2010 Air Quality Progress Report for South Ayrshire Council

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

May 2010

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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 2009. 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 annual progress report will be submitted to the Scottish Executive by the end of April 2011.

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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 micrograms per cubic metre, μg/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 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	50 $\mu g/m^3$, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	40 $\mu g/m^3$	Annual mean	31.12.2004
	18 $\mu g/m^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, 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 are any locations where exceedences of objective concentrations have previously been identified but reports have judged that no AQMA. 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 PM10 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

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 is located at Tarbolton Primary School, Nursery Lane, Tarbolton.

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

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

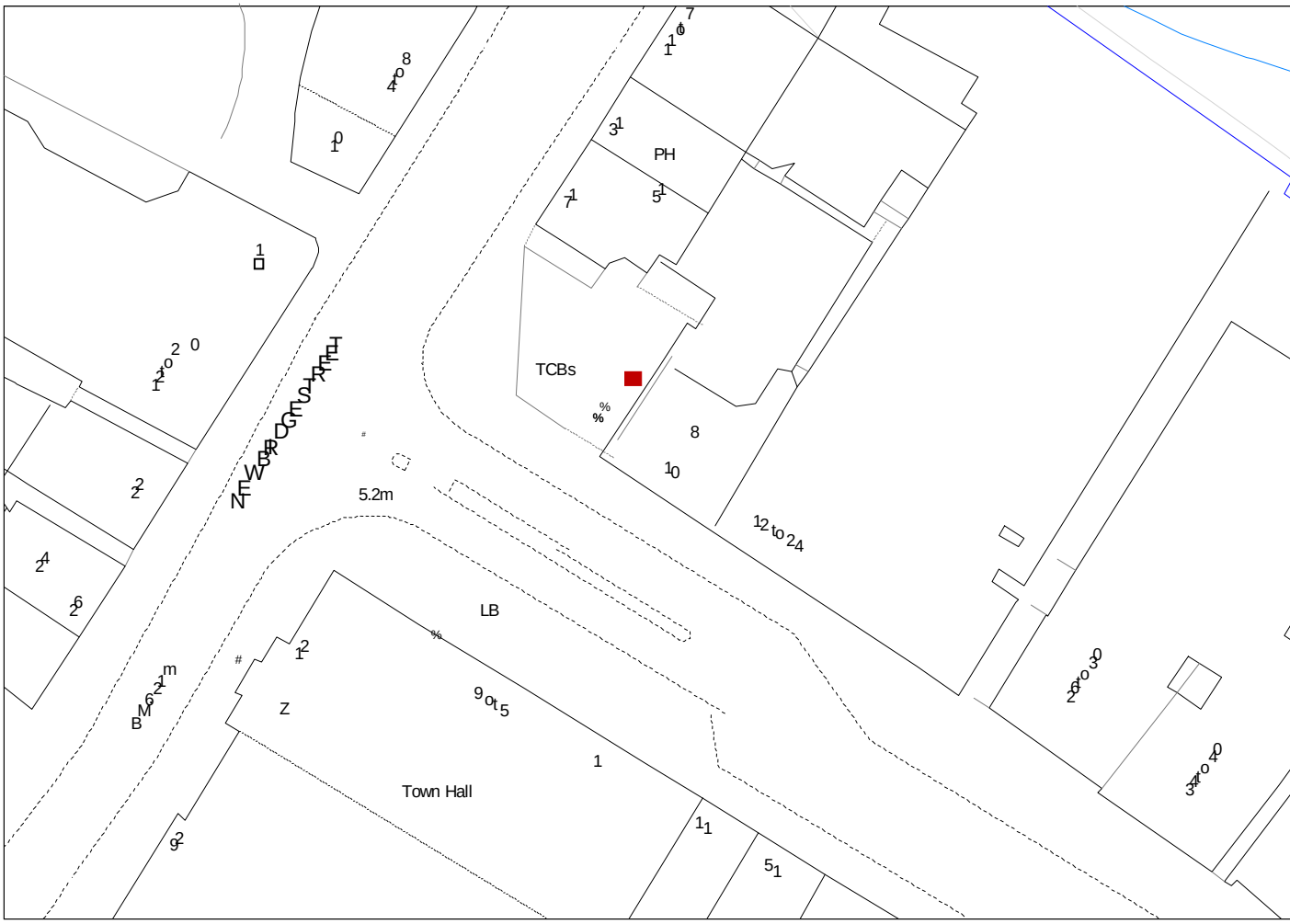

Figure 2.2 Location Map of Automatic Monitoring Site at Tarbolton Primary School

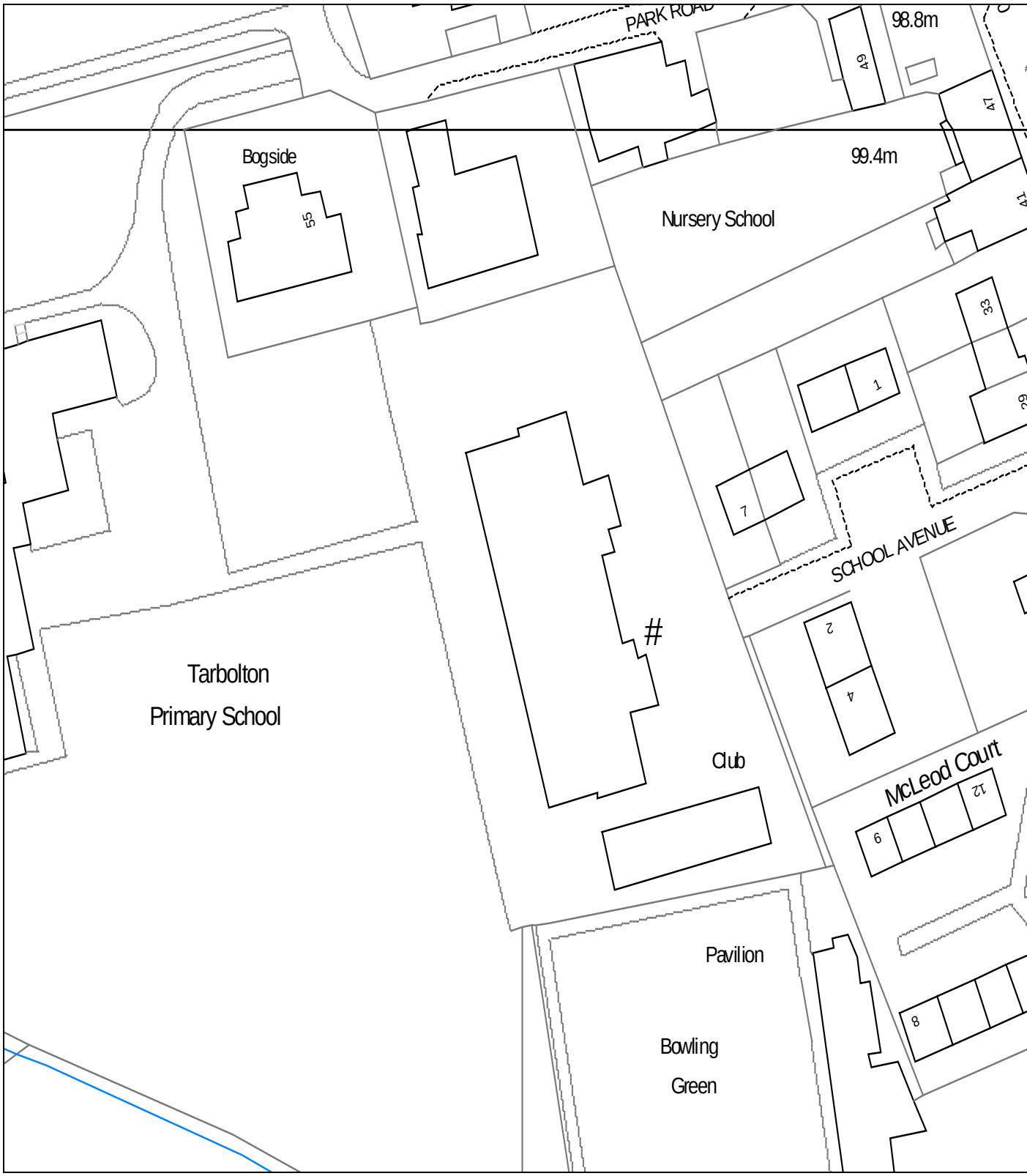

Table 2.1 Details of Automatic Monitoring Sites

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	Kerbside	X 337223 Y 221162	NO_2 PM10	N	Chemiluminescent NOX analyser & FDMS for Pm10	Y (1m)	3m	Y
Tarbolton Primary School	Background	X 431042 Y 269306	NO_2 PM 10	N	Chemiluminescent NOX analyser & FDMS for Pm10	Y (1m)	30m	N

The maintenance of the two monitoring stations at Ayr and Tarbolton 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 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.

