Musselburgh Draft Air Quality Action Plan

Report for East Lothian Council
ED59976

Customer:

East Lothian Council

Customer reference:

ED59976

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Date:

28 October 2016

Ricardo Energy & Environment reference:

Ref: ED59976- DRAFT

Executive summary

This draft of Air Quality Action Plan (AQAP) for the Musselburgh High St AQMA, has been prepared by East 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, East Lothian Council has undertaken a programme of air quality assessments. The strategy requires each unitary authority to undertake a series of air quality assessments to determine the current situation regarding local air quality, and to outline the progress of their local air quality management procedures to date.

A Detailed Assessment was prepared in 2008, which confirmed that exceedances of the NO_2 annual mean objective existed at the location. These objectives have been set to protect human health, and hence it is now East Lothian Council's duty to make progress towards these where possible. 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 AQAP, setting out the local or strategic actions that it will be implement to improve air quality and work towards meeting the objectives.

What is the cause of the problem?

The findings of the Further Assessment (2014) indicate that road traffic is the principal source responsible for the local exceedances of NO_2 within the Musselburgh High St AQMA. However, the latest Annual Progress Report (2016) indicates that there were no exceedances of the NO_2 annual mean objective during 2015; with a downward trend in NO_2 concentrations in the past five years. This may be, in part, as a result of the current measures that have been put in place by East Lothian Council e.g. the Split Cycle Offset Optimisation Technique (SCOOT) traffic management system adopted within the AQMA. Air quality monitoring will need to be continued to confirm the downward trend and it is likely that the additional measures proposed within this AQAP will help to reduce NO_2 concentrations further.

Draft Air Quality Action Plan

East Lothian Council considered the conclusions listed above and the wide range of potential measures for improving air quality within the Musselburgh High St AQMA. The measures were assessed against the following criteria:

- Potential air quality impact;
- Potential costs;
- Overall cost-effectiveness;
- Potential co-environmental benefits, risk factors, social impacts and economic impacts;
- Feasibility and Acceptability.

The assessments were then considered in total to place the measures in a prioritised order. This then became the draft AQAP. The draft Plan is summarised in tabular form below. The feasibility of Measures 12 and 13 are in the process of being assessed, which includes both modelling of road traffic movements and associated air quality impacts in the Musselburgh area as a result of the proposed actions. Note that additional measures may come to light during this process and that the AQAP will be updated with the finalised measures during the annual air quality reporting regime.

Summary of the Draft Action Plan for the Musselburgh High St AQMA

No	Measure	Timescale
	Strategic Measures	
1	Improving links with Local Transport Strategy	Ongoing
2	Improving links with Local Development Plan	Ongoing
	Direct Measures	
3	AQMA Signage	Short Term
4	Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	Short Term
5	Eco Stars	Short-Medium Term
6	East Central Scotland Vehicle Emissions Partnership	Ongoing
7	Provision of information regarding air quality and travel options	Ongoing
8	Promotion of alternative modes (cycling + walking)	Ongoing
9	Green Travel Plans for large institutions and businesses.	Short-Medium Term
10	SCOOT - Split Cycle Offset Optimisation Technique	Ongoing
11	Bus stop relocations on High St, Musselburgh	Short-Medium Term
12	Larger Trains and Platforms at Musselburgh Rail Station	Short-Medium Term
13	Electrification of Lothian Buses in Musselburgh	Short-Medium Term

Note: AQMA = Air Quality Management Area. In this document the AQMA is an area of Musselburgh Town Centre that has been subject to a formal order defining it as an area where an air quality objective is not being achieved.

The plan aims to reduce transport emissions of NOx in the AQMA by approximately 21%. It is anticipated that a reduction of this scale will lead to the achievement of the annual mean NO_2 air quality standard (40 $\mu g\ m^{-3}$) within the Musselburgh AQMA. East Lothian Council will continue to review and assess air quality to monitor the situation and success of the plan. It should also be noted that although reducing particulate matter (PM_{10} and $PM_{2.5}$) concentrations is not the aim of this AQAP, it is envisaged that any measures put in place to reduce NO_2 concentrations will also have a positive impact on PM_{10} and $PM_{2.5}$ concentrations.

What happens next?

East Lothian Council is now assessing the feasibility of measures 12 and 13 and will consult statutory consultees on its intention to implement this plan. Consultation responses will be integrated into the final plan that will be adopted in 2016.

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Appendices

1 Introduction

This Action Plan has been produced by East Lothian Council and constitutes the consultation draft Air Quality Action Plan (AQAP) designed to address the air quality problems identified in Musselburgh High Street, East Lothian. It is a statutory duty for East Lothian Council to develop an Air Quality Action Plan 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. **Not all of the measures discussed in this report have been formally adopted by East Lothian Council, but are actively under consideration.**

This draft document does not constitute the final AQAP. It has been developed from discussions within East Lothian Council and on the basis of guidance from East Lothian Council's contracted consultants, Ricardo Energy & Environment. However, this draft is ready to be consulted upon. At this stage the draft plan is being submitted to:

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

Comments received during this consultation will be addressed and potentially, changes will be made to the plan. The revised version will also be submitted to East Lothian Council and may be subject to further revisions. The final version 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 East Lothian Council and other stakeholders.

1.1 Objectives

This draft AQAP summarises the air quality review and assessments that have been undertaken in East Lothian to date, focussing on exceedances of the National Air Quality Strategy Objectives, and outlining the mechanisms and the targeted measures proposed by East Lothian Council that aim to improve local air quality. The plan focuses on air quality within Musselburgh High Street, where an AQMA was declared in November 2013 as a result of elevated concentrations of nitrogen dioxide (NO_2). 16 measures have been incorporated within the provisional draft Plan, many of which have already been developed/implemented through existing plans and policies. In addition, new measures have been proposed aimed at supplementing ongoing activities and focussing specifically on improving air quality within Musselburgh High Street.

1.2 Report Contents and Structure

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

- A demonstration that the local air quality issues are clearly understood;
- An explanation of how the action plan will help to deliver the aims and objectives of Cleaner Air for Scotland Strategy (CAFS);
- Quantification of the source contributions to the predicted exceedances of the objectives; this will allow the action plan measures to be effectively targeted;

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

The Scottish Government recommends that further assessment of air quality should be undertaken in parallel with the development of the action plan to provide the technical justification for the measures an authority later includes in its action plan.

The remainder of this report is structured as follows:

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

2 Ambient Air Quality and Local Air Quality Management

This action plan has been developed in recognition of the legal requirement on the local authority to work towards air quality objectives under Part IV of the Environment Act 1995 and associated regulations. This chapter outlines the significance of local air quality management in the context of human health, the legislation in place to protect human health. This information is included to provide readers with a general overview of air quality issues in Scotland.

2.1 Potential Impacts of Air Pollution on Human Health

Air pollution has been associated with a wide range of effects on human health and the wider environment; however, it is the potential negative impacts of ambient air pollution on human health that

is the primary focus of local air quality management. Air pollution has been associated with both long- and short-term effects on human health (COMEAP, 2009), with the nature of the effects influenced by factors such as the type and concentration of pollutant and the duration of exposure. Short-term exposure to high concentrations of common outdoor pollutants has been linked with a temporal increase in hospital admissions (Anderson et al., 2001) and with contributing to the premature mortality of susceptible individuals with pre-existing lung or cardio-vascular disorders.

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).

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

2.2 The Air Quality Objectives

A list of health Objectives relevant to Scotland is presented in Table 2.1.

Table 2.1 Air Quality Objectives

Pollutant	Concentration	Measured as	Obligation
Benzene	16.25 μg m^{-3}	Running annual mean	All local authorities
	5 μg m^{-3}	Annual mean	England and Wales only
	3.25 μg m^{-3}	Running annual mean	Scotland and Northern Ireland only
Carbon Monoxide	10.0 mg m^{-3}	Maximum daily running 8-hour mean	England, Wales and Northern Ireland only
	10.0 mg m^{-3}	Running 8-hour mean	Scotland only
Lead	0.5 μg m^{-3}	Annual mean	All local authorities
	0.25 μg m^{-3}	Annual mean	All local authorities
Nitrogen dioxide	200 μg m^{-3} not to be exceeded more than 18 times a year	1 hour mean	All local authorities
	40 μg m^{-3}	Annual mean	All local authorities
Particulate Matter (PM_{10})	50 μg m^{-3} not to be exceeded more than 35 times a year	24 hour mean	All local authorities
	40 μg m^{-3}	Annual mean	All local authorities
	50 μg m^{-3} not to be exceeded more than 7 times a year	24 hour mean	Scotland only
	18 μg m^{-3}	Annual mean	Scotland only
Particulate Matter ($PM_{2.5}$)	Working towards reducing emissions/concentrations of $PM_{2.5}$	Annual mean	England only
	10 μg m^{-3}	Annual mean	Scotland only
Sulphur dioxide	350 μg m^{-3} not to be exceeded more than 24 times a year	1 hour mean	All local authorities

Pollutant	Concentration	Measured as	Obligation
	125 μg m^{-3} not to be exceeded more than 3 times a year	24 hour mean	All local authorities
	266 μg m^{-3} not to be exceeded more than 35 times a year	15 minute mean	All local authorities

The Objectives apply at locations where members of the public are likely to be exposed over the averaging period of the objective. Table 2.2 below summarises the locations where these objectives should and should not apply respectively.

Table 2.2 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	1,3 Butadiene Benzene Lead Nitrogen dioxide PM_{10}	All background locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, libraries etc.	Building facades of offices or other places of work where members of the public do not have regular access. Gardens of residential properties. Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term
24 hour mean and 8-hour mean	Carbon monoxide PM_{10} Sulphur dioxide	All locations where the annual mean objective would apply. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
1 hour mean	Nitrogen dioxide Sulphur dioxide	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed.	Kerbside sites where the public would not be expected to have regular access.
15 minute mean	Sulphur dioxide	Any outdoor locations to which the public might reasonably be expected to have access. All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

Whilst it is anticipated that measures adopted at a national and international level will enable the objectives to be attained in the majority of relevant locations, measures adopted at a local level can make a significant contribution to improving air quality in specific locations. The UK government

acknowledges the significant role that local authorities play in helping to achieve the air quality objectives.

2.3 Existing Strategies and Policies relevant to Air Quality in Musselburgh

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 East 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 measures for improving air quality can be implemented. This Chapter identifies the most important of these.

2.3.1 Cleaner Air for Scotland (CAFS)

CAFS was published in November 2015 to provide a national strategy in which all sectors can work together towards the common aim of achieving improved air quality in Scotland. The proposed actions outlined in CAFS not only work towards reducing pollutant concentrations but in turn aim to reduce congestion and improve traffic flow within urban areas.

CAFS recognises that even at lower levels air pollution harms both human health and the environment, by producing a national framework CAFS sets out how the Scottish Government and Partner organisations proposed to achieve further pollutant reductions and fulfil the EU and UK legal requirements for air quality as soon as possible.

CAFS outlines six main objectives to be achieved across Scotland. The six key areas of focus all work towards the same aim of reducing pollutant concentrations, these include:

- Transport: promoting active travel and reduced emission technologies.
- Legislation and Policy: all EU and Scottish legal requirements achieved for air quality.
- Communication: a Scotland where all citizens are well informed and engaged.
- Health: protect citizens from harmful effects of air pollution.
- Place-making: air quality not to be compromised by new or existing developments.
- Climate Change: reduction in greenhouse gas emissions.

2.3.2 The National Transport Strategy

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

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

These key objectives have been designed to support the role of Government and respond to the 5 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 Musselburgh and the AQMA are:

In order to improve journey times and connections, tackle congestion and the lack of integration and connections in transport, the strategy outlines the following commitments:

- 'Investing to tackle congestion from the School Run;

- Promoting SMART[1] measures on all journeys, focusing especially on the commute to work through developing travel awareness and marketing campaigns;
- Exploring with key partners sustainable travel demonstration towns across Scotland to reduce car use and promote cycling and walking;
- Promoting and encouraging new vehicle technologies;
- Supporting sustainable distribution strategies through the Scottish Road Haulage Association;
- Publishing a Bus Action Plan to help achieve a step change in the quality of bus service provision;
- Introducing 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.

2.3.3 Regional Transport Strategy (2008 – 2023)

East Lothian Council is a member of the South East of Scotland Transport Partnership (SEStrans). The SEStran Regional Transport Strategy was developed to compliment 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:

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).
Initiatives for specific areas and groups	Initiatives targeting accessibility and providing minimum levels of service to specific localities and groups, and rural areas.
Network-based initiatives	Covering specific infrastructure schemes and public transport services on principal travel corridors. These include a wide range of measures proposed for movements of strategic importance to the SEStran area.

