

## **Proposal to Revoke the Air Quality Management Area at Pathhead**

**Report by: Eibhlin McHugh, Acting Director Communities and Wellbeing**

### **1 Purpose of Report**

To advise members of the agreement from Scottish Government and the Scottish Environment Protection Agency (SEPA) that Midlothian Council can begin the process of revoking the Air Quality Management Area (AQMA) currently in place in Pathhead as a result of the marked improvements in air quality in the village of Pathhead.

### **2 Background**

#### **2.1 Pathhead Air Quality Management Area**

The Air Quality Management Area (AQMA) was declared in Pathhead in April 2008 as a result of a predicted excess of particulate matter in the 2010 Scottish air quality standard for PM<sub>10</sub>. (particulate matter).

A map of the AQMA outlining the area included within the Pathhead AQMA is included as Appendix 1 to this report.

Following declaration of an AQMA, Councils are required to carry out a Further Assessment to confirm their initial findings and to calculate what improvements in air quality would be required.

#### **2.2 Local Air Quality Management Process**

In terms of the Environment Act 1995 Scottish Local Authorities are required to regularly review air quality within their areas under a process known as Local Air Quality Management (LAQM). Air quality objectives or standards are prescribed in the Air Quality (Scotland) Regulations 2000 and Amendment Regulations 2002 for seven pollutants namely: - benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide (NO<sub>2</sub>), Sulphur Dioxide (SO<sub>2</sub>) and particulates (PM<sub>10</sub>). In respect of PM<sub>10</sub>, that is particulate material with a diameter of less than 10 microns, the limit in Scotland had been 40ug /m<sup>3</sup> but a more stringent Scottish standard of 18 ug / m<sup>3</sup> (the concentration of an air pollutant eg. Ozone, is given in micrograms; one- millionth of a gram; per cubic meter air or µg/m<sup>3</sup>) was introduced in 2010. PM<sub>10</sub> is a concern to health as the particles are inhaled deep into the lungs. Elevated levels of PM<sub>10</sub> can affect people with existing respiratory conditions such as asthma.

## **2.3 Further Assessment**

Detailed analysis of the particulate fractions present, and the quantity of those fractions present, was carried out and results indicated that a major component of the particulate matter was carbon.

The carbon fractions were further analysed and it was estimated that burning of fossil fuel contributed to the annual mean PM<sub>10</sub> (particulate) concentrations in Pathhead by approximately 3 – 4 µg/m<sup>3</sup>.

At the time of declaring the AQMA, research indicated that householders in Pathhead predominately burned coal as a source of heating. Surveys of householders indicated that this was due to the fact that there was no viable alternative e.g. there was no gas mains supply available in the village. Door step surveys also gauged the level of interest from householders in Pathhead to switch from burning coal to other fuels, including gas. It concluded that a significant proportion of households were “interested” or “very interested” in switching to gas. An extract of some of the comments received throughout the process are included at Appendix 2.

It was concluded that reducing the PM<sub>10</sub> particulate matter was most likely to be achieved through the delivery of a gas mains supply to Pathhead and that if a significant number of households connect to a mains gas supply, the annual mean concentration of PM<sub>10</sub> could be reduced by as much as 3 – 4 µg/m<sup>3</sup> thereby taking Pathhead to well within the objective limits.

## **2.4 Remedial action - Installation of Gas Mains**

In addition to concerns regarding the effects of particulate matter on health, concerns were also apparent regarding the potential of fuel poverty.

Harnessing all of the available information, Midlothian Council applied for, and was successful in obtaining, funding from the Scottish Government under the Universal Home Insulation Scheme (UHIS) available to local authorities for the purpose of providing energy efficiency measures, delivering emission savings and reducing fuel poverty.

Funding was provided to extend the gas mains connection into Pathhead and to make installation available to all tenures of domestic property in the village.

