



# **ACTION PLAN 2012**

## **Cleethorpe Road Grimsby**

**October 2012**

**Version 1**

**Prepared by:**  
North East Lincolnshire Council

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## Executive Summary

The Environment Act 1995 requires all Local Authorities to review and assess the air quality in their areas to determine whether the air quality objectives are likely to be met. Where a likelihood of exceedance has been identified in areas of significant public exposure, an Air Quality Management Area (AQMA) should be declared.

This Air Quality Action Plan (AQAP) is in response to the declaration of an AQMA at a portion of Cleethorpe Road between Freeman Street and Nacton Street, for the exceedance of the annual mean nitrogen dioxide Air Quality Objective.

The Further Assessment<sup>(1)</sup> indicated that road traffic was the primary source of NO<sub>x</sub> emissions (55%). The emissions from Heavy Good Vehicles (HGVs) and buses are the most significant contributor (26% of NO<sub>x</sub> and 23% of NO<sub>2</sub>), followed by cars (18% of NO<sub>x</sub> and 16% NO<sub>2</sub>).

Measures formulated in this Action Plan should aim to reduce the levels of NO<sub>x</sub>/NO<sub>2</sub> within the AQMA by these amounts:

**Reduction on NO<sub>2</sub> required within the AQMA:**

- 3.4µg/m<sup>3</sup>
- equivalent to a reduction of 8%

**Reduction on NO<sub>x</sub> required within the AQMA:**

- 9µg/m<sup>3</sup>
- equivalent to a reduction of 19%

As the primary source of the pollution in the AQMA is from road traffic, extensive consultation has taken place with Balfour Beatty who is responsible for the North East Lincolnshire Third Local Transport Plan (LTP3)<sup>(2)</sup>. Therefore this AQAP considers various traffic-related measures to deliver improvements to air quality.

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## 1.0 Introduction

### 1.1 Project Background

In September 2010 North East Lincolnshire Council declared an Air Quality Management Area (AQMA) for a breach of the annual mean NO<sub>2</sub> objective on Cleethorpe Road between Freeman Street and Nacton Street. The Council has drawn up this Local Air Quality Management Action Plan for the Cleethorpe Road AQMA. The plan sets out a programme of work to improve air quality in this area.

### 1.2. Legislative Background

As established by the Environment Act 1995 Part IV, all local authorities in the UK are under a statutory duty to undertake an air quality assessment within their area and determine whether they are likely to meet the air quality objectives set down by Government for a number of pollutants.

The process of review and assessment of air quality undertaken by local authorities is set out under the Local Air Quality Management (LAQM) regime and involves a phased three yearly assessment of local air quality. Where the results of the review and assessment process highlight that problems in the attainment of health-based objectives for air quality will arise, the authority is required to declare an AQMA – a geographic area defined by high levels of pollution and exceedences of health-based standards.

The Government publish policy and technical guidance related to the review and assessment processes. This guidance was revised in light of increased understanding and the development of additional assessment tools and the latest documents include Policy Guidance (LAQM.PG (09))<sup>(3)</sup> and Technical Guidance (LAQM.TG (09))<sup>(4)</sup>. The guidance lays down a progressive, but continuous, framework for local authorities to carry out their statutory duties to monitor, assess and review air quality in their area and produce action plans to meet the air quality objectives.

### 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 Regulations. Table 1.0 summarises the objective for Nitrogen Dioxide.

**Table 1.0: Air Quality Objective for Nitrogen Dioxide.**

Pollutant	Concentration	Measured as	Date to be achieved by
Nitrogen dioxide	40 µg/m <sup>3</sup>	Annual mean	2005

### 1.4 Scope of the Action Plan

The purpose of the Action Plan is to provide the means through which a Local Authority and other relevant organisations can deliver viable measures that

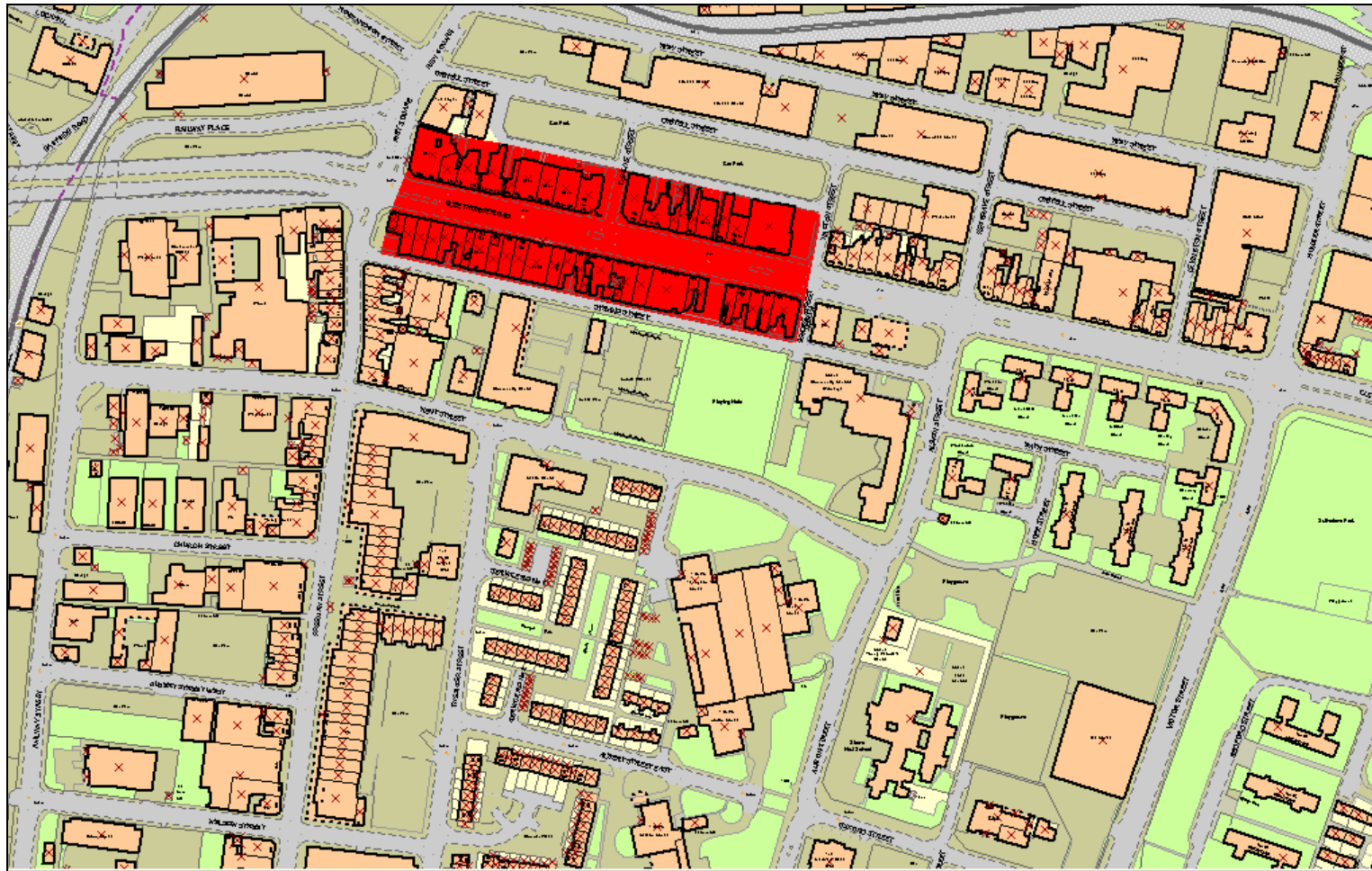
will work towards achieving the Air Quality Objectives within an AQMA. The aim is also to encourage active participation in the achievement of Action Plan measures by consulting the local stakeholders and raising awareness of air pollution issues.