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

2.3.4 East Lothian Council Local Transport Strategy

The Local Transport Strategy is currently being updated. The Strategy's objectives are:

- to deliver a more attractive and safer environment for pedestrians and cyclists;
- to reduce the overall dependence on the car and the environmental impact of traffic;
- to promote the availability and use of more sustainable means of travel;
- to locate new development to reduce the need to travel;
- to maximise accessibility for all and reduce social exclusion; and to promote integration and interchange between different means of travel

2.3.5 Strategic Development Plan for South East Scotland (SESplan)

The Local Planning Authorities in collaboration with Transport Scotland and the South East of Scotland Transport Partnership (SEStran) will support and promote the development of a sustainable transport network. Local Development Plans will: a. Ensure that development likely to generate significant travel

[1] SMART Measures: Specific, Measurable, Achievable, Realistic and Time.

demand is directed to locations that support travel by public transport, foot and cycle; b. Ensure that new development minimises the generation of additional car traffic, including through the application of mode share targets and car parking standards that relate to public transport accessibility; c. Relate density and type of development to public transport accessibility; d. Consider the need for additional rail freight facilities and when considering sites for development that would generate significant freight movements, require the potential for rail freight to be investigated; e. Consider the potential for expanded port capacity in the Firth of Forth and the cross-boundary implications this may have; f. Take account of the cross-boundary transport implications of all policies and proposals including implications for the transport network out with the SESplan area; g. Ensure that the design and layout of new development demonstrably promotes non-car modes of travel; and h. Consider the merits of protecting existing and potential traffic-free cycle and walking routes such as disused railways affected by any development proposal.

2.3.6 East Lothian Local Development Plan

The Proposed East Lothian Local Development Plan (LDP) represents the Council's settled view for the future development of East Lothian. The Proposed Plan recognises that an AQMA has been declared along Musselburgh High Street and sets out specific policies and proposals that will to be put in place to mitigate existing air quality issues and will monitor and manage development impacts as required to ensure air quality is maintained to an acceptable standard in association with new development.

The proposed main aims of the LDP are:

1. To recognise that East Lothian is part of the wider city region and has a significant role to play in accommodating and providing for the city region's as well as its own economic, population and household growth in a sustainable way
2. To identify locations where development of different types associated with these aims should take place, where relevant within the appropriate timescales, as well as where development should not occur
3. To provide an appropriate framework of policies and proposals that can promote and manage development in the area towards these aims

The LDP's proposed objective in terms of air quality is:

- To ensure that the area's significant international, national and local cultural and natural heritage assets are protected and conserved, and where appropriate enhanced, including biodiversity, flora and fauna as well as soil, water and air quality

In order to achieve these aims and objective Policy HN12: Air Quality states: Impacts on air quality will be taken into account in assessing development proposals, particularly within and close to any Air Quality Management Area (AQMA). An Air Quality Assessment may be required for developments that are within an AQMA or where the proposed development may cause or exacerbate a breach of National Standards.

Development proposals that would result in either a breach of National Air Quality Standards or a significant increase in concentrations of air pollution within an existing AQMA will not be supported unless appropriate mitigation measures can be put in place.

2.3.7 Climate Change Declaration

Scotland's Climate Change declaration acknowledges the importance of climate change and is a means of demonstrating East Lothian's commitment to action: all of Scotland's 32 local authorities are signatories. The declaration includes commitments both to mitigate our impact on climate change through reducing greenhouse gas emissions and to adapt to future predicted climate change impacts.

East Lothian is a signatory to the Declaration and this has been included within the AQAP. Where measures seek to reduce road transport, this will have a direct impact on not only air quality within the AQMA but also a reduction in carbon dioxide CO_2 emissions.

2.4 Consultation on the Action Plan

Authorities in Scotland must consult on their preparation of an AQAP and the finalisation of the plan should take account of consultees' comments on the draft. Further consultation may be required due to the long term nature of AQAP's resulting in further revisions of the plan.

Consultation on the action plan should include:

- Details of which pollutants the authority will look at and an indication of where they come from;
- The timescales for implementing each proposed measure.
- Details of the other organisations or agencies whose involvement is needed to meet the plan's objectives and what the authority is doing to get their cooperation.

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 Assessment undertaken by East Lothian Council

3.1 Summary of LAQM Review and Assessment in East Lothian Council

Table 3.1 summarises the conclusions for NO_2 from assessments carried out between 2004 and 2016.

Table 3.1 Conclusions from previous Air Quality Review and Assessment Reports

Review and Assessment Round	Reports	Conclusions
2	Updating and Screening Assessment 2004[2] Detailed Assessment 2005[3] Progress Report 2005[4]	It was identified the exceedances of the NO_2 objectives could occur in the Musselburgh area, which was mainly due to road traffic sources. The subsequent Detailed Assessment concluded that it was unlikely that NO_2 concentrations would exceed the strategy objectives.
3	Updating and Screening Assessment 2006[5] Progress Report 2007[6] Progress Report 2009[7]	It was concluded that it was unlikely that the NO_2 objectives had been exceeded during this round.
4	Updating and Screening Assessment 2009[8] Progress Report 2010[9] Detailed Assessment 2010[10] Progress Report 2011[11]	It was concluded in 2009 that a Detailed Assessment for both NO_2 and PM_{10} was required to assess the possible air quality impacts of a biomass boiler installed at Queen Margaret University. The Detailed Assessment concluded that it was unlikely that the

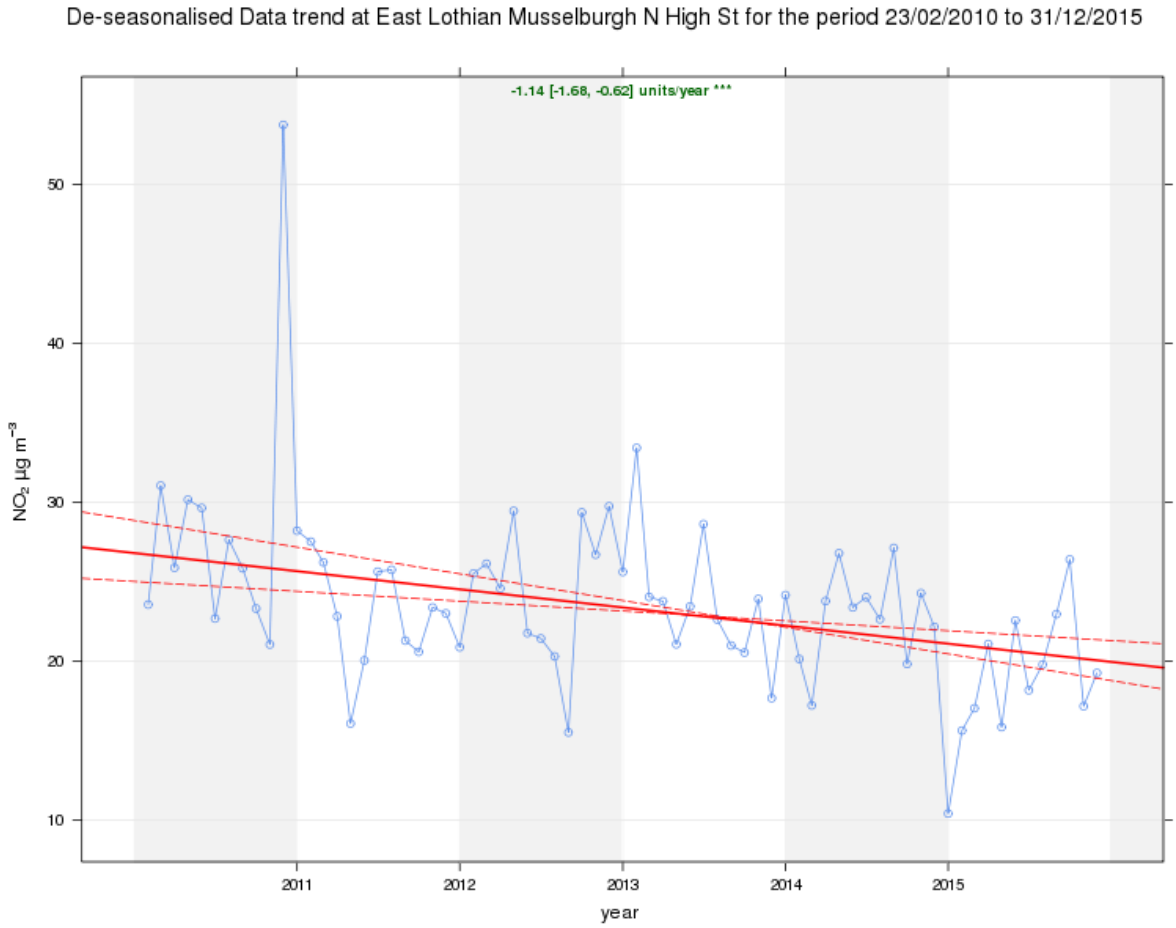
[2] Local Air Quality Management: Updating and Screening Assessment, Enviros Consulting Ltd, March 2004
Available from http://www.eastlothian.gov.uk/download/meetings/id/3669/04_environment_act_1005-local_air_quality_management_road_traffic_vehicle_emissionsfixed_penaltyscotland_regulations_2003 [Accessed on 02/04/2012]
[3] Local Air Quality Management: Detailed Assessment, East Lothian Council, April 2005
[4] Local Air Quality Management: Progress Report East Lothian Council, August 2005 [Online]
Available from http://www.eastlothian.gov.uk/downloads/file/526/air_quality_leaflet [Accessed on 02/04/2012]
[5] Local Air Quality Management: Updating and Screening Assessment, East Lothian Council, August 2006
[6] Local Air Quality Management: Progress Report East Lothian Council, July 2007
[7] Local Air Quality Management: Progress Report East Lothian Council, February 2009
[8] Local Air Quality Management: Updating and Screening Assessment, East Lothian Council, August 2006
[9] Local Air Quality Management: Progress Report East Lothian Council, October 2010
[10] Air Quality Assessment: Queen Margaret University Biomass Boiler, AEA, October 2010
[11] Local Air Quality Management: Progress Report East Lothian Council, June 2011

		objectives for both PM_{10} and NO_2 would be exceeded as a result of emissions from the biomass boiler. The conclusion of the 2011 Progress Report, however, concluded that it was likely that the annual mean objective for NO_2 had been exceeded at two locations; 147 and 183 High St, Musselburgh. As a result it was recommended that a Detailed Assessment of NO_2 concentrations should be carried out in the area of the High Street, Musselburgh.
5	Updating and Screening Assessment 2012[12] Progress Report 2013[13] Progress Report 2014	It was concluded in the 2012 USA that passive monitoring of NO_2 during 2011 and the results of a Detailed Assessment for NO_2 in Musselburgh (discussed in Section 3.1.1) continued to indicate that NO_2 concentrations at various locations along High Street were close to the Annual Mean Objective. It was also considered appropriate by East Lothian Council to carry out passive monitoring of NO_2 at a representative sample of these exceeding receptor locations to confirm the results of the modelling assessment. East Lothian Council started monitoring NO_2 concentrations at 5 new locations on Musselburgh Bridge Street and High Street on 3rd May 2012 using passive diffusion tubes. These new monitoring sites are located at receptors 167 High Street (Tube No 29), 137 High Street (Tube No 30), 69 High Street (Tube No 31), 86 High Street (Tube No 32) and 15 Bridge Street Tube No 28). East Lothian Council should consider the declaration of an AQMA for the NO_2 annual mean objective after submission of the next LAQM Report, the 2013 Progress Report, due for submission by the end of April 2013 if monitoring results obtained from new locations, in addition to existing monitoring locations, confirms the modelling results that the NO_2 annual mean objective has been exceeded. The 2013 Progress Report concluded that with the additional monitoring carried out no exceedances of the annual mean NO_2 objective were measured on Bridge St. However further exceedances were measured at 167 and 69 High St. As a result of these exceedances and the Detailed Assessment an AQMA will be declared in Musselburgh.
6	Updating and Screening Assessment 2015[14] Annual Progress Report 2016[15]	It was concluded in the 2015 USA that NO_2 concentrations within the Musselburgh AQMA remain close to or exceed thNO_2 annual mean objective. No exceedances of the AQS objectives were measured at any other monitoring within the local authority area. The 2016 Annual Progress Report concluded that there were no exceedances of the AQS objectives with a downward trend seen in NO_2 annual mean concentrations.

[12] Local Air Quality Management: Updating and Screening Assessment, East Lothian Council, November
[13] Air Quality Progress Report for East Lothian Council, East Lothian Council, August 2013
[14] Local Air Quality Management: Updating and Screening Assessment, East Lothian Council, October 2015
[15] Local Air Quality Management: Air Quality Annual Progress Report, East Lothian Council, July 2016

Note that the latest Annual Progress Report (2016) indicates that there were no exceedances of the NO_2 annual mean objective during 2015 with a downward trend in NO_2 concentrations seen at the North High Street automatic monitoring site between 2010 and 2015 (Figure 3.1). The reduction in annual mean NO_2 concentrations within the AQMA may be, in part, due the current measures that have been put in place by East Lothian Council e.g. the Split Cycle Offset Optimisation Technique (SCOOT) traffic management system adopted within the AQMA. Air quality monitoring will need to be continued to confirm the downward trend within the AQMA. However, the additional measures proposed within this AQAP are likely to decrease NO_2 concentrations further.

