



2011 Air Quality Progress Report for South Ayrshire Council



In fulfillment of Part IV of the Environment Act 1995
Local Air Quality Management

May 2011

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Executive Summary

South Ayrshire Council has carried out a review of air quality within South Ayrshire which fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the report follows technical guidance LAQM.TG(09), (Reference1), issued by the Scottish Executive to assist Local authorities in their Review and Assessment of air quality.

The report forms the Progress Report (PR) of the fourth round of the Review and Assessment process and includes latest available data up to the end of 2010. It also considers the conclusions of the previous rounds of Review and Assessment and any changes that have occurred since then that would have an effect on local air quality.

The PR concluded that concentrations of the various air quality objectives are unlikely to be exceeded.

A detailed assessment is therefore not required for South Ayrshire Council.

An updating and screening assessment will be submitted to the Scottish Executive by the end of April 2012.

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1 Introduction

1.1 Description of Local Authority Area

South Ayrshire Council is situated to the south-west of Scotland, on the coast of the mouth of the Firth of Clyde and the Irish Sea. The eastern boundary of the council area lies approximately 30 kilometres inland.

South Ayrshire is neighboured by East Ayrshire to the east, North Ayrshire to the north and Dumfries and Galloway Council to the south.

The main commercial and residential centre of South Ayrshire is Ayr, which is situated on the west coast. The other main populated towns of Prestwick, Troon and Girvan are also situated on the west coast. The inland towns and villages are predominantly small communities, with the exception of Maybole which is a busy town.

The main transportation route within South Ayrshire is the A77. The A77 connects the port of Stranraer, which is in the Dumfries and Galloway Council area to Glasgow. The A77 passes through the main west coast towns and villages from Stranraer to Turnberry at which point it heads inland, through Kirkoswald and Maybole, by-passing the outskirts of Ayr and Prestwick before heading north to Glasgow via Kilmarnock.

Glasgow Prestwick International Airport is situated within South Ayrshire to the outskirts of Ayr and Prestwick. Glasgow Prestwick International Airport serves both international and domestic passenger flights as well as a large amount of freight transportation flights.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in Scotland are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre, $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Scotland.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	18 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.2 summarises previous rounds of R&A and the exceedences identified or predicted. No AQMA's have been declared nor are there any locations where exceedences of objective concentrations have previously been identified. Finally no AQMA's have been revoked.

Table 1.2 Conclusions Of Previous Rounds Of Review And Assessment

Date & Title Of Report Produced By South Ayrshire		Brief Outcome
April 2000	Stage 1 Review and Assessment	No exceedences of air quality objectives
June 2003	2003 Updating and Screening Assessment Report	No exceedences of air quality objectives however PM ₁₀ levels in Dailly village predicted to be high to due to high density of domestic coal burning properties. Requested to proceed with a detailed assessment
June 2004	2004 Detailed Assessment PM ₁₀ levels in Dailly village	No exceedences of PM ₁₀ levels in Dailly village
April 2005	2005 Progress Report	No exceedences of air quality objectives
April 2006	2006 Updating and Screening Assessment report	No exceedences of air quality objectives however PM ₁₀ levels in Ayr town Centre predicted at being near objective limit. Requested to proceed with a detailed assessment.
August 2007	2007 Detailed Assessment PM ₁₀ levels in Ayr town centre	No exceedences of PM ₁₀ levels in Ayr town centre
April 2008	2008 Progress Report	No exceedences of air quality objectives
May 2009	2009 Updating and Screening Assessment Report	No exceedences of air quality objectives
May 2010	2010 Updating and Screening Assessment Report	No exceedences of air quality objectives

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

South Ayrshire Council operates two automatic monitoring stations. Both stations are fitted with a real time Chemiluminescent NOX analyser and TEOM PM10 monitors fitted with FDMS. Both monitors are fitted with web logger functionality.

