



To: GREENER RENFREWSHIRE THEMATIC BOARD

On: 01 FEBRUARY 2016

Report by:

Oliver Reid, Lead Officer
Head of Public Protection, Renfrewshire Council

**RENFREWSHIRE'S LOCAL AIR QUALITY MANAGEMENT -
2015 Updating and Screening Assessment and Detailed Assessments for
Johnstone, Renfrew and Montgomery Road, Paisley**

1. Summary

- 1.1 Air quality is taken seriously in the UK and, in particular, Scotland. In general terms across the UK, air quality is now good with significant improvements seen since the 1960s and in Renfrewshire air quality has similarly been improving. In the UK a main cause of air pollution is from road vehicles, which is also the case in Renfrewshire. However, it is clear that the measures that have been taken by Government and the controls placed on new vehicles through increasing EU standards have not yet had the impact in significantly reducing pollution.
- 1.2 Following the introduction of the Environment Act 1995, all local authorities have been required to undertake a regular review and assessment of air quality within their area and submit the findings to the Scottish Government. Councils are generally not in a position to change air quality within their area in the short term. Air quality is determined by a range of factors, including the prevailing weather and climate conditions, that are outwith Council control and can lead to significant variations in the levels of pollution being recorded from hour to hour, week to week and month to month. However, by improving our understanding and monitoring of where pollution is occurring at a very local level, there are some actions that can be taken to reduce the general likelihood and impact of pollution occurring - possibly through traffic controls or planning restrictions, with the ultimate aim of continuing to safeguard the health of the community.
- 1.3 The air quality objective for each pollutant at any given location is governed by EU Directives, which are transposed into Scottish Regulations in terms of annual, hourly or daily levels, depending on the pollutant. The monitored air pollutants

produced by road vehicles are NO₂ (nitrogen dioxide) and PM₁₀ (particulate matter less than 10 microns in diameter). The standard at which levels of particulate matter (PM₁₀) are measured in Scotland is among the most strict in the world with the levels for exceedences set at an annual average limit of 18ug/m³. Within the UK as a whole the limit is set in line with the limit for the rest of Europe at 40ug/m³. In Renfrewshire the highest levels of PM₁₀ that are being measured are 21ug/m³ which is well within wider UK and European limits. There is a background level of Nitrogen Dioxide which is broadly similar across the UK (other than in very rural areas) as this is particularly related to motor vehicles. Levels being recorded anywhere in Renfrewshire are significantly below the highest levels that are seen in the UK.

- 1.4 The Council has completed annual reviews and assessments of local air quality across Renfrewshire since 1998. This report provides the findings of the most recent 2015 Updating & Screening Assessment, which reviews 2014 air quality data, as well as the conclusions of a number of Detailed Assessments undertaken at Johnstone High St; Renfrew; and Montgomery Road, Paisley. These reports are referenced as background papers and can be made available on request.
- 1.5 Where a review of air quality indicates that there is a risk of a limit value or objective being exceeded, Local Authorities are required to follow a clear process:
 - First, undertake a Detailed Assessment to confirm if there is an exceedence in an area of relevant public exposure, including its magnitude and geographical extent.
 - If this confirms an exceedence exists, an Air Quality Management Area must be formally declared. Local authorities have flexibility to determine the precise form and extent of an Air Quality Management Area, as long as areas of concern are included.
 - An Air Quality Action Plan must then be produced to set out measures to bring air quality back into line with limit values.
- 1.6 The 2015 Updating & Screening Assessment has found that there is a risk that NO₂ levels are being breached at West Walkinshaw, Paisley and Inchinnan Road, Renfrew and that a detailed assessment will need to be carried out for NO₂ (nitrogen dioxide) in these locations.
- 1.7 The Detailed Assessment reports for Johnstone High Street, Renfrew and Montgomery Road, Paisley were undertaken because the annual mean NO₂ objective was exceeded at these locations, as identified within the 2014 Updating & Screening Assessment. The key conclusions of these reports are:

- There is a requirement to declare an Air Quality Management Area for both the NO₂ and PM₁₀ (particulate matter less than 10 microns in diameter) annual mean objectives at Johnstone High St.
- There is a requirement to declare an Air Quality Management Area in the Renfrew M8 area of Renfrew for the NO₂ annual mean objective and in the Renfrew Town Centre area for the NO₂ annual mean and one hour objectives.
- At Montgomery Road, Paisley, neither the NO₂ nor the PM₁₀ levels were being exceeded and there is therefore no further action that requires to be taken at present.

