



2010 Air Quality Progress Report for *North Lincolnshire Council*

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

July 2010

Local Authority Officer	Ross Thomson
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Department	Environmental Protection
Address	Church Square House, Scunthorpe
Telephone	(01724) 297830
e-mail	ross.thomson@northlincs.gov.uk

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Executive Summary

The 2010 Progress Report has not highlighted any new exceedances of the air quality objectives applicable to LAQM **in England** as set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043).

This report reconsiders all potential sources of pollution (primarily industry and traffic related sources) with respect to PM₁₀ (particulate matter), nitrogen dioxide, sulphur dioxide & benzene. The main purpose of the report is to identify those aspects that have changed since completion of the 2009 Updating & Screening Assessment.

Continuing problems have been highlighted within the local area relating to PM₁₀ and at present have resulted in the declaration of two Air Quality Management Areas; (AQMA)

- 2005 Scunthorpe AQMA for breaches of PM₁₀ daily mean objective.
- 2008 Low Santon AQMA for breaches of the PM₁₀ annual mean objective.

Problems persist at both of these locations although improvements are beginning to show. Daily objective breaches are becoming less frequent throughout the AQMA although East Common Lane and Santon, which surround the integrated Steelworks site, still exceed the objective. The annual mean objective at Santon has also seen a decrease since 2006 and the application of the Volatile Correction Model in 2008 has resulted in the site being compliant. These results should be treated with caution due to the downturn in the manufacturing industry and the relevance of the VCM FDMS correction which up until 2010 was taken from over 100km away.

A Further Assessment for Santon will be submitted to DEFRA in 2010, which will give a more detailed account of the current situation. An action plan review of the 2005 Daily Mean AQMA is also due for submission later this year.

All other sources assessed have not met the criteria required to proceed to a detailed assessment. These will be assessed again in the 2011 Progress Report to ensure that they do not have a detrimental effect on the air quality of North Lincolnshire.

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1 Introduction

1.1 Description of Local Authority Area

North Lincolnshire is an area of around 85,000 hectares located on the southern side of the Humber estuary and occupying tracts of land on either side of the River Trent. Parliamentary Order created the administrative area of North Lincolnshire in March 1995 and on 1st April 1996 the new Unitary Authority area of North Lincolnshire came into being. North Lincolnshire covers a large, mainly agricultural area. The pattern of settlements in the area reflects this with market towns surrounded by many small villages. An important exception to this is the substantial urban area of Scunthorpe and the adjoining town of Bottesford. Almost half of North Lincolnshire's population, approximately 73,250 people, live in Scunthorpe and the adjacent town of Bottesford. Overall, 71 percent of the population live in this main urban area and other towns. The local economy of North Lincolnshire was built on traditional industries such as steel manufacturing and related industries and agriculture. More recently there has been the establishment of two oil refineries and the introduction of several gas fired power stations. The M180 motorway and several primary and strategic routes, including the A18 and A15, are located within North Lincolnshire. By rail there are regular freight movements to and from Scunthorpe Steelworks and Humber port related industries. With several wharf facilities along the banks of the Humber and the Trent, North Lincolnshire is well positioned to take advantage of water transport.

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 Local Air Quality Management (LAQM) in **England** are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1. includes the number of permitted exceedences in any given year (where applicable).

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

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	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
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
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

Previous rounds of review and assessment have led to a number of focused assessments of different pollutants and sources. Summaries of the assessment findings are as follows;

Updating and Screening Assessment (USA) 2003

Results of monitoring and the screening exercises in this Review & Assessment, proposed that a detailed assessment of PM₁₀ would be conducted in relation to the following: -

- Industrial emissions of PM₁₀ in Scunthorpe.
- Emissions of PM₁₀ from quarries and landfills in Barnetby.
- Emissions of PM₁₀ and SO₂ from domestic solid fuel burning in Keadby.
- Industrial emissions of SO₂ in Killingholme
- Industrial emissions of Benzene in Killingholme and Scunthorpe

Detailed Assessment 2004

Continuing on from the 2003 USA, recommendations for each pollutant were as follows;

Benzene

To gather further data in both Scunthorpe and Killingholme and review and report findings in the next annual Progress Report.

Sulphur Dioxide

To gather further data at Keadby and review and report findings in the next annual Progress Report. No further action was required in respect of sulphur dioxide at Killingholme. No further action was required in connection with stationary railway locomotives at Scunthorpe Station.

PM₁₀

An Air Quality Management Area or Areas shall be defined and then designated for the Scunthorpe area where there is likely exceedence of the Air Quality Objectives. Gather additional PM₁₀ data at Keadby and subsequently review and report conclusions in the next annual Progress Report. No further action is required in respect of PM₁₀ in Croxton/Barnetby.

Benzene Detailed Assessment 2005

The annual mean of benzene concentrations at relevant locations did not exceed the 2010 objective, although at one location at Santon, Scunthorpe some monthly concentrations did exceed 5µg/m³ and consequently further investigations were required. The monthly concentrations at certain boundary locations were greater than 5µg/m³ at installations in Scunthorpe and Killingholme, however where there were no relevant receptors and exposure is unlikely to effect human health, no further investigation was required in relation to air quality assessment.

Progress Report 2005

From the results of the monitoring data in this Progress Report, it was proposed that the following actions be implemented; A benzene diffusion tube survey would continue for a further 12-month period commencing March 2005 at two sites in Scunthorpe identified as having the potential to breach the 2010 annual mean objective of $5\mu\text{g}/\text{m}^3$.

The two locations identified in Scunthorpe as likely to breach the annual mean air quality objective for nitrogen dioxide of $40\mu\text{g}/\text{m}^3$, a chemiluminescence NO_x analyser was installed.

The council will declare an Air Quality Management Area for PM_{10} in Scunthorpe, in relation to the 24 hour mean objective of $50\mu\text{g}/\text{m}^3$ not to be exceeded more than 35 times a year, and continue with the further assessment work to determine the relative contributions of different sources of PM_{10} .

Updating & Screening Assessment 2006

From the results of the monitoring and the screening exercises in this Review & Assessment, it was proposed that detailed assessments would be conducted in relation to the following: -

- Industrial emissions of 1,3-Butadiene in the vicinity of the Conoco Phillips Ltd and Total UK Ltd Oil Ltd Refineries, North Killingholme.
- Industrial emissions of Lead in the vicinity of the Corus (UK) Ltd Integrated Steelworks, Scunthorpe.
- Emissions of Nitrogen Dioxide in the vicinity of Doncaster Rd / Hilton Avenue, Scunthorpe, Junction of Brigg Road and A18, Mortal Ash, Scunthorpe

Detailed Assessment PM_{10} 2008

The results presented indicate that the annual PM_{10} objective has been breached in the vicinity of the Low Santon TEOM monitoring station in 2006 and 2007. The mean concentration recorded between October and December 2005 was also greater than $40\mu\text{g}/\text{m}^3$.

Further Assessment of PM_{10} 2008

Further assessment of past monitoring data recorded at continuous sites within the AQMA Scunthorpe shows levels remain non-compliant with the short-term objective. The Council has no current plans to move the monitors within the AQMA.

Air Quality Progress Report 2008

The progress report concluded that NO_2 concentrations within Killingholme had decreased and there had been no significant changes to road traffic flows or other transportation.

Updating & Screening Assessment 2009

The Updating & Screening Assessment 2009 highlighted no new areas of non-compliance. Existing problems such as the ongoing issues with the Integrated Steel Works were again noted and are due to be addressed within forthcoming Further Assessments and Action Plans.

Figure 1.1 Map of AQMA Boundary – 2005 Scunthorpe

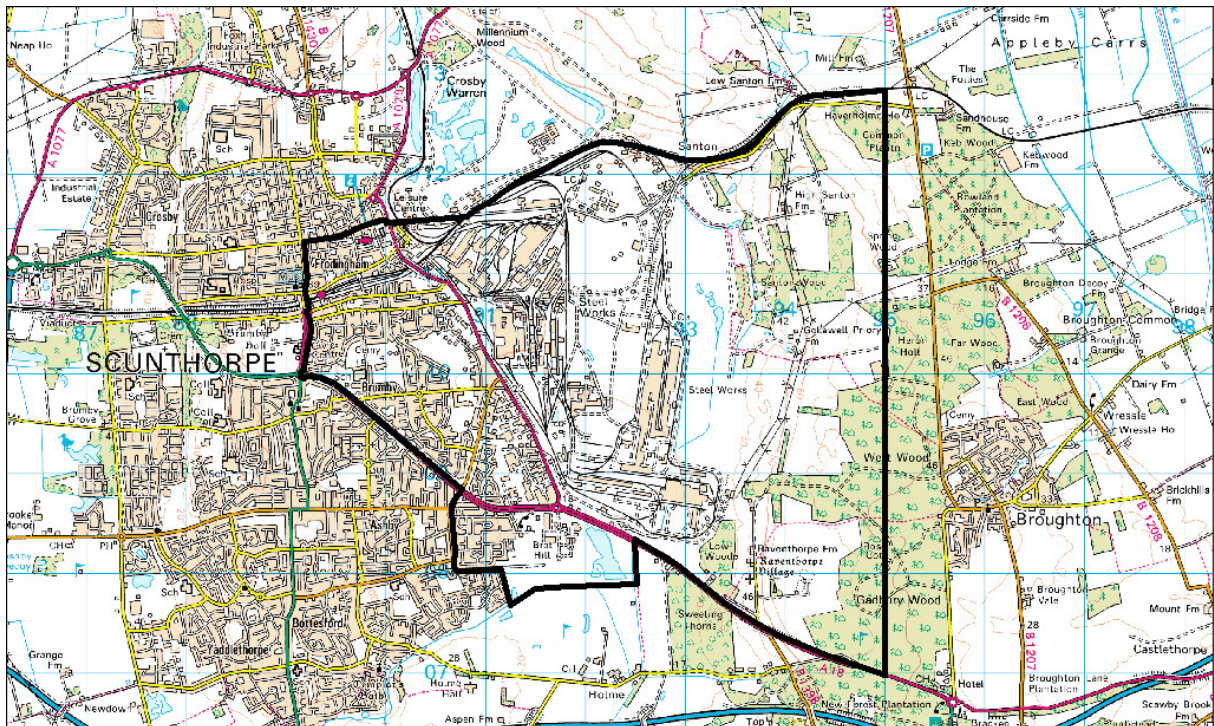
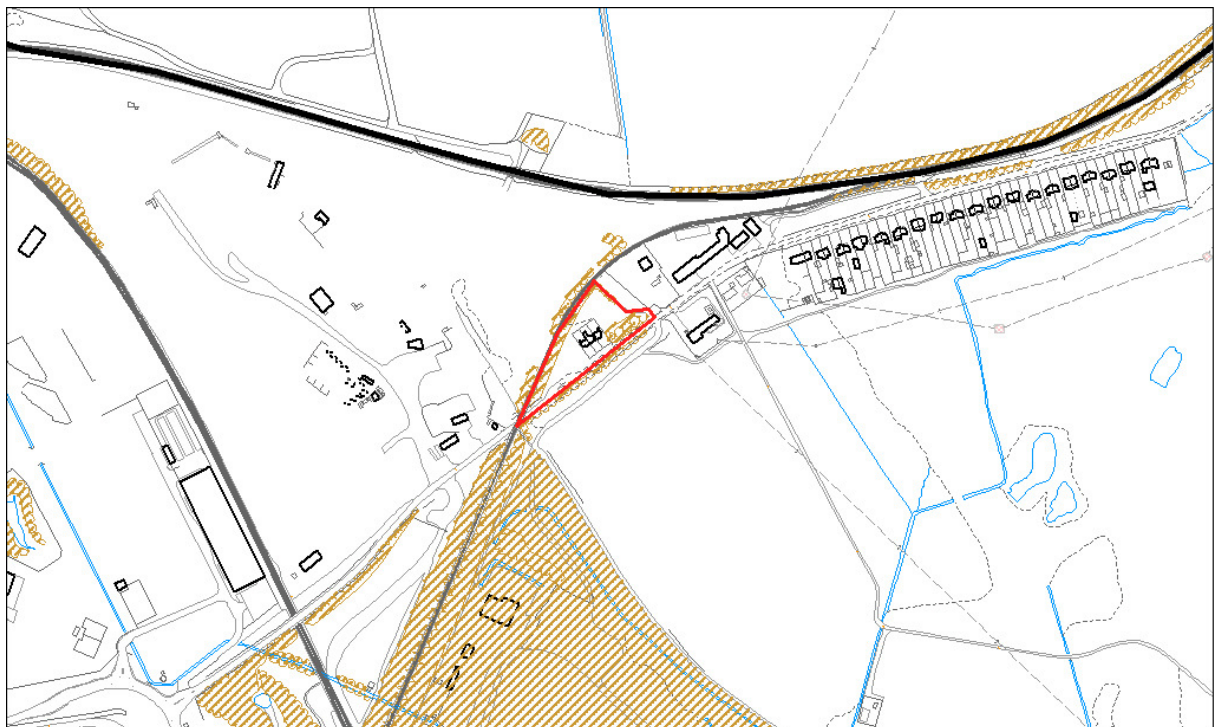


Figure 1.2 Map of AQMA Boundary – 2008 Low Santon



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

North Lincolnshire Council had a number of automatic monitoring sites located within its boundary during the monitoring period to which this report relates. The monitoring network has now been scaled back to better represent the issues North Lincolnshire currently face. Monitoring in 2009 included:

1. Gallagher Retail Park (Monitoring Suspended from 31/03/2010)

This machine is an Airpointer and automatically measures oxides of nitrogen (NO_x). The monitoring station is located on the south-eastern corner of the Gallagher Retail Park, which is on the western edge of Scunthorpe. The station is 15m north of Doncaster Road.