Figure 3.1 NO_2 Trend at North High Street, Musselburgh – 2010 to 2015

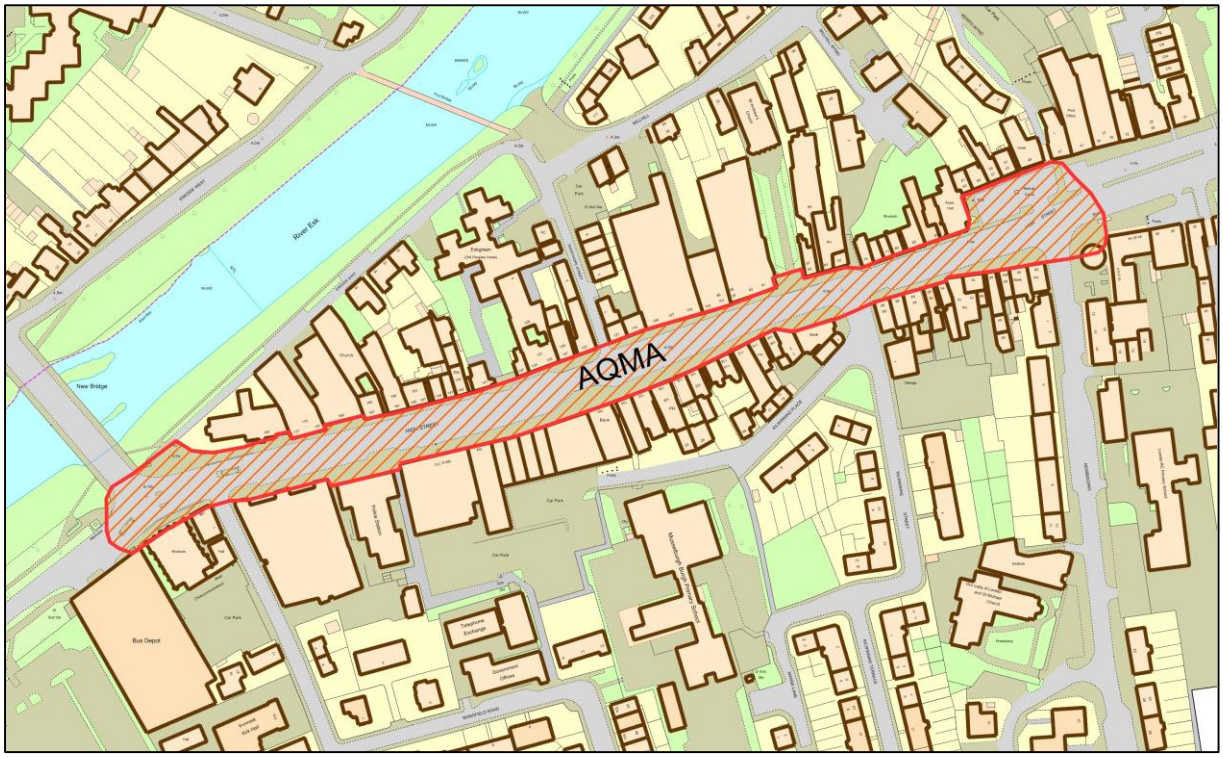


3.1.1 Summary of Detailed Assessment for High Street, Musselburgh – 2012

The 2012 Detailed Assessment[16] indicated that the annual mean objective for NO_2 was likely to have been exceeded at four receptors on High St and three receptors on Bridge St. It was noted that the highest annual average NO_2 concentrations were predicted receptors located close to bus stops and that the majority of the predicted annual mean exceedances are marginal. An element of uncertainty has been introduced to the model as a result of estimating emissions from both queuing traffic and stationary buses. Therefore, it would be appropriate to carry out monitoring of NO_2 at a representative sample of exceeding receptors to confirm the results of this modelling assessment. This would greatly enhance the reliability of the forthcoming Further Assessment and allow better delineation of any required Air Quality Management Area (AQMA) boundary. East Lothian Council declared an AQMA encompassing High Street, Musselburgh in November 2013 (the Order is provided in Appendix 1). The AQMA boundary is shown in Figure 3.2 below.

[16] Air Quality Detailed Assessment for Musselburgh, AEA, AEAT/ENV/R3281, June 2012

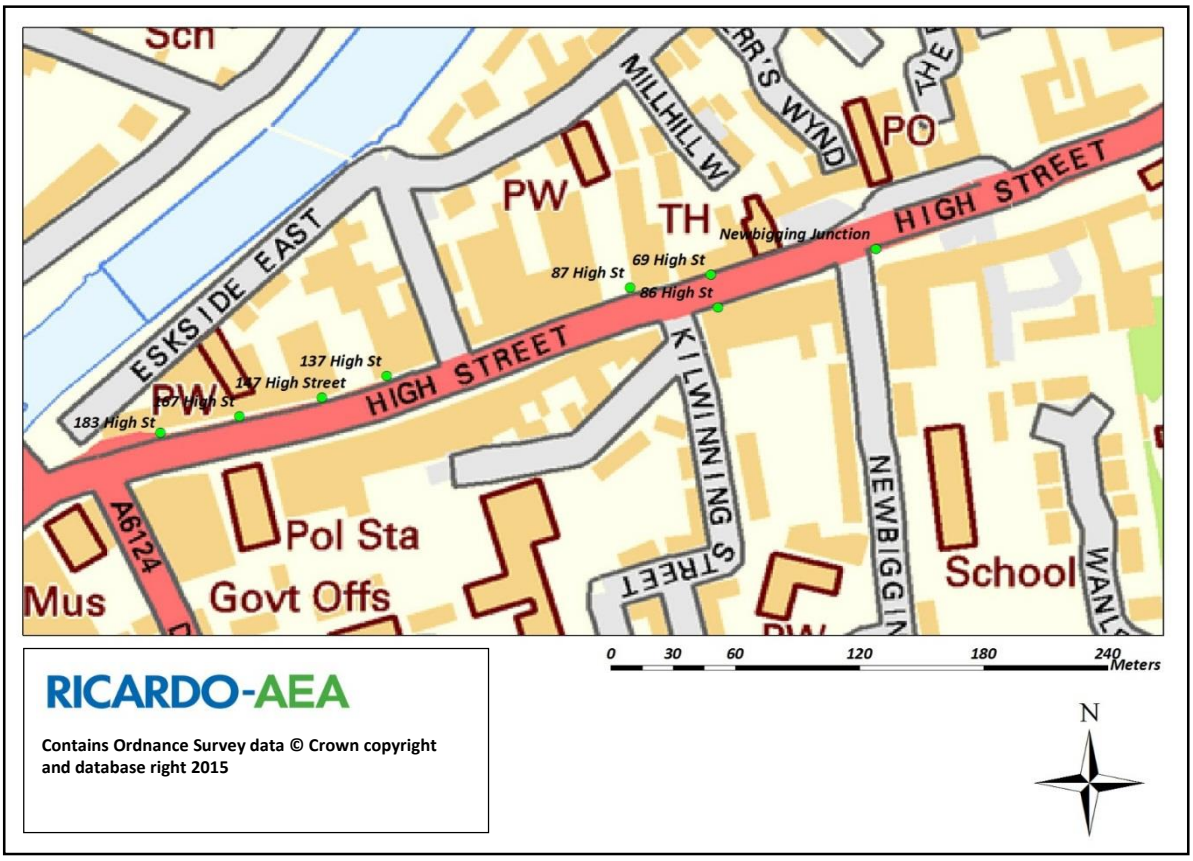
Figure 3.2 AQMA - High Street, Musselburgh (Newbigging to The Mall)



3.2 Summary of a Further Assessment for High Street, Musselburgh – 2014

The Further assessment allows the findings of the Detailed Assessment to be checked in light of new monitoring and traffic data, and also to assess the appropriateness of the AQMA boundary. The potential impact of traffic management scenarios on pollutant concentrations in future years and their likely effectiveness at addressing local air pollution are assessed. The report investigates current and potential future nitrogen dioxide levels through a combination of modelling exercises and by reference to monitored air quality data. Figure 3.3 shows the study area and includes locations of the NO_2 diffusion tube monitoring sites with the automatic monitoring being located at 133 North High Street.

Figure 3.3 Study Area for the Further Assessment



3.2.1 Source Apportionment

Source apportionment is the process whereby the sources of pollutants can be assessed so that the Local Authority can proceed with an action plan to attempt to address the air quality problems in the area of interest.

The source apportionment should:

- Confirm if exceedances of NO_2 are due to road traffic;
- Determine the extent to which different vehicle types are responsible for the emission contributions to NO_x and hence NO_2; and
- Quantify what proportion of total NO_x is due to background emissions, or local emissions from busy roads in the local area. This will help determine whether local traffic management measures could have a significant impact on reducing emissions in the area of exceedance or whether national measures would be a suitable approach to achieving the air quality objectives.

The source apportionment exercise was carried out for all the Council's monitoring locations within the High St AQMA, Musselburgh.

The following sources have been considered:

- Background concentrations;
- Moving vehicles;
- Queuing vehicles;
- Light duty vehicles (LDV- comprising cars, vans, motorcycles);
- Heavy duty vehicles (HDV - articulated and rigid HGVs);
- Buses; and
- Buses at Bus Stops.

Table 3.2 and 3.3 summarise the relevant NOx contributions from the above sources at each of the monitoring locations in the Musselburgh High St AQMA. Figures 3.4 and 3.5 show the percentage contributions split by traffic source type and moving/queuing traffic, respectively.

It was found that the largest proportion that can be attributed to emissions from buses is seen at 147 High St with 38% of the NOx emissions estimated to be as a result of moving and queuing buses, and buses at bus stops. On average throughout the AQMA, 29% of NOx emissions were attributed to bus activity.

In the case of moving versus queuing traffic, it was found that queuing traffic contributed the largest proportion at all locations except 87 High St. The largest proportion that can be attributed to queuing traffic was seen at 69 High St with 57% of the total NOx emissions estimated to be as a result of queuing traffic. On average throughout the AQMA, 34% of the total NOx emissions were attributed to queuing traffic.

Table 3.2 High St AQMA NOx Source Apportionment (μg m^{-3})*

Location	Total NOx (a)	Road NOx (b)	Background (c)	Moving (d)	Queuing (e)	LDV (f)	HDV (g)	Bus (h)	Bus Stops (i)
Newbigging_Jnct	53.4	19.7	33.7	8.5	11.2	5.5	2.5	8.6	3.2
87_High_St	47.1	13.4	33.7	7.3	6.1	5.0	1.3	6.9	0.3
147_High_St	90.2	56.5	33.7	6.5	50.0	18.1	4.6	29.7	4.1
183_High_St	80.6	46.9	33.7	14.3	32.6	16.7	4.0	25.5	0.8
167 High St	84.9	51.2	33.7	17.5	33.7	17.7	4.2	26.7	2.6
137 High St	73.2	39.5	33.7	18.0	21.5	12.1	2.9	17.2	7.3
69 High St	94.5	60.8	33.7	7.0	53.8	20.7	5.4	34.5	0.3
86 High St	48.9	15.2	33.7	6.6	8.6	5.4	1.6	8.0	0.3

*Note that:

- a = b + c;
- b = d + e; **and** b = f + g + h + i

Table 3.3 High St AQMA NOx Source Apportionment - Sources as % of Total NOx*

Location	Background (BG) % (a)	Moving % (b)	Queuing % (c)	LDV % (d)	HDV % (e)	Bus % (f)	Bus Stops % (g)
Newbigging_Jnct	63.1	15.9	21.0	10.3	4.6	16.0	5.9
87_High_St	71.5	15.5	12.9	10.5	2.7	14.6	0.7
147_High_St	37.4	7.2	55.4	20.0	5.1	33.0	4.5
183_High_St	41.8	17.8	40.4	20.7	5.0	31.6	0.9
167 High St	39.7	20.6	39.7	20.9	5.0	31.4	3.0
137 High St	46.0	24.5	29.4	16.5	3.9	23.6	9.9
69 High St	35.7	7.4	56.9	21.9	5.7	36.5	0.3
86 High St	68.9	13.4	17.6	11.0	3.2	16.3	0.6

*Note that:

- a + b + c = 100%;
- a + d + e + f + g = 100%

Figure 3.4 High St AQMA NOx Source Apportionment - Sources as % of Total NOx

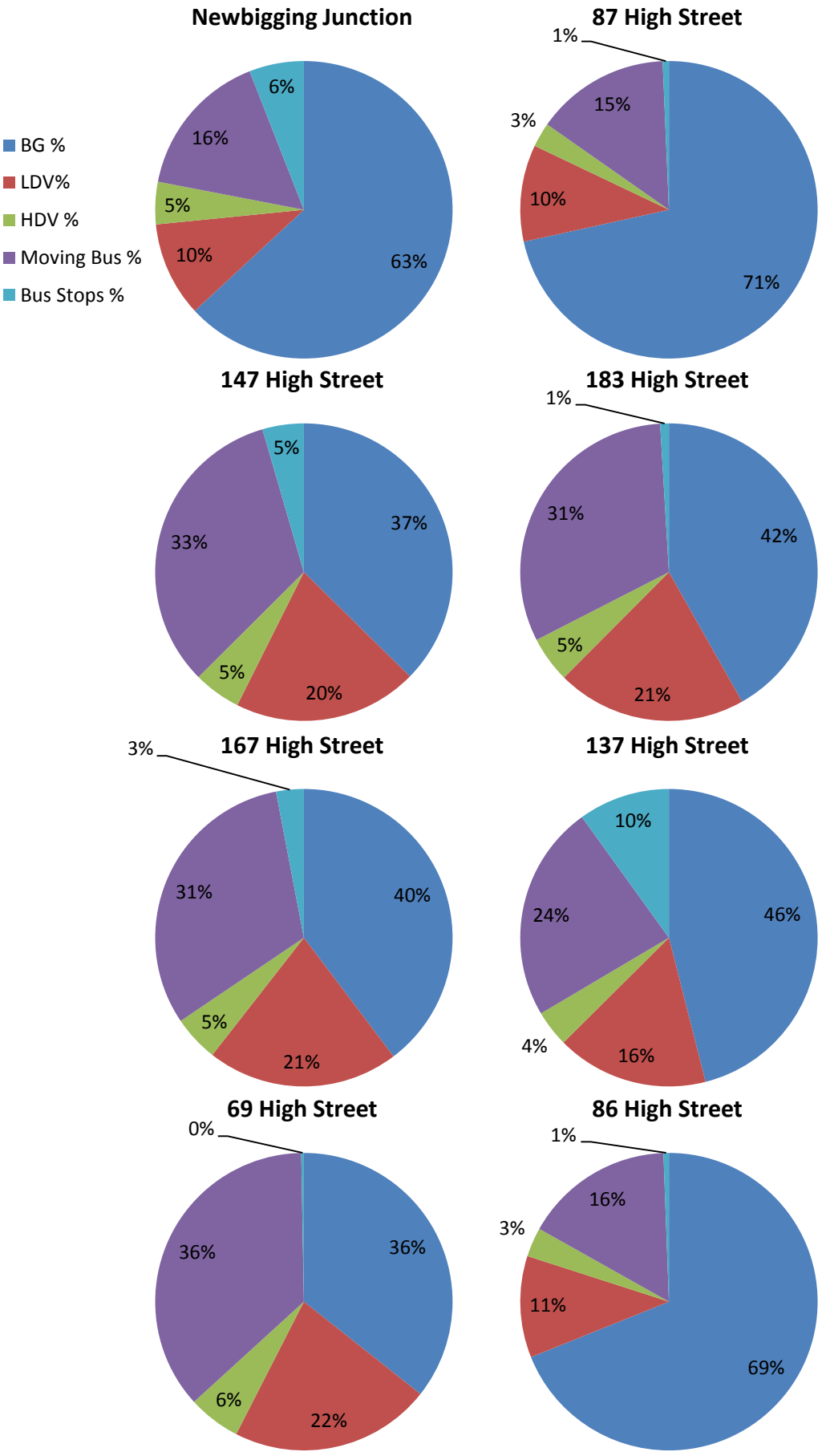
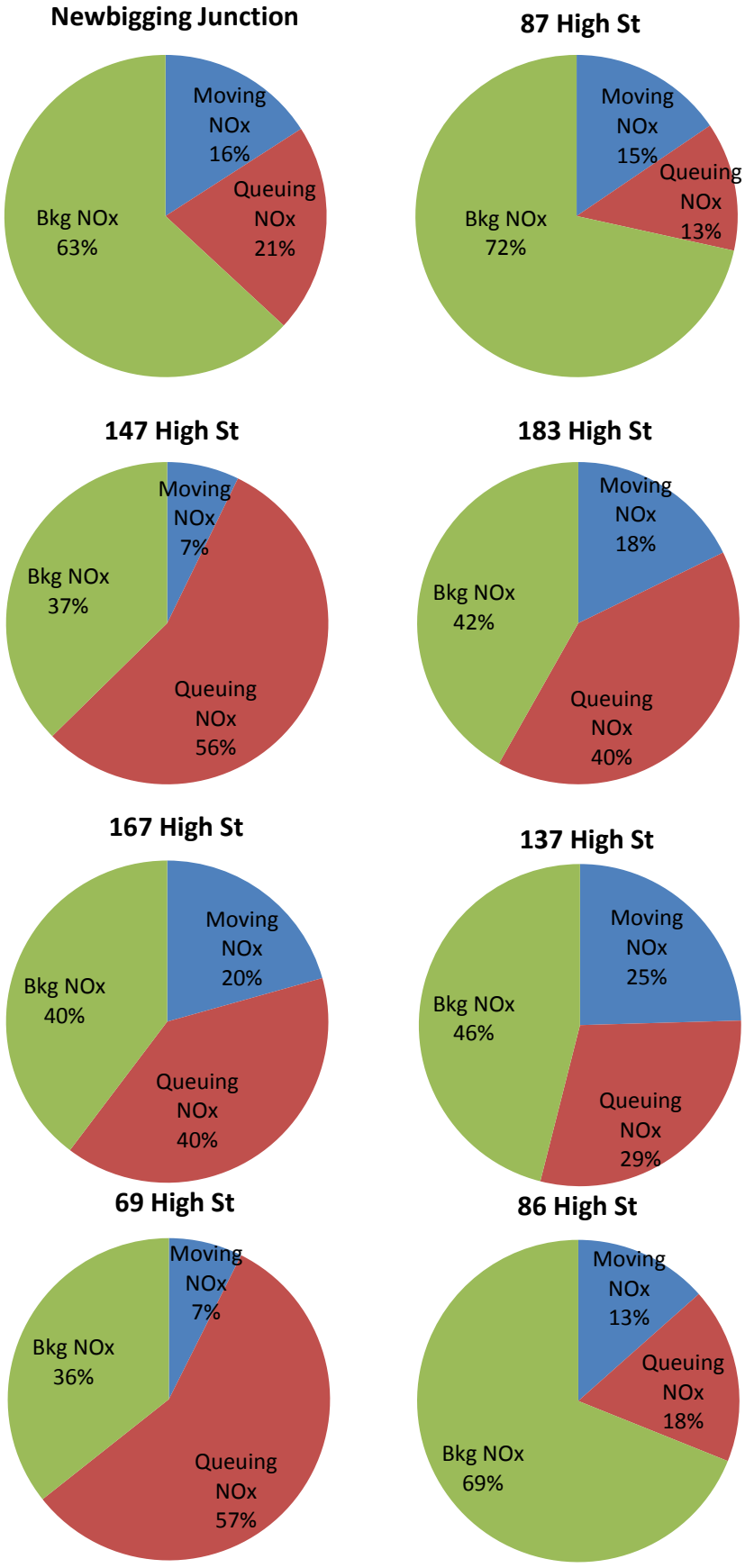


Figure 3.5 High St AQMA NOx Source Apportionment – Moving and Queuing Traffic Sources as % of Total *NOx*



Required Reduction in NOx Concentrations

At the time of carrying out this assessment, LAQM. PGS(09) stated that the further assessment must show that a local authority has calculated the reduction in emissions required to achieve the objectives of concern, as this will enable the authority to consider whether the measures proposed to achieve these reductions are proportionate and cost effective.

From the modelling undertaken in the Further Assessment it was found that the largest reduction is required at 69 High Street with a required Road-NOx concentration reduction of 26.5% in order to meet the NO_2 annual mean objective. However, Road-NOx emissions need to be reduced by 4.7% – 26.5% at all receptors between 69 High St and 147 High St. Calculation of the required Road-NOx reduction at the relevant monitoring locations is shown 3.4 below.

Table 3.4 Reductions Required in Total-NOx Concentrations to Achieve the NO_2 Annual Mean Objective

Receptor	Current Total NOx ($\mu g\ m^{-3}$)	Current Road-NOx ($\mu g\ m^{-3}$)	Required Road NOx ($\mu g\ m^{-3}$)	Road-NOx Reduction Required (%)
Newbigging_Jnct	53.4	19.7	44.7	0.0
87_High_St	47.1	13.4	44.7	0.0
147_High_St	90.2	56.5	44.7	-20.9
183_High_St	80.6	46.9	44.7	-4.7
167 High St	84.9	51.2	44.7	-12.7
137 High St	73.2	39.5	44.7	0.0
69 High St	94.5	60.8	44.7	-26.5
86 High St	48.9	15.2	44.7	0.0

Conclusions of Source Apportionment

On the basis of the findings of the source apportionment exercise, East Lothian Council have considered measures that will target reductions in emissions from road traffic in general, but with a particular focus on reducing emissions from LDV's and buses during the development of the draft action plan. This approach targets the principal sources of emissions that can be addressed through local measures.

3.2.2 Scenarios Analysis

Four sets of scenarios were investigated as part of the Further Assessment:

1. The addition of a second bus eastbound bus stop.
2. The reduction of queuing traffic within the AQMA by 10%, 20%, 30% and 40%.
3. The reduction of queuing traffic within the AQMA by 10%, 20%, 30% and 40% combined with the addition of a second eastbound bus stop (Sets 1 + 2).
4. The reduction of moving traffic within the AQMA by 5%, 10% and 20%).

Scenario 1: Addition of second eastbound bus stop

This scenario involved the addition of a second eastbound bus stop at 91 High Street, Musselburgh. The location of the proposed bus stops are shown in Figure 3.6 (circled in green). It was proposed that the eastbound bus services would be split between the resulting two bus stops as follows:

Bus Stop 3 (Existing)
Lothian – 26 & 30
First – 124
Eve – 128
Horsburgh – T1

Bus Stop 11 (Proposed)
Lothian – 40, 44 & 44A
First – 108
Eve – 129
Horsburgh – T2

Figure 3.6 Bus stop locations – High Street, Musselburgh

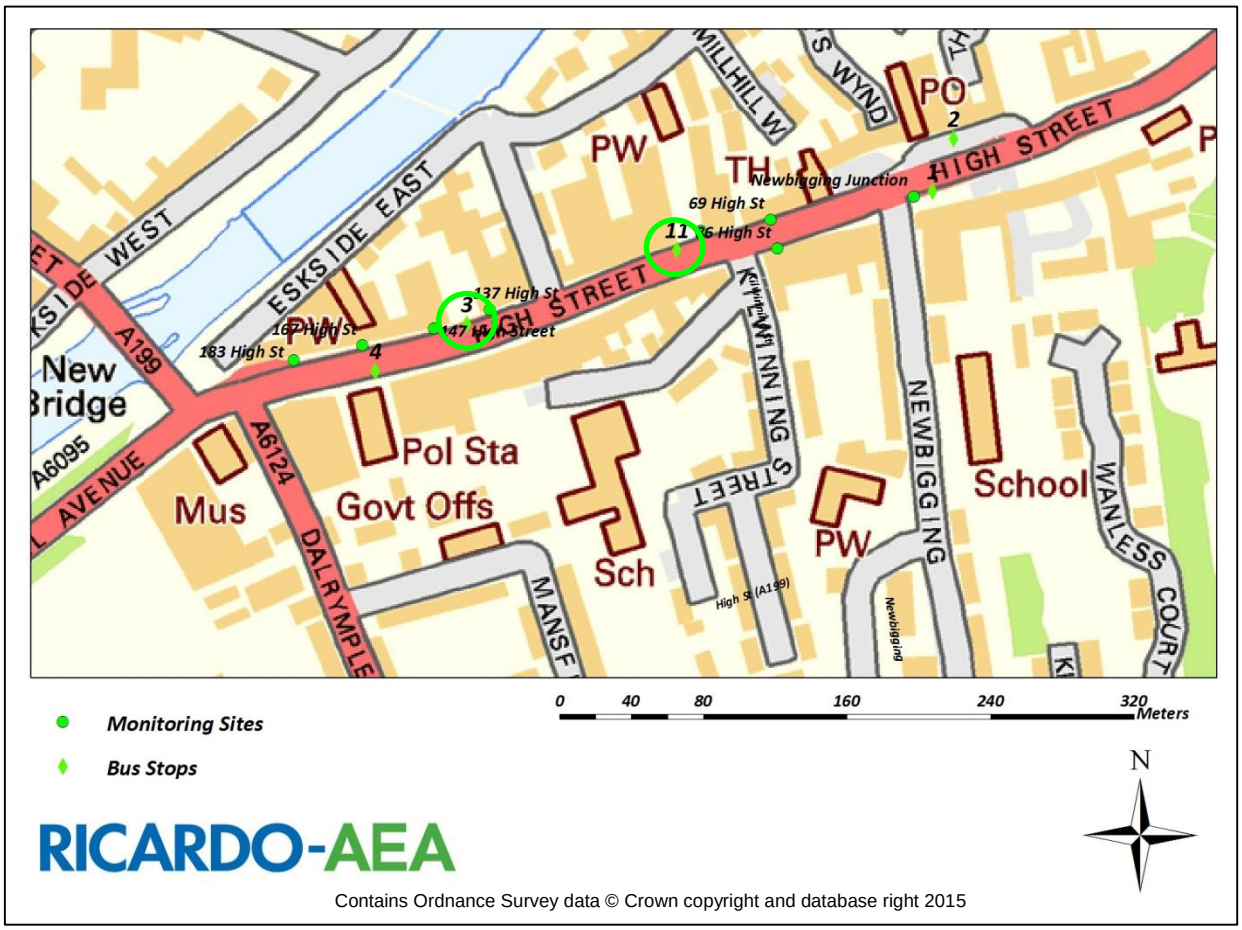


Table 3.5 details the predicted change in annual mean NO_2 concentrations at 8 receptors throughout High Street, Musselburgh. As can be seen, little or no change in NO_2 concentrations are predicted with concentrations predicted to rise by 1 μg m^{-3} at 69 and 183 High Street and predicted to fall by 1 μg m^{-3} at 137 High St. No information was available to support assumptions on how queuing would be affected so only the change in bus numbers at bus stops 3 and 11 have been modelled.