One station is located in Ayr town centre at the junction of High Street and New Bridge Street and the other station was located at Tarbolton Primary School, Nursery Lane, Tarbolton until the end of March 2010 and was then relocated to Carrick Academy, Maybole

Further details of the monitoring stations are provided in Table 2.1. The location of the Ayr, Tarbolton and Maybole monitoring stations are shown in Figure 2.1, 2.2 and 2.3 respectively.

Figure 2.1 Location Map of Automatic Monitoring Site at High Street Ayr



Figure 2.2 Location Map of Automatic Monitoring Site at Tarbolton Primary School



Figure 2.3 Location Map of Automatic Monitoring Site at Carrick Academy, Maybole

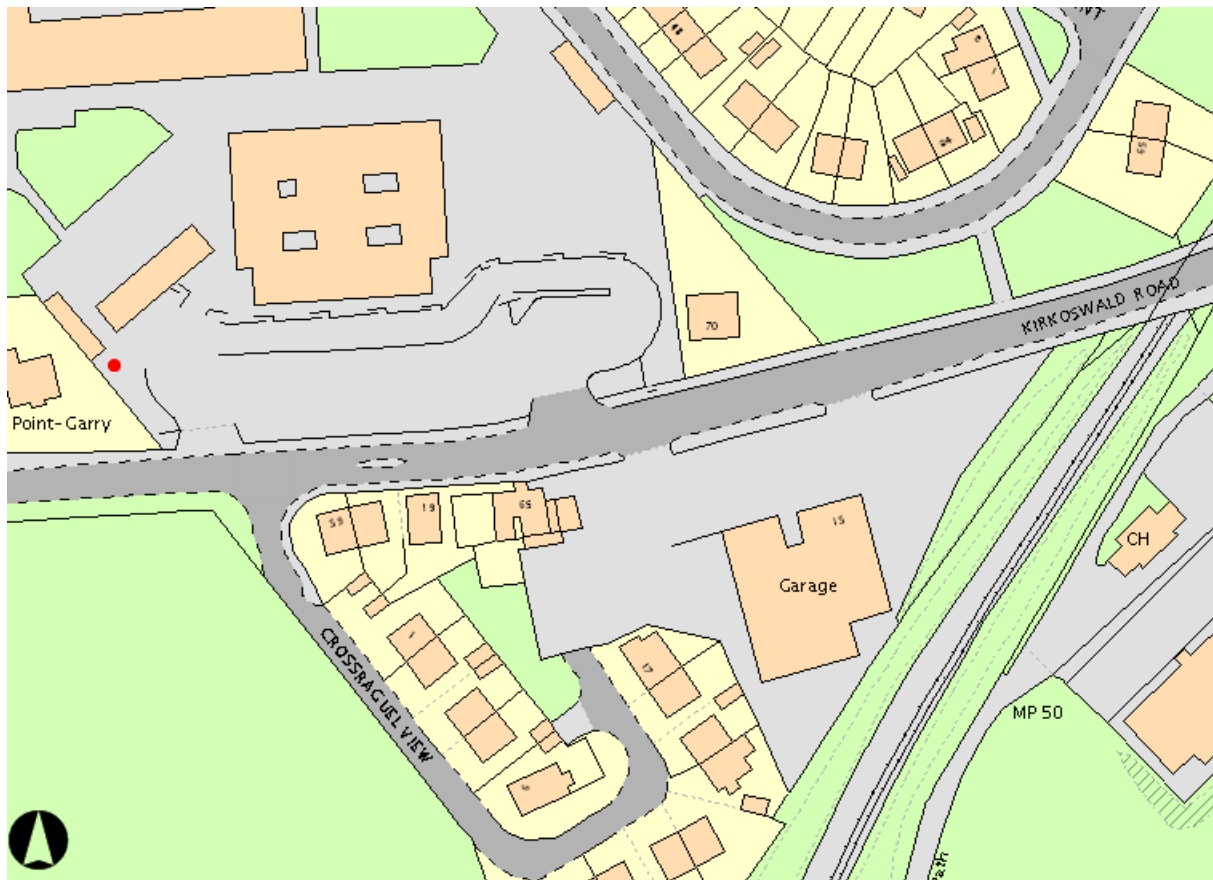


Table 2.1 Details of Automatic Monitoring Sites**Table 2.1 Details of Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
High St Ayr	Roadside	X 337223 Y 221162	NO ₂ PM10	N	Chemiluminescent NOX analyser & TEOM with FDMS for Pm10	Y (1m)	3m	Y
Tarbolton Primary School	Roadside	X 431042 Y 269306	NO ₂ PM 10	N	Chemiluminescent NOX analyser & TEOM with FDMS for Pm10	Y (1m)	30m	N
Carrick Academy, Maybole	Roadside	X 229234 Y 609600	NO ₂ PM 10	N	Chemiluminescent NOX analyser & TEOM with FDMS for Pm10	Y (1m)	15m	N

The maintenance of the two monitoring stations is carried out by Air Monitors. This involves two routine services per year and also provision for emergency callouts. Automatic calibration and span checks are carried out daily.

Both stations are part of the Scottish Air Quality network and are audited by AEA Technology. They also carry out the data management for this site. The data is checked to ensure that it is being recorded correctly, the analysers are stable and there are no faults with the analysers. The data is then re-scaled using the results of the calibration and span checks which are carried out by the analyser automatically.

PM₁₀ is measured at both monitoring stations using TEOM FDMS units. Since both units are fitted with FDMS there is no need to apply a correction factor to the recorded results.

