

Annual Progress Report (APR)



2016 Air Quality Annual Progress Report (APR) for
Inverclyde Council

In fulfilment of Part IV of the
Environment Act 1995

Local Air Quality Management

June 2016

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Report Reference number	Inverclyde Council Progress Report 2016
Date	June 2016

Executive Summary: Air Quality in Our Area

Air Quality in Inverclyde Council

Inverclyde Council currently monitors the levels of NO₂ throughout the area with a diffusion tube network of 17 sites. There is also an Automatic Air Quality Monitoring Station which records the levels of NO₂ and PM₁₀ at East Hamilton Street, Greenock.

The results have consistently shown NO₂ and PM₁₀ levels to be below the Air Quality Objectives therefore there has been no requirement to proceed to a Detailed Assessment for any of the pollutants. There has also never been an Air Quality Management Area declared within Inverclyde.

There have been no significant changes to the existing road network identified that could have a negative impact on air quality or any new domestic or industrial sources since the previous report in 2015.

Actions to Improve Air Quality

Inverclyde Council is currently aiming to reduce emissions from road traffic emissions in conjunction with Scottish Passenger Transport through the following three joint work streams; 'Park and Ride', 'Cycling' and 'Travel Behaviour Change'

The Council also aims to reduce carbon emissions from fleet vehicles and from business travel. The targets set are a 15% and 10% reduction respectively from a 2011/12 baseline.

Local Priorities and Challenges

Inverclyde Council does not have any specific priorities or challenges for the coming year. Statutory monitoring will continue and the next report to be submitted will be the 2017 Air Quality Annual Progress Report.

How to Get Involved

Air Quality information and Inverclyde Council's Air Quality Annual Progress Reports can be found at the following link on the Inverclyde Council website,

www.inverclyde.gov.uk/environment/environmental-health/air-quality⁽¹⁾

Up to date monitoring results from the automatic monitoring station can be found on the Scottish Air Quality website, www.scottishairquality.co.uk⁽²⁾

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1. Local Air Quality Management

This report provides an overview of air quality in Inverclyde Council during 2015. 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) summarises the work being undertaken by Inverclyde Council 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
Lead	0.25 µg/m ³	Annual Mean	31.12.2008

2. Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

Road traffic emissions are the main source of air pollution in Inverclyde with around 40,000 commuters travelling from, to or across Inverclyde on an average week day⁽⁵⁾. Although there have been no exceedances of any of the Air Quality Objectives in Inverclyde and no requirement to declare an AQMA, the Council does support and promote various initiatives to improve air quality throughout the area. .

In August 2014, Inverclyde Council published its Local Development Plan⁽³⁾. One of the Objectives in the Plan is to ensure that emission reduction measures are included in specific plans and strategies and in accordance with the Scottish Climate Change Declaration⁽⁴⁾. Future developments must also promote the use of active travel and public transport.

This is also a key theme of the Transport Outcomes Report, Inverclyde 2015/16⁽⁵⁾ which was published by Scottish Passenger Transport (SPT) in partnership with Inverclyde Council. It identifies one of the strategic outcomes as being a 'Reduction in Emissions' and highlights 3 SPT and Inverclyde Council joint work streams to help achieve this outcome. These are 'Park and Ride', 'Cycling' and 'Travel Behaviour Change'.

SPT supported the development of the Park and Ride for Port Glasgow Rail Station and will continue to assess the demand patterns of other existing park and ride sites. In 2014/15, SPT also provided funding to improve the National Cycle Routes within Inverclyde.

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Inverclyde Council also has a Carbon Management Plan⁽⁷⁾ which has set a target for 2016/17 to have reduced Carbon from fleet vehicles by 15% and from business travel by 10% (2011/12 baseline). To help achieve this, the Council refreshes its vehicles every 5 years to ensure they are operational and fuel efficient. A driver training programme has also been established and vehicle tracking introduced.

Inverclyde Council, being the biggest employer within Inverclyde is also looking at ways to promote green travel options for staff to carry out their work duties. It has purchased 4 electric vehicles and introduced 6 electric charging points throughout Inverclyde as well as promoting the Government Cycle to Work Scheme and Inverclyde Journey Share for its employees.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

Inverclyde Council undertook automatic (continuous) monitoring at one site during 2015. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at www.scottishairquality.co.uk.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Inverclyde Council undertook non- automatic (passive) monitoring of NO₂ at 17 different sites during 2015. Table A.2 in Appendix A shows the details of the sites.

