

2011 Air Quality Progress Report for *Perth & Kinross Council*

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

Date April 2011

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Report Reference number	
Date	

Executive Summary

This report 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 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 exceedences are 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

Perth & Kinross Council declared the whole of Perth an AQMA in May 2006 after the Detailed Assessment in 2004 found that there would be areas of exceedences for NO₂ and PM₁₀ where relevant exposure occurred. The 2007 Further Assessment confirmed the conclusions of the Detailed Assessment and recommended that Perth & Kinross Council retain their city wide Air Quality Management Area for NO₂ and PM₁₀ and exceedences of these pollutants are due mainly to queuing and congested traffic specifically HDV traffic. The 2007 and 2008 Progress Reports showed that all sites in Perth which are above or close to the objectives lie within the city centre or close to it on the main through routes and are within the existing AQMA, showing that there is a trend of a slight increase year on year at these sites.

This Progress Report considered the following new monitoring data for calendar year 2010. During 2010, Perth & Kinross Council undertook ambient monitoring of NO₂ tubes at 54 sites within Perth and Kinross.

When assessing the 2010 annual mean nitrogen dioxide concentrations (bias adjusted) against the AQS objective of 40ug/m³, exceedences are evident at 20 of the diffusion tube monitoring sites within AQMA and 3 sites out with the AQMA, in Crieff.

The 20 diffusion tube sites that showed exceedences are all sites within Perth & Kinross Council's AQMA and our Air Quality Action Plan addresses these exceedences through the measures.

The exceedences in Crieff are roadside and façade level, but not at the same height as sensitive receptors, which are all at first floor level. Modelling would be required to confirm whether the first floor flats have exceeded the standard. Perth and Kinross Council intend to do this if required next year as part of a Detailed Assessment, if necessitated by the findings of the 2012 Updating and Screening Assessment. To facilitate any modelling and to aid our decision, 3 further diffusion tubes have been sited in the vicinity of the West High Street. The same is true of PM₁₀, as it is not clear whether the standard has been breached due to the siting of the real time monitor as it is not the worst case location.

Perth & Kinross Council's AQMA order is for the annual mean exceedences for NO₂ and PM₁₀. For the first time ever Perth & Kinross Council have had more than 7 daily mean exceedance for PM₁₀ > 50ugm⁻³ at one of our hotspot areas within our AQMA at Atholl Street.

Data analysis and further investigation of the 12 daily mean exceedences, compared with the 3 in 2009, showed that this was an episodic exceedance occurrence due to meteorological conditions. Therefore Perth & Kinross Council do not intend to revoke our AQMA order for annual mean PM₁₀ exceedences and then re-declare for daily mean exceedences as this would only create a cycle of revoking and declaring. Perth & Kinross Council will continue to monitor PM₁₀ at Atholl Street and implement measures from our AQAP that address daily and annual exceedences. Measures such as carrying out a trial Mote Traffic Management scheme at Atholl Street, PKC received funding in the 2011 Scottish Government grant scheme for this.

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1 Introduction

1.1 Description of Local Authority Area

The Perth & Kinross local authority area is made up of Perthshire and Kinrossshire, collectively the Perth and Kinross area was formerly known as Perthshire. Perth and Kinross is one of the 32 unitary council areas into which Scotland has been divided since 1996. Perth and Kinross is the 5th largest council area in Scotland, but it is only the 14th largest in terms of population, reflecting its extensive rural and upland areas. Important settlements in Perth and Kinross include Perth, Kinross, Auchterarder, Aberfeldy, Blairgowrie, Blair Atholl, Pitlochry, Coupar Angus and Crieff. The 'Fair City' Perth lays to the east, on the banks of the Tay, the largest river in Britain. Blairgowrie and East Perthshire have quiet glens, peaceful lochs and the mountains of Glenshee.

Known as the 'big county', Perth & Kinross, is the gateway to the Highlands and home to around 140,000 people. The 'big county' refers to not only its physical area, but to the diversity of towns and countryside. Perth and Kinross feature everything you associate with Scotland including lochs, mountains, forests and castles.

Perth and Kinross is bordered on its north by Highland and Aberdeenshire; on its east by Angus and the City of Dundee; and on its south by Fife, Clackmannanshire and Stirling

It covers 5,406 sq km (includes fresh and tidal waters); land area is 5,311 sq km.

Perth is a hub for employment, commerce, leisure and tourism for the wider area of Perth and Kinross and this contributes to the traffic issues that arise within our designated, Air Quality Management Area.

The main and strategic roads within Perth & Kinross include the A90, A9, M90, A85, A827 and the two roads A93 and A94 which are the major road links associated with the proposed Cross-Tay Link Road (CTLR). Also four rail lines converge in the city of Perth.

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 exceedences 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

Perth and Kinross Council has completed the following Review and Assessments of air quality to date:

- Stage 1 March 1999, Stage 1 (Revised)
- Stage 2 (September 2002)
- Upgrading and Screening Assessment (2003)
- Detailed Assessment (2004) NO₂ & PM₁₀
- Progress Report (2005)
- Air Quality Management Area Declared (May 2006) for NO₂ & PM₁₀
- Updating and Screening Assessment (2006)
- Progress Report (2007)
- Further Assessment (2007) NO₂ & PM₁₀
- Progress Report (2008)
- Updating and Screening Assessment (2009)
- Air Quality Action Plan adopted by council and approved by Scottish Government (2009)
- Progress Report (2010)

The previous assessments of the air quality in Perth and Kinross concluded that there were likely exceedences of the annual mean objectives for NO₂ as a result of traffic sources in Perth. Projections also indicated likely exceedences of the annual mean objectives for PM₁₀ in 2010.

Perth & Kinross Council declared the whole of Perth City centre an Air Quality Management Area (AQMA) for both pollutants in May 2006. Figure 1.4 shows the extent of the AQMA. The decision to designate the whole of Perth an AQMA was made to ensure that areas that are close to, but do not at present exceed, the objectives are covered and also it allows the Action Plan to take in a wider area, thus avoiding moving problems to other parts of the city, while dealing with the areas which are exceeding the objectives. It also helped to ensure that the Air Quality Action Plan (AQAP) would be integrated with other council policies.

Perth & Kinross Council has taken account of the effect of the proposed Air Quality Action Plan on greenhouse gas emissions in accordance with Scottish Government guidance. To inform this process, AEA Energy & Environment was commissioned to undertake a study in terms of the effect of the Air Quality Action Plan on greenhouse gas emissions (GHG) for the whole of the Perth & Kinross Council area, rather than just the AQMA, this assessment was completed in May 2007.

The 2007 Progress Report, using 2006 data, concluded that nitrogen dioxide concentrations at 17 sites were breaching the 2005 annual mean objective of 40ug/m³, and at 8 sites were between 35 – 39 ug/m³, all close to Perth city centre,

and levels of PM₁₀ at both High Street and Atholl Street monitoring sites appear to be increasing by a small margin year on year.

The 2008 further assessment confirmed the conclusions of the 2007 detailed assessment and to test the city centre traffic management (CCTMR) scenarios to assess the likely impact they may have on pollutant concentrations. The report included an assessment of source apportionment and identified emissions from heavy duty vehicle and congested traffic as the main local contributors to elevated levels of nitrogen dioxide and PM₁₀ in Perth.

The 2008 Progress Report, using 2007 data, concluded that nitrogen dioxide concentrations at 19 sites in Perth are above the annual mean objective of 40ug/m³ and 4 are between 35-40ug/m³. Also in Crieff, 1 site is now above 40ug/m³ and 2 sites are between 35 – 40 ug/m³. As the sites which are exceeding the standard are kerbside and not representative of exposure for the annual standard and the façade level tubes are below 40 ug/m³, it was decided not to proceed to a Detailed Assessment this year, but instead to undertake automatic monitoring in Crieff.

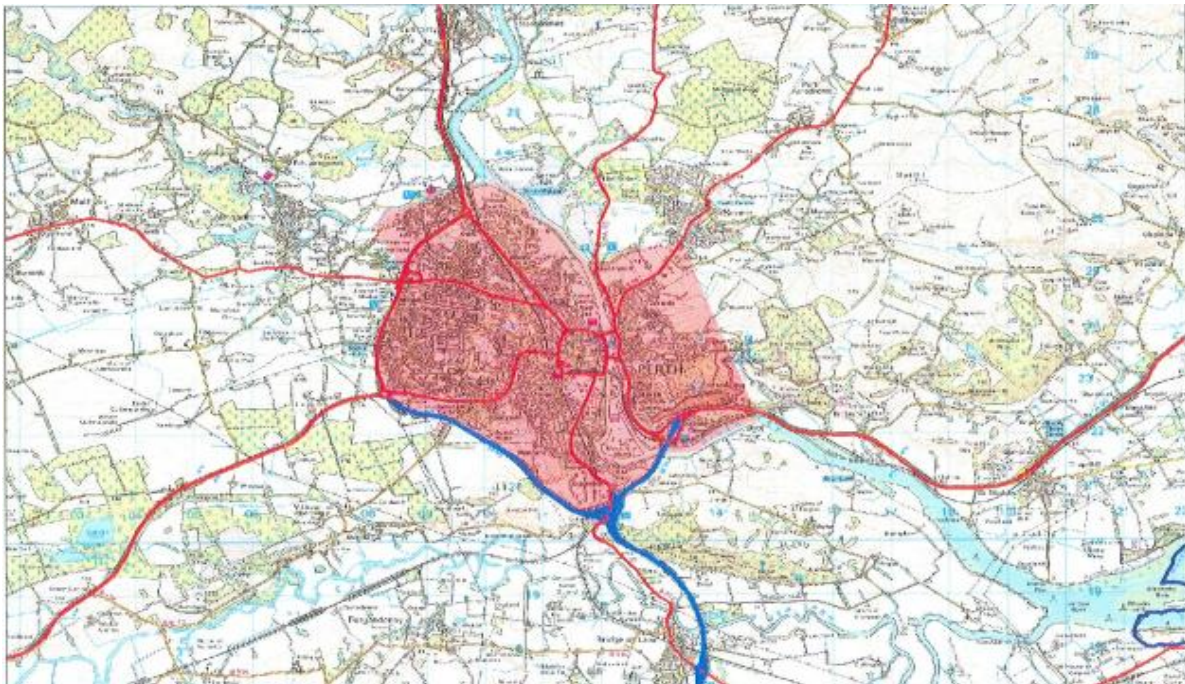
Draft Air Quality Action Plan, Strategic Environmental Assessment Environmental Report (2008), Climate Change Implication of the Draft Air Quality Action Plan (2008) and the Further Assessment (2008) all went out for consultation June (2008).

The 2009 Updating and Screening Assessment, using 2008 data, concluded that nitrogen dioxide concentrations at 23 sites within Perth's AQMA are above the annual mean objective of 40ug/m³ and two sites in Crieff out with Perth's AQMA. Two additional monitoring sites at the façade of buildings were introduced at Crieff.

Perth & Kinross Council's Air Quality Action Plan was approved by The Scottish Government and Adopted as Council Policy in August 2009.

The 2010 progress report showed exceedances at 16 sites within the AQMA and a reduction at both High St and Atholl St real time monitors of 27 to 25 µg/m³ and 60 to 56 µg/m³. There was one site out with the AQMA (7 West High St Crieff) above the objective. This is a road side site with the corresponding façade level tubes being slightly below the objective.

Figure 1.1A Map of AQMA Boundaries



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Figure 2.1a Map of Automatic Monitoring Crieff

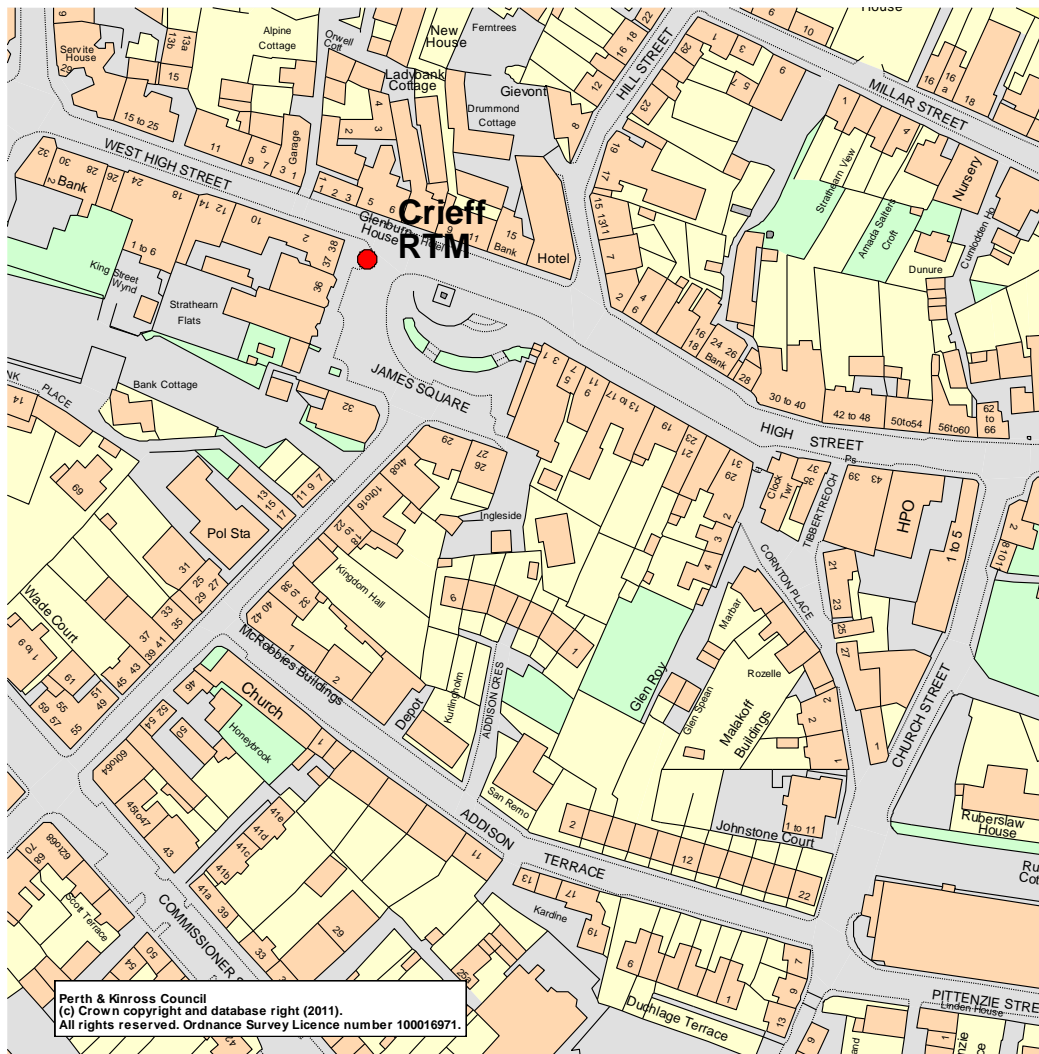


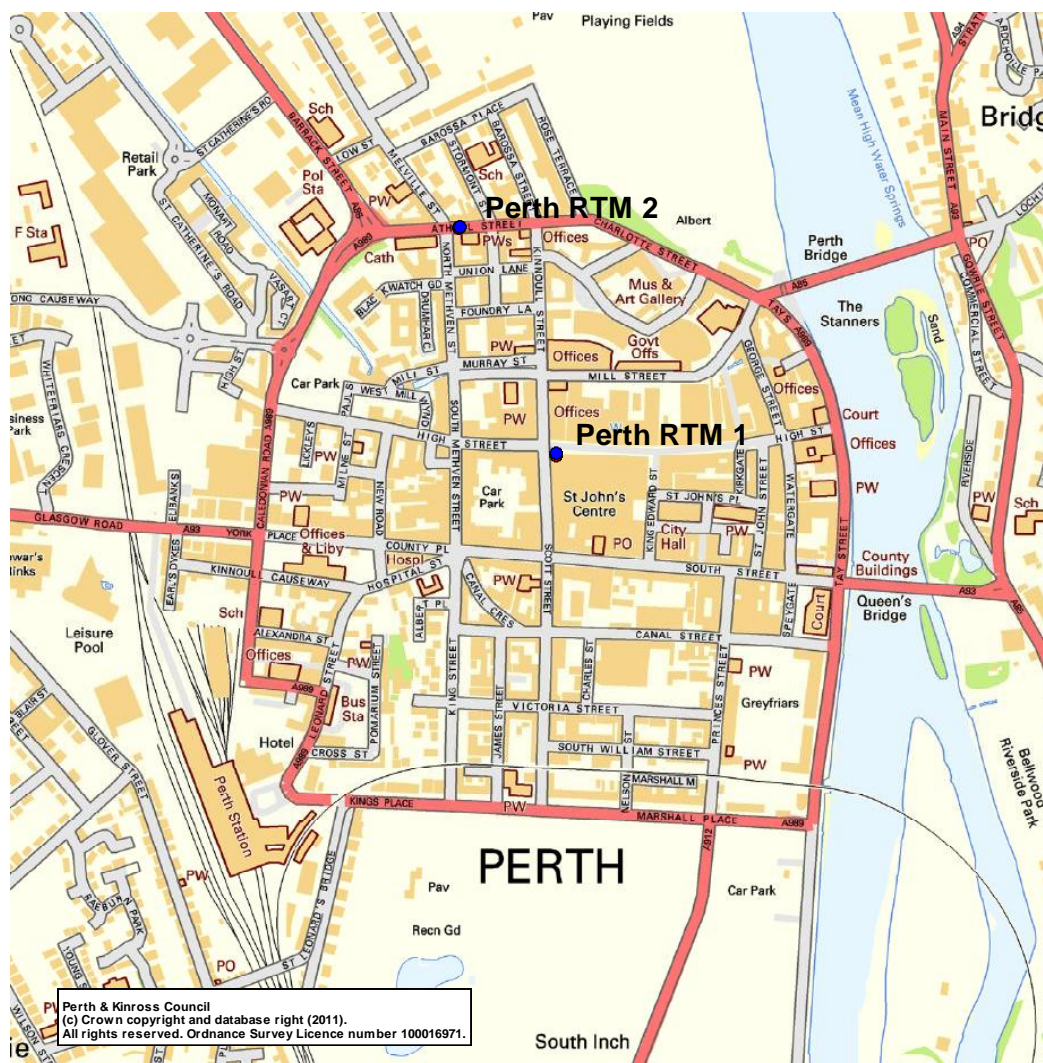
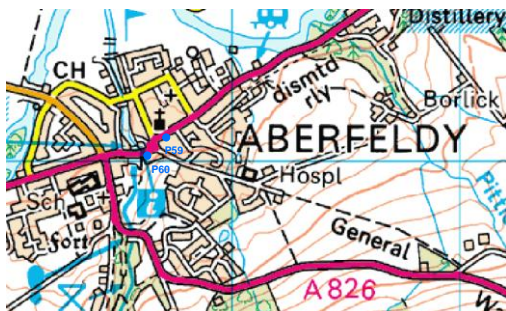
Figure 2.1b Map of Automatic Monitoring Perth

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	Monitoring Technique	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Perth 1-High Street	Roadside	311680	723624	NO ₂ & PM ₁₀	AP1 M200A chemilumin escent analyser for Oxides of Nitrogen & R&P TEOM analyser for PM ₁₀	Y	Y (20.4m)	4.8m	Y
Perth 2- Atholl Street	Roadside	311575	723917	NO ₂ & PM ₁₀	AP1 M200A chemilumin escent analyser for Oxides of Nitrogen & R&P TEOM analyser for PM ₁₀	Y	Y (22.3m)	2.3m	Y
Crieff- St James Sq	Roadside	286363	721614	NO ₂ & PM ₁₀	AP1 M200A chemilumin escent analyser for Oxides of Nitrogen & R&P TEOM analyser for PM ₁₀	N	Y 19.5m)	5.3m	N

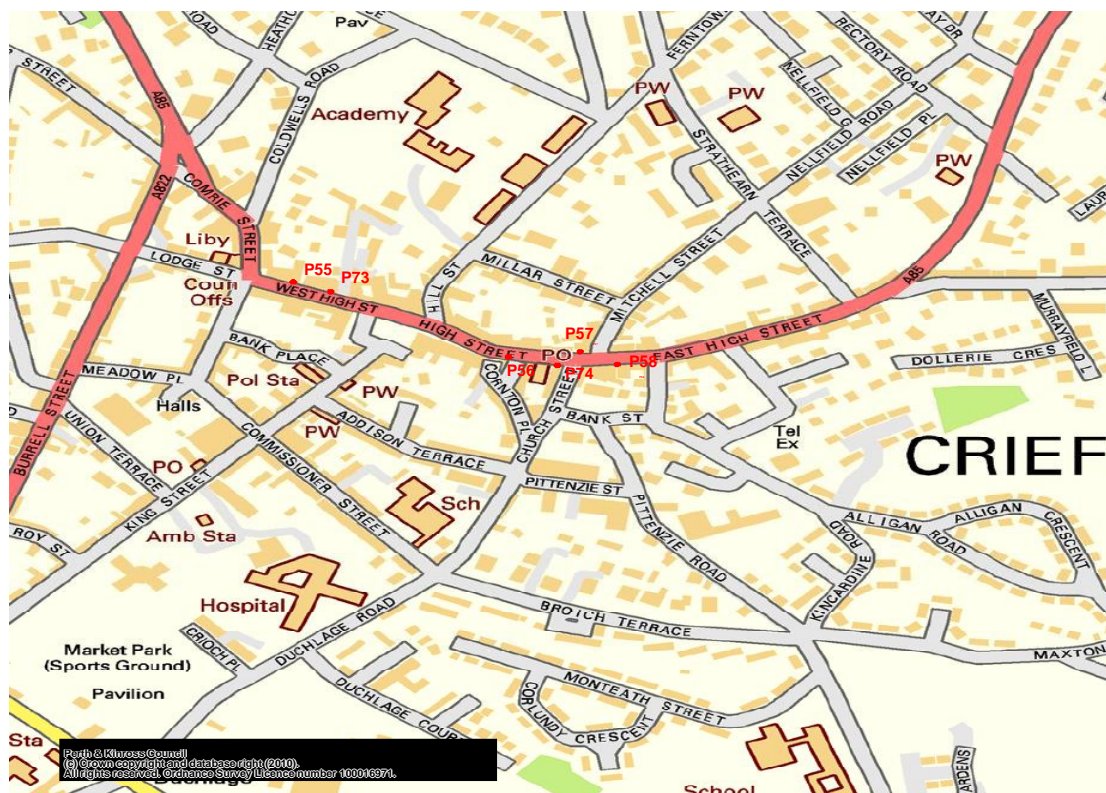
Figure 2.2a Maps of Non-Automatic Monitoring Sites Diffusion tube locations out with AQMA



