

The Highland Council

City of Inverness Area Committee – 2nd September 2014

Agenda Item	15
Report No	CIA/43/14

Local Air Quality Management – Proposed Air Quality Management Area Declaration

Report by Environmental Health Manager

Summary

A Detailed Assessment has been carried out for Nitrogen dioxide within Inverness City Centre. This area was identified as being at risk of exceeding the Annual Mean Air Quality Objective for Nitrogen dioxide, based on monitoring in 2012, as set out in The Highland Council's 2013 Progress Report. The Environment Act 1995 now requires the Highland Council to designate an Air Quality Management Area by order as outlined in Appendix 1 and, after further assessment and consultation, produce an Air Quality Action Plan (AQAP).

1 Background

- 1.1 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007 states "Air pollution can have a serious effect on people's health. Exposure to air pollution can have a long-term effect on health, associated in particular with premature mortality due to cardiopulmonary (heart and lung) effects. In the short-term, high pollution episodes can trigger increased admissions to hospital and contribute to the premature death of those people that are more vulnerable to daily changes in levels of air pollutants. Air pollution also has negative impacts on our environment, both in terms of direct effects of pollutants on vegetation, and indirectly through effects on the acid and nutrient status of soils and waters."
- 1.2 Under The Environment Act 1985, which implemented EC Directive 96/62 on air quality assessment and management the Council is obliged to review and assess air quality throughout Highland. The Act also requires that if an assessment of air quality indicates that the objective level for various pollutants is unlikely to be achieved, the local authority must designate these areas as Air Quality Management Areas (AQMA) by order.
- 1.3 Generally air quality in the Highlands is good however the review and assessment process has identified an area in the city centre of Inverness where air quality objectives may not be achieved.

- 1.4 Air Quality Consultants Ltd. was commissioned by The Highland Council to undertake a Detailed Assessment of air quality in Inverness. A summary of the report is outlined in Appendix 2. Detailed Assessment was required as a result of measured exceedences of the Nitrogen dioxide Annual Mean Objective along Queensgate and Union Street, in Inverness City Centre. These were identified in the Progress Reports completed by the Highland Council in 2012 and 2013 as part of the Local Air Quality Management Review and Assessment process.
- 1.5 The aim of this Detailed Assessment was to determine whether the Annual Mean Nitrogen dioxide objective is exceeded at relevant locations and, if so, the extent of exceedence and thus the boundary of the Air Quality Management Area (AQMA) required.
- 1.6 The Air Quality objective for Nitrogen dioxide is an annual mean of $40 \mu\text{g}/\text{m}^3$ or a 1-hour mean of $200\text{ug}/\text{m}^3$, the latter not to be exceeded more than 18 times in a year. The air quality objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e. where people will be exposed to pollutants). For annual mean objectives, relevant exposure is limited to residential properties, schools and hospitals. The 1-hour mean objective would also apply on the pavements of busy shopping streets.
- 1.7 The Detailed Assessment concluded that there were measured concentrations in excess of the Annual Mean Nitrogen dioxide objective value of $40 \mu\text{g}/\text{m}^3$, at locations on Queensgate and part of Academy Street, in Inverness City Centre. There is no identified relevant exposure at the measured locations however modelling undertaken as part of the Detailed Assessment predicts pollutant concentrations in excess of the objective at the façade of six first and second floor apartments on Academy Street / Queensgate. It should be noted that this objective relates to residential exposure in the longer term. The detailed assessment has confirmed that 1-hour mean objectives for Nitrogen dioxide are being achieved. There is no evidence that public exposure in the street is in excess of the appropriate objective.
- 1.8 The highest annual mean Nitrogen dioxide concentration recorded at a site in Inverness in 2013 was $46.3\text{ug}/\text{m}^3$. During the same monitoring period “Glasgow Kerbside” site returned $65\text{ug}/\text{m}^3$ and “Aberdeen Union Street” returned $48\text{ug}/\text{m}^3$.

- 1.9 It is recommended that an AQMA is declared to include, as a minimum, those residential properties that lie within the outlined area in Appendix 1 which includes the residential properties located at 6 Queensgate and 62 Academy Street Inverness.
- 1.10 Both the Scottish Government and SEPA were consulted about the Detailed Assessment of air quality in Inverness city centre and both endorsed the conclusions in the report. In addition relevant Council Services have also been consulted.
- 1.11 The City of Inverness Area Committee have approved a report on the Inverness City Action Plan (CIA/15/14 – 3rd June 2014) and agreed priorities for the city centre. Academy Street has been identified as a pressing priority for the city centre and the AQMA will provide added impetus for improving the network in this part of the city.

