2012 Air Quality Updating and Screening Assessment for The Moray Council

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

April, 2012

TSI Scotland

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Executive Summary

The 2012 Updating and Screening Assessment Report for The Moray Council was undertaken by TSI Scotland Ltd in accordance with Local Air Quality Management Technical Guidance LAQM.TG(09) (Ref.1).

New monitoring data for NO_2 were analysed to determine if any air quality objectives had been exceeded during 2011. All concentrations were found to be below the objectives.

Examination of the previous 5 years of data show there is a general downward trend in annual mean NO_2 concentrations across the diffusion tube network. The concentration has decreased at 15 out of 17 sites between 2010 and 2011. There was a moderate increase in Rothes and at one of the Keith sites, however, the annual mean remains considerably below the limit of 40µg/m^3 at both locations. The maximum annual mean in 2011 was 30.7µg/m^3 in Fochabers High Street.

A review of planning applications submitted in 2011 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. There was a decrease in traffic flow at 3 out of 6 Council run sites within Elgin between 2010 and 2011. The maximum increase was 7% at Reiket Lane and Whittet Drive in Elgin but the Annual Average Daily Traffic (AADT) count remains well below 10,000 at each location.

Transport Scotland was consulted regarding the AADT figures for the main trunk roads, the A95 and A96 within the Moray Council area. The AADT flows have

decreased on 9 out of 16 of the road links between 2010 and 2011. The maximum increase is 8% on the A95 west of Keith. The significant decrease on the A96 Mosstodloch is likely to be affected by the staged opening of the new bypass. It was opened completely in January 2012 and it is anticipated that it will ease congestion in the town of Fochabers and improve air quality. This will be monitored and reviewed in the Progress Report in 2013. 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. The next report to be completed will be the Progress Report in April 2013.

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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 was closed as an air base in 2011 while RAF Lossiemouth remains 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 Fochabers by-pass is complete and opened in January 2012.
The Moray Council boundary is shown in Figure 1.1.

Figure 1.1 Map of the Moray Council Area

1.2 Purpose of Report

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 then 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

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 LAQM in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
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 7 times a year	24-hour mean	31.12.2010
	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 with the most recent report of 2011 listed first.

Table 1.2 Summary of Previous Air Quality Review and Assessment Reports 2003-2011

Report	Date Completed	Summary and Conclusions
Progress Report (Ref.2)	June 2011	No predicted exceedences of AQS Objectives
Progress Report (Ref.3)	May 2010	No predicted exceedences of AQS Objectives
Updating and Screening Assessment (Ref.4)	May 2009	No predicted exceedences of AQS Objectives
Progress Report (Ref.5)	April 2008	No predicted exceedences of AQS Objectives
Progress Report (Ref.6)	May 2007	No predicted exceedences of AQS Objectives
Updating and Screening Assessment (Ref.7)	June 2006	No predicted exceedences of AQS Objectives
Detailed Assessment of Road Traffic Particulate Emissions (Ref.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
Progress Report (Ref.9)	May 2005	No predicted exceedences of AQS Objectives
Air Quality Study in the Vicinity of RAF Kinloss and Lossiemouth (Ref.10)	November 2004	No identified exceedences of the AQS Objectives or Odour Threshold Values
Updating & Screening Assessment Supplementary Report (Ref.11)	January 2004	No further assessment of domestic fuel burning or quarries required. Relevant public exposure to PM_{10} identified at 2 road junctions
Updating & Screening Assessment (Ref.12)	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

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Monitoring is carried out for NO_2 within The Moray Council. During 2011, NO_2 was monitored at 17 locations using passive diffusion tubes. There is no other monitoring undertaken for any other pollutant.

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites within The Moray Council.

2.1.2 Non-Automatic Monitoring Sites

Non-automatic monitoring of NO_2 was undertaken at 17 locations within The Moray Council in 2011 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 2.1-2.7.

The tubes are provided and analysed by Aberdeen Scientific Services using 20% TEA in Acetone and are changed on a monthly basis by Moray Council personnel. The data capture was above 90% for 14 out of 17 sites. The QA/QC procedures for diffusion tube analysis are included in more detail in Appendix A.

