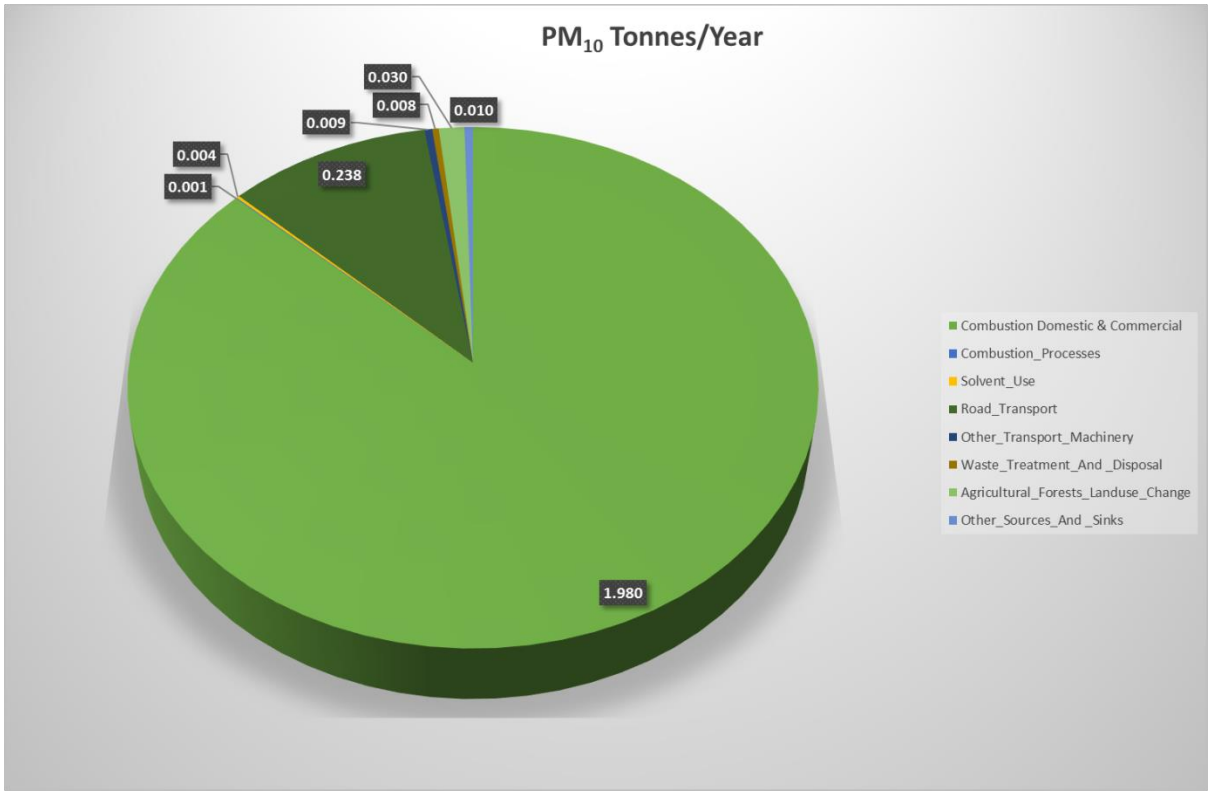
Before the declaration of the Newton AQMA, a Detailed Assessment of air quality was undertaken. The objective of the Detailed Assessment was to assess the conclusion of the 2015 Updating and Screening Assessment. The detailed Assessment included a source apportionment exercise, the aim of which was to identify the sources of emissions that contribute to local concentrations of PM_{10}. 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 an emissions inventory and a domestic survey.

3.2.1 Emissions Inventory

The emissions inventory provides estimates of PM_{10} emissions in the Newton area from different sources sectors. This emissions inventory has been undertaken using the data from the UK National Atmospheric Emissions Inventory (NAEI).

Figure 2: Background PM_{10} source apportionment



3.2.2 Source Apportionment

Source apportionment is the process whereby the contributions of different pollutant sources to ambient concentrations are quantified. This allows 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 one of the principal source of emissions, the relative contributions from the different types of vehicles (e.g. cars, HGV 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.

The source apportionment exercise was undertaken using an air dispersion model[7] which modelled the contributions of emissions of PM_{10} 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 receptors are presented in Figure 3 and 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 Detailed Assessment.

Figure 3: Receptor locations considered within the source apportionment

N	**Legend :** Receptors	Contains Ordnance Survey data © Crown copyright. All rights reserved. 2011 licence number LA100037194

[7] ADMS-Roads

The results of the source apportionment exercise have helped the Newton AQAP Steering Group to identify the most appropriate measures to include within the draft 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 PM_{10}.

