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Waveney District Council  
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## **Waveney District Council**

### **Progress Report on Air Quality in Waveney**

**April 2005**

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## **1. Executive Summary**

This annual progress report is provided for submission to the Department of Food, Environment and Rural Affairs (DEFRA), as is required by the Environment Act 1995 and regulations made there under.

Matters, which could have an impact upon air quality must be considered with a view to taking further action by way of monitoring and/or preparing air quality action plans.

Guidance issued by DEFRA advises as to those matters which should be considered as part of the progress report.

Waveney carried out a detailed assessment of air quality in 2004, which was submitted and approved in November 2004.

This detailed assessment concluded that there was no necessity to declare Air Quality Management Areas for any of the pollutants.

The modelling exercise undertaken as part of this assessment predicted some possible exceedences of NO<sub>2</sub> and likely exceedences of PM<sub>10</sub> in the future.

It will be necessary to undertake further monitoring of NO<sub>2</sub> by diffusion tubes in certain locations and to undertake traffic surveys with particular attention being given to queuing and congestion, after the opening of the South Lowestoft Relief Road (SLRR).

## **2 Introduction**

The previous air quality assessment undertaken in Waveney, in November 2004 indicated;

- The risk of the UK objective for annual average NO<sub>2</sub> in 2005 being exceeded was at most ***possible*** (with probability between 20% and 50%) at all receptor locations.
- The risk of the EU Limit Value for annual average NO<sub>2</sub> in 2010 being exceeded was at most ***possible*** (with probability between 20% and 50%) at all receptor locations.
- The risk of the UK objective for hourly NO<sub>2</sub> in 2005, and of the EU Limit Value for hourly NO<sub>2</sub> in 2010, being exceeded was at most ***unlikely*** (with probability between 5% and 20%) at all receptor locations.
- The annual average concentrations of PM<sub>10</sub> in 2004 would be well below the annual objective for PM<sub>10</sub> in 2004 at all of the locations modelled.
- It is at most ***unlikely*** (with probability between 5% and 20%) that an exceedance of the daily objective for PM<sub>10</sub> in 2004 would occur at either junction.
- It was predicted to be ***likely*** that the annual mean objective for PM<sub>10</sub> in 2010 would be exceeded at two junctions. Furthermore, the number of days in which

daily mean PM<sub>10</sub> exceeded 50 µg/m<sup>3</sup> in 2010 was predicted to exceed 7 at locations in the vicinity of both junctions.

Guidance issued by DEFRA advises as to the appropriate issues to consider in undertaking a progress report. Local Authorities are required to have regard to this guidance when undertaking the review.

The only pollutant monitoring undertaken by Waveney District Council at the moment is for nitrogen dioxide. This is undertaken by way of passive diffusion tubes.

Other matters to consider in the progress report are any new roads, industrial processes or other developments that could have an impact on air quality.

The detailed assessment indicated that of the seven substances for which air quality objectives have been established (see section 3), the main pollutants of concern are NO<sub>2</sub> and particulate matter (PM<sub>10</sub>).

As a result, further monitoring will be undertaken (by diffusion tubes for NO<sub>2</sub>) in certain locations. Traffic flow will be monitored as part of the South Lowestoft Relief Road (SLRR) scheme with particular attention being given to queuing and congestion.

### 3. Air Quality Objectives

<u>Pollutant</u>	<u>Air Quality Objective</u>	<u>Measured As</u>	<u>Compliance Date</u>
<b>Benzene</b>	16.25 µg/m <sup>3</sup>	Running Annual Mean	31.12.2003
	5.0 µg/m <sup>3</sup>	Annual Mean	31.12.2010
<b>1,3-butadiene</b>	2.25 µg/m <sup>3</sup>	Running Annual Mean	31.12.2003
<b>Carbon Monoxide</b>	10 mg/m <sup>3</sup>	Maximum Daily Running 8-hour mean	31.12.2003
<b>Lead</b>	0.5 µg/m <sup>3</sup>	Annual Mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual Mean	31.12.2008
<b>Nitrogen Dioxide</b>	200 µg/m <sup>3</sup> not to be exceeded more than 18 times per year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual Mean	31.12.2005
<b>Particulates (PM<sub>10</sub>)</b>	50µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40µg/m <sup>3</sup>	Annual mean	31.12.2004
<b>Sulphur Dioxide</b>	350µg/m <sup>3</sup> not to be exceeded more than 24 times per year	1-hour mean	31.12.2004
	125µg/m <sup>3</sup> not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/m <sup>3</sup> not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## **4. Monitoring Results**

The only pollutant currently monitored in Waveney is nitrogen dioxide.

Nitrogen dioxide (NO<sub>2</sub>) levels are monitored using passive diffusion tubes supplied and analysed by Harwell Scientifics, a UKAS accredited laboratory.

