SOUTH KESTEVEN DISTRICT COUNCIL

your council working for you

Air Quality Action Plan 2016

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

South Kesteven District Council
Stamford • Grantham • Bourne • The Deepings

Index

1. Introduction

South Kesteven District Council is committed to working to improve the air quality in our district where levels of air pollutants are exceeding air quality objectives.

Air quality in South Kesteven is generally good. However, there are locations where pollutant levels are high, with the highest levels being along narrow, congested street canyons (roads with properties close to the road on either side of the street) in Grantham.

Monitoring has revealed that the annual mean air quality objectives for NO_2 are being exceeded at a number of locations in Grantham town centre, some of which were already declared as Air Quality Management Areas (AQMAs). In order to deal more effectively with these areas, in August 2013, the AQMA was extended and incorporated into one AQMA known as Air Quality Management Area (AQMA) No6.

This Air Quality Action Plan (AQAP) has been prepared and developed in partnership with other relevant bodies, particularly the Highways team of Lincolnshire County Council (LCC) and the relevant teams of South Kesteven District Council to incorporate localised engineered measures in the AQMA. Whilst relevant actions to improve air quality are presented in this report, current budget and funding constraints within councils must be considered alongside the effectiveness of each action, to enable the actions to be realistically achieved.

1.1 South Kesteven

The district of South Kesteven is very diverse, comprising principal towns of Grantham, Stamford Bourne and The Deepings surrounded by small rural villages and hamlets.

The main source of air pollution in the district is road traffic emissions from major roads, notably the A1, A52, A15 and A607. The district and surrounding areas are illustrated in Figure 1.

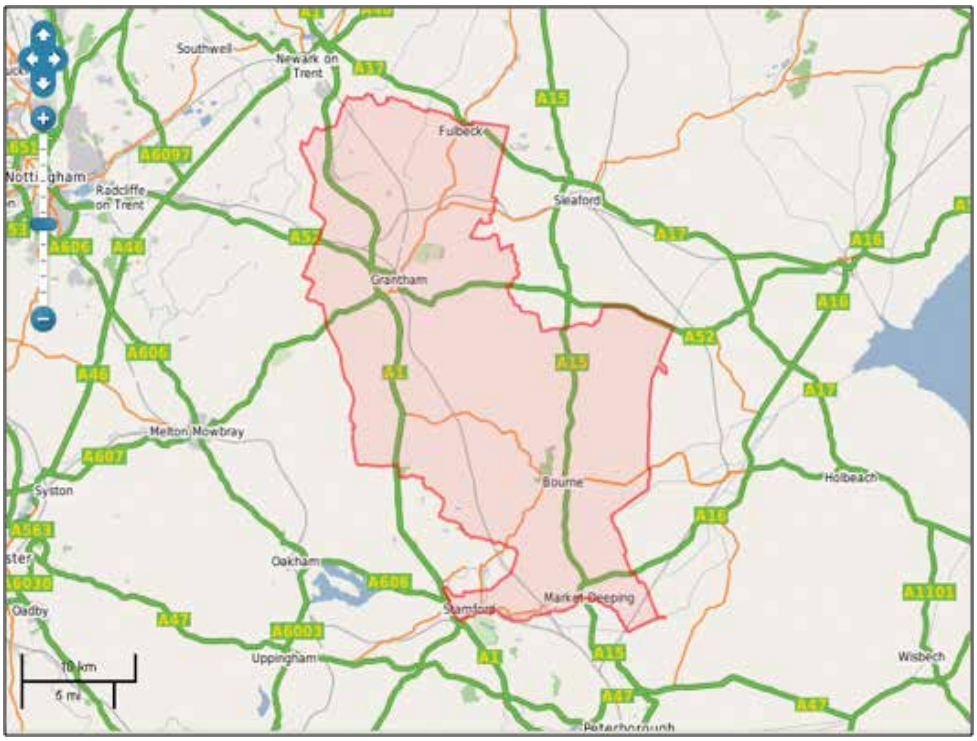


Figure 1 - South Kesteven District Council boundary and Surrounding Area

2.0 Overview of air quality

2.1 Grantham Air Quality Management Area

In 2013, the council declared an AQMA for the area encompassing the main roads in the town centre of Grantham. The AQMA is illustrated in Figure 2. A number of roads included within the AQMA are likely to lead to a “street canyon effect” due to the road and building layout, trapping and preventing the dispersion of air pollutant emissions from road-traffic, therefore explaining the high levels of pollution in these areas.

The 2011 Detailed / Further Assessment concluded that around 320 homes lie within the Grantham town centre AQMA, equating to an exposed population of around 650. The necessary reduction in annual mean NO_2 concentration required in order to achieve compliance with the Air Quality Standards objective at the worst case location was estimated to be around 30%.

Source apportionment indicated that emissions from local moving traffic are the main contributor to overall NO_2 levels, although idling emissions due to queuing vehicles are also particularly important near traffic lights. Heavy-Duty Vehicles (HDVs) were estimated to be a main source of pollution, although important contributions are also noted from Light-Duty Vehicles (LDVs).