Table 2.1 Details of Non-Automatic Monitoring Sites

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

Figure 2.1 Map of All Non-Automatic Monitoring Sites

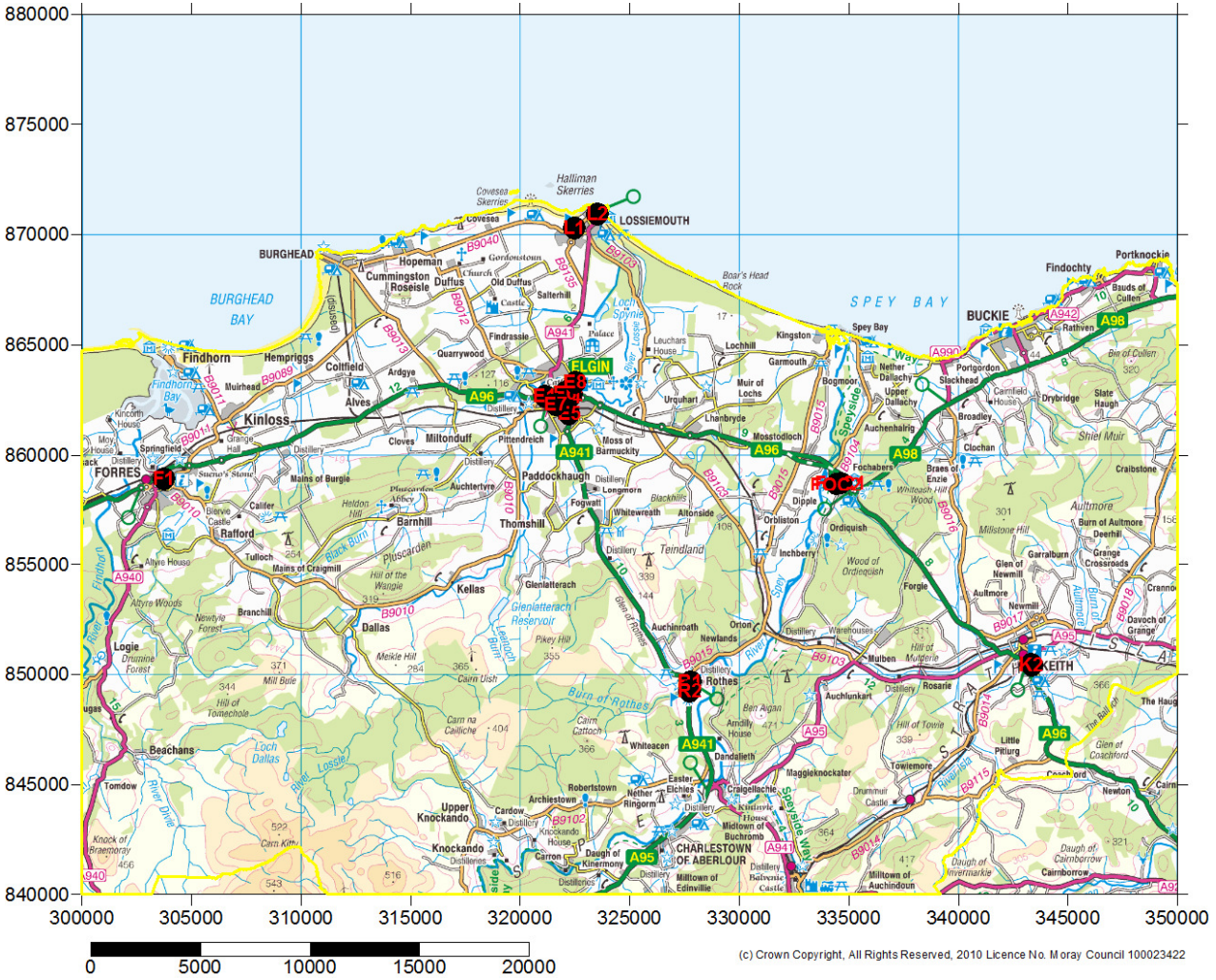


Figure 2.2 Elgin NO_2 Monitoring Sites

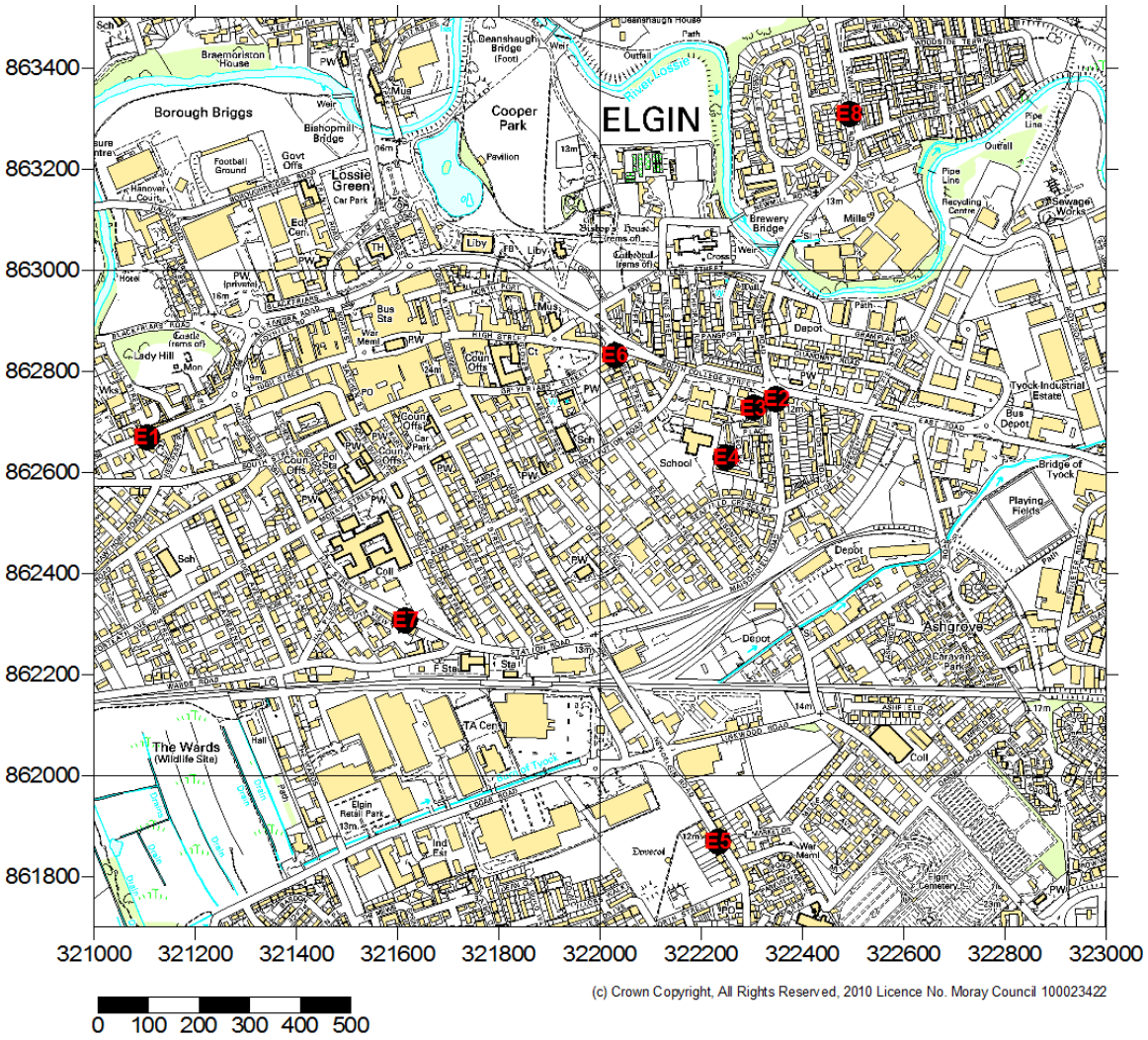


Figure 2.3 Fochabers NO_2 Monitoring Sites

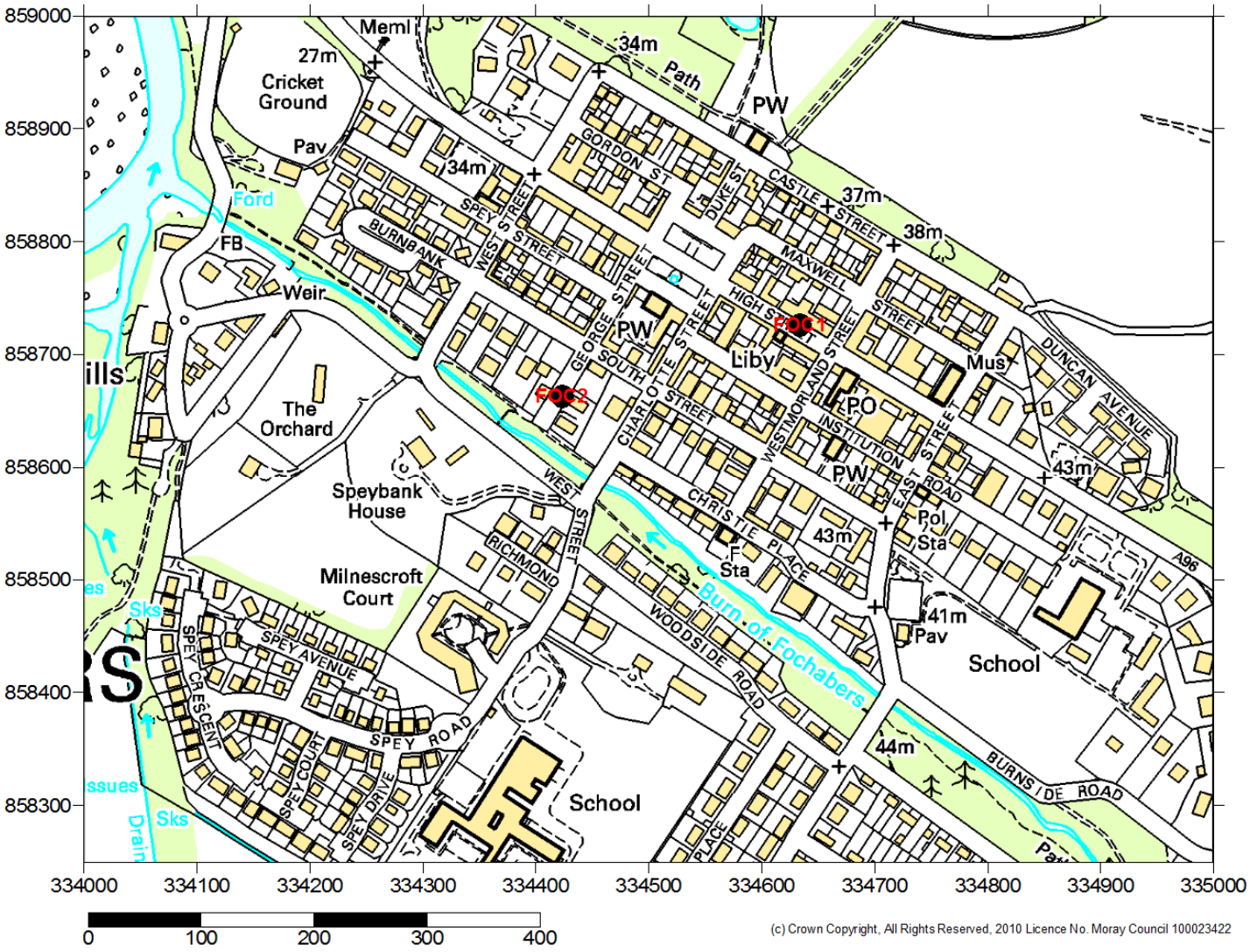


Figure 2.4 Forres NO_2 Monitoring Sites

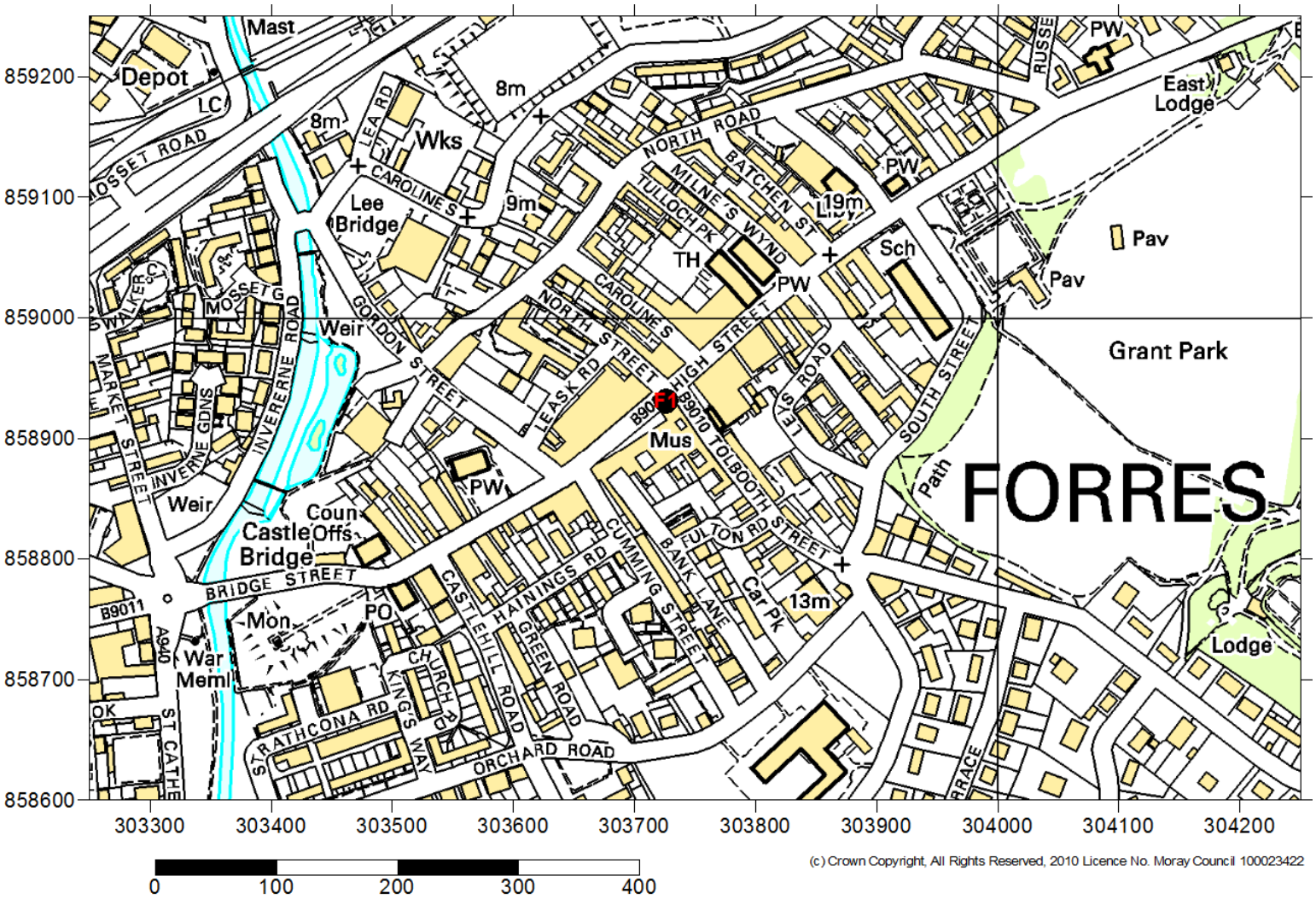


Figure 2.5 Keith NO_2 Monitoring Sites

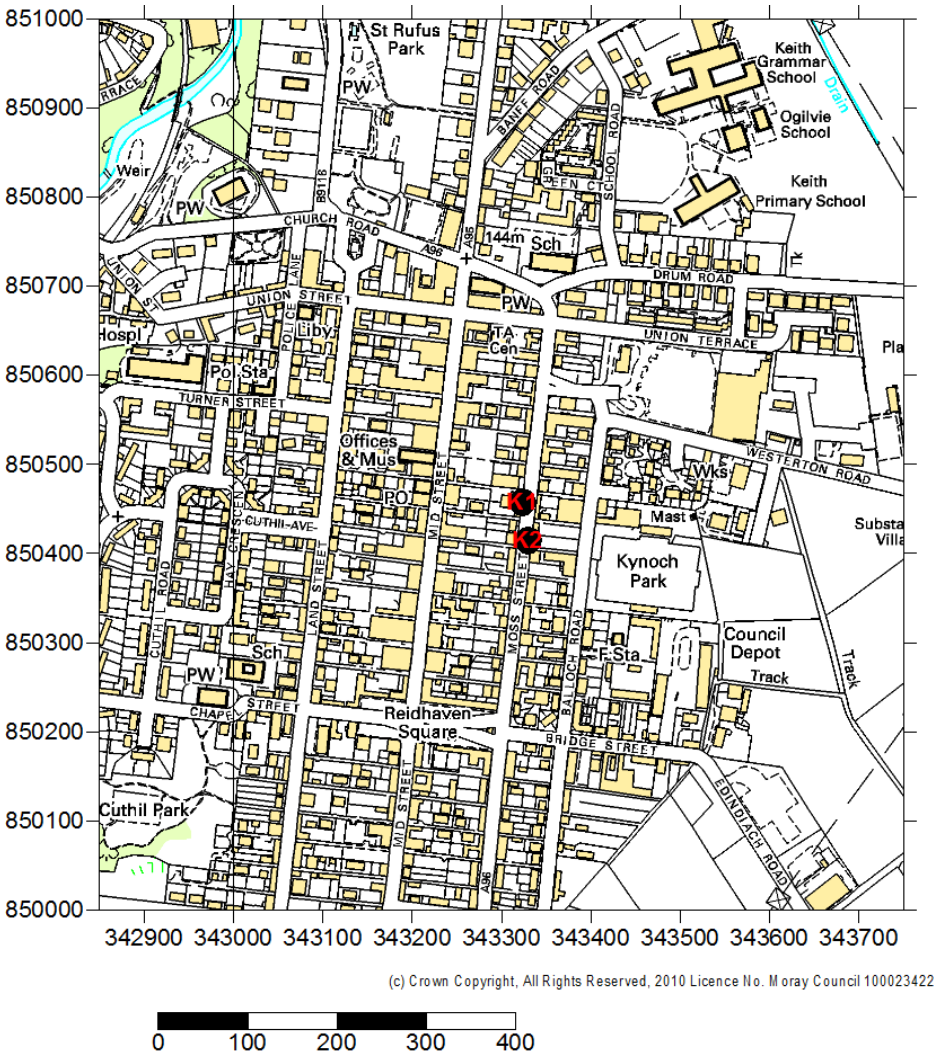


Figure 2.6 Lossiemouth NO_2 Monitoring Sites

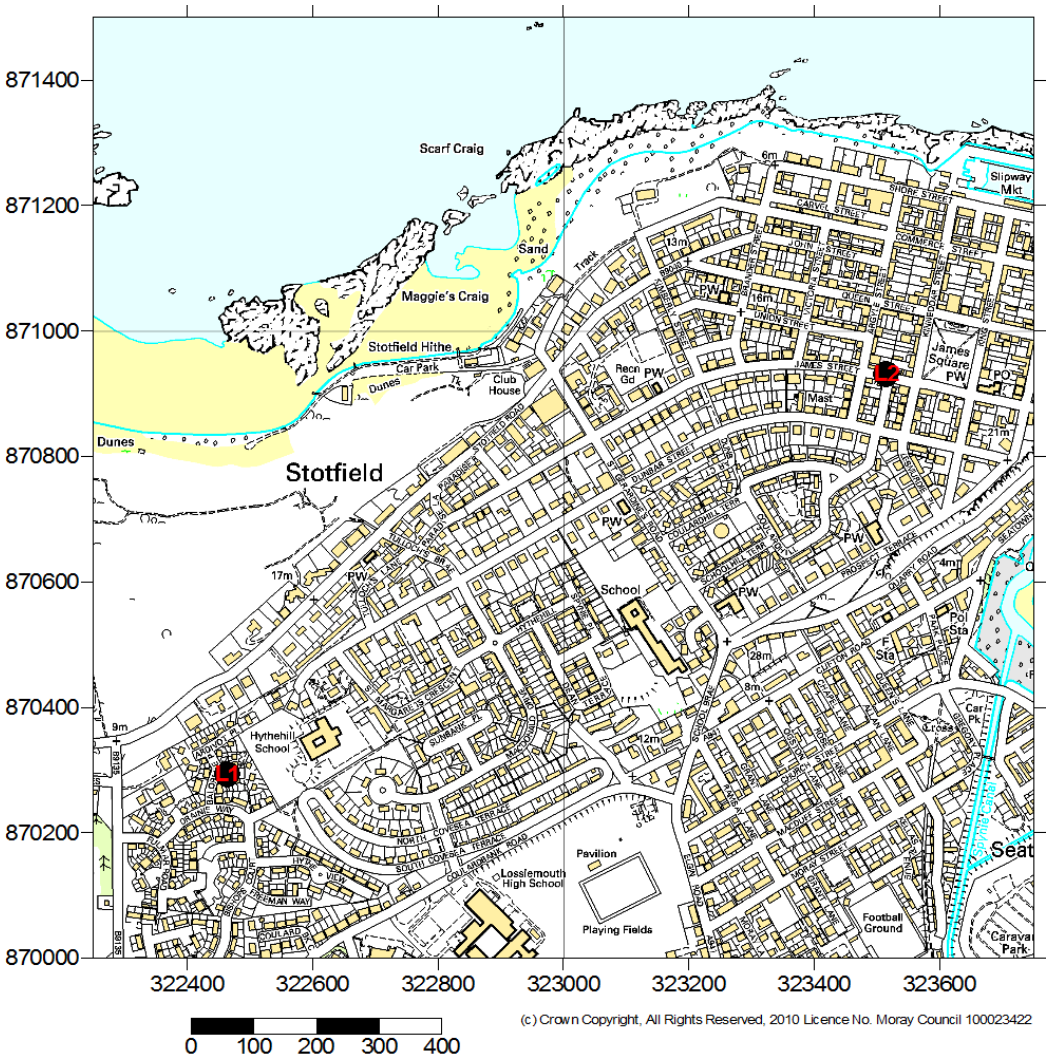
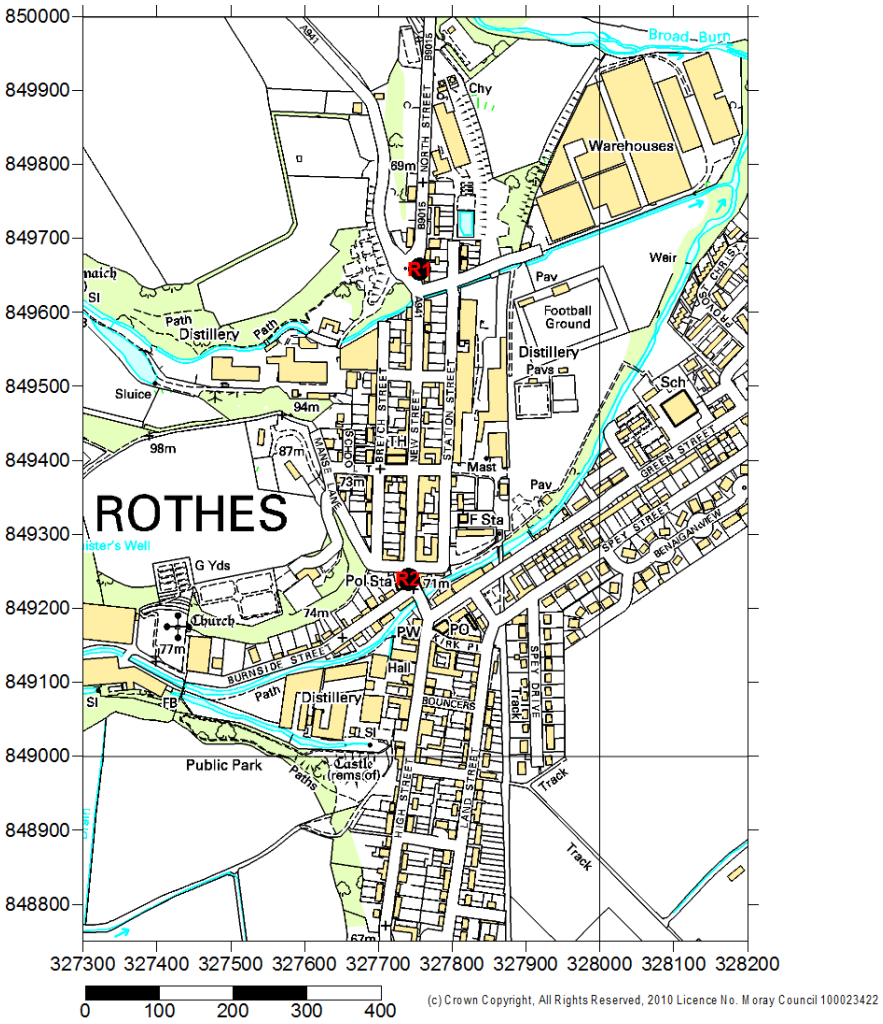


Figure 2.7 Rothes NO_2 Monitoring Sites



2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Diffusion Tube Monitoring Data