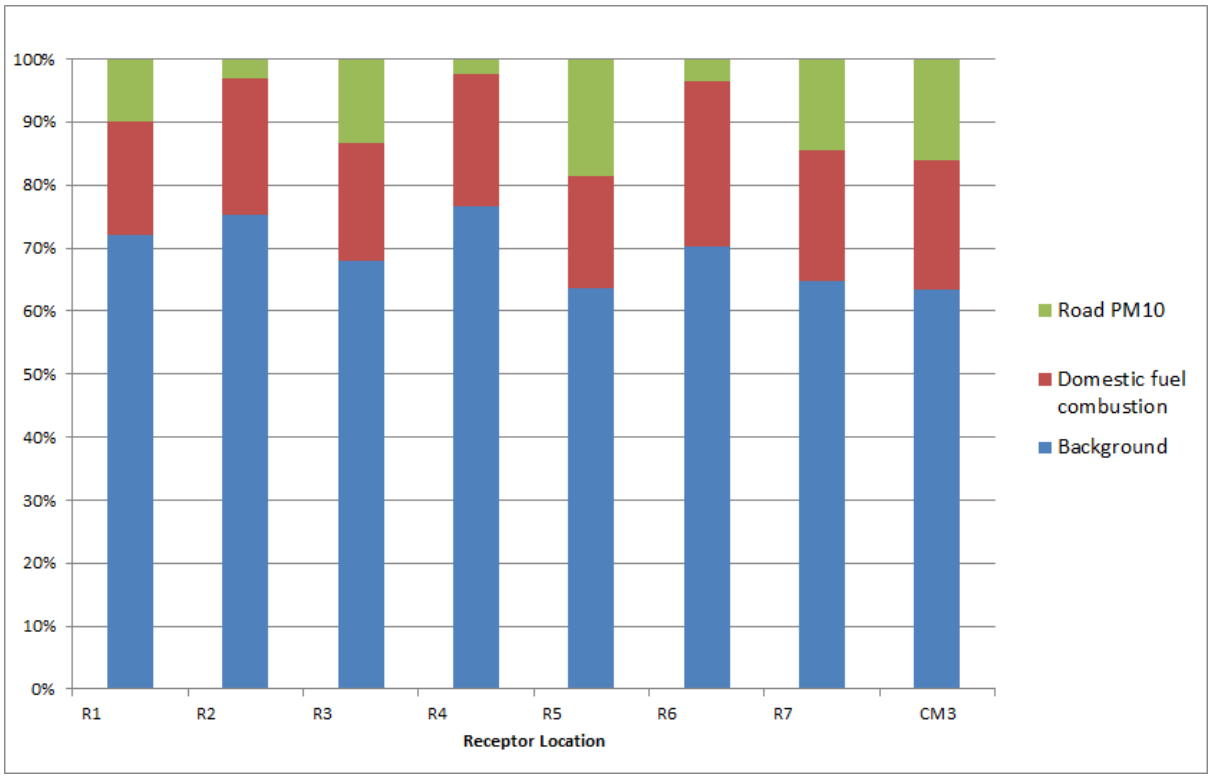
In the AQMA, the exceedance of the annual mean PM_{10} objective has been identified as being mainly attributable to emissions generated by domestic fuel combustion (between 7 and 10%) followed by road traffic. Emissions from domestic fuel combustion and road traffic should be the focus of any action plan measures in the AQMA.

3.2.3 Sources of Particulate Matter (PM_{10})

The results of the source apportionment exercise regarding ambient concentrations of PM_{10} are summarised in Figure 4 and Figure 5. The results of the analysis indicate that background concentrations contribute the most significant source of PM_{10} within Newton AQMA, being estimated to contribute between 84% and 91% of ambient concentrations at various points within the AQMA. Emissions from domestic fuel combustion are estimated to contribute between 7% and 10% followed by road traffic estimated to contribute the remaining 1-7%.

The high percentage contribution of PM_{10} from background sources represents a problem 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_{10} represents the contribution of sources outside of the Newton AQMA. Common sources of background PM_{10} include industrial, road transport, and domestic/ commercial combustion sources (heating) but natural sources and particulates produces through atmospheric reactions can also contribute significantly.