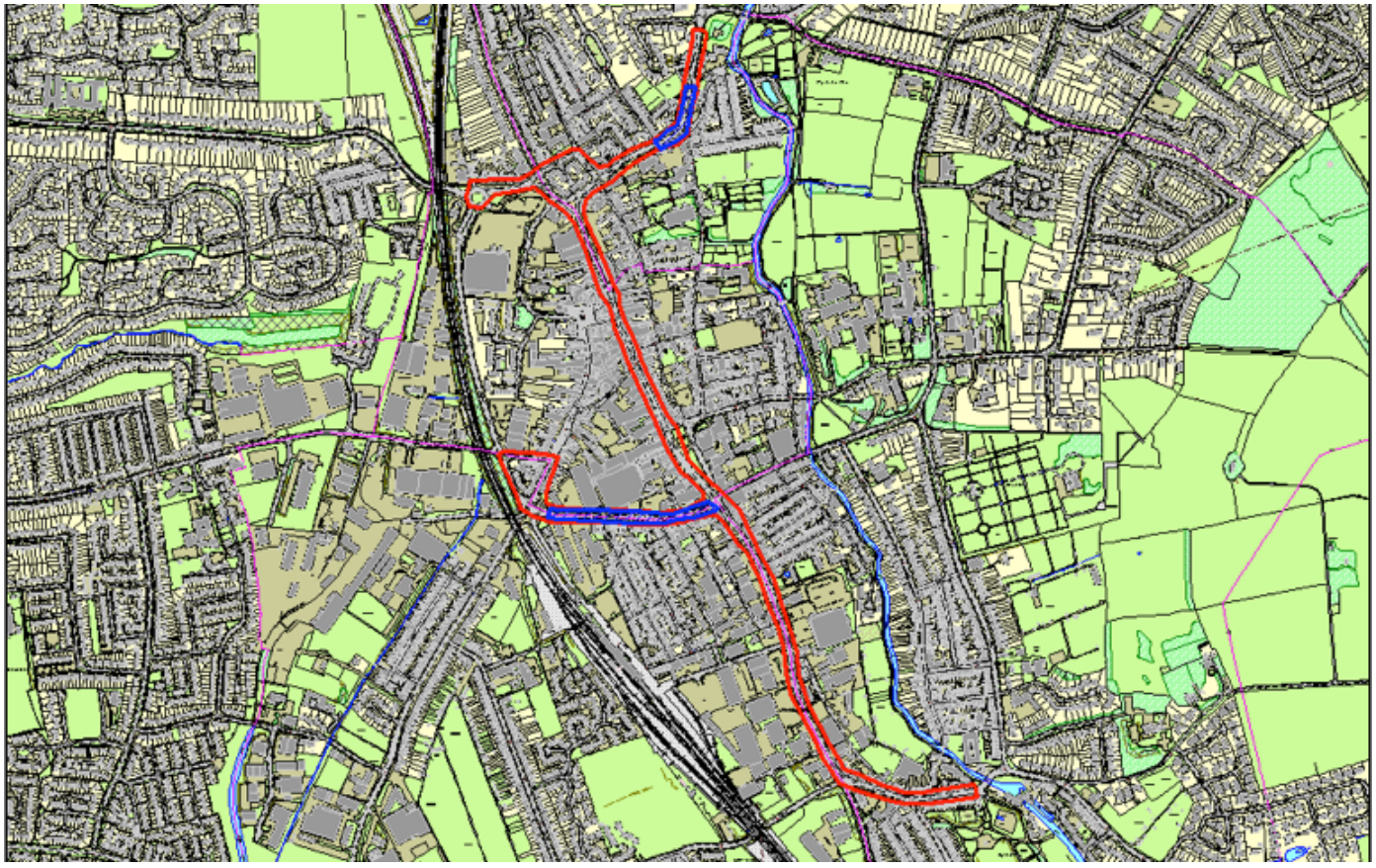


Figure 2 - Grantham Air Quality Management Area

In red, current AQMA boundary (declared in 2013). In blue, previous AQMA areas.

2.2 Monitoring data

In 2014, the council carried out passive NO_2 monitoring at 37 sites across the district using diffusion tubes. This included 15 duplicate tube and four triplicate tube locations, which are aimed at improving reliability of the data.
The monitoring data shows that three sites exceeded the annual mean NO_2 air quality strategy objective in 2014; at sites SK4/SK32/SK33 (Brook Street/Manthorpe Road), SK37/SK38 (Wharf Road) and SK59/SK60 (Brook Street/Manthorpe Road). All of these sites are located within the AQMA. NO_2 annual mean results at sites within the AQMA are shown in figure 3.
The number of sites showing an exceedence of the objective has decreased in the last few years, with 13 sites exceeding in 2010, 15 in 2011, 8 in 2012, 4 in 2013, and now only 3 in 2014.