A summary of the bias-adjusted annual mean diffusion tube concentrations of NO_2 across the monitoring network for 2011 is shown in Table 2.2. The raw monthly results are included in Appendix A. A summary of data for the last five years is shown in Table 2.3.

A trend graph is shown in Figure 2.8 which illustrates that there is a general downward trend in annual mean NO_2 concentrations across the diffusion tube network. The concentration has decreased at 15 out of 17 sites between 2010 and 2011. There was a moderate increase in Rothes (R1) and at one of the Keith sites (K1), however, the annual mean remains considerably below the limit of 40µg/m^3 at both locations. The maximum annual mean in 2011 was 30.7µg/m^3 in Fochabers High Street.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2011

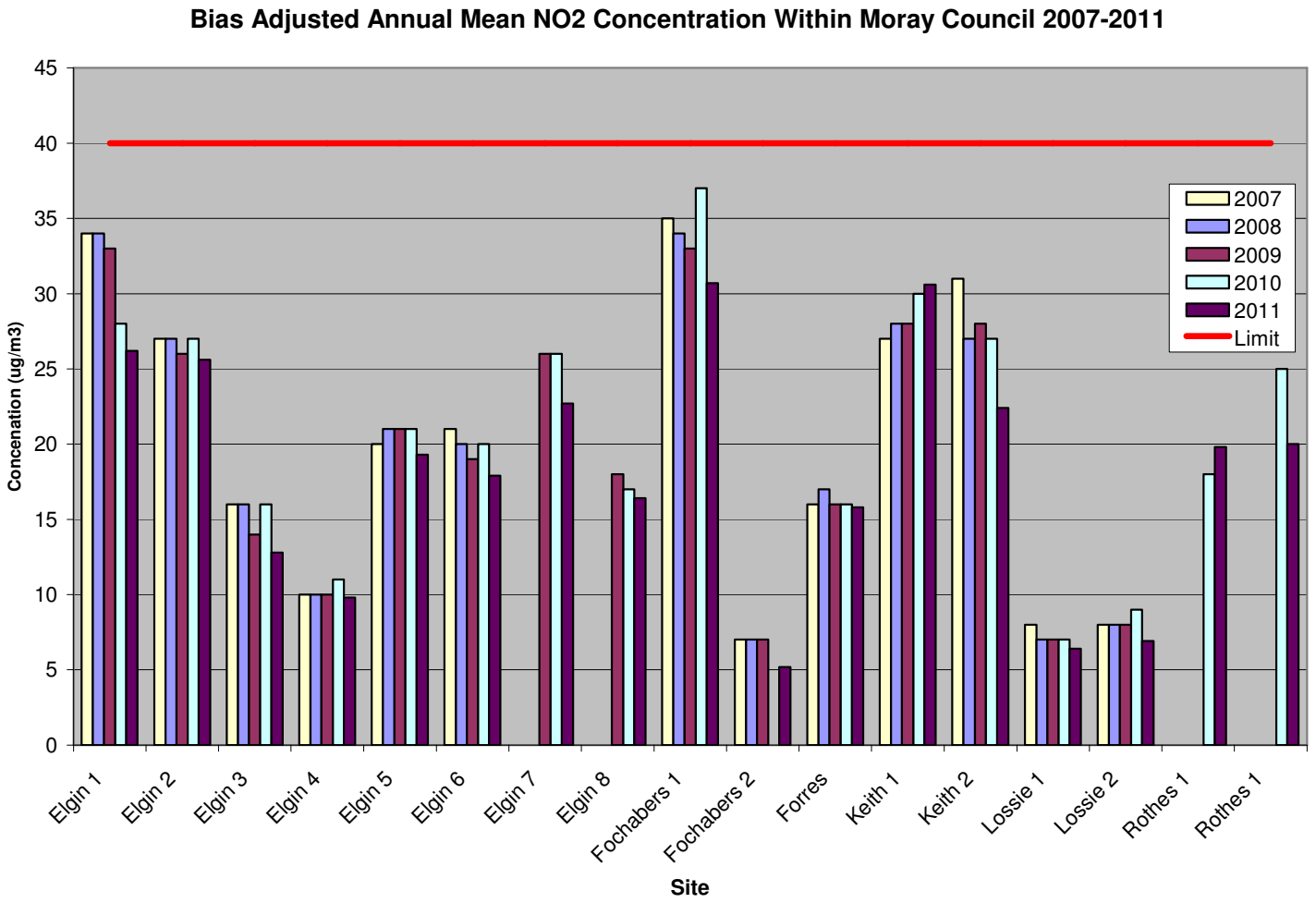
Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment Factor = 0.85) 2011 (µg/m^3)