Table 3.5 NO_2 concentrations at receptors for the do-nothing and Scenario 1

Receptor	NO_2 2012 do-nothing (μg m^{-3})	NO_2 2012 Scenario 1 (μg m^{-3})
Newbigging_Jnct	29	29
87_High_St	26	26
147_High_St	45	45
183_High_St	41	42
167 High St	43	43
137 High St	38	37
69 High St	46	47
86 High St	27	27

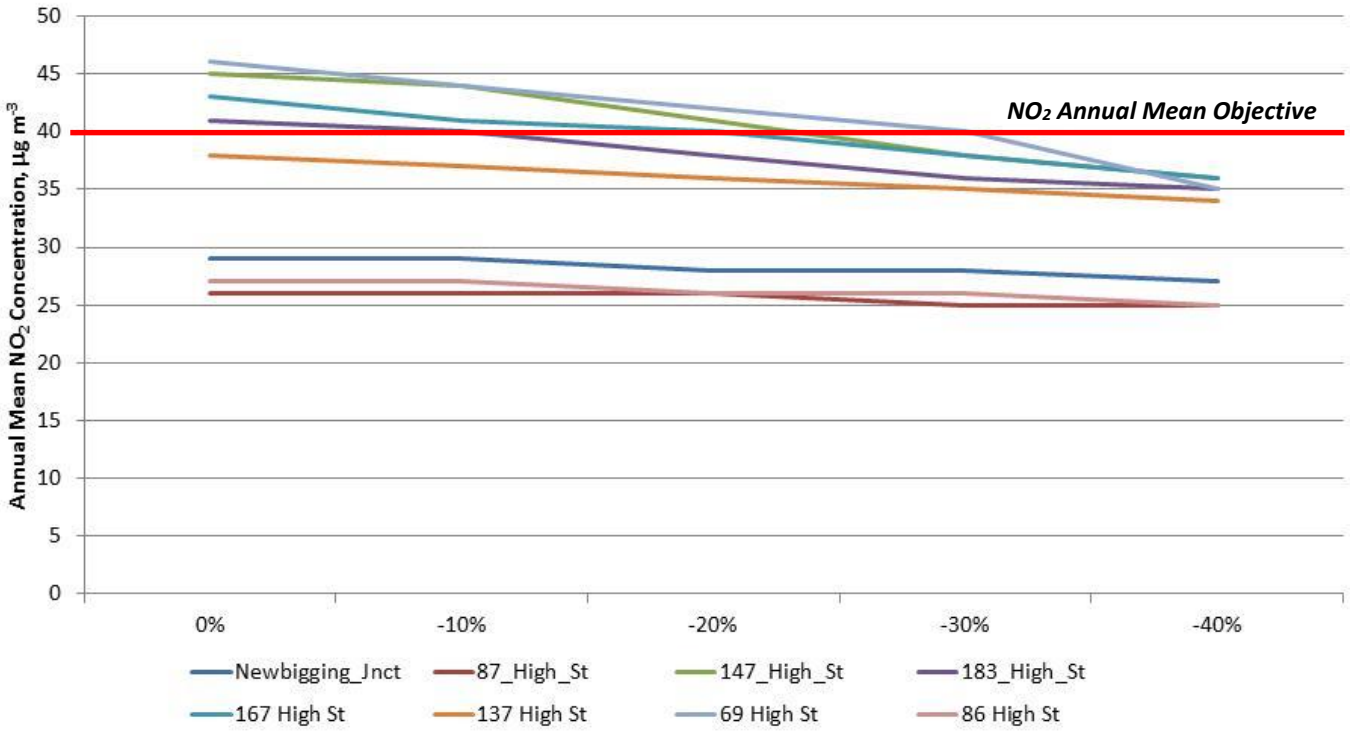
Scenario 2, 3, 4, 5: 10%, 20%, 30% and 40% reduction in queuing traffic

This scenario consisted of reducing the number of total number of vehicles queuing throughout the study area by a total of 10, 20, 30 and 40%. In this case both the queue lengths and the time that traffic are queuing was reduced by the same percentage (e.g. 10, 20, 30 and 40%). Table 3.6 and Figure 3.7 show the estimated reduction in annual mean NO_2 concentrations at the 8 receptors throughout High St, Musselburgh. It was found that a reduction in queuing traffic of 30% or greater would be needed to reduce annual mean NO_2 concentrations to below or equal to 40 μg m^{-3} at all receptors. The greatest reduction in NO_2 annual mean concentrations was predicted at 69 High St, with a reduction of 11 μg m^{-3} to 35 μg m^{-3}, if queuing is reduced by 40%.

Table 3.6 NO_2 concentrations at receptors for the do-nothing and Scenarios 2 - 5

Receptor	NO_2 2012 do-nothing (μg m^{-3})	NO_2 2012 Scenario 2 (μg m^{-3})	NO_2 2012 Scenario 3 (μg m^{-3})	NO_2 2012 Scenario 4 (μg m^{-3})	NO_2 2012 Scenario 5 (μg m^{-3})
Newbigging_Jnct	29	29	28	28	27
87_High_St	26	26	26	25	25
147_High_St	45	44	41	38	36
183_High_St	41	40	38	36	35
167 High St	43	41	40	38	36
137 High St	38	37	36	35	34
69 High St	46	44	42	40	35
86 High St	27	27	26	26	25

Figure 3.7 NO_2 concentrations at receptors for the do-nothing and Scenarios 2 - 5



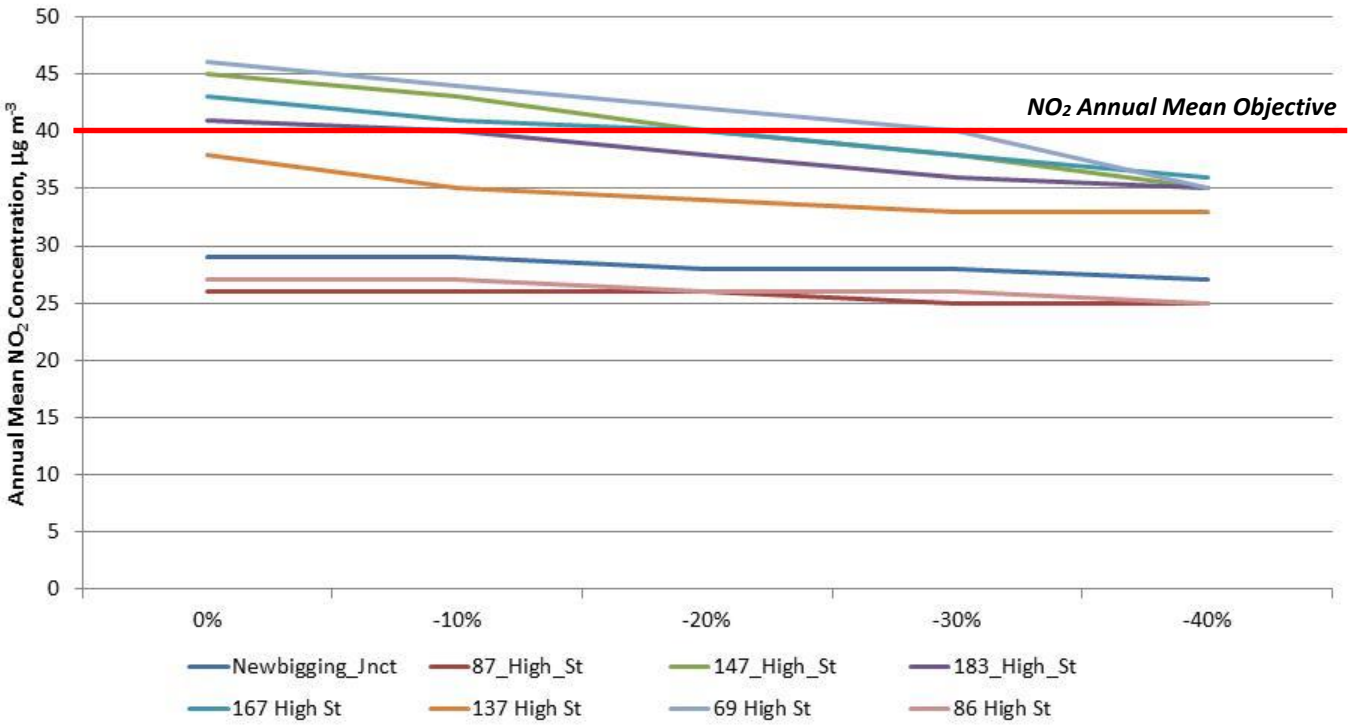
Scenario 6, 7, 8, 9: 10%, 20%, 30% and 40% reduction in queuing traffic in addition to second eastbound bus stop

This scenario involves reducing the number of total number of vehicles queuing throughout the study area by a total of 10, 20, 30 and 40% **combined** with Scenario 1. Table 3.7 and Figure 3.8 show the estimated reduction in annual mean NO_2 concentrations at the 8 receptors throughout High St, Musselburgh. It was calculated that a reduction in queuing traffic of 30% or greater combine with the addition of a further bus stop would be required to reduce annual mean NO_2 concentrations to below or equal to 40 μg m^{-3} at all receptors. The greatest reduction in NO_2 annual mean concentrations was predicted at 69 High St, with a reduction of 11 μg m^{-3} to 35 μg m^{-3}, if queuing is reduced by 40%.

Table 3.7 NO_2 concentrations at receptors for the do-nothing and Scenarios 6 - 9

Receptor	NO_2 2012 do-nothing (μg m^{-3})	NO_2 2012 Scenario 6 (μg m^{-3})	NO_2 2012 Scenario 7 (μg m^{-3})	NO_2 2012 Scenario 8 (μg m^{-3})	NO_2 2012 Scenario 9 (μg m^{-3})
Newbigging_Jnct	29	29	28	28	27
87_High_St	26	26	26	25	25
147_High_St	45	43	40	38	35
183_High_St	41	40	38	36	35
167 High St	43	41	40	38	36
137 High St	38	35	34	33	33
69 High St	46	44	42	40	35
86 High St	27	27	26	26	25

Figure 3.8 NO_2 concentrations at receptors for the do-nothing and Scenarios 6 - 9



Scenario 10, 11, 12: 5%, 10% and 20% reduction in moving traffic AADT

This scenario consisted of reducing the number of total number of vehicles travelling throughout the AQMA by a total of 5, 10 and 20%. In this case, it was assumed that there would be no reduction in bus numbers and therefore the relative percentage of buses in the traffic composition was increased. It should also be noted that the NO_2 reductions would likely be realised due to an obvious reduction in queuing that would occur with reduction in AADT. No information is available to support assumptions on how queuing would be affected so moving traffic reductions only have been modelled.

Table 3.8 shows the predicted changes in NO_2 annual mean concentrations were these reductions in moving traffic to be realised. It was found that reducing the total number of moving vehicles (excluding buses) within High St, Musselburgh by up to 20% would have no impact on predicted annual mean NO_2 concentrations. This confirmed that the dominating emission sources within the High Street AQMA is queuing traffic and buses.