- 1.8 There are 14 other local authorities in Scotland who have declared a total of 43 air quality management areas. There are currently 693 air quality management areas declared across the UK. Currently there is one Air Quality Management Area within Renfrewshire, in Paisley Town Centre.

Consideration now has to be given to choosing whether to expand the current Air Quality Management Area in Renfrewshire to include the areas noted above or whether to create a number of additional smaller air quality management areas within Renfrewshire where air quality management action plans are required. There are benefits and disadvantages in both approaches and the intention is to carry out a detailed analysis of these and bring back a further report setting out options and recommendations to a future meeting of the Environment Policy Board.

- 1.9 The information presented above does not reflect a deterioration in air quality within Renfrewshire. It does reflect improvements in our ability to monitor and assess air quality and identify where issues arise. This will ultimately assist the Council to put in place measures that may have a quantifiable impact on improving air quality conditions in these areas.
- 1.10 Currently the performance information collected on this subject relates to maintaining or reducing the number of air quality management areas within Renfrewshire. This is no longer an effective measure of performance. Proposals for methods of monitoring and reviewing our performance on air quality that better reflect the impact that the Council can have on addressing this issue will also be brought back to a future meeting of the Environment Policy Board.

2. Recommendations

It is recommended that the Greener Renfrewshire Thematic Board:

- 2.1 notes the outcome of the 2015 Updating & Screening Assessment on air quality throughout the Council area and the requirement to proceed to two further Detailed

Assessments for the annual mean NO₂ objective at West Walkinshaw, Paisley and for the 1 hour NO₂ objective at Inchinnan Road, Renfrew;

- 2.2 notes the outcome of the Johnstone High St Detailed Assessment and the requirement to declare an Air Quality Management Area in the Johnstone High St area;
- 2.3 notes the outcome of the Renfrew Detailed Assessment and the requirement to declare an Air Quality Management Area at the M8 and Town Centre areas;
- 2.4 notes the outcome of the Montgomery Road, Paisley Detailed Assessment and that there is no current requirement for further action in this area;
- 2.5 notes that a further report will be brought back to a future meeting of the Board incorporating comments from the Environment Policy Board.

3. Background

- 3.1 In accordance with the Local Air Quality Management Regime introduced in the Environment Act 1995 all local authorities are required to undertake a three-yearly cycle of Review and Assessment of air quality within their area and submit their findings to the Scottish Government for approval. The first annual report is an Updating and Screening Assessment followed by a Progress Report in years 2 and 3. Progress Reports are not as in-depth as Updating & Screening Assessments but maintain continuity on the review and assessment process. In 2015, local authorities were required to produce an Updating & Screening Assessment.
- 3.2 Whilst air quality within Renfrewshire is generally good there are some areas where exceedences of objective levels are occurring. The air quality pollutants of concern within Renfrewshire are nitrogen dioxide (NO₂) and PM₁₀ (particulate matter less than 10 microns in diameter). A main source of these pollutants is emissions from road vehicles and the areas of exceedences within Renfrewshire are all located at busy roads or junctions. Both pollutants have associated air quality objectives levels set out in Scottish Regulations that should not be breached. NO₂ has annual and hourly objective levels and PM₁₀ has annual and daily objective levels. If at any stage of the review and assessment cycle it is identified that there is a risk of an air quality objective at a location with relevant public exposure being exceeded, then a Detailed Assessment must be undertaken. The purpose of the detailed assessment is to identify with reasonable certainty whether or not air quality objectives will be achieved and therefore whether an Air Quality Management Area requires to be declared.