2.1.2 Non-Automatic Monitoring

Monitoring of nitrogen dioxide using passive diffusion tubes was undertaken at 22 separate locations in South Ayrshire during 2010. The diffusion tube locations are described in Table 2.2.

TABLE 2.2 -

Table 2.2 Details of Non- Automatic Monitoring Sites	Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst- case Location?
01.	39 Whitletts Rd Ayr	Roadside	X 234605 Y 622412	NO ₂	N	13.7m	1m	N
02.	Rozelle Park Ayr	Urban back- ground	X 233763 Y 618944	NO ₂ and Benzene	N	10m	N/A	N
03.	Town Buildings Ayr	Roadside	X233691 Y 622093	NO ₂	N	3m	1m	Y
04.	12 Craigie Road Ayr	Roadside	X 234601 Y 622314	NO ₂	N	5m	1m	Y
05.	King Street Ayr	Roadside	X 233830 Y 622352	NO ₂	N	2m	0.1m	Y
06.	Heathfield Rd/Prestwick Rd Ayr	Roadside	X 234641 Y624159	NO ₂	N	2m	1m	Y
07.	Beresford Terr./Parkhouse St Ayr	Roadside	X 233859 Y 621296	NO ₂	N	3m	2m	Y
08.	Tesco Whitletts Rd Ayr	Roadside	X 235150 Y 622528	NO ₂	N	10m	2m	N
09.	86 Main St Prestwick	Roadside	X235148 Y625848	NO ₂	N	5m	1m	Y
10.	RBS Main St Prestwick	Roadside	X 235177 Y 625785	NO ₂	N	5m	1m	Y
11.	Shaw Farm Gardens Prestwick	Roadside	X 235622 Y 626548	NO ₂	N	5m	1m	Y
12.	Main Street Dundonald	Roadside	X 236577 Y 634533	NO ₂	N	5m	1m	N
13.	Ayr St Troon	Roadside	X 232058 Y 630951	NO ₂	N	6m	1m	Y
14.	Church Street Troon	Roadside	X 232175 Y 631043	NO ₂	N	4m	2m	Y
15.	Dundonald Road Troon	Roadside	X 232588 Y 631277	NO ₂	N	5m	1m	N
16.	Morrisons Ayr	Roadside	X 232135 Y 621149	NO ₂	N	5m	1m	Y
17.	Ayr Rd/ Hole Rd CoyltonS	Roadside	X 240843 Y 619686	NO ₂	N	5m	1m	Y
18.	Station Taxi Rank Ayr	Roadside	X 240194 Y 624754	NO ₂	N	5m	1m	Y
19.	High Rd Whitletts	Roadside	X 235733 Y 627806	NO ₂	N	5m	1m	Y
20.	Bridge St Girvan	Roadside	X 218549 Y 598064	NO ₂	N	5m	1m	Y
21.	Hunters Ave Heathfield Ayr	Roadside	X 218387 Y 597865	NO ₂	N	10m	1m	N
22.	CO-OP, High St Maybole	Roadside	X 230099 Y 609965	NO ₂	N	3m	1m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