Aberfeldy

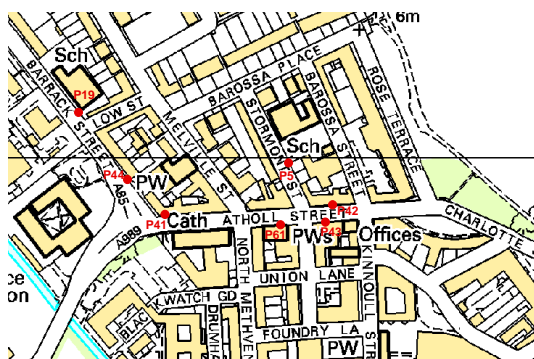


Glencarse

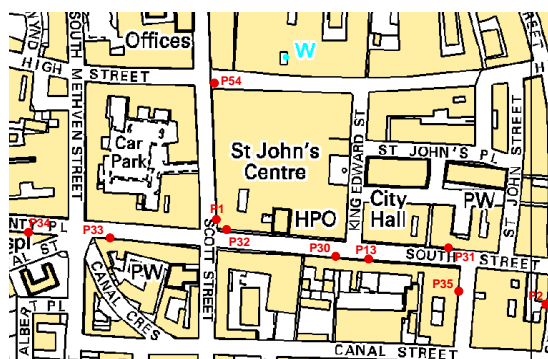


Crieff

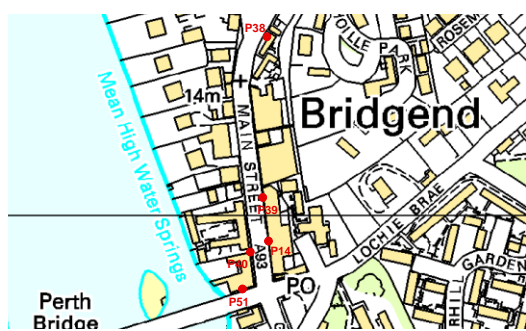
Figure 2.2b Maps of Non-Automatic Monitoring Sites Diffusion tube locations within AQMA



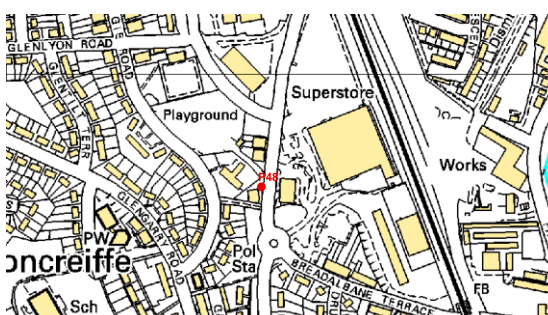
Atholl Street Area



High Street Area



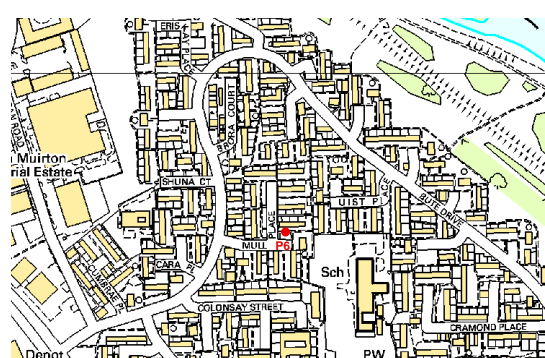
Bridgend Area



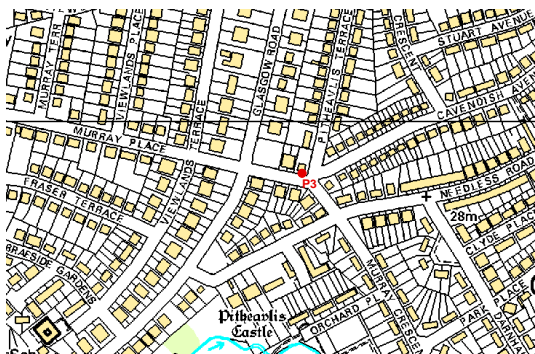
Edinburgh Road Area



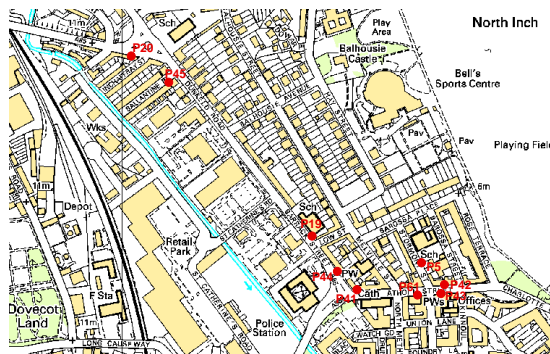
Lower Glasgow Road Area



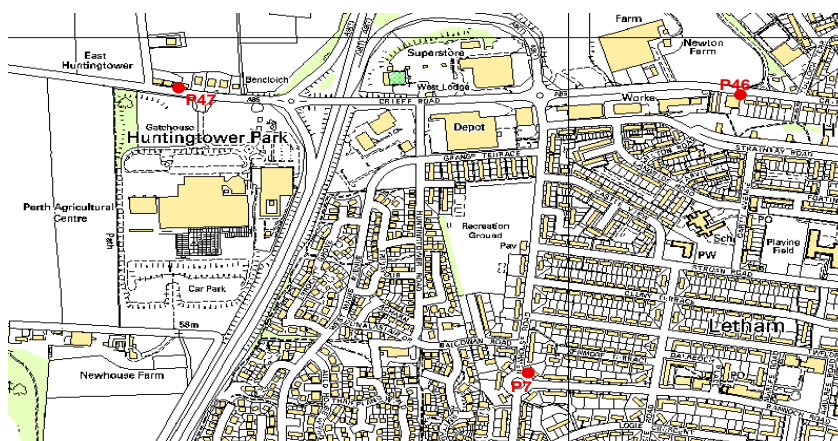
Muirton Area



Murray Crescent



North Centre Perth



NW Perth Area

Table 2.2 Details of Non- Automatic Monitoring Sites

	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?
42 Scott St, Perth, PH1 5PH	R	NO117235	NO2	Y	Y(3)	2.5	Y
17 Speygate, Perth, PH2 8PJ	UC	NO120234	NO2	Y	Y(2.9)	2.05	Y
15 Murray Crescent, Perth, PH2 0HU	UB	NO105228	NO2	Y	Y(2.9)	2.05	N
8 Stormont Street, Perth, PH1 5NW	UC	NO116239	NO2	Y	Y(10)	1.7	Y
41 Mull Place, Perth, PH1 3DP	UB	NO105257	NO2	Y	Y(6)	1.7	N
257 Rannoch Rd/ Newhouse Rd Roundabout, Perth, PH1 2DW	UC	NO089244	NO2	Y	Y(8.3)	2.1	Y
86/88 South Street, Perth, PH2 8PD	R	NO118234	NO2	Y	Y(1)	2.6	Y
9 Main Street, Bridgend, Perth, PH2 7HD	R	NO122239	NO2	Y	Y(1)	2.3	Y
St Ninian's School, Dunkeld Rd, Perth, PH1 5RF	R	NO113241	NO2	Y	Y(3.4)	3.2	Y
2 Crieff Road, Perth, PH1 5RT	R	NO110243	NO2	Y	Y(1)	1.9	Y
28 York Place, Perth, PH2 8EH	R	NO111234	NO2	Y	Y(12)	2.4	Y
37 York Place, Perth, PH2 8EH	R	NO112235	NO2	Y	Y(8)	4.1	Y
104 South Street, Perth, PH2 8PA	R	NO117234	NO2	Y	Y(1)	2.4	Y
45-47 South Street, Perth, PH2 8PD	R	NO119234	NO2	Y	Y(5)	3.5	Y

135 South Street, Perth, PH2 8PA	R	NO117234	NO2	Y	Y(23)	4.6	Y
216 South Street, Perth, PH2 8NY	R	NO116234	NO2	Y	Y(5)	2.5	Y
10 County Place, Perth, PH2 8EE	R	NO115234	NO2	Y	Y(2)	3	Y
17 Princes Street, Perth, PH2 8NG	R	NO119234	NO2	Y	Y(1.5)	1.8	Y
51 Glasgow Road, Perth, PH2 0PE	R	NO107235	NO2	Y	Y(7.2)	2.6	Y
Riggs Road, Perth, PH1 1PR	R	NO108236	NO2	Y	Y(10)	1.9	Y
93-109 Main Street, Bridgend, Perth, PH2 7HE	R	NO122241	NO2	Y	Y(1)	7	Y
39 Main Street, Bridgend, Perth, PH2 7HD	R	NO122240	NO2	Y	Y(7)	2.1	Y
18 Main Street, Bridgend, Perth, PH2 7HB	R	NO122239	NO2	Y	Y(18)	2.4	Y
76 Atholl Street, Perth, PH1 5NL	R	NO114239	NO2	Y	Y(1)	2.5	Y
26-28 Atholl Street, Perth, PH1 6NP	K	NO116239	NO2	Y	Y(2)	0.3	Y
17 Atholl Street, Perth, PH1 5NH	R	NO116239	NO2	Y	Y(2)	3	Y
22 Barrack Street, Perth, PH1 5RD	K	NO114239	NO2	Y	Y(2.7)	0.3	Y
Ballantine Place, Perth, PH1 5RD	UC	N0110243	NO2	Y	Y(4)	1.7	Y
204 A Crieff Road, Perth, PH1 2PE	R	N0093248	NO2	Y	Y(11.5)	2	Y

5 East Huntingtower, Perth, PH1 3JJ	R	NO083248	NO2	Y	Y(5.5)	1.8	Y
30 Edinburgh Road, Perth, PH2 8BX	R	NO083248	NO2	Y	N(37)	2.5	Y
2 West Bridge Street, Perth, PH2 7HA	R	NO122239	NO2	Y	Y12.5)	3.7	Y
Real Time Monitor adjacent to 176 High Street, Perth, PH1 5EW	R	NO115239	NO2	Y	Y(20.4)	4.8	Y
Real Time Monitor, Atholl Street, Perth, PH1 5NH	R	NO117235	NO2	Y	Y(22.3)	2.3	Y
84 Dundee Road, Perth, PH2 7BA	R	NO125229	NO2	Y	Y(1)	1.7	Y
30 Dundee Road, Perth, PH2 7AQ	R	NO124232	NO2	Y	Y(1.3)	1.4	Y
The Lodge, Isla Road Bridgend PH2 7HG	R	NO122241	NO2	Y	Y(1)	1.4	Y
5-7 Charlotte Street, Perth, PH1 5LW	R	NO119238	NO2	Y	Y(3.3)	2	Y
1 Atholl Street, Perth, PH1 5NH	R	NO116239	NO2	Y	Y(1)	2.3	Y
2 Atholl Street, Perth, PH1 5NP	R	NO116239	NO2	Y	Y(2.5)	0.8	Y
United Free Church of Scotland, Kinnoull Street Perth PH1 5EZ	R	NO116239	NO2	Y	Y(3)	2.6	Y
Leith Buildings, 28 Dunkeld Road, Perth, PH1 5AJ	R	NO110244	NO2	Y	Y(5.1)	2.1	Y
134-140 Dunkeld Road Perth PH1 5AS	R	NO106249	NO2	Y	Y(7.8)	1.5	Y
82 Crieff Road, Perth PH1 2RP	R	NO103240	NO2	Y	Y(1)	2.4	Y

Opp Wood'n Garden, Glencarse, PH2 7XL	R	NO173235	NO2	N	Y(2.8)	2.8	Y
Linden Garden Centre, Glencarse, PH2 7LX	R	NO173235	NO2	N	Y(6)	2.1	Y
7 West High Street, Crieff PH7 3AF	UC	NN866215	NO2	N	Y(10)	0.4	N
39, High Street, Crieff PH7 3HT	UC	NN865215	NO2	N	Y(18)	1.2	N
The Highland Trading Company, 62, High Street, Crieff PH7 3BS	UC	NN865215	NO2	N	Y(1)	1	Y
9 East High Street, Crieff PH7 3AF	UC	NN866215	NO2	N	Y(5)	0.3	Y
12 Dunkeld Street, Aberfeldy PH15 2DA	UC	NN857491	NO2	N	Y(1)	2.3	Y
Highland Gift Shop, Bridgend, Aberfeldy PH15 2DF	UC	NN856490	NO2	N	Y(1.5)	2.3	Y
19 West High Street Crieff, PH7 4AU	O	NN8629921649	NO2	N	Y(0)	2.5	Y
43 High Street Crieff, PH7 3HT	O	NN8666721571	NO2	N	Y(0)	1.4	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

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

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2010 %	Annual mean concentrations ($\mu\text{g}/\text{m}^3$)		
				2008	2009	2010
Perth 1	High Street	Y	98	27	25	30
Perth2	Atholl Street	Y	99	60	56	56
Crieff	St James Sq	N	71.4			30 ¹

¹ Based on 9 months data, figure annualised see Appendix A for details.

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Automatic Monitoring Sites.

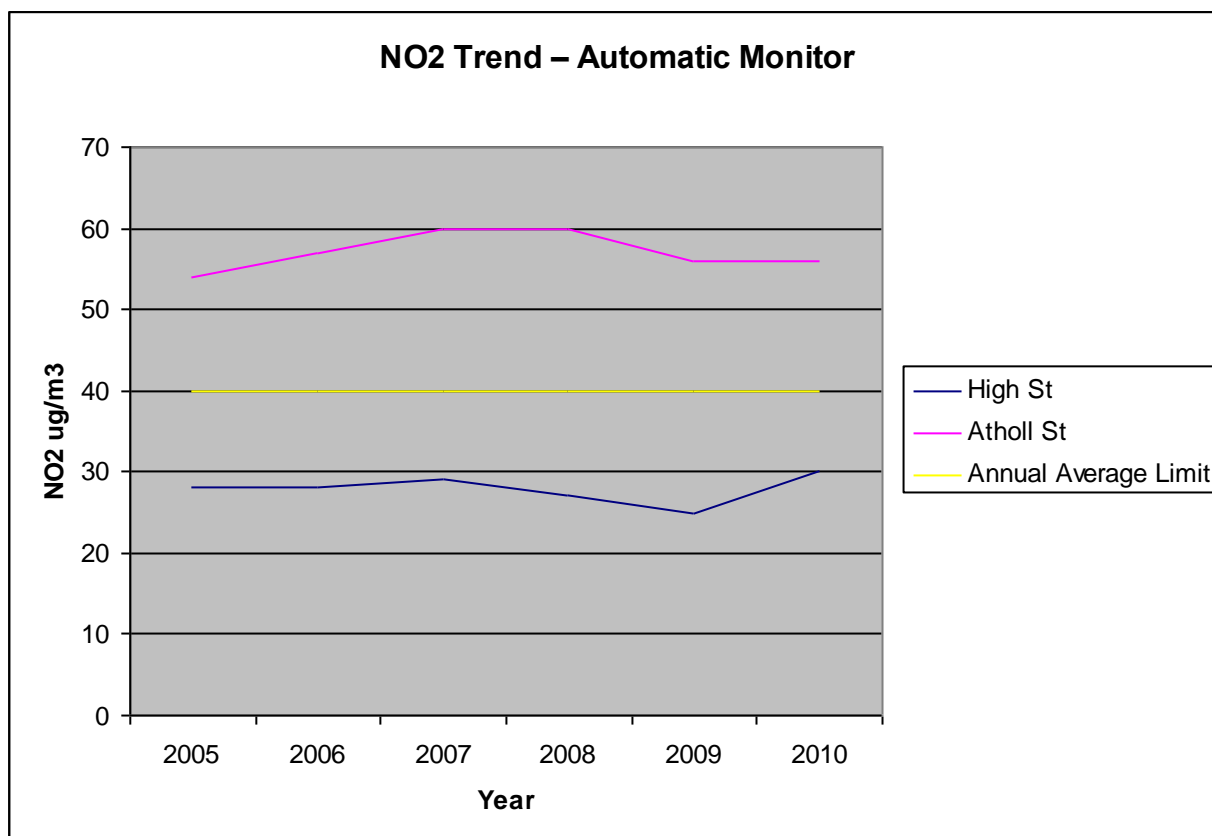


Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA	Data Capture for full calendar year 2010 %	Number of Exceedences of Hourly Mean (200 µg/m ³)		
				2008 ^c	2008 ^c	2010
Perth 1	High Street Perth	Y	98	1	0	0
Perth 2	Atholl Street Perth	Y	99	25	3	10
Crieff	St James Square	N	71			0

Diffusion Tube Monitoring Data**Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes Perth**

Site ID	Location	Within AQMA	Data Capture 2010 %	Annual mean concentrations 2010 (mg/m3) Adjusted for bias ⁽¹⁾
1	42 Scott St,*	Y	100	48
2	17 Speygate,	Y	92	25
3	15 Murray Crest,*	Y	92	23
5	8 Stormont St,*	Y	92	23
6	41 Mull Place,	Y	92	15
7	257 Rannoch Rd/	Y	92	22
13	86/88 South Street*	Y	100	40
14	9 Main St, Bridgend,*	Y	92	45
19	St Ninian's School ,Dunkeld Rd,	Y	92	35
20	2 Crieff Road	Y	92	31
28	28 York Place	Y	92	48
29	37 York Place	Y	92	42
30	104 South St,*	Y	100	41
31	45-47 South St,	Y	92	34
32	135 South St,	Y	100	43
33	216 South Street	Y	100	45
34	10 County Place,*	Y	100	51
35	17 Princes St	Y	83	31
36	51 Glasgow Rd,	Y	92	37
37	Riggs Rd, Perth,	Y	92	32
38	93-109 Main St Bridgend,	Y	92	37
39	39 Main St, Bridgend,*	Y	88	52
40	18 Main St, Bridgend,*	Y	92	50
41	76 Atholl St,*	Y	92	56
42	26-28 Atholl St,	Y	92	54
43	17 Atholl St,*	Y	92	54
44	22 Barrack St*	Y	92	47
45	Ballantine Place,	Y	92	26
46	204 A Crieff Rd	Y	92	34
47	5 East Huntingtower,	N	92	30
48	30 Edinburgh Rd	Y	92	29
51	2 West Bridge St, Bridgend	Y	92	33
54	RTM 176 High St*	Y	92	31
61	RTM Atholl St*	Y	92	55
62	84 Dundee Rd	Y	92	38
63	30 Dundee Rd,	Y	83	45
64	The Lodge, Isla Rd, Bridgend	Y	75	50
65	5-7 Charlotte Street	Y	92	34
67	1 Atholl Street	Y	92	39

68	2 Atholl Street	Y	92	34
69	Church of Scotland, Kinnoull Street	Y	92	44
70	Leith Buildings, 28 Dunkeld Rd	Y	83	35
71	134-140 Dunkeld Road	Y	92	20
72	82 Crieff Road,	Y	92	40

¹ Bias adjustment factor 0.92 used (see Appendix A)