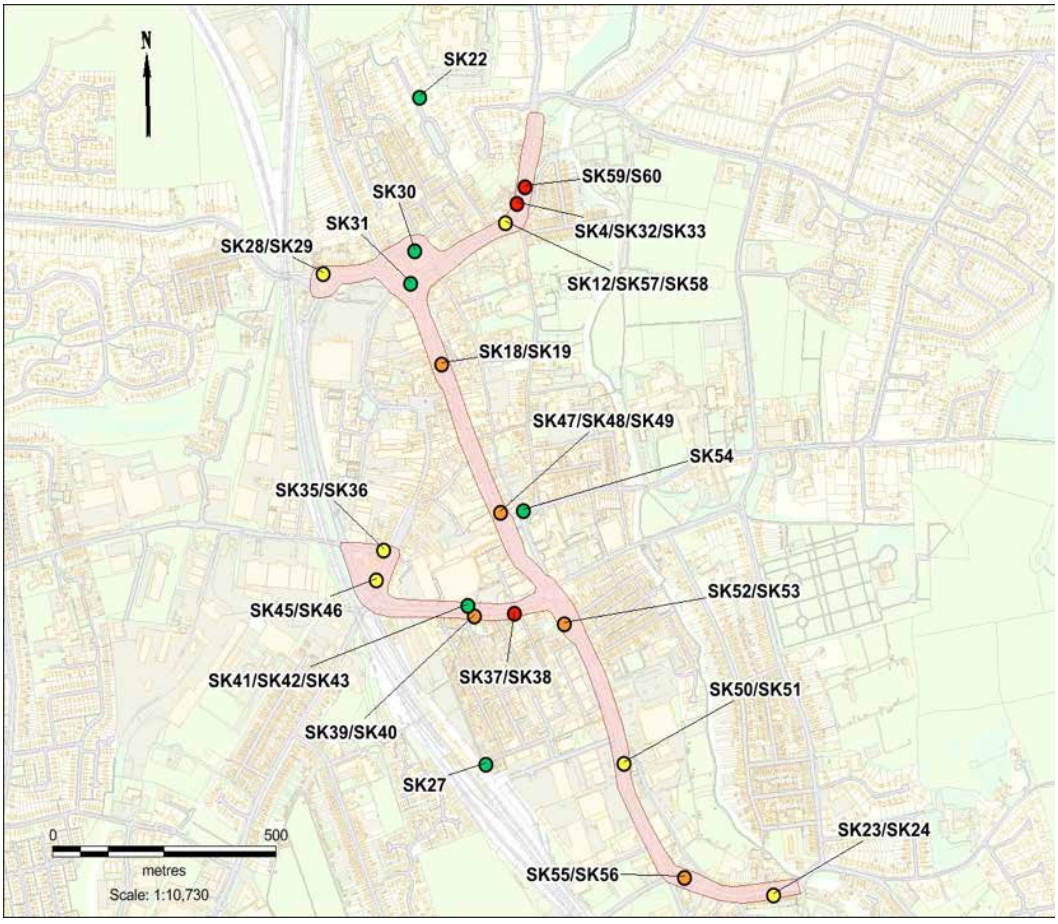


Figure 3 - Monitored NO2 Annual Mean (2014) in and around the AQMA

2.3 Source apportionment

A source apportionment study was carried out for the AQMA as part of the detailed/further assessment as required by the Governments Local Air Quality Management (LAQM) system. The source apportionment study has been updated as part of the development of this AQAP, using a 2014 base model. NOx source apportionment results for the baseline 2014 dispersion modelling scenario are discussed below.

The source apportionment was carried out for the following vehicle classes:

- Cars;
- Light-Goods Vehicles (LGVs);
- Buses; and
- Heavy-Goods Vehicles (HGVs).

Table 1 and Figure 4 present source apportionment results for NOx for three different selections of the modelled receptors:

- Average across all modelled receptors. This provides useful information when considering possible AQAP measures to test and adopt. It will however understate road NOx concentrations in problem areas;

- Average across all receptors with NO_2 concentration greater than 40μg/m3. This provides an indication of source apportionment in areas known to be a problem (i.e. only where the AQS objective is exceeded). As such, this information should be considered with more scrutiny when testing and adopting AQAP measures; and

- At receptor with maximum road NOx concentration. This is likely to be in the area of most concern and so a good place to test and adopt AQAP measures. Any gains predicted by AQAP measures are likely to be greatest at this location and so would not represent gains across the whole modelled area.

When considering the average NOx concentration across all modelled receptors, road traffic accounts for 23.3μg/m3 (46.1%) of total NOx (44.6μg/m3). Of this total average NOx, cars account for the most (24.4%) of any of the vehicle types on average, followed by HGVs (10.2%). LGVs and buses account on average for 6.8% and 4.8% respectively of the overall predicted average NOx concentration.