Table 3.8 NO_2 concentrations at receptors for the do-nothing and Scenarios 10 - 12

Receptor	NO_2 2012 do-nothing ($\mu g\ m^{-3}$)	NO_2 2012 Scenario 10 ($\mu g\ m^{-3}$)	NO_2 2012 Scenario 11 ($\mu g\ m^{-3}$)	NO_2 2012 Scenario 12 ($\mu g\ m^{-3}$)
Newbigging_Jnct	29	29	29	29
87_High_St	26	26	26	26
147_High_St	45	45	45	45
183_High_St	41	41	41	41
167 High St	43	43	43	43
137 High St	38	38	38	38
69 High St	46	46	46	46
86 High St	27	27	27	27

3.2.3 Conclusions and Recommendations

The Musselburgh High Street AQMA has been declared on the basis of recognised exceedances of the annual mean objectives for NO_2, and thus, the action plan should be developed to focus on measures that effectively reduce emissions and concentrations of both this pollutant.

In summary, the findings of the Further Assessment for the High Street AQMA indicate the following:

- Road traffic represents the predominant source of NOx within the Musselburgh AQMA, with LDV's and buses representing the principal source of road-traffic based emissions of NO_x.
- Queuing traffic represents a more significant source of emissions of NOx than moving traffic, although moving traffic is estimated to contribute up to 25% of emissions of both pollutants.

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

- Reducing the impacts of LDV's and buses within the High Street AQMA.
- Minimising the impacts of congestion within Musselburgh High St.
- Encouraging a reduction in traffic volumes.

4 Action Plan Measures and their Assessment

During the development of the draft Action Plan, East Lothian Council has considered a full range of relevant measures aimed at reducing ambient concentrations of NO_2 within the Musselburgh High Street AQMA. The process has consisted of a gradual refinement of the range of potential measures under consideration, to enable the focus to be centered on measures that directly address the principal problem (road traffic emissions), are feasible and cost-effective compared to others. This section describes how this was achieved. It should be noted that although reducing particulate matter (PM_{10} and $PM_{2.5}$) concentrations is not the aim of this AQAP, it is envisaged that any measures put in place to reduce NO_2 concentrations will also have a positive impact on PM_{10} and $PM_{2.5}$ concentrations.

This chapter provides more information on the measures and their assessment. The measures in the Action Plan are presented in the next chapter.

4.1 Initial Assessment Measures

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

Range of Possible Measures

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 measures have been considered on the grounds of cost effectiveness and feasibility.

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

Table 4.1 presents a list of six ‘Option Categories’ available to East Lothian Council.

Table 4.1 Air Quality Action PlanOption Categories

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 pollutant 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.

Type	Description	Notes
2	Move sources away from the AQMA	Road transport emissions have been shown to represent the principle source of NOx 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 AQMAs. Less traffic on these roads results in lower pollution levels in the AQMAs. However, the opportunity to build such roads is frequently absent. In cases where such roads can be built, care needs to be exercised that the locations where the new roads are built do not become AQMAs in turn. **Note that this option moves emissions from one location to another with no requirement to reduce them. Overall emissions may be increased by such actions.**
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	The majority of vehicles using roads in the AQMA are conventional petrol or diesel powered vehicles with a range of ages. There are many technical options to convert such vehicles into ones using cleaner engine and fuel technology. By accelerating the uptake of these technologies the emissions in the AQMAs would be reduced. 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.

4.1.1 Initial Responses to the Measures

For each of the provisional measures considered, a decision has been made to eliminate several measures from further consideration, or to consider the option further. Taking into consideration the situation in Musselburgh High St 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 4.2.

As it has been identified that road traffic is the main source of air pollution within the Musselburgh AQMA, a number of traffic management scenarios were investigated. Some of traffic management measures listed below could result in an indirect improvement in air quality with the AQMA and may be implemented. However, others (e.g. Open Electricity Bridge in Musselburgh) have a high cost and are likely to experience a high level of opposition in the local area.

Table 4.2 Measures eliminated from further consideration in the Musselburgh High St AQMA

Move receptors away from AQMA
Create alternative accommodation for the residents of Musselburgh High St area
Move sources away from AQMA
Local ban on freight, car or bus traffic
Pedestrianisation of Musselburgh High St
Traffic Management – optimisation of traffic movement through AQMA
Urban Clearway
Open Electricity Bridge in Musselburgh + Signalise A199 / New St Junction
Open Dalrymple Loan (Caprice / Bus Station) Link to Mall Avenue. With Bus only access from Mall Avenue to High St and Dalrymple Loan closed at Caprice (apart from emergency access)
Open Inveresk Rd & Electricity Bridge in Musselburgh
Open Dalrymple Loan /Mall Ave Link & Electricity Bridge in Musselburgh
QMU Interchange completion + option 1,2,3,4 or 5
Trunk Road Interchange Improvments at Dolphinstone (roundabouts), Salter Rd (Signalisation)
Monktonhall Terrace Widening
Open up Bus only link from Whitehill Farm Rd to QMU + Signalise over bridge
Goosebay Distributor Road & Salters Rd Improvements
Inveresk Rd – Mall Avenue Link, Musselburgh
Open Inveresk Rd in Musselburgh
Town Centre One-Way Gyratory, Musselburgh
Reduce the emissions from sources by technical means
Road User/ Work Place Charging
Retrofitting Council Fleet
Development of infrastructure for cleaner vehicle fuels
Vehicle scrappage incentives
Speed Controls
Investigate potential development of a Taxi Quality Partnership
Reduce the emissions from sources by means of encouraging better travel choices/ behaviour change
Bus lanes
Other
Home Energy Efficiency
Environmental Nuisance (including bonfires)

The measures listed in Table 4.2 have been excluded from further consideration at this time, as they were either not considered feasible, or were not believed to have an appropriately targeted impact on the predominant sources of emissions identified in the further assessment.

East Lothian Council intends to develop all of the remaining measures for inclusion within the Draft Air Quality Action Plan. These measures include several new measures that will require to be developed further and assessed prior to implementation. Also included, are numerous measures that are in the process of being implemented by East 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 Musselburgh High St AQMA, and also meet future reporting requirements.

Figure 4.1. Overview of measures included within the draft plan

Consequently, the approach adopted in this action plan to enable the assessment of new measures differs from that utilised to assess measures that have already been implemented. Most significantly, for measures that have already been implemented through existing plans and programmes, it is clear that these measures have previously been determined to be **acceptable.** As such, the assessment of existing measures undertaken within this plan is restricted to the assessment of their potential impact on air quality within the AQMA, plus any additional costs/ benefits associated with any modification/ supplementation of these measures.

A summary of the remaining **new** and **existing** measures proposed for inclusion in the draft Plan are presented in Tables 4.3 and 4.4 respectively. Further details of the measures and their assessment are presented in the following sections.

Table 4.3 New measures selected for further assessment and potential inclusion in the Musselburgh AQAP

1 Strategic Measures
a) Improving links with Local Transport Strategy
b) Improving links with Local Development Plan
2 Traffic Management – optimisation of traffic movement through AQMA
a) Construction of micro-simulation traffic model of the strategic and local road network
b) Modelling of traffic-related mitigation measures
c) Bus stop relocations on High St, Musselburgh
d) Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003
3 Reduce the emissions from sources by technical means
a) Electrification of Lothian Buses in Musselburgh
b) Eco Stars
4 Reduce the emissions from sources by means of encouraging better travel choices/ behavioural change
a) Larger Trains and Platforms at Musselburgh Rail Station
b) Improved signage – AQMA signs

Table 4.3 Existing measures selected for further assessment and potential inclusion in the Musselburgh AQAP

1 Strategic Measures
a) Local Development Plan (LDP)
2 Traffic Management – optimisation of traffic movement through AQMA
g) SCOOT - Split Cycle Offset Optimisation Technique
4 Reduce the emissions from sources by means of encouraging better travel choices/ behavioural change
b) East Central Scotland Vehicle Emissions Partnership
b) Provision of information regarding air quality and travel options – includes awareness raising
b) Promotion of alternative modes (cycling + walking)
b) Green Travel Plans for large institutions and businesses.

4.2 Development of proposed measures

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

1. From East Lothian Council
   a. Environmental Health;
   b. Development Management;
   c. Road Services;

2. Vehicle Emissions Officer, East Central Scotland Vehicle Emissions Partnership at West Lothian Council

The assessment of the measures including their perceived cost-effectiveness and wider impacts together with the methodology utilised to undertake the assessment are discussed in Section 6**.** The proposed measures have been broken into relevant categories as presented in Table 5.1, and discussed in further detail below.

4.2.1 Strategic Measures

It is important that Air Quality Action Plans support and consider existing or forthcoming transport and development plans, and vice versa. Therefore, some integration of the AQAP with the local transport strategy and the development plan is considered essential and represents a strategic and integrated approach to local air quality management. This strategic approach is outlined in proposed measures 1 and 2.

4.2.1.1 Improving links to Local Transport Strategy

Road transport has been identified as the principal source of NO_x the Musselburgh AQMA. Consequently, East Lothian Council's Local Transport Strategy present a key platform for delivering initiatives aimed at improving local air quality.

Measure	**Title**
1	Improving links with Local Transport Strategy (LTS)
Definition	Key Intervention
Future versions of LTS to be revised to include: a. Reference to Musselburgh AQMA and measures included in Air Quality Action Plan. Integration of plan. b. Develop action plan measures that will be implemented via the local transport strategy	Measures to ensure the current poor air quality in the AQMA is improved where possible and to avoid future problems are implemented via the Local Transport Strategy.
Responsible authority and other partners	Powers to be used
East Lothian Council – Road Services and Environmental Health	Voluntary

4.2.1.2 Improving links with Local Development Plan

Planning and development control play an important role in minimising the potential detrimental impacts that new developments may have on local air quality. This Strategic measure is intended to minimise the potential impact of future developments on local air quality across East Lothian. Whilst, air quality is already considered in East Lothian Council during the development planning process, the declaration of the AQMA in Musselburgh presents the opportunity to refocus on the potential impacts of new developments on local air quality during construction and operational phases. Whilst it is important that all large-scale developments are considered in terms of their potential impact on local air quality, it is particularly important that proposed developments that may exert an impact on the Musselburgh AQMA should be subject to particular consideration in terms of their potential impact on local air quality, and that all practicable mitigation measures are implemented.

Measure	Title
2	Improving links with Local Development Plan (LDP)
Definition	Key Intervention
This measure incorporates measure 1b from the provisional assessment. Sub-measures to include: a. Integration of AQAP with future versions of Local Plan. b. Ensure that development proposals with the potential to exert an impact on the Musselburgh AQMA are assessed for air quality impacts and where necessary, appropriate mitigation measures considered. c. Continue to promote sustainable developments by using the planning process to maximise commitment from developers to minimise air quality impacts.	Local planning considerations aim to mitigate the cumulative negative air quality impacts of new development
Responsible authority and other partners	Powers to be used
East Lothian Council – Development, Planning and Policy, and Environmental Health	Voluntary

4.2.2 Traffic Management – optimisation of traffic movement through AQMA

It is generally recognised that traffic management measures are likely to have the greatest impact on air quality within an AQMA in a relatively short space of time. This is due to the fact that the primary source of emissions (traffic) is being moved away from or reduced within the AQMA.

The following measures four measures describe proposed changes to road layouts that could improve the flow of traffic or reduced traffic numbers through the AQMA. In order to assess the viability of the proposed changes, models are being developed to simulate the likely change in traffic flows in the Musselburgh area and predict the corresponding impacts on air quality. It is important to note that any changes in road layout could move the air quality problem to other areas of Musselburgh and therefore it is important to model the air quality impacts in the wider area and not just the High St AQMA.

4.2.2.1 Bus Stop Relocations on High St, Musselburgh

There are currently four bus stops located within the High St AQMA with regular services from Lothian Buses, East Coat Buses and other independent bus companies. The large number of buses passing through the High St AQMA results in congestion at the current bus stops. In order to try and relieve this congestion it is proposed that additional bus stops are added along High St with bus services being split between the additional stops. It is hoped that this will relieve some of the congestion caused by buses queuing at the stops.

Measure	Title
3	Bus Stop Relocations on High St, Musselburgh
Definition	Key Intervention
a. Split bus services between two or more additional bus stops along High Street, Musselburgh.	Reduce traffic congestion due to bus drop-off and pick-up, reducing emissions within the Musselburgh AQMA.
Responsible authority and other partners	Powers to be used
East Lothian Council – Road Services, Development, Planning and Policy, and Environmental Health	Voluntary

4.2.2.2 Enforcement of Idling Vehicle Fines

Although not directly modelled in the Further Assessment, idling traffic is likely to have a detrimental impact on air quality within the AQMA. Enforcing fixed penalties is likely to reduce emissions from idling traffic as well as raise awareness of the air quality issues within Musselburgh.

