Annual Progress Report (APR)

2017 Air Quality Annual Progress Report (APR) for
Comhairle nan Eilean Siar

In fulfilment of Part IV of the
Environment Act 1995

Local Air Quality Management

29th June 2017

Local Authority Officer	Ruth Macaskill
Department	Consumer & Environmental Services, Development Department
Address	Comhairle nan Eilean Sandwick Road, Stornoway, Isle of Lewis, HS1 2BW
Telephone	01851 822 694
E-mail	ruth-macaskill@cne-siar.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in the Western Isles

This report considers local air quality management in the Western Isles, examining relevant policies and technical guidance documents.

As in previous submissions there are no significant changes and no new air pollution sources have been identified. The Outer Hebrides Local Development Plan (Adopted Plan) 2012 demonstrates a shift in transport infrastructure to incorporate new footpaths and more cycle routes in and around settlements and improve bicycle storage at new public buildings, schools, housing developments and commercial and community developments to encourage the use of non-motorised transport. This plan is currently under review and a new plan is to be produced by 2017-18.

Passive diffusion tube monitoring for Nitrogen Dioxide (NO_2) was carried out in 2015/2016. This was undertaken to verify that the pollutant levels were still below the action levels. Comhairle nan Eilean Siar works closely with SEPA and has in place a Development Strategy which considers environmental impacts on the local authority area and transport infrastructure. There are currently no air quality issues within this local authority area.

This report concludes that detailed assessments are not required for any pollutant. There are no AQMA's declared within the local authority area.

Local Priorities and Challenges

A 12 month monitoring programme for Nitrogen Dioxide (NO_2) was completed in August 2016. No further monitoring has been carried out following the 12 month programme as the results were found to be well below the action levels for this pollutant.

How to Get Involved

The public can access further information on air quality through the Council website at www.cne-siar.gov.uk/envserv/airquality.asp

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1. Local Air Quality Management

This report provides an overview of air quality in the Western Isles during 2016. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) is summarises the work being undertaken by Comhairle nan Eilean Siar to improve air quality and any progress that has been made.

Table 1.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2020
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m^3	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Running 8-Hour mean	31.12.2003

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Lead	0.25 µg/m^3	Annual Mean	31.12.2008

2. Actions to Improve Air Quality

2.1 Air Quality Management Areas

Comhairle nan Eilean Siar currently does not have any AQMAs and there is no Air Quality Strategy in place. We propose to have an air quality strategy in place by 2019.

2.2 Progress and Impact of Measures to address Air Quality in the Western Isles

Comhairle nan Eilean Siar carried out the following measures in 2016:

Passive diffusion tube monitoring for Nitrogen Dioxide (NO_2) up until August 2016, this monitoring has been ongoing for a year.

Comhairle nan Eilean Siar have a corporate Travel Policy in place which promotes the use of electric cars and sustainable travel improving the local environment and encouraging healthier and safer lifestyles at http://www.cne-siar.gov.uk/committees/policyandresources/agendas/august2011/Travel%20Policy%202011.pdf

An Active and Sustainable travel Survey was carried out in February 2017 which will assist the Comhairle in designing future Active Travel and Road Safety Policies.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure 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	Title	Select from the 9 categories in blue box	Description of Measure	Name of Council department(s) with responsibility for action implementation	Date	Date	.	Anticipated reduction in concentration, based on the result of quantitative appraisal (using dispersion modelling and/or screening tools)		Date	Comments relating to target pollution reductions (link to Action Plan for more details
1	CNES Corporate Travel Policy	Promoting Travel Alternatives	Promoting use of electric cars and sustainable travel. Improving the local environment and encouraging healthier and safer lifestyles			Ongoing		NO AQMA	e-car club 3 month trial for Development Services	July 2017	Increase in use of electric cars on journeys less than 80 miles
2	Local Development Plan	Policy Guidance and Development Control	Promotion of sustainable economic development	Development	New plan to be complete 2017/18	Adopted plan in place until revised plan complete		NO AQMA			

2.3 Cleaner Air for Scotland

Cleaner Air for Scotland – The Road to a Healthier Future (CAFS) is a national cross-government strategy that sets out how the Scottish Government and its partner organisations propose to reduce air pollution further to protect human health and fulfil Scotland's legal responsibilities as soon as possible. A series of actions across a range of policy areas are outlined, a summary of which is available at http://www.gov.scot/Publications/2015/11/5671/17. Progress by Comhairle nan Eilean Siar against relevant actions within this strategy is demonstrated below.

