2011 Air Quality Progress Report for *The Moray Council*

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

June 2011

TSI Scotland

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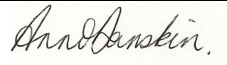
Signature	
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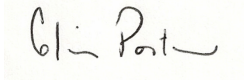
Signature	
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Executive Summary

The Local Air Quality Management process as set out in Part IV of the Environment Act (1995) (Ref.1) and the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 (Ref.2) requires all local authorities to complete a Progress Report due for submission in April 2011 in accordance with technical guidance LAQM.TG(09) (Ref.3). The progress report is intended to maintain continuity in the Local Air Quality Management (LAQM) process, and fill in the gaps between the three-yearly cycle of Review and Assessment.

This is the 2011 Progress Report for The Moray Council which identifies all matters regarding impacts to local air quality that are new or have changed since the last Progress Report in 2010 and whether further consideration of such changes is required.

The Air Quality Strategy (AQS) details objective concentrations for the following pollutants:

- Benzene
- 1,3-Butadiene
- Carbon Monoxide (CO)
- Lead
- Sulphur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)
- Particles (PM_{10})

Further to the conclusions of the 2005 Detailed Assessment and previous Review and Assessment reports, local monitoring has only been carried out for NO_2 in recent years. The results of the monitoring programme across The Moray Council are as follows:

- Diffusion tube results indicate that annual average concentrations of NO_2 are below the AQS annual mean objective of 40µg/m^3 at all monitoring locations. The maximum recorded annual mean concentration was 37µg/m^3.
- The annual average concentration of NO_2 has remained fairly constant from year to year at each site with no significant upward or downward trend.

A review of planning applications submitted in 2010 showed that there were no new developments likely to result in any exceedences of the AQS objectives for any pollutant.

Consultation with SEPA has confirmed that there are no new or significantly changed industrial sources likely to result in an exceedence of any AQS objectives for any pollutant.

The Moray Council Transportation Section confirmed that there were no new road developments with the potential to result in an exceedence of the AQS objectives. For the majority of roads, the Annual Average Daily Traffic (AADT) count has

decreased between 2009 to 2010. There was a significant increase of 23% in Thornhill Road which was due to temporary local diversions and the opening of a new medical centre. However, the AADT figure is still significantly below 10,000 and it is not a narrow street with canyon effects hence it is not necessary to undertake any further assessment at this stage. Traffic monitoring will continue at this location and will be reviewed in the US&A in 2012.

Transport Scotland was consulted regarding the AADT figures for the main trunk roads, the A95 and A96 within the Moray Council area. These figures showed an annual decrease in traffic flow across most links. The maximum increase was approximately 6% on the A95 west of Keith. It is not expected that there will be any exceedences of the NAQS objectives at nearby receptors due to changes in traffic flow on the trunk roads.

It is concluded that The Moray Council is not required to proceed to a Detailed Assessment for any pollutant.

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1 Introduction

1.1 Description of Local Authority Area

The Moray Council area is located in the north-east of Scotland between the main cities of Inverness and Aberdeen. It is bordered by The Highland Council area to the west and by Aberdeenshire Council to the south and east. The northern border of the Moray Council area is the coastline of the Moray Firth.

Topographically, the area is dominated by the Glens of the Grampian Mountain Range including large areas of forest and moorland to the south. The northern area is relatively flat with large expanses of agricultural land and coastal grassland.

The population of the Moray Council area is approximately 88,000 with the majority of residents living in the towns of Elgin, Forres, Fochabers, Keith, Buckie, Aberlour and Lossiemouth. The main industries are distilling, food processing and traditional farming, forestry and fishing. The RAF base in Kinloss is due to cease operation as a flight centre in 2011 while RAF Lossiemouth site is still operational.

There is a mainline passenger rail route passing through the north of the area that runs between Inverness and Aberdeen and the main Trunk Roads are the A96, which passes through Elgin and the A95 which passes through Keith, Craigellachie and Aberlour. The construction of a by-pass at Fochabers is well underway and is due to be opened in 2012.

The Moray Council boundary is shown in Figure 1 in Appendix A.

1.2 Purpose of Progress Report

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

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

1.3 Air Quality Objectives

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

Table 1-1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Scotland

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	50 $\mu g/m^3$, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	40 $\mu g/m^3$	Annual mean	31.12.2004
	18 $\mu g/m^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.2 summarises the Air Quality Review and Assessment reports submitted by The Moray Council since 2003.

Table 1-2 Summary of Previous Air Quality Review and Assessment Reports 2003-2010

Report	Date Completed	Summary and Conclusions
Updating & Screening Assessment[4]	May 2003	Additional information on domestic fuel burning and quarry emissions required. DMRB screening tool identified requirement for assessment of PM_{10} at 3 busy junctions
Updating & Screening Assessment Supplementary Report[5]	January 2004	No further assessment of domestic fuel burning or quarries required. Relevant public exposure to PM_{10} identified at 2 road junctions
Air Quality Study in the Vicinity of RAF Kinloss and Lossiemouth[6]	November 2004	No identified exceedences of the AQS Objectives or Odour Threshold Values
Progress Report[7]	May 2005	No predicted exceedences of AQS Objectives
Detailed Assessment of Road Traffic Particulate Emissions[8]	August 2005	Assessment of short-term monitoring data and modelled road traffic emissions concluded that it was unlikely that there would be an exceedence of the PM_{10} objectives
Updating and Screening Assessment[9]	June 2006	No predicted exceedences of AQS Objectives
Progress Report[10]	May 2007	No predicted exceedences of AQS Objectives
Progress Report[11]	April 2008	No predicted exceedences of AQS Objectives
Updating and Screening Assessment[12]	May 2009	No predicted exceedences of AQS Objectives
Progress Report[13]	May 2010	No predicted exceedences of AQS Objectives

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Further to the conclusions of the 2005 Detailed Assessment and previous Review and Assessment reports, local monitoring has only been carried out for NO_2 using passive diffusion tubes in recent years.

2.1.1 Automatic Monitoring Sites

The Moray Council does not currently operate any automatic monitoring sites.

2.1.2 Non-Automatic Monitoring Sites

Non-automatic monitoring of NO_2 was undertaken at 17 locations within The Moray Council in 2010 using passive diffusion tubes. The location and description of each site is shown in Table 2-1. The sites are classified as a mixture of kerbside, roadside and urban background sites. Maps showing the locations of the monitoring sites are shown in Figures 2-7 in Appendix A.

2.1.3 QA/QC of Non-Automatic Monitoring Sites

The diffusion tubes used by The Moray Council are supplied and analysed by Aberdeen Scientific Services (ASS). The laboratory is UKAS accredited and participates in 3 schemes which ensure that the NO_2 tube results meet acceptable standards. These are:

- **The WASP scheme -** run by the Health & Safety Laboratory (HSL). Every 3 months ASS receives four diffusion tubes, 2 spiked nitrite of concentration A and 2 with nitrite of concentration B. The tubes are analysed and results returned to HSL. Results are compared with the known spiking levels and with the results from other participating laboratories. Feedback on the performance is provided by means of a Z score. The results from 2010 give Z scores of between -0.6 to 0.7 which is considered to be well within the classification of satisfactory.
- **Field Intercomparison Study –** run by the National Physical Laboratory (NPL) as part of the Support to Local Authorities for Air Quality Management Contract funded by the Scottish Government, DEFRA and the Devolved Administrations. Every month, 3 tubes and a blank which have been exposed at a field intercomparison site are supplied to ASS for analysis. The results are compared with those from the automatic chemiluminescent analyzer at the site, which is defined as the reference method for measurement of NO_2 (Ref.3). The summary of performance is included in Appendix B.
- **NO_2 Solution Test –** the laboratory performs an in-house check for analysis of NO_2 tubes and prepares and validates their own NO_2 solution which is run with every batch of samples. The QC solution is re-tested after every 20 NO_2 tube samples.