PM_{10} 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 2009.The diffusion tube locations are described in Table 2.2.

Monitoring of benzene was using passive diffusion tubes was undertaken at four separate locations in South Ayrshire during 2009.The diffusion tube locations are described in table 2.2.

Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQ MA ?	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 background	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 & Benzene	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. Morissons 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. Morrissons High St Maybole	Roadside	X 230099 Y 609965	NO_2 & Benzene	N	3m	1m	Y
23. Ewenfield Rd Ayr	Roadside	X 234187 Y 619730	Benzene	N	10m	2m	N

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 NO_2.

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 2009 [b] %	Annual mean concentrations (μg/m³)		
					2007 [c, d]	2008 [c,d]	2009 [c]
A1	High St Ayr	N	99.9	99.9	N/A	21	20
A2	Tarbolton Primary School	N	97.1	97.1	N/A	15.8	8

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 2009 [b] %	Number of Exceedences of hourly mean (200 μg/m³) If the period of valid data is less than 90% of a full year, include the 99.8th percentile of hourly means in brackets.		
					2007 [c]	2008 [c]	2009
A1	High St Ayr	N	99.9	99.9	N/A	0	0
A2	Tarbolton Primary School	N	97.1	97.1	N/A	0	0

[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.

Only 6 of the NO_2 Diffusion tube locations have remained constant from 2008. All others are new sites for 2009. Therefore no district trend can be calculated.

Diffusion Tube Monitoring Data

Unfortunately we did not carry out a co-location study in 2009 within South Ayrshire. The bias adjustment factor of 1.23 was obtained from the website and was applied to all NO_2 diffusion tube results.
Three of the diffusion tubes were found to exceed the annual mean objective of $40\mu g/m^3$
However when the NO_2 with distance from roads calculator was utilised from the Air Quality website, all levels were found to fall below the objective annual mean of $40\mu g/m^3$ as follows:

Site ID	Location	Distance from Kerb to Diffusion Tube (m)	Distance from Kerb to Receptor (m)	Local mean Background NO2 µg/m3	Measured Annual Mean µg/m³	Predicted Annual Mean µg/m³
1	39 Whitletts Road, Ayr	1.0	13.7	7.03	40.1	**22.7**
3	Town Buildings, Ayr	1.0	3.0	7.03	42.1	**34.3**
5	King Street Ayr	0.1	2	7.03	53	**34.0**

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes 2009

Site ID	Location	Within AQMA ?	Data Capture for monitoring period[a] %	Data Capture for full calendar year 2009[b] %	Annual mean concentrations (μg/m^3) 2009 [c]
N1	39 Whitletts Road, Ayr	N	92	92	**40.1**
N2	Rozelle Park, Ayr	N	100	100	7.2
N3	Town Buildings, Ayr	N	83	83	**42.1**
N4	12 Craigie road, Ayr	N	92	92	20.5
N5	King Street, Ayr	N	83	83	**53.0**
N6	Heathfield rd/Prestwick roa	N	92	92	37.6
N7	Beresford Terrace/Parkhou Street	N	100	100	37.3
N8	Tesco. Whitletts road Ayr	N	92	92	31.8
N9	86 Main street Prestwick	N	75	75	36.0
N10	RBS Main street Prestwick	N	100	100	33.7
N11	Shaw Farm Gardens	N	92	92	20.9
N12	Pharmacy, Main Street, Dundonald	N	58	58	17.3
N13	TSB, Ayr Street, Troon	N	83	83	21.4
N14	Church street/Portland stre Troon	N	92	92	23.1
N15	Dundonald Road, Troon	N	83	83	22.0
N16	Morrisons, Ayr	N	75	75	31.0
N17	Ayr road, Coylton	N	83	83	17.6
N18	Station Taxi Rank, Ayr	N	92	92	29.5
N19	High Road, Whitletts	N	83	83	23.4
N20	Bridge Street, Girvan	N	92	92	35.9
N21	2 Hunters Avenue, Ayr	N	92	92	19.2
N22	Safeways, Maybole	N	83	83	29.2

2.2.2 PM_{10}

There were no exceedences of the annual mean objective or of the daily mean objective in relation to automatic monitoring data for PM_{10}

Results are displayed in tables 2.5a and 2.5b.