2. Allanby Street (Monitoring Suspended from 31/03/2010)

This monitoring station is located on a small patch of grass, adjacent to a local car park and close to Scunthorpe Town Centre. PM₁₀ is monitored at this site using a TEOM 1400a. The High Street is 105m from the site and Britannia Corner; a busy road junction is 153m away. It is approximately 1 km northwest of the steelworks site boundary.

3. Kingsway House (Monitoring Suspended from 31/03/2010)

This machine is an Airpointer and automatically measures oxides of nitrogen (NO_x). This monitoring station is located on a small patch of grass outside a block of flats known as Kingsway House, at the junction of Ashby Road and Lloyds Avenue in Scunthorpe. The Queensway roundabout is 67m to the north of the site (at its closest point) and is the intersection for the A18 and Ashby Road.

4. Lincoln Gardens

This site is located within the grounds of Lincoln Gardens Primary School and the closest road is approximately 72m north of the site. PM₁₀ is monitored at this site using a TEOM 1400a. The site is approximately 2.5km west of the closest boundary of the steelworks. To the east of the site is a park with the remaining area being residential.

5. Scunthorpe Town AURN (Rowland Road)

This monitoring station is housed within an enclosed air-conditioned unit in the northeast of Scunthorpe approximately 10 metres to the north of Rowland Road. The nearest busy road is Brigg Road (A1029), at its closest point it is 124 metres to the northeast of the monitoring site.

The monitoring equipment at the station consists of an Enviro-Technology Services model 100A Fluorescent sulphur dioxide (SO₂) analyser, a Monitor Labs Inc ML9841B oxides of nitrogen chemi-luminescence analyser and a Rupprecht & Patterschnick TEOM 1400a PM₁₀ monitor. The logging system used is an Odessa

DSM3260. In addition wind direction and wind speed are measured at this site. The PM₁₀, NO_x and SO₂ analysers are affiliate members of the AURN (Automatic and Urban Rural Network). The site also comprises of an equivalent Partisol Particulate Monitor (**Now Suspended 31/03/2010**), a National Physics Laboratory funded Heavy Metals sampler and a Digitel DHA-80 High volume PAH sampler

An FDMS C was installed in the Monitoring Station in January 2010 designed to increase confidence in the Volatile Correction Model currently used to correct the TEOM network.

6. East Common Lane

PM₁₀ is monitored at this site using a TEOM 1400a. This site is located behind a block of flats, 34m south of East Common Lane, to the west of the site is a residential area; whilst to the northeast and southeast are several industrial estates. The site is approximately 500 m west of the steelworks site boundary.

7a. Low Santon

This monitoring station is housed within an enclosed air-conditioned unit to the north east of Scunthorpe on the eastern boundary of the steelworks. Dawes Lane is 5m to the south of the station, running from a rural location in the east through the steelworks and into Scunthorpe. A raised embankment 5m north of the site carries freight traffic along one of the major rail lines into the steelworks. The surrounding area consists of arable fields with a number of trees and to the east, a small residential area. The monitoring equipment at this station consists of a Signal Ambitech Ambirak analyser, monitoring sulphur dioxide and oxides of nitrogen, and a Rupprecht & Patterschnick TEOM 1400a monitoring PM₁₀. In addition, a Digitel DHA-80 High volume PAH sampler began operation at the site in September 2007.

A Partisol 2000 was installed in April 2008 to measure concentrations of heavy metals. Further to this an additional Rupprecht & Patterschnick TEOM 1400a was installed in June 2008 to monitor PM_{2.5}.

An FDMS C was installed in the Monitoring Station in March 2010 designed to increase confidence in the Volatile Correction Model currently used to correct the TEOM network and to aid the Further Assessment at Low Santon.

7b. High Santon

This monitoring station is located in a domestic garden 400m from the Low Santon monitoring station. The site comprises of a Partisol 2000 equivalent particulate monitor and was installed in January 2008.

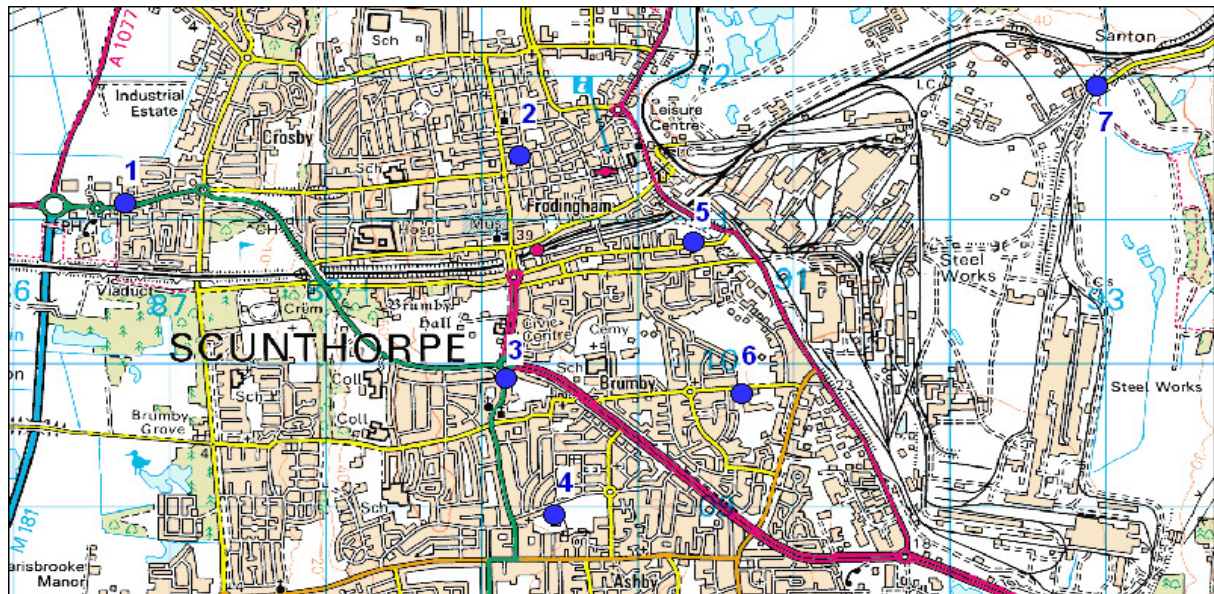


Figure 1.3 Location of Monitoring Sites in Scunthorpe

8. Appleby Village

This site is located on a playing field in the village of Appleby, see figure 1.4; the village is surrounded by arable fields and open fields and is 6 km northeast of Scunthorpe. PM₁₀ is monitored at this site using a TEOM 1400a.

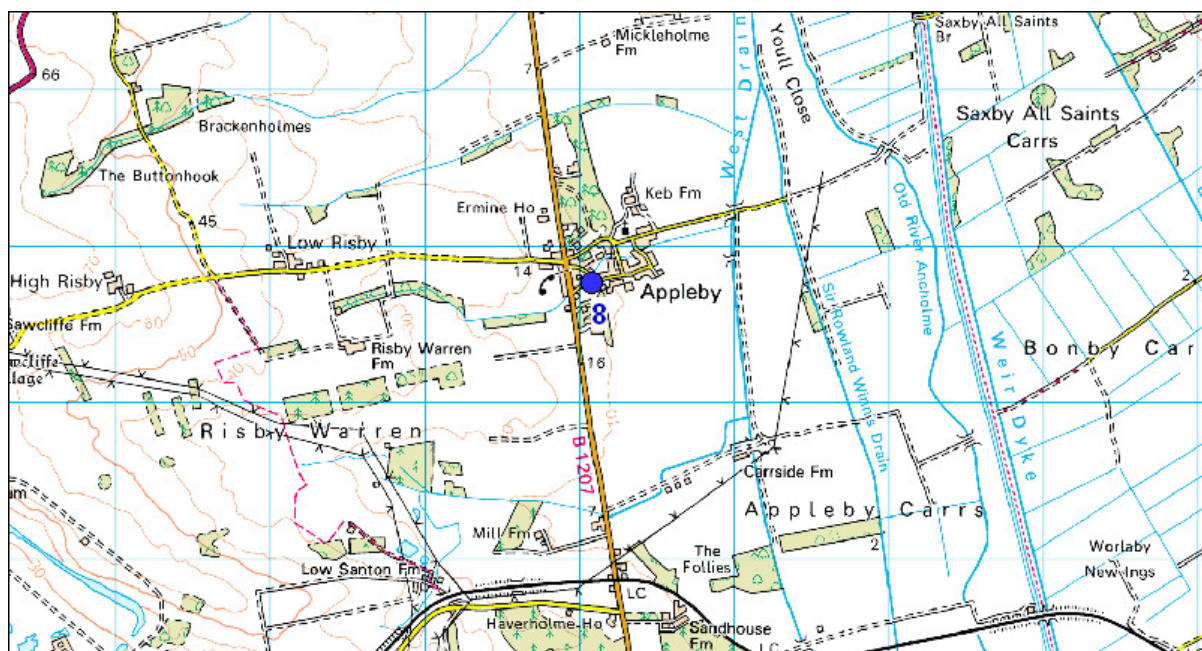


Figure 1.4 Location of Appleby Site

9. Broughton

The site is located within an Anglian Water enclosure within a residential area in the village of Broughton, see figure 1.5; PM₁₀ is monitored at this site using a TEOM 1400a. It is approximately 3 km east of the steelworks site. The B1207 is 500 m west of the site and the area between this road and the steelworks is comprised of woods and fields.

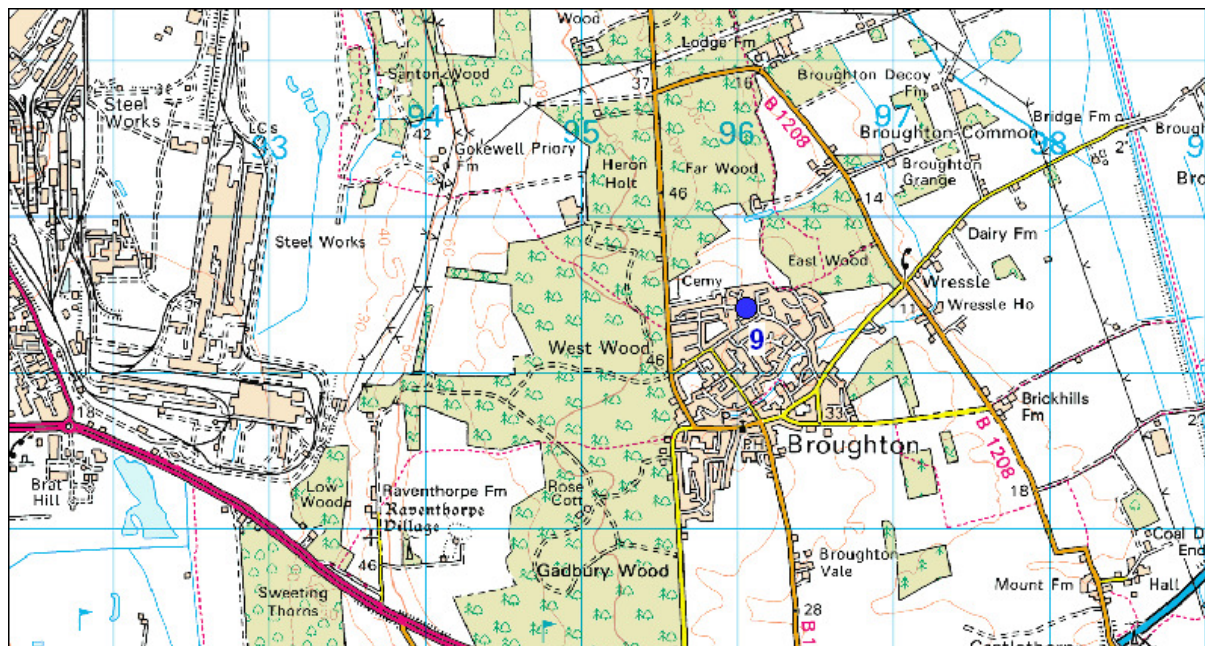


Figure 1.5 Location of Broughton Monitoring Site

10. Killingholme

The site is located within the grounds of South Killingholme Primary School and is approximately 200 m north of the dual-carriage A160; see figure 1.6. Two refineries are located to the northeast and east of the site. The site is approximately 4 km west of the River Humber and the Immingham docks. The site is approximately 20 km east of the Air Quality Management Area in Scunthorpe. Sulphur dioxide, oxides of nitrogen and PM₁₀ are the three pollutants measured at this site. In addition wind direction and speed, relative humidity, pressure and temperature are also measured. A pumped Benzene Tube was installed in September 2008 as part of the National Hydrocarbon Network.