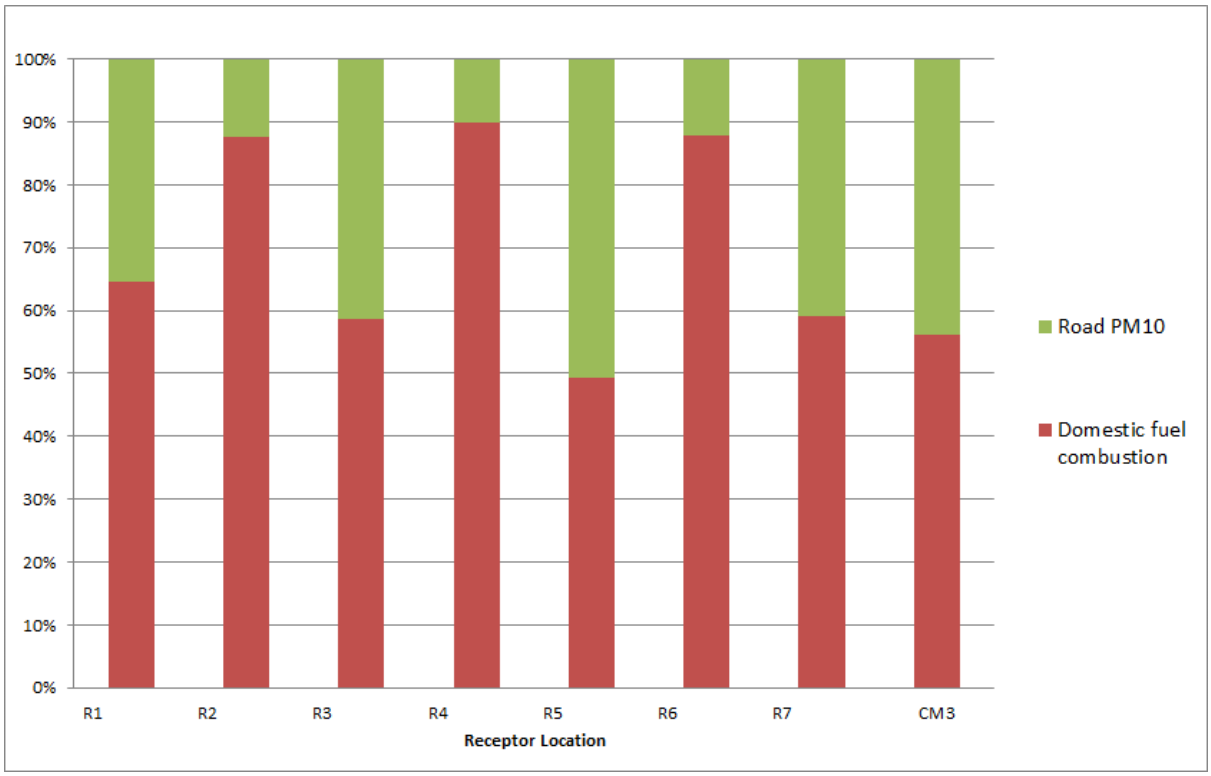
Figure 4: Estimated percentage contributions to local concentrations of PM_{10} within Newton AQMA



When only comparing the contribution of road traffic and domestic fuel combustion, the largest contribution at each receptor comes from domestic fuel combustion. The contribution of domestic fuel combustion goes from 50.2% for receptors closest to the road up to 92.6% for receptors further away from the road, excluding the background contribution.

These findings indicate that whilst background concentrations represent the principal source of local concentrations within Newton, domestic fuel combustion and road traffic also make a contribution to local concentrations.

Figure 5: Estimated percentage contributions to local concentrations of PM_{10} within Newton AQMA, excluding background contribution



3.2.4 Domestic Fuel Survey

A domestic fuel survey has been undertaken in February 2016 to better understand the PM_{10} emissions that are attributable to domestic combustion. The survey consisted of a short questionnaire which asked the householders to specify the fuel and amount of fuel they may use each year. The findings from the survey were used to inform and validate the emissions inventory.

3.3 Scenario analysis

Additional modelling has been undertaken as part of this Air Quality Action Plan to model the potential impact of two potential scenarios (measures) to ascertain their potential impact on local concentrations of PM_{10} in terms of compliance with the relevant objectives. The scenarios assessed were:

1. All properties are using main's gas.

2. All properties are burning oil.

These scenarios were modelled to inform future management decisions, but do not speculate on how the necessary reductions will achieved. The scenarios were selected to obtain an indication of what impact various changes in the use of a certain fuel could have on concentrations of PM_{10} within Newton. A summary of these scenarios analyses is presented below together with anticipated impacts on PM_{10} concentrations at relevant receptors.