* Shows where an average value is used for multiple tubes

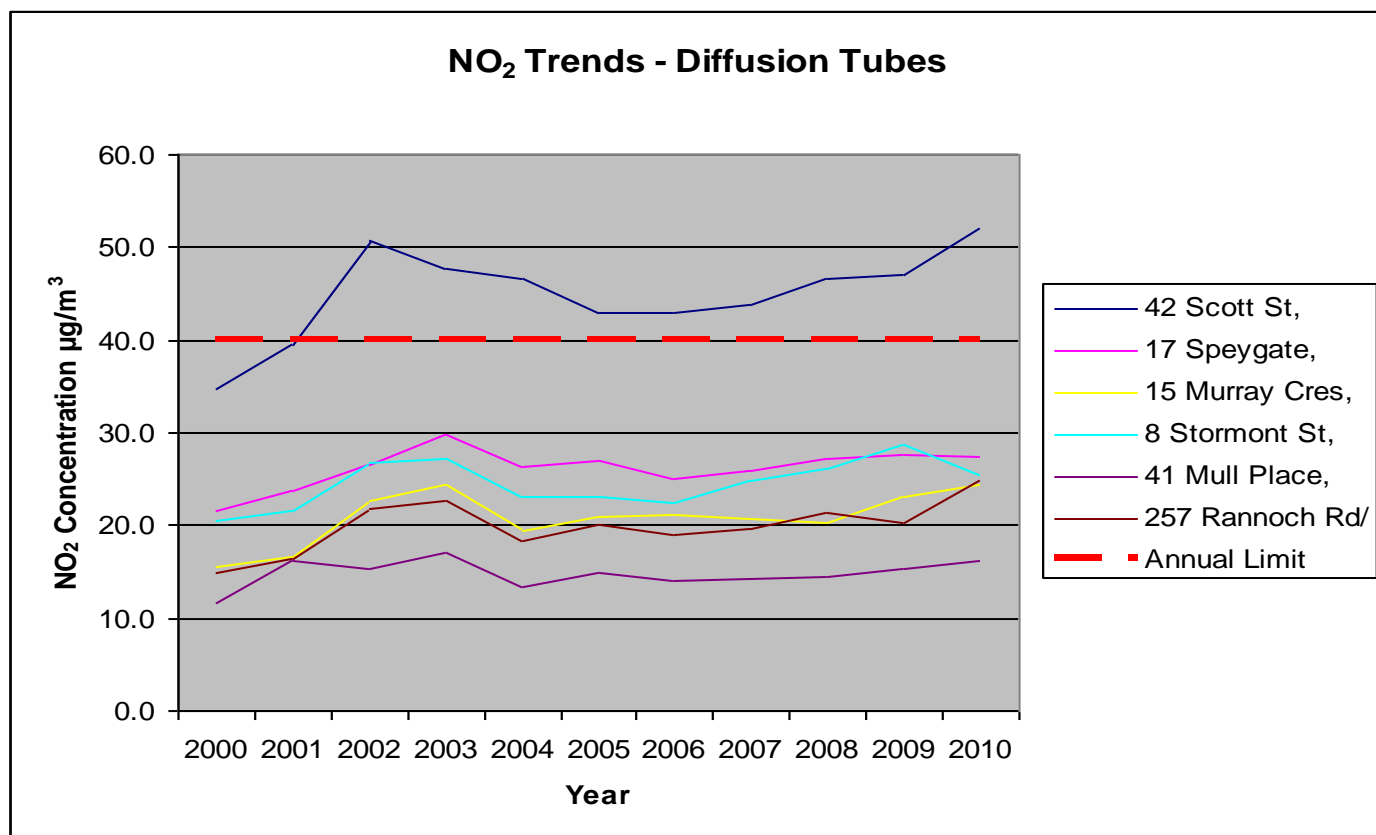
Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes Out with Perth

Site ID	Location	Within AQMA	Data Capture 2010 %	Annual mean concentrations 2010 ($\mu\text{g}/\text{m}^3$) Adjusted for bias ⁽²⁾
49	Opp Wood'n Garden, Glencarse,	N	92	25
50	Linden Garden Centre, Glencarse	N	92	25
55	7 West High St, Crieff	N	92	54
56	39, High St, Crieff	N	92	37
57	62, High St, Crieff	N	75	37
58	9 East High St, Crieff *	N	92	42
59	12 Dunkeld Street, Aberfeldy	N	92	29
60	Highland Gift Shop, Bridgend, Aberfeldy *	N	92	20
73	19 West High St Crieff	N	92	44
74	43 High St Crieff	N	92	35
75	RTM Crieff*	N	67	23

² Bias adjustment factor 0.92 used (see Appendix A)

* Shows where an average value is used for multiple tubes

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



The 6 tubes used here are the original 6 tubes installed by Perth and Kinross Council, still in use today, allowing a 10 year trend to be plotted.

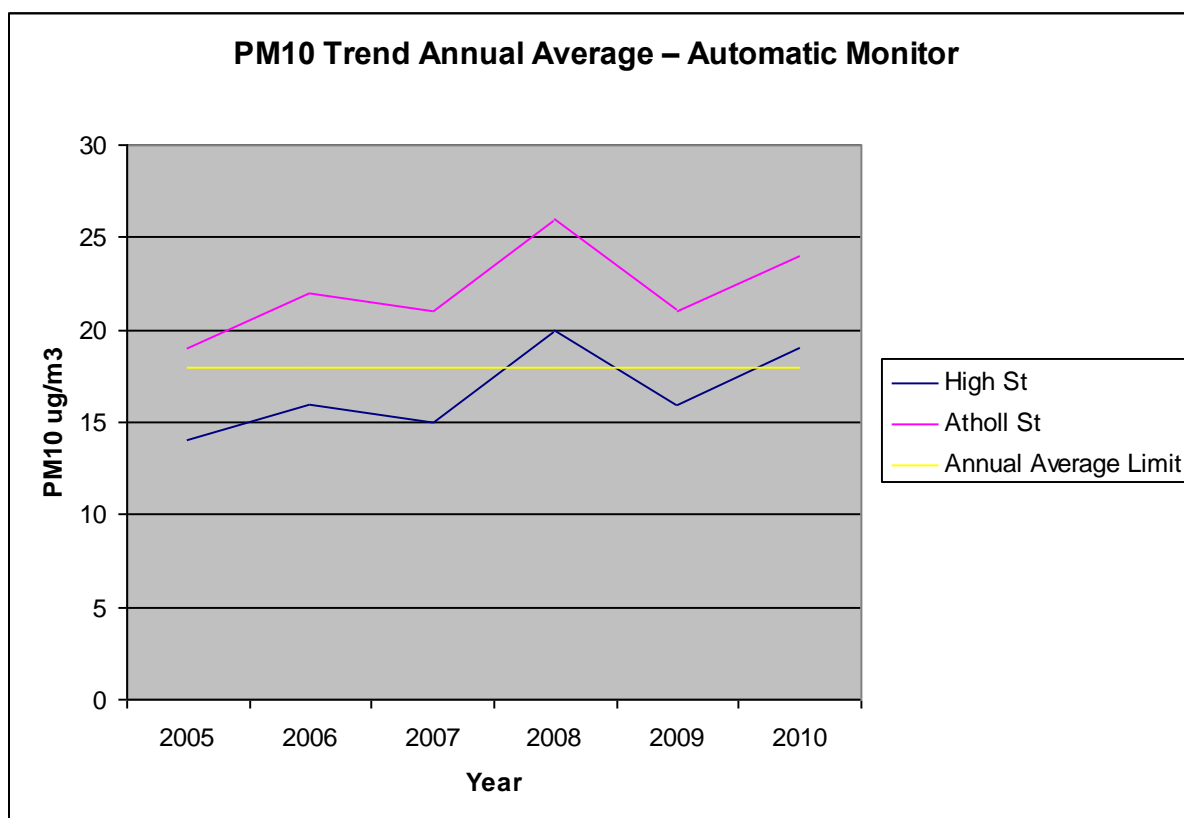
2.2.2 PM₁₀**Table 2.6a Results of PM₁₀ Automatic Monitoring: Comparison with Annual Mean Objective**

Site ID	Location	Within AQMA	Data Capture for full calendar year 2010 ^b %	Annual Mean Concentrations (µg/m ³)		
				2008	2009	2010
Perth1	High Street	Y	98	20	16	19
Perth2	Atholl Street	Y	94	26	21	24
Crieff	St James Sq	N	66			17 ¹

¹ Based on 9 months data, figure annualised see Appendix A for details

Table 2.6b Results of PM₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA	Data Capture 2010 %	Number of Exceedences of Daily Mean Objective (50 µg/m ³)		
				2008	2009	2010
Perth1	High Street	Y	98	0	2	3
Perth2	Atholl Street	Y	94	5	3	12
Crieff	St James Sq	N	66			0

Figure 2.5 Trends in Annual Mean PM₁₀.

Perth and Kinross Council has examined the results from monitoring in the district. It is not clear whether or not concentrations outside of the AQMA are all below the objectives at relevant locations so Perth and Kinross propose undertaking additional monitoring to inform any future decision and modelling, therefore there is no need to proceed to a Detailed Assessment at this stage.

3 New Local Developments

3.1 Road Traffic Sources

There are no newly identified road traffic sources within our district

3.2 Other Transport Sources

There are no newly identified other transport sources within our district

3.3 Industrial Sources

Two Part B processes have been permitted in 2010 within the Perth and Kinross Council Area:

- 1) TLC Laundry Services Ltd – Drycleaners in Pitlochry.
- 2) Mobile crusher for Barr Hall Aberfeldy Ltd, however this is in place of a permanent crusher at the site.

One Part A process has been permitted in 2010 within Perth & Kinross Council Area:

- 1) Viridor Fridge Plant – Friarton Bridge Business Park Perth, this was formerly regulated under the Waste Management Licensing; therefore site has always been operational.

3.4 Commercial and Domestic Sources

Planning was approved in April 2010 for the installation of 2 50kW biomass boilers at Battleby House Redgorton Perth PH1 3EN.

Planning was approved in October 2010 for the installation of a 48kW domestic solid fuel at the Atholl Centre Atholl Road Pitlochry PH16 5BX

Planning was also approved in December 2010 for the installation of a 50kW biomass boiler at Coventry Fencing Castle Wynd Auchterarder PH3 1DA

All of the above applications are in different rural location through out Perth & Kinross. Perth and Kinross Council was satisfied that the operation of the boilers would not lead to an exceedance of air quality objectives.

3.5 New Developments with Fugitive or Uncontrolled Sources

There are no newly identified other fugitive or controlled sources within our area

Perth & Kinross 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.

Perth & Kinross Council confirms that all the following have been considered –

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

Perth & Kinross Council declared the whole of Perth an Air Quality Management Area in May 2006 and our Air Quality Action Plan was approved by Scottish Government and adopted by the Council in 2009. However Perth & Kinross Council had started to implement some of the measures within our AQAP before it was actually adopted by the Council, measures such as Park and Ride Schemes, Healthy Living Campaign, Considering Air Quality in Planning Decisions, School Travel Plans and Car and Lift Share Schemes. Perth and Kinross Council have continued with these measures in 2010 and have made progress on others such as the Freight Consolidation Centre in conjunction with TACTRAN and fitting particulate traps to school buses and refuse vehicles.

5 Planning Applications

The only application of note with regards to air quality is the development of Perth Mart and the erection of a large superstore there, planning application 08/01513/IPM and 09/02126/FLM. This application was highlighted in Progress Report 2010 and since then WSP Environment and Energy submitted Air Quality Assessment Report, Sainsbury's Huntingtower, and Project Number 12269504 and dated 10 January 2010. The report assessed deterioration in air quality due to increased traffic and the proposed biomass boiler servicing the superstore.

The findings of the assessment stated there would be a slight adverse effect on air quality at a group of properties out with, but adjacent to Perth & Kinross' AQMA, and would not lead to any breach of NO₂ or PM₁₀ standards.

Perth & Kinross Council did not accept the findings of this report, memorandum dated 5 April 2011, due to issues with background and diffusion tube data used and have requested that the applicant resubmit a revised Air Quality Assessment using up to date data.

6 Air Quality Planning Policies

The Perth & Kinross Structure Plan, approved by Scottish Ministers in June 2003, is the key strategic land-use planning document which guides the development of Perth & Kinross to 2020.

The Structure Plan provides the framework for local plans which contain more detailed and site-specific policies. The Plan is based on three themes-

- Building Sustainable Communities
- Creating a Sustainable Economy
- Sustaining the Environment and Resources

Perth and Kinross has six Local Plans:

- Eastern Area
- Highland Area
- Kinross Area
- Perth Central
- Perth Area
- Strathearn Area

The Council under the new Planning Act has produced a Local Development Plan and a Main Issue Report (MIR) in October 2010. This document will cover the entire Council area and when adopted will replace the current Local Plans.

The MIR is the first stage in the process and will be followed by the production of the Proposed Local Development Plan in December 2011/January 2012. The MIR is not a decision making document but was produced to stimulate discussion on the key issues that the LDP will require to address. Issues such as Climate Change section 4.5 of the document and page 151 addresses proposed thoughts on direction of air quality policy. www.pkc.gov.uk/mainissuesreport

The Structure Plan will in time also be replaced by a Strategic Development Plan which will be called the TAYplan and this will cover Angus, Dundee, part of the North East of Fife and Perth & Kinross (except those areas within the National Parks)

A proposed TAYplan is due to be published for consultation on 6 June 2011. Following the consultation the representations will be considered, modifications may be made before the plan is sent to Scottish Ministers by January 2012 for them to decide if an examination is required.

The Environment Service is consultants for Perth and Kinross Planning Authority and the Service make recommendations with regards to air quality and dust issues.

7 Local Transport Plans and Strategies

Transport policy is governed by the [National Transport Strategy](#) (NTS), produced by the Scottish Government. This sets out the priorities that the Scottish Government has for transport as a whole across the country. Regional policy is set by Regional Transport Partnerships (RTPs). Perth & Kinross Council is a member of TACTRAN the RTP that covers the Angus, Dundee City, Stirling and Perth & Kinross Council areas. TACTRAN produce a [Regional Transport Strategy](#) (RTS) that covers a 15 year period and is refreshed every four years.

Local policies and strategies must take account of the NTS and the RTS as well as the [Development Plans](#) drawn up by the Planning Service that look at land use issues. Current policy issues that the Transport Planning team has been considering include the following.

- A possible third Tay Crossing
- Improvements to the A9/A85 junction at Newhouse Road
- The development of the Perth Western Edge
- Wider transport issues in Perth City
- The possible redevelopment of the Railway and Bus Stations in Perth
- The possibility of more Park and Ride Sites around Perth
- Improved rail services between Inverness, Perth and Edinburgh

These policies and strategies all have to be appraised and evaluated according to procedures set down by the Scottish Government's transport agency Transport Scotland. In order for any proposed scheme to qualify for Government money, then the appraisal process known as the [Scottish Transport Appraisal Guidance](#) (STAG) must be carried out. This sets out a very rigorous evidence based appraisal programme that should be followed before any proposed scheme can be taken forward towards the implementation stages.

The Environment Service AQ team is consulted through out the appraisal programme procedure and has secured funding through our AQ budget for certain initiatives that are within our AQAP.

The Transport Planning team also tries to predict the future growth of traffic on the transport network using transport modeling software such as S -Paramics to determine where future bottlenecks might occur. This information is then used to help determine future strategies for transport within Perth and Kinross.

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8 Climate Change Strategies

The Council signed up to Scotland's Climate Change Declaration (SCCD) in January 2007. In June 2008, the Council produced its first annual progress report on delivering the commitments made in the Declaration - [Perth & Kinross Council: Scotland's Climate Change Declaration - Annual Report 2008](#). The Council has made progress on all seven commitments, particularly in relation to reducing greenhouse gas emissions from its own operations, through the Council's Carbon Management Strategy & Implementation Plan 2007-2017. This has been recognized by the Council achieving certification of the Carbon Trust Standard in January 2009.

The Council has also recently produced a Local Climate Impacts Profile (LCLIP) to increase the awareness of local climate change and adaptation that is likely to be required in Perth & Kinross. [Perth & Kinross Council - LCLIP](#)

9 Implementation of Action Plans

Table 9.1 Action Plan Progress

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	Cross Tay Link	New crossing of the Tay linking the A9 to the A94 north of Scone, including a package of associated bus priority, cycle and pedestrian measures 'locking in the benefits' to Perth city centre	PKC TACT RAN Transport Scotland		2009- ongoing to circa 2018	It is not possible at this stage to assign a quantitative indicator. We will report outputs of feasibility work/ air quality assessments as they arise and update timescales as appropriate	High	Development work has been ongoing over the past three years funded through the joint Tactran programme and previous years Capital Budgets. An allocation is included in the 2010/11 Capital Programme for further development work. A full environmental appraisal has been carried out in accordance	STAG Report and Summary Strategy Paper are finalised. Pupil Consultation was carried out October 2010 to February 2011. The responses from the Public consultation are being collated and final report to be published. EH have attended Stakeholder Workshop and discussions on City Central Traffic Management Review and the AQ benefits.	2018	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								with STAG and a SEA scoping report revised version 2010			
2	Integrate AQ into Regional Transport Strategy	Ensure that this AQAP is integrated into the delivery of the Regional Transport Strategy	PKC TACT RAN		2009/10 and as RTS is delivered	We will report annually on our meetings with TACTRAN, and provide a discussion as to how the AQAP is influencing delivery of the RTS	Medium-High	AQ considerations are influencing RTS delivery. Over the past two years studies have been commissioned into feasibility of a freight consolidation centre for Perth and development of proposals for a trial scheme	AQ considerations are influencing RTS delivery in the past year particularly through development of proposals for a trial freight consolidation centre for Perth	Ongoing	
3	Integrate AQ into Local Transport Strategy	Ensure that this AQAP is integrated into the delivery of the Local Transport	PKC		LTS published by year 3 of this AQAP, then ongoing implementation of schemes	This is a strategic option but we will report on development of the new LTS	Medium-High			Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		Strategy. A new strategy is being developed so there is an opportunity to integrate AQ fully into this.				and comment on specific air quality provisions contained in it. As the Strategy unfolds we may need to reassess this measure and make it more specific.					
4	Park and Ride	Operate existing Park and Ride schemes and maintain high levels of usage. We will carry out intermittent surveys to assess	PKC		2009- Ongoing	Annual usage statistics. A calculation of avoided NOx/PM10 will be provided Annually.	Medium	Bus passenger numbers are taken annually for Broxden P&R	The number of bus passengers using the Broxden P&R in 2010 was 153,967.	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		vehicles using the site.									
		Investigate a new Park and Ride/ Park and Choose site at Walnut Grove, Perth	TACTRAN PKC		2009- ongoing to circa 2018 A feasibility study is underway and will report during year 1 of this plan. More specific timescales are available in TACTRAN RTS Delivery Plan	We will report outputs of feasibility work/ air quality assessments led by TACTRAN as they arise and update timescales as appropriate	High	Investigations of the scope for implementing the project have been concluded and detailed design is in progress	Tactran, in partnership with PKC, commissioned consultants to investigate opportunities for bus priority to serve the site and to undertake detailed design of the P&R car park including access on to the trunk road	2018	
		Programme of	PKC		2009- ongoing	Report of	Small	A passenger	This has now	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		improvements to existing P+R sites (e.g. better waiting areas, lighting etc)				any improvements made, tied into occupancy rates		waiting facility was due to be constructed at Broxden, but due to a series of problems has been delayed however this should be constructed this year.	been constructed		
5	Bus quality improvements	<p>Bus Strategy and Quality Bus Partnerships. PKC- Work with TACTRAN, operators and other relevant stakeholders to create a bus strategy for the region.</p> <p>TACTRAN – Work in partnership with Councils, bus operators and other</p>	TACTRAN PKC		2009- ongoing to 2024 More specific timescales are available in TACTRAN RTS Delivery Plan/ capital and revenue programmes.	Shift to alternative modes- this will be monitored by TACTRAN as part of the evaluation process of their RTS Delivery Plan.	Medium	<p>Consultation on the possibility of fitting particulate traps to school buses has been undertaken and the possibility of grant funding for this will be investigated.</p> <p>Tactran have provided upgraded bus</p>	<p>The particulate traps have now been fitted and the study is ongoing.</p> <p>Tactran have provided upgraded bus stop and shelter</p>	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		relevant stakeholders to identify and deliver improvements to the quality and accessibility of vehicles, services and associated facilities across the Region, particularly maximising funding and grant opportunities in support of these measures						stop and shelter Tactran have provided upgraded bus stop and shelter facilities on the A90 Dundee – Perth Corridor	facilities on the A90 Dundee – Perth Corridor funded from the 2010/11 Capital Programme		
		Ensure air quality is formally considered in future public transport procurement decisions (i.e. for subsidised public	PKC		2009 then Ongoing (as contracts are renewed	Outcome of any procurement decisions. As cleaner vehicles come on stream, an annual calculation of	Medium	Contracts in place where extended from 2010	Tendering for new contracts goes out in late 2011 and the consideration of air quality within the procurement decision is still under review, due to the pressures of the	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		services, school buses, school taxis				the avoided NOx and PM10 will be provided.			current economic climate.		
6	Freight Improvements	Establish a TACTRAN-wide Freight Quality Partnership, in liaison with freight interests and Councils drawing upon established guidance, to help deliver cost effective packages of freight related interventions across the region	TACTRAN PKC		Ongoing to 2024 More specific timescales are available in TACTRAN RTS Delivery Plan/ capital and revenue programmes	PKC will seek regular updates from TACTRAN on progress and report on these annually	High	A Tactran-wide freight quality partnership has been formed including interest from PKC, Scottish Enterprise, and private sector freight Interests	EH Manager is a member of the Freight Quality Partnership. AQ is integrated into Freight Quality Partnership	2024	
		Development of a freight	TACTRAN PKC		Feasibility work, subject to funding, will be	Initially we will report on	Medium-High	Freight Consolidation Feasibility	Freight Consolidation Feasibility Study		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		consolidation scheme or commercial delivery strategy.			carried out in Years 1 and 2 of this AQAP	feasibility work as and when it is carried out. If developed we could use the number of vehicle km avoided to calculate Emissions savings.		Study has been completed and a draft feasibility report was published in January 2010 recommending a trial Period scheme for 6-12 months	has been completed and a draft feasibility report was published in January 2010 recommending a trial period scheme for 6-12 months. JMP and PKC concluded that certain issues still had to be addresses such as funding before a 6-12 month trial scheme could be implemented		
7	Travel Planning	PKC Staff Travel Plan; including encouraging flexible working, car/lift sharing/alternative modes, salary sacrifice	PKC		Initiated year 2 of this AQAP then ongoing.	Activity data will be collected by survey to support the working of the PKC GTP. A base survey of staff travel	Medium	Staff Travel Plan has been prepared and grant funding obtained for the purchase of resources pertaining to the plan. The plan is due to	Staff travel Plan was launched in September 2010 and a staff travel plan summary leaflet was produced along with a staff travel Plan web page. Events such as Walk to	Ongoing	Monitoring will take place 1-2 years after launch