Air quality monitoring after installation of the gas mains has demonstrated a reduction in the level of PM<sub>10</sub> over two consecutive annual sampling periods. In addition to decreasing levels of PM<sub>10</sub> there has also been a significant drop in levels of sulphur dioxide (SO<sub>2</sub>), as detailed in the graphs at Appendix 3. The drop in PM<sub>10</sub> and SO<sub>2</sub> levels has occurred as a result of installing the gas mains into Pathhead, thereby reducing fossil fuel burning in the village. Sulphur is an impurity in coal and when burned produces SO<sub>2</sub>. PM<sub>10</sub> is present in the soot produced from burning coal. Other sources of PM<sub>10</sub> include pollen, salt residue from roads and windblown dust.

Air quality in the village has improved as residents switch from burning coal to gas. Air quality monitoring results from the Council's air quality monitoring stations in Pathhead demonstrated a 1 ug/m<sup>3</sup> drop in PM<sub>10</sub> levels during 2011 and a further 1 ug/m<sup>3</sup> drop in PM<sub>10</sub> during 2012. The 2012 figure of 16ug/m<sup>3</sup> has recently been ratified by Scottish Government's air quality consultants and published on the Scottish Air Quality website.

Although levels of SO<sub>2</sub> have never been close to exceeding the national air quality objective limit the most noticeable improvement has been for this pollutant.

### **3 Report Implications**

On the basis of the improvement in results from the Pathhead air quality monitoring station over the 2011 and 2012 sampling periods, a formal request was made to the Scottish Government and the Scottish Environment Protection Agency (SEPA) requesting that they support proposals to revoke the AQMA Order.

Scottish Government's Air Quality Policy Manager responded as follows:

***'I agree that there is sufficient evidence for the AQMA to be revoked and am content for the process to begin. This will be the first AQMA in Scotland, and one of very few in the UK, to be revoked on the basis of introduced measures...'***

The response from SEPA is attached in appendix 4.

The next stage in the process is to advertise these proposals to revoke the Air Quality Management Order. This will involve adverts in the local press advising on the Council's intention to revoke the AQMA and providing details on how interested parties may make representation.

### **3 Report Implications**

#### **3.1 Resources**

Resource implications can be met from within existing budget.

#### **3.2 Risk**

There are no known risks involved in revoking the AQMA.

#### **3.3 Single Midlothian Plan and Business Transformation**

Themes addressed in this report:

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☐ **Community safety**

☒ **Adult health, care and housing**

- ☒ **Getting it right for every Midlothian child**
- ☐ **Improving opportunities in Midlothian**
- ☒ **Sustainable growth**
- ☐ **Business transformation and Best Value**
- ☐ **None of the above**

### **3.4 Impact on Performance and Outcomes**

The revocation of the AQMA in Pathhead will achieve the outcome target set in The Single Midlothian Plan under the medium term outcome of “Aspects of Midlothian’s Amenity are enhanced” in that the number of Air Quality Management Areas will be reduced to zero.

### **3.5 Adopting a Preventative Approach**

Improving the air quality in Pathhead will have health benefits, particularly for those individuals with respiratory conditions.

The anticipated reduction in the effects of fuel poverty will also enable persons to heat their homes to a standard that will protect their health and well-being.

### **3.6 Involving Communities and Other Stakeholders**

Extensive engagement took place with householders in Pathhead during the AQMA and throughout the delivery of the gas mains installation.

Consultation with Scottish Government and SEPA has taken place throughout.

### **3.7 Ensuring Equalities**

There are no adverse equality issues arising from this report.

### **3.8 Supporting Sustainable Development**

There are no supporting sustainable development issues arising from this report.

### **3.9 IT Issues**

There are no IT issues arising from this report.

## **4 Recommendations**

Council is asked to:

- (i) note the content of this report, and the resolution achieved to install the gas main.
- (ii) note that Scottish Government and SEPA have agreed to the revocation of the Air Quality Management Area at Pathhead,
- (iii) endorse the revocation of the Air Quality Management Area at Pathhead,