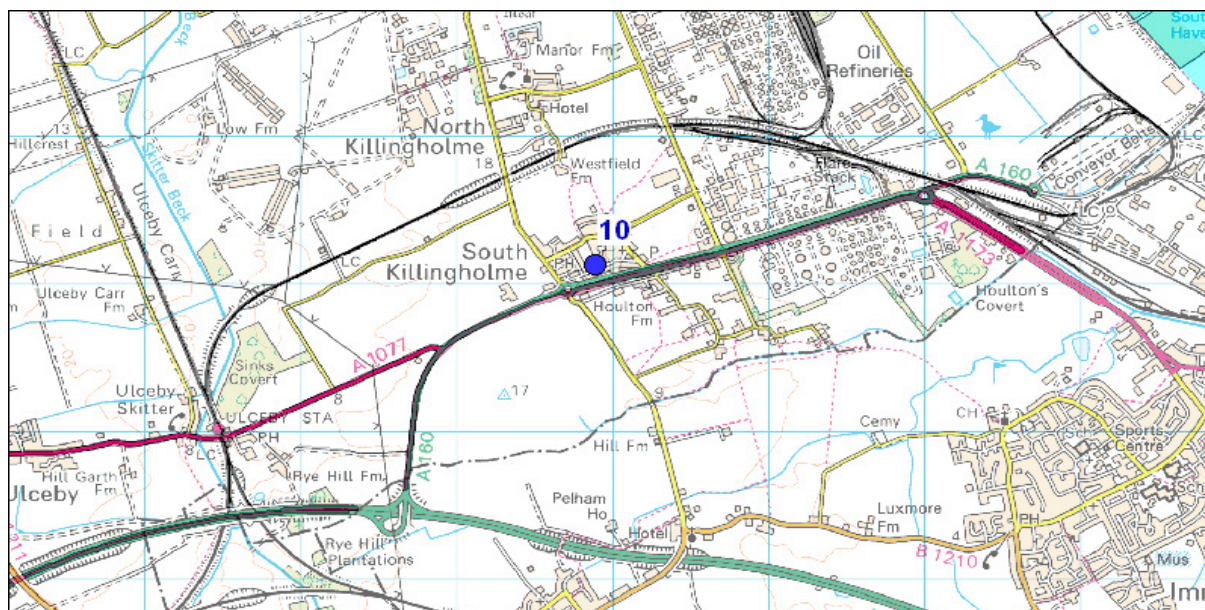


Figure 1.6 Location of Killingholme Monitoring Site

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQM A?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?
1. Gallagher Retail park	Urban	X486696 Y411105	NO _x	N	Y (39m)	10m	N
2. Allanby St	Urban	X489228 Y411447	PM ₁₀	N	Y (15m)	3m	N
3. Kingsway House	Urban	X489145 Y409889	NO _x	Y	Y (5m)	2m	N
4. Lincoln Gardens	Urban	X489464 Y408939	PM ₁₀	Y	Y (18m)	N/a	N
5. Scunthorpe Town	Urban Industrial	X490320 Y410831	PM ₁₀ , SO ₂ , NO _x	Y	Y (21m)	7m	N
6. East Common Lane	Urban Industrial	X490663 Y409789	PM ₁₀	Y	Y (3m)	28m	N
7a. Low Santon	Industrial	X492945 Y411931	PM ₁₀ , SO ₂ , NO _x , PM2.5	Y	Y (41m)	5m	N
7b. High Santon	Industrial	X492945 Y411931	PM ₁₀	Y	Y(8m)	5m	N
8. Appleby	Rural	X495075 Y414767	PM ₁₀	N	Y (17m)	N/a	N
9. Broughton	Rural	X496046 Y409410	PM ₁₀	N	Y (9m)	7m	N
10. Killingholme	Urban Industrial	X514880 Y416133	PM ₁₀ , Benzene, NO _x , SO ₂	N	Y (9m)	N/a	N

2.1.2 Non-Automatic Monitoring

North Lincolnshire Council currently has a nitrogen dioxide diffusion tube network consisting of 39 sites. Maps and details of the tube locations can be found in Appendix C. The diffusion tubes are supplied and analysed by South Yorkshire Air Quality Samplers, the chemical absorbent used consists of 50% Acetone and 50% Triethanolamine. North Lincolnshire Council has followed the guidance in relation to applying a bias adjustment calculation. 3 collocation studies are currently in progress within North Lincolnshire. All 3 were active in 2009 although problems were encountered at the NO_x Airpointer sites, Kingsway House and Gallagher Retail Park. Sites include Scunthorpe Town AURN site an urban industrial site and the urban background sites of Kingsway House & Gallagher Retail Park.

All 3 sites are situated at roadside locations of which Gallagher Retail Park and Kingsway House collocate with Airpointers and Scunthorpe Town with the AURN chemiluminescence NO_x analyser. The bias factor for 2009 was calculated using the AURN data due to issues with the Airpointer measurements. Data capture for the AURN site over the period was good for both the automatic and non-automatic methods allowing for the local bias to be applied.

A summary of precision results for nitrogen dioxide diffusion tube collocation studies indicates that South Yorkshire Air Quality Samplers operate to a high level of precision in accordance with the Laboratory Workplace Analysis Scheme for Proficiency, (WASP) scheme.

Table 2.2 Non Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?
Tube 1	Urban Kerbside	X489099 Y411723	NO ₂	N	3m	1m	N
Tube 2	Urban Roadside	X489394 Y411927	NO ₂	N	18m	1m	N
Tube 3	Rural Roadside	X486618 Y412252	NO ₂	N	N/a	12m	N
Tube 4	Suburban Kerbside	X478038 Y403957	NO ₂	N	1m	1m	N
Tube 5	Suburban Roadside	X483642 Y410643	NO ₂	N	20m	2m	N
Tube 6	Suburban Roadside	X486690 Y411112	NO ₂	N	42m	16m	N
Tube 7	Suburban Roadside	X486690 Y411112	NO ₂	N	42m	16m	N
Tube 8	Suburban Roadside	X486690 Y411112	NO ₂	N	42m	16m	N
Tube 9	Suburban Roadside	X486928 Y411156	NO ₂	N	12m	3m	N

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?
Tube 10	Suburban Kerbside	X487239 Y411259	NO ₂	N	9m	2m	N
Tube 11	Urban Roadside	X488547 Y411249	NO ₂	N	30m	2m	N
Tube 12	Urban Roadside	X489190 Y411285	NO ₂	N	4m	2m	N
Tube 13	Urban Kerbside	X489209 Y411118	NO ₂	N	4m	3m	N
Tube 14	Urban Kerbside	X489247 Y410355	NO ₂	N	20m	3m	N
Tube 15	Urban Kerbside	X489777 Y409702	NO ₂	N	20m	5m	N
Tube 16	Urban Kerbside	X488490 Y409963	NO ₂	N	8m	1m	N
Tube 17	Urban Roadside	X489145 Y409889	NO ₂	N	2m	5m	N
Tube 18	Urban Roadside	X489145 Y409889	NO ₂	N	2m	5m	N
Tube 19	Urban Roadside	X489145 Y409889	NO ₂	N	2m	5m	N
Tube 20	Urban Kerbside	X489172 Y409926	NO ₂	N	20m	2m	N
Tube 21	Urban Kerbside	X489112 Y409463	NO ₂	N	15m	1m	N
Tube 22	Urban Kerbside	X489242 Y408695	NO ₂	N	3m	1m	N
Tube 23	Suburban Kerbside	X489735 Y407880	NO ₂	N	9m	4m	N
Tube 24	Suburban Kerbside	X409638 Y408632	NO ₂	N	9m	4m	N
Tube 25	Urban Roadside	X491628 Y408658	NO ₂	N	N/a	2m	N
Tube 26	Suburban Roadside	X491737 Y408378	NO ₂	N	N/a	2m	N
Tube 27	Industrial Roadside	X491838 Y408641	NO ₂	N	N/a	9m	N
Tube 28	Industrial Roadside	X491859 Y408645	NO ₂	N	N/a	9m	N
Tube 29	Urban Kerbside	X499975 Y407421	NO ₂	N	60m	3m	N
Tube 30	Suburban Kerbside	X500430 Y407270	NO ₂	N	10m	2m	N
Tube 31	Industrial Roadside	X515363 Y416085	NO ₂	N	20m	5m	N
Tube 32	Industrial Kerbside	X515280 Y416085	NO ₂	N	10m	2m	N
Tube 33	Industrial Roadside	X514645 Y417363	NO ₂	N	5m	3m	N
Tube 34	Suburban Kerbside	X503048 Y421907	NO ₂	N	15m	1m	N
Tube 35	Suburban Kerbside	X497833 Y421043	NO ₂	N	7m	1m	N
Tube 36	Industrial Roadside	X490316 Y410837	NO ₂	N	32m	6m	N
Tube 37	Industrial Roadside	X490316 Y410837	NO ₂	N	32m	6m	N
Tube 38	Industrial Roadside	X490316 Y410837	NO ₂	N	32m	6m	N
Tube 39	Industrial Roadside	X490080 Y411258	NO ₂	N	36m	2m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

Since the last round of review and assessment (USA 2009) the North Lincolnshire Council Air Quality Monitoring Network has undergone a number of changes. There are a number of reasons behind this. Following on from a number of years of investigation around the Integrated Steel Works site within Scunthorpe a decision was taken to remove stations that were compliant and did not add to the expanding evidence base. The reduction in cost within the network has allowed some flexibility in the repositioning of the sites. Savings have enabled NLC to commission new monitoring sites likely to focus in on problems within the areas of concern.

All monitoring sites that were highlighted as surplus to requirements were switched off on the 31/03/2010. For the purposes of this report a complete data set is reported from all monitoring stations within previous round of review and assessment with the exception of the Airpointers which became obsolete part way through 2009.

Monitoring Stations removed during the monitoring review include;

- Allanby Street TEOM – Removed 31/03/2010
- Gallagher Retail Park Airpointer – Removed 31/03/2010
- Kingsway House Airpointer – Removed 31/03/2010
- Santon PM2.5 TEOM – Removed 31/03/2010
- Scunthorpe Town Partisol – Removed 31/03/2010

Monitoring Equipment added during this monitoring review include;

- Scunthorpe Town PM10 FDMS – Commenced January 2010
- Low Santon PM10 FDMS – Commenced April 2010

Monitoring Sites due to be installed as a result of this monitoring review;

- Domestic Residence, Scunthorpe East – September 2010
- Redbourne Social Club, Cemetery Road, Scunthorpe, North Lincolnshire. DN16 1NU – September 2010
- Lakeside Housing Development – September 2010
- Osiris Network within Scunthorpe 2005 AQMA around possible development sites – Ongoing

Detailed maps of these changes showing the location of all new and proposed sites can be found within the Appendix B of this document

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

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

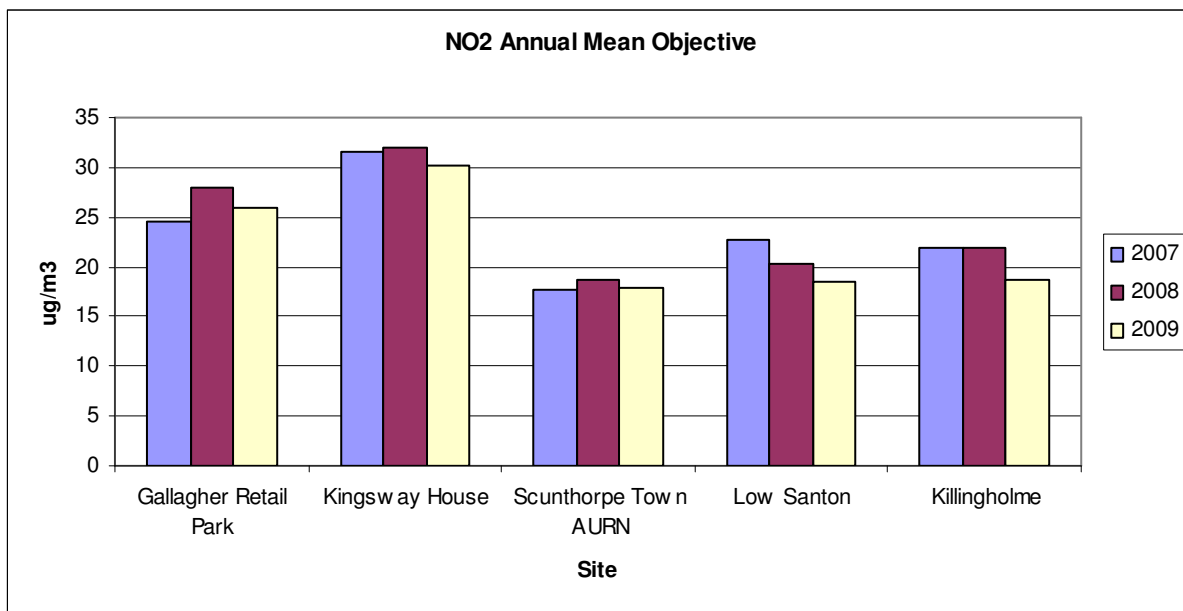
Site ID	Location	Data Capture for full calendar year 2009 ^b %	Annual mean concentrations ($\mu\text{g}/\text{m}^3$)		
			2007 ^{c, d}	2008 ^{c, d}	2009 ^c
1.	Gallagher Retail Park	68.3	24.6	27.9	25.9
3.	Kingsway House	88.1	31.6	32	30.1
5.	Scunthorpe Town AURN	98.1	17.8	18.7	17.9
7a.	Low Santon	92.6	22.8	20.3	18.6
10.	Killingholme	91.1	21.9	21.9	18.7

Monitoring at all sites saw a reduction in 2009 from 2008. Gallagher Retail Park and Kingsway House are specialised NO_x analysers known as Airpointers. These have been in operation at these sites since 2006. North Lincolnshire Council suffered major communication failure with this equipment towards the end of 2009 and as a result a significant amount of data has been lost. The annual means that were retrieved do show a reduction from 2008. Considering this and previous monitoring data at these sites it is unlikely that they would be subject to a breach of the relevant air quality objectives.