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		bicycle scheme				habits will also be carried out. We will estimate vehicle km avoided in the AQMA and report reduced emissions of NOx and PM10		be approved at SP&R Committee in June with a planned launch in September	Work Week and Family bike events in Perth Promoted via PKC staff intranet.		
		We will work with our regional partners to further encourage development and employee use of Green Travel Plans in our large employers.	TACT RAN (through the Sustainable Travel Liaison Group) PKC		2009 then ongoing	Activity data will be sought from the main employers as to the journeys avoided from their GTPs. If this is provided will estimate vehicle km avoided in	Medium	Tactran has been represented on SSE's Travel Plan Steering Group and provided advice and promotional material. Perth College has also been given information and support of	PRI and Murray Royal Hospital given advice and guidance in travel planning process. Murray Royal Hospital joined Liftshare and was provided with green travel promotion material. Funding from SG was obtained for a	Ongoing	A baseline is still being developed

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						the AQMA and report reduction in emissions of NOx and PM10		use of liftshare. Aviva, PRI and Murray Royal Hospital have been given advice and guidance in travel planning process and PRI provided with grants for travel planning measures.	study to introduce an improved Public transport network for Murray Royal Hospital. Scottish Water joined STLG> Started development of travel plan implantation software, Tactran Travel knowhow. A new bus stop has been constructed at SSE.		
		We will continue to support schools in developing Green Travel Plans through our school co-ordinator and	PKC		2009 then ongoing	Survey data will be requested from PKC schools as to the journeys avoided from their GTPs. We will	Medium	A number of schools have developed or are developing Green Travel Plans grant funding was awarded last year to support	A number of schools have developed or are developing Green travel Plans. Grant funding was awarded in 2010 to support schools with travel plans and	Ongoing	School Hands Up Survey (current travel modes) will be carried out in September again with last years

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		collect activity data to assess their use through our school co-ordinators.				estimate vehicle km avoided in the AQMA and report reduction in emissions of NOx and PM10.		schools with travel plans and funding will be sought for further measures this year. 89.9% of schools have STPs with 100% working on STP activities	further funding will be sought for further measures in 2011. 92.05% of schools have STPs with 100% working on STP activities		results due next in June
		Regional/ PKC Car and Lift Share schemes- there is both a wider scheme, and one specific to PKC employees. We will improve use of the PKC scheme through our own GTP	TACT RAN PKC		2009 then ongoing	Activity data will be collected annually from both schemes and we will estimate vehicle km avoided in the AQMA and report reduction in emissions of NOx and PM10.	Small-Medium	Further promotion was undertaken of the liftshare	Further promotion was undertaken of Liftshare including .PKC participation in national Liftshare week, taxi advertising and leaflet promotion through employers	Ongoing	A baseline is still being developed

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		Green Travel Plans for new developments. We will continue to seek travel plans from large developments under existing planning arrangements.	PKC		2009 then ongoing	Number of GTPs and estimation of effect specified in reporting year	Low	This is a continual process through planning developments e.g. Murray Royal Hospital had to provide travel plans at the initial application stage.	This is a continual process through planning developments	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
8	Traffic management	Keep “City Centre Traffic Management Review” under continual review. Our Traffic and Environmental teams will liaise regularly to discuss the effects of component measures of the CCTMR on air Quality	PKC		Ongoing as required	We will report annually on any changes to the CCTMR and how we anticipate this affecting air quality	Medium	Ongoing	Ongoing PKC have secured funding from SG to allow us to carry out a trial mote traffic management system, pollution controlled, in 2011 at our worst hotspot area Atholl Street within our AQMA. PKC, JMP and Halcrow will work closely on the above. Halcrow was commissioned by PKC in early 2010 to further develop City Enhancements that could help ‘lock-in’ the benefits of the CTLR. This was part funded by AQ funding. The	Ongoing	Modelling will be carried out to establish if there is any Air quality benefits in 2011

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									data from this is owned by PKC and will be made available for Mote Trial Work.		
9	Planning and air quality	Consider air quality as an issue for the Local Development Plan	PKC		2009-12	It is not possible to assign a quantitative Indicator. We will report on delivery of Local Development Plan, and provide evidence that air quality considerations have been formalised within it	Medium	PKC are holding workshops, Environmental Health is a stakeholder, for discussion on Air Quality an issue for the 1st stage main issues report.	Environmental health attended a general workshop with other stakeholders in Jan 2010 with regards to the proposed City Enhancement Package in connection to the Cross Tay-Link.	Ongoing	
		Investigate development of supplementary planning	PKC		2010-14	It is not possible to assign a quantitative indicator.	Small			Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		guidance on air quality				We will report progress on development of new guidance, though it is explicitly linked to the forthcoming LDP.					
		Consider air quality in planning decisions and formalise decision making process/interaction with Environmental Health. This can relate not only to new transportation sources, but also to new biomass installations or industrial	PKC		Ongoing required as	It is not possible to assign a quantitative indicator. We will report on cases where air quality was a consideration in the reporting period, and the outcome of any decisions made.	Low	Planning applications 09/01691/AM M, 09/02126/FL M and 09/00348/RE M were consulted on by Environmental health due to possible increase in traffic flows and due to	Environmental Health continue to check weekly planning list and comment on applications which may adversely impact on local air quality Such as planning application 09/02126/FLM air quality assessment submitted and EH asked for a revised copy		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		sources.						industrial processes increasing ambient pollutant levels. Environmental Health will continue to check the weekly planning list and comment on applications which may adversely impact on local air quality	with more up to date data.		
10	Procurement and air quality	Air quality will be formally considered in the tender process for new PKC vehicles. PKC currently specify a more stringent Euro standard than necessary.	PKC		Fleet survey in year 1 of AQAP, then ongoing as tenders arise	If vehicles are replaced like for like, the number will be reported annually, with their Euro standard and that of the vehicle	Small-Medium	PKC have investigated the possibility of replacing the Dog Control and Welfare diesel van with an electric van and a hybrid van. PKC	PKC received funding and Electric Points were installed at all Council Operations' Depots thus allowing the possible development of additional electrical vehicles in the	Ongoing	The overall initiative will save around 114kgs of harmful street side particulate emissions per annum

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		A fleet survey will be necessary in the short term to establish the baseline for improvements.				<p>replaced. This will be fed into an emissions calculation and the saving in NO_x and PM₁₀ will be reported annually.</p> <p>If additional vehicles are bought, their Euro standard will be reported and an estimation of the impact of specifying a more stringent standard than necessary will be reported.</p>		intend to apply for grant funding to allow the installation of an electric hook up point. This will be followed with a network of electric hook up points	<p>future. PKC have also 3 other hybrid vehicles in our fleet and at present have a hybrid minibus on order for Social Work PCC use.</p> <p>PKC was able to commission green urban to carry out a fleet survey, through funding received from Scottish Government 53% of PKC was Euro 3 or worst. PKC also through SG funding retro fitted 10 of the Euro 3 refuse vehicles with Pirelli Feelpure diesel particulate systems It is estimated that each vehicles</p>		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									particulate emission will be reduced by up to 95%. Thus bring them into line with Euro 4 levels.		
11	Eco-driver training	<p>PKC will seek to expand the existing provision of eco-driver training by utilising the newly formed training team to develop and add an eco-driving training course into our existing modular training syllabus.</p> <p>The eco-driving module will become part of our regular driver CPC training</p>	PKC		Expanded programme by 2011 then ongoing	PKC intend to assess drivers after they have completed the training. The outcomes of these assessments (i.e. the fuel saving per driver) will allow simple calculation of avoided emissions of NO _x and PM ₁₀ .	Small-Medium	4 Trainers have been trained	<p>PKC have now been licensed to deliver Drivers CPC Programme this will be rolled out in September 2011.</p> <p>PKC has also won the tender to deliver CPC Training to Angus.</p>	Ongoing	Data will be available in 2012

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		package which will be delivered to all LGV drivers on an ongoing basis. The eco-module will also form part of future training modules for all council drivers as part of the driver assessment programme, which will also cover the driver's responsibilities on legislation and what pre-use vehicle checks need to be carried out and documented.									

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
12	Provision of travel information	Develop, promote and maintain a comprehensive Travel Information System, covering all modes and users and make this information available in on-line formats. Delivered through TACT Ran's Regional Travel Information Strategy.	TACT RAN PKC		Study/develop strategy by 2011 Specific measures ongoing to circa 2018.	We will liaise with TACTRAN and report annually on the findings of the feasibility work. As initiatives are implemented we will report progress on these individually.	Medium	A web – based regional travel information database and journey planner has been developed and will be upgraded over time	A web – based regional travel information database and journey planner has been developed and went live in May 2010	Ongoing	
		Investigate and develop the provision of real time travel information for bus stops in Perth.	TACT RAN PKC		Study by end 2009 Implementation 2010-2018	We will report annually the findings of any feasibility work that is carried out and report on	Small	No progress has been made in this area at this time	No progress has been made in this area at this time		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						implementation as it is carried out					
		Maintain current Public Transport Guides and section on PKC website	PKC		2009- ongoing	We will report on provision of materials and attempt to gauge penetration of these.	Small	Ongoing	Ongoing	Ongoing	
		Hearts and Minds campaign to promote sustainable travel options	TACT RAN PKC		Ongoing circa-2018 to	We will liaise with TACTRAN and report annually on how what initiatives have been developed	Medium	AQ website is nearly ready for going live pending debugging and final checking. 'In Town Without My Car' initiative on the 22/09/09 was supported in terms of staffing and funding.	AQ website is now up and running. 'In Town Without My Car' initiative 2010 supported in terms of staffing and funding	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
13	Signage	Investigate the potential of Variable Message Signage linked to pollution monitoring systems.	PKC		Feasibility work by 2011	We will report annually the findings of any feasibility work that is carried out and develop the measure further based on their findings.	Medium	No progress	No progress in this area at this time.		
14	Alternative modes	Work closely with TACTRAN to aid delivery of the Walking and Cycling Strategy for the region to ensure walking and cycling are part of an integrated transport system.	TACTRAN PKC		Initial study- 2009/10 Ongoing liaison/review	We will liaise with TACTRAN annually and report progress with individual measures implemented under the Strategy	Medium	Cycle training provided to staff and production of walking and cycling maps has been undertaken. Grant funding has been awarded this year for a variety of walking, cycling and travel planning initiatives	Grant funding was attained for a number of walking/cycling initiatives including training and safety events and grant funding has been awarded for these types of events for next year also. Pedestrian and Cycle Counts have been carried out by PKC in early	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								Tactran has supported financially the provision of cycle lockers in Perth schools.	2011 and these figures will be analysed and presented in our 2012 USA.		
15	Better access to public transport (note: access to services, not person access to individual buses)	Work with planning colleagues to assess provision of public transport at new and existing developments	PKC		2009 Ongoing then	We will report on findings of reviews and any improvements made to the existing public transport network and on new developments that have been given public transport facilities.	Small	Grant funding has been awarded for a detailed investigation of public transport options for the soon to be expanded Murray Royal Hospital. We will report on findings as they become available	There was a delay in the Murray Royal Study however grant funding has been approved for the study to go ahead this year.		
16	Idling emissions reduction	Enforce Vehicle Idling Regulations	PKC		Feasibility study 2010	Number of vehicles subject to enforcement.	Small	No Progress	No Progress		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
17	Roadside Emission Testing	Authorised Personnel to carry out roadside testing	PKC initially		Feasibility study involving surrounding Local Authorities by end 2010	Number of vehicles subject to enforcement	Small	No progress	No Progress		
18	LAQM marketing	Enhance existing provisions of publicity materials and ensure they reach their target audience. Organise publicity initiatives in schools, large employers, public sector.	PKC		Commence 2009, then ongoing.	Publication of materials, events held website statistics.	Small-Medium	AQ website is nearly ready for going live pending debugging and final checking	PKC new AQ website is now live	Ongoing	
19	LAQM monitoring and reporting	PKC will continue to monitor air pollution in the City and will meet its statutory reporting	PKC		Ongoing	Monitoring data will be provided in annual progress reports to track the overall effect	Small	Ongoing	2010 Progress Report Completed	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		requirements.				of the AQAP.					

Potential AQ benefit criteria

Small (0-0.5 µg/m³ for NO₂ 0-0.2 µg/m³ for PM₁₀)

Medium (0.5-1 µg/m³ for NO₂ 0.2-0.5 µg/m³ for PM₁₀)

High (>1 µg/m³ for NO₂ >0.5 µg/m³ for PM₁₀)

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Perth

Diffusion tube data captured within Perth's AQMA show exceedences at 20 locations; this is an increase from 16 identified in the 2010 Progress Report. The automatic monitor at Atholl St remains the same at $56 \mu\text{g}/\text{m}^3$ for the annual average; however the number of times the hourly limit was breached increased from 3 to 10.

The Automatic Monitor located on High St shows an increase from $25 \mu\text{g}/\text{m}^3$ to $30 \mu\text{g}/\text{m}^3$ for the annual mean NO_2 objective and the number of exceedences of the hourly limit remained zero.

PM_{10} data at both sites shows an increase with Atholl St increasing from 21 to $24 \mu\text{g}/\text{m}^3$ and High St increasing from 16 to $19 \mu\text{g}/\text{m}^3$. The exceedences of the daily objective have increased from 2 to 3 at High St and from 3 to 12 at Atholl St.

The number of daily exceedences at Atholl Street is above the Scottish Objective of 7 for the first time. Further data analysis investigations were carried out for our Daily Mean PM_{10} results for Atholl Street and High Street. Exceedences at both sites 12 at Atholl Street and 3 at High Street all occurred within the month of March (Appendix C). Therefore PKC have concluded that these episodes are due to an Episodic Exceedance Occurrence possibly due to meteorological conditions.

The data collated over the last 7 years at Atholl Street for Daily Mean Exceedences $>50\mu\text{g}/\text{m}^3$ does not show a steady year on year increase, however it showed that there was a dramatic increase from 3 exceedences in 2009 to 12 in 2010, thus being the first time that Atholl Street has exceeded the Objective of 7 exceedences per year. Therefore PKC again concluded that this was due to an Episodic Exceedance. (Appendix D)

Correspondence with consultants AEAT also indicated that the exceedences at Atholl Street were also noted nationally at other Scottish AQ sites during the same calendar month. (Appendix E)

PKC contact the LAQM helpdesk Reference Number code: 0407 for advice about incorporating the above analysis in our report and justifying our intention not to revoke and declare the AQMA order that PKC has in place. (Appendix F)

The AQMA in Perth is only declared for exceedences of NO_2 and PM_{10} annual average and not for any short term standard. Technically the AQMA order should be amended but this would be only a paper exercise, resulting in added expense and effort for absolutely no benefit, therefore we do not propose amending the order.

PKC intend to continue monitoring at Atholl Street with both Real Time Monitoring and Diffusion Tube Monitoring.

The only extra measures which could be of particular benefit to the short term objective are considered to be: a) low emissions zones, b) emissions testing and c) idling regulations. These are not considered to be effective at Atholl St because:

- a) Recent HDV surveys in the area have shown that the number of Euro IV vehicles passing through is above the national average and there are fewer older engines.
- b) Emissions testing apply only to cars and our Further Assessment in 2007 identified HDVs as the source of most of the PM₁₀ pollution.
- c) Idling regulations are not considered appropriate because there are double yellow lines up each side of Atholl St and no idling takes place here, other than when stationary at traffic lights.

Outwith Perth

Due to previous roadside exceedances at West High St, Crieff, a real time monitor was installed at St James Square in April 2010. This is a reasonably open area so does not represent a worst case scenario. The results from April to December for the annual average NO₂ objective here were 27 µg/m³ and no exceedances of the hourly limit. The PM₁₀ annual average value was 16 µg/m³ but this only covered part of the year. As noted above, this is not representative of a worst case scenario, therefore modelling will be required to ascertain whether there is an exceedance at relevant locations or not.

The numbers of tubes showing exceedances, out with Perth, have increased from 1 to 3, all of which are in Crieff. Last year there was one roadside tube above 40 µg/m³ but the corresponding façade level tube was below, therefore there was no exceedance at a relevant location.

In 2010 the façade level tube as well as the road side tube at West High St ,were both over the limit with levels of 44 µg/m³ and 54 µg/m³ respectively. There was also an exceedance at East High St with the roadside tube there showing an annual average of 42 µg/ m³. There are no residential properties at ground floor level on West High St, instead the ground floor properties are occupied by commercial premises, with residential properties starting at 1st floor level. The façade level tube is located at around 2.5 metres so is not entirely representative of a relevant exposure; whether there was an exceedance would need to be confirmed by modelling.

10.2 Proposed Actions

Perth

As discussed above, monitoring has shown there are still exceedances in and around Perth City Centre therefore the AQMA should stay in place. The Air Quality Action Plan is in place and Perth and Kinross Council have received grant funding from the Scottish Government towards measures contained within the plan. PKC will continue to monitor for PM₁₀ & NO₂

Crieff

There are exceedances in Crieff at 3 diffusion tube sites, one of which is façade level, but not first floor level where all the relevant receptors are in terms of the annual average; therefore modelling would be required to confirm any exceedance. To this end Perth and Kinross Council have placed 3 more tubes in and around West High St Perth.

We have decided not to proceed to a Detailed Assessment straight away as although the indication is that there may be an exceedance at relevant receptors in West High St, Crieff, this is based on one diffusion tube, which has a 20% uncertainty rate and as stated, the tube is placed at a lower height than that of the relevant receptors. PM₁₀ may also be breaching the limit value, but due to the real time monitor being installed in April and a large amount of down time, there is only 66% data capture for the 2010 calendar year. Due to this low level of data capture, it was felt this would not be ideal for verifying any modelling used as part of a Detailed Assessment.

Instead of going to Detailed Assessment this year, Perth & Kinross Council proposes to install 3 more diffusion tubes at and around West High St. This will help us better ascertain if there is any exceedance and they can be used to inform any NO₂ or PM₁₀ modelling which we will undertake next year as part of a Detailed Assessment based on the findings of the 2012 Updating and Screening Assessment.

11 References

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National Transport Strategy
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Scotland's Climate Change Declaration (SCCD) Perth and Kinross Council's first annual progress report http://www.sustainable-scotland.net/documents/6703_annual%20progress%20report.pdf

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http://www.pkc.gov.uk/NR/rdonlyres/E590425C-2665-4D13-B8DD-B70C659B3080/0/PerthandKinrossLocalClimateImpactProfile2008_w.pdf

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NO2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards, and Summary of Laboratory Performance in Rounds 104-108

<http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>), January 2010

AEA (on behalf of Defra and the Devolved Administrators), WASP – Annual Performance Criteria for NO2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards, and Summary of Laboratory Performance in Rounds 105-109 (<http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>) April 2010

Appendices

Appendix A: QA/QC Data

Appendix B: Diffusion Tube Data

Appendix C: Daily Mean PM₁₀ Exceedences Data

Appendix D: Atholl Street PM₁₀ Daily Mean Exceedences > 50 $\mu\text{g m}^{-3}$ Per Annum

Appendix E: AEAT Correspondence

Appendix F: Email Correspondence LAQM Helpdesk

Appendix A: QA: QC Data

Annualised Automatic Monitoring Data

A real time monitor was installed at St James Sq Crieff in April 2010 therefore only 9 months data was recorded so in line with advice in TG.09 this has been annualised using regional data from urban background sites found at <http://www.scottishairquality.co.uk>.

NO₂: The raw data for Crieff was 27µg/m³ and this was adjusted using the methodology in Box 3.2 of TG.09 using annual data from Glasgow Centre, Grangemouth Moray and Edinburgh St Leonard St as these are all urban background monitors within 50 miles of Crieff. A mean ratio of 1.179 for April to December was calculated from these 3 sites and applied to the raw value to give 30µg/m³.

PM₁₀: The raw data from Crieff was 16µg/m³ which were adjusted using data from Dundee Mains Loan and Grangemouth Moray. Edinburgh and Glasgow were not used due to incomplete PM₁₀ data for the year. The mean ratio from these two sites was 1.069 and this was applied to the raw value to give an adjusted value of 17µg/m³.

Diffusion Tube Bias Adjustment Factors

Diffusion tube monitoring has been undertaken at 44 locations within the Perth AQMA, and at 8 further locations within the Perth and Kinross Council area. The tubes are analysed by Dundee Scientific Services using a 20% TEA in water preparation method. Data capture at all of the sites was high, with at least eleven months data at all sites. The Bias adjustment for Tayside Scientific Services from the national database found at:

[http://laqm.defra.gov.uk/documents/Diffusion Tube Bias Factors v04_11_v6.xls](http://laqm.defra.gov.uk/documents/Diffusion_Tube_Bias_Factors_v04_11_v6.xls) was 0.78

Factor from Local Co-location Studies (if available)

Collocation studies have been carried out at both of the automatic monitors in Perth, where diffusion tubes have been exposed in triplicate and the measured concentrations compared with the monthly results from the automatic monitor. The precision and accuracy tool found at <http://www.airquality.co.uk/laqm/tools> was used to determine bias factors for each of the automatic monitors. Since April 2010 there has been an automatic monitor in Crieff which has also been co-located with 3 diffusion tubes, however since there is not a full years data, this site was excluded from use in the bias adjustment factors for this report.