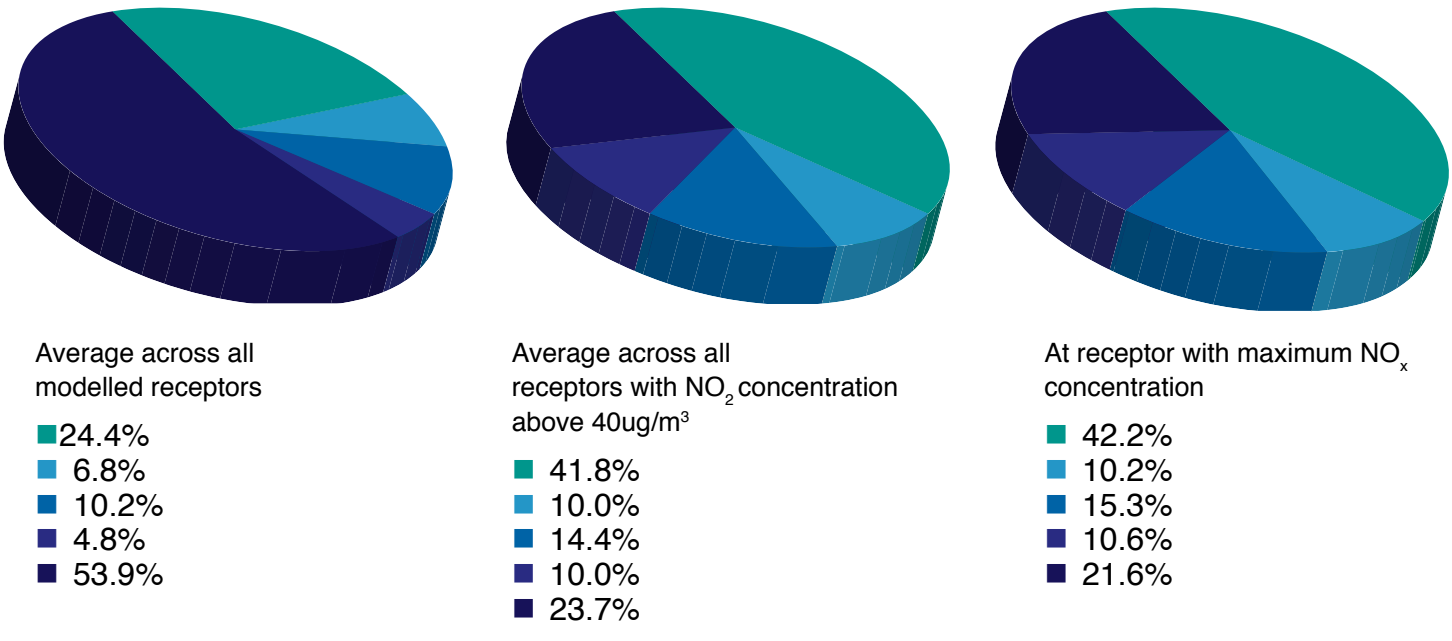
When considering the average NOx concentration at receptors with an NO_2 concentration greater than 40μg/m3, road traffic contribution is much higher, accounting for 70.0μg/m3 (76.2%) of total NOx (91.6μg/m3). Of this 91.6μg/m3, cars account for the most (41.8%) of any of the vehicle types, followed by HGVs (14.4%) then LGVs and buses (both 10%).

At the receptor with the maximum road NOx concentration (99.9μg/m3, predicted at receptor R22 along the A607 Manthorpe Road within the AQMA), road traffic accounts for 78.3% of the overall NOx. The contribution of vehicle types remains the same as discussed above, with cars accounting for 42.2% of the overall predicted NOx concentration, followed by HGVs (15.3%), buses and LGVs (both slightly above 10%).

Table 1 - NOx source apportionment results

Results	All Vehicles	Car	LGV	HGV	Bus	Background
Average across all modelled receptors						
NOx Concentration (μg/m3)	23.3	12.2	3.4	5.2	2.5	21.3
Percentage	46.1%	24.4%	6.8%	10.2%	4.8%	53.9%
Percentage road contribution	100.0%	52.9%	14.8%	22.1%	10.4%	-
Average across all receptors with NO_2 concentration greater than 40μg/m3						
NOx concentration (μg/m3)	70.0	38.3	9.2	13.3	9.2	21.6
Percentage	76.2%	41.8%	10.0%	14.4%	10.0%	23.7%
Percentage road contribution	100.0%	54.9%	13.1%	18.9%	13.1%	-
At receptor with maximum road NOx concentration (Receptor R22 – A607 Manthorpe Road)						
NOx concentration (μg/m3)	78.3	42.2	10.2	15.3	10.6	21.6
Percentage	78.3%	42.2%	10.2%	15.3%	10.6%	21.6%
Percentage road contribution	100.0%	53.9%	13.0%	19.5%	13.5%	-

Figure 4 - NOx source apportionment results



2.4 Required reductions in NOx and NO_2

In order to inform a decision on the most suitable measures to implement as part of the AQAP, it is necessary to calculate the reduction of NO_2 (as NOx) that would be required in order to comply with the AQS objectives. The assessment is based on predicted concentration at the worst-case receptor as reported in Table 1 (R22, along the A607 Manthorpe Road, within the AQMA). This approach assumes that other receptors will require less of a reduction.