The sites at Gallagher Retail Park & Kingsway House have now been mothballed due the equipment being obsolete. Sourcing parts has also been a major concern over the past few months. Plans are also in place to redevelop the Kingsway House over the coming months making the removal of the airpointer a necessity. Due to previously recorded data and the various stages of review and assessment the roads in which these are sited are not highlighted as a problem. It is unlikely further monitoring will be pursued in these areas unless a significant change takes place.

There is no requirement for North Lincolnshire Council to proceed to a detailed assessment for the Nitrogen Dioxide Annual Mean Objective

Figure 2.1 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Automatic Monitoring Sites.



All sites achieved an annual mean concentration within the relevant objective and all sites witnessed a reduction from 2008.

There is no requirement for North Lincolnshire Council to proceed to a detailed assessment for the Nitrogen Dioxide Annual Mean Objective

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

Site ID	Location	Data Capture for full calendar year 2009 ^b %	Number of Exceedences of hourly mean (200 µg/m ³) If the period of valid data is less than 90% of a full year, include the 99.8 th percentile of hourly means in brackets.		
			2007 ^c	2008 ^c	2009
1.	Gallagher Retail Park	68.3	0	0	0 (99)
3.	Kingsway House	88.1	0	8	0
5.	Scunthorpe Town AURN	98.1	0	0	0
7a.	Low Santon	92.6	1	0	0
10.	Killingholme	91.1	0	0	0

No sites in the North Lincolnshire Council automatic monitoring network have recorded a breach of the Nitrogen Dioxide 1-hour Mean Objective showing compliance with the permitted 18 hourly exceedences per year. Gallagher Retail Park and Kingsway House were both subject to reduced data capture as described above but 99.8th percentile calculation shows compliance in both cases.

There is no requirement for North Lincolnshire Council to proceed to a detailed assessment for the Nitrogen Dioxide 1-hour Mean Objective

Diffusion Tube Monitoring Data

North Lincolnshire Council has continued its diffusion tube network at the same locations as the previous rounds of review and assessment. 2010 has seen an increase in the number of tubes within the study adding a further 5 to the Killingholme area due to a proposed large scale road network development benefiting the port of Immingham and its predicted future growth.

For the purposes of this study only the data up to 2009 will be reported.

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 ^b %	Annual mean concentrations ($\mu\text{g}/\text{m}^3$)		
				2007 ^{c, d}	2008 ^{c, d}	2009 ^c
Tube 1	Frodingham Road	N	100	31	27	22
Tube 2	Normanby Road	N	75	32	25	19
Tube 3	A1077 Orbital Road	N	100	26	24	18
Tube 4	Epworth/ Belton	N	83	31	31	25
Tube 5	Keadby Bridge	N	75	27	30	22
Tube 6	Gallagher Retail Park	N	100	-	24	20
Tube 7	Gallagher Retail Park	N	100	-	25	19
Tube 8	Gallagher Retail Park	N	100	-	25	20
Tube 9	Doncaster Rd (Hilton)	N	100	32	29	23
Tube10	Scotter Road	N	17	40	34	33
Tube 11	Doncaster Rd (Royal)	N	100	31	27	19
Tube 12	Brittania Corner	N	100	40	34	27
Tube 13	Oswald Road	N	100	34	32	24
Tube 14	Ashby Road	N	83	30	24	21
Tube 15	Old Brumby	N	92	31	31	23
Tube 16	Lloyds Avenue	N	58	31	27	20

Tube 17	Kingsway House	N	100	35	34	29
Tube 18	Kingsway House	N	100	39	28	21
Tube 19	Kingsway House	N	100	35	30	22
Tube 20	Ashby Rd (A18)	N	100	30	31	24
Tube 21	Ashby Rd (Brumby)	N	100	29	34	27
Tube 22	Ashby Rd (Burringham)	N	92	56	31	20
Tube 23	Chancel Rd	N	75	31	28	21
Tube 24	Ashby High Street	N	100	42	29	22
Tube 25	Dudley Road	N	100	35	28	20
Tube 26	Lakeside Parkway	N	100	33	25	19
Tube 27	Brigg Rd/ A18	N	100	34	47	36
Tube 28	Ashby Lodge Pub	N	100	20	27	24
Tube 29	Barnard Avenue	N	92	35	30	26
Tube 30	Wrawby	N	100	27	28	22
Tube 31	Humber Rd, Chip Shop	N	100	28	30	24
Tube 32	Humber Rd, LP695	N	100	26	27	29
Tube 33	St Crispins Close	N	100	28	18	14
Tube 34	Holydyke	N	92	28	29	21
Tube 35	South Ferriby Main Rd	N	92	30	20	15
Tube 36	Rowland Road	N	100	33	23	18
Tube 37	Rowland Road	N	100	39	23	17
Tube 38	Rowland Road	N	100	35	26	19
Tube 39	Station Road (Netto)	N	100	31	29	22

The diffusion tube results have shown no exceedances of the annual mean objective for 2009. Due to the problems at our Kingsway House and Gallagher Retail Park NOx analysers the bias adjustment has been calculated using data from our Rowland Road AURN site. In previous years the Kingsway House colocation study has been used.

The raw, unadjusted data showed only 2 exceedances. Humber Road which has been close to the objective in the past and the junction of Brigg Road and the A18, also an area close to the objective in previous years.

Brigg Road was highlighted in the 2009 USA;

“The 2008-diffusion tube study has highlighted only one exceedance of the permitted Annual Mean Objective set at $40\mu\text{g}/\text{m}^3$. Tube 27 (Brigg Road/A18 Junction) was measured at $47\mu\text{g}/\text{m}^3$ after the bias calculation. Tube 27 is at an industrial background site close to a busy road junction.

The nearest relevant receptors include a newly developed residential estate located 300m to the South. Using the Nitrogen Dioxide fall off with distance documented in TG (09) the predicted levels of Nitrogen Dioxide 50m away from the exceedance is $27.6\mu\text{g}/\text{m}^3$ well within the permitted Air Quality Objective of $40\mu\text{g}/\text{m}^3$ and the necessary levels to proceed to a detailed assessment. North Lincolnshire Council does not need to proceed to a Detailed Assessment for Nitrogen Dioxide.

Tube 27 also sits adjacent to a pub, which is also a residential property with the owners living upstairs. As this pub has been identified in previous rounds of review and assessment a tube (28) has been placed on the wall of the pub. This tube is measured at $27\mu\text{g}/\text{m}^3$ and rules out the need to progress to a Detailed Assessment for Nitrogen Dioxide.”

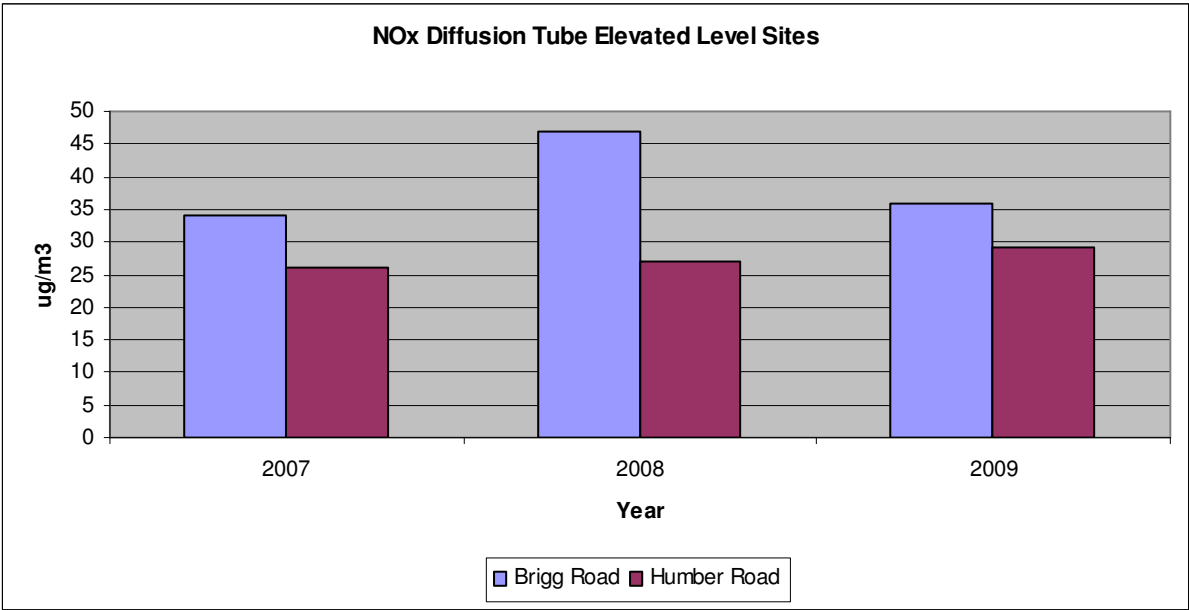
Concentrations at the Pub and the housing development have again shown compliant concentrations.

Humber Road showed raw results slightly higher than the annual mean objective. A study has been commissioned by the Highways Agency around this site because of the proposed major road network improvements. 5 new tubes were sited in April 2010, the results of which will be submitted in the 2011 Progress Report.

The location of the new tubes, raw results and bias adjustments can be found within Appendix C of this report.

There is no requirement for North Lincolnshire Council to proceed to a detailed assessment for the Nitrogen Dioxide Annual Mean Objective.

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.



2.2.2 PM₁₀

In 2009 the North Lincolnshire Council Monitoring Network continued at all sites previously submitted within the 2009 USA. Allanby Street and the Scunthorpe Town Partisol ceased operation on the 31st March 2010. The results for 2009 are as follows;

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

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 ^b %	Annual mean concentrations (µg/m ³)		
				2007 ^{c, d}	2008 ^{c, d}	2009 ^c
8	Appleby Village	N	97	24	22	20
9	Broughton	N	98	23	20	19
10	Killingholme	N	89	23	21	22
7a	Low Santon	Y	93	51	38	39
7b	High Santon	Y	99	31	31	27
5	Scunthorpe Town (AURN) TEOM	Y	90	25	21	21
5	Scunthorpe Town Partisol	Y	82	22	21	19
4	Lincoln Gardens	Y	91	23	21	19
6	East Common Lane	Y	96	28	25	22
2	Allanby Street	N	95	24	22	20

Data from 2008 & 2009 have been subject to the Volatile Correction Model. No sites have breached the Annual Mean Objective for PM₁₀. The marked reduction in the concentrations at Low Santon between 2007 & 2008/09 are most likely the result of the VCM although production at the Integrated Steelworks surrounding the Low Santon Monitoring Station did reduce dramatically during 2009.

Low Santon continues to be the only site close the Annual Mean Objective and at present has an AQMA in place for this reason. The Further Assessment due to be submitted will present ongoing attempts to reduce these concentrations. North Lincolnshire Council will not be required to progress to a Detailed Assessment for any other area.

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

Site ID	Location	Within AQMA?	Data Capture 2009 ^b %	Number of Exceedences of daily mean objective (50 µg/m ³) If data capture < 90%, include the 90 th percentile of daily means in brackets.		
				2007 ^c	2008 ^c	2009 ^c
8	Appleby Village	N	97	8	5	5
9	Broughton	N	98	5	6	2
10	Killingholme	N	89	6	11	4 (35)
7a	Low Santon	Y	93	133	73 (59)	78
7b	High Santon	Y	99	36	34 (51)	27
5	Scunthorpe Town (AURN) TEOM	Y	90	18	22	11
5	Scunthorpe Town Partisol	Y	82	15	24	6 (31)
4	Lincoln Gardens	Y	91	14	21	7
6	East Common Lane	Y	96	34	40	17
2	Allanby Street	N	95	11	20	5

Low Santon remains the area of concern when compared to the Daily Mean Objective for PM₁₀. It achieved the desired data capture of over 90% but showed a total of 78 exceedance days well above the Daily Mean Objective. As with the Annual Mean Objective 2008/09 saw a marked decrease from 2007. This is due to the application of the VCM to the more recent data. The current VCM is reliant on FDMS corrections from the nearest FDMS monitoring station to North Lincolnshire. This is currently over 100km away at a roadside site and not an urban/industrial site similar to the surroundings of Santon & Scunthorpe Town. A FDMS has been co-located with the existing TEOM within the Low Santon Monitoring Station as part of ongoing attempts to better understand contributions from sites within the Integrated works.

Killingholme and the Scunthorpe Town Partisol did not achieve the desired data capture. The 90th percentile for both sites has been calculated and added to the table. Both sites have shown compliance with the Annual Mean Objective and continued the pattern of compliance from recent years. The site of concern is Low Santon and continues to exceed. A number of steps are currently being taken to ensure the elevated levels of PM₁₀ at this site are reduced. These steps will be highlighted within the Further Assessment and Action Plan due to be submitted.

North Lincolnshire will not be required to continue to a Detailed Assessment for any other area.