The results of the 2 co-location studies are below:

Atholl St Bias

Checking Precision and Accuracy of Triplicate Tubes



Diffusion Tubes Measurements									
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	06/01/2010	03/02/2010	62.3	65.5	58.7	62	3.4	5	8.5
2	03/02/2010	03/03/2010	58.5	60.7	59.3	60	1.1	2	2.8
3	03/03/2010	31/03/2010	65.1	64.5	64	65	0.6	1	1.4
4	31/03/2010	28/04/2010	61.7	62.6	58.3	61	2.3	4	5.6
5	28/04/2010	02/06/2010	48.3	46.6	51.7	49	2.6	5	6.5
6	02/06/2010	30/06/2010	54.7	51.1	52.3	53	1.8	3	4.6
7	30/06/2010	04/08/2010	59.7	56.1	58.6	58	1.8	3	4.6
8	04/08/2010	01/09/2010	54.1	55.5	51.4	54	2.1	4	5.2
9	01/09/2010	29/09/2010	51.8	56.4	55.5	55	2.4	4	6.1
10	29/09/2010	03/11/2010	76.7	77.4	76.8	77	0.4	0	0.9
11	03/11/2010	01/12/2010							
12	01/12/2010	05/11/2011	68.7	68.4	65.5	68	1.8	3	4.4
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period	Mean	Tubes Precision Check	Automatic Monitor Data
66	100	Good	Good
61	100	Good	Good
58	100	Good	Good
53	98	Good	Good
49	98	Good	Good
50	100	Good	Good
45	100	Good	Good
46	100	Good	Good
46	100	Good	Good
57	100	Good	Good
61	93	Good	Good
79	99	Good	Good

Overall survey -->

Good precision Good Overall DC

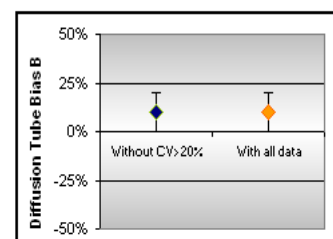
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	Atholl St Perth
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Precision	11 out of 11 periods have a CV smaller than 20%
-----------	---

Accuracy (with 95% confidence interval)	
without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	0.92 (0.85 - 1.02)
Bias B	8% (-2% - 18%)
Diffusion Tubes Mean:	60 μgm^{-3}
Mean CV (Precision):	3
Automatic Mean:	55 μgm^{-3}
Data Capture for periods used:	100%
Adjusted Tubes Mean:	55 (51 - 61) μgm^{-3}

Accuracy (with 95% confidence interval)	
WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	0.92 (0.85 - 1.02)
Bias B	8% (-2% - 18%)
Diffusion Tubes Mean:	60 μgm^{-3}
Mean CV (Precision):	3
Automatic Mean:	55 μgm^{-3}
Data Capture for periods used:	100%
Adjusted Tubes Mean:	55 (51 - 61) μgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

High St Bias

Checking Precision and Accuracy of Triplicate Tubes



Diffusion Tubes Measurements									
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	06/01/2010	03/02/2010	43.9	42	45	44	1.5	3	3.8
2	03/02/2010	03/03/2010	43.8	45.6	45	45	0.9	2	2.3
3	03/03/2010	31/03/2010	39.4	39.9	38.7	39	0.6	2	1.5
4	31/03/2010	28/04/2010	24.1	28.9	30.1	28	3.2	11	7.9
5	28/04/2010	02/06/2010	22.4	21.5	23.3	22	0.9	4	2.2
6	02/06/2010	30/06/2010	20.8	21.2	20.5	21	0.4	2	0.9
7	30/06/2010	04/08/2010	18.9	18.3	19.4	19	0.6	3	1.4
8	04/08/2010	01/09/2010	26.2	26.2	25.5	26	0.4	2	1.0
9	01/09/2010	29/09/2010	26.7	26.8	28	27	0.7	3	1.8
10	29/09/2010	03/11/2010	40	40.1	39.5	40	0.3	1	0.8
11	03/11/2010	01/12/2010							
12	01/12/2010	05/11/2011	46.8	46.1	46.8	47	0.4	1	1.0
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
43	100	Good	Good
44	100	Good	Good
31	100	Good	Good
24	100	Good	Good
22	96	Good	Good
17	100	Good	Good
15	100	Good	Good
21	100	Good	Good
22	100	Good	Good
28	100	Good	Good
33	86		Good
61	100	Good	Good

Overall survey -->

Good precision	Good Overall DC
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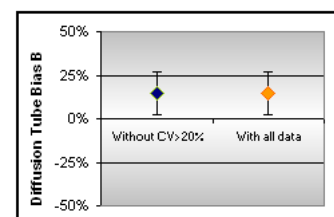
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	High St Perth
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Accuracy (with 95% confidence interval)	
without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	0.92 (0.83 - 1.03)
Bias B	9% (-3% - 21%)
Diffusion Tubes Mean:	32 μgm^{-3}
Mean CV (Precision):	3
Automatic Mean:	30 μgm^{-3}
Data Capture for periods used:	100%
Adjusted Tubes Mean:	30 (27 - 33) μgm^{-3}

Precision	11 out of 11 periods have a CV smaller than 20%
-----------	---

Accuracy (with 95% confidence interval)	
WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	0.92 (0.83 - 1.03)
Bias B	9% (-3% - 21%)
Diffusion Tubes Mean:	32 μgm^{-3}
Mean CV (Precision):	3
Automatic Mean:	30 μgm^{-3}
Data Capture for periods used:	100%
Adjusted Tubes Mean:	30 (27 - 33) μgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Discussion of Choice of Factor to Use

The co-location studies gave factors of 0.92 for both Atholl Street and High Street. The factor given on the national database of co-location studies, found at: <http://laqm.defra.gov.uk/documents/Diffusion Tube Bias Factors v04 11 v6.xls> was 0.78. Based on advice given in Technical Guidance LAQM TG (09)), it was decided a local factor would be more appropriate and as the bias adjustment figure is the same, it was not necessary to decide between the 2. There is also an automatic monitor in Crieff which has been co-located with 3 diffusion tubes since April 2010. Since this site has not been running for a full year, it was considered inappropriate to consider the data in the bias adjustment factor.

PM Monitoring Adjustment

TEOM data used by Perth and Kinross Council for the 2 Perth monitors was corrected using the Volatile Correction Model by AEA using daily average purge measurements from the 26 FDMS sites in Central Scotland.

The Crieff monitor is a BAM and is corrected using a gravimetric factor of 0.83333 for Indicative Gravimetric Equivalent.

QA/QC of automatic monitoring

AEA carries out the QA/QC for the automatic monitors and they are calibrated annually and meet the criteria for national network.

QA/QC of diffusion tube monitoring

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical performance testing scheme, operated by the Health and Safety Laboratory (HSL). WASP formed a key part of the former UK NO₂ Network's QA/QC, and remains an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). The laboratory participants analyse four spiked tubes, and report the results to HSL. HSL assign a performance score to each laboratory's result, based on their deviation from the known mass of nitrite in the analyte.

The outcomes of these QA/QC schemes are evaluated on a regular basis against a set of pre-defined performance criteria. The Performance criteria are due to be changed, *at present* the criteria are based on the z-score method, however from April 2009; the criteria will be based upon the Rolling Performance Index (RPI) statistic.

Dundee Scientific Services takes part in this scheme and in each of the rounds: 104-108 (Jan 2009-Jan 2010) and 105-109 (Apr 2009-Apr 2010); were scored as good.

Date April 2011

Perth & Kinross Council - Scotland

Appendix B: Diffusion Tubes Data

No.	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov ⁽¹⁾	Dec	Average
P 1 L	42 Scott St, Perth, PH1 5PH	60.3	69.5	54.4	45.7	41.5	40.7	34.4	37.6	44	59.1	74.1	57.7	51.58
P 1 C	42 Scott St, Perth, PH1 5PH	60.2	73.8	53.2	46.3	42.9	41	34.2	39.2	45.7	57.5	75.8	61	52.57
P 1 R	42 Scott St, Perth, PH1 5PH	64.2	69.8	54.4	47.5	42	41.5	34.2	40.6	40.7	59.3	74.1	59.8	52.34
P 2	17 Speygate, Perth, PH2 8PJ	40	37.2	31.4	20.6	19.1	16.6	16.9	21.7	23.8	33.1		42.4	27.53
P 3 L	15 Murray Cres, Perth, PH2 0HU	40.1	38.4	31.3	17.8	9.9	12.8	11	14.1	17.4	27.7		41.1	23.78
P 3 R	15 Murray Cres, Perth, PH2 0HU	40	42.2	28.4	17.2	14	13	12.2	13.5	17.6	29.9		47.3	25.03
P 5 L	8 Stormont St, Perth, PH1 5NW	37.2	32.7	33.9	24.4	14.8	15.9	16.3	16.4	18.4	33		36.4	25.40
P 5 R	8 Stormont St, Perth, PH1 5NW	37.9	33.3	30.7	23.1	16.9	14.8	16.8	15.1	21.1	31.8		38.4	25.45
P 6	41 Mull Place, Perth, PH1 3DP	28.8	27.1	19	12.5	7.9	6.5	8.2	8.3	11.2	19.3		28.2	16.09
P 7	257 Rannoch Rd/Newhouse Road Roundabout, Perth, PH1 2DW	39.8	43.3	24.9	18.9	14.2	13.9	12.3	13.8	17.6	27.3		41.4	24.31
P 13 L	86/88 South Street Perth PH2 8PD	55.1	48.7	49.4	38	32.6	32.8	31.8	33.5	38.6	47.7	62.1	47.8	43.18
P 13 R	86/88 South Street Perth PH2 8PD	52.8	48.6	45.7	40.5	33	33.1	32.8	34.4	38.8	42.7	59.4	46.3	42.34
P 14 L	9 Main St, Bridgend, Perth, PH2 7HD	56.1	59	47.9	44.2	44	45.3	32.1	41.6	46.7	53.7		55.2	47.80
P 14 C	9 Main St, Bridgend, Perth, PH2 7HD	55.9	63.5	48.1	48	42.3	45.8	36.3	38.8	46.4	56.6		57.1	48.98
P 14 R	9 Main St, Bridgend, Perth, PH2 7HD	56.5	62.6	48.2	46.1	41.4	46.5	37.7	40.7	46.3	57.1		56.3	49.04
P 19	St Ninian's School ,Dunkeld Rd, Perth, PH1 5RF	53.5	45.1	40.9	28.9	26.9	28.5	30.7	30.8	32.9	49.1		48.3	37.78
P 20	2 Crieff Road Perth PH1 5RT	48.1	52.2	30	23.6	23.1	23.4	21.6	25.5	24.9	43.1		57.9	33.95
P28	28 York Place Perth PH2 8EH	62.9	62.5	56	44.4	40.6	45.9	39.8	40.3	47.4	62.2		69.5	51.95
P29	37 York Place Perth PH2 8EH	62.5	67.2	53.5	43.2	34.9	34.6	28.6	30.5	37.1	52.8		61.6	46.05
P30 L	104 South St, Perth, PH2 8PA	53.5	44.7	54.1	42.9	34.2	35.7	33.4	38.1	37.6	51.4	63.4	49.6	44.88
P30 C	104 South St, Perth, PH2 8PA	52	49.8	49.8	46.8	35.6	35.2	34.2	37.4	42	51	63.9	50.4	45.68
P30 R	104 South St, Perth, PH2 8PA	53.1	48.8	50.6	42.9	33.2	33.7	36.2	36.1	34.7	54.9	51.5	49.8	43.79
P31	45-47 South St, Perth, PH2 8PD	51.8	53.6	41.8	35.7	24.7	26.7	21.9	25.2	32.1	41.4		48.7	36.69
P32	135 South St, Perth, PH2 8PA	57.9	62.4	52.4	45.3	35.3	30.9	28	36	40.4	50.5	65	53.2	46.44
P33	216 South Street Perth PH2 8NY	57.5	57.5	54.1	47.4	36.9	36.5	35.1	37.8	44.1	54.4	72.1	56.3	49.14
P34L	10 County Place, Perth, PH2 8EE	60.5	55.7	62.5	51.5	47.4	47.1	48.1	47.2	53	64.7	73.5	55.9	55.59

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P34 R	10 County Place, Perth, PH2 8EE	62.7	55.4	60.2	58.4	46.8	47.8	43.9	47.1	50.6	61	77.2.	57.7	53.78
P35	17 Princes St, Perth, PH2 8NG		46	38.8	31.6	25.2	21.7	23.9	27	28.9	40.1		51.9	33.51
P36	51 Glasgow Rd, Perth, PH2 0PE	58.2	49.5	47.3	34.7	30.1	30	25.3	29.6	35.3	48.7		55.5	40.38
P37	Riggs Rd, Perth, PH1 1PR	51.2	49.9	40.3	29.8	24.3	23.1	21.4	23.3	30.1	43.1		50.7	35.20
P38	93-109 Main St Bridgend, PH2 7HE	48.4	71.5	38.8	34.2	31.4	33.7	28.6	30.9	35.3	42.6		44.1	39.95
P39 L	39 Main St, Bridgend, PH2 7HD	67.1	66.8	58.2	50.3	48	54.8	49	43.9	59	x		63.3	56.04
P39 R	39 Main St, Bridgend, PH2 7HD	64.3	72.4	55	53.1	51.1	51.7	42.2	46	54.7	67.4		65.1	56.64
P40 L	18 Main St, Bridgend, PH2 7HB	56.6	62.9	65.5	50.5	43.5	48.1	41.9	48.9	50.9	61.3		63	53.92
P40 R	18 Main St, Bridgend, PH2 7HB	56.8	64.7	63.2	51.9	47.5	47.6	45	48.9	51.4	62.2		50.5	53.61
P41 L	76 Atholl St, Perth, PH1 5NL	76.7	84.5	49.6	54.8	51.7	59.4	46.3	48.8	53.7	69.6		80.3	61.40
P41 R	76 Atholl St, Perth, PH1 5NL	80.5	79.4	57.3	53.2	52.7	55.2	43.2	50.7	55.3	72.3		75.1	61.35
P42	26-28 Atholl St, Perth, PH1 6NP	76.5	77.2	59.8	50.2	43.7	47.4	38.2	52.9	56.4	63.8		77.5	58.51
P43 L	17 Atholl St, Perth, PH1 5NH	69.3	63.3	54.7	57.4	46.9	53.5	49.7	51.9	59	67.4		69.7	58.44
P43 C	17 Atholl St, Perth, PH1 5NH	71	67	56.2	54.3	45	51.3	63.5	51.4	54.6	69.7		71.8	59.62
P43 R	17 Atholl St, Perth, PH1 5NH	67.2	63.2	62.4	55.2	47.3	52.9	51.1	50.3	56.3	70.2		71.1	58.84
P44 L	22 Barrack St, Perth, PH1 5RD	71.1	67	45.2	40.6	35.9	39.5	32.5	36.5	45.6	60.2		75.9	50.00
P44 R	22 Barrack St, Perth, PH1 5RD	69	69.1	46.1	39.7	38.6	40.5	32.6	41.7	49.7	64.8		77.1	51.72
P45	Ballantine Place, Perth PH1 5RR	50.5	39.9	29.5	19.6	16.5	16.4	14.9	19.1	21.6	36.1		49.7	28.53
P46	204 A Crieff Rd, Perth, PH1 2PE	55.9	51.4	36	29.2	27.9	30.3	25.4	29.5	31.8	43.8		48.7	37.26
P47	5 East Huntingtower, Perth, PH1 3JJ	47.9	43	30.1	26.4	24.7	26.6	19.9	23.6	30.1	39.7		44.1	32.37
P48	30 Edinburgh Rd, Perth, PH2 8BX	45.2	48.2	32.4	23.5	21.7	23.7	18.5	20	26.6	37.2		47.7	31.34
P49	Opp Wood'n Garden, Glencarse, PH2 7LX	37.4	33.8	33.7	24.3	19.5	23.8	19.8	17	24.1	31.5		37.2	27.46
P50	Linden Garden Centre, Glencarse, PH2 7LX	37.5	37	30.4	23.7	19.6	23	20.2	16.9	23.1	29.8		37.3	27.14
P51	2 West Bridge St, Bridgend, Perth, PH2 7HA	47.1	49.9	38.5	31.2	29.7	28.1	23.2	28.9	31.4	38.3		50.3	36.05

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P54L	Real Time Monitor adjacent to 176 High St, Perth PH1 5EW	43.9	43.8	39.4	24.1	22.4	20.8	18.9	26.2	26.7	40		46.8	32.09
P54C	Real Time Monitor adjacent to 176 High St, Perth PH1 5EW	42	45.6	39.9	28.9	21.5	21.2	18.3	26.2	26.8	40.1		46.1	32.42
P54R	Real Time Monitor adjacent to 176 High St, Perth PH1 5EW	45	45	38.7	30.1	23.3	20.5	19.4	25.5	28	39.5		46.8	32.89
P55	7 West High st, Crieff	72	71.6	55.6	44.6	47.1	49.5	44.9	48	62.3	74.8		71.9	58.39
P56	39, High St, Crieff	51.7	48.5	41.4	36.5	32	32.9	31.5	34.5	37.4	51		50.5	40.72
P57	The Highland Trading Company, 62, High St, Crieff	53.2	48.2	38.6	35.1	30.3	25.8	x	x	36.6	43.4		49.3	40.06
P58 L	9 East High St, Crieff	58.1	52.3	47.3	43.5	34.6	36.7	36.2	36.2	38.3	54.4		58.4	45.09
P58R	9 East High St, Crieff	58.2	52.1	44.9	42.5	35.6	38.9	38.3	38.7	42.4	58		58.6	46.20
P59	12 Dunkeld Street, Aberfeldy	40.5	44.5	35.2	27.3	23.2	19.8	23.2	24.3	28	40.3		40	31.48
P60L	Highland Gift Shop, Bridgend, Aberfeldy	28.3	29.8	23.9	19.5	12.2	13	17.4	17.9	19.1	28.7		28.8	21.69
P60R	Highland Gift Shop, Bridgend, Aberfeldy	29.2	28.6	24.6	21.1	12	12.8	17.5	17	20.3	28		29.8	21.90
P61L	Atholl St, Perth real time monitor	62.3	58.5	65.1	61.7	48.3	54.7	59.7	54.1	51.8	76.7		68.7	60.15
P61C	Atholl St, Perth real time monitor	65.5	60.7	64.5	62.6	46.6	51.1	56.1	55.5	56.4	77.4		68.4	60.44
P61R	Atholl St, Perth real time monitor	58.7	59.3	64	58.3	51.7	52.3	58.6	51.4	55.5	76.8		65.5	59.28
P62	84 Dundee Rd, Perth PH2 7BA	56.7	60.7	45	36.4	34.6	32.3	31.5	30.8	36.3	47.1		46.6	41.64
P63	30 Dundee Rd, Perth PH2 7AQ	61.2	62.1	46.5	46.2	x	44.6	37.7	39.1	44.2	57.3		48.5	48.74
P64	The Lodge, Isla Rd, Bridgend, Perth PH2 7HG	59.2			49.9	46.4	59.8	32.1	48.3	54	68.5		73.8	54.67
P65	5-7 Charlotte Street, Perth PH1 5LW	48.7	42.7	38.2	33.5	27.5	37.7	25.1	26.6	33.3	41.5		46.2	36.45
P67	1 Atholl Street, Perth PH1 5NH	48	41.9	45.5	39.7	33.1	43.3	42.8	36.5	38.7	51.2		50.8	42.86
P68	2 Atholl Street, Perth PH1 5NP	50.2	44.5	41.2	34.2	26	31.3	25.7	28.1	32.3	43.6		44.4	36.50
P69	United Free Church of Scotland, Kinnoull Street, Perth PH1 5EZ	60.8	59.3	56.9	45.1	32.1	39	29.9	36.3	39.2	60.4		69.6	48.05
P70	Leith Buildings, 28 Dunkeld Rd, Perth PH1 5AJ	53.3	58.8	40	26.4	25.8	32.3	25.4	30.1	30.6	x		62.8	38.55
P71	134-140 Dunkeld Road, Perth PH1 5AS	34.7	34.8	24.3	17	12.4	15.3	10.8	14.3	15.5	25.9		37.2	22.02
P72	82 Crieff Road, Perth PH1 2RP	53.3	59.6	45.1	31.1	30.3	43.2	35.7	34.3	36.9	47.4		57.5	43.13
P73	CRIEFF - NEW 19 West High Street Crieff, PH7 4AU	62	63.9	48.6	45.3	41	53.2	34.8	38.4	54.2	24		63.8	48.11
P74	CRIEFF - NEW 43 High Street Crieff, PH7 3HT	45.6	44.8	37.3	36.1	28.7	40.5	28.1	33.2	32.2	43.7		47.2	37.95
P75L	Crieff RTM				22.5	21.1	21.6	4.5	24	26.2	34.5		37.7	24.01
P75C	Crieff RTM				24.4	13.9	22.4	21	24.2	26.4	33		34.2	24.94
P75R	Crieff RTM				24.5	21.7	23.3	20.3	22.7	27	33.6		35.2	26.04

¹Most November results missing due to the snow, instead the tubes were up for 2 months and the average calculated by Scientific Services as part of Decembers results