2.3.1 Transport – Avoiding travel – T1

All local authorities should ensure that they have a corporate travel plan (perhaps within a carbon management plan) which is consistent with any local air quality action plan. Comhairle nan Eilean Siar has a corporate travel policy in place which promotes travel alternatives to the car and are currently looking at active travel.

2.3.2 Climate Change – Effective co-ordination of climate change and air quality policies to deliver co-benefits – CC2

Scottish Government expects any Scottish local authority which has or is currently developing a Sustainable Energy Action Plan to ensure that air quality considerations are covered. Comhairle nan Eilean Siar has an Outer Hebrides Energy Strategy in place.

3. Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Comhairle nan Eilean Siar did not undertake any automatic monitoring in 2016.

3.1.2 Non-Automatic Monitoring Sites

Comhairle nan Eilean Siar undertook non- automatic (passive) monitoring of NO_2 at 4 sites during 2016. Table A.1 in Appendix A shows the details of the sites.

There is one background sampling location and 3 kerbside locations. The passive diffusion tubes were in place for 4 weeks then sent off to Glasgow Scientific Services for analysis. The laboratory carried out the analysis in accordance with the report "Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users; Report to DEFRA and the Devolved Administrations, ED48673043, Issue 1a, February 2008'. The results were calculated using a diffusion coefficient at 11°C. The results reported in mass units (µg/m^3 or ppb) were based on a temperature of 20°C and a pressure of 101.3kPa.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

The results show that there have been no exceedances during monitoring in 2015/2016. There is therefore no evidence to support declaring an AQMA as the pollutant levels are not actionable.

3.2 Individual pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2016 dataset of monthly mean values is provided in Appendix B.

In previous years sampling was carried out using diffusion tubes at 4 locations in Stornoway. The tubes were collected at 4 weekly intervals and sent to Glasgow Scientific Services for analysis.

Monitoring of NO_2 stopped in 2007 as pollutant levels were well below the action levels. It was decided to carry out a year of NO_2 monitoring starting in June 2015 to verify that the NO_2 levels were still well below the action levels. Following a complaint made regarding the ferry it was decided to have two monitoring points around the harbour area. Monitoring stopped in August 2016, the results show that there have been no exceedances.

Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

3.2.2 Particulate Matter (PM_{10})

There is no monitoring of PM_{10} in the Western Isles.

3.2.3 Particulate Matter ($PM_{2.5}$)

There is no monitoring of $PM_{2.5}$ in the Western Isles.

3.2.4 Sulphur Dioxide (SO_2)

There is no monitoring for SO_2 in the Western Isles.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

There has been no monitoring for these pollutants in the Western Isles.

4. New Local Developments

There are no new developments in the Western Isles that may affect air quality.

4.1 Road Traffic Sources

There are no new traffic sources, as specified and no significantly changed traffic flows in the Western Isles.

4.2 Other Transport Sources

There are no new transport sources within the Western Isles.

4.3 Industrial Sources

There are no new industrial sources within the Western Isles.

4.4 Commercial and Domestic Sources

There are no new commercial or domestic sources in the Western Isles.

4.5 New Developments with Fugitive or Uncontrolled Sources

There are no new fugitive or uncontrolled sources within the Western Isles.

5. Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

The monitoring carried out in 2015/2016 has not identified any potential are actual exceedances at the chosen locations. As there have been no exceedances identified a detailed assessment is not required.