Table 2-1 Details of Non-Automatic Monitoring Sites

Site ID	Site Location	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?
Elgin 1	Lamp Post West Park Court	Kerbside	321105	862669	NO_2	N	Y (<5m)	1m	Y
Elgin 2	Junction East & Maisondieu Rd	Kerbside	322348	862745	NO_2	N	Y (<2m)	1m	Y
Elgin 3	99-101 Maisondieu Road	Roadside	322302	862727	NO_2	N	Y (<5m)	2m	Y
Elgin 4	26-28 Priory Place	Urban Background	322249	862630	NO_2	N	Y (<5m)	N/A	N
Elgin 5	Main street New Elgin	Kerbside	322233	861869	NO_2	N	Y (<5m)	1m	Y
Elgin 6	Queen Street Roundabout	Kerbside	322029	862832	NO_2	N	Y (<5m)	1m	Y
Elgin 7	Hay Street	Roadside	321615	862307	NO_2	N	Y (<5m)	2m	Y
Elgin 8	Newmill Road	Roadside	322492	863309	NO_2	N	Y (<5m)	2m	Y
Fochabers 1	50A High Street	Kerbside	334634	858726	NO_2	N	Y (<2m)	2m	Y
Fochabers 2	Sunndach George Street	Urban Background	334423	858663	NO_2	N	Y (<2m)	N/A	N
Forres	Tolbooth, High Street	Roadside	303726	858931	NO_2	N	Y (<5m)	2m	Y
Keith 1	106 Moss Street	Kerbside	343323	850458	NO_2	N	Y (<5m)	2m	Y
Keith 2	87 Moss Street	Kerbside	343329	850415	NO_2	N	Y (<5m)	2m	Y
Lossie 1	1 Merryton Court	Urban Background	322463	870293	NO_2	N	Y (<2m)	N/A	N
Lossie 2	7 James Street	Kerbside	323515	870931	NO_2	N	Y (<2m)	1m	Y
Rothes 1	New Street	Roadside	327756	849658	NO_2	N	Y (<5m)	2m	Y
Rothes 1	New Street	Roadside	327740	849239	NO_2	N	Y (<5m)	2m	Y

2.1.4 Bias Correction Factor for NO_2 Diffusion Tubes

The Moray Council does not carry out any co-location study of its own as it does not operate a chemiluminescent analyzer. At the time of writing, no other Local Authorities using ASS for analysis of diffusion tubes had submitted results of their co-location studies. The results of the co-location field intercomparison study were input to the National Bias Correction Factor spreadsheet (Diffusion_Tube_Bias_Factors_v04_11_v6.xls) (Ref.14) via the Review and Assessment Helpdesk.

In this case, the bias adjustment factor from the intercomparison study is used as the overall factor to be applied to the diffusion tubes across The Moray Council monitoring network. Table 2-2 shows a summary of the results for tubes analysed by ASS. The bias adjustment correction factor for 2010 is 0.82.

Table 2-2 Calculated Laboratory Bias Adjustment Factors for NO_2 Diffusion Tubes for Aberdeen Scientific Services 2010

Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
20% TEA in Water	2010	Kerbside	Field Intercomparison Study	12	114	93	22.7%	G	**0.82**
								Overall Factor	**0.82**

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

The AQS objectives for NO_2 are summarised in Table 2-3 below:

Table 2-3 AQS Objectives for NO_2

Pollutant	Definition of AQS
NO_2	Annual mean concentration of 40µg/m^3 to be achieved by 2005
	Hourly Mean concentration of 200µg/m^3 not to be exceeded more than 18 times in a year to be achieved by 2005.[1]

Diffusion Tube Monitoring Data

The bias adjusted diffusion tube results for 2010 are shown for each site in Table 2-4. The raw, unadjusted monthly results are summarised in Appendix B.

[1] Corresponds to the 99.8th Percentile of hourly mean concentration measurements.

Table 2-4 Bias Adjusted Annual Mean Concentrations of NO_2 for 2010

Site ID	Location	Within AQMA?	Data Capture 2010	Bias Adjusted Annual Mean Concentration for 2010 (µg/m^3)
Elgin 1	Lamp Post West Park Court	N	100%	**28**
Elgin 2	Junction East & Maisondieu Rd	N	100%	**27**
Elgin 3	99-101 Maisondieu Road	N	91.7%	**16**
Elgin 4	26-28 Priory Place	N	75%	**11**
Elgin 5	Main Street New Elgin	N	100%	**21**
Elgin 6	Queen Street Roundabout	N	100%	**20**
Elgin 7	Hay Street	N	100%	**26**
Elgin 8	Newmill Road	N	100%	**17**
Fochabers 1	50A High Street	N	100%	**37**
Fochabers 2	Sunndach George Street	N	66.7%	**6***
Forres	Tolbooth, High Street	N	100%	**16**
Keith 1	106 Moss Street	N	91.7%	**30**
Keith 2	87 Moss Street	N	75%	**27**
Lossie 1	1 Merryton Court	N	75%	**7**
Lossie 2	7 James Street	N	83.3%	**9**
Rothes 1	New Street	N	100%	**18**
Rothes 2	New Street	N	100%	**25**

*annualised figure using methodology in Box 3.2 of TG(09) due to low data capture

The highest annual mean concentration was 37µg/m^3 recorded at Fochabers High Street and the lowest concentration of 6µg/m^3 was recorded at George St, Fochabers. There were therefore no exceedences of the NO_2 annual mean AQS objective at any of the monitoring sites during 2010.

A summary of the bias corrected annual mean concentration at each site for the period 2007-2010 is shown in Table 2-5. A graph showing the annual variation at each site is shown in Figure 9 in Appendix C. The graph indicates that the concentrations remain fairly constant from year to year with no clear upward or downward trend with all sites remaining below the objective of 40µg/m^3.

Table 2-5 Bias Adjusted Annual Average Concentrations from 2007-2010 (µg/m^3)

Site ID	2007 (0.87)*	2008 (0.88)*	2009 (0.84)*	2010 (0.82)*
Elgin 1	34	34	33	28
Elgin 2	27	27	26	27
Elgin 3	16	16	14	16
Elgin 4	10	10	10	11
Elgin 5	20	21	21	21
Elgin 6	21	20	19	20
Elgin 7$^+$			26	26
Elgin 8$^+$			18	17
Fochabers 1	35	34	33	37
Fochabers 2	7	7	7	6^
Forres	16	17	16	16
Keith 1	27	28	28	30
Keith 2	31	27	28	27
Lossie 1	8	7	7	7
Lossie 2	8	8	8	9

* Bias correction factor used for correcting raw diffusion tube data
+ Monitoring at these sites commenced in the later part of 2009
^ Annualised result due to low data capture rate

There is no continuous automatic monitoring of NO_2 within Moray Council. The Technical Guidance, LAQM.TG (09) document (Ref.3) also states that where the measured annual mean concentration is below 60µg/m^3, it is unlikely that the hourly mean NO_2 objective of 200µg/m^3 will be exceeded. It is therefore concluded that there are no exceedences of the hourly mean objective for NO_2 at any of the Moray Council monitoring sites during 2010.

2.2.2 Summary of Compliance with AQS Objectives

The Moray Council has examined the results from NO_2 monitoring in the local authority area. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

This section examines any local development changes that have taken place since the last Progress Report which may affect air quality. The items included are:

- Road Traffic Sources;
- Other Transport Sources;
- Industrial Sources;
- Commercial and Domestic Sources; and
- Fugitive and Uncontrolled Sources.

3.1 Road Traffic Sources

A review of traffic flow data was undertaken in order to establish if there were any significant changes in traffic flow since 2009 that could impact on local air quality.

The Moray Council Transportation Department was consulted to obtain automatic traffic count information in and around Elgin for 2009 and 2010. A map showing the count locations is shown in Figure 10 and the data are summarised in Table 3-1 below.

Table 3-1 Summary of Council Operated Traffic Counts Elgin 2009-2010

ID	Description	AADT		% Change 2009-2010
		2009	2010	
1	Linkwood Road	8031	8189	1.9
2	Maisondieu Road	9668	7987	-21.0
3	Newmill Road	10879	10630	-2.3
4	Reiket Lane	-	6414	
5	Thornhill Road	4100	5343	23.3
6	Wittet Drive	3576	3468	-3.1

There is a significant increase of 23% in Thornhill Road which was due to temporary local diversions and the opening of a new medical centre. However, the AADT figure is still significantly below 10,000 and it is not a narrow street with canyon effects hence it is not necessary to undertake any further assessment at this stage. Traffic monitoring will continue at this location and will be reviewed in the US&A in 2012.

Transport Scotland was consulted in order to obtain automatic traffic count data for 2009 and 2010 for the trunk roads A95 and A96 that are the main routes through the Moray Council area. A map showing the count locations is shown in Figure 11 and the data are summarised in Table 3-2.