Measure	Title
4	Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003
Definition	Key Intervention
b. Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	Reduce emissions within the AQMA due to unnecessary idling and raise awareness of local air quality issues.
Responsible authority and other partners	Powers to be used
East Lothian Council – Traffic Wardens	Statutory

4.2.3 Reduce the Emissions from Sources by Technical Means

4.2.3.1 Electrification of Lothian Buses in Musselburgh

Lothian Buses will begin to use hybrid single-decker buses in mid to late 2017 that switch to electric operation automatically within the Edinburgh and Musselburgh AQMAs. Initially, this will consist of 25 vehicles operating on the number 30 service. In order to facilitate this, East Lothian Council propose to install an electric charging facility in Musselburgh.

Measure	Title
5	Electrification of Lothian Buses in Musselburgh

Definition	Key Intervention
a. Lothian buses to switch to electric operation within Musselburgh AQMA.	Reduce emissions from buses within the AQMA.
Responsible authority and other partners	**Powers to be used**
East Lothian Council – Road Services	Voluntary

4.2.3.2 Eco Stars

East Lothian Council have secured funding from the Scottish Government and are in process of establishing an Eco Stars Fleet Recognition Scheme within East Lothian. The scheme provides recognition for best operational practices and guidance for making improvements to fleet operators with the ultimate aim of reducing fuel consumption and reduced emissions. The Council's own fleet, together with Commercial Fleet Operators will be encouraged to engage with the scheme which will have a positive impact on emissions, including within the AQMA in Musselburgh High Street.

Measure	Title
6	Eco Stars

Definition	Key Intervention
a. The establishment of an Eco Stars Fleet Recognition Scheme within East Lothian.	Reduce emissions from East Lothian Council fleet vehicles and commercial fleet operators within the Musselburgh AQMA and wider region.
Responsible authority and other partners	**Powers to be used**
East Lothian Council – Environmental Health	Voluntary

4.2.3.3 SCOOT Traffic Management

Queuing of traffic can result in elevated concentrations of air pollution, creating localised hot spots. These may be reduced by the phasing of traffic signals to facilitate the smooth flow of traffic along a given street. During 2013, East Lothian Council implementing a SCOOT (Split Cycle Offset Optimisation Technique) in Musselburgh High St with synchronised fixed time signals in order to address peak hour congestion and queuing at key junctions.

Measure	Title
7	SCOOT Traffic Management

Definition	Key Intervention
a. Implementation of new SCOOT in High St, Musselburgh with synchronised fixed time signals.	Improve efficiency of transit through Musselburgh High St
Responsible authority and other partners	**Powers to be used**
East Lothian Council – Road Services	Voluntary

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

4.2.4.1 Larger Trains and Platforms at Musselburgh Rail Station

Improving public transport links is one measure that can encourage better travel choices for commuters. East Lothian Council propose to increase the capacity of the trains and platforms at Musselburgh train station. This intervention may have an impact on traffic volumes moving through the High St AQMA.

Measure	Title	
8	Larger Trains and Platforms at Musselburgh Rail Station	
Definition		Key Intervention
This measure incorporates measures 2b and 2c from the assessment: a. Construction of micro-simulation traffic model of the strategic and local road network b. Air quality dispersion modelling of traffic-related mitigation measures c. Increase the capacity of the train and train station at Musselburgh.		Encourage use of public transport to and from Musselburgh resulting in a reduction of road traffic within the Musselburgh AQMA.
Responsible authority and other partners		Powers to be used
East Lothian Council – Road Services, Development, Planning and Policy, Abellio, Network Rail, Scottish Government		Voluntary

4.2.4.2 Improved Signage – AQMA Signage

In order to raise the awareness of the AQMA, the Council will consider erecting signs at various locations within Musselburgh Town Centre to alert drivers to the presence of the AQMA and encouraging behavioural change e.g. reduce vehicle idling. The content of the sign should incorporate the positive approach that the council is taking to improving local air quality within Musselburgh.

Measure	Title	
9	AQMA Signage	
Definition		Key Intervention
d. Design and install AQMA signage within the Musselburgh AQMA		Raise awareness of the air quality issues within Musselburgh, resulting in behaviour change and a reduction of road traffic within the Musselburgh AQMA.
Responsible authority and other partners		Powers to be used
East Lothian Council – Road Services, Environmental Health		Voluntary

4.2.4.3 East Central Scotland Vehicle Emissions Partnership

East Lothian Council currently work in partnership with Midlothian, West Lothian and Falkirk Councils to provide a voluntary Vehicle Emissions Testing Programme aimed at raising awareness of vehicle emissions and impacts on air quality amongst the general public.

Measure	Title
10	East Central Scotland Vehicle Emissions Partnership

Definition	Key Intervention
e. East Lothian Council work in partnership with Midlothian, West Lothian and Falkirk Councils to provide a voluntary Vehicle Emissions Testing Programme	Raise awareness of vehicle emissions and the impacts on air quality amongst the general public.
Responsible authority and other partners	**Powers to be used**
Vehicle Emissions Officer East Central Scotland Vehicle Emissions Partnership at West Lothian Council	Voluntary

4.2.4.4 Development of Travel Plans

Travel Plans for Large Institutions and Businesses

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

Travel plans have been widely adopted across the UK and have been shown to be cost-effective at reducing car usage in numerous situations. As a result, the adoption of Travel Plans is now widely promoted by the UK Government[17].

In order to encourage a reduction in car dependency for commuting to and from work and whilst at work, East Lothian Council has developed a Council Travel Plan (2010). The Plan was based on a Council Travel Survey undertaken in 2007 and 2009, and identified the following objectives:

- Reduce the need to travel for both commuting and business needs.
- Reduce the percentage of single occupancy car journeys to work.
- Increase the use of more sustainable forms of travel such as walking, cycling and public transport by staff and visitors to council offices and facilities.
- To make the management of our workplace car parking effective, efficient and equitable.
- To maximise the efficiency of our fleet.
- Increase staff and visitors awareness of the Travel Plan.
- Ensure that the Travel Plan is embedded into corporate and departmental policies and processes, costed and monitored on a regular basis.
- Reduce CO_2 emissions related to commuter and business travel.
- Realise cost savings associated with business travel.

In order to achieve this, the plan outlined numerous actions covering walking and cycling, public transport, car use and reducing the need to travel.

Measures promoted through the East Lothian Council Travel Plan include:

- Introduction of a car share scheme – www.tripshareeastlothian.com;
- Cycle parking;
- Appointment of a School Travel Plan Co-ordinator.

[17] Good Practice Guidelines. Delivering Travel Plans through the planning Process. DfT (2009)

Encouraging External Organisations to Develop Travel Plans

The adoption of travel plans by local businesses is a crucial component of promoting sustainable travel and requires the cooperation of numerous stakeholders including businesses and employees.

Measure	Title	
11	Development of Travel Plans	
Definition		Key Intervention
To encourage and assist large organisations to develop and implement green travel plans, including: a. Continue the implementation of East Lothian Council's travel plan; b. Continue to support the implementation of School travel plans; c. Work with local businesses/organisations to encourage the development and implementation of travel plans.		To increase awareness of local air quality issues and encourage changes in behaviour that will contribute to improving local air quality.
Responsible authority and other partners		Powers to be used
East Lothian Council – Carbon Management Team		Voluntary

4.2.4.5 Promotion of Cycling and Walking

Promoting cycling and walking represents a key objective of East Lothian Council's Local Transport Strategy. East 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 and environmental improvement by reducing the number of cars on the road. The proposed vision for the strategy is:

"East Lothian will have well-connected communities with increased use of sustainable transport modes to access services and amenities."

Encouraging walking is also important in terms of promoting transport choices and behavioural change. It is not only the main choice for short trips, but it is also the way we start and end the larger ones.

Measure	Title
12	Promotion of Cycling and Walking

Definition	Key Intervention
To encourage members of the community to adopt cycling and walking as alternatives to using private vehicles. a. Ensure cycle networks and facilities are provided, as a matter of course, within existing and new networks and developments. b. To improve integration between cycling, walking and public transport. c. Increase cycling trips to employment, education and leisure facilities. d. Improve pedestrian facilities such as new footpaths and crossings.	To encourage a shift away from the use of private motor vehicles for travelling more sustainable forms of transport, or reducing the need for travel.
Responsible authority and other partners	**Powers to be used**
East Lothian Council – Road Services and SEStran	Roads (Scotland) Act 1984 , the Road Traffic Regulation Act 1984 ; the Road Traffic Act 1988 and the Planning etc. (Scotland) Act 2006

4.2.4.6 Provision of Information Relating to Air Quality and Travel Options

East Lothian Council aims to provide information and undertake marketing initiatives targeting increasing the public's awareness of air pollution issues in East Lothian and to encourage members of the public to participate in improving the situation. This measure is intrinsically linked to the promotion of cycling and walking and the development of travel plans but focuses on the provision of information relating to air quality within East Lothian and public transport.

Air Quality Information

East Lothian Council operates an air quality monitoring network, with data from these sites made available to the public through the Scottish Air Quality Archive. In addition, the most recent air quality management reports prepared by the council are available through the council website.

Public Transport Information

Public transport is a key priority for East Lothian Council and Road Services work closely with the commercial operators of taxis, buses and trains. In order to encourage members of the public to utilise public transport instead of private vehicles, East Lothian Council provides information on public transport services operating within East Lothian through the Council website, and links to external organisations such as Traveline Scotland. The Council in partnership with Traveline also operates mobile phone texting service for information on bus times for any bus stop (charged service).

Measure	Title
13	Provision of Information relating to Air Quality and Travel options

Definition	Key Intervention
To increase awareness of local air quality issues and public transport information. 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 Musselburgh AQMA. c. Continue to provide information of public transport services through the council website.	To increase awareness of local air quality issues and encourage changes in behaviour that will contribute to improving local air quality.
Responsible authority and other partners	**Powers to be used**
East Lothian Council – Road Services, Environmental Health	Voluntary

5 Methodology Utilised to Assess Shortlisted Measures

In accordance with the government guidance, the measures short-listed for inclusion within the draft 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 measures were assessed were:

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

The following paragraphs outline how the assessment has been undertaken.

5.1 Potential Air Quality Impact

This is a key assessment in that the AQAP must focus on prioritising measures 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%.

5.2 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 East Lothian Council. These cost bandings may be subject to revision depending on comments received from those consulted.

5.3 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	4	0	4	8	12
Low	3	0	3	6	9
Medium	2	0	2	4	6
High	1	0	1	2	3
Very High	0	0	0	0	0

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:

- If the product is **high** (8 or more) then the measure is more cost-effective (significant impacts for the cost involved) and perhaps favourably cost-effective;
- If the product is **medium** (between 3-7) then the measure is in the medium range of cost-effectiveness;
- If the product is **low** (2 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 measures rather than their absolute values. The method is useful during discussions of the relative priority of different measures. 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.

5.4 Potential Co-Environment Benefits

In this assessment other environmental benefits are highlighted:

- 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.
- Noise.
- Other air quality benefits such as reduction in PM_{10} and $PM_{2.5}$ambient concentrations.

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

5.5 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:

- Relocate emissions and hence lead to worsening air quality elsewhere;
- Require a change in land use;
- 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.

5.6 Potential Social Impacts

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

- Provide health benefits in terms of lower exposure to pollutants or increased mobility;
- Increase road safety;
- Improve accessibility.

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

5.7 Potential Economic Impacts

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

- Improve sustainable development or accessibility in Musselburgh;
- Reduce or increase overall travel time.

5.8 Feasibility and Acceptability

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

- 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;
- Secured funding for the measure or a straightforward route for securing funding;
- Characterised the potential positive and negative impacts of the measure with sufficient evidence or confidence to make a decision to implement the measure.

Table 5.1 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 5.1 Feasibility criteria used for AQAP measures

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

- The option is considered potentially acceptable if: the option is unlikely to compel people to change behaviour or increase their costs significantly or at least some level of behaviour-change or personal costs are required but the scheme is overall consistent with community policies;

- 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 is presented in Table 5.2 below. In addition, a summary of the progress so far on the corresponding measures are provided in Table 5.3. This Table can be updated an included within the air quality Annual Progress report, as required.