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.

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 (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2015 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

The data from the Automatic Monitoring Site shows no exceedances of the hourly mean objective or the annual mean objective. Data from 2014 also reported no exceedances.

Data from the 17 non-automatic monitoring sites showed no exceedances of the annual mean objective. In the previous 5 years, monitoring has shown that all sites have reported concentrations below the annual mean objective with the exception of East Hamilton Street, Greenock in 2013. Data from the diffusion tube located at the nearest residential property however has consistently shown much lower values than the diffusion tubes located at the roadside.

3.2.2 Particulate Matter (PM₁₀)

Table A.5 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past 5 years with the air quality objective of 18µg/m³.

Table A.6 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 7 times per year.

The data from the Automatic Monitoring Site shows no exceedances of the annual mean objective and the daily mean as being exceeded twice.

There were no exceedances of the annual mean or the daily mean in 2014 when PM₁₀ monitoring was first introduced at the East Hamilton Street, Greenock.

3.2.3 Particulate Matter (PM_{2.5})

Inverclyde Council currently monitors PM_{2.5} at the Automatic Monitoring Site in East Hamilton Street. As this has only been operational since March 2016 there is currently no data available to include in this report.

4. New Local Developments

4.1 Road Traffic Sources

In 2015, works were undertaken to introduce a new one-way traffic management scheme was introduced in Gourock Town Centre as part of a regeneration project.

The new system was designed to reduce congestion and improve the traffic flow through the town centre. Traffic travelling towards Inverkip and Wemyss Bay continues to flow along Kempock Street and traffic travelling towards Greenock now flows through a newly constructed road along Lower Kempock Street. The works were completed in December 2015 and the new road layout opened to motorists on 17th December 2015.

An Air Quality Assessment was submitted along a Planning Application 12/02/12/IC⁽⁸⁾ in 2012 and this concluded that any negative impacts on air quality from changes to the road layout would be negligible.

One diffusion tube is currently located in Kempock Street, therefore the impact of the new one way system on concentrations of NO₂ will be reported in the Inverclyde Council 2017 Air Quality Annual Progress Report.

4.2 Other Transport Sources

There are no airports located in Inverclyde and there have been no significant changes in the Shipping Port operations.

4.3 Industrial Source

There are no new or proposed industrial installations for which an air quality assessment has been carried out in 2015. Inverclyde Council is not aware of any significant changes to existing installations or the introduction of new relevant exposure.

4.4 Commercial and Domestic Sources

Inverclyde Council approved Planning Application 15/0105/IC⁽⁹⁾ in 2015 for a new energy centre alongside an existing high rise building in Ann Street, Greenock. This is currently under construction and will consist of 3 x 500kW Biomass Boilers and 2 x 729kW Natural Gas Boilers as a backup.

The site is in a predominantly urban area and surrounded by high density residential dwellings. The Air Quality Assessment that was submitted with the Planning Application identified these sensitive receptors and concluded that the operation of the proposed development is expected to have an overall negligible impact to the surrounding area.

4.5 New Developments with Fugitive or Uncontrolled Sources

Inverclyde Council has not identified any new potential sources of fugitive or uncontrolled particulate matter

5. Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

The 2015 monitoring data has shown that all sites within the NO₂ diffusion tube monitoring network, measured below the annual mean objective of 40 µg/m³.

The automatic monitoring station at East Hamilton Street, Greenock, recorded no exceedances of the hourly and annual mean Objectives for NO₂. The PM₁₀ levels were also below the annual mean Objective. The PM₁₀ daily mean was exceeded twice throughout 2015, however still complies with the Air Quality Objective.

5.2 Conclusions relating to New Local Developments

Inverclyde Council has identified one change to the road infrastructure in Gourrock. The Air Quality Assessment for the new one-way system concluded that any negative impact on air quality would be negligible.

As the new system is designed to reduce congestion and improve the traffic flow through the town centre, the concentration of NO₂ could also possibly reduce at the diffusion tube monitoring site in Kempock Street throughout 2016.

One biomass application has been approved but is currently under construction and there have been no new industrial installations introduced or fugitive sources identified that are considered likely to impact on local air quality

5.3 Proposed Actions

Inverclyde Council will continue to monitor NO₂ levels throughout the area using diffusion tubes.

The automatic air quality monitoring station will continue to monitor NO₂, PM₁₀ and additionally PM_{2.5} and PM₁ at East Hamilton Street. The site will be included in the Automatic Urban and Rural Network (AURN) and data available on the Scottish Air Quality website.