Table 3-2 Summary of Trunk Road Traffic Count Data for A95 & A96 2009-2010

ID	Description	AADT		% Change 2009-2010
		2009	2010	
1	A98 Fochabers	78308	76548	-2.3
2	A96 Forres to Elgin	135656	136824	0.9
3	A96 Elgin to Lhanbryde	196822	194562	-1.2
4	A95 Dowans Brae	33804	31392	-7.7
5	A96 Elgin Town Centre	207217	198058	-4.6
6	A96 Forres	139607	134116	-4.1
7	A96 Mosstodloch	167091	166440	-0.4
8	A96 North of Keith	75038	70357	-6.7
9	A96 South of Keith	82290	78238	-5.2
10	A95 West of Keith	24031	25477	5.7
11	A96 Elgin - East Road	274573	255318	-7.5
12	A96 Elgin - Alexandra Road	273074	258278	-5.7
13	A96 Elgin - High Street West	161137	157343	-2.4
14	A96 Brodie (WiM)	120780	114424	-5.6
15	A95 Ballindalloch (Core 905)	27009	26644	-1.4

The AADT flows have decreased on 13 out of 15 of the road links between 2009 and 2010. The maximum increase is approximately 6% on the A95 west of Keith. It is not expected that there will be any exceedences of the NAQS objectives at nearby receptors due to changes in traffic flow on the trunk roads.

The only significant new road traffic source that has been considered is the Fochabers by-pass. This is under construction and is due to open in June 2012. It is anticipated that the opening of the new road section will ease congestion in the town and improve air quality in Fochabers. This will be monitored and reviewed in further rounds of the Review and Assessment process.

No other new or significantly changed road traffic sources were identified.

The Fochabers by-pass is under construction and is due to open in June 2012. It is anticipated that this will ease congestion in Fochabers and improve air quality in the town.

The Moray Council confirms that there are no other new road traffic developments which may have an impact on air quality within the Local Authority area.

The Moray Council confirms that there are no significant increases in traffic flow which may impact on air quality in the Local Authority area.

3.2 Other Transport Sources

There have been no significant changes in rail or shipping operations within the Moray Council area since the 2010 Progress Report.

Flight operations at RAF Kinloss and Lossiemouth have reduced and RAF Kinloss is due to cease operation as a flight centre in July 2011. It is therefore expected that emissions from air traffic will be reduced across the Moray Council area.

The Moray Council confirms that there are no new or newly identified transport sources which are likely to have an impact on air quality within the Local Authority area.

3.3 Industrial Sources

SEPA and The Moray Council confirm that there are no new or significantly changed industrial developments which may have an impact on air quality within the Local Authority area.

3.4 Commercial and Domestic Sources

The Moray Council provided a summary of permitted and pending planning applications for commercial and domestic sources that were identified as having the potential to impact on local air quality. These are shown in Table 3-3.

Table 3-3 Planning Applications for Commercial and Domestic Sources Submitted during 2010 with Potential Air Quality Impact

Reference Number	Description	Decision	Impact Assessment
09/02255/APP	Installation of a 250kW biomass (woodchip) boiler at The Park Findhorn Forres Moray	Application Permitted	Biomass Screening Assessment Undertaken
10/00958/APP	Erect biomass boiler (70kW) shed at Newmill Public Hall South Street Newmill Moray	Application Permitted	Biomass Screening Assessment Previously Undertaken
10/01903/APP	Proposed 2 x 56kW biomass heating system and external hopper and flue at Town Hall High Street Lossiemouth Moray IV31 6AA	Application Permitted	Biomass Screening Assessment Undertaken

The installations were assessed using the screening methodology in accordance with the technical guidance TG.(09) (Ref.3). If it is identified that the emission rate of a biomass installation is greater than the calculated threshold emission rate, a detailed assessment of the possible impacts of that installation is required. In order to calculate the threshold emission rates for each installation, the following information was used:

- Height of the highest building within 5 stack heights of the stack (m)
- Stack Diameter (m)
- Stack Height (m)
- Effective Stack Height (m)
- Background PM_{10} and NO_2 concentrations at each installation.

The background concentrations were taken from the 2010 UK background concentration maps provided on the national air quality website (www.airquality.co.uk/laqm/tools.php?tool=background06)

These data were input to the biomass calculator (www.airquality.co.uk/laqm/tools/biomass_calculator_tool6.xls)

The results concluded that there was no significant impact on local air quality from either installation and it is not necessary to proceed to a Detailed Assessment for biomass developments.

The Moray Council confirms that there are no new or significantly changed commercial or domestic developments which may have an impact on air quality within the Local Authority area.

3.5 New Developments with Fugitive or Uncontrolled Sources

The Moray Council confirms that there are no new or newly identified local developments with fugitive or uncontrolled sources which may have an impact on air quality within the Local Authority area.

4 Air Quality Planning Policies

The Moray Council has several planning policies contained within the Local Plan (Ref.15), Development Plan and Structure Plan (Ref.16) as well as supplementary planning guidance which relate to air quality and atmospheric pollution. These policies ensure that appropriate assessments are made when considering planning applications for developments or variations within the Moray Council area.

These were described in the 2010 Progress Report (Ref.13) and remain unchanged.

5 Local Transport Plans and Strategies

The Moray Council has recently published a Draft Local Transport Strategy (LTS) (Ref.17). It sets out how the Council intends to reconcile international, national, regional and local objectives at the local level and outlines actions which will achieve these objectives. It contains a series of aims, objectives, policies and actions supporting the overall vision to meet the transport needs of all within The Moray Council area.

As part of the preparation of the LTS, a Strategic Environmental Assessment (SEA) was undertaken identifying key environmental issues and the relationship with other plans, policies and strategies.

Key environmental baseline information was gathered for the report. The baseline air quality data was obtained from the air quality monitoring carried out by the Council and was considered good as all pollutants are below the AQS objectives.

Consultations and workshops were set up with a number of interested parties including community councils, schools, public transport providers, local freight operators and representatives of the national freight organizations, special interest groups such as the elderly and disabled groups and members of the public.

As expected in a rural area such as Moray, public consultation identified a need for better public transport links. However, whilst this is undoubtedly a very difficult matter when considering air quality, unlike the large urban areas of the Central Belt in Scotland the present level of road traffic in Moray is not regarded as an obstacle to achieving this.

Within Moray, there is not a significant congestion issue. The rural nature of the area does however result in longer journeys being undertaken. Air quality issues are generally only prevalent on routes with greater than 18,000 vehicles per day. There is almost unanimous recognition of the vital role played by road transport in Moray amongst those consulted. There is considerable support in this area for improvements to existing roads rather than targets for reducing the traffic on the network.

The general need for reduction in levels of road traffic in parts of Scotland is not being challenged in the report, and there is general agreement that wherever possible efforts should be made to encourage the use of modes of transport other than the private car. The Council is currently pursuing various initiatives which would at least make a small contribution to this objective. These include Safer Routes to School, Rural Transport Initiatives and the preparation of Access and Cycling Strategies. Nevertheless, it must be acknowledged that the character of Moray, which is dictated by its rural location and the particular constraints which apply to public transport, means that some measures which might be successful in other parts of Scotland would be wholly inappropriate in this area.

The consistent approach of Moray Council to improving its transport network is shown to be maintained throughout the Development Plan policies and the Local

Transport Strategy. Therefore it is not considered that setting targets to reduce traffic volumes on non-trunk roads is appropriate in Moray.

6 Climate Change Action Plan

The Climate Change (Scotland) Act 2009 (Ref.18) requires public bodies to act in the way best calculated to contribute to the delivery of the emissions targets in the Act and the Government's climate change adaptation programme in the most sustainable way.

The Moray Council has recently published a draft Climate Change Action Plan (Ref.19). The purpose of the Plan is to establish a framework for action in Moray, to tackle the causes and consequences of climate change. It describes the present situation, future intentions and actions for the Moray Council. While the measures will have benefits in many areas, some will be directly linked to improvements in air quality, particularly improvements to the council vehicle fleet and reduction in business mileage.

In order to seek to fulfill these requirements the aims of the Moray Climate Change Action Plan are as follows:

- **To contribute towards national targets to reduce CO_2 emissions by 80% by 2050 and interim target of 42% by 2020.**
- **To contribute towards the achievement of the Scottish Government's National Outcomes 12 and 14.**
- **To ensure climate change risks to Moray are appropriately identified, assessed, communicated and managed.**

Tackling climate change will require the Council to work in partnership with community planning partners, the wider community as well as the business and voluntary sectors.
In order to meet these objectives, a programme of actions has been identified for implementation during the period 2010 to 2015.