5.2 Conclusions relating to New Local Developments

There have been no new developments identified in the Western Isles that may impact on air quality.

5.3 Proposed Actions

Comhairle nan Eilean Siar does not have any evidence to support creating an AQMA in the Western Isles. The local authority's next course of action is to submit the next Air Quality Progress Report.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
B1	Barony Square	Urban Background	143142	933490	NO_2	N	0	3	N
K1	South Beach Carpark	Kerbside	142372	932726	NO_2	N	0	1	N
K2	South Beach	Kerbside	142232	932739	NO_2	N	0	1	N
K3	Perceval Square	Kerbside	142309	932867	NO_2	N	5	1	N

(1) 0 if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

					NO_2 Annual Mean Concentration (µg/m^3) (3)				
Site ID	**Site Type**	**Monitoring Type**	**Valid Data Capture for Monitoring Period (%) (1)**	**Valid Data Capture 2016 (%) (2)**	**2012**	**2013**	**2014**	**2015 (raw mean)**	**2016 (raw mean)**
B1	Urban Background	Diffusion Tube	100	58	None	None	None	5.1	8.8
K1	Kerbside	Diffusion Tube	100	58	None	None	None	14.9	12.4
K2	Kerbside	Diffusion Tube	100	58	None	None	None	26.6	14.9
K3	Kerbside	Diffusion Tube	100	58	None	None	None	20.3	12.9

Notes: Exceedances of the NO2 annual mean objective of 40 µg/m^3 are shown in **bold**

NO_2 annual mean exceeding 60 µg/m^3 indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

(2) Data capture for the full calendar year (e.g., if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%)

(3) Means for diffusion tubes have been corrected for bias. All means have been 'annualised' as per LAQM.TG(16) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Results were taken from July – December 2015 and January – July 2016 not a full complete calendar year for either 2015 or 2016. There is no background data to carry out annualisation of the NO_2 monitoring data as shown in LAQM (TG16) so the raw data is shown in this table and Appendix B.

Appendix B: Full Monthly Diffusion Tube Results for 2016

Table B.1 – NO_2 Monthly Diffusion Tube Results for 2016

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1)
B1	32.8	2.4	6.5	2.8	1.9	2.2	12.7						8.8	9.77
K1	20.2	7.1	17.6	11.3	8.4	9.4	12.6						12.4	13.37
K2	25.4	19.5	17.4	11.3	13.3	8.0	9.6						14.9	15.87
K3	18.3	12.1	13.6	11.1	4.1	9.3	22.1						12.9	13.87

(1) See Appendix C for details on bias adjustment

(2) The period measurement is considered of poor precision when working out the bias adjustment

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

There is one background sampling location and 3 kerbside locations. The passive diffusion tubes were in place for 4-5 weeks then sent off to Glasgow Scientific Services for analysis following the diffusion tube protocol in LAQM (TG16).

The laboratory is UKAS accredited and carries out the analysis in accordance with the report "Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users; Report to DEFRA and the Devolved Administrations, ED48673043, Issue 1a, February 2008'. The results are calculated using a diffusion coefficient at 11°C. The results reported in mass units ($\mu g/m^3$ or ppb) are based on a temperature of 20°C and a pressure of 101.3kPa.