The methodology to determine the required reduction in NOx and NO_2 is described in the DEFRA Technical Guidance, LAQM. TG(09) Section 7.21. For NOx, it requires the calculation of "current" and "required" road-NOx concentrations.

The road-NOx required within the AQMA to comply with the NO_2 AQS objective is 54.9μg/m3. As the maximum predicted road-NOx in the AQMA is 78.3μg/m3 (at receptor R22, as shown in Table 1), the reduction in road-NOx concentration necessary to meet the NO^2 objective is (78.3 - 54.9) = 23.5μg/m3. This is equivalent to a reduction of 30% in road-NOx concentrations. This equates to a reduction of 8.6μg/m3 in NO_2 (equivalent to a reduction of 18% in total NO_2 concentration) to comply with the objective.

3 Local policies and strategies

There are a number of related policies and strategies at local and regional level that link directly with the aims of the AQAP. The majority of these policies and strategies are focused on transportation issues, and therefore are likely to help contribute to overall improvements in air quality across the district. Their implementation is likely to bring benefits to air quality in Grantham, particularly in the AQMA through targeting congestion within Grantham. These include:

- South Kesteven Core Strategy
- Lincolnshire Transport Plan
- Transport Strategy for Grantham
- South Kesteven Local Plan (currently being prepared for up to 2036)

4 Action Plan proposals

A summary of the measures considered for the AQAP is outlined in the following pages, including the likely impact, timescales and feasibility of these proposals. In order to inform the action planning process, a simple assessment of the cost and benefit of each proposal has been undertaken.

Table 2 provides an indication of the scoring used. A simple multiplication of the cost and impact gives some indication as to the cost effective score of the proposals. All measures, together with associated cost-effectiveness, prioritisation and targets / indicators to track their progress are listed in Table 3.

Table 2 - Scoring used to assess and prioritise proposals

Cost	
Score	Approximate cost
7	<100k
6	100-500k
5	500k-1million
4	1-10 million
3	10-50 million
2	50-100 million
1	>100million

Air Quality Impact	
Score	Indicative Reduction in NO2 Concentration
7	>5 μg/m3
6	2 – 5 μg/m3
5	1 – 2 μg/m3
4	0.5 – 1 μg/m3
3	0.2 – 0.5 μg/m3
2	0 - 0.2 μg/m3
1	0 μg/m3

Timescale	
	Years
Short (s) ↓ Medium (M) ↓ Long (L)	1.2 ↓ 3.5 ↓ 6+

Feasibility of implementation/funding Score: 1›››10

- One being the least feasible and 10 being the most feasible; and
- Feasibility requires consideration of feasibility for implementation and funding.

Cost effective score = cost score × air quality impact score

Prioritisation score = cost effective score + feasibility score

Based upon an initial shortlist of preferred AQAP measures that may adopted, quantitative appraisal using dispersion modelling was undertaken for the following intervention scenarios:

- Adoption of the Grantham Southern Quadrant Relief Road (M1);
- Improving traffic management at key junctions, leading to reduced congestion and therefore increased vehicle speeds by 10% to 20% in and around the AQMA (M2) and
- Renewal of the local bus fleet to meet Euro VI emission standards (M3).

The predicted NO2 annual mean concentrations obtained for these scenarios were compared against the 2014 base scenario results to ascertain the likely air quality improvements that may be expected as a result of adoption of these intervention measures.

The key headline findings following the implementation of the above intervention measures are included in the relevant sections set out below.

4.1 Transport measures

Road-traffic emissions contribute to about 75% of total NOx concentrations within the Grantham AQMA. Therefore, in essence, poor air quality in the AQMA can be tackled by reducing traffic volumes, smoothing the flow of traffic (to reduce the stopping / acceleration cycle), removing the most polluting vehicles and increasing modal shift

(thus reducing car usage within the AQMA).

What are we already doing?

"The Transport Strategy for Grantham 2007 to 2021 and Beyond" is in place and short term aims are being delivered by LCC, such as;

- improvements to local public transport services
- walking and cycling reviews and improvements
- town centre traffic management

The South Kesteven District Council Taxi Licensing Policy requires that an application for a new hackney carriage or private hire vehicle licence will not be accepted if the vehicle is seven years old or more. Existing vehicles continue to be licensed until they reach the age of 10 years (12 years for purpose built vehicles) as long as the vehicle passes the compliance tests at the required times.

The feasibility of six measures related to transport have been considered for inclusion in the AQAP;

MEASURE M1: GRANTHAM SOUTHERN QUADRANT EAST-WEST RELIEF ROAD

The relief road is expected to alleviate the existing and future traffic related problems resulting from significant approved development.

The relief road has been subject to a full planning application involving a detailed Environmental Impact Assessment (EIA)[2] and received conditional planning consent in November 2013. Work on the Relief Road started at the end of 2015 and is anticipated to be completed in 2019.