The collocation study will continue at the East Hamilton Street with data from the automatic monitoring station used in combination with the three NO₂ diffusion tubes to develop a local bias adjustment factor.

The next report to be submitted will be the 2017 Air Quality Annual Progress Report.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
Inverclyde Greenock A8	Roadside	229365	675700	NO ₂ , PM ₁₀ , PM _{2.5} , PM ₁	N	TEOM	12	2.5	1.8

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

(2) N/A if not applicable

Table A.2 – 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?
Carwood Court	Roadside	229503	675400	NO ₂	N	Y(13.5m)	5m	N
Brown Street, PG	Roadside	231699	674620	NO ₂	N	Y (1m)	1m	N
Bridge of Weir Rd	Roadside	235824	669909	NO ₂	N	Y(1m)	1m	N
East Hamilton Street (1)	Roadside	229365	675700	NO ₂	N	Y(12m)	2.5m	Y
East Hamilton Street (2)	Roadside	229365	675700	NO ₂	N	Y(12m)	2.5m	Y
East Hamilton Street (3)	Roadside	229365	675700	NO ₂	N	Y(12m)	2.5m	Y
East Hamilton Street (property)	Roadside	229301	675712	NO ₂	N	Y (0m)	14.25m	N
Dellingburn St	Roadside	228422	675735	NO ₂	N	Y(3.5m)	5m	N
Dalrymple St	Roadside	228311	675993	NO ₂	N	Y(15m)	3m	N

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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?
Inverkip St	Roadside	227563	676246	NO ₂	N	Y(1m)	2.5m	N
Dunlop St	Roadside	226827	675622	NO ₂	N	Y (4m)	2m	N
Nelson St	Roadside	227092	676134	NO ₂	N	Y(1m)	5m	N
Inverkip Rd	Roadside	224441	675224	NO ₂	N	Y(15m)	4m	N
Larkfield Rd	Roadside	224869	675757	NO ₂	N	Y(3m)	2m	N
Main St, WB	Roadside	219407	668573	NO ₂	N	Y(1m)	2m	N
Kempock St,	Roadside	224097	677910	NO ₂	N	Y(1m)	1m	N
Cardwell Rd	Roadside	224664	677168	NO ₂	N	Y(3m)	4m	N
Newark St	Roadside	225460	677501	NO ₂	N	Y(1m)	5m	N
Brougham St	Roadside	227242	677032	NO ₂	N	Y(7m)	5.5m	N
Macdougall St	Roadside	229605	675593	NO ₂	N	Y(13m)	3m	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.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture 2015 (%) ⁽¹⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽²⁾				
				2011	2012	2013	2014	2015
Inverclyde Greenock A8	Roadside	Automatic	96.6	xxx	xxx	xxx	27	28
Carwood Court	Roadside	Diffusion Tube	100	11.3	11.9	14	9.8	10.2
Brown Street, PG	Roadside	Diffusion Tube	100	19.3	21.3	23.5	19	19.1
Bridge of Weir Rd	Roadside	Diffusion Tube	100	17.3	17.6	19.8	15.2	14.8
East Hamilton Street (1)	Roadside	Diffusion Tube	100	33.4	36.9	43.8	34.3	29.4
East Hamilton Street (2)	Roadside	Diffusion Tube	100	34.9	35.3	43.7	31.8	31.3
East Hamilton Street (3)	Roadside	Diffusion Tube	100	xxx	xxx	xxx	30.3	31.5
East Hamilton Street (property)	Roadside	Diffusion Tube	100	24.7	23.5	24.4	19.8	21
Dellingburn St	Roadside	Diffusion Tube	100	34.2	33.6	39.3	30.1	33.2
Dalrymple St	Roadside	Diffusion Tube	100	25.1	24.2	28.6	23.9	21.5
Inverkip St	Roadside	Diffusion Tube	100	32.8	31.3	36.5	31.9	28.9
Dunlop St	Roadside	Diffusion Tube	100	22.3	22	22	17.4	16.3
Nelson St	Roadside	Diffusion Tube	100	27	29.3	30.5	28.9	26.4