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period [a] %	Data Capture for full calendar year 2009 [b] %	Annual mean concentrations ($\mu g/m^3$)		
					2007 [c, d]	2008 [c,d]	2009 [c]
A1	High Street Ayr	N	99.2	99.2	**N/A**	15.2	17
A2	Tarbolton Primary School	N	87.1	87.1	N/A	12.5	12

Table 2.5b Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period [a] %	Data Capture 2009 [b] %	Number of Exceedences of daily mean objective (50 $\mu g/m^3$) If data capture < 90%, include the 90th percentile of daily means in brackets.		
					2007 [c]	2008 [c]	2009 [c]
A1	High Street Ayr	N	99.2	99.2	**N/A**	0	4
A2	Tarbolton Primary School	N	87.1	87.1	N/A	0	0

2.2.3 Sulphur Dioxide

No monitoring for SO_2 was carried out in South Ayrshire during 2009 as previous monitoring results indicated that levels were well below the objective level.

2.2.4 Benzene

Benzene monitoring is carried out utilising diffusion tubes at four sites throughout South Ayrshire.

Analysis takes place at Glasgow Scientific Services however due to various reasons at the laboratory with equipment failure data capture for 2009 was low.

The results are displayed in table 2.5c.

None of the sites exceeded the objective annual mean concentration of 3.25 µg/m^3

Due to the fact that levels of benzene monitored throughout the district remain very low, a decision has been made to cease monitoring for benzene from 2010.

Table 2.5c Results of Benzene Diffusion Tube Monitoring

Site Reference	Site Name	Relevant of Public Exposure	Data Capture 2009 (%)	Annual Mean Conc. for 2009 (µg/m^3)
B1	Ewanfield Place, Ayr	Y	58	0.42
B2	Somerfield, Maybole	Y	42	0.49
B3	Tesco, Ayr	Y	58	1.35
B4	Rozelle Park, Ayr	N	50	<0.18

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 at Ayr and Tarbolton 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.

PM_{10} 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 2008 – July 2009.

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 bias factor was determined utilising the excel spreadsheet from

the review and assessment helpdesk website the bias factor was calculated for GSS in 2009 at 1.23 and was applied to all sites.

Passive monitoring of benzene is undertaken using Chromosorb 106 adsorbent tubes. The diffusion tubes are left in position for a period of one month. The monitored concentration is then averaged over the exposure period. Analysis is carried out by Glasgow Scientific Services using thermal desorption, gas chromatography-mass spectrometry and is quantified against an ‘internal standard’ (benzene d6).The benzene mass is then corrected against a travel blank.

Appendix B: NO_2 Diffusion Tubes 2009 (ug/m3)