There were no exceedences of the Annual mean objective nor were there any exceedences of the hourly mean for the automatic monitoring data in relation to NO₂.

Results are displayed in tables 2.3a and 2.3b

Table 2.3a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2010 ^b %	Annual mean concentrations (µg/m ³)		
					2008 ^{c, d}	2009 ^{c, d}	2010 ^c
A1	High St Ayr	N	N/A	96.5%	15.2	17	24
A2	Tarbolton Primary School	N	100%	22.5%	12.5	12	19
A3	Carrick Academy	N	94%	67.1%	N/A	N/A	10

Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2010 ^b %	Number of Exceedences of hourly mean (200 µg/m ³) <i>If the period of valid data is less than 90% of a full year, include the 99.8th percentile of hourly means in brackets.</i>		
					2008 ^c	2009 ^c	2010
A1	High St Ayr	N	N/A	96.5%	0	4	0
A2	Tarbolton Primary School	N	100%	22.5%	0	0	0 (76)
A3	Carrick Academy	N	94%	67.1%	N/A	N/A	0 (73)

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

^c Numbers of exceedences for previous years are optional.

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.

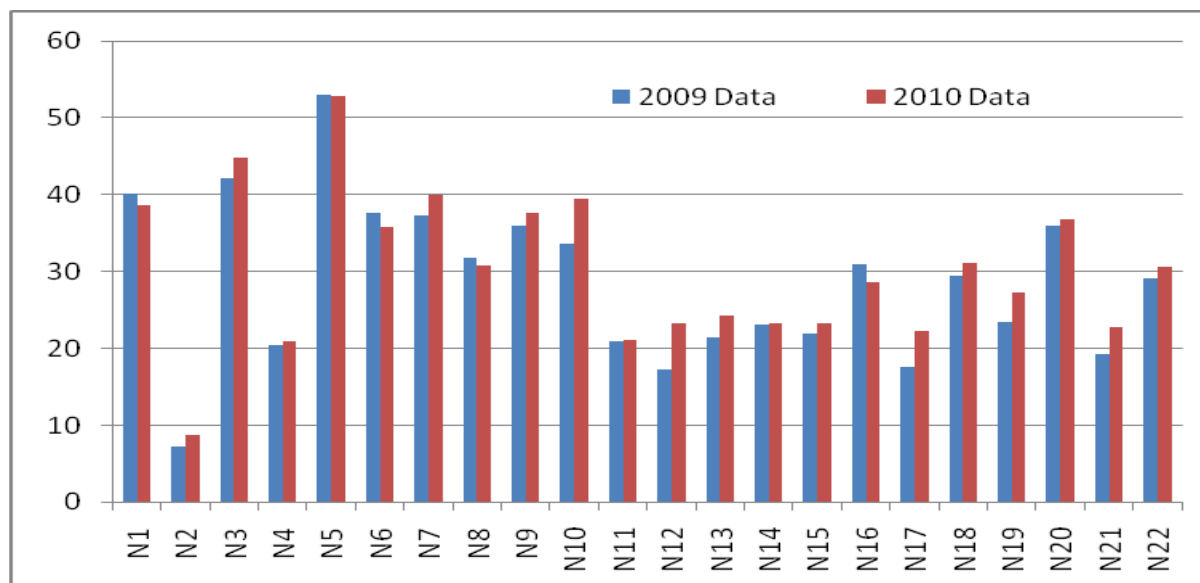


Figure 2.4 shows the trend in Nitrogen Dioxide diffusion tube data from 2009 and 2010. There is no clear trend emerging with 5 results decreasing, 3 staying approximately constant and 14 increasing. The reason for these increases is unknown.