Site ID	Site Type	Monitoring Type	Valid Data Capture 2015 (%) ⁽¹⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽²⁾				
				2011	2012	2013	2014	2015
Inverkip Rd	Roadside	Diffusion Tube	100	17.7	22.6	23.8	19.5	19.7
Larkfield Rd	Roadside	Diffusion Tube	100	21	20.7	21.9	16.8	17.7
Main St, WB	Roadside	Diffusion Tube	100	17.3	19.1	16.9	14.4	14.3
Kempock St,	Roadside	Diffusion Tube	100	18.3	25	22.1	18.2	20
Cardwell Rd	Roadside	Diffusion Tube	91.7	32.8	29.6	30.4	24.1	26
Newark St	Roadside	Diffusion Tube	100	18.6	21.2	20.8	14.7	16.4
Brougham St	Roadside	Diffusion Tube	91.7	17.6	18.8	18.5	15.1	21.8
Macdougall St	Roadside	Diffusion Tube	100	28.3	24	25.7	20	20.8

Notes: Exceedences of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedence of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) 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%).

(2) 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.

Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site Name	Site Type	Valid Data Capture 2015 (%) ⁽¹⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽²⁾	
			2014	2015
Inverclyde Greenock A8	Roadside	96.6	0	0

Notes: Exceedences of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

(1) 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%).

(2) If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM₁₀ Monitoring Results

Site Name	Site Type	Valid Data Capture 2015 (%) ⁽¹⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽²⁾	
			2014	2015
Inverclyde Greenock A8	Roadside	96.9	16	15

Notes: Exceedences of the PM₁₀ annual mean objective of 18µg/m³ are shown in **bold**.

(1) 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%).

(2) All means have been “annualised” as per LAQM.TG(16), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM₁₀ Monitoring Results

Site Name	Site Type	Valid Data Capture 2015 (%) ⁽¹⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽²⁾	
			2014	2015
Inverclyde Greenock A8	Roadside	96.9	0	2

Notes: Exceedences of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 7 times/year) are shown in **bold**.

(1) 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%).

(2) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2015

Table B.1 – NO₂ Monthly Diffusion Tube Results for 2015

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted ⁽¹⁾
	Carwood Court	12.7	12.6	11.5	5.9	3.1	6.3	11.1	6.7	12.9	17.8	15		
Brown St	19.7	22.6	24.3	14.1	12.9	11.5	21.2	17.4	24.2	30.9	14.8	19.9	19.5	19.1
Bridge of Weir Rd	16.7	18.2	21.5	13.6	9	8	10.6	14.8	19	17.8	14.8	17.6	15.1	14.8
E. Hamilton St	35.3	32	39.9	16.4	15	20	38.6	34	43.6	13.5	35.8	35.9	30	29.4
E.Hamilton St 2	36.1	40.1	40.3	19.2	17.8	22.7	33.2	32	46.3	28.1	35.1	32.7	32	31.3
E. Hamilton St 3	32.1	10.7	37.7	27.8	21.6	38.9	35.5	22.8	42	44.9	38.1	34.1	32.2	31.5
E.Hamilton St Property	24	24.9	27.1	13.4	9.4	10.2	20.3	30.7	30.6	17.5	25.5	23.9	21.5	21
Dellingburn St	34.4	35.9	40.3	30.5	19	20.6	37.3	30.3	42.1	37.4	40.9	38	33.9	33.2
Dalrymple St	29.2	21	28.1	12.4	9.4	16.1	20.8	21	32.6	19.7	26.9	26.6	22	21.5
Inverkip St	39.3	38.2	35.3	27.3	15.3	18.6	29	28.9	38.2	18.2	31.7	34	29.5	28.9
Dunlop St	23.1	23	20.4	12.3	9.2	12.6	14.7	14.6	23	12.4	14.6	19.1	16.6	16.3
Nelson St	28.5	37.5	32	28.3	17.5	10.9	24.5	20.5	30.2	29.5	27.2	37.2	27	26.4
Inverkip Rd	26.2	21.9	21.4	12.9	11.4	17	23.9	19.4	26.3	26.6	11.7	22.4	20.1	19.7
Larkfield Rd	26.5	22.6	20.6	13.6	10.7	11.5	18	7	26.4	22.5	18.9	18.5	18.1	17.7
Main St, Wemyss Bay	14.8	17.2	15.6	10.9	8.3	11.8	15.4	6.7	19.6	19.2	13.1	23.1	14.6	14.3