Local authorities are required to prepare a written Action Plan for an AQMA, setting out the measures they intend to take forward and the potential costs and benefits of these measures. The Further Assessment, submitted in April 2012, provides the technical backup for the measures to be included within the Action Plan. The Action Plan should also contain simple estimates of the costs and benefits, alongside timescales for implementing the proposed measures. These can then be prioritised for implementation and subsequently monitored. Indication of how far the measures work towards achieving the Air Quality Strategy objectives must be included.

### **1.5 Air Quality Management Area Cleethorpe Road**

The properties along Cleethorpe Road are predominantly occupied for commercial use. Those few residential properties that do exist are found to be at the first and second floor level. Based on available information, it is estimated that 27 properties lie within the exceedance area on Cleethorpe Road, this equates to an exposed population of 64 (based on North East Lincolnshire Council Sustainability Appraisal Report 2008 which suggested an average occupancy per household of 2.36)<sup>(5)</sup>. Figure 1.1 shows the residential properties within the AQMA.

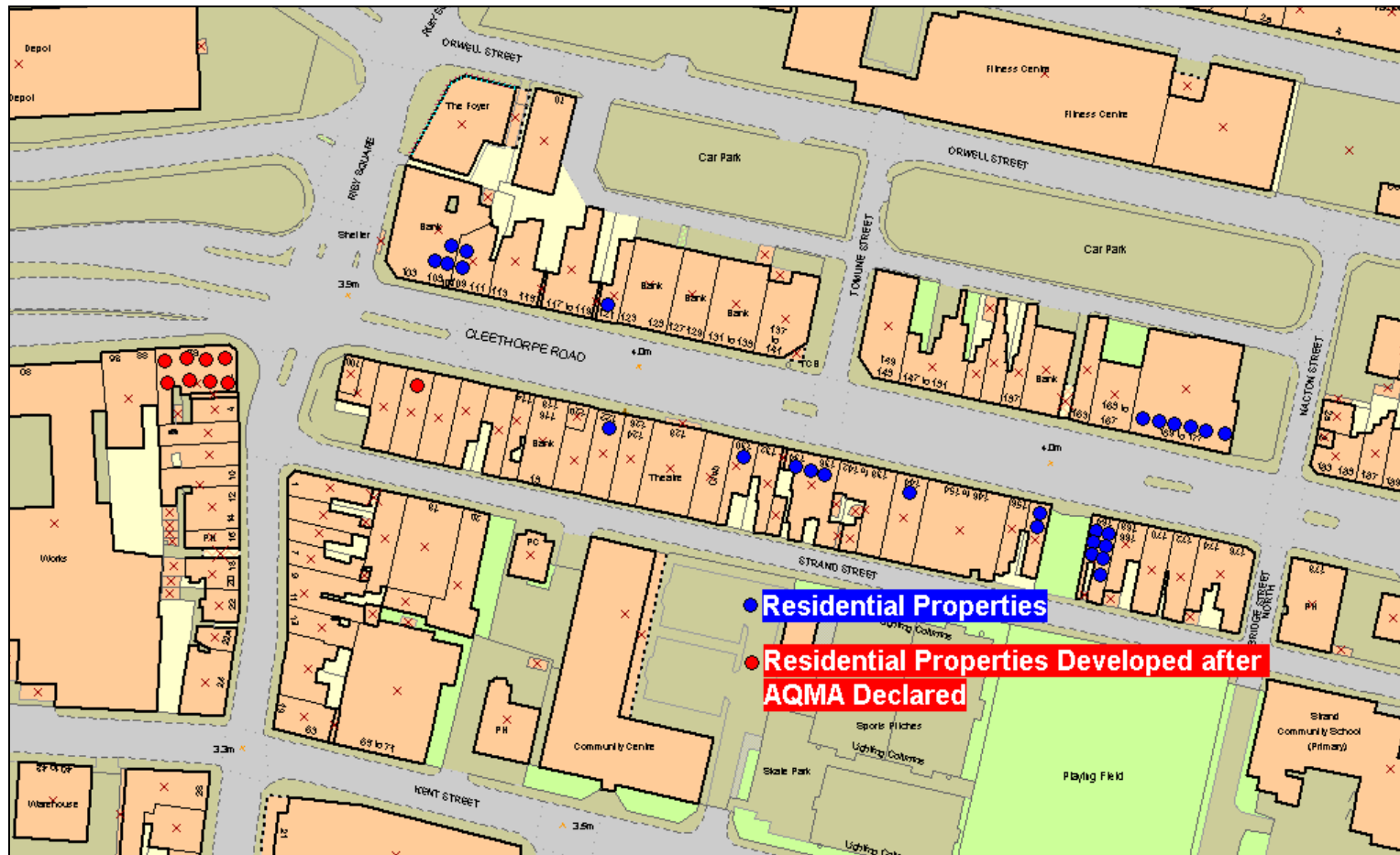
Figure 1.0 Air Quality Management Area Cleethorpe Road, Grimsby



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**Figure 1.1: Residential Properties within the AQMA and New Residential Properties Developed after the Declaration**



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## 2.0 Overview of Air Quality at Cleethorpe Road

### 2.1 Review and Assessment 2001

The report concluded that the NO<sub>2</sub> concentrations were likely to breach the annual mean AQS objective in Cleethorpe Road, Grimsby. However, an AQMA was not declared, as residential properties in the area were not occupied at the time. A continuous monitoring station was installed to confirm pollutant levels. All other pollutants complied with the AQS objectives.