E1	Lamp Post West Park Court	Kerbside	N	N	100	N	N	26.2
E2	Junction East & Maisondieu Rd	Kerbside	N	N	83.3	N	N	25.6
E3	99-101 Maisondieu Road	Roadside	N	N	91.6	N	N	12.8
E4	26-28 Priory Place	Urban Background	N	N	100	N	N	9.8
E5	Main Street New Elgin	Kerbside	N	N	83.3	N	N	19.3
E6	Queen Street Roundabout	Kerbside	N	N	100	N	N	17.9
E8	Hay Street	Roadside	N	N	83.3	N	N	22.7
E9	Newmill Road	Roadside	N	N	100	N	N	16.4
FOC1	50A High Street	Kerbside	N	N	100	N	N	30.7
FOC2	Sunndach George Street	Urban Background	N	N	100	N	N	5.2
F1	Tolbooth, High Street	Roadside	N	N	100	N	N	15.8
K1	106 Moss Street	Kerbside	N	N	100	N	N	30.6
K2	87 Moss Street	Kerbside	N	N	100	N	N	22.4
L1	1 Merryton Court	Urban Background	N	N	100	N	N	6.4
L1	7 James Street	Kerbside	N	N	100	N	N	6.9
R1	New Street	Roadside	N	N	100	N	N	19.8
R1	New Street	Roadside	N	N	100	N	N	20.0