Table 3: PM_{10} concentrations at receptors for the 'do-nothing' and Scenarios

Receptor location	2014 Baseline	Scenario 1 – All properties on main gas (µg.m^{-3})	Scenario 2 – All properties burning oil (µg.m^{-3})
CM3	23.0	18.7	18.82
R1	21.0	17.7	17.80
R2	21.7	18.1	18.18
R3	21.8	18.08	18.20
R4	21.2	17.85	17.97
R5	21.9	18.17	18.30
R6	23.9	19.22	19.38
R7	22.9	18.64	18.78
R8	23.3	18.85	19.00

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
- Paul Couper, Environmental Health Officer, West Lothian Council
- Sarah Gillespie, Technical Officer, West Lothian Council
- Tom Burr, Vehicle Emissions Officer, West Lothian Council
- Stewart Ness, Tourism and Town Centre Officer, West Lothian Council
- Gordon Brown, Senior Engineer, West Lothian Council
- Chris Alcorn, Principal Planner, West Lothian Council
- Chris Nicol, Engineer, West Lothian Council
- Desmond Bradley, Transport Integration Manager, Scotrail
- Deborah Paton, Policy Officer, West Lothian Council
- John Lamb, Local Air Quality Management Specialist, SEPA

The steering group was formed to provide an appropriate forum for developing the Draft AQAP. The composition of the group was carefully considered to include representatives from relevant Local Authority Services and representatives from external organisations with an interest in air quality and who may have an influence on the measures being considered within the draft plan.

4.2 Action Plan Development Process

The steering group first met in October 2016 and met several times during 2016 and 2017. 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 Newton for submission to statutory consultees and general public

Throughout the action planning process, the guidance outlined in LAQM TG (16) has been followed. LAQM TG (16) outlines the key requirements for the development of an effective Action Plan:

- Develop the AQAP in stages
- Undertake appropriate local monitoring and assessment (source apportionment)
- Decide what levels of actions are required
- Establish links with other key policy areas/strategies
- Undertake measures selection and impact assessment
- Agree monitoring and evaluation of success

4.3 Actions to date

To date the steering group has completed three main actions:

- Overview of the requirements of the action planning process;
- Provisional review of wide range of options for inclusion within the draft action plan with reasoning behind why certain options have been deemed appropriate for inclusion
- Selection of an initial 'longlist' of measures for inclusion within the draft plan

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

5 Action Plan Options and Assessment

During the development of the Action Plan, the steering group has considered a full range of relevant options aimed at reducing ambient pollutant concentrations within the designated AQMA. The process has consisted 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 are feasible and cost-effective compared to others.

As a result of continuing discussions and considerations of the steering group, some options have been amalgamated with other options, and going forward, further changes may also result from the forthcoming wider consultation process. This section describes how this was achieved and outlines some of the considerations of the steering group.

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 Newton 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.

Table 4: Potential Options to Improve Air Quality within the Newton 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. Furthermore, in Scotland, a more stringent annual mean objective for PM_{10} is in place. Consequently, background concentrations of particulate matter make a significant contribution to local PM_{10} concentrations. A long-term strategy aimed at reducing concentrations from these sources might include: • Building the capacity to better assess and manage the environmental impacts from road transport. • Specific commitments or targets within local development and transport planning policy to significantly reduce the impacts of new development. • Liaising with the Scottish Government to encourage the consideration/ implementation of national actions to reduce background concentrations of PM_{10} in Scotland, including contributions from other parts of the EU. Undertaking more detailed 'feasibility assessments' of complex actions or measures that would otherwise be eliminated from consideration.
2	Move sources away from the AQMA	Road transport emissions have been shown to represent the principal source of NO_x within the AQMA and make a significant contribution to local PM_{10} 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. **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.
3	Traffic Management – optimisation of traffic movement through AQMA	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. **Note that the opportunity to take such action is frequently limited.**
4	Reduce emissions from sources by technical means	Most 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. **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.**
5	Reduce emissions from sources by reducing the demand for travel or achieving better travel choices	An important way to reduce emissions from transport is to reduce the number of journeys made through the 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 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.