Diffusion Tube Monitoring Data

Unfortunately we did not carry out a co-location study in 2010 within South Ayrshire. The bias adjustment factor of 1.1 was obtained from the spreadsheet located on the Scottish Air Quality website. The 1.1 bias adjustment was applied to all NO₂ diffusion tube results.

Two of the diffusion tubes were found to exceed the annual mean objective of 40µg/m³

However when the NO₂ with distance from roads calculator was utilised from the Scottish Air Quality website, all levels were found to fall below the objective annual mean of 40µg/m³ as follows:

Site ID	Location	Distance from Kerb to Diffusion Tube (m)	Distance from Kerb to Receptor (m)	Local mean Background NO ₂ µg/m ³	Measured Annual Mean µg/m ³	Predicted Annual Mean µg/m ³
3	Town Buildings, Ayr	1.0	3.0	10.48	44.9	37.3
5	King Street Ayr	0.1	2	10.48	53	35.5

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes 2010

Site ID	Location	Within AQMA ?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2010 ^b %	Annual mean concentrations (µg/m ³)
					2010 ^c
N1	39 Whitletts Road, Ayr	N		100	38.7
N2	Rozelle Park, Ayr	N		100	8.7
N3	Town Buildings, Ayr	N		100	44.9
N4	12 Craigie road, Ayr	N		100	21.0
N5	King Street, Ayr	N		100	52.9
N6	Heathfield rd/Prestwick Rd	N		91.66	35.8
N7	Beresford Terrace/ Parkhouse Street	N		91.66	39.9
N8	Tesco. Whitletts road Ayr	N		100	30.8
N9	86 Main street Prestwick	N		100	37.7
N10	RBS Main street Prestwick	N		100	39.4
N11	Shaw Farm Gardens	N		100	21.1
N12	Pharmacy, Main Street, Dundonald	N		66.66	23.3
N13	TSB, Ayr Street, Troon	N		91.66	24.2
N14	Church street/Portland street Troon	N		91.66	23.2
N15	Dundonald Road, Troon	N		100	23.3
N16	Morrisons, Ayr	N		100	28.6
N17	Ayr road, Coylton	N		100	22.3
N18	Station Taxi Rank, Ayr	N		91.66	31.1
N19	High Road, Whitletts	N		75	27.2
N20	Bridge Street, Girvan	N		91.66	36.8
N21	2 Hunters Avenue, Ayr	N		91.66	22.8
N22	CO-OP, Maybole	N		100	30.7

2.2.2 PM₁₀

There were no exceedences of the annual mean objective or of the daily mean objective in relation to automatic monitoring data for PM₁₀

Results are displayed in tables 2.5a and 2.5b.

Table 2.5a Results of PM₁₀ Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2010 ^b %	Annual mean concentrations (µg/m ³)		
					2008 ^{c, d}	2009 ^{c, d}	2010 ^c
A1	High Street Ayr	N	N/A	79.8	15.2	17	16
A2	Tarbolton Primary School	N	100	22.4	12.5	12	14
A3	Carrick Academy	N	94	65.2	N/A	N/A	12

Table 2.5b Results of PM₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture 2010 ^b %	Number of Exceedences of daily mean objective (50 µg/m ³) If data capture < 90%, include the 90 th percentile of daily means in brackets.		
					2008 ^c	2009 ^c	2010 ^c
A1	High Street Ayr	N	N/A	79.8	0	4	0 (26)
A2	Tarbolton Primary School	N	100	22.4	0	0	0 (25)
A3	Carrick Academy	N	94	65.2	N/A	N/A	1 (26)

2.2.3 Sulphur Dioxide

No monitoring for SO₂ was carried out in South Ayrshire during 2010 as previous monitoring results indicated that were well below the objective level.