The potential air quality improvements that may arise due to the completion of the relief road have been quantitatively appraised as part of the dispersion modelling studies associated with the development of this AQAP.
This measure would slightly reduce NO_2 annual mean concentrations across Grantham town centre and within the AQMA. The average reduction would be 0.4μg/m3 across all receptors considered, although improvements would be more significant within the AQMA, with a maximum reduction of 3μg/m3 predicted along the A52 at Bridge End Road.

MEASURE M2: IMPROVE TRAFFIC MANAGEMENT AT KEY JUNCTIONS

The pollution problem in the AQMA is partly due to slow moving traffic, which results from a number of factors such as queuing at the traffic lights, large traffic volumes particularly during peak hours and road capacity taken by parked vehicles. It is anticipated that improving the flow of vehicles in the AQMA and moving the queuing traffic to areas where there is no relevant exposure is likely to have a benefit upon air quality within the AQMA.

Urban Traffic Management and Control (UTMC) is instigated by Department for Transport (DfT) to implement Intelligent Transport Systems (ITS) in urban areas to tackle traffic and air quality issues. A UTMC for Grantham AQMA could provide an overarching system to manage and control traffic in order to improve air quality.

The potential air quality improvements that may arise due to the implementation of an UTMC system in Grantham have been quantitatively appraised as part of the dispersion modelling studies associated with the development of this AQAP. Two scenarios have been considered; one where reduced congestion would increase vehicle speeds by 10% in and around the AQMA (M2a), and a second assuming that vehicle speeds would increase on average by 20% (M2b).

Results from scenario M2a (increasing vehicle speed by 10%) show that NO2 annual mean concentrations would slightly reduce across Grantham town centre and within the AQMA. The average reduction would be 0.4μg/m3 across

[2] *Grantham Southern Quadrant Link Road Environmental Statement (March 2013)*

all receptors, although improvements would be slightly more significant within the AQMA, with a maximum reduction of 1.2μg/m3 predicted along the A607 Manthorpe Road.

Results from scenario M2b (increasing vehicle speed by 20%) show that NO2 concentrations would further reduce, compared to scenario M2a. The average reduction would be 0.8μg/m3 across all receptors, although improvements would be slightly more significant within the AQMA, with a number of areas showing a reduction of about 2μg/m3, and a maximum reduction of 2.4μg/m3 predicted along the A607 Manthorpe Road.

In order to improve traffic flows in the AQMA, Lincolnshire County Council (LCC) Highways will identify and consider engineering traffic management solutions, such as; UTMC, changing traffic light sequencing to allow more free-moving traffic, the provision of increased road capacity, or rerouting traffic.

MEASURE M3: IMPROVEMENTS IN BUS FLEET EMISSIONS

Emissions from buses contribute on average 10% of the total NOx concentrations in the AQMA. LCC (Highways) will consider feasible changes in the bus fleet composition, to ensure buses passing through the AQMA are cleaner and meet the highest emissions standards. The options to be considered will be dependent on the current bus fleet and the improvements in Euro standards (European emission standards for new vehicles) that could be reasonably achievable. This could be implemented through a Quality Bus Partnership between LCC and bus operators. For example, the impact of swapping all Euro II buses to Euro VI buses or retrofitting Selective Catalytic Reduction (SCR) technology to existing buses could be considered and assessed.

The potential air quality improvements that may arise due to the renewal of the local bus fleet to meet Euro VI emission standards have been quantitatively appraised as part of the dispersion modelling studies associated with the development of this AQAP.

Results from scenario M3 show that NO_2 annual mean concentrations would reduce across Grantham town centre and within the AQMA.The average reduction would be 0.9μg/m3 across all receptors, although improvements would be more significant within the AQMA, with a maximum reduction of 4.3μg/m3 predicted along the A52 Wharf Road, and many other areas within the AQMA showing an improvement of 2μg/m3 or more.

MEASURE M4: ENCOURAGING MODAL SHIFT

Encouraging Grantham town centre visitors and school children to use different modes of transport to cars will improve local air quality, including within the AQMA. Working with LCC, we will consider the potential for encouraging modal shift from private car to public transport, cycling and walking, particularly in the town centre. This could be achieved by using improved parking control, or developing alternative travel plans for town centre residents, such as Sustran's Personalised Travel Planning (PTP) project, known as TravelSmart. This PTP aims at reversing the trend towards increased car use and tackling its impacts on climate, public health and quality of life. TravelSmart has succeeded in reducing car use by 10% or more wherever it has operated.

MEASURE M5: REDUCTION IN IDLING OF TRAFFIC

Emissions from idling vehicles can contribute significantly to overall air pollution in Grantham town centre. This is even more important in areas of poor air quality, such as the AQMA.
In implementing this measure we will consider the following options:

- Providing 'No Idling' signage in the town centre as a deterrent; and / or
- Implementing an awareness campaign targeting bus and taxi operators, explaining the issues related to idling vehicles, and how it has

an impact on air quality within the town centre, including the AQMA.

MEASURE M6: PROVISION OF CYCLING INFRASTRUCTURE

The council will work with LCC to improve the infrastructure for cycling in the town, including opportunities for cycle lanes and promotion of alternative "green" modes of transport within Grantham town centre.