### 2.2 Updating and Screening Assessment 2003

The report confirmed that NO<sub>2</sub> was still exceeding the objective in Riby Square, while properties were now occupied.

### 2.3 Detailed Assessment 2005

A Detailed Assessment was carried out in 2005. Based on detailed dispersion modelling, the report concluded that properties were not at risk of exceeding the NO<sub>2</sub> objectives and that no AQMA was required in Grimsby.

### 2.4 Updating and Screening Assessment 2009

The report concluded that all air quality objectives would be met outside of the Immingham AQMA, except for Cleethorpe Road at Riby Square where exceedences of the annual mean NO<sub>2</sub> objective were measured at a number of diffusion tube monitoring sites.

### 2.5 Detailed Assessment 2010

In September 2010 The Council declared an Air Quality Management Area (AQMA) for an exceedance of the annual mean NO<sub>2</sub> objective on Cleethorpe Road between Freeman Street and Nacton Street.

### 2.6 Further Assessment 2012

The report concluded that the findings of the Detailed Assessment and the extent of the AQMA should remain unchanged.

A source apportionment study of the local traffic emissions was undertaken. This study indicated that road traffic was the primary source of NO<sub>x</sub> emissions (55%). The emissions from Heavy Good Vehicles (HGVs) and buses are the most significant contributor (26% of NO<sub>x</sub> and 23% of NO<sub>2</sub>), followed by cars (18% of NO<sub>x</sub> and 16% NO<sub>2</sub>).

Measures formulated in this Action Plan should aim to reduce the levels of NO<sub>x</sub>/NO<sub>2</sub> within the AQMA by the following amounts:

**Reduction on NO<sub>2</sub> required within the AQMA:**

- 3.4µg/m<sup>3</sup>
- equivalent to a reduction of 8%

**Reduction on NO<sub>x</sub> required within the AQMA:**

- 9µg/m<sup>3</sup>
- equivalent to a reduction of 19%

### 3.0 Monitoring Data and Equipment within the AQMA

#### 3.1 Real-Time Monitoring Data

Monitoring commenced on 1 March 2011, and data capture for the first 10 months was 82.92%. The annual mean concentration for the period was 48.42 $\mu\text{g}/\text{m}^3$ . This confirms that the declaration of the AQMA was correct, which has been further supported with the Further Assessment 2012.

**Table 3.0 Details of Cleethorpe Road Automatic Monitoring.**

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure?	Distance to Kerb of Nearest Road	Worst-Case Location?
Cleethorpe Rd	Roadside	527759 410426	NO <sub>2</sub>	Yes	Yes	2m	Yes

**Table 3.1 Results of NO<sub>2</sub> Automatic Monitoring Station 2011**

Site name	Data Capture for Monitoring Period% Mar-Dec 2011	Data Capture for Full Calendar Year%	Annual Mean NO <sub>2</sub> $\mu\text{g}/\text{m}^3$ 2011 (99.8 <sup>th</sup> percentile)	Number of Exceedences Hourly Mean Objective
Cleethorpe Road	97.67	83.8	48.4 (136.7)	0

#### 3.2 Diffusion Tube Monitoring Data

The data collated from the NO<sub>2</sub> diffusion tubes situated on Cleethorpe Road between 2005 and 2011 are displayed in Table 3.2. The data presented has been bias adjusted following the LAQM.TG (09) guidance. The locations of the diffusion tubes are presented in Table 3.3

**Table 3.2 Cleethorpe Road NO<sub>2</sub> Diffusion Tube Data 2005 to 2011**

Tube ID	Location	NO <sub>2</sub> Annual mean bias adjusted, µg/m <sup>3</sup>						
		2005	2006	2007	2008	2009	2010	2011
NEL 10	112 Cleethorpe Road 1	39.21	<b>47.36</b>	<b>51.00</b>	<b>57.99</b>	<b>50.91</b>	<b>46.12</b>	<b>46.70</b>
NEL 11	112 Cleethorpe Road 2	37.04	<b>46.55</b>	<b>51.60</b>	<b>57.49</b>	<b>50.35</b>	<b>46.17</b>	<b>46.20</b>
NEL 12	112 Cleethorpe Road 3	37.75	<b>48.56</b>	<b>49.35</b>	<b>54.37</b>	<b>53.05</b>	<b>47.49</b>	<b>46.40</b>
NEL 13	113 Cleethorpe Road*		<b>40.31</b>	<b>56.43</b>	<b>52.86</b>	<b>46.07</b>	<b>48.16</b>	<b>41.40</b>
NEL 14	123 Cleethorpe Road*		36.25	<b>50.49</b>	<b>51.51</b>	<b>42.19</b>	<b>44.99</b>	<b>40.50</b>
NEL 15	197 Cleethorpe Road	24.12	24.93	31.58	31.98	32.85	32.36	27.10

**Table 3.3 Cleethorpe Road Diffusion Tube Locations**

Site No.	Location	Site Type	OS Grid Ref	In AQMA ?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road	Worst- Case Location?
<b>NEL 10, 11, 12</b>	Riby Square 1 (112 Cleethorpe Road) , Grimsby	Roadside	527761 410426	Yes	Y	Y-1m	2m	Yes
<b>NEL 13</b>	113 Cleethorpe Road, Grimsby	Kerbside	527756 410446	Yes	N	Y-1m	1m	Yes
<b>NEL 14</b>	123 Cleethorpe Road, Grimsby	Kerbside	527787 410439	Yes	N	Y-1m	1m	Yes
<b>NEL 15</b>	197 Cleethorpe Road, Grimsby	Kerbside	527993 410398	No	N	Y-0m	1m	Yes

