

COMMITTEE      Housing and Environment      DATE 25 May 2010

DIRECTOR      Peter Leonard

TITLE OF REPORT Air Quality Action Plan Update

REPORT NUMBER: HE/010/40

---

## 1. PURPOSE OF REPORT

The purpose of this report is to provide additional information in support of the report to the Housing and Environmental Committee of 13 April 2010, with specific reference to air quality monitoring on Market St and emissions from Aberdeen Harbour.

## 2. RECOMMENDATION(S)

It is recommended that the Committee:

- a) notes the information regarding emissions from Aberdeen Harbour and the monitoring of air quality, including Market Street; and
- b) approves recommendations A, B and D of the report of 13 April 2010, namely;
  - A) approves the draft Air Quality Action Plan for public consultation and submission to the Scottish Government
  - B) instructs the Director, Housing and Environment to prepare a final Air Quality Action Plan for Committee consideration following the completion of the consultation; and
  - D) refers the report to the Enterprise, Planning and Infrastructure Committee for information due to the links between air quality, transport and planning

## 3. FINANCIAL IMPLICATIONS

There are no financial implications associated with this update report.

## 4. SERVICE & COMMUNITY IMPACT

This report is linked to the improvement in the health of the people of Aberdeen and a reduction in health inequalities. In terms of 'Vibrant, Dynamic and Forward Looking' the report relates to policy commitments in Transport, Environment and Health. An Equality and Human Rights Impact Assessment is not required for this Report.

## 5. OTHER IMPLICATIONS

There are no other implications associated with this report.

## 6. REPORT

### **Background**

- 6.1 A report describing proposed measures to improve air quality contained within the draft Air Quality Action Plan was considered by the Housing and Environment Committee of 13 April 2010. The Committee requested the provision of further information on air quality monitoring, particularly on Market Street, and the contribution to emissions from shipping berthed in the harbour.

### **Air quality monitoring**

- 6.2 National guidance prescribes the type of equipment that should be used to monitor air quality and locations where monitoring should be carried out. As the air quality objectives are health based, monitoring is carried out at locations of relevant population exposure for the specific pollutants of concern i.e. nitrogen dioxide (NO<sub>2</sub>) and particles (PM<sub>10</sub>) in Aberdeen.
- 6.3 Where a risk of exceedance of an objective has been identified through the Local Air Quality Management (LAQM) process, authorities should monitor in these areas using approved continuous monitoring equipment such as the 6 stations in Aberdeen. These stations are audited every 6 months and data is checked daily and ratified by external agents appointed by the Scottish Government. Site selection is determined by various criteria including population exposure, risk of exceedances of objectives, traffic flows, pavement width, proximity to major junctions, bus stops and other pollution sources.
- 6.4 Indicative levels of NO<sub>2</sub> are also measured via diffusion tubes attached to lampposts and downpipes at approximately 40 locations across Aberdeen. These measurements are used to monitor trends and identify locations of potential exceedances. There are 20 sites in the city centre and almost all exceed the annual mean objective. Maximum levels are on Market St (70-80ugm<sup>-3</sup>), Union St close to the Holburn St junction (60-70ugm<sup>-3</sup>) and on parts of King St (70ugm<sup>-3</sup>).
- 6.5 It is not possible to measure PM<sub>10</sub> concentrations via diffusion tubes. While other semi-portable systems are available, costs are approximately £6300 (compared to <£10 for diffusion tubes), require a power supply and may be subject to vandalism, for example if attached to lampposts in parts of the city. Continuous monitoring via the existing

stations has been considered the most appropriate measurement technique for PM10 monitoring.

### **Emissions from Shipping**

- 6.6 Monitoring measures the total concentration of a pollutant at a specific location, it is not possible to distinguish the contribution from different sources such as traffic, shipping or industrial sources.
- 6.7 The consultant Cordah was contracted to model emissions from the Harbour in 2004. This modelling predicted that shipping accounted for annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations of 3-10 $\mu\text{g m}^{-3}$  and 1-1.5 $\mu\text{g m}^{-3}$  respectively. Emissions may have been over-estimated due to a number of worst-case assumptions. Prior to the commencement of construction works associated with the Union Square development, the annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations at the continuous monitoring station on Market St were 50-60 $\mu\text{g m}^{-3}$  and 51-52 $\mu\text{g m}^{-3}$  respectively. It was concluded that emissions from shipping contribute to exceedances of the annual mean objectives, however traffic is the main source of the raised levels.
- 6.8 In 2004 Aberdeen Harbour Board also commissioned Aberdeen University to carry out a study of the impact of harbour activities on air quality. The study concluded that the harbour was not a major contributor to city centre pollution levels. Monitoring of NO<sub>2</sub> showed a significant gradient of low levels at the harbour mouth to high levels at the Market Street area. A NO<sub>2</sub> monitoring exercise by the environmental health service from 2005-2008 similarly showed lower levels at the harbour mouth away from road traffic and Harbour internal activities such as the loading of cargo, with highest levels close to Market Street.
- 6.9 It is also worth noting that Technical Guidance describes the pollution sources and processes that authorities must consider when undertaking annual air quality assessment reports, including occasions when specific sources such as airports, railway and bus stations, shipping and industrial sources must be considered in detail. Using the criteria within the guidance, which considers the size, type and number of vessel movements, exceedance of the air quality objectives would not be predicted at Aberdeen Harbour and no Detailed Assessment is required. Furthermore, the guidance considers emissions of sulphur dioxide (SO<sub>2</sub>) to be the main pollutant of concern associated with shipping. Both the Cordah modelling and the Aberdeen University study confirmed SO<sub>2</sub> emissions associated with the vessel movements in Aberdeen are well below objective levels.
- 6.10 Emissions from vessels are controlled by EU legislation specifying the fuel composition. There are therefore limited actions the authority can take to reduce emissions. However, the draft Air Quality Action Plan

recognises that shipping and activities at the Harbour do contribute to air pollution within the City Centre. The Plan includes a measure to consider initiatives to improve air quality in the Harbour area.

## 7. REPORT AUTHOR DETAILS

Aileen Brodie  
Principal Environmental Health Officer  
[abrodie@aberdeencity.gov.uk](mailto:abrodie@aberdeencity.gov.uk)  
tel 01225 522216

## 8. BACKGROUND PAPERS

Air Quality Action Plan and Air Quality Update report to the Housing and Environment Committee of 13<sup>th</sup> April 2010