4.2 Leading by example measures

A key part of the council's role is to lead by example to reduce NOx and PM10 emissions associated with our own council buildings and transport fleet.

What are we already doing?

Our Carbon Management Plan sets out the acknowledged areas of opportunity to reduce our own emissions, for example we have;

- Reduced the number of business miles travelled by staff in cars
- Provided staff facilities for secure cycle storage and changing
- Introduced a Cycle to Work scheme
- Undertaken staff awareness
- Encourage staff to walk to local appointments within the AQMA
- Carry out regular emissions testing of our own vehicle fleet

To minimise and control air pollution generated by the council's vehicle fleet and employees, the council also consider the following additional measures should be included in the AQAP;

MEASURE M7: A ROLLING PROGRAMME FOR REPLACING OLDER MORE POLLUTING VEHICLES WITH NEWER CLEANER VEHICLES, WHICH MEET TIGHT EMISSION STANDARDS

The council will work to improve emissions from the council's vehicle fleet by implementing a replacement programme for older vehicles, so that the fleet gradually meets the most stringent Euro standards.

MEASURE M8: PROMOTE THE USE OF CLEANER OR ALTERNATIVE FUELS WHERE POSSIBLE

Where practicable the council will work to improve emissions from our own vehicle fleet by increasing the number of greener / low emissions vehicles using alternative fuels.

MEASURE M9: INVESTIGATE OPTIONS FOR BETTER TRAVEL PLANNING AMONGST THE COUNCIL'S EMPLOYEES

Working with LCC, the council will aim to reduce vehicle pollution from staff travelling to and from work. Additional benefits involve cost savings and a healthier workforce, although it is acknowledged that this can be challenging due to factors such as reluctance to give up car, the lack of cycling facilities and safety concerns, which need to be overcome.

4.3 Measures which raise awareness in our communities

By providing information and raising awareness about air pollution we can help our residents make informed choices and ensure that they adhere to legal requirements. We are well placed to work in partnership with others to encourage improvements in areas not within our direct control.

What are we already doing?

To ensure that air pollution is controlled by legislation and enforcement is targeted, we use our statutory powers to ensure residents and businesses are aware of their legal obligations, for example, we;

[1] *http://www.sustrans.org.uk/what-we-do/travelsmart*

- Inspect and permit industrial premises under the Environmental Permitting process
- Enforce legislation to reduce the burning of commercial and domestic waste
- Ensure that Smoke Control Area Orders are adhered to
- Monitor air pollution in the district and provide information for residents via our website.
- Comment on planning applications and development policies to ensure that air quality issues are considered and mitigation measures are included wherever possible

To ensure that members of the public have access to information about air pollution and can make informed choices we also consider the following additional measures should be included in the AQAP;

MEASURE M10: PROMOTION OF WALKING, CYCLING AND PUBLIC TRANSPORT

Working with LCC, the council will promote the use of alternative green modes of transports, such as walking and cycling, within Grantham town centre. Promotion will include schools in and around the AQMA where large coaches are used to transport pupils. This can cause congestion during pick up and drop off times. Idling coaches can also add a significant contribution to local pollution concentrations.

4.4 Measures considered but dismissed on the grounds of cost-effectiveness and/or feasibility

As part of preliminary discussions held during the development of this AQAP, the following measures were initially considered but dismissed on the grounds of cost-effectiveness and/or feasibility. For completeness, they are briefly discussed below.

FREIGHT CONSOLIDATION CENTRE

The feasibility of a Freight Consolidation Centre (FCC) was investigated. An FCC would aim to consolidate small loads and consignments into smaller number of full loads, thus reducing HGV traffic in the Grantham AQMA. Low emission vehicles could be selected to deliver these full loads.

The main feasibility issues of the scheme are the capital cost required in setting up the FCC, and the operating costs associated with its running. In addition, organisational and customer service issues could have a negative impact on local businesses and local economy. Therefore this potential measure has been dismissed and not considered further.

PROVISION OF "REAL TIME" AIR QUALITY INFORMATION

The possibility of implementing a system providing real-time air pollution information to members of the public, to enable commuters to make informed choices about their transport options was considered.
However, following a more detailed review of what such system would entail, it has been concluded that the overall costs of the system would outweigh the advantages, whilst other potential issues include data lagging and instrument break down. Therefore this potential measure has been dismissed and not considered further.

COMPULSORY PURCHASE OF PROPERTIES WITHIN THE AQMA

A change of use from residential to occupational (excluding school, hospital, or similar land use sensitive to air quality) would effectively remove the status of a location where the NO2 annual mean air quality objective applies, which means that the Grantham AQMA could then be revoked. The possibility of using Compulsory Purchase Orders to purchase the dwellings within the AQMA was discussed.

However, the Grantham AQMA is presently too large to consider compulsory purchase and this option would not be feasible. It would also not address the underlying air pollution problem. Therefore this potential measure has been dismissed and not considered further.