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2007 (Bias Adjustment Factor 0.87)*	2008 (Bias Adjustment Factor 0.88)*	2009 (Bias Adjustment Factor 0.84)*	2010 (Bias Adjustment Factor 0.82)*	2011 (Bias Adjustment Factor = 0.85)
E1	Kerbside	N	34	34	33	28	26.2
E2	Kerbside	N	27	27	26	27	25.6
E3	Roadside	N	16	16	14	16	12.8
E4	Urban Background	N	10	10	10	11	9.8
E5	Kerbside	N	20	21	21	21	19.3
E6	Kerbside	N	21	20	19	20	17.9
E8	Roadside	N	-	-	26	26	22.7
E9	Roadside	N	-	-	18	17	16.4
FOC1	Kerbside	N	35	34	33	37	30.7
FOC2	Urban Background	N	7	7	7	6^	5.2
F1	Roadside	N	16	17	16	16	15.8
K1	Kerbside	N	27	28	28	30	30.6
K2	Kerbside	N	31	27	28	27	22.4
L1	Urban Background	N	8	7	7	7	6.4
L1	Kerbside	N	8	8	8	9	6.9
R1	Roadside	N	-	-	-	18^	19.8
R1	Roadside	N	-	-	-	25^	20.0

^ Site commenced during 2009, first annual mean available in 2010

Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites



2.2.2 PM_{10}

There is no monitoring for PM_{10} within The Moray Council.

2.2.3 Other Pollutants

There is no monitoring for any other pollutants within The Moray Council area

2.2.4 Summary of Compliance with AQS Objectives

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

3 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 2010 that could impact on local air quality.

The Moray Council Transportation Department was consulted to obtain automatic traffic count information for Council operated sites in and around Elgin for 2011. A map showing the count locations is shown in Figure 3.1 and the data for 2009-2011 are summarised in Table 3.1 below.

Figure 3.1 Location Map of Automatic Traffic Counts in Elgin

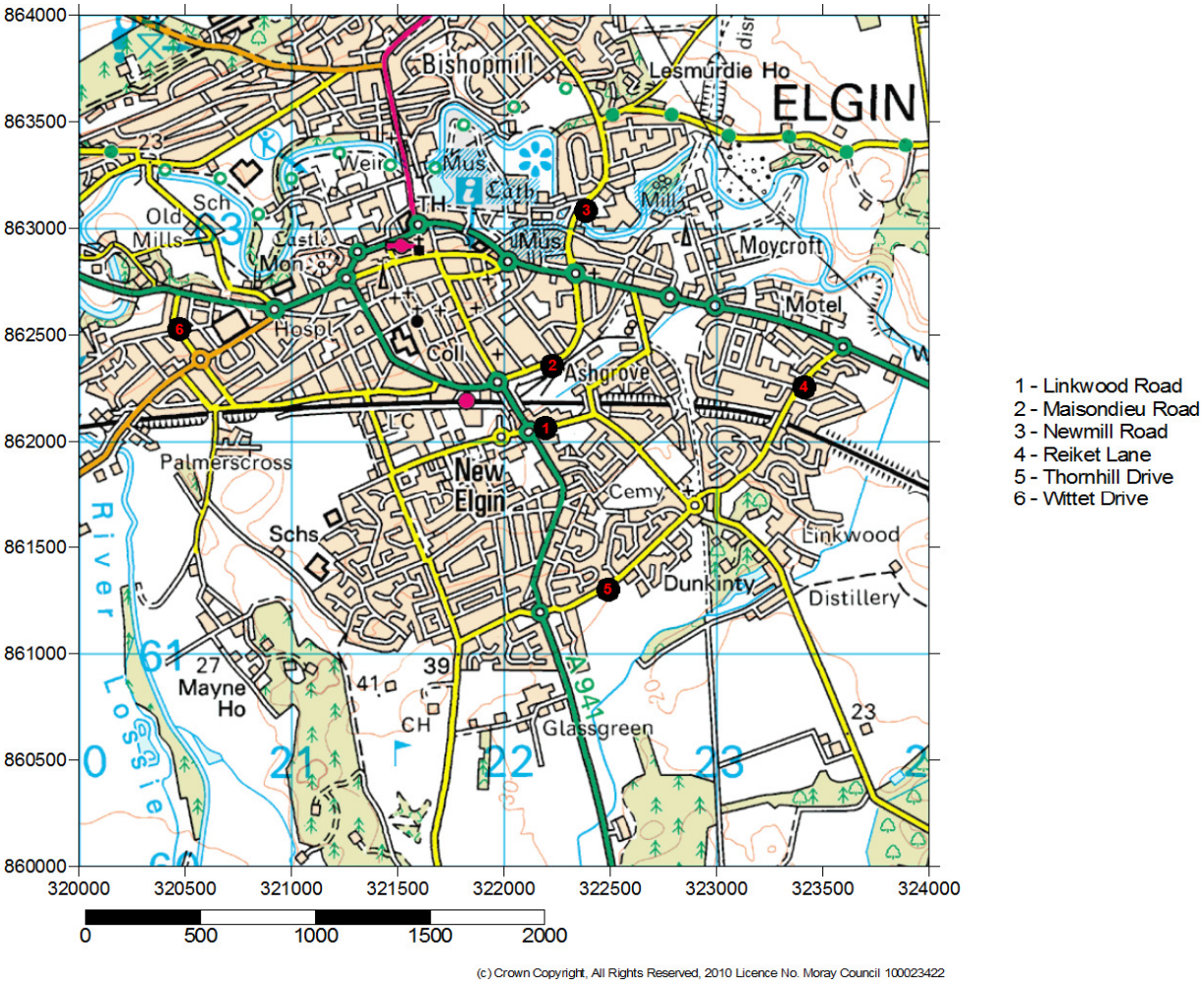


Table 3.1 Summary of Council Operated Traffic Counts Elgin 2009-2011

ID	Description	AADT			% Change
		2009	2010	2011	2010-2011
1	Linkwood Road	8031	8189	8357	2
2	Maisondieu Road	9668	7987	7867	-1.5
3	Newmill Road	10879	10630	10435	-2
4	Reiket Lane	-	6414	6865	7
5	Thornhill Road	4100	5343	5618	5
6	Wittet Drive	3576	3468	3726	7

There are no sites with significantly increased traffic flow that would require a screening assessment.