2.2.3 Sulphur Dioxide

Table 2.6 Results of SO₂ Automatic Monitoring: Comparison with Objectives

Site ID	Location	Within AQMA?	Data Capture 2009 ^b %	Number of Exceedences of: (µg/m ³)		
				15-minute Objective (266 µg/m ³)	1-hour Objective (350 µg/m ³)	24-hour Objective (125 µg/m ³)
5	Scunthorpe Town AURN	N	90	0	0	0
7a	Low Santon	N	93	0	0	0
10	Killingholme	N	89	0	0	0

No exceedences of the SO₂ Objectives were recorded in 2009. North Lincolnshire Council will not be required to proceed to a Detailed Assessment.

2.2.4 Benzene

North Lincolnshire Council operated a pumped Benzene tube system during 2009 at Killingholme. The system was housed within the Killingholme Rollalong, which analyses PM₁₀, SO₂ and NO_x. Prior to this North Lincolnshire Council also operated a Benzene diffusion tube network used to predict any potential exceedences for the 2005 Updating and Screening assessment. These investigations are now complete. The location of this monitoring station can be found within Appendix C of this report.

The Killingholme study has been in place since September 2008 but stopped due to low concentrations in early 2010. To date the results have shown that the running annual mean does not exceed 16.25µg/m³. The 2009 running annual mean was **0.989µg /m³**, because of this North Lincolnshire Council does not need to proceed to a detailed assessment for Benzene.

2.2.5 Other pollutants monitored

North Lincolnshire Council currently monitors PAHs (poly-aromatic hydrocarbons) and Heavy Metals at two locations within the county, Low Santon and the Scunthorpe Town (ST) site. Results for PAHs are as follows;

Table 2.7 PAH Results at Santon & Scunthorpe Town

PAH Compound	2008 Santon ng/m ³	2008 ST ng/m ³	2009 Santon ng/m ³	2009 ST ng/m ³
Benzo(c)phenanthrene	0.00001233	0.000175	0.025914	0.054273
Benzo(a)anthracene	3.0016	2.8633	2.090833	1.730833
Chrysene	3.515	3.33833	2.983333	2.395
Cyclopenta(c,d)pyrene	0.6005	0.70635	0.334417	0.32005
Benzo(b)naph(2,1d)thiophene	0.1655	0.2103	0.074333	0.072625
5MethylChrysene	0.0012333	0.001616	0.00852	0.000316
Benzo(b+j)fluoranthene	8.783	4.566	3.658333	2.6775
Benzo(k)fluoranthene	2.175	1.196	1.936667	1.035833
Benzo(e)pyrene	3.545	2.53	2.356667	1.5875
Benzo(a)pyrene	8.3833	4.89	2.3825	1.7725
Perylene	1.238	0.81333	0.884167	0.422833
Indeno(1,2,3cd)pyrene	3.78	2.1	1.993333	1.404167
Dibenzo(ah.ac)anthracene	0.93	0.503	0.35	0.25675
Benzo(ghi)perylene	3.3316	1.926	1.960833	1.345833
Anthanthrene	0.557	0.4325	0.597083	0.233924
Dibenzo(al)pyrene	0.0001983	0.00026	0.000486	0.012267
Dibenzo(ae)pyrene	0.0002533	0.00033667	0.042673	0.000398
Dibenzo(ai)pyrene	0.13846667	0.0003533	0.183167	0.093083
Dibenzo(ah)pyrene	0.0114433	0.0002233	0.05638	0.010399
Coronene	1.18666667	0.49171	0.470833	0.32925
Cholanthrene	0.0001983	0.00026	0.035985	0.011346

The Santon PAH monitoring site reports very high levels of PAHs. The target value for PAHs as Benzo(a)pyrene is 1ng/m³. The Scunthorpe Town site reports lower numbers yet still exceeds the DEFRA objectives. AEA Technology run both PAH sites within North Lincolnshire. The high concentrations are currently being investigated.

North Lincolnshire Council also operates two Heavy Metals monitoring stations in partnership with the National Physics Laboratory. Results from both stations are as follows;

Table 2.8 Heavy Metals Results for Santon & Scunthorpe Town

Heavy Metals	Santon ng/m³	Scunthorpe Town ng/m³
Arsenic (As)	0.85	0.58
Cadmium (Cd)	0.24	0.18
Chromium (Cr)	3.52	1.99
Copper (Cu)	6.8	5.4
Iron (Fe)	2050	650
Manganese (Mn)	111.3	25.7
Nickel (Ni)	1.18	1.61
Lead (Pb)	33.1	18.1
Platinum (Pt)	0.00	0.00
Vanadium (V)	4.48	1.78
Zinc (Zn)	44.6	25.8
Mercury (Hg)	0.06	0.04

Of the two pollutant groups monitored results at Santon are far higher than at Scunthorpe Town. This is true of other pollutants measured at Santon and Scunthorpe Town. Many of the pollutants measured will be present in releases from the Integrated Steel Works.

Summary of Compliance with AQS Objectives

North Lincolnshire Council has examined the results from its monitoring. No new areas of exceedance of an Air Quality Objective have been identified, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

There is one major new road improvement proposed for the North Lincolnshire Area. The A160/A180 Improvement Scheme has been identified as being required by the Yorkshire and Humber Assembly (YHA) following assessments which have examined the impacts of proposed development on the South Humber Bank (SHB) in North and North East Lincolnshire.

The A160 runs for approximately 4.5 km in a west to east direction from its junction with the A180 linking to the Port of Immingham and the surrounding South Humber Bank area. The A180 provides access to the motorway network via the M180 and M18. The A160 consists of single carriageway for approximately 2 km from its junction with the A180 then 2.5 km of dual carriageway and finally on 0.7 km of single carriageway beneath the railway, non-trunk road Humber Road to the dock gate entrance to the Port of Immingham.

Freight traffic, which constitutes approximately 40% of the flow on the A160, causes congestion on the single carriageway section from Brocklesby junction to Top Road roundabout and at the Manby Road roundabout at the eastern end of the scheme. With the planned expansion of the port and the land available for development, there is forecast to be considerable traffic growth in the next ten to fifteen years.

Due to a number of planning applications already received highlighting the growth in the area North Lincolnshire Council and the Highways Agency have commissioned a 6 month study to assess the likely impact this road development will have. The locations of the additional NO₂ sampling can be found within the appendix of this document. Once this study has been undertaken the Highways Agency will be able to verify its model to give us a better understanding of the likely impact this development will have.

North Lincolnshire Council has not identified any new sources of the following since the last round of review and assessment;

- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Junctions.
- New roads constructed or proposed since the last Updating and Screening Assessment.
- Roads with significantly changed traffic flows.
- Bus or coach stations.

3.2 Other Transport Sources

North Lincolnshire Council has not identified any new sources of the following since the last round of review and assessment;

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

3.3 Industrial Sources

North Lincolnshire Council has received a number of planning applications since the 2009 USA.

Permission has been requested for a Bioethanol Plant Development comprising plant and machinery producing 200,000 tonnes of bioethanol per year from wheat, and a combined heat and power plant.

North Lincolnshire Council responded to this planning application in April 2010. The site is remote with no local receptors and emissions from the plant were not a major concern. Clarification was requested on a code of practice during construction works to ensure best practice. Emissions from the plant during the operation will be controlled via an A1 IPPC Permit.

Issues were raised over the overall traffic increase in the local area due to the nature of the plants delivery system. Surrounding roads such as the A160 are and have been close to the objective over the last few years, because of this and the proposed South Humber Bank development an extra 5 diffusion tubes have been sited along the A160. The Bioethanol Development has been asked for clarification on the numbers of vehicles likely to visit the site. A decision will be taken on this as the results of the extended NO₂ tube study become clear.

Able UK is another major development on the South Humber Bank. Able UK have applied for outline permission to develop a vast area of land for a number of uses not yet decided. North Lincolnshire Council commented on these proposals in September 2009. At present we do not know what the development will consist of and individual cases will be dealt with on a case by case basis. The primary concern is number of vehicles likely to be using the A160 and it's potential effects on the residents of South Killingholme.

The measures North Lincolnshire Council and the developers need to put in place will become clearer as the results of the extended NO₂ study are captured.

Existing industrial sources within North Lincolnshire have not seen substantial increases or seen relevant receptors move closer to their boundaries. No new petrol stations or poultry farms have been identified since the last round of review and assessment.

3.4 Commercial and Domestic Sources

North Lincolnshire Council has not identified any new sources of the following since the last round of review and assessment;

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.

3.4.1 New Developments with Fugitive or Uncontrolled Sources

North Lincolnshire Council has not identified any new sources of the following since the last round of review and assessment;

- Landfill sites.
- Quarries.
- Unmade haulage roads on industrial sites.
- Waste transfer stations etc.
- Other potential sources of fugitive particulate emissions.

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

4 Local / Regional Air Quality Strategy

North Lincolnshire Council do not have a formally adopted Air Quality Strategy. LAQM TG(09) suggests that councils who have declared AQMA's need not develop an Air Quality Strategy on the basis that the process of developing an AQMA is similar to the process of producing an Air Quality Strategy.

North Lincolnshire Council has 2 AQMA's in place at present. The 2005 Scunthorpe AQMA for breaches of the daily objective and the 2008 Low Santon AQMA for the breach of the annual mean objective. North Lincolnshire Council has implemented and directed a number of initiatives designed to tackle air quality concerns within the area. These initiatives form the basis of an Air Quality Strategy;

Local Industry Forum

Designed to bring all interested parties around the table and share monitoring results and the councils views on the likley origins of the problems. It is an opportunity for local industry to share ongoing site improvements with other local operators.

AQMA Meetings

Strategic meetings involving Council Service Directors, Council Officers, Environment Agency Officers and the Primary Care Trust. Designed to discuss monitoring results, their impacts and future focus to locate the sources and reduce their contributions

Low Santon Technical Working Group

A technical meeting to discuss monitoring results around the Low Santon Area attended by AEAT, NPL, EA, NLC, Corus, DEFRA, Lancaster and Leeds University.

5 Air Quality Planning Policies

North Lincolnshire Council has been looking at a number of ways in which to assist development control when deciding on planning applications. The latest initiative is a way of zoning the 2005 Daily Mean Objective AQMA for PM10 which covers most of Scunthorpe.

A major source of PM10 within Scunthorpe is the local integrated works. The 2005 AQMA covers much of this. A number of areas close to the boundary of the works have been highlighted as potential residential development sites. The Environmental Protection Team were concerned that should these sites be granted planning permission for residential dwellings, receptors could be moving closer to the problem and potential non-compliant elevated levels of PM10.

A document is currently in the draft stage which splits the AQMA in 3 zones. These are drawn using historic, current and modelled data. At present the zones have been drawn to a worst case scenario. The lines will be redrawn once the Environmental Protection Team are satisfied no Air Quality Objectives are being breached. This will be done by following a monitoring regime set out designed to capture robust data captured using a network of Osiris Monitoring Units strategically positioned to minimise the area affected by the integrated works. It is anticipated that the data captured within this exercise will lead a rescaling of the current AQMA. Zones within this AQMA are as follows;

Zone 1 – No Residential Development

Zone 1 covers the area 550m to the west of the site boundary. Monitoring has identified a significant potential for Air Quality Objective breaches within this zone.

The monitoring sites at East Common Lane and Scunthorpe Town have recorded exceedances consistently over the last few years and if subject to periods of strong Easterly winds have the potential to exceed again.

Table 5.1a Historic monitoring data within 2005 Scunthorpe AQMA

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of daily mean (50 µg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
5	Scunthorpe Town (AURN) TEOM	Y	94	37	18	22
6	East Common Lane	Y	98	43	34	40

Due to PM₁₀ being a non threshold pollutant it is important that a precautionary approach to exposure is taken. On this basis it is recommended that **no residential development should take place within this zone.**

Zone 2 – Residential Development possible Subject to Further Investigation

Zone 2 covers the area between 550m and 1100m to the west of the Integrated Steelworks Site. No historical monitoring data exists for zone 2 although a monitoring station is currently being installed at Redbourne Club (Grid Ref SE8990910026). The external boundary of zone 2 runs through this future monitoring location.

Due to the lack of measured data in zone 2 any applications for residential development should be the **subject of further investigation.**

Further investigation of a site for residential development is likely to require on site monitoring of PM₁₀.

Zone 3 – Residential Development unlikely to be affected by PM₁₀

Zone 3 covers the area beyond 1100m from the Integrated Works site boundary to the present AQMA boundary line. Although no monitoring has been carried out within this zone data is available from the Lincoln Gardens (Grid Ref SE8946308939) and Allanby Street site (Grid Ref SE892231145). These sites are equidistant from the Steelworks boundary and suggest this area would be compliant.

Table 5.1b Historic monitoring data outside the 2005 Scunthorpe Town AQMA

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of daily mean (50 µg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
2	Allanby Street	Y	98	23	11	20
4	Lincoln Gardens	Y	95	17	14	21

Data from monitoring proposed at Redbourne Club will hopefully demonstrate that air quality in this zone is satisfactory and may lead to a possible review of the AQMA boundary.

The monitoring plan, map of the zoning and correspondence relating to this zoning exercise can be found within Appendix D to G of this document.

6 Local Transport Plans and Strategies

North Lincolnshire Council's second Local Transport Plan (LTP) shows how NLC will deliver effective, value for money transport measures over the next five years using a LTP capital award, additional Council revenue and other capital investments to improve the highway network, reduce casualties, improve the environment, reduce congestion and deliver increased accessibility. NLC wants to build on the successes achieved in the first LTP developing it a stage further by placing greater emphasis on effective demand management that makes the best use of the existing highway network whilst promoting greater travel choice.