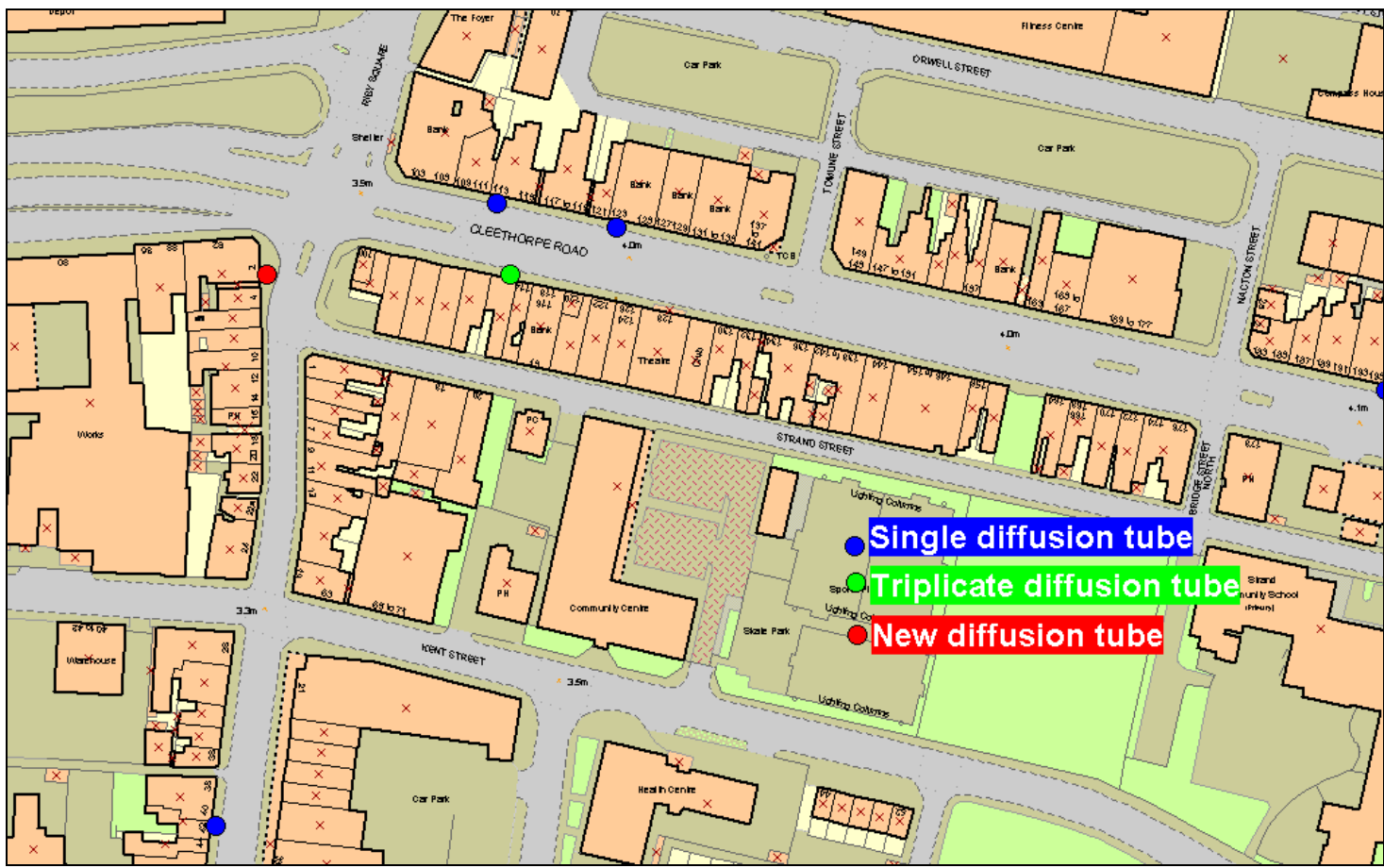
### 3.3 New Monitoring

At the present time changes to the traffic signals are being investigated by Balfour Beatty to improve the traffic flow through the AQMA. By making these changes the Council are mindful of the potential of the air quality problem being moved to Freeman Street where flats have recently become occupied (Figure 1.1). Therefore an additional diffusion tube was installed (Figure 3.0) on 26 September 2012. This will in the short term indicate the NO<sub>2</sub> levels in that area, although long term further dispersion modelling will be required.

**Table 3.4 New Diffusion Tube Location**

Site No.	Location	Site Type	OS Grid Ref	In AQMA ?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure?	Distance to Kerb of Nearest Road	Worst-Case Location?
NEL 39	Riby Square	Roadside	527 692 410 427	No	No	Yes	2m	Yes

Figure 3.0 New Diffusion Tube Location.



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## 4.0 Existing Policies and Strategies to Improve Air Quality

### 4.1 Council Commitment

The Council considers environmental issues as important. There are various departments playing their part in helping to reduce the impact of our society on the environment. Whether it is through improving public transport, increasing domestic recycling or continual regulation of polluting industry, the commitment is firmly established in various strategies, plans and day to day working priorities. Some of these feature air quality relevant commitments.

### 4.2 Planning Policy

Air Quality is taken into consideration with all planning applications. The land use planning system is integral to improving air quality. The Council's Pollution Control Team play a vital role by making recommendations on air quality issues in response to consultation by the planning service. Under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 require the assessment of likely effect on air quality from proposed development. These regulations highlight the potential for securing air quality improvements under Section 106 agreements.

### 4.3 Air Quality Strategy

To provide the framework to enable the maintenance and or improvement of air quality in North East Lincolnshire, in line with both the National Air Quality Standards and the principles of best practice.

Whilst the development of an Air Quality Strategy is not a statutory requirement, we know that such a strategy is important in ensuring a continued focus, for the council and partners, on the improvement of local air quality. At present the strategy is in draft form and will be officially adopted by council in April 2013.

The objectives of the North East Lincolnshire Council's Air Quality Strategy are:

- **Objective 1:** Monitoring, assessing and reporting on air quality.
- **Objective 2:** To develop, consult on and implement new initiatives to improve air quality.
- **Objective 3:** To incorporate air quality considerations in all relevant Council operations.
- **Objective 4:** To increase general awareness of air quality.