**Date:** 3 June, 2013

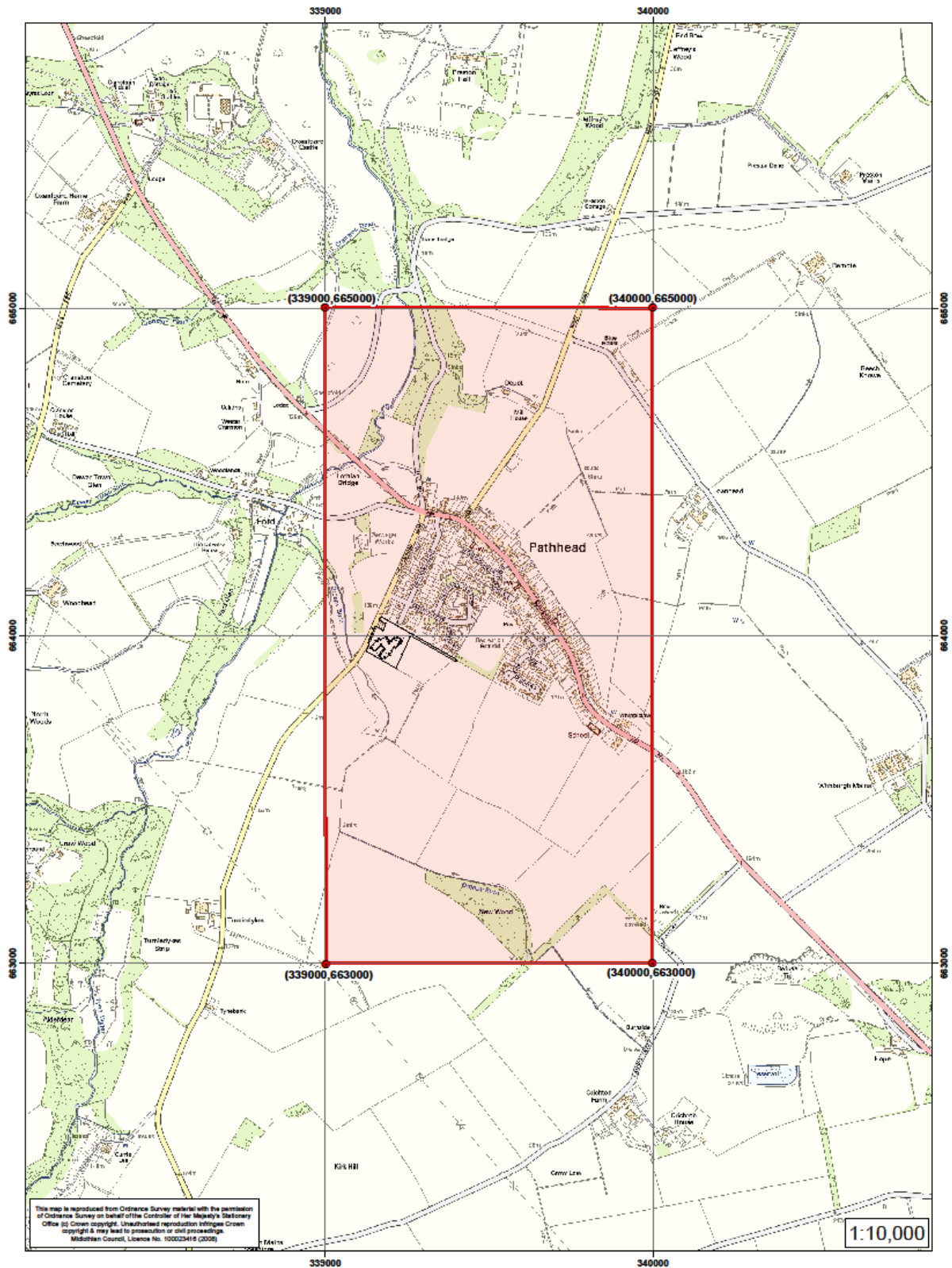
**Report Contact:** Kevin Anderson, Head of Housing & Community Safety

**Tel. No:** 0131 225 3725

kevin.anderson@midlothian.gov.uk

## Appendix 1

## Air Quality Management Area, Pathhead



## **Appendix 2 Consultation with Pathhead Householders**

'I find the air quality so poor at times in Pathhead that I am unable to open my windows. This is due to smoke from coal fires. '

'There is a definite smell in the mornings and evenings from the coal fires in the village. We are sure this is affecting the air in the village. My husband suffers from Asthma and we feel the air is affecting this.'

'When windows are open, there is often smoke filled air being blown into the bedrooms & other rooms. The windows get dirty very quickly & so do the cars, not long after being washed.'