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Kempock St	19	20	21.4	14.4	11.2	17	22.1	23.2	28	28.8	23.7	16.1	20.4	20
Cardwell Rd	28.8	35.2	32	20.1	14.8	18.6	26.8	24.9	34.3	31.4	27.2	xxx	26.5	26
Newark St	23.5	22.3	19.7	16.3	11	13	16.3	11.3	17.8	15.8	16	17.4	16.7	16.4
Brougham St	19.2	17.8	20.7	xxx	8.6	17	28.7	6.9	36.3	31.3	25.1	30	22.2	21.8
Macdougall St	22.6	21.9	25.3	23.1	8.5	13.5	20.3	20.7	29.8	31.3	19.7	18.6	21.3	20.8

(1) See Appendix C for details on bias adjustment

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

Diffusion Tube Bias Adjustment Factors

Glasgow Scientific Services supply and analyse the NO₂ diffusion tubes on a monthly basis. The preparation method used for NO₂ diffusion tubes is 20% TEA in Water. The Laboratory has adopted the procedures for preparation and analysis of the diffusion tubes contained in the document 'Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance' ⁽¹⁰⁾

There are 3 diffusion tubes currently located at the automatic monitoring site at East Hamilton Street. The 2015 data from Glasgow Scientific Services was entered into the AEA spreadsheet for 'Checking Precision and Accuracy of Triplicate Tubes', however no local bias adjustment factor could be used due to the poor precision check result for the diffusion tubes. This will be investigated by Inverclyde Council.

The bias adjustment factor used for the NO₂ diffusion tube data was therefore obtained from the Scottish Air Quality website and is reported as 0.99 for the year 2015 ⁽¹¹⁾.

PM Monitoring Adjustment

The PM₁₀ data contained in this report has been provided by Ricardo Energy and Environment. The data provided is the VCM corrected data from the TEOM within at the automatic monitoring site at East Hamilton Street, Greenock.

QA/QC of automatic monitoring

The automatic monitoring site at East Hamilton Street contains one NO_x/NO₂ analyser and one TEOM Ambient Particulate Monitor. Throughout 2015 site audits and calibrations were undertaken by Ricardo AEA and services carried out every 6 months by Air Monitors. Routine maintenance was carried out by Inverclyde Council.

Inverclyde Council

The site currently in the process of being added to the UK Automatic Urban and Rural Network (AURN) and the data available through the Scottish Air Quality website.