5.2 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

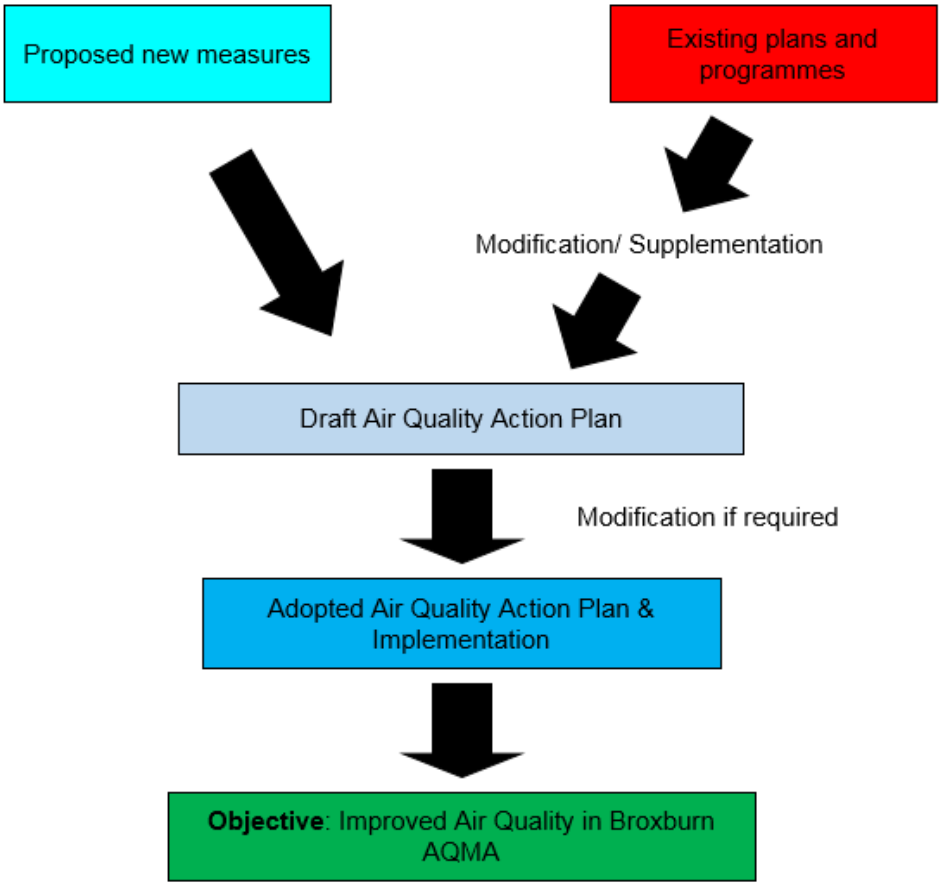
Taking into consideration the situation in the Newton AQMA, the findings of the source apportionment exercise (Section 3) and existing Council Policy, several of the measures included within the provisional list of measures were eliminated from further consideration at this time. These measures are presented in Table 5.

Table 5: Options eliminated from further consideration in the Newton AQMA

Traffic management
Introduce traffic calming measures
Other
Street Cleaning to remove Particles

The measures listed in Table 5 have been excluded from further consideration at this time on the grounds of cost effectiveness and lack of air pollution reduction. 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 Newton AQMA and also meet future reporting requirements.

Figure 6 Overview of measures included within the Action Plan



A summary of the remaining new measures proposed for inclusion in the Action Plan are presented in Table 6. Further details of the measures and their assessment are presented in the following sections.

Table 6: Measures selected for inclusion in the Newton AQAP

1. Strategic Measures
Liaise with the Scottish Government regarding the consideration of National Measures to Reduce Background Concentrations of PM
Liaise with the Scottish Government regarding National Air Quality Policy
Create Supplementary Planning Guidance on Air Quality
2. Traffic Management – optimisation of traffic movement through the AQMA
Winchburgh M9 Junction

Traffic Signal Phasing and Junction Modification
3. Reduce the emissions from source
Encourage Private and Public Operators to Pursue Cleaner Vehicles and Abatement
Development/Provision of a Local/Voluntary Bus Quality Partnership
Implement ECOStars Scheme for HGV and Bus Operators
4. Better travel choices/ behavioural change
Walking and Cycle Paths Infrastructure
Travel Plans for Large Institutions and Businesses
Provision of Information/Marketing regarding Air Quality and Promotion of Travel Options
5. Reduce emissions from non-transport sources
Investigate connecting Residential Properties to Main Gas
Investigate District Heating Solution
6. Other
Investigate Greening the Area with Trees
Increase Monitoring Network
Create a Smoke Control Area

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 Liaise with the Scottish Government Regarding the Consideration of National Measures to Reduce Background Concentrations of PM

The source apportionment study undertaken as part of the further assessment identified that background sources make a significant contribution to local concentrations of PM_{10}. 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**
1	Liaise with the Scottish Government regarding the consideration of National Measures to Reduce Background Concentrations of PM
Definition	**Key Intervention**
Maintain contact with the Scottish Government regarding the adoption of national measures to reduce background concentrations of PM	Increase focus on background concentrations of PM and encourage national action
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Planning and Economic Development	Voluntary