'Would only take mains gas if it were affordable to install.'

'Have additional coal fire but used only once/twice per week. Would only consider using gas if no installation cost was involved.'

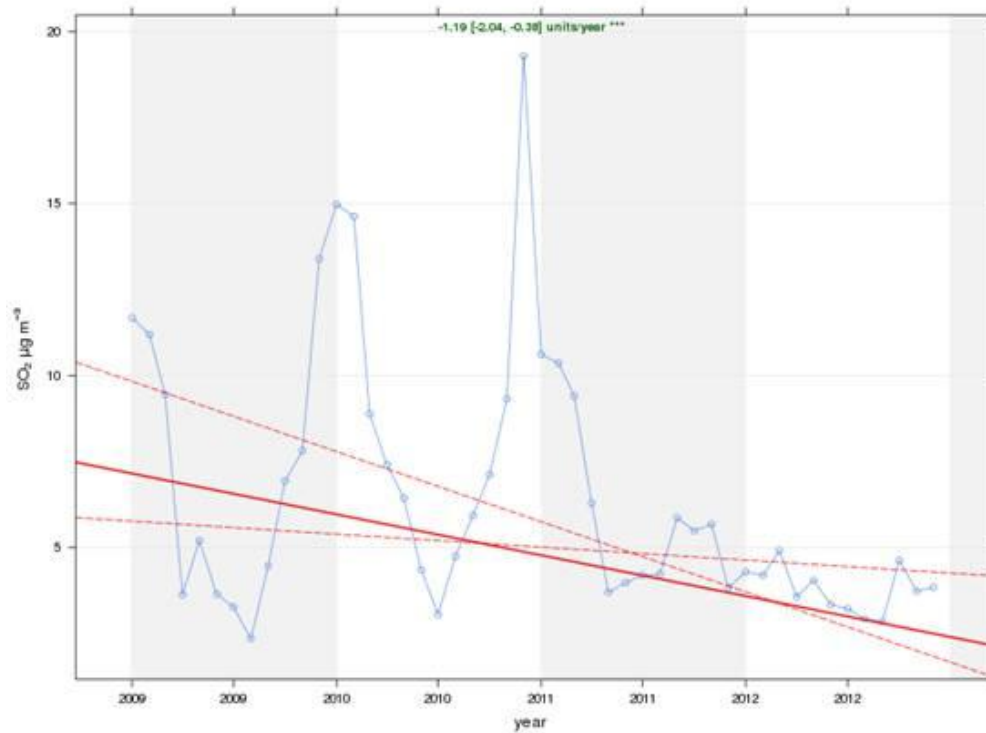
'Air Quality is very poor in this area due to large number of coal burning households.'

'We would love to have a gas supply'