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Appendix C

PM10 Hrly Exceedences Atholl Street 2010

30/03/2010	00:00:00	4	R	ugm-3 (VCM)
28/11/2010	00:00:00	5	R	ugm-3 (VCM)
25/02/2010	00:00:00	7	R	ugm-3 (VCM)
26/02/2010	00:00:00	7	R	ugm-3 (VCM)
31/03/2010	00:00:00	7	R	ugm-3 (VCM)
09/11/2010	00:00:00	7	R	ugm-3 (VCM)
24/09/2010	00:00:00	8	R	ugm-3 (VCM)
24/02/2010	00:00:00	9	R	ugm-3 (VCM)
18/04/2010	00:00:00	9	R	ugm-3 (VCM)
30/05/2010	00:00:00	9	R	ugm-3 (VCM)
29/08/2010	00:00:00	9	R	ugm-3 (VCM)
12/06/2010	00:00:00	10	R	ugm-3 (VCM)
12/08/2010	00:00:00	10	R	ugm-3 (VCM)
23/09/2010	00:00:00	10	R	ugm-3 (VCM)
19/10/2010	00:00:00	10	R	ugm-3 (VCM)
08/11/2010	00:00:00	10	R	ugm-3 (VCM)
01/12/2010	00:00:00	10	R	ugm-3 (VCM)
02/01/2010	00:00:00	11	R	ugm-3 (VCM)
28/03/2010	00:00:00	11	R	ugm-3 (VCM)
21/07/2010	00:00:00	11	R	ugm-3 (VCM)
25/07/2010	00:00:00	11	R	ugm-3 (VCM)
01/08/2010	00:00:00	11	R	ugm-3 (VCM)
13/08/2010	00:00:00	11	R	ugm-3 (VCM)
15/09/2010	00:00:00	11	R	ugm-3 (VCM)
16/09/2010	00:00:00	11	R	ugm-3 (VCM)
29/11/2010	00:00:00	11	R	ugm-3 (VCM)
19/06/2010	00:00:00	12	R	ugm-3 (VCM)
22/10/2010	00:00:00	12	R	ugm-3 (VCM)
23/10/2010	00:00:00	12	R	ugm-3 (VCM)
20/11/2010	00:00:00	12	R	ugm-3 (VCM)
10/12/2010	00:00:00	12	R	ugm-3 (VCM)
29/01/2010	00:00:00	13	R	ugm-3 (VCM)
06/04/2010	00:00:00	13	R	ugm-3 (VCM)
20/04/2010	00:00:00	13	R	ugm-3 (VCM)
02/05/2010	00:00:00	13	R	ugm-3 (VCM)
16/05/2010	00:00:00	13	R	ugm-3 (VCM)
04/07/2010	00:00:00	13	R	ugm-3 (VCM)
22/07/2010	00:00:00	13	R	ugm-3 (VCM)
04/08/2010	00:00:00	13	R	ugm-3 (VCM)
28/08/2010	00:00:00	13	R	ugm-3 (VCM)
25/09/2010	00:00:00	13	R	ugm-3 (VCM)
27/10/2010	00:00:00	13	R	ugm-3 (VCM)
29/10/2010	00:00:00	13	R	ugm-3 (VCM)
31/10/2010	00:00:00	13	R	ugm-3 (VCM)
24/11/2010	00:00:00	13	R	ugm-3 (VCM)
12/01/2010	00:00:00	14	R	ugm-3 (VCM)
10/05/2010	00:00:00	14	R	ugm-3 (VCM)
26/05/2010	00:00:00	14	R	ugm-3 (VCM)
09/06/2010	00:00:00	14	R	ugm-3 (VCM)
18/07/2010	00:00:00	14	R	ugm-3 (VCM)
31/07/2010	00:00:00	14	R	ugm-3 (VCM)
15/08/2010	00:00:00	14	R	ugm-3 (VCM)
11/09/2010	00:00:00	14	R	ugm-3 (VCM)

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20/09/2010	00:00:00	14	R	ugm-3 (VCM)
21/10/2010	00:00:00	14	R	ugm-3 (VCM)
24/10/2010	00:00:00	14	R	ugm-3 (VCM)
25/11/2010	00:00:00	14	R	ugm-3 (VCM)
10/01/2010	00:00:00	15	R	ugm-3 (VCM)
05/04/2010	00:00:00	15	R	ugm-3 (VCM)
11/05/2010	00:00:00	15	R	ugm-3 (VCM)
08/06/2010	00:00:00	15	R	ugm-3 (VCM)
13/06/2010	00:00:00	15	R	ugm-3 (VCM)
14/06/2010	00:00:00	15	R	ugm-3 (VCM)
27/07/2010	00:00:00	15	R	ugm-3 (VCM)
28/07/2010	00:00:00	15	R	ugm-3 (VCM)
07/08/2010	00:00:00	15	R	ugm-3 (VCM)
17/09/2010	00:00:00	15	R	ugm-3 (VCM)
12/11/2010	00:00:00	15	R	ugm-3 (VCM)
24/01/2010	00:00:00	16	R	ugm-3 (VCM)
04/04/2010	00:00:00	16	R	ugm-3 (VCM)
12/05/2010	00:00:00	16	R	ugm-3 (VCM)
24/06/2010	00:00:00	16	R	ugm-3 (VCM)
05/07/2010	00:00:00	16	R	ugm-3 (VCM)
09/07/2010	00:00:00	16	R	ugm-3 (VCM)
17/07/2010	00:00:00	16	R	ugm-3 (VCM)
29/07/2010	00:00:00	16	R	ugm-3 (VCM)
05/08/2010	00:00:00	16	R	ugm-3 (VCM)
10/08/2010	00:00:00	16	R	ugm-3 (VCM)
14/08/2010	00:00:00	16	R	ugm-3 (VCM)
17/08/2010	00:00:00	16	R	ugm-3 (VCM)
11/11/2010	00:00:00	16	R	ugm-3 (VCM)
14/11/2010	00:00:00	16	R	ugm-3 (VCM)
21/11/2010	00:00:00	16	R	ugm-3 (VCM)
22/11/2010	00:00:00	16	R	ugm-3 (VCM)
30/11/2010	00:00:00	16	R	ugm-3 (VCM)
19/12/2010	00:00:00	16	R	ugm-3 (VCM)
08/02/2010	00:00:00	17	R	ugm-3 (VCM)
03/04/2010	00:00:00	17	R	ugm-3 (VCM)
06/05/2010	00:00:00	17	R	ugm-3 (VCM)
14/05/2010	00:00:00	17	R	ugm-3 (VCM)
25/05/2010	00:00:00	17	R	ugm-3 (VCM)
20/06/2010	00:00:00	17	R	ugm-3 (VCM)
29/06/2010	00:00:00	17	R	ugm-3 (VCM)
07/07/2010	00:00:00	17	R	ugm-3 (VCM)
20/07/2010	00:00:00	17	R	ugm-3 (VCM)
03/08/2010	00:00:00	17	R	ugm-3 (VCM)
08/08/2010	00:00:00	17	R	ugm-3 (VCM)
21/08/2010	00:00:00	17	R	ugm-3 (VCM)
28/10/2010	00:00:00	17	R	ugm-3 (VCM)
06/11/2010	00:00:00	17	R	ugm-3 (VCM)
26/11/2010	00:00:00	17	R	ugm-3 (VCM)
05/01/2010	00:00:00	18	R	ugm-3 (VCM)
16/01/2010	00:00:00	18	R	ugm-3 (VCM)
23/01/2010	00:00:00	18	R	ugm-3 (VCM)
27/01/2010	00:00:00	18	R	ugm-3 (VCM)
14/03/2010	00:00:00	18	R	ugm-3 (VCM)
26/03/2010	00:00:00	18	R	ugm-3 (VCM)
27/03/2010	00:00:00	18	R	ugm-3 (VCM)

09/05/2010	00:00:00	18	R	ugm-3 (VCM)
03/07/2010	00:00:00	18	R	ugm-3 (VCM)
26/07/2010	00:00:00	18	R	ugm-3 (VCM)
06/08/2010	00:00:00	18	R	ugm-3 (VCM)
26/08/2010	00:00:00	18	R	ugm-3 (VCM)
27/08/2010	00:00:00	18	R	ugm-3 (VCM)
18/10/2010	00:00:00	18	R	ugm-3 (VCM)
20/10/2010	00:00:00	18	R	ugm-3 (VCM)
02/11/2010	00:00:00	18	R	ugm-3 (VCM)
03/11/2010	00:00:00	18	R	ugm-3 (VCM)
04/11/2010	00:00:00	18	R	ugm-3 (VCM)
20/01/2010	00:00:00	19	R	ugm-3 (VCM)
22/03/2010	00:00:00	19	R	ugm-3 (VCM)
01/05/2010	00:00:00	19	R	ugm-3 (VCM)
03/05/2010	00:00:00	19	R	ugm-3 (VCM)
07/05/2010	00:00:00	19	R	ugm-3 (VCM)
31/05/2010	00:00:00	19	R	ugm-3 (VCM)
09/08/2010	00:00:00	19	R	ugm-3 (VCM)
18/08/2010	00:00:00	19	R	ugm-3 (VCM)
20/08/2010	00:00:00	19	R	ugm-3 (VCM)
25/08/2010	00:00:00	19	R	ugm-3 (VCM)
30/08/2010	00:00:00	19	R	ugm-3 (VCM)
26/09/2010	00:00:00	19	R	ugm-3 (VCM)
30/10/2010	00:00:00	19	R	ugm-3 (VCM)
07/11/2010	00:00:00	19	R	ugm-3 (VCM)
27/11/2010	00:00:00	19	R	ugm-3 (VCM)
17/01/2010	00:00:00	20	R	ugm-3 (VCM)
28/01/2010	00:00:00	20	R	ugm-3 (VCM)
06/02/2010	00:00:00	20	R	ugm-3 (VCM)
21/04/2010	00:00:00	20	R	ugm-3 (VCM)
17/05/2010	00:00:00	20	R	ugm-3 (VCM)
28/05/2010	00:00:00	20	R	ugm-3 (VCM)
25/06/2010	00:00:00	20	R	ugm-3 (VCM)
08/07/2010	00:00:00	20	R	ugm-3 (VCM)
02/08/2010	00:00:00	20	R	ugm-3 (VCM)
11/08/2010	00:00:00	20	R	ugm-3 (VCM)
10/09/2010	00:00:00	20	R	ugm-3 (VCM)
16/10/2010	00:00:00	20	R	ugm-3 (VCM)
17/10/2010	00:00:00	20	R	ugm-3 (VCM)
26/10/2010	00:00:00	20	R	ugm-3 (VCM)
01/01/2010	00:00:00	21	R	ugm-3 (VCM)
11/01/2010	00:00:00	21	R	ugm-3 (VCM)
31/01/2010	00:00:00	21	R	ugm-3 (VCM)
15/05/2010	00:00:00	21	R	ugm-3 (VCM)
29/05/2010	00:00:00	21	R	ugm-3 (VCM)
10/06/2010	00:00:00	21	R	ugm-3 (VCM)
06/07/2010	00:00:00	21	R	ugm-3 (VCM)
19/07/2010	00:00:00	21	R	ugm-3 (VCM)
30/07/2010	00:00:00	21	R	ugm-3 (VCM)
19/08/2010	00:00:00	21	R	ugm-3 (VCM)
29/09/2010	00:00:00	21	R	ugm-3 (VCM)
30/09/2010	00:00:00	21	R	ugm-3 (VCM)
08/10/2010	00:00:00	21	R	ugm-3 (VCM)
06/12/2010	00:00:00	21	R	ugm-3 (VCM)
15/02/2010	00:00:00	22	R	ugm-3 (VCM)

Date April 2011

Perth & Kinross Council - Scotland

05/05/2010	00:00:00	22	R	ugm-3 (VCM)
08/05/2010	00:00:00	22	R	ugm-3 (VCM)
07/06/2010	00:00:00	22	R	ugm-3 (VCM)
28/06/2010	00:00:00	22	R	ugm-3 (VCM)
01/07/2010	00:00:00	22	R	ugm-3 (VCM)
02/07/2010	00:00:00	22	R	ugm-3 (VCM)
31/08/2010	00:00:00	22	R	ugm-3 (VCM)
05/09/2010	00:00:00	22	R	ugm-3 (VCM)
15/10/2010	00:00:00	22	R	ugm-3 (VCM)
05/11/2010	00:00:00	22	R	ugm-3 (VCM)
10/11/2010	00:00:00	22	R	ugm-3 (VCM)
18/11/2010	00:00:00	22	R	ugm-3 (VCM)
03/01/2010	00:00:00	23	R	ugm-3 (VCM)
18/01/2010	00:00:00	23	R	ugm-3 (VCM)
22/01/2010	00:00:00	23	R	ugm-3 (VCM)
24/03/2010	00:00:00	23	R	ugm-3 (VCM)
19/04/2010	00:00:00	23	R	ugm-3 (VCM)
23/04/2010	00:00:00	23	R	ugm-3 (VCM)
30/04/2010	00:00:00	23	R	ugm-3 (VCM)
24/05/2010	00:00:00	23	R	ugm-3 (VCM)
27/05/2010	00:00:00	23	R	ugm-3 (VCM)
06/06/2010	00:00:00	23	R	ugm-3 (VCM)
15/06/2010	00:00:00	23	R	ugm-3 (VCM)
27/06/2010	00:00:00	23	R	ugm-3 (VCM)
24/07/2010	00:00:00	23	R	ugm-3 (VCM)
02/09/2010	00:00:00	23	R	ugm-3 (VCM)
07/09/2010	00:00:00	23	R	ugm-3 (VCM)
27/09/2010	00:00:00	23	R	ugm-3 (VCM)
28/09/2010	00:00:00	23	R	ugm-3 (VCM)
01/11/2010	00:00:00	23	R	ugm-3 (VCM)
15/11/2010	00:00:00	23	R	ugm-3 (VCM)
16/11/2010	00:00:00	23	R	ugm-3 (VCM)
17/11/2010	00:00:00	23	R	ugm-3 (VCM)
02/12/2010	00:00:00	23	R	ugm-3 (VCM)
05/12/2010	00:00:00	23	R	ugm-3 (VCM)
27/12/2010	00:00:00	23	R	ugm-3 (VCM)
19/01/2010	00:00:00	24	R	ugm-3 (VCM)
29/03/2010	00:00:00	24	R	ugm-3 (VCM)
11/06/2010	00:00:00	24	R	ugm-3 (VCM)
30/06/2010	00:00:00	24	R	ugm-3 (VCM)
23/07/2010	00:00:00	24	R	ugm-3 (VCM)
14/10/2010	00:00:00	24	R	ugm-3 (VCM)
09/12/2010	00:00:00	24	R	ugm-3 (VCM)
06/01/2010	00:00:00	25	R	ugm-3 (VCM)
21/01/2010	00:00:00	25	R	ugm-3 (VCM)
02/02/2010	00:00:00	25	R	ugm-3 (VCM)
12/02/2010	00:00:00	25	R	ugm-3 (VCM)
07/04/2010	00:00:00	25	R	ugm-3 (VCM)
26/04/2010	00:00:00	25	R	ugm-3 (VCM)
29/04/2010	00:00:00	25	R	ugm-3 (VCM)
20/05/2010	00:00:00	25	R	ugm-3 (VCM)
16/08/2010	00:00:00	25	R	ugm-3 (VCM)
07/10/2010	00:00:00	25	R	ugm-3 (VCM)
25/10/2010	00:00:00	25	R	ugm-3 (VCM)
04/12/2010	00:00:00	25	R	ugm-3 (VCM)

04/01/2010	00:00:00	26	R	ugm-3 (VCM)
15/01/2010	00:00:00	26	R	ugm-3 (VCM)
14/02/2010	00:00:00	26	R	ugm-3 (VCM)
28/02/2010	00:00:00	26	R	ugm-3 (VCM)
13/05/2010	00:00:00	26	R	ugm-3 (VCM)
19/05/2010	00:00:00	26	R	ugm-3 (VCM)
02/06/2010	00:00:00	26	R	ugm-3 (VCM)
03/06/2010	00:00:00	26	R	ugm-3 (VCM)
16/06/2010	00:00:00	26	R	ugm-3 (VCM)
26/06/2010	00:00:00	26	R	ugm-3 (VCM)
21/09/2010	00:00:00	26	R	ugm-3 (VCM)
11/10/2010	00:00:00	26	R	ugm-3 (VCM)
13/11/2010	00:00:00	26	R	ugm-3 (VCM)
23/11/2010	00:00:00	26	R	ugm-3 (VCM)
28/12/2010	00:00:00	26	R	ugm-3 (VCM)
31/12/2010	00:00:00	26	R	ugm-3 (VCM)
07/02/2010	00:00:00	27	R	ugm-3 (VCM)
21/02/2010	00:00:00	27	R	ugm-3 (VCM)
25/03/2010	00:00:00	27	R	ugm-3 (VCM)
01/06/2010	00:00:00	27	R	ugm-3 (VCM)
17/06/2010	00:00:00	27	R	ugm-3 (VCM)
01/09/2010	00:00:00	27	R	ugm-3 (VCM)
08/09/2010	00:00:00	27	R	ugm-3 (VCM)
09/09/2010	00:00:00	27	R	ugm-3 (VCM)
12/10/2010	00:00:00	27	R	ugm-3 (VCM)
11/12/2010	00:00:00	27	R	ugm-3 (VCM)
29/12/2010	00:00:00	27	R	ugm-3 (VCM)
16/02/2010	00:00:00	28	R	ugm-3 (VCM)
23/02/2010	00:00:00	28	R	ugm-3 (VCM)
27/02/2010	00:00:00	28	R	ugm-3 (VCM)
02/04/2010	00:00:00	28	R	ugm-3 (VCM)
17/04/2010	00:00:00	28	R	ugm-3 (VCM)
04/05/2010	00:00:00	28	R	ugm-3 (VCM)
23/05/2010	00:00:00	28	R	ugm-3 (VCM)
23/06/2010	00:00:00	28	R	ugm-3 (VCM)
06/09/2010	00:00:00	28	R	ugm-3 (VCM)
22/09/2010	00:00:00	28	R	ugm-3 (VCM)
26/01/2010	00:00:00	29	R	ugm-3 (VCM)
11/02/2010	00:00:00	29	R	ugm-3 (VCM)
12/03/2010	00:00:00	29	R	ugm-3 (VCM)
11/04/2010	00:00:00	29	R	ugm-3 (VCM)
04/06/2010	00:00:00	29	R	ugm-3 (VCM)
03/12/2010	00:00:00	29	R	ugm-3 (VCM)
13/01/2010	00:00:00	30	R	ugm-3 (VCM)
25/01/2010	00:00:00	30	R	ugm-3 (VCM)
28/04/2010	00:00:00	30	R	ugm-3 (VCM)
21/06/2010	00:00:00	30	R	ugm-3 (VCM)
22/06/2010	00:00:00	30	R	ugm-3 (VCM)
19/11/2010	00:00:00	30	R	ugm-3 (VCM)
20/12/2010	00:00:00	30	R	ugm-3 (VCM)
05/02/2010	00:00:00	31	R	ugm-3 (VCM)
13/02/2010	00:00:00	31	R	ugm-3 (VCM)
18/12/2010	00:00:00	31	R	ugm-3 (VCM)
26/12/2010	00:00:00	31	R	ugm-3 (VCM)
30/12/2010	00:00:00	31	R	ugm-3 (VCM)

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17/02/2010	00:00:00	32	R	ugm-3 (VCM)
13/03/2010	00:00:00	32	R	ugm-3 (VCM)
18/03/2010	00:00:00	32	R	ugm-3 (VCM)
21/05/2010	00:00:00	32	R	ugm-3 (VCM)
18/06/2010	00:00:00	32	R	ugm-3 (VCM)
04/09/2010	00:00:00	32	R	ugm-3 (VCM)
21/12/2010	00:00:00	32	R	ugm-3 (VCM)
07/01/2010	00:00:00	33	R	ugm-3 (VCM)
01/04/2010	00:00:00	33	R	ugm-3 (VCM)
22/05/2010	00:00:00	33	R	ugm-3 (VCM)
03/09/2010	00:00:00	33	R	ugm-3 (VCM)
09/10/2010	00:00:00	33	R	ugm-3 (VCM)
22/12/2010	00:00:00	33	R	ugm-3 (VCM)
25/12/2010	00:00:00	33	R	ugm-3 (VCM)
10/02/2010	00:00:00	34	R	ugm-3 (VCM)
17/03/2010	00:00:00	34	R	ugm-3 (VCM)
19/03/2010	00:00:00	34	R	ugm-3 (VCM)
21/03/2010	00:00:00	34	R	ugm-3 (VCM)
27/04/2010	00:00:00	34	R	ugm-3 (VCM)
18/05/2010	00:00:00	34	R	ugm-3 (VCM)
05/06/2010	00:00:00	34	R	ugm-3 (VCM)
10/10/2010	00:00:00	34	R	ugm-3 (VCM)
13/10/2010	00:00:00	34	R	ugm-3 (VCM)
08/12/2010	00:00:00	34	R	ugm-3 (VCM)
09/02/2010	00:00:00	35	R	ugm-3 (VCM)
15/03/2010	00:00:00	35	R	ugm-3 (VCM)
08/04/2010	00:00:00	35	R	ugm-3 (VCM)
22/04/2010	00:00:00	35	R	ugm-3 (VCM)
12/12/2010	00:00:00	35	R	ugm-3 (VCM)
09/01/2010	00:00:00	36	R	ugm-3 (VCM)
14/01/2010	00:00:00	36	R	ugm-3 (VCM)
30/01/2010	00:00:00	36	R	ugm-3 (VCM)
20/02/2010	00:00:00	36	R	ugm-3 (VCM)
22/02/2010	00:00:00	36	R	ugm-3 (VCM)
25/04/2010	00:00:00	36	R	ugm-3 (VCM)
07/12/2010	00:00:00	36	R	ugm-3 (VCM)
08/01/2010	00:00:00	37	R	ugm-3 (VCM)
19/02/2010	00:00:00	37	R	ugm-3 (VCM)
14/04/2010	00:00:00	37	R	ugm-3 (VCM)
04/02/2010	00:00:00	38	R	ugm-3 (VCM)
03/02/2010	00:00:00	39	R	ugm-3 (VCM)
23/03/2010	00:00:00	39	R	ugm-3 (VCM)
13/04/2010	00:00:00	40	R	ugm-3 (VCM)
15/04/2010	00:00:00	40	R	ugm-3 (VCM)
24/04/2010	00:00:00	40	R	ugm-3 (VCM)
23/12/2010	00:00:00	40	R	ugm-3 (VCM)
24/12/2010	00:00:00	40	R	ugm-3 (VCM)
20/03/2010	00:00:00	42	R	ugm-3 (VCM)
18/02/2010	00:00:00	45	R	ugm-3 (VCM)
16/03/2010	00:00:00	45	R	ugm-3 (VCM)
01/02/2010	00:00:00	47	R	ugm-3 (VCM)
05/03/2010	00:00:00	47	R	ugm-3 (VCM)
12/04/2010	00:00:00	47	R	ugm-3 (VCM)
06/03/2010	00:00:00	52	R	ugm-3 (VCM)
07/03/2010	00:00:00	56	R	ugm-3 (VCM)