5.2.1.2 Liaise with Scottish Government regarding National Air Quality Policy

Measure	Title
2	Liaise with the Scottish Government regarding National Air Quality Policy

Definition	Key Intervention
Maintain contact with the Scottish Government regarding the adoption of national air quality measures	Increase focus on background concentrations of PM and encourage national action
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Planning and Economic Development	Voluntary

5.2.1.3 Create Supplementary Planning Guidance on Air Quality

This measure is intended to develop and adopt 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 will outline the potential requirement to undertake an Air Quality Impact Assessment for certain developments and the required content of such assessments. The guidance 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
3	Create Supplementary Planning Guidance on Air Quality

Definition	Key Intervention
Develop and adopt supplementary planning guidance relating to air quality	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: • Planning and Economic Development	Voluntary

5.2.2 Traffic Management

5.2.2.1 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 at specific stages in the development.

Measure	Title
4	Winchburgh M9 Junction

Definition	Key Intervention
a. Provision for distributor road in Core Development Area masterplan b. Planning consent in place to provide 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: • Planning and Economic Development Private landowners Developer	Planning condition 33 of 1012/P/05

5.2.2.2 Traffic Signal Phasing and Junction Modification

Measure	Title	
5	Traffic Signal Phasing and Junction Modification	
Definition		**Key Intervention**
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.		Reduce traffic queuing and emissions within the AQMA with the intention of reducing local ambient concentrations of NO_2 and PM_{10}.
Responsible authority and other partners		**Powers to be used**
West Lothian Council: • Planning and Economic Development • Corporate Services • Operational Services		Voluntary

5.2.3 Reduce the emissions from source

5.2.3.1 Encourage Private and Public Operators to Pursue Cleaner Vehicles and Abatement

West Lothian recognises that it has limited powers to control emissions from vehicles other than those within the Council fleet. However, the Newton 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	
6	Encourage Private and Public Operators to Pursue Cleaner Vehicles and Abatement	
Definition		**Key Intervention**
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: • Planning and Economic Development • Operational Services East Central Scotland Vehicle Emissions Partnership		Voluntary

5.2.3.2 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, buses can also make a significant contribution to emissions of NOx and PM_{10}, and consequently it is important to assess what can be done to reduce emissions from fleet vehicles where possible. Local and 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
7	Development/Provision of a Local/Voluntary Bus Quality Partnership

Definition	Key Intervention
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 • Operational Services Bus Operators	Voluntary

5.2.3.3 Implement ECOStars Scheme for HGV and Bus Operators

ECOStars is a voluntary scheme that provides recognition and guidance on environmental best practice to operators of good 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 operators, reduced fuel costs and emissions.

Measure	Title
8	Implement ECOStars Scheme for HGV and Bus Operators

Definition	Key Intervention
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 c. Liaison with haulage companies to encourage use of M9 d. Consider extending ECOstars to Private Hire and Taxi's	Encourage increased bus usage through the improvement of bus infrastructure and services
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Operational Services Bus Operators	Voluntary

5.2.4 Reduce emissions by reducing demand for traffic, change in travel choice

5.2.4.1 Walking and Cycle Paths Infrastructure

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

Measure	Title
9	Walking and Cycle Paths Infrastructure

Definition	Key Intervention
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: • Operational Services • Planning and Economic Development Scottish Canals SEStran	Voluntary Planning Policy Planning conditions and agreements

5.2.4.2 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 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**	
10	Travel Plans for Large Institutions and Businesses	
Definition		**Key Intervention**
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 and organisations operating in West Lothian.
Responsible authority and other partners		**Powers to be used**
West Lothian Council: • Operational Services Large institutions and businesses Sustrans		Voluntary

5.2.4.3 Provision of Information/Marketing regarding Air Quality and Promotion of Travel Options

The Newton AQMA steering group recognises that behavioural change forms a key component of the long-term plan to improve air quality and health within Newton and West Lothian generally. In order to get public buy into 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[8]. In addition, the most recent air quality management reports prepared by the Council are available through the Council website[9]. 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.

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 (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.

[8] http://www.scottishairquality.co.uk/index.php

[9] http://www.westlothian.gov.uk/law-licensing/1101/airquality2/

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.