Tubes are exposed for one-month periods, and the average monthly NO<sub>2</sub> level is determined.

Results are attached at appendix 1.

The primary cause of nitrogen dioxide emissions is from vehicle exhausts, and therefore high NO<sub>2</sub> levels will most likely occur adjacent to major traffic routes and at busy junctions.

Previously, sites have been set up as background, intermediate and roadside locations. However, since April 2005 two new locations have been added to the five existing.

The diffusion tubes are located at the following grid references –

Golden Court	652272 292960
Saltwater Way	652137 292751
Flying Dutchmans	651853 292106
Pier Terrace	654724 292658
Ilk St Andrew	638444 286237
Tesco Roundabout	653458 295959
Fir Lane Roundabout	653187 293727

With the exception of the tube in Ilketshall St. Andrew, all are in sensitive locations in respect of traffic emissions from the A12, A146 and the B1074.

There are three “Locations of Concern” in Waveney approaching the National Objective Limits where Levels of NO<sub>2</sub> of >36 µg/m<sup>3</sup> but <40 µg/m<sup>3</sup> have been measured. (Flying Dutchman, Pier Terrace & Golden Court).

## **5. New Local Developments**

There is a major development under way at the quayside to the southern edge of Lake Lothing. This entails the relocation of a large maritime engineering yard out of the area, while the site is redeveloped for retail use.

The A12 is being diverted to the west of its current route for a length of approximately 4 miles south of the harbour bridge. This will take the main through-traffic away from the urban centres, with improved flows and altered priorities at junctions. This also has potential to alter significantly the traffic flow at the three locations of concern. The SLRR scheme includes proposals for a computerised Urban Traffic Management Control System. Discussions are continuing to determine the details and extent of this proposal. The effect of this will be to monitor traffic flow and control (and reduce) congestion at key locations (to be decided). The scheduled completion date for the SLRR scheme is November 2006.

Part of the new South Lowestoft Relief Road scheme will be fed by a new (already completed) road (the Carlton Colville by-pass), which will divert traffic from the A146. No planning applications have been determined, within the last year, which would have a major impact on air quality objectives.

No known landfill sites or quarries have been developed since the previous review.

In conclusion the only known developments with the potential to have a significant impact are likely to have a beneficial effect on air quality.

## **6. Proposed Developments**

Developments outside of the Authority's district could also have an impact upon air quality. The only major development of this nature at present is the Gt Yarmouth outer harbour scheme. This is at a very early stage of discussion at present. There is insufficient detail to gauge the likely effects on air quality in Waveney at present.

In conclusion, there may be future developments that could impact upon air quality, and these issues will be addressed when such applications are made.

## **7. Local Air Quality Strategies**

In the absence of any exceedences of the air quality objectives, Waveney District Council currently has no local air quality strategies.

Further monitoring of NO<sub>2</sub> concentrations in the aforementioned locations will continue to be undertaken. The results of this, together with the results of traffic monitoring will indicate the effects of the SLRR scheme on the future compliance with air quality objectives.

## **8. Air Quality Planning Policy**

Section 4.14 of the Waveney District Council Interim Local Plan (May 2004) states the Council's commitment to dealing with potential sources of pollution at the development control stage. The Council takes into account the effects on the wider community and the environment of emissions to air when assessing development proposals. Development causing pollution which could result in a material adverse effect on neighbouring pollution sensitive uses, wildlife sites or landscapes, will not be permitted. Conversely, pollution sensitive developments will not be permitted where they could be materially adversely affected by existing or potentially polluting uses in the immediate vicinity.

## **9. Implementation of Local Transport Plans/Strategies**

Waveney District Council is consulted on and contributes to, the Suffolk Local Transport Plan (SLTP) which is prepared by the County Council.

The SLTP issued in July 2000 covers the period up to 2006 and includes a target that the air quality objectives shall not be exceeded across the County. The Suffolk Air Quality Management

Group (comprising representatives from the County Council and all District Councils) has been established for this purpose.

Waveney Council works closely with the County Council, Town and Parish Councils and community groups in developing Local Transport Action Plans (LTAPs)

The 2005 Annual Progress Report on the SLTP highlights the need to deal with the locations of concern in Waveney by targeting the traffic control measures associated with the South Lowestoft Relief Road Scheme, which is due for completion of construction towards the end of 2006. This will result in some redistribution of traffic. The new measures will include the provision of an Urban Traffic Management Control system. The selected system (SCOOT) is sufficiently versatile to allow for the inclusion of “trigger” air quality monitors, which invoke a reaction to divert traffic away from the pollution sensitive areas.

Funding for the basic UTMC system has already been obtained, and it is suggested that a sum of £79,000 is sought from LTP funding for the installation of four air pollution monitors as an enhancement, to ensure that exceedences of the National Objectives are identified so that appropriate action may follow.