Table 3 - Summary and prioritisation of Action Plan measures to be implemented

	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Transport measures										
Measure 1: Grantham Southern Relief Road (East West Relief Road)	Complete relief road	LCC	M	Work on site commenced end 2015	4	4	16	10	160	Reduced HGV through traffic in the town centre – reduced overall traffic flows through the town
Measure 2: Improve traffic management at key junctions	Identify where traffic can be stacked out of the town. Implement signalling to allow flow of traffic	LCC	M	Design and feasibility stage	5	5	25	6	150	Reduced congestion and increased average speeds through the AQMA
Measure 3: Improvement in bus fleet emissions	Work with bus companies to upgrade buses	LCC and bus companies	M	partially implemented	5	5	25	4	100	Improved bus fleet composition but no direct traffic reduction. Bus use more attractive to potential users – increased bus use
Measure 4: Encouraging modal shift	Work with LCC and Sustrans to encourage a modal shift	SKDC/ LCC	L	Design and feasibility stage and some already built	3	6	18	6	108	Reduced vehicle use and increased use of public transport
Measure 5: Reduction in idling of traffic	Implement signage and education	SKDC/ LCC	S	Feasibility stage	2	7	14	5	70	Reduced idling in key areas
Measure 6: Provision of cycling infrastructure	Increased provision of cycle lanes in town centre	LCC	M	Design and feasibility stage and some already built'	3	6	18	5	90	Increased number of cycle lanes makes cycling a more attractive alternative method of transport

	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Leading by example measures										
Measure 7: A rolling programme for replacing older more polluting vehicles with newer cleaner vehicles, which comply with the prevailing EURO standard	Replace old vehicles with new cleaner vehicles	SKDC	M	Feasibility stage	2	7	14	8	112	Improve average euro class of the whole council owned fleet
Measure 8: Promote the use of cleaner or alternative fuels where possible	Consider alternative fuels for council fleet	SKDC	S	Feasibility stage	2	7	14	8	112	Introduce new electric or hybrid vehicles to the council fleet
Measure 9: Investigate options for better travel planning amongst South Kesteven District Council employees	Develop workplace travel plan	SKDC	S	Feasibility stage	2	7	14	8	112	Reduce number of council staff driving to work
Measures to raise awareness in our communities										
Measure 10: Promotion of walking cycling and public transport	Meet with LCC and Sustrans to discuss issues	LCC/ SKDC	S	Implemented	2	7	14	7	98	Increased public awareness of air quality issues and ultimate shift to less polluting forms of transport. Increased uptake of bicycle use and walking Removal of existing road traffic from the road network and minimisation of that introduced by new schemes. Provison of Cyle route maps

	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score (Cost Effective Score * Feasibility Score)	Targets/Indicators
Measures considered but dismissed on the grounds of cost-effectiveness and/or feasibility										
Freight Consolidation Centre	Investigate feasibility for FCC	SKDC	L	Dismissed	-	-	-	-	-	-
Provide public with 'real time' air quality information	Set up a website or twitter account to provide real-time air quality information	SKDC	M	Dismissed	-	-	-	-	-	-
Compulsory purchase of properties	Using CPO to purchase residential properties within the AQMA, therefore removing public exposure	SKDC	L	Dismissed	-	-	-	-	-	-

5 Implementation and monitoring

South Kesteven District Council will work jointly on the AQAP measures with the relevant partners in LCC, transport operators, schools and local businesses. To secure the necessary air quality improvements, there must be involvement by all local stakeholders who should actively work to encourage community participation in the process.

The implementation of the AQAP will be monitored and progress reported on a yearly basis. The effectiveness of the implemented measures will be measured through monitoring of NO_2 concentrations at relevant receptor locations within the AQMA. In addition, traffic flow changes in the AQMA will also be assessed through the review and assessment process.

Further evaluation of the effectiveness of the implementation of the AQAP may include the undertaking of periodic short-term traffic surveys, or longer term automated counts, that consider average or peak queue lengths near specific problem junctions, average vehicle speeds, fleet composition profiles and total traffic volumes as proxies for potential reductions in pollutant emissions from road traffic and associated improvements in local air quality.

There will be regular review and assessment of the AQAP proposals to evaluate progress and this will be reported in the annual LAQM reports, as required by the LAQM system.

Abbreviation	Full name / description
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
FCC	Freight Consolidation Centre
HDV	Heavy-Duty Vehicle (HGV / bus / coach)
HGV	Heavy-Goods Vehicle
LAQM	Local Air Quality Management
LAQM.TG(09)	LAQM Technical Guidance, published by Defra in 2009
LCC	Lincolnshire County Council
LDV	Light-Duty Vehicle (LGV / Car)
LGV	Light-Goods Vehicle
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen (a collective term used to refer to two species of oxides of nitrogen: nitric oxide (NO) and nitrogen dioxide (NO_2), which are released in the atmosphere when fuels are burned).
PM10	Particles of up to 10μm
PTP	Personalised Travel Planning
SKDC	South Kesteven District Council
UTMC	Urban Traffic Management and Control
***µg*/m3**	Microgram (of pollutant) per cubic metre (of air)

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