### 4.4 Local Transport Plan 3 (LTP3)

North East Lincolnshire Council's third Local Transport Plan (LTP3) is one of the key plans which set out the transport strategy for the area until March 2026. The LTP3 is an important document that supports the continued improvement of local air quality.

LTP3 provides real flexibility and a new integrated approach to transport that can respond to the needs of business and the local community alike.

The plan has been created following consultation with local stakeholders and reflects the Council's ambition to attract investment in the renewable sector, capitalising on the opportunity to service developments along the South Humber Bank.

In addition, the LTP3 will support the development of industry, the renaissance plans for Grimsby Town Centre, the creation of new and improved homes in the East Marsh area and the development of Cleethorpes as an attractive, successful seaside resort. This will be achieved by bringing about the necessary transport improvements required to make each of these ambitions a reality.

#### **4.5 Climate Local**

Climate Local is an LGA initiative to drive, inspire and support council action on a changing climate. The initiative supports councils' efforts both to reduce carbon emissions and also to improve their resilience to the affects of our changing climate and extreme weather.

Climate Local will help councils across the country to capture the opportunities and benefits of action on climate change, through saving on their energy bills, generating income from renewable energy, attracting new jobs and investment in 'green' industries, reducing flood risks and managing the impacts of extreme weather, such as drought, tackling fuel poverty and protecting our natural environment.

It consists of:

- A Climate Local Commitment – for councils to sign to demonstrate their commitment to addressing climate change and to challenge themselves to build on their existing achievements;
- A set of topic-based guides and templates to help guide councils in setting local;
- Commitments and milestones and reaching their ambitions;
- Additional resources and support – new web-based resources, a new online;
- Community and opportunities for peer learning;
- A Climate Local Steering Group - bringing together nominated members of the LGA's;
- Environment and Housing Board, council representatives and national partners.

Climate Local is the main conduit through which national policy set by Government can be translated into action for local delivery.



## **4.6 Sustainable Community Strategy**

Sustainable Community Strategy was revised and updated and received formal sign-off and approval by full council and the executive board of our local Strategic Partnership in July 2010. The next formal review will take place 2013.

The Council has a statutory duty to develop and deliver a Sustainable Community Strategy. The refreshed strategy will be the key driver for improvements in North East Lincolnshire and identifies the strategic priorities for the Council, the community and key partners.

Performance will be measured against the targets and milestones in the Local Area Agreement 2(LAA2) until 2011 but the sharper focus on fewer priorities should allow us to achieve greater improvements to the things that you have told us most clearly make North East Lincolnshire the best possible place to live, work and to welcome visitors.

Our LAA is ambitious and seeks to raise the hopes and aspirations of everyone involved with North East Lincolnshire. We have set out the improvement and ambition that we are confident of achieving in partnership, by working closely together; sharing our available resources and promoting investment in the priorities likely to make the most significant improvements. The changes to our strategy aim to enhance partnership and community-wide ownership of the outcomes required to sustain improvement over the lifetime of the strategy to 2022. More importantly, the changes provide a clearer focus on the things the partnership will be doing to increase everyone's quality of life.

## 5.0 Development of the Action Plan and Proposed Measures

Local authorities are required to prepare an Action Plan setting out the actions they intend to take in pursuit of the air quality objectives. The Council are to consider the adoption and implementation the seven measures in this draft Action Plan in pursuit of the NO<sub>2</sub> annual mean air quality objective. Some of the identified measures require further study to facilitate which ones have the most potential for improvement against the cost occurred.

Discussions with the Principal Traffic Engineer and LTP Programme Assistant from Balfour Beatty Workplace have taken place to consider the infrastructure options for the junction. This infrastructure design for the Riby Square junction with Freeman Street and the A180 has been assessed by Balfour Beatty (Appendix 1).

Table 5.0 lists the measures that the Council intend to investigate and pursue with the intent of reducing the annual mean NO<sub>2</sub> objective within the AQMA at Cleethorpe Road.

**Table 5.0 Summary of the Direct Measures Proposed for the AQMA**

Measure	Description	Date to be Achieved by	Estimated Cost*
1	Traffic Management: Change traffic cycles at peak times	April 2013	£
2	New road infrastructure options: Relocate stacking option	October 2014	££
3	New road infrastructure options: Left turn only from Freeman Street (without pedestrian crossing)	October 2014	££
4	New road infrastructure options: Left turn only from Freeman Street (with pedestrian crossing)	October 2014	££
5	New road infrastructure options: Create a roundabout at Riby Square	October 2014	£££
6	Highway Signage: Improve signs at Lockhill for the dock traffic	April 2014	££
7	Pollution Control: Promotion of Air Quality within NELC	April 2014	£

\*£: Low Cost, ££: Medium Cost, £££: High Cost

## 5.1 Measure 1: Traffic Signal Management

The Council and Balfour Beatty are investigating the traffic light signals at the Riby Square junction to give more 'green-time' to traffic travelling along Cleethorpe Road during peak hours. A trial is scheduled for the end of 2012. During this time the traffic light sequences will be changed allowing vehicles to flow through the junction at peak pollution times as indicated by the real time monitor.

**Perceived Air Quality Improvement:** potential for improved traffic flow at peak times through the AQMA leading to a reduction in nitrogen dioxide levels.

**Cost Effectiveness:** at the present time this option is considered to be a Low Cost Effective measure.

**Other Potential Impacts:** the stacking traffic may be re-located to another location giving potential for increased NO<sub>2</sub> levels elsewhere in the area.

**Further Comments:** Balfour Beatty's Traffic Engineers are presently designing signal timings to reduce the length of time traffic is stacked along Cleethorpe Road during peak times. A new diffusion tube as described in Section 3.3 has been placed to monitor NO<sub>2</sub> levels in the area, although long term further dispersion modelling will be required.

## 5.2 Measure 2: Relocating Stacking Traffic

The stacking room is to be removed from Freeman Street and Riby Square exits and introduced onto Cleethorpe Road westbound. Discussions with the Principal Traffic Engineer and LTP Programme Assistant from Balfour Beatty Workplace have taken place to consider the infrastructure options for the junction. This infrastructure design for the Riby Square junction with Freeman Street and the A180 has been assessed by Balfour Beatty (Appendix 1).