2 Next Steps

- 2.1 The formal declaration Order for the Inverness city centre AQMA will be made by the Council and will come into effect on 9th September 2014. A copy of the draft Order is attached to this report Appendix1. It would be appropriate to publicise the Order on the Council's website and make it available for viewing at the Council's Service point at 21/23 Church Street, Inverness.
- 2.2 Following official declaration it will be necessary for a Further Assessment to be carried out within 12 months and to produce an Air Quality Action Plan (AQAP). The action planning process is both systematic and comprehensive in that it will evaluate all the air quality related options for dealing with Inverness City Centre. There is no prescribed time period for the completion of an action plan however the Scottish Government expects one to be completed within 12-18 months of the AQMA Order coming into effect. The Further Assessment and Action Plan are closely related and it is expected that the two documents will develop in parallel.
- 2.3 Stakeholder engagement is important in the action planning process. A stakeholder group may include other Highland Council Services, external organisations, Elected Members, Community Councils and local business organisations. The goals and targets of the stakeholders group will include obtaining the views of relevant stakeholders and this will inform the air quality action planning process which will be submitted to this Committee in due course.

3 Implications

- 3.1 There are no Resource implications arising from this report.

- 3.2 In terms of Legal implications this process is part of the Local Air Quality Management process under the Environment Act 1995.
- 3.3 There are no Equalities, Climate Change/Carbon Clever, Risk and Gaelic & Rural implications.

Recommendation

The Committee is invited to:

- a) Note the main conclusions for the Detailed Assessment Report Inverness May 2014
- b) Note the boundaries of the Inverness city centre AQMA as described in attached plan and associated Declaration Order (Appendix 1)
- c) Endorse the action planning process associated with the declaration of an AQMA for Inverness city centre

Designation: Environmental Health Manager

Date: 20th August 2014

Authors: John Lee / Nick Thornton

Background Papers:

Detailed Assessment of Air Quality in Inverness for the Highland Council – May 2014
(http://ntintra1/landaintra/Members/membersinfo/bulletin/hq/bulletin_reports/cia/detail-ed-assessment-of-air-quality-in-inverness-for-the-highland-council-may-2014.pdf)

ENVIRONMENT ACT 1995 PART IV SECTION 83(1)

The Highland Council (Inverness City Centre) Air Quality Management Area Order 2014

The Highland Council, in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following order.

This Order may be referred to as the The Highland Council (Inverness City Centre) Air Quality Management Area Order 2014 and shall come into effect on ninth day of September 2014.

The area within the red outline shown on the attached map is to be designated as an air quality management area ("the designated area").

The designated area incorporates 6 Queensgate, and 62 Academy Street, Inverness

The Order and map may be viewed at The Highland Council's Service point at 21/23 Church Street, Inverness and on The Highland Council web-site.

This area is designated in relation to a likely breach of the Nitrogen dioxide annual mean objective as specified in the Air Quality (Scotland) Regulations 2000, as amended.

This Order shall remain in force until it is varied or revoked by a subsequent order.