Appendix D: Maps of Monitoring Locations in Inverclyde

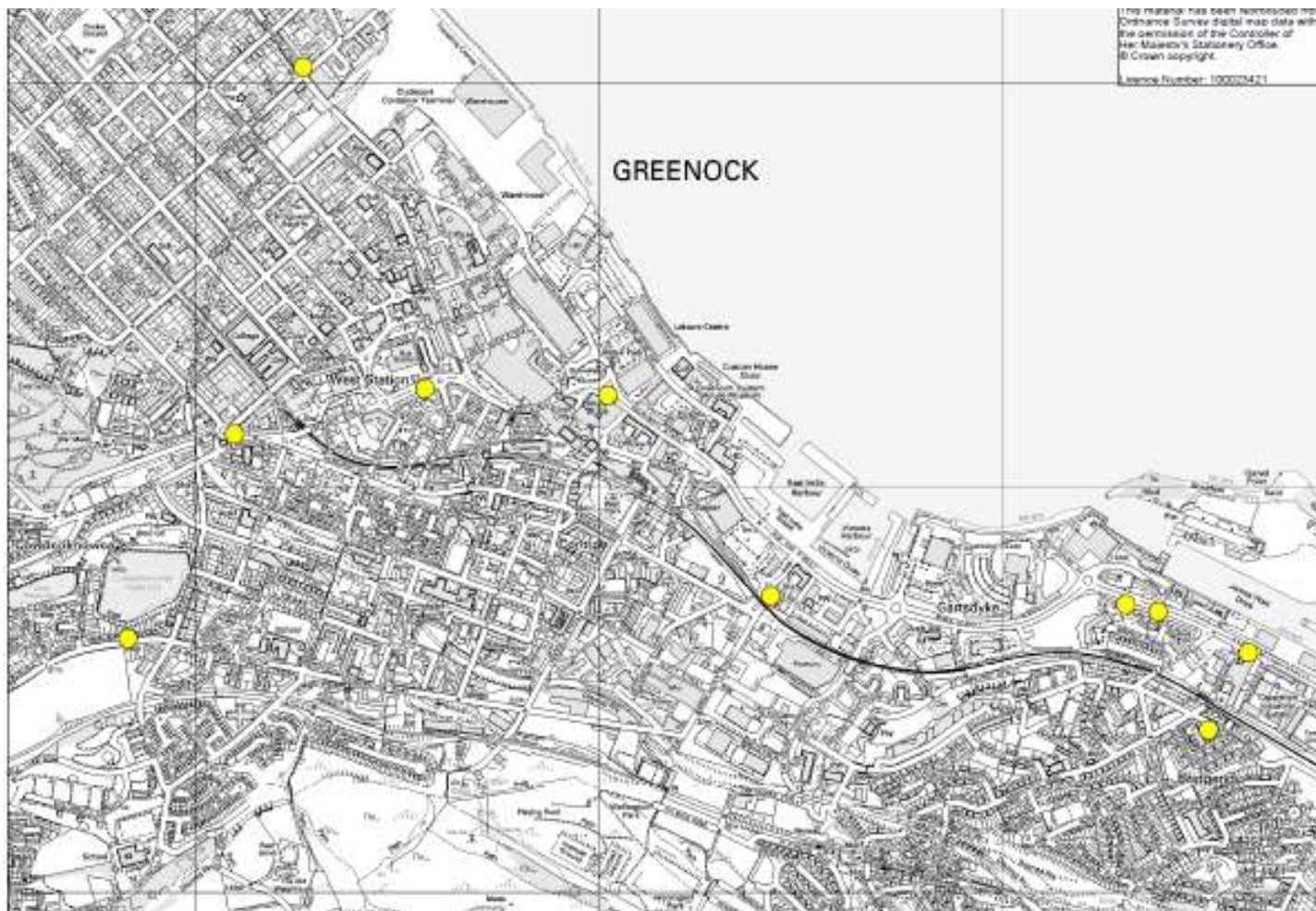


Map of Automatic Air Monitoring Site and Collocation study at East Hamilton Street

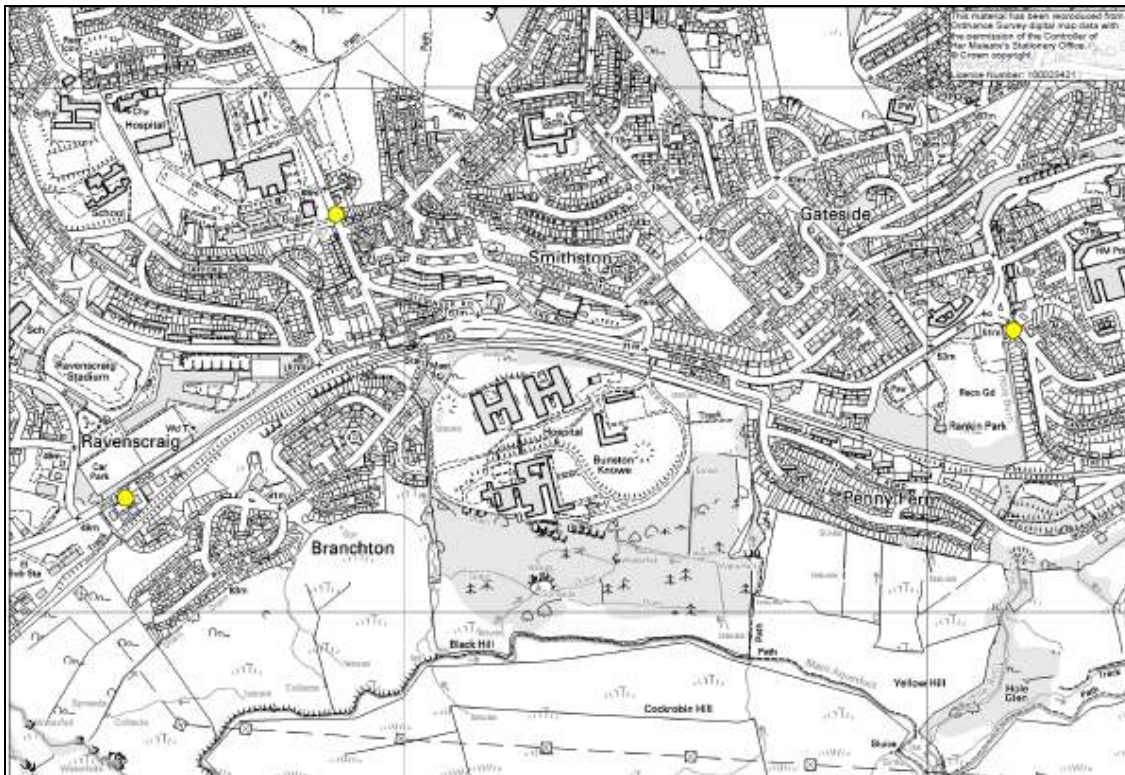


- NO₂ diffusion tube at façade of nearest property (East Hamilton Street)
- Automatic Air Quality Monitor with 3 x NO₂ diffusion tubes (East Hamilton Street)
- 1 x NO₂ diffusion tube (MacDougall Street)