The main projects are as follows.

- Implementation of Carbon Management plan to reduce councils emissions by 30% over 5 years
- Dissemination of Awareness raising campaign to encourage behavioral change
- Installation of energy efficiency measures across council buildings to reduce emissions
- Adoption and Implementation of corporate and office travel plans
- Reduce business and fleet mileage through vehicle rationalization and increased use of video and teleconferencing
- Promotion and installation of renewables, development of Renewable Energy Action Plan for Moray
- Develop Green Procurement Strategy
- Reduce waste by introducing food composting and anaerobic digestion

7 Conclusions and Proposed Actions

7.1 Conclusions from New Monitoring Data

The results of the NO_2 monitoring across The Moray Council during 2010 confirm that there are no exceedences of the AQS objectives for this pollutant.

Analysis of NO_2 concentrations during the period 2007-2010 shows that the concentrations are fairly constant from year to year with no clear upward or downward trend.

The review of new monitoring data available for 2010 confirms that The Moray Council does not need to proceed to a Detailed Assessment for any pollutant.

7.2 Conclusions relating to New Local Developments

The Moray Council confirm that there are no new local developments that require further assessment.

The Fochabers by-pass is under construction and is due to open in June 2012. It is anticipated that the opening of the new road section will ease congestion in the town and improve air quality in Fochabers. This will be monitored and reviewed in further rounds of the Review and Assessment process.

7.3 Proposed Actions

The Progress Report has not identified a need to proceed to a Detailed Assessment for any pollutant.

The current NO_2 monitoring and traffic flow monitoring will continue during 2011. The results of these activities will be included in the Updating and Screening Assessment due for submission in April 2012.

8 References

1) The Environment Act (1995)- © Crown Copyright

2) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland - Department for Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland. July 2007

3) Local Air Quality Management Technical Guidance LAQM TG.(09) – DEFRA

4) Moray Council LAQM Updating and Screening Assessment 2003, BMT Cordah Ltd Report Ref: MOR_005, May 2003

5) Supplementary Report to the Updating and Screening Assessment, BMT Cordah Ltd, Report Ref: MOR_008, January 2004

6) Air Quality Study in the Vicinity of RAF Lossiemouth and RAF Kinloss, BMT Cordah Ltd, Report Ref: MOR_007, November 2004

7) Moray Council LAQM Progress Report 2005, BMT Cordah Ltd Report Ref: E_MOR_010, May 2005

8) Detailed Assessment of Road Traffic Particulate Emissions, BMT Cordah Ltd Report Ref: MOR_009, August 2005

9) Moray Council LAQM Updating and Screening Assessment 2006, BMT Cordah Ltd Report Ref: E_MOR_011, April 2006

10) Moray Council LAQM Progress Report 2007, BMT Cordah Ltd Report Ref: E_MOR_012, April 2007

11) Moray Council LAQM Progress Report 2008, BMT Cordah Ltd Report Ref: G_MOR_013, May 2008

12) Moray Council LAQM Updating and Screening Assessment 2009, BMT Cordah Ltd Report Ref: G_MOR_014, May 2009

13) Moray Council LAQM Progress Report 2008, BMT Cordah Ltd Report Ref: G_MOR_015, May 2010

14) http://laqm.defra.gov.uk/documents/Diffusion_Tube_Factors_v04_11_v6.xls

15) Moray Structure Plan, April 2007

16) The Moray Council, Local Plan 2008, December 2008

17) Draft Local Transport Strategy, Jacobs Consultancy, June 2010, http://www.moray.gov.uk/downloads/file64607.pdf

18) Climate Change Scotland Act (2009)

19) The Moray Climate Change Action Plan, January 2011, Planning and Development Services, The Moray Council

Appendices

Appendix A: Maps and Photographs

Appendix B: QA/QC & Raw NO_2 Data

Appendix C: Graphs of Monitoring Results

Appendix D: Traffic Monitoring Locations

Appendix A: Maps and Photographs

Figure 1-The Moray Council Boundary

Figure 2 - Overview of NO2 Diffusion Tube Monitoring Sites in The Moray Council Area