Site	J	F	M	A	M	J	J	A	S	O	N	D	Total	Average	Bias Correction	Corrected Average
(01) 39 Whitletts Road, Ayr	44.1	33.5	31.2	30	22.8	x	25.1	27	30.2	31.4	34.5	X	309.8	330.98	1.23	38.1
(02) Rozelle Park, Ayr	8.7	6.2	4.4	3.5	4.8	3.7	2.3	5.2	2.6	5.1	6.3	17.2	70	5.8333	1.23	7.2
(03) Town Buildings, Ayr	x	42.3	28.1	x	24	24.4	25.5	39.9	30.8	38.8	x	39	292.8	32.5	1.23	40.0
(04) 12 Craigie road, Ayr	22.8	22.6	17.6	14.5	11.4	9.8	11.2	8.1	15.6	18.2	x	31.3	183.1	16.645	1.23	20.5
(05) King St, (CCTV Pole), Ayr	44	x	37.4	34	40.5	x	37.1	39.1	38.8	47	40.6	X	358.5	39.8	1.23	49.0
(06) Heathfield Road/Prestwick	44.7	37.4	35.4	34.8	24.3	20	18.8	27.5	27.5	33.8	31.7	X	335.9	30.536	1.23	37.6
(07) Beresford Terrace/Parkhouse Street	42.9	34.1	30.4	34.6	31	23.3	24.8	26.9	30.3	35.8	33.8	16	363.9	30.325	1.23	37.3
(08) Tesco Whitletts Road, Ayr.	24.1	26.7	26	27.5	23.6	15.1	x	17.5	26.2	27.4	29.7	40.5	284.3	25.845	1.23	31.8
(09) 86 Main Street, Prestwick	30.5	48.7	x	x	26	16.8	25.9	x	14.8	32.3	27.3	41.1	263.4	29.267	1.23	36.0
(10) RBS Main Street Prestwick	41.5	30.6	23.8	33.3	22	17	18.7	9	20.3	21.4	28.6	62.3	328.5	27.375	1.23	33.7
(11) Shaw Farm Gardens	X	21.9	17.5	16.3	10	10.7	13.2	7.7	13.6	19	21.1	35.9	186.9	16.991	1.23	20.9
(12) Pharmacy, Main Street, Dundonald	X	x	12.7	14.7	x	x	8.4	8.7	9.7	x	13.3	31.1	98.6	14.086	1.23	17.3
(13) TSB, Ayr Street, Troon	22.9	17.5	17.2	23	11.3	x	9.4	9.2	12.9	x	14.3	36.2	173.9	17.39	1.23	21.4
(14) Church Street/Portland Street, Troon	X	18.9	18.8	18.1	12.1	12.2	11.7	24.8	14.9	19.2	17.5	38.1	206.3	18.755	1.23	23.1
(15) Dundoanld Rd Tr Troon	24.6	x	16.9	18.7	13.7	x	12.1	10.7	16.8	19.8	17.6	28.3	179.2	17.92	1.23	22.0
(16) Morrisons, Ayr	34.9	x	x	26.2	17.9	x	20.5	20.1	21.8	22.4	26.5	36.5	226.8	25.2	1.23	31.0
(17) Ayr Rd / Hole Rd Coylton	18.9	x	15.2	14.2	10.5	14.1	16.2	13	10.4	16.4	14.1	X	143	14.3	1.23	17.6
(18) Station Taxi Rank, Ayr	33.6	x	25.9	31.5	21.9	11.5	19.2	16.8	22.5	28.6	28	X	239.5	23.95	1.23	29.5
(19) High Road, Whitletts	25.8	x	16.9	15	12.4	x	15	14.8	15.2	21.5	26.5	26.9	190	19	1.23	23.4
(20) Roxy, Bridge St, Girvan	32.2	x	27.6	31.1	27.6	24.5	32.5	27.4	34.1	30.2	27	26.9	321.1	29.191	1.23	35.9
(21) 2 Hunters Ave, Ayr	22.3	x	18.4	14.2	11.7	9.2	11.1	9.7	12.6	15.4	18.7	28.1	171.4	15.582	1.23	19.2
(22) Safeways Maybole	28.3	x	25.3	16.9	23.3	18.7	25.7	19.1	29.2	27	24.1	X	237.6	23.76	1.23	29.2

Appendix C : Results of Automatic Monitoring Station at Ayr High Street

Produced by AEA on behalf of the Scottish Government

SOUTH AYRSHIRE AYR HIGH ST
1st January to 31st December 2009

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	8712	8752	-
Maximum 15-minute mean	99 µg m^{-3}	124 µg m^{-3}	753 µg m^{-3}
Maximum hourly mean	99 µg m^{-3}	99 µg m^{-3}	481 µg m^{-3}
Maximum running 8-hour mean	75 µg m^{-3}	82 µg m^{-3}	295 µg m^{-3}
Maximum running 24-hour mean	63 µg m^{-3}	66 µg m^{-3}	212 µg m^{-3}
Maximum daily mean	59 µg m^{-3}	66 µg m^{-3}	209 µg m^{-3}
Average	17 µg m^{-3}	20 µg m^{-3}	40 µg m^{-3}
Data capture	99.2 %	99.9 %	99.9 %

+ PM_{10} instruments:
FDMS using a gravimetric factor of 1 from 1st January 2009, All mass units are at 20°C and 1013mb, NO_X mass units are NO_X as NO_2 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}	4	4
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

Produced by AEA on behalf of the Scottish Government

SOUTH AYRSHIRE TARBOLTON
1st January to 31st December 2009

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	7637	8505	-
Maximum 15-minute mean	100 µg m^{-3}	86 µg m^{-3}	191 µg m^{-3}
Maximum hourly mean	94 µg m^{-3}	82 µg m^{-3}	164 µg m^{-3}
Maximum running 8-hour mean	59 µg m^{-3}	59 µg m^{-3}	89 µg m^{-3}
Maximum running 24-hour mean	51 µg m^{-3}	48 µg m^{-3}	69 µg m^{-3}
Maximum daily mean	50 µg m^{-3}	44 µg m^{-3}	64 µg m^{-3}
Average	12 µg m^{-3}	8 µg m^{-3}	10 µg m^{-3}
Data capture	87.1 %	97.1 %	97.1 %

+ PM_{10} instruments:
FDMS using a gravimetric factor of 1 from 1st January 2009
All mass units are at 20°C and 1013mb
NO_X mass units are NO_X as NO_2 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