- 3.3 The Local Air Quality Management Regime requires that local authorities follow a stepped process where there is a risk of an objective being exceeded for certain pollutants. Local Authorities must:
- Undertake a detailed assessment to confirm if there is an exceedence in an area of relevant public exposure, including the magnitude and geographical extent.
 - Where the detailed assessment confirms an exceedence exists, an Air Quality Management Area must be formally declared. Local authorities can determine the form and extent of the Air Quality Management Area, as long as the areas of concern are included.
 - Where an Air Quality Management Area has been declared, an Air Quality Action Plan must be produced setting out measures to work towards achieving the objective levels for the pollutant of concern.
- 3.4 In a national context Renfrewshire is not unique and currently 14 other Scottish local authorities have declared air quality management areas. There are currently 693 air quality management areas declared across the UK, 44 of which are in Scotland (including Renfrewshire Council's existing Paisley Town Centre Air Quality Management Area). A report based on air quality data for England and Wales in 2013 identified 194 local authority areas from a total of 375 that were in breach of the annual mean NO₂ objective. Pollutant levels of NO₂ in areas of Renfrewshire where exceedences have been detected are not dissimilar to elsewhere in Scotland and the UK as a whole. In respect of PM₁₀ levels, Scottish Regulations have set the annual average limit at 18ug/m³. However, limits for this pollutant in Europe (including the rest of the UK) have been set at 40ug/m³ and levels in Renfrewshire are well within the European and UK Limit values for this.
- 3.5 The majority of Air Quality Management Areas across the UK have been declared as a result of exceedences of NO₂. In line with most urban areas in the UK and Europe, reductions in the levels of NO₂, a traffic related pollutant, have tailed off in recent years in Renfrewshire. A significant contributing factor to this is the increased proportion of diesel vehicles in the general fleet. Diesel vehicles are incentivised by Government policy, for example through road tax pricing based on CO₂ emissions, to contribute to Government climate change targets. However, they emit a higher proportion of NO₂ directly from the exhaust. In addition, European Union Euro Standards for vehicle emissions have not delivered the expected emissions reductions that were predicted. This is partly due to the fact that the technology used by vehicle manufacturers to abate Particulate emissions has the side effect of increasing NO₂ emissions. Another cause is that the test cycle used to determine if a model meets the Euro standard does not replicate real-world urban driving conditions. Members of the Policy Board will be aware of recent reports in the media stating that some car manufacturers have even built in technology to certain models to defeat emission tests so that they appear to have

much lower emissions than is actually the case.

- 3.6 Notwithstanding this, local authorities are required to consider local actions aimed at reducing emissions. They are required to demonstrate that they are working towards the limit values set in statute for local air pollutants. The Local Air Quality Management regime sets out how they should approach this, including the need to consider air quality in taking planning and transport decisions.
- 3.7 Renfrewshire Council has a good track record on this and in recent years has had a progressive vehicle replacement programme working towards reducing emissions from its transport fleet. This includes the introduction of electric vehicles and a programme to develop the associated charging infrastructure which is also available for public use. Progress has meant that the 2023 target set in the Renfrewshire Community Plan for alternative fuel vehicles has already been met and a revised more stringent target is currently being developed.

4. 2015 Updating and Screening Assessment – Key Findings

- 4.1 The 2015 Updating & Screening Assessment provides a review and initial assessment of pollutant monitoring data and atmospheric emissions sources within the Council area during 2014.
- 4.2 Exceedences of the annual mean NO₂ objective were identified both within the existing Paisley Town Centre Air Quality Management Area and at a number of other locations. For the Paisley Town Centre Air Quality Management Area the areas identified had not changed – namely: Ingle St; Causeyside St; Old Sneddon St and Smithhills St. For this area the Council is required to consider potential new measures for the Paisley Town Centre Air Quality Action Plan, approved by the Environment Board on 22 January 2014. This will be included in the report being brought back to a future meeting of the Board.
- 4.3 The other areas where exceedences were identified primarily fell within the study areas of the Johnstone and Renfrew Detailed Assessments. The exception to this was West Walkinshaw, Paisley and as a result a Detailed Assessment will be carried out for this area during 2016.
- 4.4 The review of 2014 monitoring data also identified a site at Inchinnan Rd, Renfrew with an annual mean concentration for NO₂ in excess of 60 µg.m⁻³. Above this level, there is a risk of the NO₂ 1-hour mean objective being exceeded and as a result, a Detailed Assessment is also required to be carried out in this area during 2016.

- 4.5 Annual mean PM₁₀ concentrations at all automatic monitoring sites were below the annual objective in 2014 except at Gordon Street, Paisley. Poor data capture for PM₁₀ at this site means that the result is not strictly comparable against the Scottish air quality objective levels and as the site is also located within the Paisley Town Centre Air Quality Management Area no further action is required. No exceedences of the PM₁₀ daily objective were recorded at any of the automatic site locations during 2014.