The LTP is set within a wider context than transport and considers the social and economic factors that affect the lives of people living in North Lincolnshire. It identifies what contribution will be made to deliver transport objectives and broader aspirations at a national and regional level. The government has identified four transport priorities that it wants all local authorities to contribute toward improving and these are:

- Safer roads
- **Better air quality**
- Reducing congestion
- Delivering accessibility

The main chapters of the LTP, which set out what NLC will be doing over the next five years, are based on these shared priorities. Nationally and regionally North Lincolnshire ports have been identified as being of significant economic importance, supporting initiatives that increase capacity of road and rail networks to improve access to this priority area. Social and transport issues that have been identified as being of particular relevance to North Lincolnshire include:

- Regeneration and improved economic activity
- Improving access to the ports
- The impact of additional housing
- Reducing the number of killed and seriously injured (KSI) casualties
- Providing a cleaner and greener environment
- Increasing car use and reduced junction capacity at particular locations on the highway network in Scunthorpe
- Concerns relating to the inability of public transport to reduce the demand for travel and meet the needs of communities.
- Social exclusion and accessibility, particularly in the rural areas and in relation to employment

These issues combined with the extensive consultation identified safety as the top priority of residents, stakeholders and partners which has enabled NLC to develop a long-term strategy for transport that will make North Lincolnshire a place where people can:

- Work and enjoy economic prosperity
- Access the services they need
- Feel safe
- Lead healthy lives
- Live in sustainable communities
- Enjoy a high quality environment

Being a predominantly rural area North Lincolnshire has relatively good air quality and large areas of countryside. Air quality monitoring undertaken over the lifetime of the current LTP has shown that our air quality is more affected by industry than transport, however we will:

- Continue to monitor roads and areas that are close to exceeding pollutant thresholds
- Wherever possible include environmental improvements in all our schemes
- Traffic management measures to reduce community severance

Table 6.1 LTP Air Quality Action Plan

Transport Mode	Measures	Cost	Integration with other measures	Environmental impact	Other priorities which measures impact					Justification and Notes
					Comp. access	Safer Routes	Access. ability	Air Quality		
Walking	Improve Pedestrian facilities for easy access	Low	Positive	Low	•	•	•	•		Encourage more people to walk by improving accessibility
Cycling	Improve existing and extend cycling facilities, and identify areas where cycle facilities can be implemented.	Medium	Positive	Low	•	•	•	•		Better accessibility to the network to encourage more people to cycle throughout North Lincolnshire
Public Transport	Improve service levels, better facilities at bus stops, easier access and low floor buses	Medium	Positive	Low	•		•	•		To improve access to public transport

Transport Mode	Measures	Cost	Integration with other measures	Environmental impact	Other priorities which measures impact					Justification and Notes
					Comp. access	Safer Routes	Access. ability	Air Quality		
	Develop working partnerships to deliver more services at a local level and reduce the need to travel	Low	Positive	Low	•		•	•		Increase bus patronage and make use of available resources throughout the authority and reduce carbon monoxide
	Make key services more accessible by public transport by ensuring ease of use and better integration	Low	Positive	Low	•		•	•		Give buses priority over other vehicles at key junctions
Motorcyclist	Reduce the number of motorcycling casualties by promoting awareness of motorcyclists and vulnerability	Medium	Positive	Low		•				Help achieve local and Government targets and raise awareness amongst other roads users

Transport Mode	Measures	Cost	Integration with other measures	Environmental impact	Other priorities which measures impact					Justification and Notes
					Congestion	Safer Roads	Access to Public Transport	Air Quality	Other	
	Review the environmental impact of motorcycles compared to other modes of transport and how that effect air quality	Low	Positive	Low	•				•	To monitor how much motorcyclist contribute towards air quality and congestion in North Lincolnshire
Highways	To implement a Urban Traffic Control system to link signals and smooth traffic flows	High	Very Positive	Low	•	•	•	•		Reduce congestion which causes public transport delays
Freight	Improve facilities for freight driver	Low	Low	Positive	•	•	•	•		Reduce unnecessary freight transport entering town centres
	Reduce the impact of freight movements	Low	Low	Positive	•		•	•		Reduce journeys times by road and integrate travel onto rail and waterways

Transport Mode	Measures	Cost	Integration with other measures	Environmental impact	Other priorities which measures impact					Justification and Notes
					Congestion	Safer Roads	Access to Public Transport	Air Quality	Other	
Travel Plans	Rise awareness and encourage more sustainable travel throughout the authority	Low	Positive	Positive	•	•	•	•		Reduce car journeys and encourage everyone to use more sustainable transport, through education and training materials
	Work together with adjacent authorities to encourage the development of travel planning	Low	Positive	Positive	•		•	•		Reduce the number of car journeys travelling to and from the north and south side of the Humber banks and North East Lincolnshire
Other Issues that will have an effect on the environment										
Development Planning	Ensure that Land-use and transport planning are linked	Med	Positive	Positive	•		•	•		To promote sustainable developments
Street Scene	Complete a street scene report to seek Cabinet Member approval	Low	Positive	Very Positive	•	•	•	•		To reduce street clutter and improve the street scene in North Lincolnshire

7 Climate Change Strategies

North Lincolnshire Council became a formal signatory to the Nottingham Declaration on Climate Change during 2003. This involved the council making a public pledge to take a lead in tackling the effects of climate change locally. Climate change features in the council's Local Area Agreement (LAA) and is now a central part of the Comprehensive Area Assessment (CAA) process.

The Council now reports on a number of national indicators;

- **NI185 CO² reduction from Local Authorities.**
- **NI186 Per Capita reduction in CO² emissions.**
- **NI188 Adapting to Climate Change.**
- NI187 Fuel Poverty.
- NI189 Flood and Coastal risk Management

North Lincolnshire Council has adopted a carbon management plan in order to aid reporting on these indicators and to see an improvement across the board.

The Carbon Management plan contains details of the council's energy consumption on buildings and vehicles. The primary focus of the carbon management programme is to reduce emissions under the control of the council such as buildings, vehicle fleets and street lighting. The council was responsible for producing 30,000 tonnes of CO² during 2008/09.

Currently energy from all North Lincolnshire Council sectors (including schools) amounts to £5.2 million and this is set to increase to £8.7 million over the next 5 years if the current volatility in energy prices continue.

The Carbon Management Plan sets a target for reducing our carbon footprint by 33% over the next 5 years. The effect of achieving this target is that our energy costs reduce to £4.7 million in the next 5 years.

The full plan can be viewed at www.northlincs.gov.uk/carbonmanagement

8 Implementation of Action Plans

North Lincolnshire Council is in the process of reviewing its Action Plan for the 2005 AQMA for the Daily mean Objective for PM10 and producing an Action Plan for the 2008 AQMA for the Annual Mean Objective for PM10.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

New monitoring data has not highlighted any new exceedances since the 2009 Updating & Screening Assessment. Results and locations showing exceedances since the last round of review and assessment have all been subject to further assessments. At present locations highlighted as being non compliant include;

- Low Santon – Daily Exceedances

Santon currently sits within the 2005 Scunthorpe AQMA for breaches of the daily objective. A number of other monitoring stations lie within this AQMA, which remain compliant with objectives. The continuing issues at Santon are currently being addressed using the measures put in place by the Action Plan due to be reviewed in 2010.

9.2 Conclusions relating to New Local Developments

The major concern surrounding new local developments is the increase in traffic likely to be seen at the A160/A180 in South Killingholme. The Highways Agency has proposed a redevelopment of the road network within this area and are currently undertaking a diffusion tube study. Once the results of this study are known we will be in a better position to understand the situation and the likely effect development of the South Humber Bank will have on the residents of South Killingholme and surrounding Villages.

North Lincolnshire Council will monitor this closely and flag up any issues as soon as possible.

9.3 Proposed Actions

North Lincolnshire Council has highlighted a number of actions in order to further understanding of the pollution problems within the area.

It is not necessary to proceed to detailed assessment for any of the pollutants reported on although previously identified issues continue. Santon remains the area of concern which continues to exceed the Daily Mean PM10 Objective but has been brought in to compliance for the Annual Mean Objective with the application of the VCM. North Lincolnshire Council is due to submit a Further Assessment for Santon in September 2010. This will accompany an Action Plan and an Action Plan Review for the 2005 Daily Mean Objective AQMA.

Monitoring will continue at the operational sites highlighted within the report along with the proposed monitoring designed to aid development decisions within the 2005 AQMA. North Lincolnshire Council will continue to attend Santon Liaison Meetings in the hope of identifying major contributors and ways in which to reduce PM10 concentrations within the area. The council will also continue to assist the Highways Agency in it's investigation in to the likely effect the new A160/A180 will have on South Killingholme and cautiously investigate any application for the area likely to add to the problem.

10 References

Technical Guidance (February 2009), DEFRA
Particulate Matter within the United Kingdom (2005), Air Quality Expert Group
Updating and Screening Assessment (2009), North Lincolnshire Council
Updating and Screening Assessment (2003), North Lincolnshire Council
Detailed Assessment of Benzene, Sulphur Dioxide & PM10 (2004), North Lincolnshire Council
Detailed Assessment of Benzene (2005), North Lincolnshire Council
Progress Report (2005), North Lincolnshire Council
Updating and Screening Assessment (2006), North Lincolnshire Council
Detailed Assessment of PM10 (2008), North Lincolnshire Council
Further Assessment of PM10 (2008), North Lincolnshire Council
Progress Report (2008), North Lincolnshire Council

<http://www.nlincsair.info>
<http://maps.environment-agency.gov.uk/wiyby>
<http://www.airquality.co.uk/laqm>
<http://www.uwe.ac.uk/aqm>
<http://www.northlincs.gov.uk>

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

North Lincolnshire Council currently uses South Yorkshire Laboratories for both supply and analysis of its Nitrogen Dioxide Diffusion Tubes. The Bias Adjustment factor from all Local Authorities for 2009 is 0.96.

Factor from Local Co-location Studies (if available)

North Lincolnshire Council had 3 ongoing co located studies as discussed in the monitoring data section of this report. Sites include; Scunthorpe Town an urban industrial site, Kingsway House an urban roadside location and Gallagher Retail Park a roadside location. The bias and annual means for each site was as follows

Site	Analyser Annual Mean	Tube Annual Means	Bias Adjustment Factor
Scunthorpe Town	18	26	0.68
Kingsway House	-	24	-
Gallagher Retail Park	-	29	-

Discussion of Choice of Factor to Use

The decision to use a Bias Adjustment Factor generated from our own co location study was reached due to the complexity of the issues within North Lincolnshire. As the AQMA's declared within North Lincolnshire are predominantly industry related it was felt that using an average of other authority figures would be unsuitable. As we understand all Authorities using South Yorkshire Laboratories have declared AQMA's as a result of traffic related problems.

Unfortunately the NO₂ analysers suffered major faults in 2009 and the Gallagher Retail Park & Kingsway House suffered major reductions in data capture, consequently neither site could be used for the bias adjustment. This left Rowland Road.

Although the tube network is spread over a wide area of North Lincolnshire the tubes are situated in relatively similar situations, all at the same height and if the tubes are not co located most are held on lamppost roadside sites. This study has been ongoing since 2006 and has presented different adjustment factors each year. We have confidence within our AURN continuous monitor at this location due to its strict calibration programme and ratification procedures carried out by AEA. Details of the Bias Adjustment used can be found within Appendix J of this report.

PM Monitoring Adjustment

Particulate matter within North Lincolnshire is currently measured using TEOM. The sites at Santon and Scunthorpe Town have co located Partisols as discussed in the monitoring data section of this report. Numbers reported with results from a TEOM have had a factor of 1.3 applied and then corrected using the Volatile Correction Model as recommended by the Technical Guidance 2009.

Short-term to Long-term Data adjustment

As all sites assessed during this Progress Report are long-term studies it has not been necessary to adjust any data from short term to long-term numbers.