Map of NO₂ Diffusion Tube Monitoring Network: Greenock Central



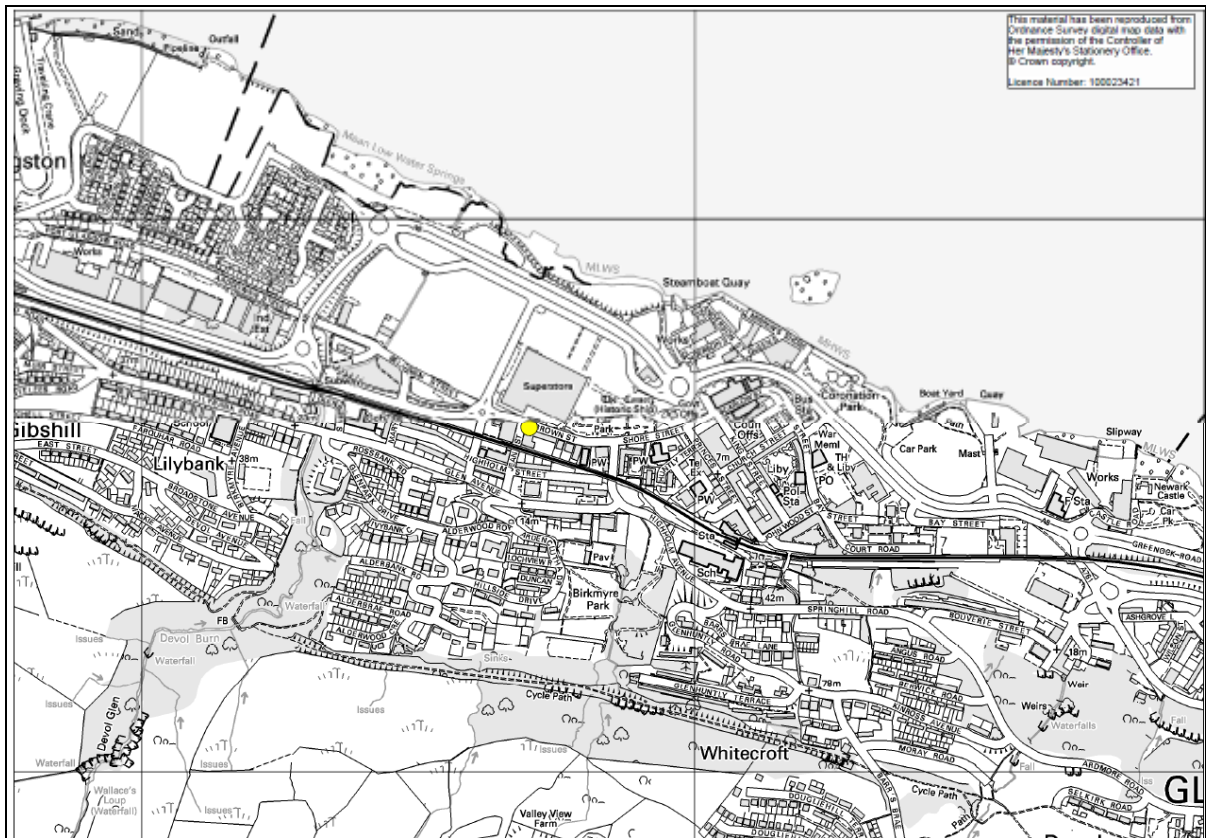
Map of NO₂ Diffusion Tube Monitoring Network: Greenock South