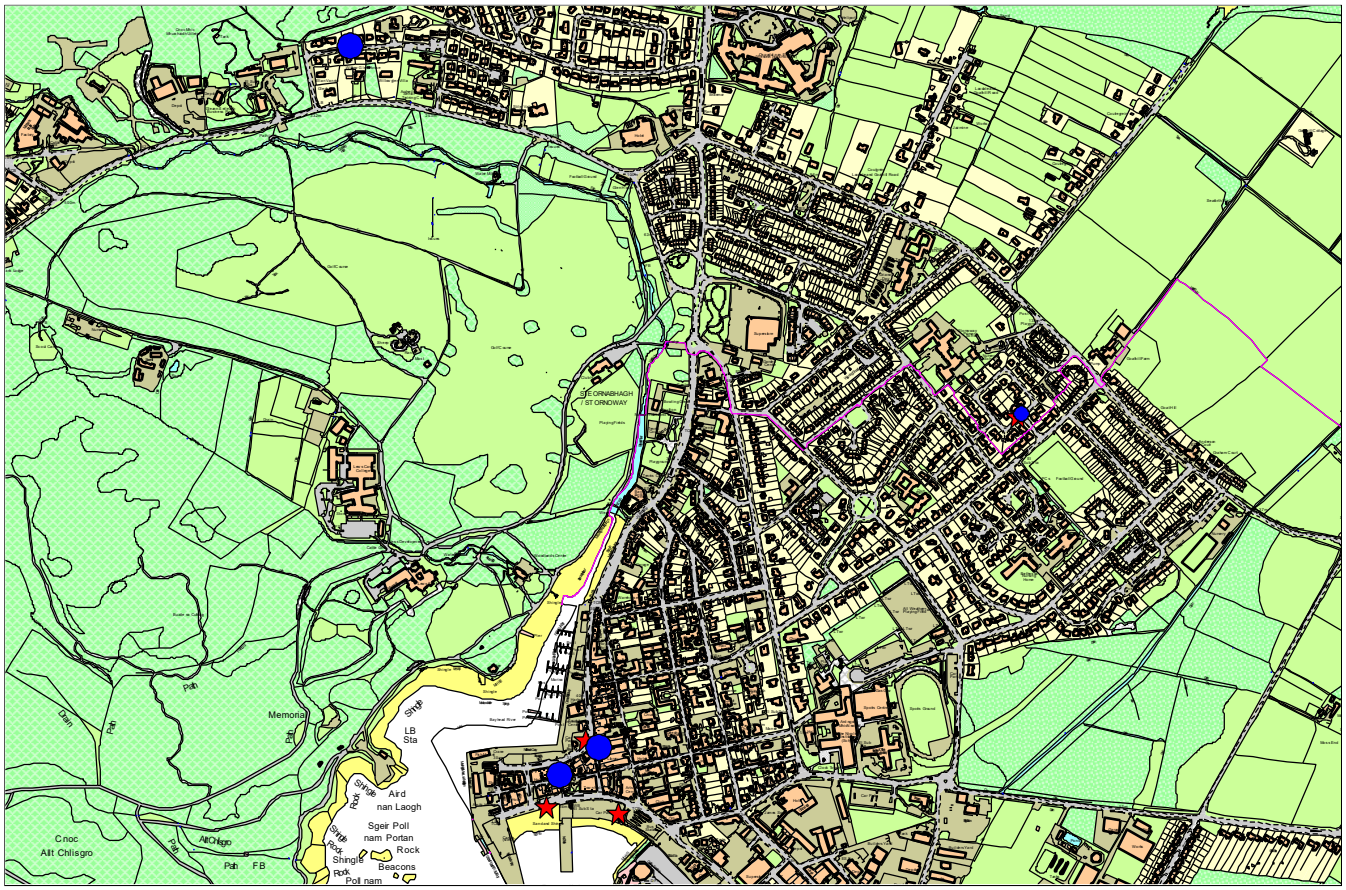
To determine the bias adjustment the National Diffusion Tube Bias Adjustment Factor Spreadsheet was used (June 2017). The bias adjustment used for Glasgow Scientific Services is 0.97.

Appendix D: Diffusion Tube Locations

Map showing Diffusion Tube Monitoring Locations in Stornoway, Isle of Lewis

Diffusion Tube 2007

Diffusion Tube 2015



Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

Cleaner Air For Scotland – The Road to a Healthier Future (CAFS), The Scottish Government 2015 http://www.gov.scot/Resource/0048/00488493.pdf

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Comhairle nan Eilean Siar, Travel Policy Statement (2011) http://www.cne-siar.gov.uk/committees/policyandresources/agendas/august2011/Travel%20Policy%202011.pdf

LAQM (TG16) Local Air Quality Management Technical Guidance, April 2016