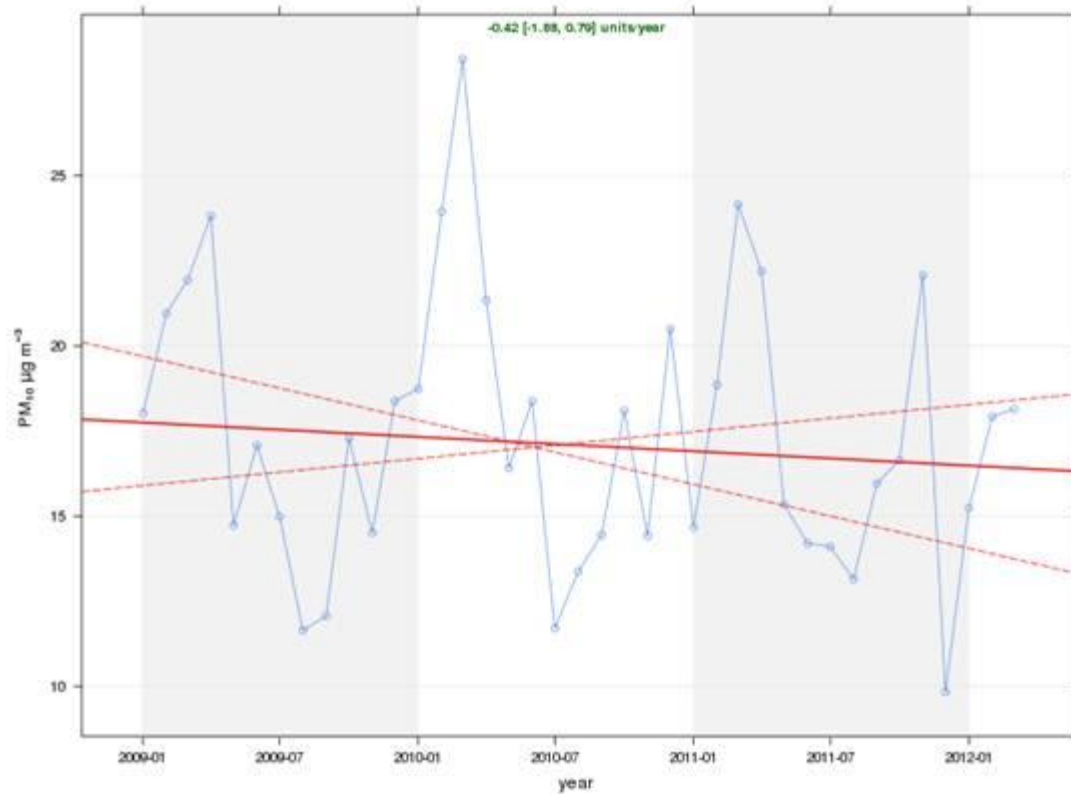
'We moved into the village in 2006 and are horrified at the traffic pollution and the stink of chemicals when we hang washing outside to dry - please do something about it.'

### Appendix 3 Air Quality in Pathhead

Data trend at Midlothian Pathhead for the period 01/01/2009 to 31/12/2012



Data trend at Midlothian Pathhead for the period 01/01/2009 to 22/03/2012





## Appendix 4 Response from SEPA

**From:** Lamb, John [<mailto:John.Lamb@SEPA.org.uk>]

**Sent:** 22 March 2013 15:03

**To:** Lilianne Lauder

**Subject:** Pathhead

Lilianne, I would like to circulate the following to the local authorities on my distribution list and would be grateful if you would look it over and make any changes that are required.

This is a real good news story and it would be good to let others see that improvements are being made.

I would also like to send this to Jack Pease – Jack publishes the Air Quality Bulletin, a journal that is circulated to air quality specialist within the UK.

Regards

John

A good news story

Midlothian Council designated an AQMA in Pathhead at the end of April 2008, due to an exceedance of the annual mean air quality objective for PM<sub>10</sub>. Subsequent assessments found that domestic coal burning was responsible for the diurnal peaks.

Coal contains sulphur (typically 1-3% in the UK), therefore it was assumed that there would be an increase in the ambient concentrations of sulphur dioxide. Monitoring confirmed that this was indeed the case and the concentrations of both PM<sub>10</sub> and SO<sub>2</sub> in Pathhead increased significantly as the ambient temperatures decreased. Monitoring also showed that the annual mean concentrations of PM<sub>10</sub> in Pathhead were consistently higher than they were in Dalkeith, 7Km to the north-west. A fuel use survey confirmed that coal was the main source of domestic heating in Pathhead – as there was no gas supply in the village. Dalkeith is connected to the national gas network.

Monitoring also highlighted diurnal fluctuations of both PM<sub>10</sub> and SO<sub>2</sub> that were linked to human activity (getting up in the morning, returning home in the evening and building up the fire late evening), confirming that domestic heating systems are most likely to be the reason for the difference in annual mean concentrations in Pathhead and Dalkeith.

Pathhead was connected to the national gas network in 2011 and there has been a noticeable reduction in the emissions of PM<sub>10</sub> and sulphur dioxide. The plots below (created using the Openair tools on the Scottish Air Quality website) show an obvious

reduction in the measured concentrations of sulphur dioxide. Whilst the reduction in PM<sub>10</sub> looks less impressive (this is not surprising since background greatly influences PM<sub>10</sub> in Scotland) the annual mean concentrations have fallen below 18 µg.m<sup>-3</sup> and Midlothian Council is now in a position where it can begin the process of revoking the AQMA Order.