## **10. Conclusions**

The detailed assessment carried out in 2004 shows that there have been no exceedences of the air quality objectives.

There are significant developments in the Town Centre urban areas of Lowestoft which, it is anticipated, will have a significant beneficial effect on air quality.

Monitoring of NO<sub>2</sub> and traffic flow information is necessary to assess the effects on air quality of this development. Traffic counts prior to the completion date (November 2006) of the SLRR scheme would be of limited value.

Future developments, which could impact on air quality, will be identified through the planning process, and appropriate information and monitoring of air quality will be requested of developers.



# Appendix 1

## Diffusion Tube Results

# TEST REPORT

The samples have been analysed in accordance with Harwell Scientifics standard operating procedure HS/GWI/1015 issue 8. The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection.

This analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is within the scope of our UKAS schedule. Any further calculations and assessments requiring exposure details and conditions fall outside the scope of our accreditation. In the WASP intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, Harwell Scientifics is currently ranked as a **Category Good** laboratory.

The bias for this technique as compared to a chemiluminescence continuous monitor (Nitrogen Dioxide network field comparison by Health and Safety Laboratory) is currently estimated to be **0.73** as determined by the equation;

**Adjustment factor (A)=Direct measurement (Cm)/Diffusion tube (Dm)**

(Reference:DEFRA Technical guidance)

Signed

Andy Parish  
Analyst



Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total ug	ug m <sup>3</sup>	ppb	Comments
WAVEHA/04B/NB4S1	Golden Court	03/09/2004 11:55	10/10/2004 11:22	887.45	2.23	35.4	18.4	
WAVEHA/04B/NB4S2	Saltwater Way	03/09/2004 11:45	10/10/2004 11:15	887.50	1.74	27.7	14.4	
WAVEHA/04B/NC1S1	Ilkeshall St Mary	07/09/2004 10:45	10/10/2004 10:44	791.98	0.61	10.9	5.7	Tube NC1S1 Rec'd
WAVEHA/04B/NB4S4	Pier Terrace	03/09/2004 12:00	10/10/2004 11:30	887.50	2.46	39.1	20.3	
WAVEHA/04B/NB4S5								Missing

Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total ug	ug m <sup>3</sup>	ppb	Comments
WAVEHA/04B/NB6S1	Dutchmans Corner	05/11/2004 10:10	23/11/2004 13:30	435.33	2.01	65.1	33.8	Painter Removed From Lamppost
WAVEHA/04B/NB6S2	Ilk St Margarets	05/11/2004 12:30	01/12/2004 10:50	622.33	0.86	19.4	10.1	
WAVEHA/04B/NB6S3	Salt Water Way	05/11/2004 13:00	01/12/2004 11:20	622.33	1.56	35.4	18.4	
WAVEHA/04B/NB6S4	Golden Court	05/11/2004 13:10	01/12/2004 11:30	622.33	1.23	27.8	14.4	
WAVEHA/04B/NB6S5	Pier Terrace	05/11/2004 13:20	01/12/2004 11:40	622.33	2.55	57.7	30	

Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total ug	ug m <sup>3</sup>	ppb	Comments
WAVEHA/04B/NB8S1	Dutchman Court	18/01/2005 14:50	21/02/2005 11:15	812.42	2.73	47.3	24.6	
WAVEHA/04B/NB8S2	Ilk St Margarets	18/01/2005 13:50	21/02/2005 10:45	812.92	0.92	15.9	8.3	
WAVEHA/04B/NB8S3	Saltwater Way	18/01/2005 14:50	21/02/2005 11:20	812.50	2.14	37.2	19.3	
WAVEHA/04B/NB8S4	Golden Court	18/01/2005 14:45	21/02/2005 11:25	812.67	2.34	40.6	21.1	
WAVEHA/04B/NB8S5	Pier Terrace	18/01/2005 15:00	21/02/2005 11:35	812.58	3.09	53.6	27.9	

Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total ug	ug m <sup>3</sup>	ppb	Comments
WAVEHA/04B/NB9S1	Dutchman Court	21/02/2005 11:15	29/03/2005 15:10	867.92	2.44	39.6	20.6	
WAVEHA/04B/NB9S2	Ilk St Margaret	21/02/2005 10:45	29/03/2005 14:00	867.25	0.91	14.8	7.7	
WAVEHA/04B/NB9S3	Saltwater Way	21/02/2005 11:20	29/03/2005 14:45	867.42	2.45	39.8	20.7	
WAVEHA/04B/NB9S4	Golden Court	21/02/2005 11:25	29/03/2005 15:00	867.58	2.5	40.6	21.1	
WAVEHA/04B/NB9S5	Pier Terrace	21/02/2005 11:35	29/03/2005 15:25	867.83	2.97	48.2	25.1	