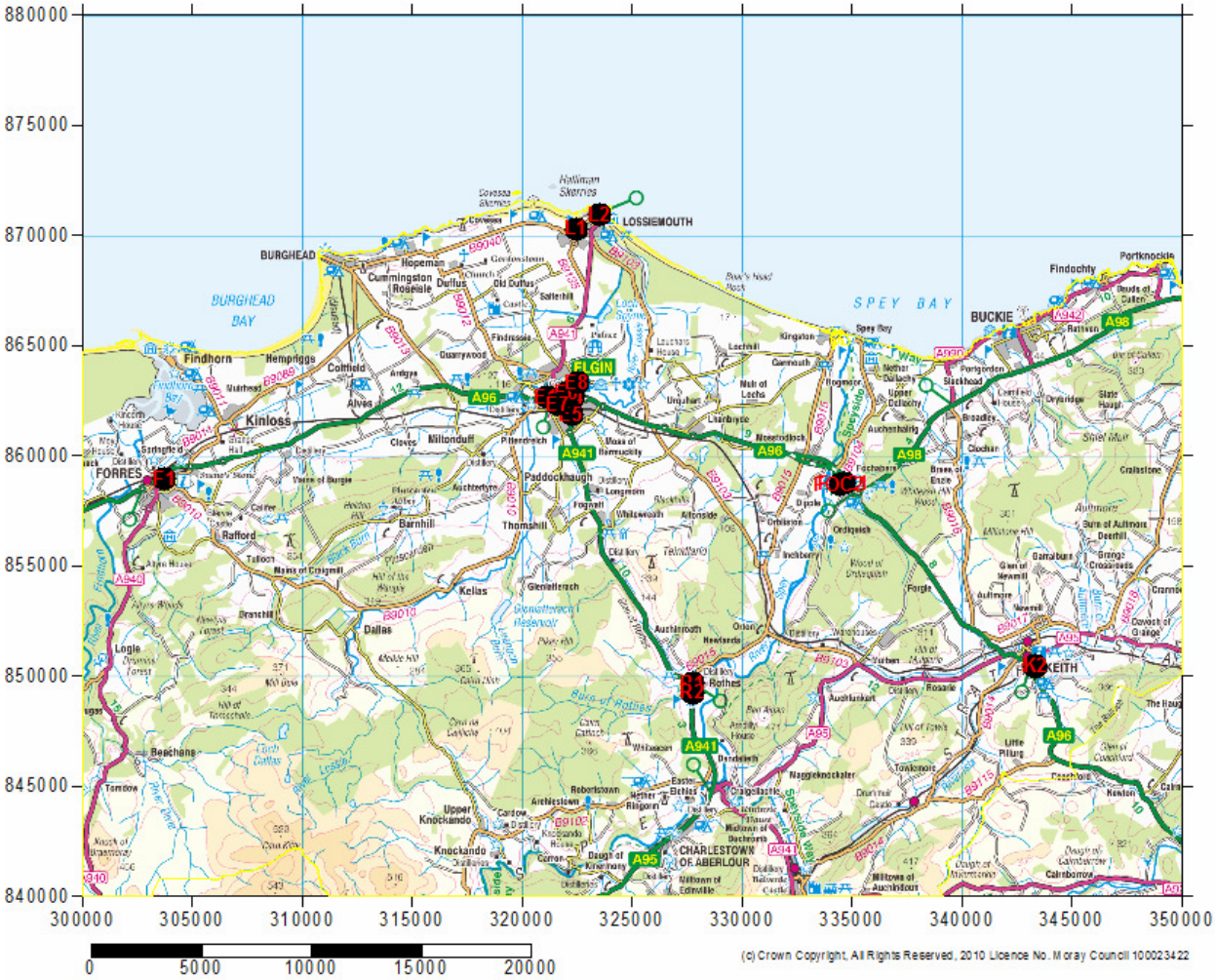


Figure 3 - NO2 Monitoring Sites in Elgin

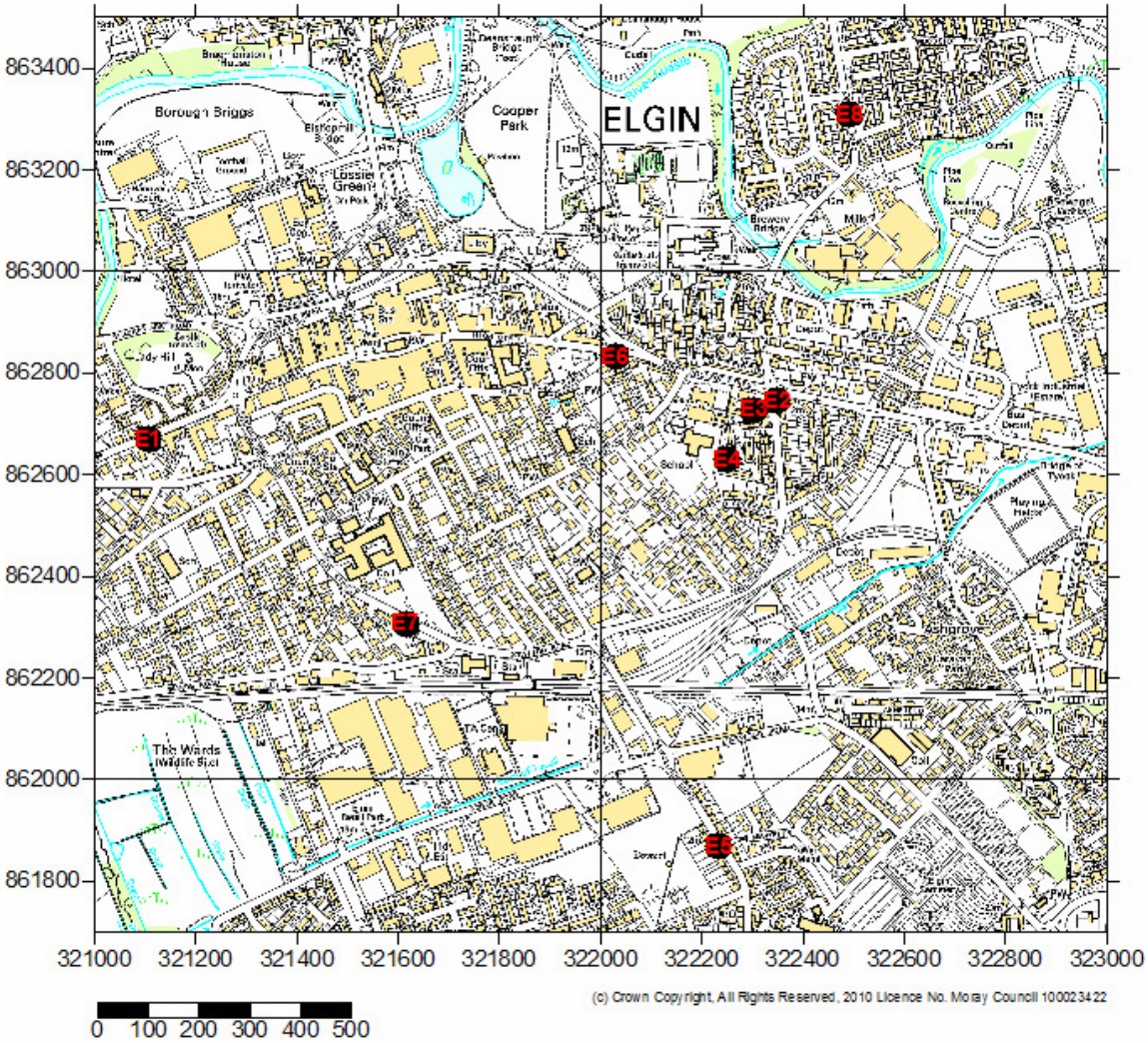


Figure 4 - NO2 Monitoring Sites in Fochabers

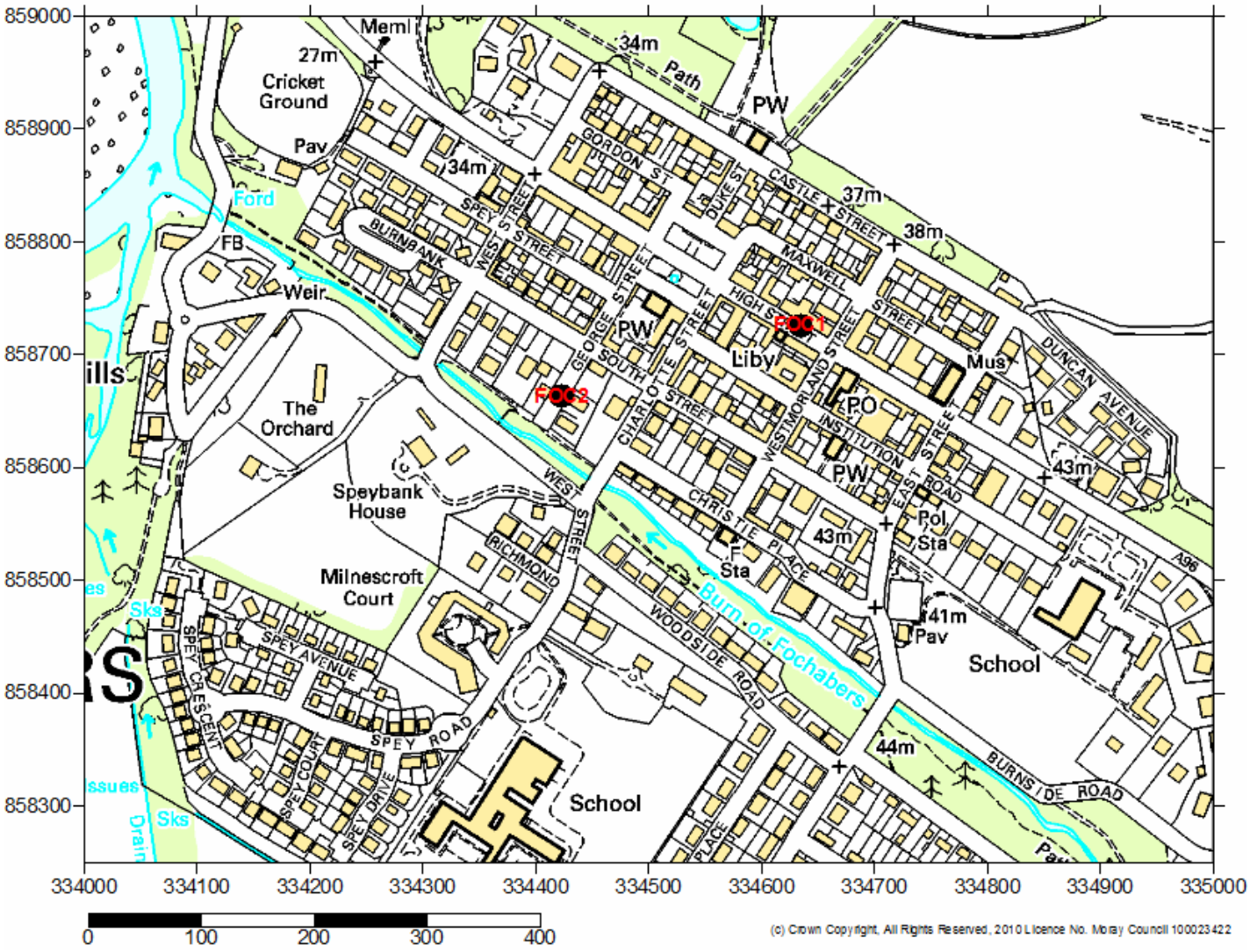


Figure 5-NO2 Monitoring Site in Forres

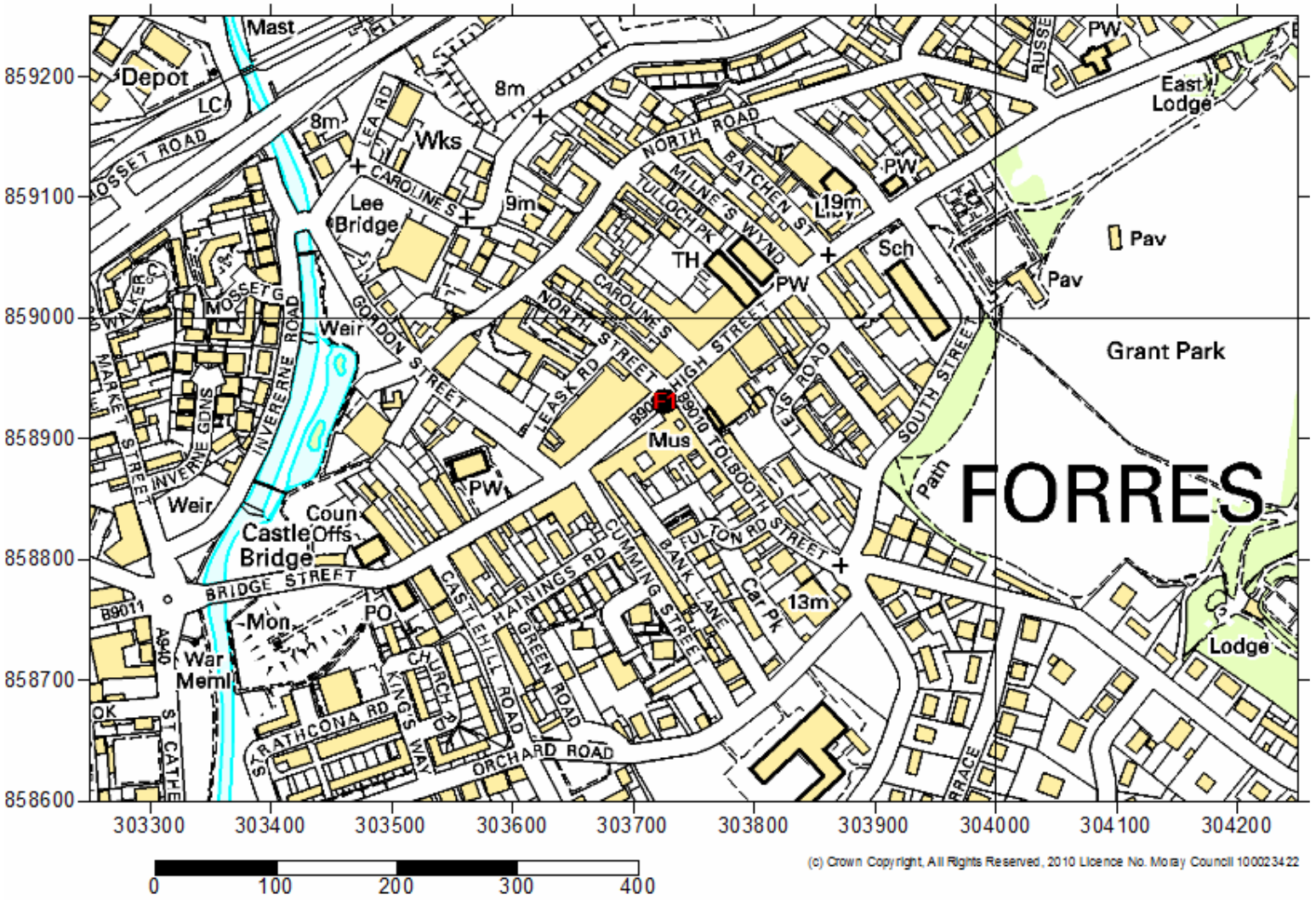


Figure 6 - NO2 Monitoring Sites in Keith

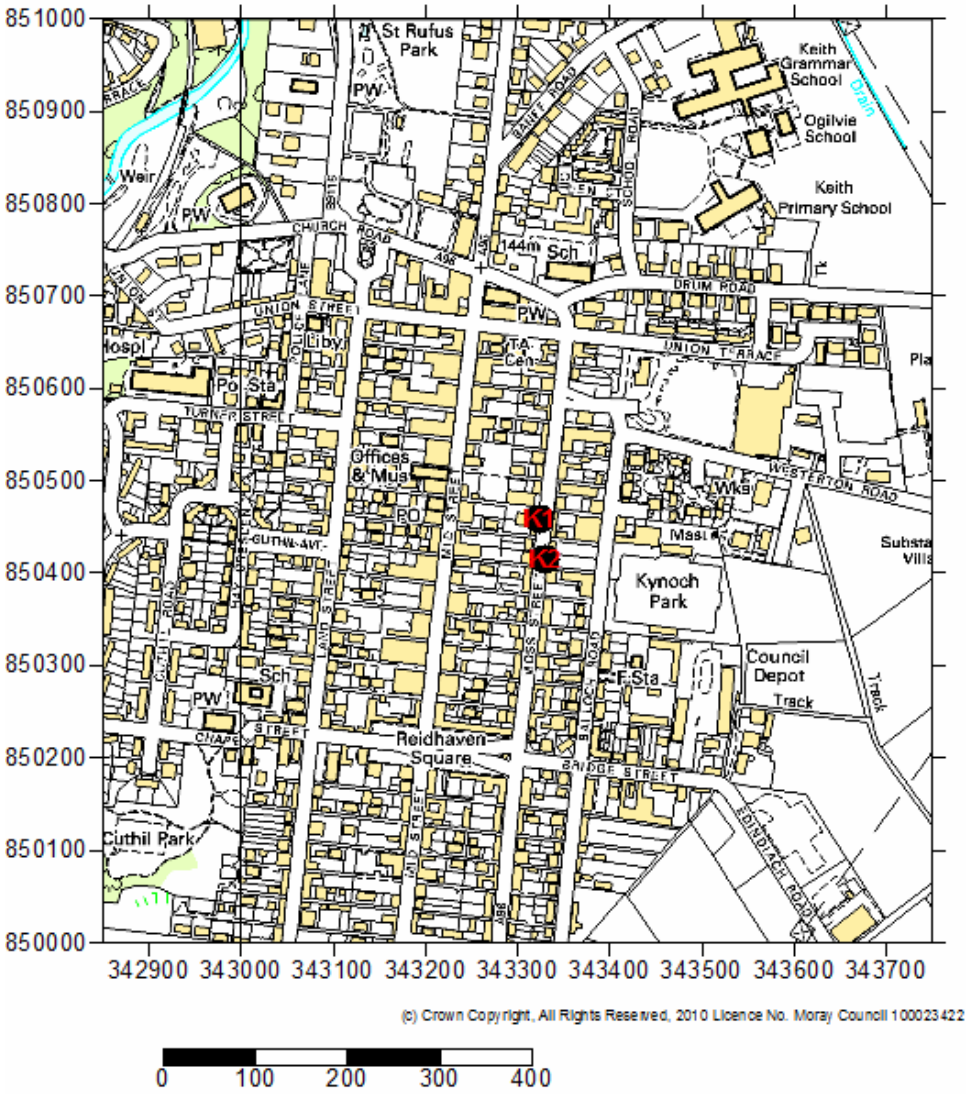


Figure 7 - NO2 Monitoring Sites in Lossiemouth

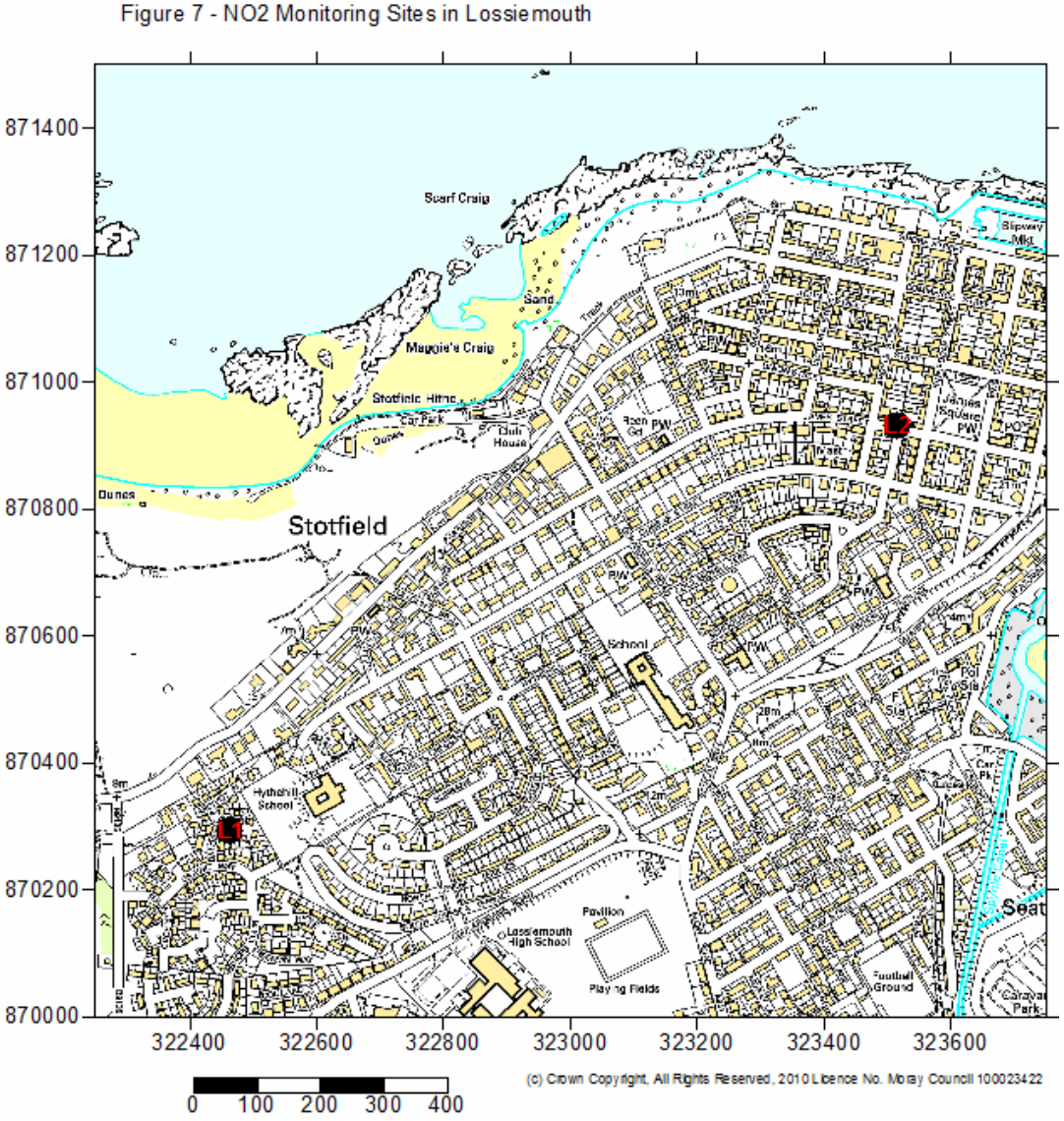
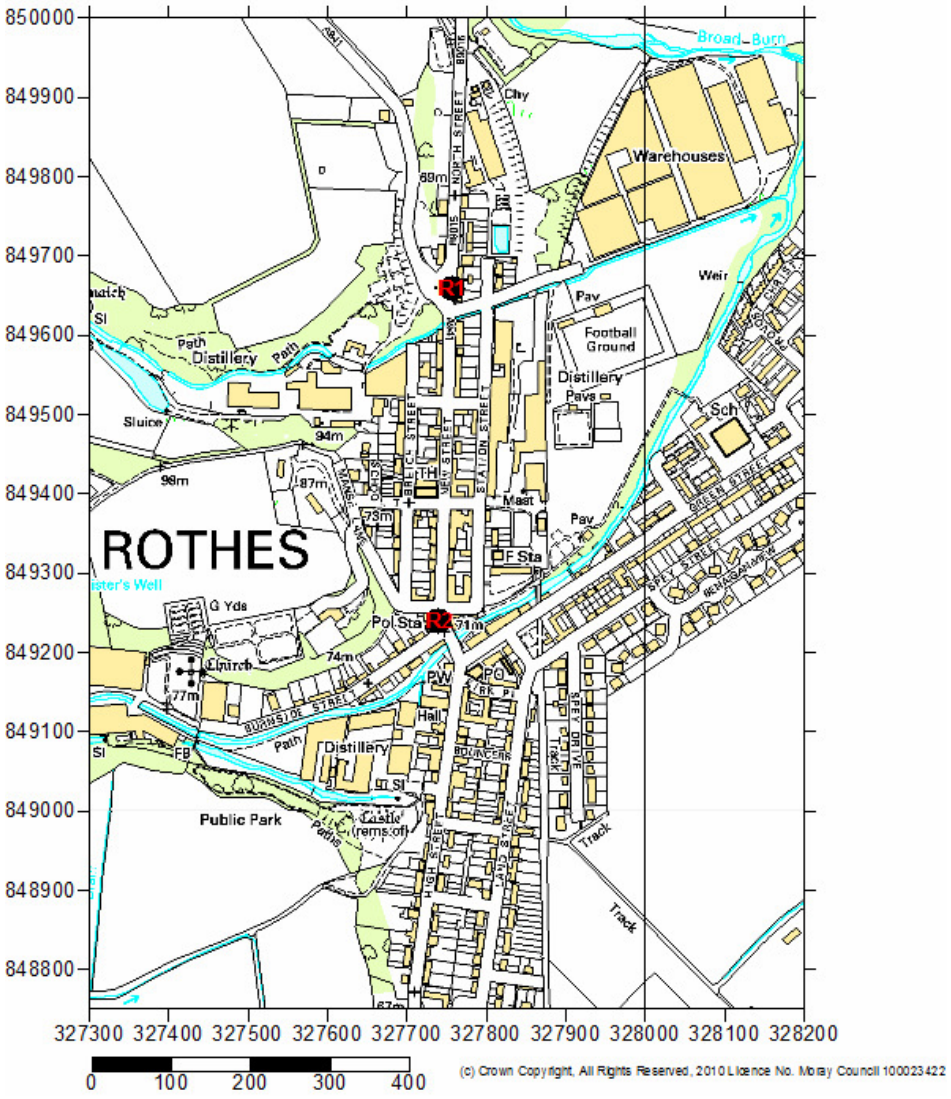


Figure 8 - NO2 Monitoring Sites in Rothes



Appendix B: QA/QC

Table B1 Raw Unadjusted Monthly NO_2 Diffusion Tube Concentrations (µg/m^3) for 2010

Site Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unadjusted Annual Mean
Elgin 1	39	45	32	35	31	29	25	28	32	35	44	39	**35**
Elgin 2	37	26	30	37	35	32	24	34	34	32	37	42	**33**
Elgin 3	24	37	16	17	15	14	<5	25	14	15	21	22	**20**