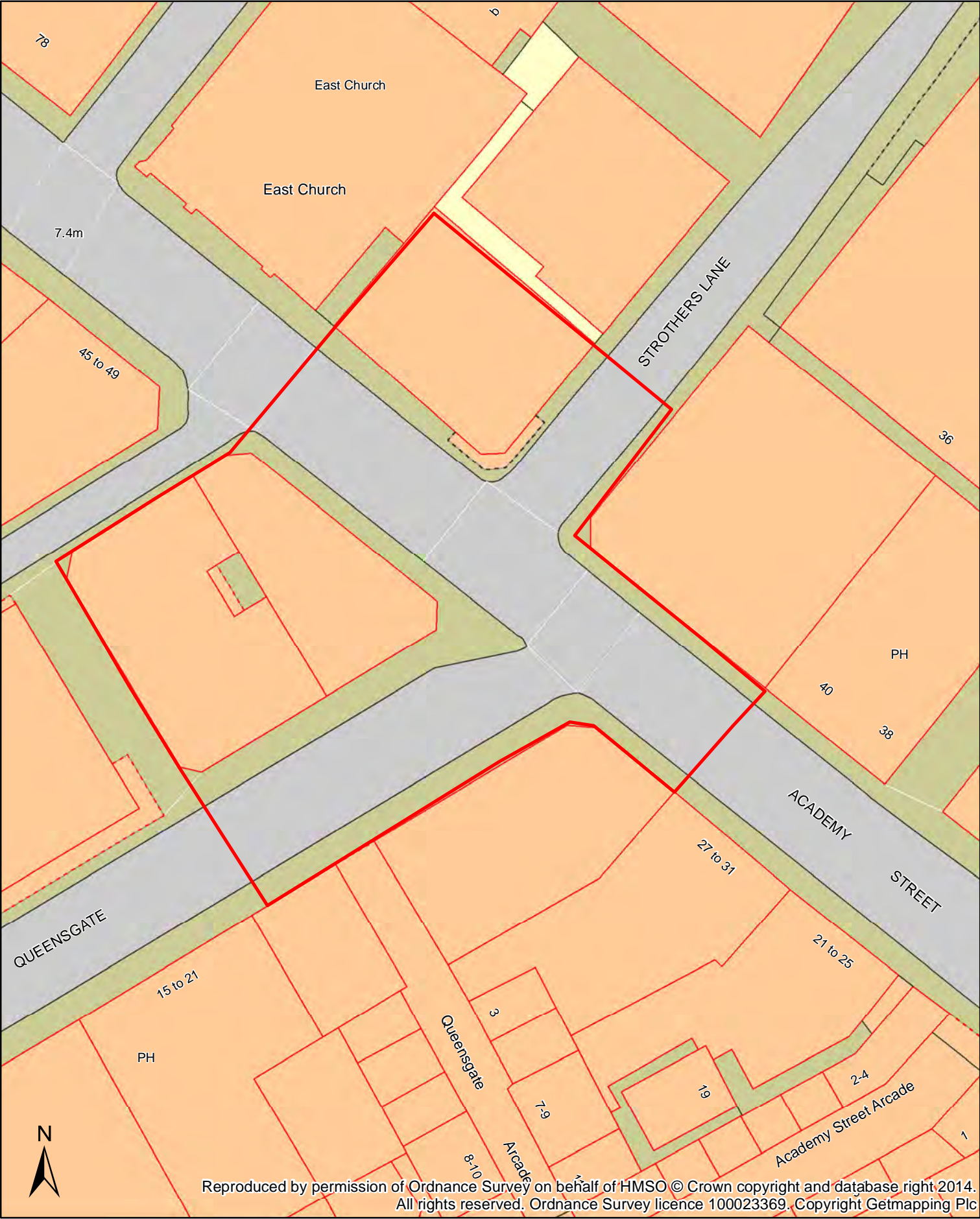
This Order together with the attached map are sealed with the Common Seal of The Highland Council and subscribed for them and on their behalf by Head of Legal & Democratic Services and Proper Officer at Inverness on the ninth day of September 2014.


ENVIRONMENT ACT 1995 PART IV SECTION
83(1)

THE HIGHLAND COUNCIL (INVERNESS CITY
CENTRE) AIR QUALITY MANAGEMENT AREA
ORDER 2014

DRAFT

The Highland Council
Head of Legal &
Democratic Services
Chief Executives
Office
Glenurquhart Road
Inverness
IV3 5NX



<h1>Inverness City Centre</h1> <p>Proposed Air Quality Management Area</p>	<p>0 2.5 5 10 15 20 Meters</p> <p>1:500</p> <p>Ref:</p> <p>Date:</p>	 <p>The Highland Council Comhairle na Gàidhealtachd</p>
--	--	--

Appendix 2

Summary of Detailed Assessment of Air Quality in Inverness For The Highland Council

Overview

1. Air Quality Consultants Ltd. was commissioned by The Highland Council to undertake a Detailed Assessment of air quality in Inverness. Detailed Assessment was required as a result of measured exceedences of the Nitrogen dioxide Annual Mean Objective along Queensgate and Union Street, in Inverness city centre, that were identified in the Progress Reports completed by the Highland Council in 2012 and 2013 as part of the Local Air Quality Management Review and Assessment process.
2. The aim of this Detailed Assessment was to determine whether the Annual Mean Nitrogen dioxide Objective is exceeded at relevant locations and, if so, the extent of exceedence and thus the boundary of the Air Quality Management Area (AQMA) required.
3. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Defra, 2007) sets out a framework for air quality management, which includes a number of air quality objectives. National and international measures are expected to achieve these objectives in most locations, but where areas of poor air quality remain, air quality management at a local scale has a particularly important role to play.
4. The Air Quality objective for Nitrogen dioxide is an annual mean of 40 $\mu\text{g}/\text{m}^3$. The air quality objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e. where people will be exposed to pollutants). For annual mean objectives, relevant exposure is limited to residential properties, schools and hospitals.
5. The role of the Local Air Quality Management Review and Assessment process is to identify areas where it is unlikely that the air quality objectives will be achieved. These locations must be designated as Air Quality Management Areas (AQMAs) and a subsequent Air Quality Action Plan (AQAP) developed in order to reduce pollutant emissions in pursuit of the objectives.
6. The Detailed Assessment concluded that there were measured concentrations in excess of the Annual Mean Nitrogen dioxide Objective value of 40 $\mu\text{g}/\text{m}^3$, at locations on Queensgate and part of Academy Street, in Inverness city centre. There is no identified relevant exposure at the measured locations however modelling undertaken as part of the Detailed Assessment predicts pollutant concentrations in excess of the objective at the façade of six first and second floor apartments on Academy Street/Queensgate