2.2.4 Benzene

No monitoring for SO₂ was carried out in South Ayrshire during 2010 as previous monitoring results indicated that levels were well below the objective level.

2.2.5 Summary of Compliance with AQS Objectives

South Ayrshire Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

South Ayrshire Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Local Transport Plans and Strategies

South Ayrshire Council's transport strategy and associated documents can be accessed under the following link:

<http://www.south-ayrshire.gov.uk/council/transport/>

Appendices

Appendix A: QA:QC Data

QA/QC of automatic monitoring

The maintenance of the two monitoring stations is carried out by Air Monitors. This involves two routine services per year and also provision for emergency callouts. Automatic calibration and span checks are carried out daily.

Both sites are part of the Scottish Air Quality network and are audited by AEA Technology. They also carry out the data management for the sites. The data is checked to ensure that it is being recorded correctly, the analysers are stable and there are no faults with the analysers. The data is then re-scaled using the results of the calibration and span checks which are carried out by the analyser automatically.

PM₁₀ is measured at both monitoring stations using TEOM FDMS units. Since both units are fitted with FDMS there is no need to apply a correction factor to the recorded results.

QA/QC of diffusion tube monitoring

The nitrogen dioxide diffusion tubes are placed at each location by South Ayrshire Council for a period of approximately one month. At the end of each monthly period, the exposed tubes are replaced with new tubes and the exposed tubes are sent to the laboratory for analysis. Laboratory analysis of the passive diffusion tubes is undertaken by Glasgow Scientific Services (GSS) - part of the City of Glasgow Council. The laboratory is UKAS accredited for the analysis.

GSS prepares the diffusion tubes using the technique of 20% TEA in water. The laboratory undertakes the analysis of diffusion tubes from Glasgow City Council, which undertakes an annual co-location study of diffusion tubes from automatic monitoring stations in the city for the purposes of validation.

GSS follow the procedures set out in the harmonisation panel guidance and participate in the AEA Technology laboratory inter-comparison scheme and scored a good result in the WASP scheme for analysis of NO₂ diffusion tubes, July 2009 – July 2010.

The scheme whilst assessing the analytical performance of laboratories, also allows for the performance of the laboratory against chemiluminescence techniques to be determined.

A laboratory bias for GSS was therefore determined using the methodology contained in the LAQM technical guidance document LAQM TG(09)

There is currently no co-location study data for South Ayrshire however it is our intention to carry out such a study next year at our automatic monitoring station at Ayr. Therefore the national bias correction factor of 1.1 was obtained from the Scottish Air Quality and was applied to all diffusion tube results.