Transport Scotland was consulted in order to obtain automatic traffic count data for 2011 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 3.2 and the data for 2009-2011 are summarised in Table 3.2.

Figure 3.2 Location Map of Transport Scotland Automatic Traffic Counts in Moray

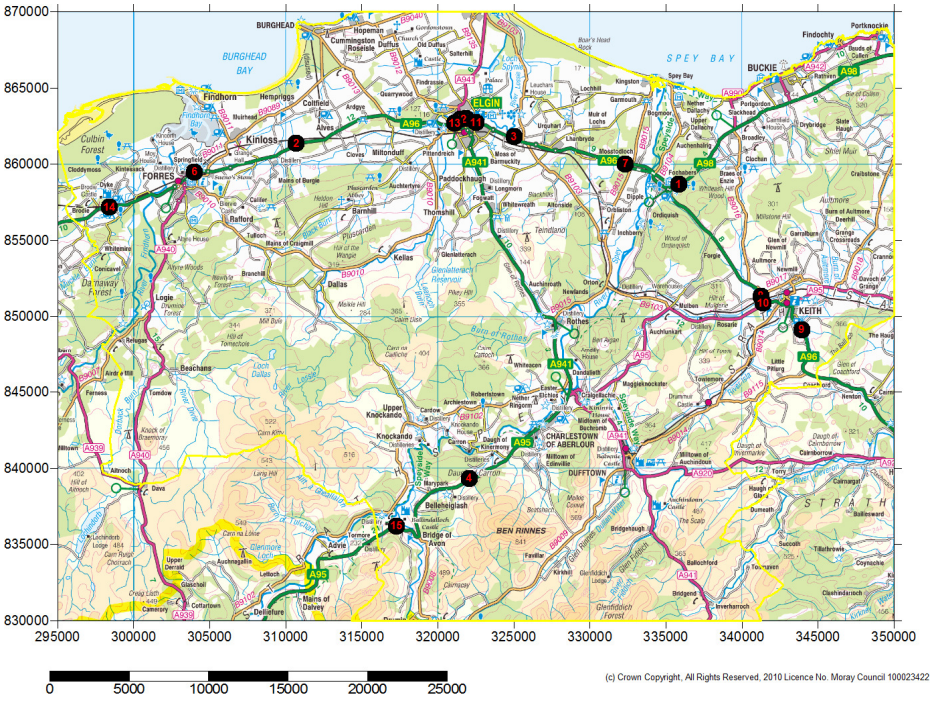


Table 3.2 Summary of Trunk Road Traffic Count Data for A95 & A96 2009-2011

ID	Description	AADT			% Change 2010-2011
		2009	2010	2011	
1	A98 Fochabers	6528	6379	5957	-7
2	A96 Forres to Elgin	11309	11416	11075	-3
3	A96 Elgin to Lhanbryde	16408	16212	15964	-2
4	A95 Dowans Brae	2854	2702	2761	2
5	A96 Elgin Town Centre	17271	16502	16524	0
6	A96 Forres	11641	11164	11039	-1
7	A96 Mosstodloch	14016	13712	7403	-46
8	A96 North of Keith	6287	6020	5805	-4
9	A95 West of Keith	2005	2124	2291	8
10	A96 Elgin - East Road	22853	21254	21605	2
11	A96 Elgin – Alexandra Road	22789	21617	21656	0
12	A96 Elgin - High Street West	13454	13083	13245	1
13	A96 Elgin - West Road	15193	15112	14667	-3
14	A96 Brodie (WiM)	10923	10194	10015	-2
15	A96 Forres (aka Brodie)(Core 744)	10503	10196	10019	-2
16	A95 Ballindalloch (Core 905)	2235	2207	2261	2

The AADT flows have decreased on 9 out of 16 of the road links between 2010 and 2011. The maximum increase is 8% on the A95 west of Keith. The significant decrease on the A96 Mosstodloch is likely to be affected by the staged opening of the new bypass. It was opened completely in January 2012 and it is anticipated that it will ease congestion in the town of Fochabers and improve air quality. This will be monitored and reviewed in the Progress Report in 2013. 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.

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

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

The Moray Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

The Moray Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

The Moray Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

The Moray Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

The Moray Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

The Moray Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

There is one bus station within the Moray Council area located in Elgin. There is relevant exposure within 10m of the bus station; however information gathered on bus movements in previous years indicated that there were less than 1000 bus movements per day. There has been no significant change in bus operations since the last round of review and assessment. It is therefore concluded that there is no need to proceed to a Detailed Assessment.

The Moray Council confirms that there are no relevant bus stations in the Local Authority area that require Detailed Assessment.

4 Other Transport Sources

4.1 Airports

The RAF airbase at Kinloss closed in 2011 while the Lossiemouth base remains operational. A previous study of local air quality in the vicinity of each base (Ref.10) showed that there was no risk of exceedence of air quality objectives.

The nearest commercial airport is Inverness Airport, which is located 18km to the east of the Moray Council area within the Highland Council area. Inverness airport is further than 1km from any relevant public exposure within Moray Council area and therefore requires no further assessment.

The Moray Council confirms that there are no airports in the Local Authority area requiring further assessment.

4.2 Railways (Diesel and Steam Trains)

There have been no significant changes to rail movement within the Moray Council area since the last round of Review and Assessment.

The Moray Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

The Moray Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Moray Council has previously reviewed emissions from shipping and has a responsibility for six harbours within the Council area, namely, Buckie, Burghead, Cullen, Findochty, Hopeman and Portknockie. Lossiemouth also has an operational harbour and there is a small harbour, pier and ship building yard at Findhorn. The types of vessels using the harbours are mainly small fishing vessels and recreational boats and it is concluded that no further assessment is required.

The Moray Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

The Scottish Environment Protection Agency (SEPA) and The Planning Department of the Council were contacted to obtain up to date information on industrial processes within the Moray Council area.

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been carried out

There were 4 approved planning applications for industrial installations with the potential to impact local air quality in 2011. All sites are SEPA regulated sites and the appropriate air quality assessment was submitted and considered by SEPA for each installation. They are summarised in Table 5.1.

Table 5.1 Summary of Industrial Installations granted Planning Permission during 2011

Application Reference	Description	Applicant	Date Permitted
11/00173/APP	Erect boiler house and associated timber and biomass wood fuel storage facility and install 2.9mw wood fuel boiler for providing hot water for sawmill process at Mosstodloch Sawmill Garmouth Road Mosstodloch Fochabers Moray IV32 7LH	James Jones And Sons Limited	27/06/2011
11/01004/APP	Demolition of a redundant process building and tanks with construction of a new Bioplant facility in their location at Dailuaine Distillery Carron Aberlour Moray AB38 7RE	Diageo (Scotland) Ltd	05/10/2011
11/01344/APP	Construction of a below ground services route between the distillery and bioplant at Dailuaine Distillery Carron Aberlour Moray AB38 7RE	Diageo (Scotland) Ltd	25/10/2011
11/01383/APP	Construction of a new biomass plant within the existing site at Glenlossie And Mannochmore Distillery And Dark Grains Site Glenlossie Road Birnie Elgin Moray IV30 8SS	Diageo (Scotland) Ltd	15/12/2011

The Moray Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

SEPA was contacted to obtain up to date information on regulated industrial processes within the Moray Council area. It was confirmed that there are no existing installations where emissions have increased substantially or new relevant exposure has been introduced.

The Moray Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

After consultation with SEPA, it was confirmed that there are no new or significantly changed industrial installations with no previous air quality assessments within the Moray Council area.

The Moray Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

There are no new petrol stations with annual throughput of over 2000m^3 of petrol.

The Moray Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

There have been no significant changes at the two SEPA regulated poultry farms within the Moray Council Area since the last round of Review and Assessment. It is therefore concluded that no further assessment is necessary.

The Moray Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

There has been a rise in the number of planning applications for biomass installations within the Moray Council area each year since the last round of Review and Assessment. Six planning applications for wood burning biomass installations or associated storage buildings were permitted by the Council in 2011. Two have been permitted so far in 2012 with 5 applications pending. They range from small private domestic and community installations to larger installations up to 2.9MW at industrial sites.