Measure	Title
11	Provision of Information/Marketing regarding Air Quality and Promotion of Travel Options
Definition	**Key Intervention**
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 Newton AQMA. c. Continue to provide information about public transport services through the Council website. d. Ensure cycle networks and facilities are promoted, as a matter of course, within existing and new networks and developments. e. Encourage installation of changing and shower facilities in Council buildings to encourage walking and cycling.	To increase awareness of local air quality issues and encourage changed in behaviour that will contribute to improving local air quality.
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Operational Services • Planning and Economic Development SEStran Scottish Government East Central Scotland Vehicle Emissions Partnership	Voluntary

5.2.5 Reduce emissions from non-transport sources

The 2 main sources of PM_{10} emissions in the Newton area are fuel combustion and road transport. Non-road traffic PM_{10} concentrations account for a significantly high proportion, up to 91.3% of total PM_{10} concentrations. When only comparing the contribution of road traffic and domestic fuel combustion, the largest contribution at each receptor comes from domestic fuel combustion. The contribution of domestic fuel combustion goes from 50.2% for receptors closest to the road up to 92.6% for receptors further away from the road, excluding the background contribution. West Lothian council aims to encourage house owners/occupiers to use the most less polluting source of fuel available

5.2.5.1 Investigate connecting Residential Properties to Main Gas

Measure	Title
12	Investigate connecting Residential Properties to Main Gas
Definition	**Key Intervention**
a. Undertake feasibility study in Newton for connection to mains gas grid b. Investigate whether connection is viable c. Seek agreement from Transco on viability of project d. Implementation of option – if deemed appropriate.	Reduce air pollution from domestic fuel burning
Responsible authority and other partners	**Powers to be used**
West Lothian Council • Environmental Health	Voluntary

5.2.5.2 Investigate District Heating Solution

Measure	Title
13	Investigate District Heating Solution
Definition	**Key Intervention**
a. Carry out feasibility study on viability of small district heating	Reduce air pollution from domestic

solution b. Seek planning permission c. Implementation of option – if deemed appropriate	fuel burning
Responsible authority and other partners	**Powers to be used**
West Lothian Council • Environmental Health	Voluntary

5.2.5.3 Incentives for Changes to Domestic Fuel Burning

Measure	**Title**
14	Incentive for Changes to Domestic Fuel Burning
Definition	**Key Intervention**
a. Carry out feasibility and modelling study to show likely Air Pollution reduction from changes to domestic fuel burning b. Seek resources to set up financial incentive scheme c. Seek funding – if deemed appropriate d. Implementation of option - if deemed appropriate	Reduce air pollution from domestic fuel burning
Responsible authority and other partners	**Powers to be used**
West Lothian Council • Environmental Health	Voluntary

5.2.6 Other

5.2.6.1 Investigate Greening the Area with Trees

There is evidence that urban trees remove large amounts of air pollution and improve urban air quality.

Research in recent years has begun to identify how urban greening, and tree planting, might be tailored to achieve air quality goals whilst still fulfilling many of the other beneficial functions of urban green space. Not all vegetation positioning yields an equal pollutant removal potential, Local airflows and pollutant concentrations will significantly affect the efficiency with which vegetation can remove pollution. West Lothian Council aims to increase the “greening” of Newton if it is deemed to show benefits in terms of air quality.

Measure	**Title**
15	Investigate Greening the Area with Trees
Definition	**Key Intervention**
a. Assess the opportunity to plant trees in Newton and undertake feasibility study on air pollution benefits b. Implementation of options – if deemed appropriate	Reduce emissions through intercepting airborne particles
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Nets • Road and Transportation Services	Voluntary

5.2.6.2 Increase Monitoring Network

- Establish $PM_{2.5}$ monitoring within AQMA, possibly relocate site
- Additional diffusion tube monitoring
- Background monitoring to validate background concentrations

Measure	**Title**
16	Increase Monitoring Network
Definition	**Key Intervention**
a. Review current monitoring network and assess opportunity to increase monitoring of key pollutants	Increase accuracy of modelling data

b. Implementation of option – if deemed appropriate	
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Environmental Health	Voluntary

5.2.6.3 Create a Smoke Control Area

Smoke Control Areas were first introduced to prevent the continuation of the smogs of the 1960s and earlier. They are intended to limit smoke from homes and businesses by setting standards for fires using a chimney. Smoke Control Areas do not prevent burning or bonfires. West Lothian Council will aim to carry out a study to look at the potential benefits of declaring a smoke control area and implement if deemed appropriate.