QA/QC of automatic monitoring

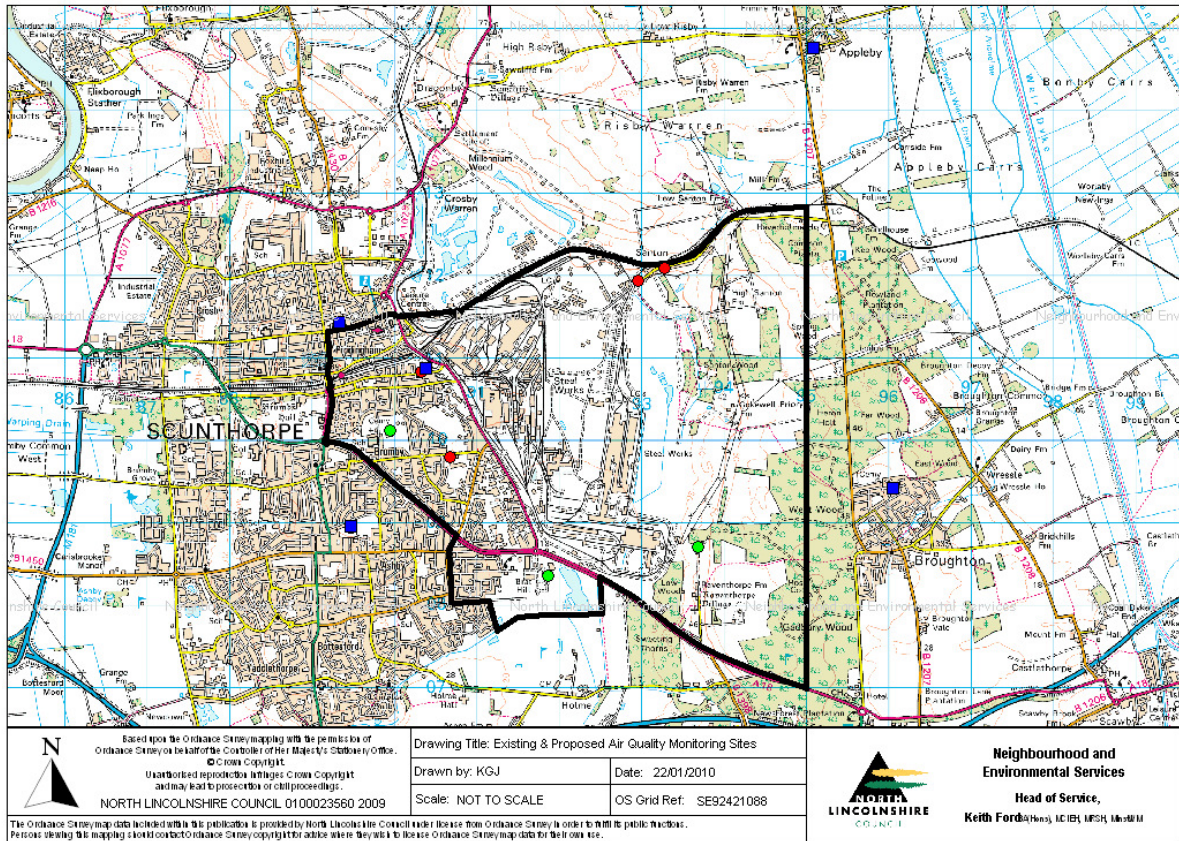
AEA Technology currently carry out the QA/QC amendments to our data via their Calibration Club service. Each of the gas analysers is calibrated every 2 weeks with the TEOMs calibrated fortnightly and filter changed every 4 weeks.

QA/QC of diffusion tube monitoring

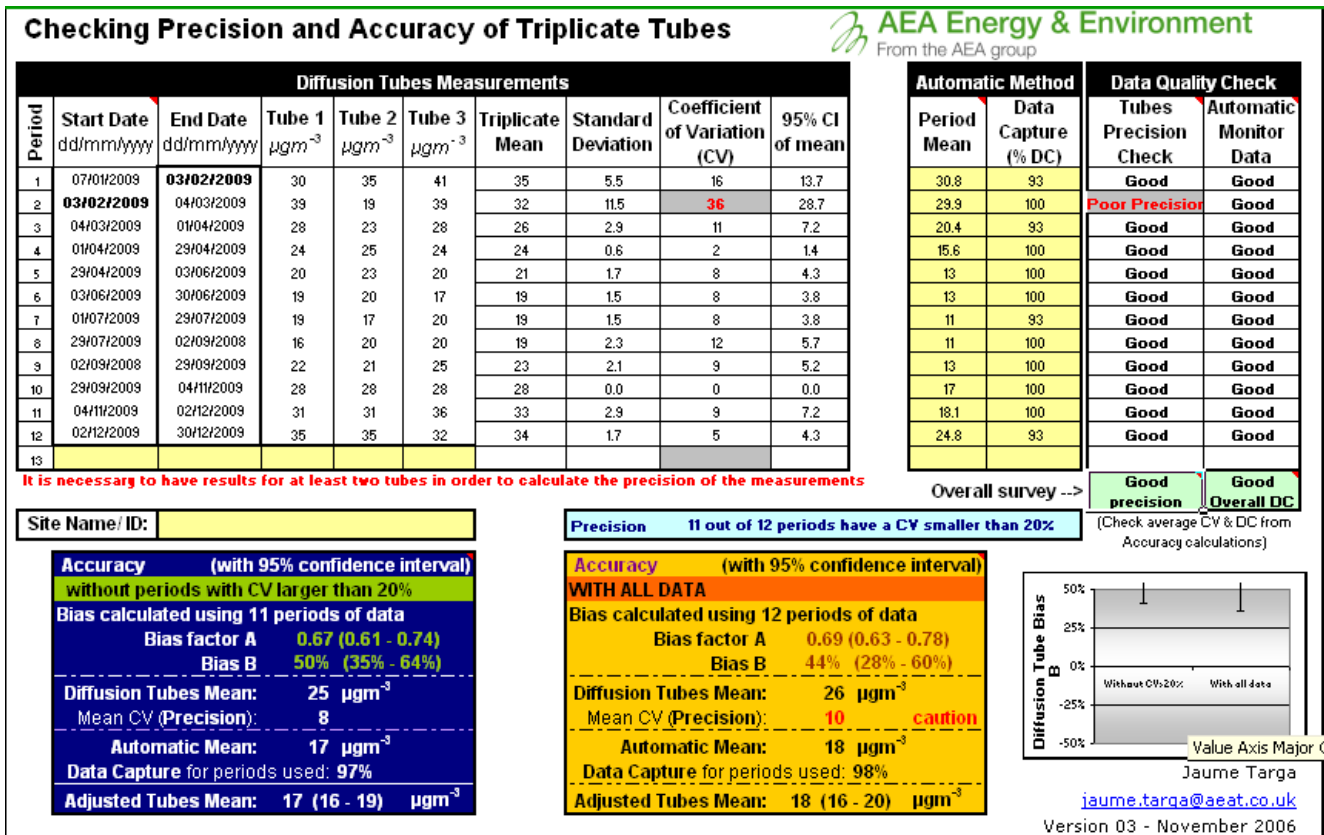
South Yorkshire Laboratories have demonstrated satisfactory performance in the WASP scheme for analysis of NO₂ diffusion tubes, between October 2008 and October 2009.

Laboratory	Performance on basis of RPI, OLD CRITERIA, best 4 out of the 5 rounds 103-107	Performance on basis of RPI, NEW CRITERIA, best 4 out of the 5 rounds 103-107
Aberdeen Public Analysts	Good	Good
Bristol City Council	Good	Good
Bureau Veritas	Good	Good
Cardiff Scientific Services	Good	Good
Edinburgh City Council	Good	Good
Exova (formerly Clyde Analytical)	Good	Acceptable
Glasgow Scientific Services	Good	Good
Gradko International	Good	Good
Harwell Scientifics	Good	Good
Kent Scientific Services	Good	Good
Kirklees MBC	Good	Acceptable
Lambeth Scientific Services	Good	Acceptable
Lancashire County Analysts	Good	Acceptable
Milton Keynes Council	Good	Acceptable
Northampton Borough Council	Good	Acceptable
South Yorkshire Laboratories	Good	Good
Staffordshire County Council	Good	Good
Tayside (formerly Dundee CC)	Good	Good
Walsall MBC	Good	Acceptable
West Yorks Analytical Services	Good	Acceptable

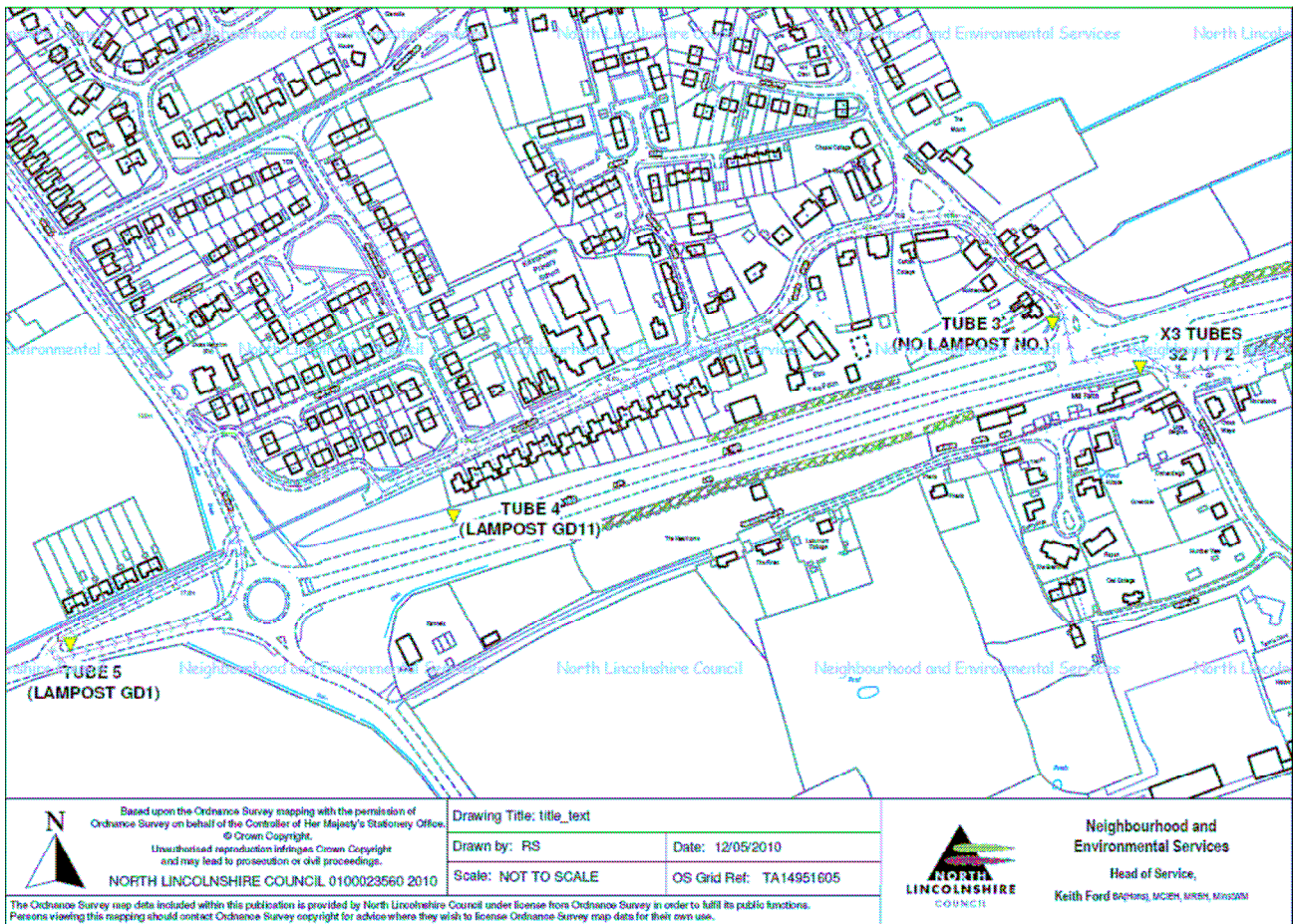
Appendix B: New & Existing Monitoring Stations



Appendix C: Bias Adjustment (Rowland Road)



Appendix D: New NOx Tube Locations




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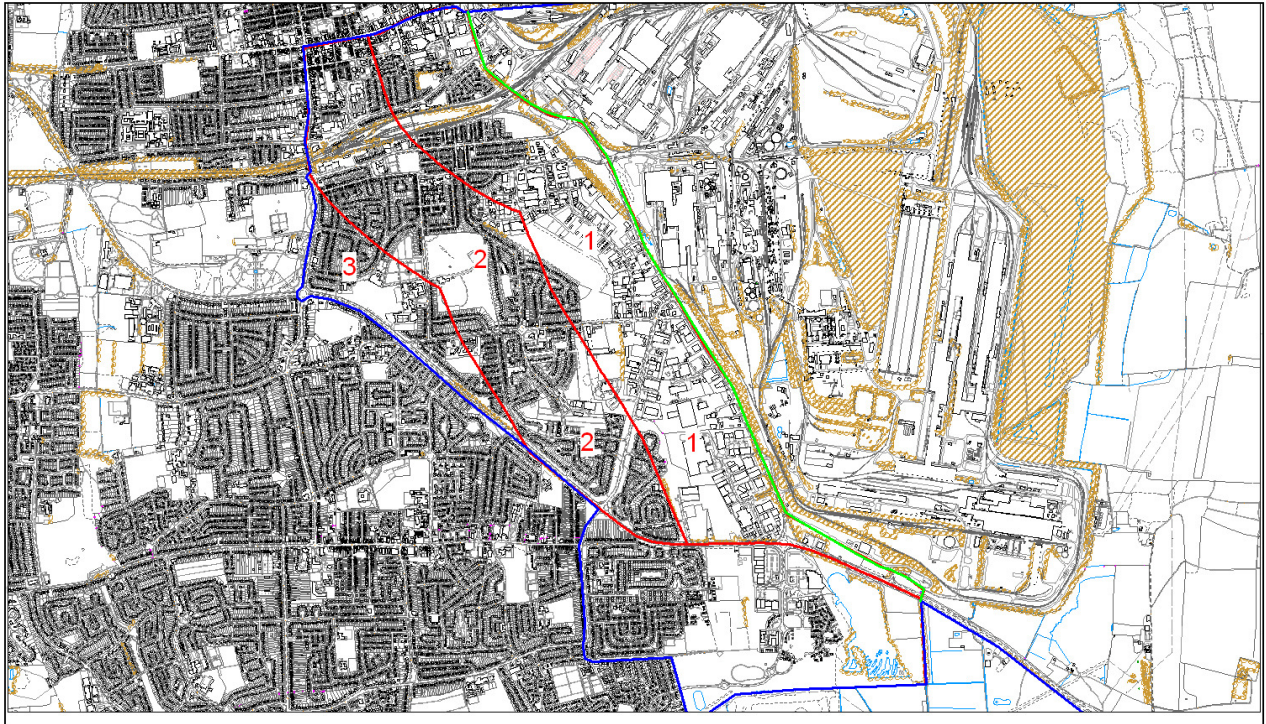
Drawing Title: title_text	
Drawn by: RS	Date: 12/05/2010
Scale: NOT TO SCALE	OS Grid Ref: TA14951605





Neighbourhood and Environmental Services




Head of Service,
Keith Ford BSc(Hons), MCIEM, MRSM, MInstSM

Appendix E: AQMA Zones



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<p><small>© Crown Copyright. Licensed Information Group. All rights reserved. Licence No: 100107 E34075-03-03-0001 Geological Survey, ONS/EC. All rights reserved.</small></p> <p><small>The Ordnance Survey map data included within this publication is provided by North Lincolnshire Council under a licence from Ordnance Survey in order to allow the public to view this data. It is not to be used for any other purpose without the prior written consent of Ordnance Survey. All other data is the property of the relevant copyright owner.</small></p>	<p>Drawn by: Ross Thomson Scale: 10k Map Date: 02/08/2010</p>	

Key

-  AQMA Boundary
-  Corus Boundary
-  Zone Boundaries

Appendix F: AQMA Zones Statement

Introduction

The Environment Act 1995 required the UK Government to produce a national air quality strategy, the first of which was adopted in 1997. It has been reviewed a number of times and the current strategy was adopted in 2007.