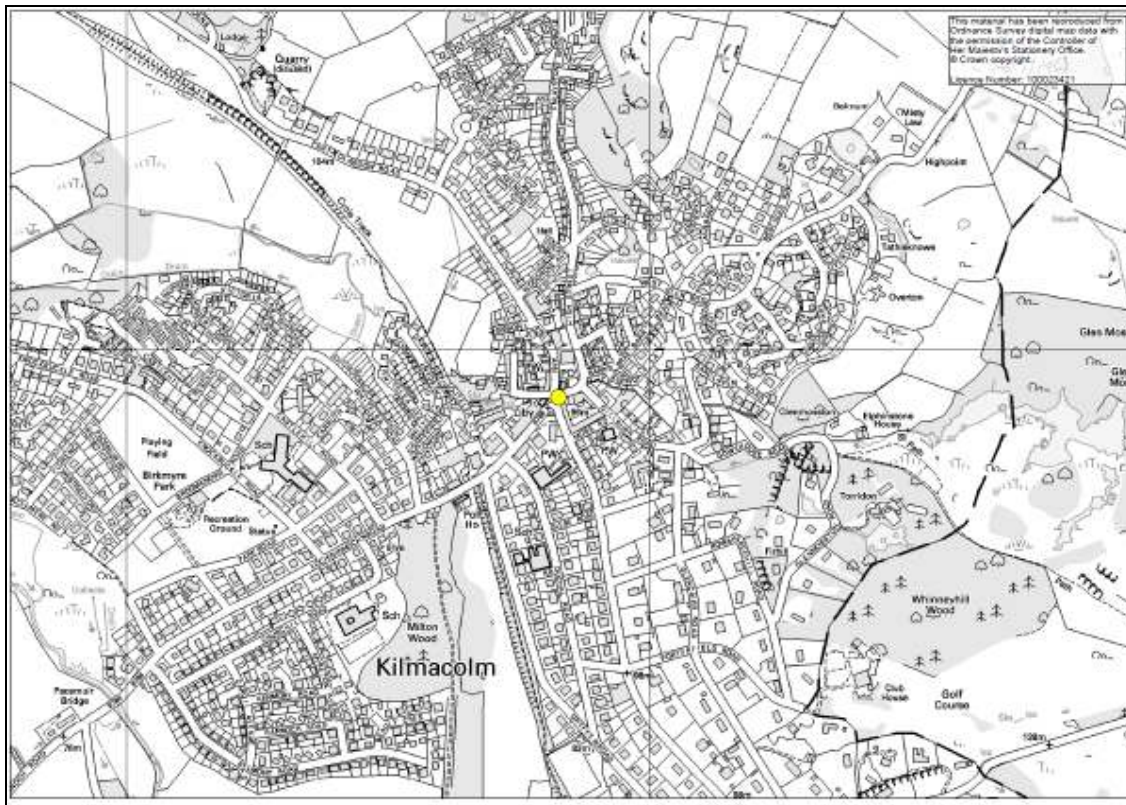
Map of NO₂ Diffusion Tube Monitoring Network: Gourock/Greenock West



Map of NO₂ Diffusion Tube Monitoring Network: Port Glasgow



Map of NO₂ Diffusion Tube Monitoring Network: Kilmacolm



Map of NO₂ Diffusion Tube Monitoring Network: Wemyss Bay



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

- 1 Inverclyde Council Air Quality
(www.inverclyde.gov.uk/environment/environmental-health/air-quality)
- 2 Scottish Air Quality Website (www.scottishairquality.co.uk)
- 3 Inverclyde Council Local Development Plan 2014 (www.inverclyde.gov.uk/ldp)
- 4 Inverclyde Council Scottish Climate Change Declaration 2007
- 5 Transport Outcomes Report Inverclyde 2015/16, Scottish Passenger Transport (www.spt.co.uk)
- 6 Regional Transport Strategy Delivery Plan 2014-17 (www.spt.co.uk)
- 7 Inverclyde Council Carbon Management Plan 2012-2017
(www.inverclyde.gov.uk)
- 8 Planning Application 12/0212/IC, Kempock Street, Gourock,
(www.planning.inverclyde.gov.uk/Online/)
- 9 Planning Application 15/0105/IC, Ann Street, Greenock
(www.planning.inverclyde.gov.uk/Online/)
- 10 GSS Diffusion Tubes for Ambient NO₂ Monitoring Practical Guidance
- 11 Scottish Air Quality Bias Adjustment factor, Spreadsheet Version Number
03/16, (www.scottishairquality.co.uk/laqm/tools)
- 12 Part IV of the Environment Act 1995 Local Air Quality Management Technical
Guidance LAQM.TG(16), DEFRA, April 2016
- 13 Inverclyde Council Progress Report 2011
- 14 Inverclyde Council Update and Screening Assessment 2012
- 15 Inverclyde Council Progress Report 2013
- 16 Inverclyde Council Progress Report 2014
- 17 Inverclyde Council Update and Screening Assessment 2015