Measure	**Title**
17	Create a Smoke Control Area
Definition	**Key Intervention**
a. Review current background pollution levels and undertake study on creation of smoke control area b. Implementation of option – if deemed appropriate.	Reduce background pollution levels
Responsible authority and other partners	**Powers to be used**
West Lothian Council: • Environmental Health	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 Newton
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 7 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 7: 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	Yes, but novel or with	Yes, with forward	Not without further

Feasible in the:	Authority has the powers	Funding secured	Potential positive and negative impacts are well characterised
years)	an element of uncertainty	planning	study
Long term (>6 years)	Highly uncertain	No or extremely difficult	Not without further study
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 changes 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 8 below, with further details presented in Appendix 1.

Table 8: Summary Assessment of Proposed Measures

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
Strategic measures										
1.	Liaise with the Scottish Government regarding the consideration of national measures to reduce background concentrations of PM.				Greenhouse Gases; Health Improvement; Improve Local Environment	None	Low Risk	None	WLC	Short Term; Yes
2.	Liaise with Scottish Government regarding National air quality policy				Greenhouse Gases; Health Improvement; Improve Local Environment	None	Low Risk	None	WLC	Short Term; Yes
3.	Create Supplementary Planning Guidance on Air Quality				Greenhouse Gases; Health Improvement; Improve Local Environment; Noise	limits development; increases cost of development	Health Benefits; Road Safety; Improve Accessibility	additional requirements on operators; influence sustainable development	Environmental Health	Short Term; Yes
Traffic Management										

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
4.	Winchburgh M9 Junction	Zero	Very High	Low	None	None	Improve Accessibility	Reduce Travel Time; influence sustainable development; +ve impact on businesses	Roads; Planning	Medium Term; Yes
5.	Traffic Signal Phasing and Junction Modification	Zero	Low	Low	Improve Local Environment; Noise	None	None	+ve impact on businesses	Roads	Short Term; Yes
Reduce the emissions from source										
6.	Encourage Private and Public Operators to Pursue Cleaner Vehicles and Abatement	Small	Low	Low	Greenhouse Gases; Health Improvement; Improve Local Environment	None	Health Benefits	Low	Environmental Health	Short Term; Yes
7.	Development/Provision of a Local/Voluntary Bus Quality Partnership	Zero	High	Low	Improve Local Environment	Relocate Emission;	; Improve Accessibility	influence sustainable development;	Environmental Health	Medium Term; Yes
8.	Implement ECOStars Scheme for HGV and Bus Operators	Small	Medium	Low	Greenhouse Gases; Health Improvement; Improve Local Environment;	None	Health Benefits;	additional requirements on operators	Environmental Health	Medium Term; Yes
Reduce emissions by reducing demand for traffic, change in travel choice										

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
9.	Walking and Cycle Paths Infrastructure	Zero	Very High	Low	Greenhouse Gases; Health Improvement; Improve Local Environment; Noise	Relocate Emission; land use change; limits development; increases cost of development	Health Benefits; Road Safety; Improve Accessibility	None	Roads; Planning;	Long Term; Yes
10.	Travel Plans for Large Institutions and Businesses	Small	Low	Low	Greenhouse Gases; Health Improvement; Improve Local Environment	None	Health Benefits	additional requirements on operators	Environmental Health	Medium Term; Yes
11.	Provision of Information/Marketing regarding Air Quality and Promotion of Travel Options	Zero	Low	Low	None	None	None	+ve impact on businesses	Environmental Health	Short Term; Yes
Reduction from non-transport sources										
12.	Connect Residential Properties in Newton to the Main Gas Grid	Large	Very High – return in the long run.	Low	Greenhouse Gases; Health Improvement; Improve Local Environment	land use change	Health Benefits	+ve impact on businesses	Environmental Health	Long Term; Yes
13.	District Heating Solution	Zero	Low	Low	Greenhouse Gases; Health Improvement; Improve Local Environment; Noise	None	None	None	Environmental Health and Climate Change	Short Term; Medium Yes

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
14.	Incentives for Changes to Domestic Fuel Burning	Medium	High	Low	Greenhouse Gases; Health Improvement; Improve Local Environment	None	Health Benefits	+ve impact on businesses	Environmental Health; Climate Change	Long Term; Yes
Other										
15.	Greening the Area with Trees	Small	Low	Low	Greenhouse Gases; Health Improvement; Improve Local Environment	None	Health Benefits	+ve impact on businesses	Planning	Short Term; Yes
16.	Increase Monitoring Network	Zero	Medium	Low	None	None	Health Benefits	None	Environmental Health	Short Term; Yes
17.	Create a Smoke Control Area	Zero;	Low	Low	Greenhouse Gases; Health Improvement; Improve Local Environment; Noise	None	None	None	Environmental Health;	Short Term; Yes

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