**Appendix B: NO₂ Diffusion
Tubes 2010 (ug/m3)**

Site	J	F	M	A	M	J	J	A	S	O	N	D	Total	Average	Bias Correction	Corrected Average	% EXPOSURE
(01) 39 Whitletts Road, Ayr	37.9	27.7	34.9	32.8	26.8	30.3	33.3	31.6	22.6	36.2	52.9	56.2	423.2	35.2	1.1	38.7	100
(02) Rozelle Park, Ayr	12.8	12.5	9.4	3.1	4.4	2.2	3.7	5.8	2.1	9.1	14.8	16	95.9	7.9	1.1	8.7	100
(03) Town Buildings, Ayr	51.9	39.8	47.1	32.3	39.3	32.7	30.8	32.3	28	45.1	52.2	58.1	489.6	40.8	1.1	44.9	100
(04) 12 Craigie road, Ayr	26.6	17.6	20.9	14.1	13.5	17.6	10.8	16	13.7	16.3	28.3	34.3	229.7	19.1	1.1	21.0	100
(05) King St, (CCTV Pole), Ayr	61.9	62.5	59.3	27.4	39.6	25.7	46.5	39	30.6	44.7	58.4	81.8	577.4	48.1	1.1	52.9	100
(06) Heathfield Road/Prestwick Rd	34.1	37.6	37.4	17.4	x	29.1	32.2	17	20.2	31.2	53.4	48.6	358.2	32.5	1.1	35.8	91.66
(07) Beresford Terr/Parkhouse St	45	49.1	x	24.4	30.7	31.1	29.8	30.2	21.2	36.5	45	56.7	399.7	36.3	1.1	39.9	91.66
(08) Tesco Whitletts Road, Ayr.	32.8	31.4	37.9	15.5	27.3	17.9	21.2	21.2	18.4	30.9	38.9	42.8	336.2	28	1.1	30.8	100
(09) 86 Main Street, Prestwick	40.6	36.4	40.6	25	27.5	32.2	33.7	35	27	29.7	43.1	41.8	412.6	34.3	1.1	37.7	100
(10) RBS Main Street Prestwick	42.9	49.3	36.8	19.1	26.2	20.7	20.9	20.4	22.8	37.1	42.5	90.9	429.6	35.8	1.1	39.4	100
(11) Shaw Farm Gardens	27.7	23.3	24.9	12.8	13.7	13.5	12.9	13.8	10.9	19.9	28.5	28.8	230.7	19.2	1.1	21.1	100
(12) Main Street, Dundonald	26.5	24.1	18.6	x	x	x	x	15.1	12.2	18	22.7	32.5	169.7	21.2	1.1	23.3	66.66
(13) TSB, Ayr Street, Troon	33	37.9	19.6	11.3	12.8	15.9	12.9	x	11	20.3	30.7	37.5	242.9	22	1.1	24.2	91.66
(14) Church St/Portland St, Troon	30.2	27.2	23.5	12.7	x	13.2	11.4	13.9	9.9	17.7	31.2	41.8	232.7	21.1	1.1	23.2	91.66
(15) Dundoanld Rd Traffic Lights, Troon	24.1	29.6	24.3	11.6	17.8	9.9	15.7	14.3	17.5	18.7	31.7	38.9	254.1	21.2	1.1	23.3	100
(16) Morrisons, Ayr	26.6	31.4	30	17.5	22.8	21	21.4	23.3	17.3	29.1	37.9	33.9	312.2	26	1.1	28.6	100
(17) Ayr Rd / Hole Rd Coylton	27.5	28.9	24.9	12.5	16.9	11	12.8	14.8	13.8	20.8	27.4	32.8	244.1	20.3	1.1	22.3	100
(18) Station Taxi Rank, Ayr	25.6	37.5	32	17.3	x	17.7	24.8	21.1	16.5	24.4	39.5	55.3	311.7	28.3	1.1	31.1	91.66
(19) High Road, Whitletts	32.8	35.5	25.5	12.7	14.5	x	x	11.9	x	20.7	34	34.8	222.4	24.7	1.1	27.2	75
(20) Roxy, Bridge St, Girvan	26.5	24.2	40.5	23.9	35.7	31.3	36.9	40.7	x	27.3	44.8	37.4	369.2	33.5	1.1	36.8	91.66
(21) 2 Hunters Ave, Heathfield, Ayr	26.1	29.4	23.7	x	13.3	11.8	10.1	12.7	7.4	18.6	28.2	46.9	228.2	20.7	1.1	22.8	91.66
(22) CO-OP Maybole	31.7	26.6	27.9	18.1	24.4	22	25.2	29.8	13.8	31.7	35.4	48.3	334.9	27.9	1.1	30.7	100

Appendix C : Results of Automatic Monitoring Station at Ayr High Street**SOUTH AYRSHIRE AYR HIGH ST
1st January to 31st December 2010**