5. Johnstone High Street Detailed Assessment – Key Findings

- 5.1 The 2014 Progress Report identified the need to carry out a detailed assessment for Johnstone High Street. In this case a dispersion modelling study was carried out to consider the extent of exceedence. Source apportionment analysis of road traffic emissions was also undertaken to determine the contribution of different source types to local NO₂ and PM₁₀ levels.
- 5.2 The modelling study confirmed that both the annual mean objectives for NO₂ and PM₁₀ were exceeded at various locations along Johnstone High Street. An annual mean concentration close to 60 µg.m-3 was also modelled. For NO₂ the source apportionment study indicated that background concentrations account for a relatively small proportion of pollutant concentrations (up to 11%) and that the highest proportion is attributable to bus movements. For PM₁₀, background levels account for up to 67% of total PM₁₀ concentrations with buses and cars accounting for approximately 15% each of road PM₁₀ concentrations.
- 5.3 Action plan measures targeted at reducing emissions from buses should therefore help reduce NO₂ concentrations in this area. In addition the locations of highest pollutant concentrations are where traffic is known to be regularly slow moving and measures to improve traffic flow would also help to reduce emissions in these areas.
- 5.4 The Detailed Assessment demonstrates that the Council is required to declare an Air Quality Management Area in the Johnstone High St area for both the NO₂ and PM₁₀ annual mean objectives. Given the modelled annual mean concentration was close to 60 µg.m-3, consideration will also be given to including the 1 hr NO₂ objective level within the Air Quality Management Area declaration.

6. Renfrew Detailed Assessment – Key Findings

- 6.1 The 2014 Progress Report identified the need to carry out a Detailed Assessment for Renfrew in relation to NO₂. The detailed assessment was split into two separate modelling studies – the area of Renfrew close to the M8 motorway and the Town Centre. It consisted of a dispersion modelling study and source apportionment analysis of road traffic emissions.
- 6.2 The Renfrew M8 study focussed on the section of M8 motorway between Arkleston and Junction 26 where residential properties are sited close to the road. The modelling study confirmed that the NO₂ annual mean objective was predicted to be marginally exceeded at a number of residential properties. There were no predicted exceedences of the PM₁₀ annual mean objective. The source apportionment study indicated that the highest proportion of pollutants (up to 42%) was attributable to car movements within the study area.
- 6.3 The Renfrew Town Centre study area focused on road traffic emissions in the Town Centre (Inchinnan Road, Hairst Street, Glebe Street and Paisley Road) where residential properties, are located close to the road. The modelling study confirmed that whilst the NO₂ annual mean objective was exceeded at numerous residential properties within the Town Centre area, there were no exceedences of the annual mean PM₁₀ objective. Action plan measures targeted at reducing emissions from road traffic will help to reduce NO₂ and PM₁₀ concentrations. Locations of highest pollutant concentrations were where traffic is regularly slow moving. Measures to improve traffic flow would also help to reduce emissions in these areas.
- 6.4 The Detailed Assessment demonstrates that the Council is required to declare Air Quality Management Areas at both the Renfrew M8 area and in Renfrew Town Centre for the NO₂ annual mean objective. As detailed within the 2015 Updating & Screening Assessment, the Council also requires to undertake a Detailed Assessment for the 1 hour NO₂ objective at Inchinnan Road, Renfrew to determine whether the Air Quality Management Area declaration should include this objective. It is intended at this time however, to include the 1 hour NO₂ objective level within the AQMA declaration.

7. Montgomery Road, Paisley Detailed Assessment – Key Findings

- 7.1 The Montgomery Road, Paisley Detailed Assessment incorporates an area to the north of Paisley which is outwith the existing Paisley Town Centre Air Quality Management Area.

- 7.2 The Detailed Assessment was concerned with road traffic emissions from the road network surrounding Montgomery Road where residential properties are present. This included the M8 Junction 27 area including a section of the M8, slip roads, Renfrew Rd and Montgomery Road itself. The modelling study confirmed that there were no exceedences of the NO₂ and PM₁₀ annual mean objectives occurring at any locations of relevant exposure along Montgomery Road during 2014. The 2015 Updating & Screening Assessment also supports this conclusion.
- 7.3 The Detailed Assessment demonstrates that the Council is not required to declare an Air Quality Management Area in this area for either the NO₂ or PM₁₀ objectives.

8. Next Steps

- 8.1 Should the Policy Board approve the recommendations made in this report, consideration will be given to the best approach to including these areas in an Air Quality Management Area, as required by the Environment Act 1995. The main options to consider are either to extend the existing Paisley Town Centre Air Quality Management Area to cover the areas of concern, or to create a number of new more focussed Air Quality Management Areas around the areas identified in the detailed assessment reports and discussed above. Community Resources will lead work into considering the case for these options, including consulting with other service areas before bringing a further report to the Environment Policy Board.
- 8.2 Thereafter, whichever option is taken forward there will be a requirement to create a new Air Quality Action Plan to include these areas. Effective action planning requires input from a range of Council services and other stakeholders. Community Resources will lead on liaising with relevant partners to draw up, and then consult on, a future draft Air Quality Action Plan, before taking it to the Environment Policy Board for approval.

Author: Oliver Reid, Lead Officer, Tel 0141 618 7352
Email: oliver.reid@renfrewshire.gcsx.gov.uk