16/04/2010	00:00:00	57	R	ugm-3 (VCM)
09/04/2010	00:00:00	58	R	ugm-3 (VCM)
01/03/2010	00:00:00	61	R	ugm-3 (VCM)
10/03/2010	00:00:00	62	R	ugm-3 (VCM)
03/03/2010	00:00:00	67	R	ugm-3 (VCM)
04/03/2010	00:00:00	71	R	ugm-3 (VCM)
08/03/2010	00:00:00	74	R	ugm-3 (VCM)
02/03/2010	00:00:00	76	R	ugm-3 (VCM)
09/03/2010	00:00:00	81	R	ugm-3 (VCM)
11/03/2010	00:00:00	97	R	ugm-3 (VCM)
Perth Atholl Street				
PM10 particulate matter (Hourly measured)				
End Date	End Time	Status		Units
Daily Mean data supplied by AEA on 17/5/2011				
All Data GMT hour ending				
Status: R= Ratified A=As supplied P=Provisional S=Suspect				

10/04/2010 00:00:00
 10/07/2010 00:00:00
 11/07/2010 00:00:00
 12/07/2010 00:00:00
 13/07/2010 00:00:00
 14/07/2010 00:00:00
 15/07/2010 00:00:00
 16/07/2010 00:00:00
 22/08/2010 00:00:00
 23/08/2010 00:00:00
 24/08/2010 00:00:00
 12/09/2010 00:00:00
 13/09/2010 00:00:00
 14/09/2010 00:00:00
 18/09/2010 00:00:00
 19/09/2010 00:00:00
 01/10/2010 00:00:00
 02/10/2010 00:00:00
 03/10/2010 00:00:00
 04/10/2010 00:00:00
 05/10/2010 00:00:00
 06/10/2010 00:00:00
 13/12/2010 00:00:00
 14/12/2010 00:00:00
 15/12/2010 00:00:00
 16/12/2010 00:00:00
 17/12/2010 00:00:00

PM10 Hrly Exceedences High Street 2010

30/03/2010	00:00:00	4	R	ugm-3 (VCM)
28/11/2010	00:00:00	4	R	ugm-3 (VCM)
18/04/2010	00:00:00	6	R	ugm-3 (VCM)
24/02/2010	00:00:00	7	R	ugm-3 (VCM)
25/02/2010	00:00:00	7	R	ugm-3 (VCM)
11/07/2010	00:00:00	7	R	ugm-3 (VCM)

Date April 2011

Perth & Kinross Council - Scotland

01/08/2010	00:00:00	7	R	ugm-3 (VCM)
27/10/2010	00:00:00	7	R	ugm-3 (VCM)
12/11/2010	00:00:00	7	R	ugm-3 (VCM)
31/03/2010	00:00:00	8	R	ugm-3 (VCM)
13/09/2010	00:00:00	8	R	ugm-3 (VCM)
29/10/2010	00:00:00	8	R	ugm-3 (VCM)
04/04/2010	00:00:00	9	R	ugm-3 (VCM)
06/04/2010	00:00:00	9	R	ugm-3 (VCM)
15/07/2010	00:00:00	9	R	ugm-3 (VCM)
25/07/2010	00:00:00	9	R	ugm-3 (VCM)
28/07/2010	00:00:00	9	R	ugm-3 (VCM)
29/08/2010	00:00:00	9	R	ugm-3 (VCM)
14/09/2010	00:00:00	9	R	ugm-3 (VCM)
15/09/2010	00:00:00	9	R	ugm-3 (VCM)
16/09/2010	00:00:00	9	R	ugm-3 (VCM)
20/09/2010	00:00:00	9	R	ugm-3 (VCM)
21/10/2010	00:00:00	9	R	ugm-3 (VCM)
03/11/2010	00:00:00	9	R	ugm-3 (VCM)
29/11/2010	00:00:00	9	R	ugm-3 (VCM)
10/12/2010	00:00:00	9	R	ugm-3 (VCM)
16/12/2010	00:00:00	9	R	ugm-3 (VCM)
02/01/2010	00:00:00	10	R	ugm-3 (VCM)
28/03/2010	00:00:00	10	R	ugm-3 (VCM)
16/05/2010	00:00:00	10	R	ugm-3 (VCM)
04/07/2010	00:00:00	10	R	ugm-3 (VCM)
10/07/2010	00:00:00	10	R	ugm-3 (VCM)
16/07/2010	00:00:00	10	R	ugm-3 (VCM)
21/07/2010	00:00:00	10	R	ugm-3 (VCM)
27/07/2010	00:00:00	10	R	ugm-3 (VCM)
04/08/2010	00:00:00	10	R	ugm-3 (VCM)
12/08/2010	00:00:00	10	R	ugm-3 (VCM)
28/08/2010	00:00:00	10	R	ugm-3 (VCM)
11/09/2010	00:00:00	10	R	ugm-3 (VCM)
23/09/2010	00:00:00	10	R	ugm-3 (VCM)
24/09/2010	00:00:00	10	R	ugm-3 (VCM)
19/10/2010	00:00:00	10	R	ugm-3 (VCM)
22/10/2010	00:00:00	10	R	ugm-3 (VCM)
28/10/2010	00:00:00	10	R	ugm-3 (VCM)
11/11/2010	00:00:00	10	R	ugm-3 (VCM)
01/12/2010	00:00:00	10	R	ugm-3 (VCM)
26/02/2010	00:00:00	11	R	ugm-3 (VCM)
11/05/2010	00:00:00	11	R	ugm-3 (VCM)
30/05/2010	00:00:00	11	R	ugm-3 (VCM)
05/07/2010	00:00:00	11	R	ugm-3 (VCM)
14/07/2010	00:00:00	11	R	ugm-3 (VCM)
18/07/2010	00:00:00	11	R	ugm-3 (VCM)
31/07/2010	00:00:00	11	R	ugm-3 (VCM)
17/08/2010	00:00:00	11	R	ugm-3 (VCM)
17/09/2010	00:00:00	11	R	ugm-3 (VCM)
23/10/2010	00:00:00	11	R	ugm-3 (VCM)
31/10/2010	00:00:00	11	R	ugm-3 (VCM)
24/11/2010	00:00:00	11	R	ugm-3 (VCM)
12/01/2010	00:00:00	12	R	ugm-3 (VCM)
05/04/2010	00:00:00	12	R	ugm-3 (VCM)
02/05/2010	00:00:00	12	R	ugm-3 (VCM)

12/05/2010	00:00:00	12	R	ugm-3 (VCM)
14/05/2010	00:00:00	12	R	ugm-3 (VCM)
27/05/2010	00:00:00	12	R	ugm-3 (VCM)
08/06/2010	00:00:00	12	R	ugm-3 (VCM)
24/06/2010	00:00:00	12	R	ugm-3 (VCM)
17/07/2010	00:00:00	12	R	ugm-3 (VCM)
03/08/2010	00:00:00	12	R	ugm-3 (VCM)
05/08/2010	00:00:00	12	R	ugm-3 (VCM)
18/08/2010	00:00:00	12	R	ugm-3 (VCM)
22/08/2010	00:00:00	12	R	ugm-3 (VCM)
10/09/2010	00:00:00	12	R	ugm-3 (VCM)
12/09/2010	00:00:00	12	R	ugm-3 (VCM)
03/10/2010	00:00:00	12	R	ugm-3 (VCM)
18/10/2010	00:00:00	12	R	ugm-3 (VCM)
20/10/2010	00:00:00	12	R	ugm-3 (VCM)
24/10/2010	00:00:00	12	R	ugm-3 (VCM)
25/11/2010	00:00:00	12	R	ugm-3 (VCM)
17/12/2010	00:00:00	12	R	ugm-3 (VCM)
28/01/2010	00:00:00	13	R	ugm-3 (VCM)
15/02/2010	00:00:00	13	R	ugm-3 (VCM)
26/03/2010	00:00:00	13	R	ugm-3 (VCM)
20/04/2010	00:00:00	13	R	ugm-3 (VCM)
26/04/2010	00:00:00	13	R	ugm-3 (VCM)
12/06/2010	00:00:00	13	R	ugm-3 (VCM)
07/07/2010	00:00:00	13	R	ugm-3 (VCM)
09/07/2010	00:00:00	13	R	ugm-3 (VCM)
12/07/2010	00:00:00	13	R	ugm-3 (VCM)
13/07/2010	00:00:00	13	R	ugm-3 (VCM)
22/07/2010	00:00:00	13	R	ugm-3 (VCM)
26/07/2010	00:00:00	13	R	ugm-3 (VCM)
10/08/2010	00:00:00	13	R	ugm-3 (VCM)
11/08/2010	00:00:00	13	R	ugm-3 (VCM)
13/08/2010	00:00:00	13	R	ugm-3 (VCM)
21/08/2010	00:00:00	13	R	ugm-3 (VCM)
06/10/2010	00:00:00	13	R	ugm-3 (VCM)
04/11/2010	00:00:00	13	R	ugm-3 (VCM)
05/11/2010	00:00:00	13	R	ugm-3 (VCM)
14/11/2010	00:00:00	13	R	ugm-3 (VCM)
20/11/2010	00:00:00	13	R	ugm-3 (VCM)
21/11/2010	00:00:00	13	R	ugm-3 (VCM)
22/11/2010	00:00:00	13	R	ugm-3 (VCM)
30/11/2010	00:00:00	13	R	ugm-3 (VCM)
16/01/2010	00:00:00	14	R	ugm-3 (VCM)
22/03/2010	00:00:00	14	R	ugm-3 (VCM)
03/04/2010	00:00:00	14	R	ugm-3 (VCM)
19/04/2010	00:00:00	14	R	ugm-3 (VCM)
30/04/2010	00:00:00	14	R	ugm-3 (VCM)
01/05/2010	00:00:00	14	R	ugm-3 (VCM)
10/05/2010	00:00:00	14	R	ugm-3 (VCM)
26/05/2010	00:00:00	14	R	ugm-3 (VCM)
28/05/2010	00:00:00	14	R	ugm-3 (VCM)
13/06/2010	00:00:00	14	R	ugm-3 (VCM)
19/06/2010	00:00:00	14	R	ugm-3 (VCM)
20/08/2010	00:00:00	14	R	ugm-3 (VCM)
27/08/2010	00:00:00	14	R	ugm-3 (VCM)

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25/09/2010	00:00:00	14	R	ugm-3 (VCM)
04/10/2010	00:00:00	14	R	ugm-3 (VCM)
30/10/2010	00:00:00	14	R	ugm-3 (VCM)
02/11/2010	00:00:00	14	R	ugm-3 (VCM)
07/11/2010	00:00:00	14	R	ugm-3 (VCM)
26/11/2010	00:00:00	14	R	ugm-3 (VCM)
10/01/2010	00:00:00	15	R	ugm-3 (VCM)
20/01/2010	00:00:00	15	R	ugm-3 (VCM)
23/01/2010	00:00:00	15	R	ugm-3 (VCM)
24/01/2010	00:00:00	15	R	ugm-3 (VCM)
14/03/2010	00:00:00	15	R	ugm-3 (VCM)
29/03/2010	00:00:00	15	R	ugm-3 (VCM)
21/04/2010	00:00:00	15	R	ugm-3 (VCM)
06/05/2010	00:00:00	15	R	ugm-3 (VCM)
09/05/2010	00:00:00	15	R	ugm-3 (VCM)
17/05/2010	00:00:00	15	R	ugm-3 (VCM)
20/06/2010	00:00:00	15	R	ugm-3 (VCM)
03/07/2010	00:00:00	15	R	ugm-3 (VCM)
08/07/2010	00:00:00	15	R	ugm-3 (VCM)
19/07/2010	00:00:00	15	R	ugm-3 (VCM)
30/07/2010	00:00:00	15	R	ugm-3 (VCM)
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09/08/2010	00:00:00	15	R	ugm-3 (VCM)
14/08/2010	00:00:00	15	R	ugm-3 (VCM)
15/08/2010	00:00:00	15	R	ugm-3 (VCM)
24/08/2010	00:00:00	15	R	ugm-3 (VCM)
25/08/2010	00:00:00	15	R	ugm-3 (VCM)
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26/10/2010	00:00:00	15	R	ugm-3 (VCM)
27/11/2010	00:00:00	15	R	ugm-3 (VCM)
05/01/2010	00:00:00	16	R	ugm-3 (VCM)
17/01/2010	00:00:00	16	R	ugm-3 (VCM)
27/03/2010	00:00:00	16	R	ugm-3 (VCM)
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07/06/2010	00:00:00	16	R	ugm-3 (VCM)
25/06/2010	00:00:00	16	R	ugm-3 (VCM)
29/06/2010	00:00:00	16	R	ugm-3 (VCM)
01/07/2010	00:00:00	16	R	ugm-3 (VCM)
06/07/2010	00:00:00	16	R	ugm-3 (VCM)
29/07/2010	00:00:00	16	R	ugm-3 (VCM)
02/08/2010	00:00:00	16	R	ugm-3 (VCM)
19/08/2010	00:00:00	16	R	ugm-3 (VCM)
23/08/2010	00:00:00	16	R	ugm-3 (VCM)
02/10/2010	00:00:00	16	R	ugm-3 (VCM)
15/10/2010	00:00:00	16	R	ugm-3 (VCM)
16/10/2010	00:00:00	16	R	ugm-3 (VCM)
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06/11/2010	00:00:00	16	R	ugm-3 (VCM)
09/12/2010	00:00:00	16	R	ugm-3 (VCM)
18/01/2010	00:00:00	17	R	ugm-3 (VCM)

27/01/2010	00:00:00	17	R	ugm-3 (VCM)
08/02/2010	00:00:00	17	R	ugm-3 (VCM)
24/03/2010	00:00:00	17	R	ugm-3 (VCM)
07/04/2010	00:00:00	17	R	ugm-3 (VCM)
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15/05/2010	00:00:00	17	R	ugm-3 (VCM)
25/05/2010	00:00:00	17	R	ugm-3 (VCM)
09/06/2010	00:00:00	17	R	ugm-3 (VCM)
14/06/2010	00:00:00	17	R	ugm-3 (VCM)
28/06/2010	00:00:00	17	R	ugm-3 (VCM)
02/07/2010	00:00:00	17	R	ugm-3 (VCM)
24/07/2010	00:00:00	17	R	ugm-3 (VCM)
07/08/2010	00:00:00	17	R	ugm-3 (VCM)
08/08/2010	00:00:00	17	R	ugm-3 (VCM)
26/08/2010	00:00:00	17	R	ugm-3 (VCM)
29/09/2010	00:00:00	17	R	ugm-3 (VCM)
30/09/2010	00:00:00	17	R	ugm-3 (VCM)
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19/12/2010	00:00:00	17	R	ugm-3 (VCM)
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22/01/2010	00:00:00	18	R	ugm-3 (VCM)
29/01/2010	00:00:00	18	R	ugm-3 (VCM)
03/05/2010	00:00:00	18	R	ugm-3 (VCM)
05/05/2010	00:00:00	18	R	ugm-3 (VCM)
07/05/2010	00:00:00	18	R	ugm-3 (VCM)
20/05/2010	00:00:00	18	R	ugm-3 (VCM)
31/05/2010	00:00:00	18	R	ugm-3 (VCM)
20/07/2010	00:00:00	18	R	ugm-3 (VCM)
23/07/2010	00:00:00	18	R	ugm-3 (VCM)
31/08/2010	00:00:00	18	R	ugm-3 (VCM)
13/11/2010	00:00:00	18	R	ugm-3 (VCM)
15/11/2010	00:00:00	18	R	ugm-3 (VCM)
16/11/2010	00:00:00	18	R	ugm-3 (VCM)
17/11/2010	00:00:00	18	R	ugm-3 (VCM)
06/12/2010	00:00:00	18	R	ugm-3 (VCM)
27/12/2010	00:00:00	18	R	ugm-3 (VCM)
08/04/2010	00:00:00	19	R	ugm-3 (VCM)
17/04/2010	00:00:00	19	R	ugm-3 (VCM)
28/04/2010	00:00:00	19	R	ugm-3 (VCM)
08/05/2010	00:00:00	19	R	ugm-3 (VCM)
01/06/2010	00:00:00	19	R	ugm-3 (VCM)
06/06/2010	00:00:00	19	R	ugm-3 (VCM)
11/06/2010	00:00:00	19	R	ugm-3 (VCM)
16/08/2010	00:00:00	19	R	ugm-3 (VCM)
21/09/2010	00:00:00	19	R	ugm-3 (VCM)
18/11/2010	00:00:00	19	R	ugm-3 (VCM)
05/12/2010	00:00:00	19	R	ugm-3 (VCM)
06/01/2010	00:00:00	20	R	ugm-3 (VCM)
11/01/2010	00:00:00	20	R	ugm-3 (VCM)
15/01/2010	00:00:00	20	R	ugm-3 (VCM)
29/05/2010	00:00:00	20	R	ugm-3 (VCM)
27/06/2010	00:00:00	20	R	ugm-3 (VCM)
27/09/2010	00:00:00	20	R	ugm-3 (VCM)
28/09/2010	00:00:00	20	R	ugm-3 (VCM)

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08/10/2010	00:00:00	20	R	ugm-3 (VCM)
23/11/2010	00:00:00	20	R	ugm-3 (VCM)
02/12/2010	00:00:00	20	R	ugm-3 (VCM)
03/01/2010	00:00:00	21	R	ugm-3 (VCM)
19/01/2010	00:00:00	21	R	ugm-3 (VCM)
31/01/2010	00:00:00	21	R	ugm-3 (VCM)
02/02/2010	00:00:00	21	R	ugm-3 (VCM)
06/02/2010	00:00:00	21	R	ugm-3 (VCM)
14/02/2010	00:00:00	21	R	ugm-3 (VCM)
16/02/2010	00:00:00	21	R	ugm-3 (VCM)
15/03/2010	00:00:00	21	R	ugm-3 (VCM)
25/03/2010	00:00:00	21	R	ugm-3 (VCM)
27/04/2010	00:00:00	21	R	ugm-3 (VCM)
04/05/2010	00:00:00	21	R	ugm-3 (VCM)
02/06/2010	00:00:00	21	R	ugm-3 (VCM)
10/06/2010	00:00:00	21	R	ugm-3 (VCM)
15/06/2010	00:00:00	21	R	ugm-3 (VCM)
30/06/2010	00:00:00	21	R	ugm-3 (VCM)
14/10/2010	00:00:00	21	R	ugm-3 (VCM)
04/12/2010	00:00:00	21	R	ugm-3 (VCM)
15/12/2010	00:00:00	21	R	ugm-3 (VCM)
31/12/2010	00:00:00	21	R	ugm-3 (VCM)
21/01/2010	00:00:00	22	R	ugm-3 (VCM)
26/01/2010	00:00:00	22	R	ugm-3 (VCM)
18/03/2010	00:00:00	22	R	ugm-3 (VCM)
24/05/2010	00:00:00	22	R	ugm-3 (VCM)
07/10/2010	00:00:00	22	R	ugm-3 (VCM)
04/01/2010	00:00:00	23	R	ugm-3 (VCM)
01/02/2010	00:00:00	23	R	ugm-3 (VCM)
17/03/2010	00:00:00	23	R	ugm-3 (VCM)
19/03/2010	00:00:00	23	R	ugm-3 (VCM)
21/03/2010	00:00:00	23	R	ugm-3 (VCM)
18/05/2010	00:00:00	23	R	ugm-3 (VCM)
17/06/2010	00:00:00	23	R	ugm-3 (VCM)
09/09/2010	00:00:00	23	R	ugm-3 (VCM)
22/09/2010	00:00:00	23	R	ugm-3 (VCM)
12/10/2010	00:00:00	23	R	ugm-3 (VCM)
19/11/2010	00:00:00	23	R	ugm-3 (VCM)
11/12/2010	00:00:00	23	R	ugm-3 (VCM)
28/12/2010	00:00:00	23	R	ugm-3 (VCM)
29/12/2010	00:00:00	23	R	ugm-3 (VCM)
07/02/2010	00:00:00	24	R	ugm-3 (VCM)
23/02/2010	00:00:00	24	R	ugm-3 (VCM)
11/04/2010	00:00:00	24	R	ugm-3 (VCM)
22/04/2010	00:00:00	24	R	ugm-3 (VCM)
23/05/2010	00:00:00	24	R	ugm-3 (VCM)
16/06/2010	00:00:00	24	R	ugm-3 (VCM)
02/09/2010	00:00:00	24	R	ugm-3 (VCM)
05/09/2010	00:00:00	24	R	ugm-3 (VCM)
11/10/2010	00:00:00	24	R	ugm-3 (VCM)
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23/06/2010	00:00:00	25	R	ugm-3 (VCM)
07/09/2010	00:00:00	25	R	ugm-3 (VCM)
25/01/2010	00:00:00	26	R	ugm-3 (VCM)