Air pollution can have a serious effect on people's health and the primary objective is to ensure that everyone has access to outdoor air without significant risk to their health, consideration has also been given to the economic and technical feasibility.

Air Quality Objectives exist for a number of pollutants representing levels at which no significant health effects would be expected in the population as a whole. It should be noted however that PM₁₀ is a non threshold pollutant and it is not currently possible to discern a threshold concentration below which there are no effects on the whole population's health.

Both short-term and long-term exposure to ambient levels of PM₁₀ are consistently associated with respiratory and cardiovascular illness and mortality as well as other ill-health effects.

Development Control & Air Quality Management

In order to inform both spatial planning and development control processes it was agreed that further guidance was required to quantify constraints to residential development within the Air Quality Management Area (AQMA).

The AQMA (Refer to Appendix 1) declared in 2005 was for PM₁₀ (Particulate Matter less than 10 microns in size) in respect of a breach of the daily mean air quality objective and consequently a breach of the EU Limit Value.

North Lincolnshire has an extensive monitoring network for PM₁₀ and this data has been considered in conjunction with modelled data produced by Corus UK Ltd (See Appendix 2) in order to assess the gradient of PM₁₀ levels across the AQMA. This indicates the potential to be in exceedance of the relevant Air Quality Objectives and therefore the risk they pose to human health.

The modelling data produced by Corus identifies areas within Scunthorpe that are likely to exceed the air quality objective represented by contours. The modelling is primarily based on emissions from point sources on the site as fugitive emissions are much less understood the modelled data may therefore be an underestimate of actual levels.

In order to zone the AQMA the boundary of the Integrated Steelworks Works was used as a guide. A number of significant discrete processes lie within the boundary of the site and some may pose a more significant risk than others for example the importance of the blast furnaces relative to the sinter plant. Investigations are currently ongoing to identify the relative importance of specific plants / site areas on PM₁₀ concentrations within Scunthorpe.

Consequently the zones have been drawn treating the integrated steelworks site as a whole with the ability to contribute to PM₁₀ concentrations equally. As the understanding of the contribution from individual plants increases the zones and their proximity to different process areas may be subject to review.

Zone 1 – No Residential Development

Zone 1 covers the area 550m to the west of the site boundary. Monitoring has identified a significant potential for Air Quality Objective breaches within this zone.

The monitoring sites at East Common Lane and Scunthorpe Town have recorded exceedances consistently over the last few years and if subject to periods of strong Easterly winds have the potential to exceed again.

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of daily mean (50 µg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
5	Scunthorpe Town (AURN) TEOM	Y	94	37	18	22
6	East Common Lane	Y	98	43	34	40

Due to PM₁₀ being a non threshold pollutant it is important that a precautionary approach to exposure is taken. On this basis it is recommended that **no residential development should take place within this zone.**

Zone 2 – Residential Development possible Subject to Further Investigation

Zone 2 covers the area between 550m and 1100m to the west of the Integrated Steelworks Site. No historical monitoring data exists for zone 2 although a monitoring station is currently being installed at Redbourne Club (Grid Ref SE8990910026). The external boundary of zone 2 runs through this future monitoring location.

Due to the lack of measured data in zone 2 any applications for residential development should be the **subject of further investigation.**

Further investigation of a site for residential development is likely to require on site monitoring of PM₁₀.

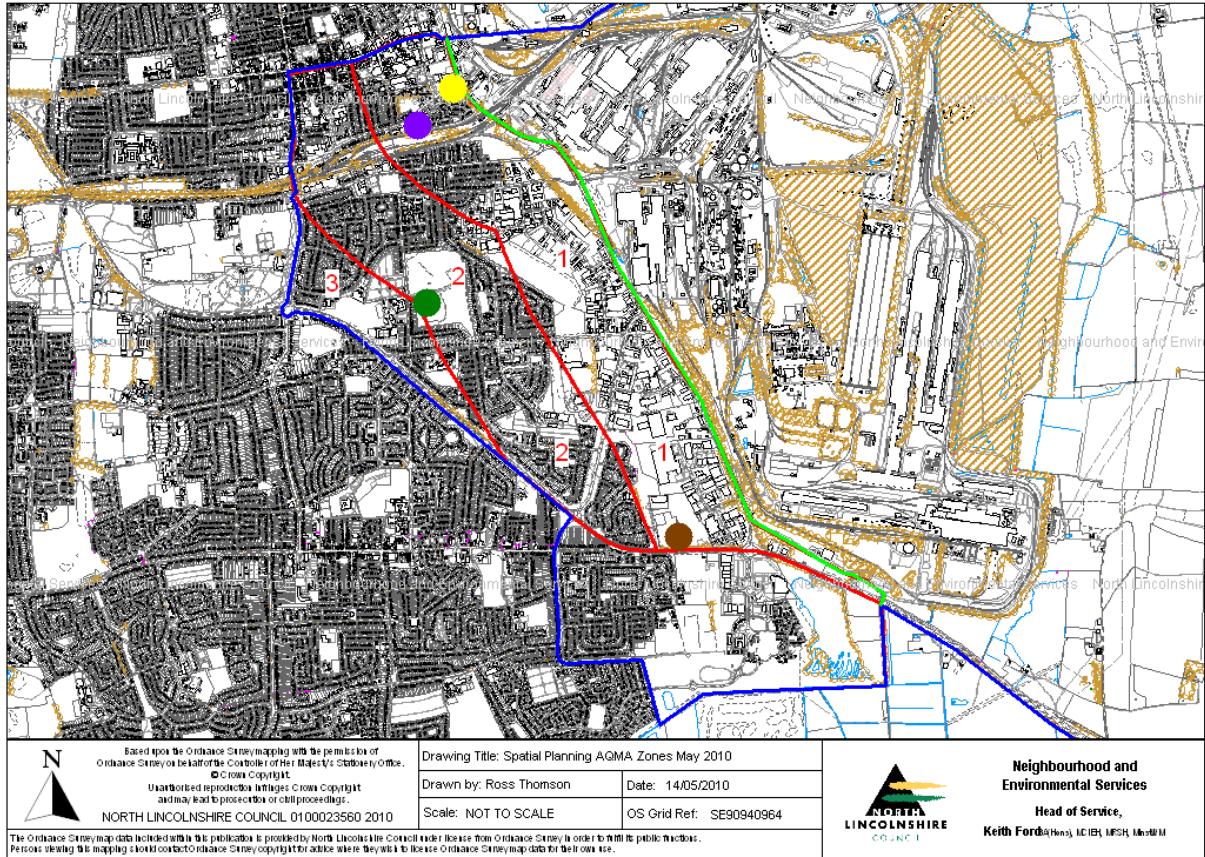
Zone 3 – Residential Development unlikely to be affected by PM₁₀

Zone 3 covers the area beyond 1100m from the Integrated Works site boundary to the present AQMA boundary line. Although no monitoring has been carried out within this zone data is available from the Lincoln Gardens (Grid Ref SE8946308939) and Allanby Street site (Grid Ref SE892231145). These sites are equidistant from the Steelworks boundary and suggest this area would be compliant.


Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of daily mean (50 µg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
2	Allanby Street	Y	98	23	11	20
4	Lincoln Gardens	Y	95	17	14	21

Data from monitoring proposed at Redbourne Club will hopefully demonstrate that air quality in this zone is satisfactory and may lead to a possible review of the AQMA boundary.

Appendix G: AQMA Zones Proposed Monitoring Map



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	<p>Drawn by: Ross Thomson</p>	<p>Date: 14/05/2010</p>
	<p>Scale: NOT TO SCALE</p>	<p>OS Grid Ref: SE90940964</p>



Neighbourhood and Environmental Services
 Head of Service,
 Keith Ford

Appendix H: AQMA Zones Proposed Monitoring Plan

AQMA Zoning for Residential Development

Air Quality Monitoring Plan

This monitoring plan should be read in conjunction with the AQMA zoning paper dated 17th February 2010.

In order to provide more robust evidence to inform the spatial planning and development control process a number of sites within zone 1 have been identified as suitable for short term monitoring.

The sites identified are both in private and council ownership and are those that are may well be suggested for future residential development.

The data collected should provide enough evidence to determine how the discrete processes on the integrated works e.g. Sinter plant, Blast Furnaces impact on sites within the town and whether as a whole the integrated works is likely to lead to a breach of an air quality objective at those sites.

The AQMA zoning map is a flexible document that should be reviewed in light of new data. In order to ensure that this issue progresses a monitoring plan is attached detailing the current zoned AQMA and the proposed sites identified with dots.

All the monitoring proposed within this plan is subject to securing appropriate funding. Schedule 1 contains pricing information for each site.

Site 1 – Amvale Transport, Queensway A18, Scunthorpe (Private Ownership)

The Amvale Transport site has been identified as an area likely to be subject to elevated levels of PM₁₀ due to its proximity to the boundary of the Integrated Steelworks. Within the steelworks boundary lie a number of combustion processes already known to increase localised particulate concentrations. Applications for the development of nearby brownfield sites have already been received by Development Control for residential use.

It is proposed to locate a continuous Osiris Environmental Dust Monitor for a minimum of 6 months at the site. It is likely however that monitoring will take place for at least 12 months. The monitor will measure PM₁₀, PM_{2.5}, PM₁, Total Suspended Particulate, Wind Speed and Wind Direction. Should a breach of the relevant air quality objective be witnessed the presence of wind speed and direction can help to identify the potential source.

The monitoring will commence in **June 2010**.

 **Site 2 – Redbourne Club, Cemetery Road, Scunthorpe (Privately Owned)**

It should be noted that this site is not earmarked for future development but has been identified as a site well located some 800m from the western boundary of the existing AQMA.

If the site is located in an area of existing residential properties over 1km from the Integrated Steelworks boundary. Subject to the outcome of the monitoring the western boundary of the AQMA may be subject to review.

An equivalent continuous TEOM (Tapered Element Oscillating Microbalance) will be located on a playing field for a minimum period of 6 months although it is likely to become a permanent sit for a period of 3 – 5 years.

The monitor will only measure PM₁₀. Data for wind speed and direction will be taken from the Automated Urban Rural Network (AURN) site at Rowland Road for comparison.

Should a breach of the relevant air quality objective be witnessed the presence of wind speed and wind direction can assist in the identification of sources.

The monitoring will begin in **June 2010** is expected to run indefinitely

 **Site 3 – North Lincs Council Depot, Station Road, Scunthorpe (Council Owned)**

The North Lincs Council Depot on Station Road has been identified as a site likely to be pursued for residential development in the future. It currently lies within zone 1 of the AQMA development zone prohibiting it from residential development. Assumptions on the likely number of exceedences of the air quality objective have been made in this area due to its proximity to the Integrated steelworks boundary.

It is proposed to locate a continuous Osiris Environmental Dust Monitor for a period of no less than 6 months at the site. The monitor will measure PM₁₀, PM_{2.5}, PM₁, Total Suspended Particulate, Wind Speed and Wind Direction.

The monitoring will begin in **July 2010** and will be reviewed after a period of 6 months. A further extension of 6 months may be required.

 **Site 4 – Scunthorpe Leisure Centre, Carlton Street, Scunthorpe (Council Owned)**

The Leisure Centre on Carlton Street, Scunthorpe has been identified as a site likely to be pursued for mixed commercial / residential development in the future. It currently lies within zone 1 of the AQMA development zone prohibiting it from residential development. Assumptions on the likely number of exceedences of the air quality objective have been made in this area due to the proximity to the Integrated Works Boundary.

It is intended to locate a continuous Osiris Environmental Dust Monitor for a period of no less than 6 months at the site. The monitor will measure PM₁₀, PM_{2.5}, PM₁, Total Suspended Particulate, Wind Speed and Wind Direction.

The monitoring will begin in **July 2010** and will be reviewed after a period of 6 months. A further extension of 6 months may be required.