**Perceived Air Quality Improvement:** reduction in nitrogen dioxide through improved traffic flow.

**Cost Effectiveness:** this measure is dependant on funding availability. At the present time this option is estimated to be a Medium Cost measure.

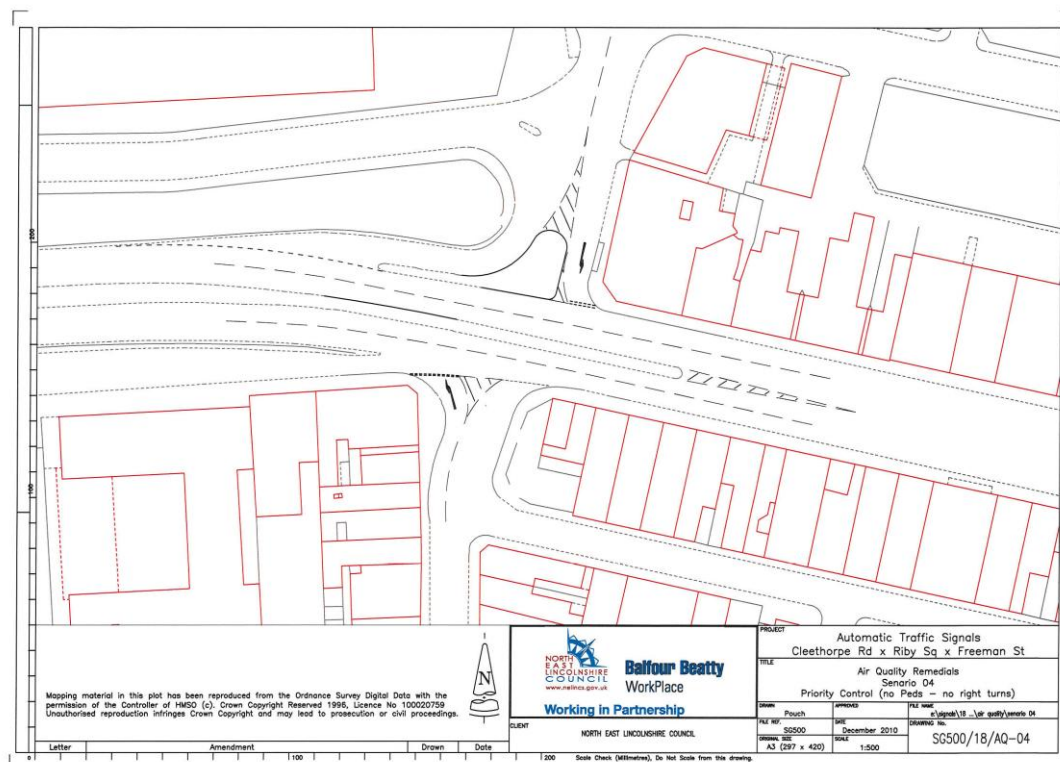
**Other Potential Impacts:** the queuing traffic may be re-located to another location giving potential for increased NO<sub>2</sub> levels elsewhere in the area.

**Further Comments:** Bureau Veritas to be approached to produce air quality modelling maps to demonstrate the impact of this option.

### 5.3 Measure 3: Left turn only from Freeman Street (without Pedestrian crossing)

Left turn only out of Freeman Street and Riby Square the removal of the lights and pedestrian crossing on Cleethorpe Road. Discussions with the Principal Traffic Engineer and LTP Programme Assistant from Balfour Beatty Workplace have taken place to consider the infrastructure options for the junction. This infrastructure design for the Riby Square junction with Freeman Street and the A180 has been assessed by Balfour Beatty (Appendix 1).

**Figure 5.0: Measure 3 Layout**



**Perceived Air Quality Improvement:** reduction in nitrogen dioxide through improved traffic flow.

**Cost Effectiveness:** this measure is dependant on funding availability. At the present time this option is estimated to be a Medium Cost measure.

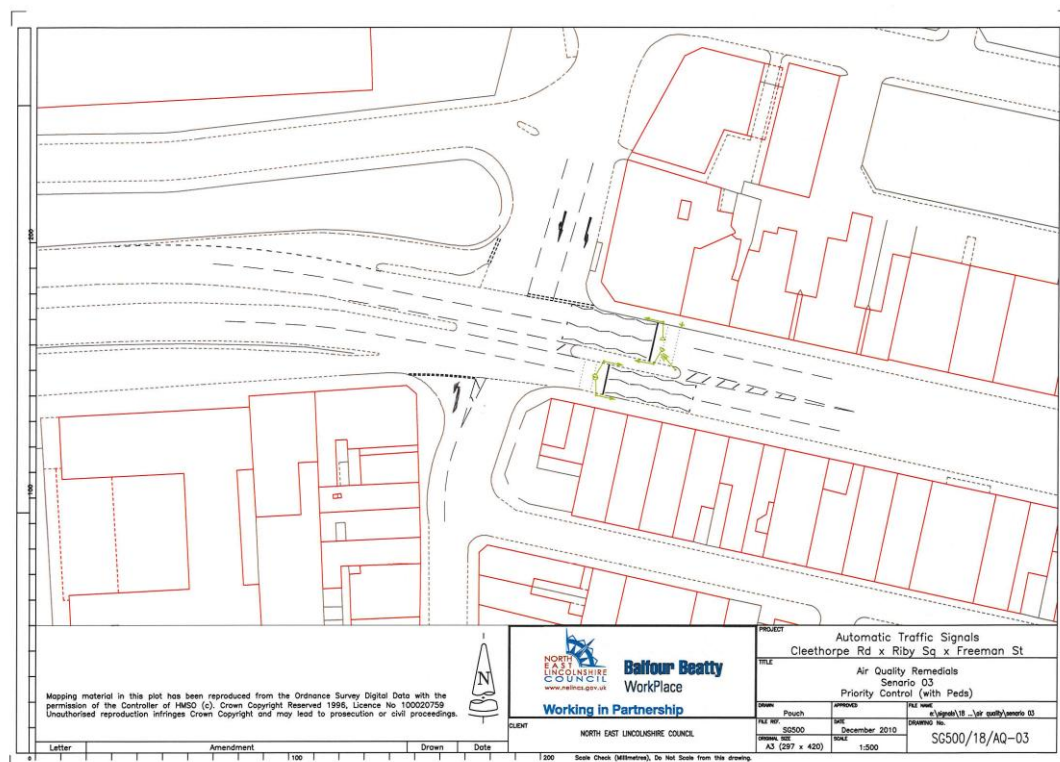
**Other Potential Impacts:** the stacking traffic may be re-located to another location giving potential for increased NO<sub>2</sub> levels elsewhere in the area.