The Environmental Services Department within the Moray Council has an established team of personnel who undertake the appropriate air quality impact screening assessments of all proposed wood burning biomass installations in accordance with the Environmental Protection UK guidance (Ref.13) and ensure installations are compliant with the Clean Air Act 1993 before granting permission.

The Moray Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

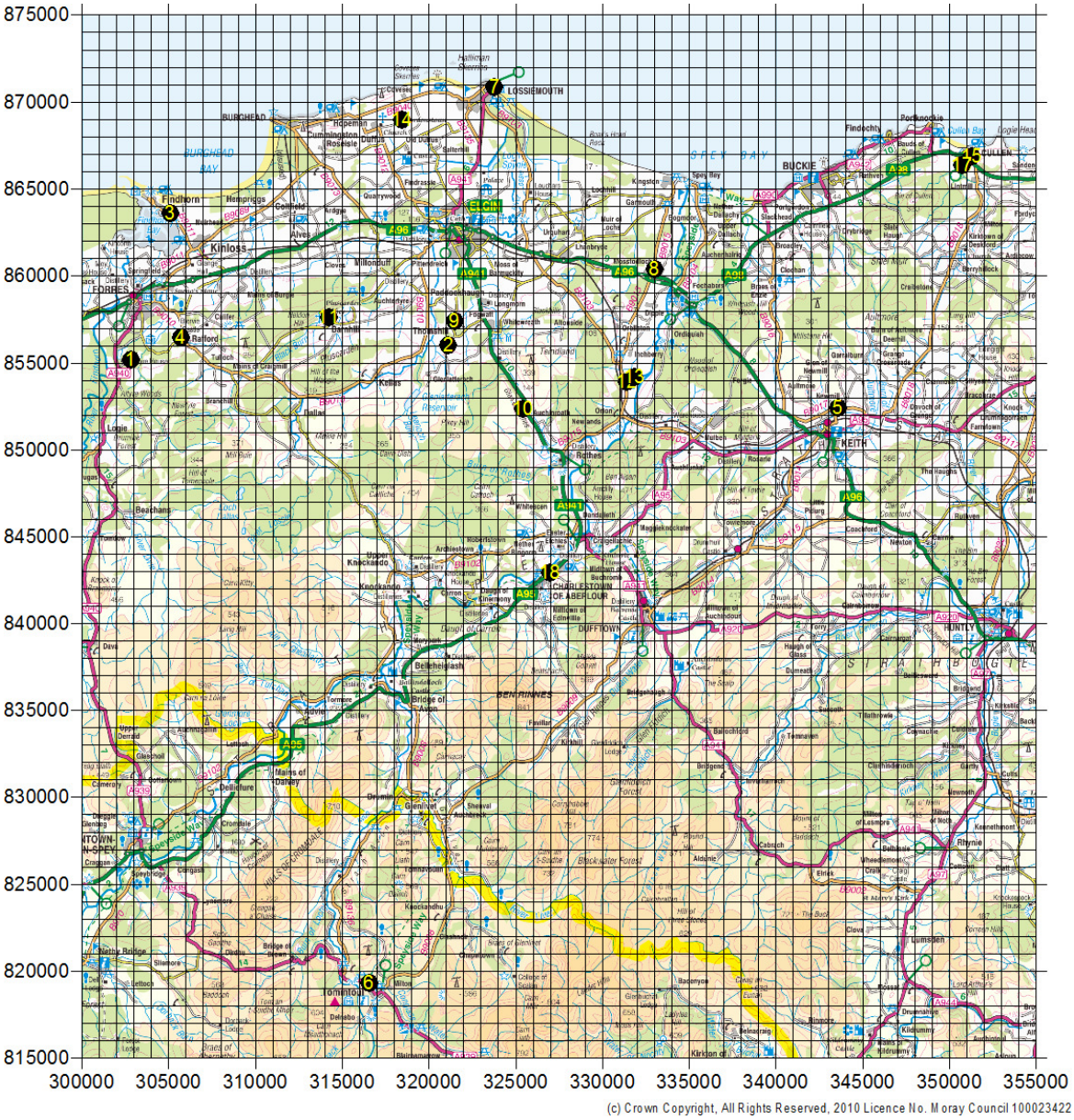
6.2 Biomass Combustion – Combined Impacts

To date there are a total of 13 permitted wood burning biomass installations within the Moray Council area and 5 pending applications. While these have all been assessed for potential air quality impact as individual installations, the potential combined impact of clusters of installations needs to be assessed for PM_{10} in accordance with TG(09) (Ref.1). The biomass installations with their geographical location are summarised in Table 6.1 and shown in the map in Figure 6.1.

Table 6.1 Location of Biomass Installations in Moray Council

ID on Figure 6.1	Description	OS Grid Reference		Status
		Easting	Northing	
1	CHP biomass boiler building at Blairs Farm Steading Forres Moray IV36 2SH	302803	855196	Permitted
2	Biomass boiler and biodisc treatment plant Easterton Farm Birnie Elgin Moray IV30 8SP	321110	856059	Permitted
3	Installation of a biomass (woodchip) boiler at The Park Findhorn Forres Moray	305084	863636	Permitted
4	Building to dry/process local forest and waste timber to bio-fuel at Marcassie Farm Rafford Moray	305700	856480	Permitted
5	Biomass boiler shed at Newmill Public Hall South Street Newmill Moray	343580	852448	Permitted
6	Bio mass fuel store at Findouran Garage Stuart Place Tomintoul Ballindalloch Moray AB37 9HL	316543	819327	Permitted
7	Biomass heating system and external hopper and flue at Town Hall High Street Lossiemouth Moray IV31 6AA	323764	870894	Permitted
8	Boiler house and associated fuel storage facility and 2.9MW boiler for providing hot water for sawmill process at Mosstodloch Sawmill Garmouth Road Mosstodloch Fochabers Moray IV32 7LH	332975	860409	Permitted
9	Biomass plant within the existing site at Glenlossie and Mannochmore Distillery and Dark Grains Site Glenlossie Road Birnie Elgin Moray IV30 8SS	321458	857413	Permitted
10	Biomass heating system at Brylach Rothes Aberlour Moray AB38 7AQ	325431	852363	Permitted
11	195kW biomass boiler installation including boiler house and wood chip store at Pluscarden Abbey Pluscarden Elgin Moray IV30 8UA	314200	857630	Permitted
12	Biomass heating cabin serving Orton House and adjoining buildings at Orton House Orton Fochabers Moray IV32 7QE	331421	853941	Permitted
13	Biomass heating cabin serving Mains Of Orton Orton Fochabers Moray IV32 7QE	331860	854237	Permitted
14	Replacement of existing boiler with new biomass boiler and hopper feed system at Gordonstoun School Duffus Elgin Moray IV30 5RF	318440	868990	Pending
15	Erection of biomass heating cabin at Seafield Estate Office York Place Cullen Buckie Moray AB56 4UW	351296	866871	Pending
16	Installation of biomass heating plant and ancillary wood chip store to serve Old Cullen House And The Stable Block Cullen Buckie Moray AB56 4XW	350736	866411	Pending
17	Installation of biomass heating plant and its serving flue at Old Cullen House And The Stable Block Cullen Buckie Moray AB56 4XW	350736	866411	Pending
18	Erection of biomass boiler room storage container and access road at Speyside High School Mary Avenue Aberlour	326973	842941	Pending

Figure 6.1 Location Map of Biomass Installations in Moray



The map shows 1km x 1km grid squares. It can be seen that the installations are widely spread across the Council area, mostly in rural locations and there are no clusters in a 500 x 500m^2 area or installations adjacent to any areas of concentrated domestic solid fuel burning.

The Moray Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

Previous reports concluded that there were no areas of domestic solid-fuel burning with a density of greater than 100 houses in a 500 x 500m area. There have been no new areas of development with significant solid-fuel burning and it is therefore not necessary to undertake any further assessment.

The Moray Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

SEPA confirmed that there were no new industrial sources of fugitive emissions within the Moray Council area.

The Moray Council confirms that there are no potential sources of fugitive emissions that have not been previously assessed within the local authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

During 2011, The Moray Council undertook monitoring of NO_2 concentrations at 17 locations. The results indicate that the NO_2 annual mean air quality objective was met at all monitoring locations. There are no existing AQMAs within the Council area and it is concluded that no Detailed Assessment is required because of monitoring data.