These data have been fully ratified by AEA

POLLUTANT	PM ₁₀ *+	NO ₂	NO _x
Number Very High	0	0	-
Number High	0	0	-
Number Moderate	0	0	-
Number Low	6981	8450	-
Maximum 15-minute mean	93 µg m ⁻³	113 µg m ⁻³	435 µg m ⁻³
Maximum hourly mean	93 µg m ⁻³	99 µg m ⁻³	353 µg m ⁻³
Maximum running 8-hour mean	61 µg m ⁻³	82 µg m ⁻³	235 µg m ⁻³
Maximum running 24-hour mean	49 µg m ⁻³	67 µg m ⁻³	148 µg m ⁻³
Maximum daily mean	46 µg m ⁻³	64 µg m ⁻³	131 µg m ⁻³
90th percentile of daily means	26 µg m ⁻³	-	-
98.08th percentile of daily means	32 µg m ⁻³	-	-
Average	16 µg m ⁻³	24 µg m ⁻³	45 µg m ⁻³
Data capture	79.8 %	96.5 %	96.5 %

+ PM₁₀ instruments:FDMS using a gravimetric factor of 1 from 1st January 2010

All mass units are at 20°C and 1013 mb

NO_x mass units are NO_x as NO₂ µg m⁻³

Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	0	0
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 18 µg m ⁻³	0	-
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0

Appendix D : Results of Automatic Monitoring Station at Tarbolton Primary School, Tarbolton

SOUTH AYRSHIRE TARBOLTON 1st January to 31st December 2010

These data have been fully ratified by AEA

POLLUTANT	PM ₁₀ ⁺	NO ₂	NO _x
Number Very High	0	0	-
Number High	0	0	-
Number Moderate	0	0	-
Number Low	1983	1969	-
Maximum 15-minute mean	56 µg m ⁻³	99 µg m ⁻³	220 µg m ⁻³
Maximum hourly mean	56 µg m ⁻³	88 µg m ⁻³	183 µg m ⁻³
Maximum running 8-hour mean	42 µg m ⁻³	71 µg m ⁻³	127 µg m ⁻³
Maximum running 24-hour mean	32 µg m ⁻³	54 µg m ⁻³	80 µg m ⁻³
Maximum daily mean	29 µg m ⁻³	52 µg m ⁻³	77 µg m ⁻³
Average	14 µg m ⁻³	19 µg m ⁻³	23 µg m ⁻³
Data capture	22.4 %	22.5 %	22.5 %

+ PM₁₀ instruments:

FDMS using a gravimetric factor of 1 from 1st January 2010 to 24th March 2010

All mass units are at 20°C and 1013 mb

NO_x mass units are NO_x as NO₂ µg m⁻³

Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	0	0
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 18 µg m ⁻³	0	-
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0

Appendix E : Results of Automatic Monitoring Station at Carrick Academy, Maybole

SOUTH AYRSHIRE MAYBOLE 1st January to 31st December 2010

These data have been fully ratified by AEA

POLLUTANT	PM ₁₀ *+	NO ₂	NO _x
Number Very High	0	0	-
Number High	0	0	-
Number Moderate	0	0	-
Number Low	5602	5874	-
Maximum 15-minute mean	110 µg m ⁻³	111 µg m ⁻³	493 µg m ⁻³
Maximum hourly mean	110 µg m ⁻³	94 µg m ⁻³	336 µg m ⁻³
Maximum running 8-hour mean	86 µg m ⁻³	66 µg m ⁻³	243 µg m ⁻³
Maximum running 24-hour mean	57 µg m ⁻³	56 µg m ⁻³	152 µg m ⁻³
Maximum daily mean	53 µg m ⁻³	54 µg m ⁻³	145 µg m ⁻³
Average	12 µg m ⁻³	10 µg m ⁻³	19 µg m ⁻³
Data capture	65.2 %	67.1 %	67.1 %

+ PM₁₀ instruments:

FDMS using a gravimetric factor of 1 from 8th April 2010

All mass units are at 20°C and 1013 mb

NO_x mass units are NO_x as NO₂ µg m⁻³

Pollutant	Air Quality Regulations (2000) and Air Quality (Scotland) Amendment Regulations 2002	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	1	1
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 18 µg m ⁻³	0	-
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	0	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0