**Further Comments:** Bureau Veritas to be approached to produce air quality modelling maps to demonstrate the impact of this option.

## 5.4 Measure 4: Left turn only from Freeman Street (with pedestrian crossing)

Left turn only out of Freeman Street with lights on Cleethorpe Road and inclusion of pedestrian crossing on Cleethorpe Road. Discussions with the Principal Traffic Engineer and LTP Programme Assistant from Balfour Beatty Workplace have taken place to consider the infrastructure options for the junction. This infrastructure design for the Riby Square junction with Freeman Street and the A180 has been assessed by Balfour Beatty (Appendix 1).

**Figure 5.1: Measure 4 Layout**



**Perceived Air Quality Improvement:** reduction in nitrogen dioxide through improved traffic flow.

**Cost Effectiveness:** this measure is dependant on funding availability. At the present time this option is estimated to be a Medium Cost measure.

**Other Potential Impacts:** the stacking traffic may be re-located to another location giving potential for increased NO<sub>2</sub> levels elsewhere in the area.

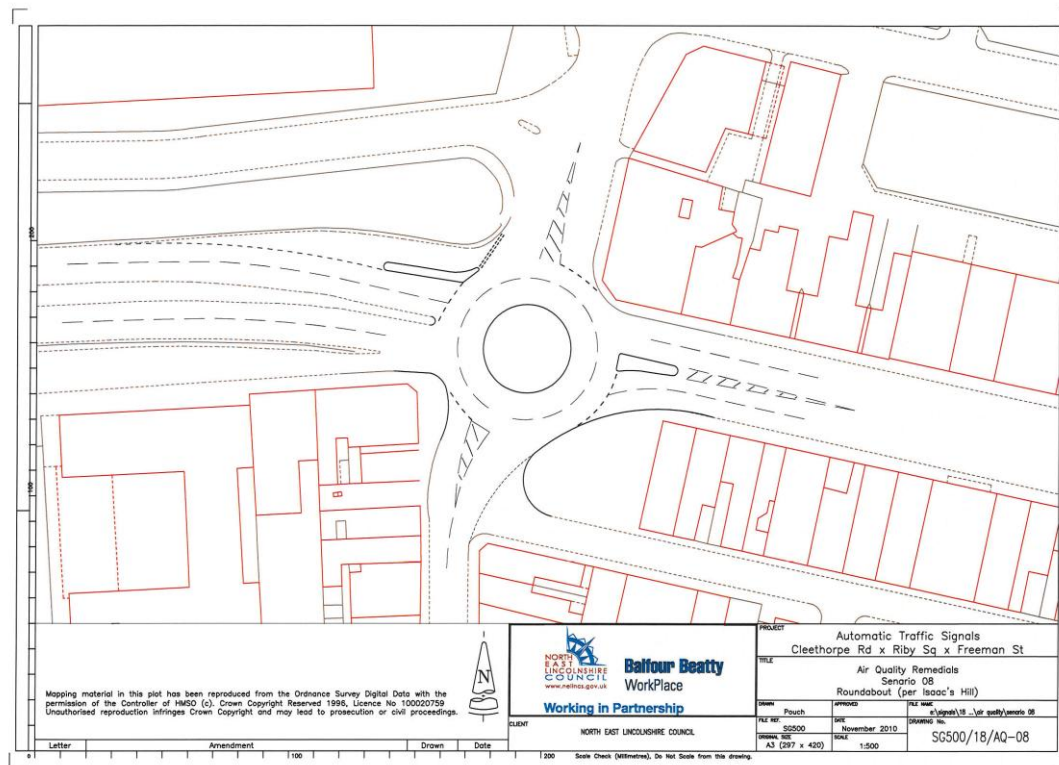
**Further Comments:** Bureau Veritas to be approached to produce air quality modelling maps to demonstrate the impact of this option.

## 5.5 Measure 5 Roundabout at Riby Square

The possibility of replacing the traffic lights with a roundabout is being investigated. Discussions with the Principal Traffic Engineer and LTP Programme Assistant from Balfour Beatty Workplace have taken place to

consider the infrastructure options for the junction. This infrastructure design for the Riby Square junction with Freeman Street and the A180 has been assessed by Balfour Beatty (Appendix 1).

**Figure 5.2: Measure 5 Layout**



**Perceived Air Quality Improvement:** reduction in nitrogen dioxide through improved traffic flow.

**Cost Effectiveness:** this measure is dependant on funding availability. The compulsory purchase of 3 buildings makes this option a High Cost measure.

**Other Potential Impacts:** the stacking traffic may be re-located to another location giving potential for increased NO<sub>2</sub> levels elsewhere in the area.

**Further Comments:** Bureau Veritas to be approached to produce air quality modelling maps to demonstrate the impact of this option.

## 5.6 Measure 6: Highway Signage at Lockhill Roundabout

Improved signage would be developed for the approach to and including Lockhill roundabout to divert HGV's straight onto Grimsby docks. As apposed to entering the docks from the Riby Square Junction.

**Perceived Air Quality Improvement:** reduction in nitrogen dioxide associated with a reduced number of HGV's approaching the AQMA.

**Cost Effectiveness:** this measure is dependant on funding availability. At the present time this option is estimated to be a Medium Cost measure.

**Other Potential Impacts:** problems associated with driver reliance on SatNav which may direct them through the AQMA (Appendix 2).

**Further Comments:** Balfour Beatty and the Council are presently considering new signage options for the Lockhill Roundabout and the associated costs.

## 5.7 Measure 7: Promotion

Education and promoting of air quality information is vital if we are to change behaviour at a local level. With effective communication the Council intend to raise awareness with regards to air pollution within the borough.

The Council is at present working on updating the Air Quality pages on the website to make these more appealing and interesting to the viewer.

The option of setting up a Facebook/Twitter account to deliver Air Quality information to the public is being considered.

**Perceived Air Quality Improvement:** the council will continue to undertake and report routine monitoring of air pollution in the AQMA and across the borough.