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16/03/2010	00:00:00	26	R	ugm-3 (VCM)
14/04/2010	00:00:00	26	R	ugm-3 (VCM)
22/05/2010	00:00:00	26	R	ugm-3 (VCM)
03/06/2010	00:00:00	26	R	ugm-3 (VCM)
01/09/2010	00:00:00	26	R	ugm-3 (VCM)
03/12/2010	00:00:00	26	R	ugm-3 (VCM)
20/12/2010	00:00:00	26	R	ugm-3 (VCM)
07/01/2010	00:00:00	27	R	ugm-3 (VCM)
13/01/2010	00:00:00	27	R	ugm-3 (VCM)
05/02/2010	00:00:00	27	R	ugm-3 (VCM)
23/03/2010	00:00:00	27	R	ugm-3 (VCM)
18/12/2010	00:00:00	27	R	ugm-3 (VCM)
30/12/2010	00:00:00	27	R	ugm-3 (VCM)
17/02/2010	00:00:00	28	R	ugm-3 (VCM)
28/02/2010	00:00:00	28	R	ugm-3 (VCM)
13/10/2010	00:00:00	28	R	ugm-3 (VCM)
11/02/2010	00:00:00	29	R	ugm-3 (VCM)
10/04/2010	00:00:00	29	R	ugm-3 (VCM)
15/04/2010	00:00:00	29	R	ugm-3 (VCM)
21/05/2010	00:00:00	29	R	ugm-3 (VCM)
08/12/2010	00:00:00	29	R	ugm-3 (VCM)
25/12/2010	00:00:00	29	R	ugm-3 (VCM)
26/12/2010	00:00:00	29	R	ugm-3 (VCM)
12/04/2010	00:00:00	30	R	ugm-3 (VCM)
04/06/2010	00:00:00	30	R	ugm-3 (VCM)
21/06/2010	00:00:00	30	R	ugm-3 (VCM)
12/12/2010	00:00:00	30	R	ugm-3 (VCM)
14/01/2010	00:00:00	31	R	ugm-3 (VCM)
12/02/2010	00:00:00	31	R	ugm-3 (VCM)
13/04/2010	00:00:00	31	R	ugm-3 (VCM)
25/04/2010	00:00:00	31	R	ugm-3 (VCM)
26/06/2010	00:00:00	31	R	ugm-3 (VCM)
06/09/2010	00:00:00	31	R	ugm-3 (VCM)
08/09/2010	00:00:00	31	R	ugm-3 (VCM)
07/12/2010	00:00:00	31	R	ugm-3 (VCM)
13/12/2010	00:00:00	31	R	ugm-3 (VCM)
21/12/2010	00:00:00	31	R	ugm-3 (VCM)
05/03/2010	00:00:00	32	R	ugm-3 (VCM)
20/03/2010	00:00:00	32	R	ugm-3 (VCM)
09/04/2010	00:00:00	32	R	ugm-3 (VCM)
03/09/2010	00:00:00	32	R	ugm-3 (VCM)
09/01/2010	00:00:00	33	R	ugm-3 (VCM)
27/02/2010	00:00:00	33	R	ugm-3 (VCM)
22/12/2010	00:00:00	33	R	ugm-3 (VCM)
08/01/2010	00:00:00	34	R	ugm-3 (VCM)
30/01/2010	00:00:00	34	R	ugm-3 (VCM)
04/02/2010	00:00:00	34	R	ugm-3 (VCM)
13/02/2010	00:00:00	34	R	ugm-3 (VCM)
06/03/2010	00:00:00	34	R	ugm-3 (VCM)
09/10/2010	00:00:00	34	R	ugm-3 (VCM)
20/02/2010	00:00:00	35	R	ugm-3 (VCM)
11/03/2010	00:00:00	35	R	ugm-3 (VCM)
24/04/2010	00:00:00	35	R	ugm-3 (VCM)
05/06/2010	00:00:00	35	R	ugm-3 (VCM)

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16/04/2010	00:00:00	36	R	ugm-3 (VCM)
18/06/2010	00:00:00	36	R	ugm-3 (VCM)
10/10/2010	00:00:00	36	R	ugm-3 (VCM)
09/02/2010	00:00:00	37	R	ugm-3 (VCM)
07/03/2010	00:00:00	37	R	ugm-3 (VCM)
24/12/2010	00:00:00	37	R	ugm-3 (VCM)
18/02/2010	00:00:00	38	R	ugm-3 (VCM)
04/09/2010	00:00:00	38	R	ugm-3 (VCM)
19/02/2010	00:00:00	39	R	ugm-3 (VCM)
23/12/2010	00:00:00	39	R	ugm-3 (VCM)
03/02/2010	00:00:00	40	R	ugm-3 (VCM)
10/02/2010	00:00:00	40	R	ugm-3 (VCM)
01/03/2010	00:00:00	42	R	ugm-3 (VCM)
14/12/2010	00:00:00	44	R	ugm-3 (VCM)
08/03/2010	00:00:00	46	R	ugm-3 (VCM)
10/03/2010	00:00:00	46	R	ugm-3 (VCM)
02/03/2010	00:00:00	52	R	ugm-3 (VCM)
09/03/2010	00:00:00	55	R	ugm-3 (VCM)
04/03/2010	00:00:00	57	R	ugm-3 (VCM)

Perth High Street
 PM10 particulate matter (Hourly
 measured)
 Daily Mean data supplied by AEA on 17/5/2011
 All Data GMT hour
 ending
 Status: R=Ratified A=As supplied P=Provisional S=Suspect

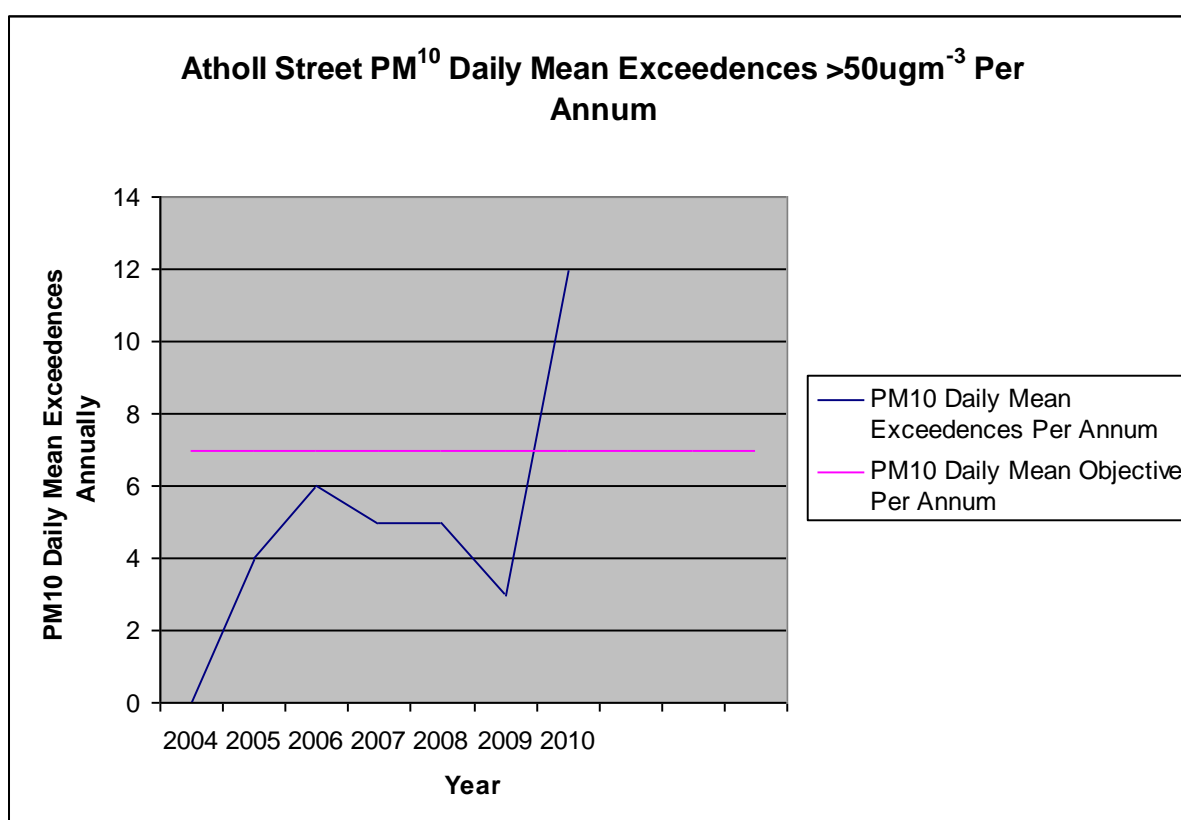
Status Units

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03/03/2010	00:00:00
12/03/2010	00:00:00
01/04/2010	00:00:00
02/04/2010	00:00:00
18/09/2010	00:00:00
19/09/2010	00:00:00
08/11/2010	00:00:00
09/11/2010	00:00:00
10/11/2010	00:00:00

End

Appendix D: Atholl Street PM₁₀ Daily Mean Exceedences >50ugm⁻³ per Annum

Year	2004	2005	2006	2007	2008	2009	2010
PM ¹⁰ Daily Mean Exceedences >50ugm ⁻³	0	4	6	5	5	3	12

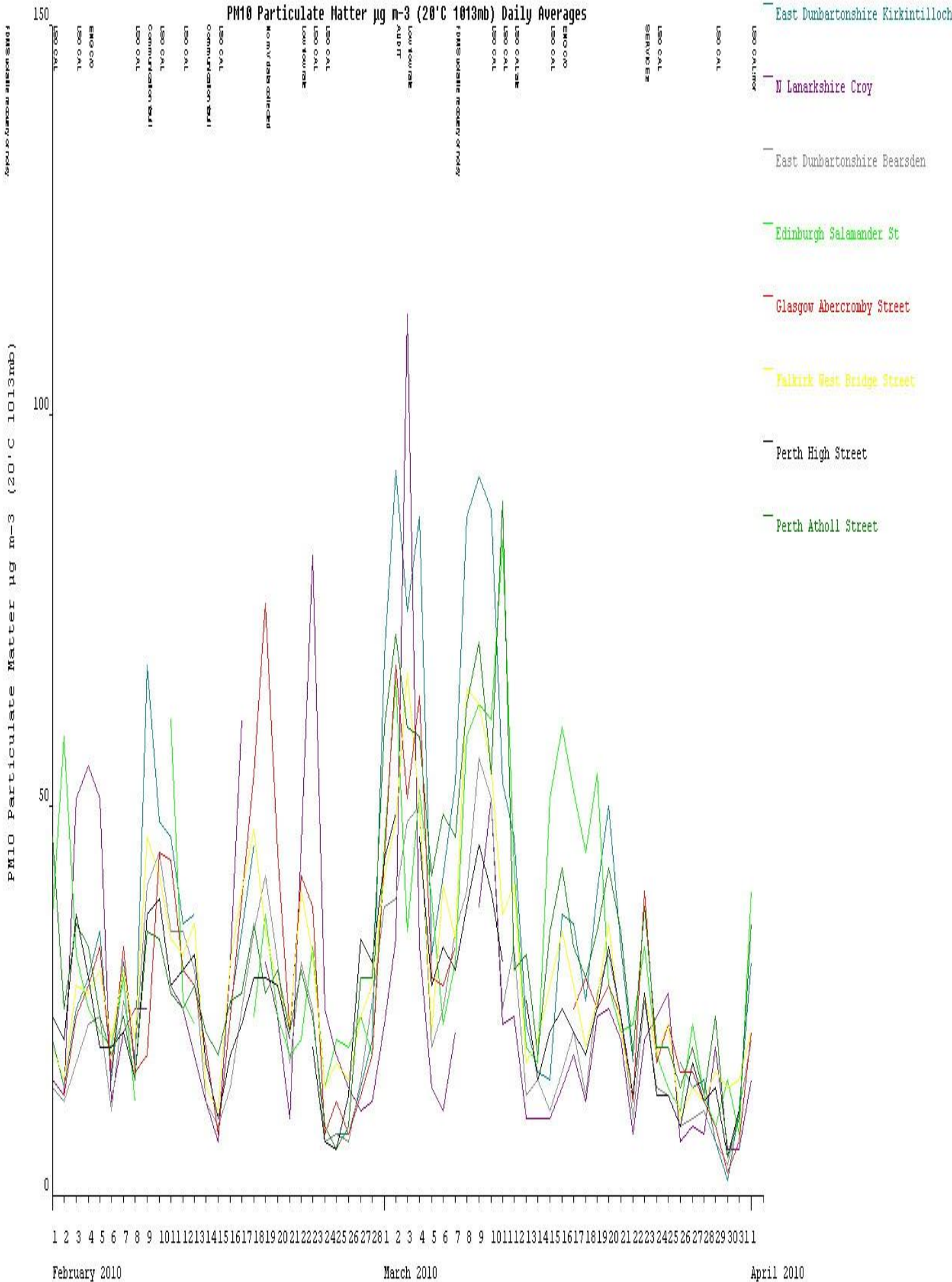


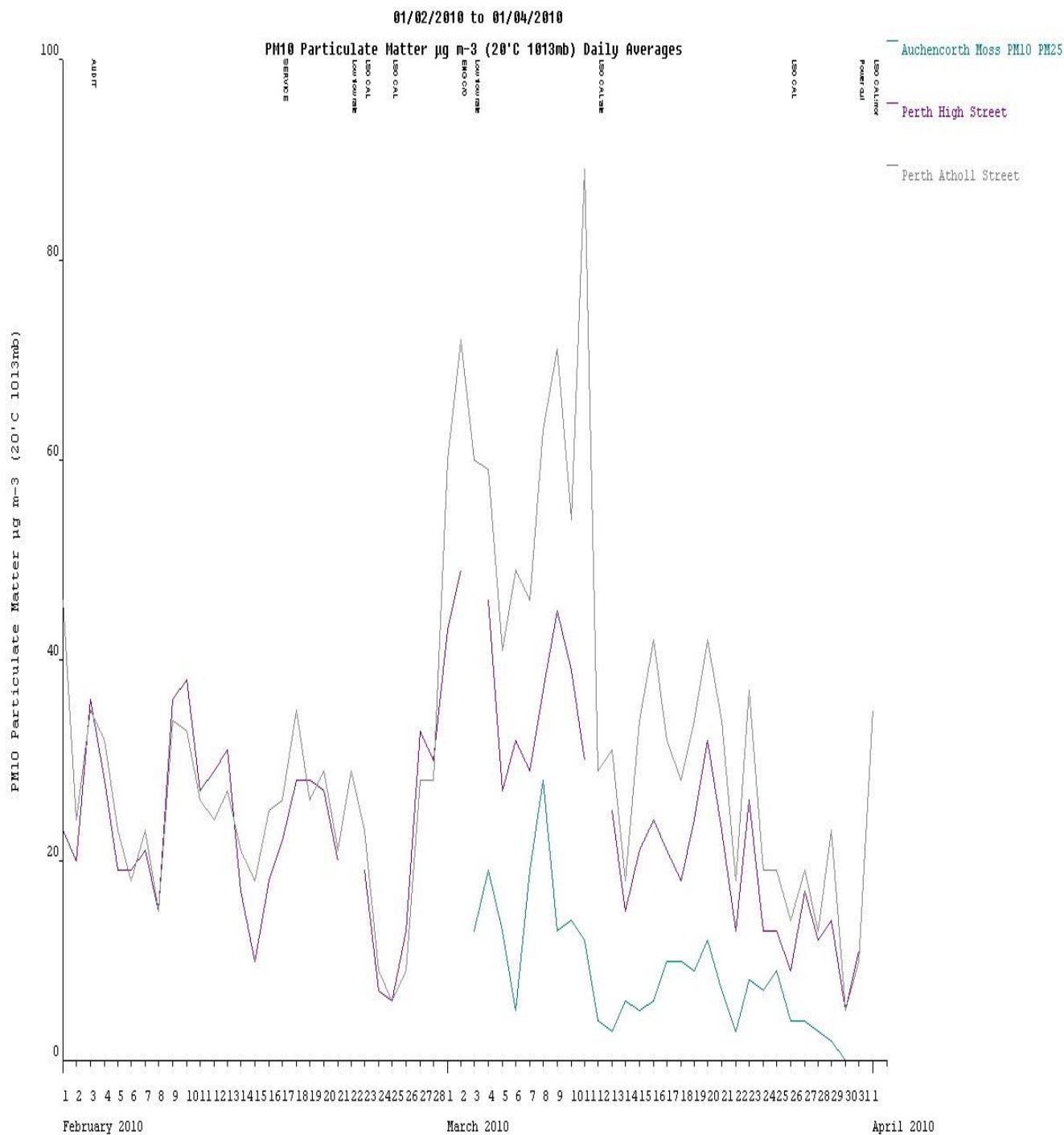
Appendix E: AEAT Correspondence regards PM10 Daily Exceedences**Perth Atholl Street: PM₁₀ Pollution Episode 28th February – 12th March 2010**

Elevated PM₁₀ concentrations were measured at Perth Atholl during the 28th February 2010 and the 12th March 2010. Figure 1 below shows that elevated concentrations of PM₁₀ were seen at other Scottish AQ sites during the fore mentioned period. These sites were mainly roadside sites. The Figure 2 also shows that elevated concentrations were also seen at the rural background site at Auchencorth Moss during this period. Investigations have also shown that weather conditions at the time were calm and generally dry. This suggests that the elevated concentration measured during this period at Perth Atholl Street were real. Calm dry weather conditions meant that PM10 emitted from road traffic and other anthropogenic sources did not disperse and were able to build up to significant levels close to their point of emission i.e. busy roadsides. This explains why it was mainly kerbside and roadside locations that recorded moderate or higher levels of PM10.

A report that was posted on the Scottish air quality website goes into some detail about a PM₁₀ episode in Scotland between 27th February and 4th March 2010. (<http://www.scottishairquality.co.uk/documents/news>)

01/02/2010 to 01/04/2010





Appendix F: Email Correspondence from LAQM Helpdesk

Dear Lynne,

Thank you for contacting the LAQM Helpdesk. Your query has been allocated the unique reference code: 0407 and you should use this as a reference for any further follow up regarding this response.

The purpose of the Progress Reports is to provide information about the state of air quality based on the most recent data and help to identify any emerging issues that might influence the air quality. When a Progress Report identifies a risk of any air quality objective not being met, a Detailed Assessment is required to establish with reasonable certainty whether or not the objective is likely to be exceeded.

In this case the monitoring data has identified the risk of exceedance of daily PM10 objective. Hence, a Detailed Assessment will be needed. A Detailed Assessment is required to amend, declare or revoke an AQMA.

The pollutant concentrations show year-on-year variation. So if this years data is showing exceedences for example due to more prevalent episodic conditions, it is possible that next years data may show compliance. Therefore, rather than entering in to cycle of declaration and revocation, it will be appropriate to establish with reasonable certainty that the exceedences are specific to a particular year. In your Progress Report you could discuss the results and suggest, as you mentioned in your email, that the council would continue monitoring at this location to establish that whether or not the exceedences are associated with this single year due to meteorological conditions. The report will be appraised by relevant authority and you will be informed if your conclusions are accepted.

I hope it helps.

Kind regards

Kind regards

Lakhu Luhana

LAQM Helpdesk Team

Email: LAQMHelpdesk@uk.bureauveritas.com

Telephone: 0800 032 7953

To: LAQMHelpdeskmail@VERITAS

cc: Attn: Lakhu Luhana/GBR/VERITAS

Subject: 0407 Perth & Kinross Councils Progress Report 2011

Further data analysis of our Daily Mean PM10 results for Atholl Street and High Street has shown that the 12 Daily Exceedences we obtained for Atholl Street all fall within the Month of March and the 3 Daily Exceedences at High Street where also within the same month. Therefore thus suggesting an Episodic Exceedance

Date April 2011

Perth & Kinross Council - Scotland

Occurrence has occurred. Would it be therefore prudent for us to include the data and a paragraph of script in our report justifying why we should not amend our air quality management order to include short term exceedences as this is the first year we have exceeded the limit of seven.

Regards

Lynne

Lynne Reid
Environmental Health Technical Officer
The Environment Service
Perth & Kinross Council