Table 5.2 Summary of Proposed Measures and Timeframes

Measure Title	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									
Improving links with Local Transport Strategy	M-L	L	Medium-High	GHG - positive Other AQ pollutants – positive	Care to avoid relocating pollution	None Identified	May influence development and associated aims	ELC Road Services and Environmental Health	Short-term/ acceptable
Improving links with Local Development Plan	M-L	L	Medium-High	GHG - positive Other AQ - positive	Care to avoid relocating pollution	None Identified	May influence development and associated aims	ELC Development, Planning and Policy and Environmental Health	Medium-term/ acceptable
Measures aimed at optimising how road traffic sources transit AQMA									
Bus stop relocations on High St, Musselburgh	S	L	Medium	Other AQ – positive	Relocate a proportion of emissions.	Improved road safety.	None identified	ELC Transportation Services	Short-term/ acceptable
Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	S	M	Medium	GHG - positive Other AQ - positive	None identified	Improved road safety.	None identified	ELC Traffic Wardens	Short-term/ acceptable
SCOOT - Split Cycle Offset Optimisation Technique	M	L	Medium	GHG - positive Other AQ - positive	Relocate a proportion of emissions.	Improved road safety.	None identified.	ELC Road Services	Short-term/ acceptable

Reduce the emissions from sources by technical means									
Electrification of Lothian Buses in Musselburgh	To be confirmed from dispersion modelling	H	TBC	GHG - positive Other AQ - positive	None identified.	Noise	None identified.	ELC Road Services	TBC
Eco Stars	M	L	Medium	GHG - positive Other AQ - positive	None identified.	Noise	Savings on running fleet due to increased fuel economy or change in fuel (e.g. electric)	ELC Environmental Health	Short-term/ acceptable
Reduce the emissions from sources by means of encouraging better travel choices/ behavioural change									
Larger Trains and Platforms at Musselburgh Rail Station	To be confirmed from dispersion modelling	H	TBC	GHG - positive Other AQ - positive	None identified.	Improved road safety.	None identified	ELC Road Services, Development, Planning and Policy, and Environmental Health	TBC
AQMA Signage	S	L	Medium	GHG - positive Other AQ - positive	None identified.	None identified.	None identified.	ECL Road Services, Environmental Health	
East Central Scotland Vehicle Emissions Partnership	S	N	Medium	GHG - positive Other AQ - positive	None identified.	Noise	Fuel saving	East Central Scotland Vehicle Emissions Partnership	Short-term/ acceptable

Provision of information regarding air quality and travel options	S	N	Medium	GHG - positive Other AQ - positive	None identified.	None identified.	None identified.	ELC Environmental Health	Short-term/ acceptable
Promotion of alternative modes (cycling + walking)	S	N	Medium	GHG - positive Other AQ - positive	Potential road safety issues.	Improved fitness	Potential benefits	ELC Environmental Health	Short-term/ acceptable
Green Travel Plans for large institutions and businesses.	M	M	Medium	GHG - positive Other AQ – positive Noise - positive	None identified	Health benefits	Potential financial benefits to employees	ELC Environmental Health	Short-term/ acceptable

Table 5.3 Progress on Measures to Improve Air Quality

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Improving links with Local Transport Strategy	Policy Guidance and Development Control	East Lothian Council are in process of finalising the latest Local Transport Strategy (LTS). A key aim of the Strategy is to reduce the overall dependence on the car and the environmental impact of traffic.	ELC Road Services	Ongoing	Ongoing					
2	Improving links with Local Development Plan	Policy Guidance and Development Control	East Lothian Council are in process of finalising the latest Local Development Plan (LDP). The LDP will seek to integrate land use and transport and minimise the need to travel as well as the distance travelled. It will do this by promoting	ELC Development Management	Ongoing	Ongoing				2016	Where development of sites identified in the LDP indicates impacts on air quality, developers may be required to

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
			town centres as accessible locations for a mix of land uses and services and by providing community services locally. It will help promote active travel choices and public transport as alternatives to other motorised transport.								put in place mitigation measures to off-set these impacts from the development.
3	Bus stop relocations on High St, Musselburgh	Transport planning and infrastructure	SIAS have been commissioned to build a micro-simulation (S-paramics) model of the strategic and local road network to form a 2012 base and predict cumulative traffic impacts on the strategic and local road network having regard to future development of the preferred sites identified in the LDP. Modelling of traffic related mitigation measures to be carried out to identify those measures to be included within the Action Plan. Implementation of measures that modelling has confirmed for inclusion in the Action Plan.	ELC Road Services/ Environmental Health	Complete	Ongoing	Annual mean NO_2 concentrations.	21% NO_2	To be completed. Awaiting confirmation of mitigation measures to be taken forward for modelling and possible inclusion within	Modelling of traffic measures planned to be completed in October 2016	

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
4	Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	Traffic Management	Prevention of unnecessary pollution from stationary vehicles within the AQMA and other busy town centres within the County.	ELC Traffic Wardens	Ongoing		Number of fixed penalties/ warnings issued.				It is intended to educate motorists and make them aware of idling impacts on the local environment . Fixed penalties will assist to enforce message and to deter idling.
5	SCOOT - Split Cycle Offset Optimisation Technique	Traffic Management	SCOOT is a system of Urban Traffic Control and monitors queue lengths at all junctions on the main arterial routes and alters signal timing to suit. This is monitored every 120 seconds and although monitored by East Lothian Council is controlled by the City of Edinburgh Council through their Traffic Control Room.	ELC Road Services	Complete	2013	Annual mean NO_2 concentrations within AQMA.		Ongoing	Ongoing	The use of SCOOT can reasonably be expected to achieve savings in delay of 20% or more with associated reductions in emissions within the AQMA.
6	Electrification of Lothian Buses in Musselburgh	Promoting Low Emission Transport	Minimisation of pollution within AQMA by providing electric charging facility to allow buses to switch to electric operation.	ELC Road Services	Ongoing	TBC	Installation of electric charge points and number of electric buses passing through AQMA.			TBC	

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
7	Eco Stars	Vehicle Fleet Efficiency	East Lothian Council have secured funding from the Scottish Government and are in process of establishing an Eco Stars Fleet Recognition Scheme within East Lothian. The scheme provides recognition for best operational practices and guidance for making improvements to fleet operators with the ultimate aim of reducing fuel consumption and reduced emissions. The Council's own fleet, together with Commercial Fleet Operators will be encouraged to engage with the scheme which will have a positive impact on emissions, including within the AQMA in Musselburgh High Street.	ELC Environmental Health	Complete	June – September 2016	Number of operators signed up to the scheme.			October 2016 and ongoing	currently being established with assistance from Transport and Travel Research (Scotland) Ltd and it is hoped to officially launch the scheme in October 2016.
8	Larger Trains and Platforms at Musselburgh Rail Station	Transport planning and infrastructure	Increase capacity of trains at Musselburgh train station to encourage people to use public transport.	ELC Road Services			Number of people using service.			TBC	
9	AQMA Signage	Public Information	In order to raise the awareness of the AQMA, the Council will consider erecting signs at various locations within Musselburgh Town Centre to alert	ELC Environmental Health			Installation of signs within AQMA.			TBC	

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
			drivers to the presence of the AQMA and encouraging behavioural change e.g. reduce vehicle idling.								
10	East Central Scotland Vehicle Emissions Partnership	Public Information	East Lothian Council work in partnership with Midlothian, West Lothian and Falkirk Councils to provide a voluntary Vehicle Emissions Testing Programme aimed at raising awareness of vehicle emissions and impacts on air quality amongst the general public.	Vehicle Emissions Officer East Central Scotland Vehicle Emissions Partnership at West Lothian Council	Complete	2003	Number of vehicles tested.		Ongoing	Ongoing	
11	Provision of information regarding air quality and travel options	Public Information	Raising awareness of air quality within the Musselburgh area and the actions the general public can take to improve air quality.	ELC Environmental Health	Complete	Ongoing				Ongoing	
12	Promotion of alternative modes (cycling + walking)	Promoting Travel Alternatives	Promoting cycling and walking represents a key objective of East Lothian Council's Local Transport Strategy. East 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 and environmental improvement	ELC Road Services	Ongoing	Ongoing	Number of people using alternative modes of transport.			Ongoing	

Meas. No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
			by3reducing the number of cars on the road.								
13	Green Travel Plans for large institutions and businesses.	Promoting Travel Alternatives	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.	ELC Environmental Health			Number of institutions/ businesses with a Travel Plan.			TBC	

6 Draft Action Plan

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

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

1. Strategic measures aimed at integrating air quality into all relevant areas of decision making within East Lothian Council.
2. Specific measures aimed at reducing congestion within the Musselburgh High St AQMA, reducing emissions from principal sources, promoting greater awareness of local air quality and encouraging more sustainable travel choices within East Lothian in general.

6.1 Prioritisation of Measures

Based on the assessment undertaken for each measure, a prioritised list of measures has been produced. It is potentially complex to decide on priorities from such a wide range of criteria. However, for the purpose of the AQAP we have put particular weight on those measures which provide good potential AQ benefits (with appropriate consideration of cost-effectiveness and the wider environmental benefits or risks). Due to their overarching nature, it is anticipated that the strategic measures will provide some of the frameworks by which measures 4-13 will be successfully implemented. Therefore, they are not assessed in the same way and are regarded as overall priorities for implementation.

To enable the prioritisation of measures, the score (0-3) assigned to the air quality impact has been multiplied by the score assigned to the anticipated cost implications (0-5). This approach provides a basic cost-effectiveness analysis which together with consideration of other factors and timescales has enabled the prioritisation of the measure included within the plan. This has identified the following ranking of measures (Table 6.1):

Table 6.1 Musselburgh High St AQAP Measures

No	Measure	Timescale
	Strategic Measures	
1	Improving links with Local Transport Strategy	Ongoing
2	Improving links with Local Development Plan	Ongoing
	Direct Measures	
3	AQMA Signage	Short Term
4	Enforcement of idling provisions of The Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	Short Term
5	Eco Stars	Short-Medium Term
6	East Central Scotland Vehicle Emissions Partnership	Ongoing
7	Provision of information regarding air quality and travel options	Ongoing
8	Promotion of alternative modes (cycling + walking)	Ongoing

No	Measure	Timescale
9	Green Travel Plans for large institutions and businesses.	Short-Medium Term
10	SCOOT - Split Cycle Offset Optimisation Technique	Ongoing
11	Bus stop relocations on High St, Musselburgh	Short-Medium Term
12	Larger Trains and Platforms at Musselburgh Rail Station	Short-Medium Term
13	Electrification of Lothian Buses in Musselburgh	Short-Medium Term

The feasibility of Measures 12 and 13 are in the process of being assessed, which includes both the modelling of road traffic movements and associated air quality impacts in the Musselburgh area as a result of the proposed actions. Note that other traffic measures may come to light during this process and that the AQAP will be updated with the finalised measures during the annual air quality reporting regime.

6.2 Funding Implementation of the Action Plan

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

- Scottish Government Air Quality Funding;
- Transport Scotland;
- Transport Fund
- Developer contributions;

The availability of such funding is likely to determine the progress of the Action Plan.

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

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

- Continue to monitor and review air quality to assess whether the AQMA should be revised or revoked;
- Include details of progress within the air quality Annual Progress Report that sets out new information on air quality in East Lothian, which will also report on progress made with implementing the action plan;
- Continue to work closely with other stakeholders and partner organisations in implementing the action plan measures and in assessing whether the plan needs to be revised in the light of the findings from air quality review and assessments.

6.3 The Musselburgh High St AQAP and CAFS

Policy Guidance LAQM.PGS (16) was published by the Scottish Government in March 2016 and provides statutory guidance on the development of air quality action plans. As a minimum, the AQAP is expected to include an explanation of how the action plan will help to deliver the aims and objectives of Cleaner Air for Scotland Strategy (CAFS). Table 6.2 details the relevant AQAP measures that are likely to have a positive impact on the six main CAFS objectives.

Table 6.2 Musselburgh High St AQAP measures relevant to CAFS

CAFS Objectives	Relevant AQAP Measures
Transport: promoting active travel and reduced emission technologies	1, 4, 5, 6, 8, 9
Legislation and Policy: all EU and Scottish legal requirements achieved for air quality.	All measures
Communication: a Scotland where all citizens are well informed and engaged	3, 7, 8, 9
Health: protect citizens from harmful effects of air pollution.	All measures
Placemaking: air quality not to be compromised by new or existing developments.	1, 2
Climate Change: reduction in greenhouse gas emissions.	All measures

Appendices

Appendix 1: Musselburgh High St AQMA Order

A.1 Musselburgh High St AQMA Order

ENVIRONMENT ACT 1995 PART IV SECTION 83 (1)

EAST LOTHIAN COUNCIL HIGH STREET, MUSSELBURGH (AIR QUALITY MANAGEMENT ORDER 2013)

East Lothian Council hereby gives notice that on the 13th day of November 2013, in exercise of the powers conferred upon it by Section 83 (1) of the Environment Act 1995, the Council resolved that an area incorporating High Street, Musselburgh (A199) from its junction with Newbigging and extending westwards to the junction with Bridge Street and Mall Avenue is designated as an Air Quality Management Area. The Order shall remain in force until it is varied or revoked by a subsequent order.

The area is designated in relation to breaches of the Nitrogen Dioxide annual main objective as specified in Air Quality (Scotland) Regulations 2000, as amended.

Copies of the Order and the map may be inspected at East Lothian local offices, John Muir House, Haddington, at The Brunton Hall, Ladywell Way, Musselburgh at Aldhammer House, High Street, Prestonpans, at The Bleachingfield Centre, Countess Crescent, Dunbar, at The George Johnstone Centre, Winton Way, Tranent, at The North Berwick Area Office, School Road, North Berwick and on the Council website http://www.eastlothian.gov.uk

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Corporate Legal Advisor

26th November 2013

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