**Cost Effectiveness:** At the present time this option is estimated to be a Low Cost measure.

**Other Potential Impacts:** none known.

**Further Comments:** At present the Pollution Control Team promote a number of services to increase awareness of air quality issues. These include:

- Air quality levels are reported daily on the Council's website;
- All air quality reports that have been submitted to DEFRA are available on the Council's website;
- The Council's website is frequently updated to provide air quality information;
- Provide an advisory and information service via telephone, email or letter.

## 6.0 Conclusion

The Environment Act 1995 requires all Local Authorities to review and assess the air quality in their areas to determine whether the air quality objectives are likely to be met. Where a likelihood of exceedance has been identified in areas of significant public exposure, an Air Quality Management Area (AQMA) should be declared.

This Air Quality Action Plan (AQAP) is in response to the declaration of an AQMA at a portion of Cleethorpe Road between Freeman Street and Nacton Street, for the exceedance of the annual mean nitrogen dioxide Air Quality Objective

The Action Plan describes the air quality process that has taken place at Cleethorpe Road to date. It identifies the role of the traffic in the current situation and describes a range of measures to be investigated to reduce the annual mean NO<sub>2</sub> objective that is in breach.

An Air Quality Action Plan Progress Report will be produced and submitted to DEFRA in April 2013 detailing the air quality improvements and progress that has been made with the seven measures discussed.

### 6.1 The Next Step

This Action Plan will be submitted to DEFRA in October 2012 in draft form. Upon approval from DEFRA this report will then be available for consultation for an 8 week period via the North East Lincolnshire Council's website. Also, the following consultees will be approached for comment:

- East Lindsey District Council
- East Riding of Yorkshire Council
- Environment Agency
- Health Protection Agency
- North Lincolnshire Council
- West Lindsey District Council



## 7.0 References

1. North East Lincolnshire Council, Cleethorpe Road Further Assessment 2012
2. North East Lincolnshire Council Third Local Transport Plan (LTP3)
3. Policy Guidance LAQM PG(09)
4. Technical Guidance LAQM TG(09)
5. North East Lincolnshire Council Sustainability Appraisal Report 2008
6. LinSig Guidance

## 8.0 Appendix

### Appendix 1 – Traffic Modelling within the AQMA

The potential new road layouts were modelled using the Linsig transport modelling software. Traffic flows from a 2009 count were used in the original model layout, however, several assumptions have been made in the model updates to support currently allowed turns being cessed as indicated and the seeking of alternate routes.

Results are analysed in terms of Practical Reserve Capacity (PRC) and Delay in Passenger Car Units (PCU) per hour, and are based on a 90 second cycle time where applicable (left turn only and roundabout designs do not use traffic lights).

PRC <sup>(5)</sup> is defined as ‘the amount by which traffic demand can grow before Practical Capacity is reached’. Practical Capacity is assumed to be 90% at all junctions; therefore when analysing results, where a junction indicates 2% PRC, this actually means that the junction is running at 88% of full capacity

**Table 8.0 Riby Square Results Table – AM Peak**

Measure	Cycle Time (s)	PRC %	Delay (PCU/Hr)
Original Model ~ as it is now	90	-2.70	29.68
2 Original with Relocated Stacking	90	19.60	24.04
3 Left Turn Only Model (no lights)	n/a	165.10	1.1
4 Left Turn with Pedestrian Model	90	68.50	9.11
5 Riby Square Roundabout	n/a	18.70	5.63

**Table 8.1 Riby Square Results Table – PM Peak**

Measure	Cycle Time (s)	PRC %	Delay (PCU/Hr)
Original Model ~ as it is now	90	-7.50	45.57
2 Original with Relocated Stacking	90	-9.50	50.91
3 Left Turn Only Model (no lights)	n/a	95.20	1.27
4 Left Turn with Pedestrian Model	90	29.90	10.07
5 Riby Square Roundabout	n/a	3.90	8.28

The results above show that the highest levels of PRC and lowest delay are produced by implementing the ‘Left Turn Only’ model. However, this may actually be detrimental to air quality in the area as uncontrolled traffic heading east through this junction would be held for significantly longer at the pedestrian crossing further along Cleethorpe Road (west of Nacton Street and Bridge Street North), which is still in the AQMA area. This problem is shared by the other uncontrolled junction design (roundabout).

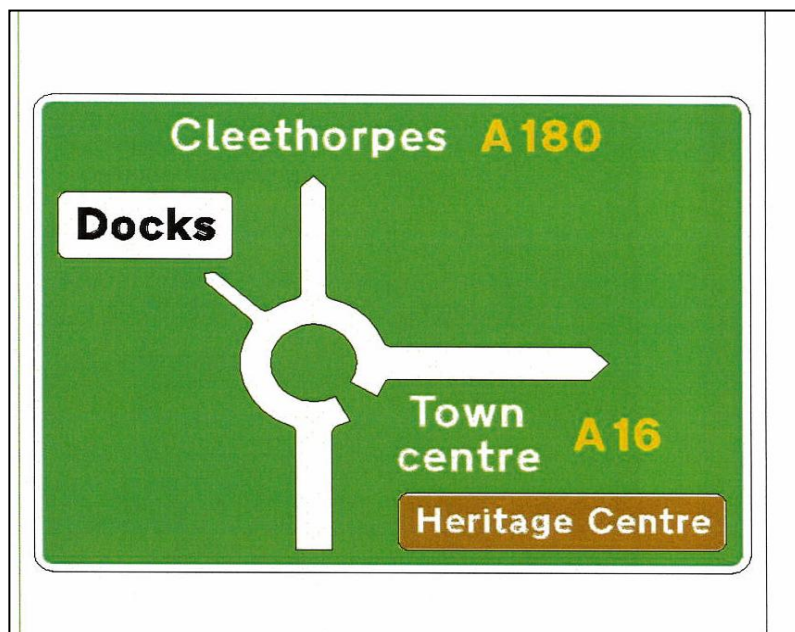
Good results are seen by utilising the same design, but with a pedestrian crossing incorporated into the design (measure 4). This design would have the advantage of controlling traffic before it heads east through the junction, reducing the likelihood of additional 'waiting' eastbound traffic on Cleethorpe Road.

**Appendix 2 –Signage for the Grimsby Docks**

**Present sign**



**Suggested design for new sign**



**Present Sign**



**Suggested design for new sign**