Assessment Methodology / Results

1. The detailed assessment uses two distinct methods to assess pollutant concentrations in the study area. Firstly by direct measurement and secondly using modelling techniques.
2. Monitoring for Nitrogen dioxide in the study area was carried out by The Highland Council using 16 passive diffusion tubes sites in 2013. This included additional diffusion tube monitoring sites along Queensgate, at first and second floor level, to inform work towards this detailed assessment.
3. Annual mean Nitrogen dioxide concentrations have also been predicted throughout the study area using detailed dispersion modelling (ADMS-Roads v3.2). The model predicts where areas of highest pollutant concentration will occur and plots pollutant concentrations relative to known locations where

there is relevant exposure. The model outputs have been verified against the monitoring data described above.

4. Nitrogen dioxide concentrations in excess of the annual mean objective value were recorded at one monitoring location along Queensgate and two monitoring locations on Academy Street. At one further monitoring location on Academy Street measured concentrations of Nitrogen dioxide were just below the objective. All four of these sites are ground-level measurement locations, where there is no exposure relevant to the objective. At all the remaining diffusion tube monitoring sites measured concentrations were below the objective.
5. Modelled annual mean Nitrogen dioxide concentrations at first- to third-floor levels across the study area show pollutant concentrations, where there is relevant exposure, at the various floor levels. No ground floor contour has been produced as there is no relevant exposure at ground-floor level anywhere within the study area. The area with highest concentration of pollutant is identified to be at the junction between Academy Street, Queensgate and Strother's Lane. This area and the junction between Academy Street and Margaret Street are predicted to have annual mean Nitrogen dioxide concentrations in excess of the objective value of 40 µg/m³. Relevant exposure coincides with the exceedence area on the first and second floor of the building at the corner of Queensgate and Academy Street. Exceedences of the Objective are predicted at six apartments in the building (which have a total maximum occupation of 18 people). Predicted concentrations are all below the annual mean objective value of 40 µg/m³ at the third floor level, within the study area. Residential properties also exist at the corner of Church Street and Queensgate, on Strother's Lane and Margaret Street, however the modelled annual mean concentrations are predicted to be less than 36 µg/m³.

Next Steps

1. The Highland Council must now declare an Air Quality Management Area (AQMA).
2. A Further Assessment must be completed within 12 months of the AQMA being designated.
3. The Highland Council must develop an Air Quality Action Plan. There is no prescribed time period for the completion of an action plan however the Scottish Government expects one to be completed within 12-18 months of the AQMA Order coming into effect. The Further Assessment and Action Plan are closely related and it is expected that the two documents will develop in parallel.
4. Stakeholder engagement is important in the action planning process. A stakeholder group may include other Highland Council Services, external organisations, Elected Members, community councils, local business organisations.

Conclusions & Recommendations

1. A Detailed Assessment has been carried out for Nitrogen dioxide within Inverness city centre. This area was identified as being at risk of exceeding the Annual Mean Air Quality Objective for Nitrogen dioxide, based on monitoring in 2012, as set out in The Highland Council's 2013 Progress Report.
2. The Detailed Assessment has been carried out using a combination of monitoring data for 2013 and modelled concentrations. Concentrations of Nitrogen dioxide have been modelled for 2013 using the ADMS-Roads dispersion model. The model has been verified against measurements made at the 16 Nitrogen dioxide diffusion tube monitoring locations which lie adjacent to the road network included in the model.
3. The assessment has identified that the Annual Mean Nitrogen dioxide Objective is being exceeded at first- and second- floor levels at the corner of Academy Street with Queensgate (2 Queensgate), where there is relevant exposure.

4. The Environment Act 1995 now requires the Highland Council to designate an Air Quality Management Area, carry out a Further Assessment and prepare an Air Quality Action Plan.
5. There is some uncertainty surrounding both the measured and modelled concentrations. It is therefore recommended that an AQMA is declared to include, as a minimum, those residential properties that lie within Queensgate, Academy Street between junctions of Margaret Street up to Station Square and junction of Church Street and Queensgate.
6. It is also recommended that The Highland Council continues monitoring nitrogen dioxide at the existing monitoring locations and expands the network to include Queensgate at varying levels if possible. It would be advantageous to undertake automatic pollutant monitoring within the AQMA, if possible. There may be specific grant funding available from the Scottish Government that could support the development of additional monitoring sites.