Elgin 4	20	21	13	11	8	8	7	7	11	12	18	21	**13**
Elgin 5	30	30	23	22	21	16	17				32	35	**25**
Elgin 6	30	34	21	24	20	18	15	18	21	29	31	33	**25**
Elgin 7	37	42	27	30	25	24	24	25	32	36	42	36	**32**
Elgin 8	32	25	17	18	13	12	12	13	17	23	28	32	**20**
Fochabers 1	44	57	36	51	48	49	35	51	52	45	43	35	**46**
Fochabers 2	13	10	6	7	5				6	7	10		**8**
Forres	24	29	16	19	15	15	15	14	17	22	25	28	**20**
Keith 1	47	52	31	35	39	31	27	32	32	36	35	48	**37**
Keith 2	42	45	6	29	30	29		48	27	31	45	32	**33**
Lossie 1	12	12	7	7	5				6	8	10	13	**9**
Lossie 2	12	14	10	10	7				7	9	11	16	**11**
Rothes 1	22	31	23	21			7	15	20	28	30	26	**22**
Rothes 2	25	35	28	30	35	28	25	22	33	40	37	31	**31**

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
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	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	07/01/2010	03/02/2010	119.6	119.0	116.6	118	4.4	4	10.8	99	99.1	Good	Good
2	03/02/2010	03/03/2010	119.4	127.7	119.8	119	8.8	7	21.5	102	93.6	Good	Good
3	03/03/2010	30/03/2010	139.4	134.6	124.1	131	8.3	6	15.6	107	99.4	Good	Good
4	30/03/2010	28/04/2010	122.0	117.0	118.4	119	2.6	2	6.4	99	99.3	Good	Good
5	28/04/2010	02/06/2010	111.6	111.3	116.0	113	2.6	2	6.5	88	99.2	Good	Good
6	02/06/2010	01/07/2010	127.3	129.5	119.6	125	5.2	4	12.9	96	93	Good	Good
7	01/07/2010	04/08/2010	134.2	112.8	125.4	124	10.8	9	26.7	82	98.9	Good	Good
8	04/08/2010	01/09/2010	112.0	112.0	114.5	113	1.5	1	3.7	80	94.7	Good	Good
9	01/09/2010	29/09/2010	137.1	125.6	136.3	133	6.4	5	15.9	86	99.6	Good	Good
10	29/09/2010	03/11/2010	130.2	119.3	123.2	124	5.5	4	13.7	107	93	Good	Good
11	03/11/2010	01/12/2010	120.9	117.5	115.6	118	2.7	2	6.6	94.1	97.1	Good	Good
12	01/12/2010	05/01/2011	108.2	102.8	107.8	106	3.0	3	7.4	82.4	97.8	Good	Good
13													
											Overall survey -->	Good precision	Good Overall DC