8.2 Conclusions from Assessment of Sources

The assessment has been conducted in accordance with the TG09 Technical Guidance. Updated information of road, rail, industrial, domestic and fugitive emissions sources including biomass installations has been obtained and compared against the criteria and conditions described in the Guidance. It was determined that there is no need to proceed to a Detailed Assessment for any of the emissions sources.

8.3 Proposed Actions

The Moray Council plan to maintain the NO_2 monitoring network and traffic count sites throughout 2012.

The next report to be submitted is the 2013 Progress Report.

9 References

Ref.1 Local Air Quality Management Technical Guidance LAQM.TG(09), Department for Environment, Food and Rural Affairs, 2009

Ref.2 2011 Air Quality Progress Report for The Moray Council, TSI Scotland Ltd, Report Ref: TSI/MOR.001-04-03, June 2011

Ref.3 Moray Council LAQM Progress Report 2010, BMT Cordah Ltd Report Ref: G_MOR_015, May 2010

Ref.4 Moray Council LAQM Updating and Screening Assessment 2009, BMT Cordah Ltd Report Ref: G_MOR_014, May 2009

Ref.5 Moray Council LAQM Progress Report 2008, BMT Cordah Ltd Report Ref: G_MOR_013, May 2008

Ref.6 Moray Council LAQM Progress Report 2007, BMT Cordah Ltd Report Ref: E_MOR_012, April 2007

Ref.7 Moray Council LAQM Updating and Screening Assessment 2006, BMT Cordah Ltd Report Ref: E_MOR_011, April 2006

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

Ref.9 Moray Council LAQM Progress Report 2005, BMT Cordah Ltd Report Ref: E_MOR_010, May 2005

Ref.10 Air Quality Study in the Vicinity of RAF Lossiemouth and RAF Kinloss, BMT Cordah Ltd, Report Ref: MOR_007, November 2004

Ref.11 Supplementary Report to the Updating and Screening Assessment, BMT Cordah Ltd, Report Ref: MOR_008, January 2004

Ref.12 Updating and Screening Assessment, BMT Cordah Ltd, Report Ref: MOR_005, 2003

Ref.13 Environmental Protection UK, Biomass and Air Quality Guidance for Scottish Local Authorities, June 2010, www.environmental-protection.org.uk/biomass

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

Appendices

Appendix A: QA:QC Data

The raw monthly average NO_2 diffusion tube results are summarised in Table A:1

Table A1: Raw Unadjusted Monthly Diffusion Tube NO_2 Concentrations µg/m^3

ID	SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN	Data Capture %
Elgin 1	Lamp Post West Park Court	37	39	31	30	27	25	29	30	31	32	35	24	30.8	100
Elgin 2	Junction East & Maisondieu Rd	41	34	28			30	38	31	23	26	27	23	30.1	83
Elgin 3	99-101 Maisondieu Road	22	19	16	15	12	13	20	15	10	11		13	15.1	92
Elgin 4	26-28 Priory Place	20	17	11	10	7	6	9	9	9	10	17	14	11.6	100
Elgin 5	Main Street New Elgin		36	24	20	18	13	19	20	22	23	32		22.7	83
Elgin 6	Queen Street Roundabout	31	27	20	21	14	17	19	19	19	20	27	18	21.0	100
Elgin 7	Hay Street		37	26	26	26	21	25	28	28	30		20	26.7	83
Elgin 8	Newmill Road	33	30	21	17	14	9	9	13	17	20	28	20	19.3	100
Fochabers 1	50A High Street	40	36	36	34	33	41	57	46	29	31	32	19	36.2	100
Fochabers 2	Sunndach George Street	9	9	6	5	5	5	7	5	5	5	8	5	6.2	100
Forres	Tolbooth, High Street	27	26	18	16	15	15	14	18	15	15	22	22	18.6	100
Keith 1	106 Moss Street	57	43	38	30	26	41	28	31	36	34	33	35	36.0	100
Keith 2	87 Moss Street	34	36	28	24	5	25	29	24	23	24	44	20	26.3	100
Lossie 1	1 Merryton Court	15	12	7	7	5	5	5	5	5	6	11	7	7.5	100
Lossie 2	7 James Street	14	14	9	6	6	5	5	5	6	6	12	9	8.1	100
Rothes 1	New Street	35	32	21	21	18	19	12	27	22	21	32	20	23.3	100
Rothes 2	New Street	38	33	25	23	18	19	20	20	21	21	25	20	23.6	100

Factor from Local Co-location Studies (if available)

There is no co-location study within the Moray Council.

Diffusion Tube Bias Adjustment Factors

The national bias adjustment factor spreadsheet v03_12 (http://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html) (Ref.14) was used to calculate the national bias adjustment factor for diffusion tubes analysed by Aberdeen Scientific Services Laboratory (ASSL) during 2011. The factor was found to be 0.85.

QA/QC of diffusion tube monitoring

The NO_2 diffusion tubes used by The Moray Council were prepared and analysed by the Aberdeen Scientific Services Laboratory (ASSL) The Laboratory is UKAS accredited and has good performance in both WASP and NPL QA schemes. The laboratory demonstrated satisfactory performance in the Workplace Analysis Scheme for Proficiency (WASP) over the past five rounds with Z scores between -1.1 and 1.1.

WASP (4 tubes)

Round 111	0.8, -0.6, 0.6, 0.7
Round 112	-0.5, 0.0, -0.2, 0.4
Round 113	-0.6, -0.8, -1.1, -0.4
Round 144	0.6, 0.8, 0.6, 1.1
Round 115	-0.1, -0.2, 0.2, 0.2

The general classification of a Z-Score is :

$Z < \pm 2$	Satisfactory
$Z > \pm 2$ and $< \pm 3$	Warning
$Z > \pm 3$	Unsatisfactory

The results of the NPL Intercomparison Study are shown below. The overall survey had good precision and data capture with a bias correction factor of 0.85.

Results of NPL Inter Comparison Study for ASSL

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	05/01/2011	02/02/2011								91.2	93.3		Good
2	02/02/2011	02/03/2011	136.1	130.9	123.3	130	6.4	5	16.0	111.7	93.3	Good	Good
3	02/03/2011	30/03/2011	111.5	113.0	113.2	113	0.9	1	2.3	95.7	96.8	Good	Good
4	30/03/2011	27/04/2011	119.3	110.8	98.6	110	10.4	10	25.9	106.4	97.5	Good	Good
5	27/04/2011	01/06/2011	107.3	113.9	110.1	110	3.3	3	8.2	99.9	97.4	Good	Good
6	01/06/2011	29/06/2011	87.8	129.1	115.2	111	21.0	19	52.2	93.1	90.8	Good	Good
7	29/06/2011	03/08/2011	92.1	96.1	87.5	92	4.3	5	10.7	86.1	91.1	Good	Good
8	03/08/2011	31/08/2011	100.3	120.3	102.3	108	11.0	10	27.4	82.2	97.7	Good	Good
9	31/08/2011	28/09/2011	119.6	135.5	133.7	130	8.7	7	21.6	108.5	96.1	Good	Good
10	28/09/2011	31/10/2011	136.9	152.0	142.6	144	7.6	5	18.9	108.2	96.5	Good	Good
11	18/11/2011	14/12/2011	133.6	112.0	130.5	125	11.7	9	29.0	110.2	97.4	Good	Good
12	30/11/2011	04/01/2012	126.9	128.2	119.7	125	4.6	4	11.4	105.4	96.6	Good	Good
13													
										Overall survey -->		Good precision	Good Overall DC

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

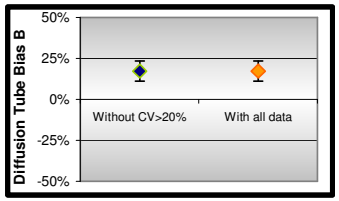
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

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	0.85 (0.81 - 0.9)
Bias B	17% (11% - 23%)
Diffusion Tubes Mean:	118 μgm^{-3}
Mean CV (Precision):	7
Automatic Mean:	101 μgm^{-3}
Data Capture for periods used:	96%
Adjusted Tubes Mean:	100 (95 - 106) μgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	0.85 (0.81 - 0.9)
Bias B	17% (11% - 23%)
Diffusion Tubes Mean:	118 μgm^{-3}
Mean CV (Precision):	7
Automatic Mean:	101 μgm^{-3}
Data Capture for periods used:	96%
Adjusted Tubes Mean:	100 (95 - 106) μgm^{-3}



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Version 04 - February 2011