(Check average CV & DC from Accuracy calculations)

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

Site Name/ ID:	Marylebone Road / NPL020
Precision	12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%

Bias calculated using 12 periods of data

Bias factor A	0.78 (0.73 - 0.83)
Bias B	28% (21% - 37%)
Diffusion Tubes Mean:	120 µgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	93 µgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	94 (88 - 100) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA

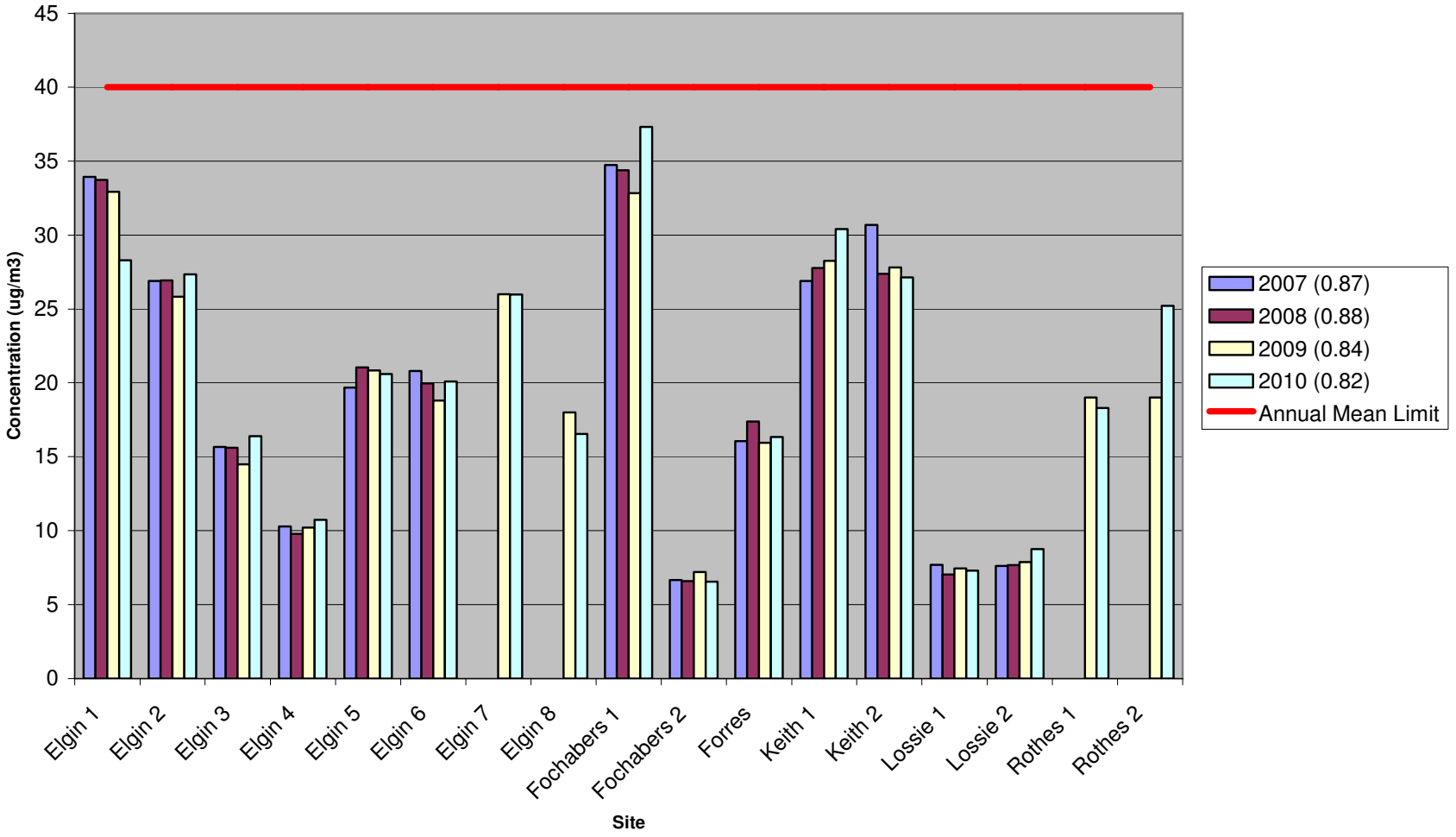
Bias calculated using 12 periods of data

Bias factor A	0.78 (0.73 - 0.83)
Bias B	28% (21% - 37%)
Diffusion Tubes Mean:	120 µgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	93 µgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	94 (88 - 100) µgm^{-3}

Jaume Targa, for AEA
Version 04 - February 2011

Appendix C: Graphs of Monitoring Results

Figure 9- Bias Adjusted Annual Mean Concentration of NO2 Across Monitoring Network 2007-2010



Appendix D: Traffic Flow Monitoring Locations

Figure 10 - Council Operated Traffic Count Locations

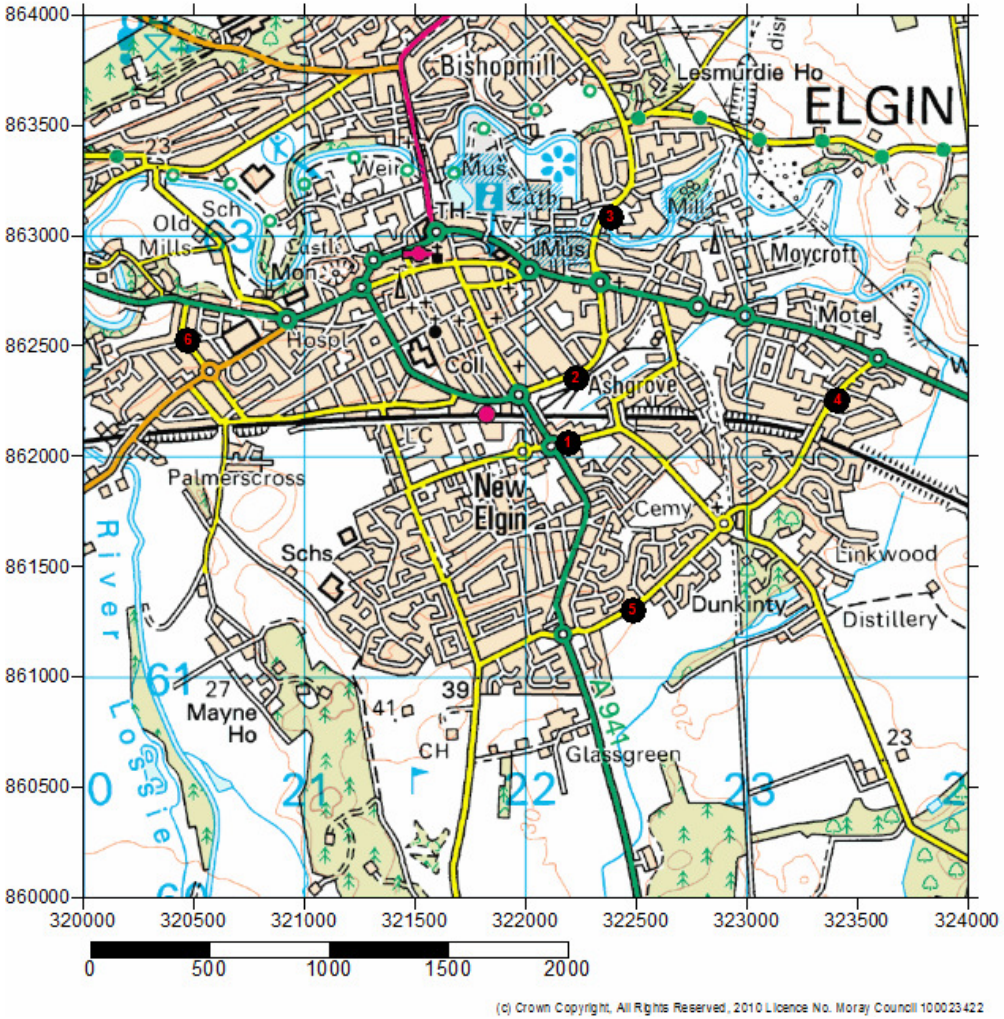


Figure 11 - Automatic Traffic Count Locations on Trunk Toads Provided by Transport Scotland