www.defra.gov.uk

Air Quality Plan for the achievement of EU air quality limit values for nitrogen dioxide (NO_2) in North East (UK0036)

September 2011

Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR
Telephone 020 7238 6000
Website: www.defra.gov.uk

Information about this publication and further copies are available from:

Atmosphere and Local Environment Programme
Defra
Area 5F, Ergon House
17 Smith Square
London SW1P 3JR
Email address: *euairquality@defra.gsi.gov.uk*

This document is also available on the Defra website at:

http://uk-air.defra.gov.uk/library/no2ten/

Published by the Department for Environment, Food and Rural Affairs

Contents

1. Introduction

1.1. This document

This document is the North East (UK0036) air quality plan for the achievement of the EU air quality limit values for nitrogen dioxide (NO_2).

This plan presents the following information:

• General information regarding the North East non-agglomeration zone
• Details of NO_2 exceedence situation(s) within the North East non-agglomeration zone
• Details of local air quality measures that have been implemented, will be implemented or are being considered for implementation in this non-agglomeration zone.

This air quality plan for North East should be read in conjunction with the separate UK overview document and the list of UK and national measures that are available on the Defra website (http://www.defra.gov.uk/environment/quality/air/air-quality/eu/). The UK overview document sets out, amongst other things, the authorities responsible for delivering air quality improvements and the national measures that are applied in some or all UK zones. The measures presented in this plan and the accompanying UK overview and list of UK measures show how the UK will ensure that compliance with the NO_2 limit values is achieved as soon as possible.

This plan should also be read in conjunction with the supporting UK technical report (http://www.defra.gov.uk/environment/quality/air/air-quality/eu/), which presents information on assessment methods, input data and emissions inventories used in the analysis presented in this plan.

1.2. Context

Two NO_2 limit values for the protection of human health have been set in the Air Quality Directive (2008/50/EC). These are:

• The annual limit value: an annual mean concentration of no more than 40 μgm^{-3}
• The hourly limit value: no more than 18 hourly exceedances of 200 μgm^{-3} in a calendar year

The Air Quality Directive stipulates that compliance with the NO_2 limit values will be achieved by 01/01/2010. However, where the limit values cannot be achieved by then, the Directive also allows Member States to postpone this attainment date until 01/01/2015 provided air quality plans are established demonstrating how the limit values will be met by this extended deadline.

1.3. Zone status

The assessment undertaken for the North East non-agglomeration zone indicates that the annual limit value is likely to be exceeded in 2010 and in 2015 but achieved by 2020 through introduction of measures included in the baseline modelling, a low emission zone (LEZ) scenario (if applied) and the non-quantifiable local measures outlined in this plan.

The assessment undertaken for the North East non-agglomeration zone indicates that the hourly limit value not exceeded in this non-agglomeration zone in 2008.

1.4. Plan structure

General administrative information regarding this non-agglomeration zone is presented in section 2.

Section 3 then presents the overall picture with respect to NO_2 levels in this non-agglomeration zone for the 2008 reference year of this air quality plan. This includes the declaration of exceedance situations within the non-agglomeration zone and presentation of a detailed source apportionment for each exceedance situation.

An overview of the measures already taken and to be taken within the non-agglomeration zone both before and after 2010 is given in section 4.

Baseline modelled projections for 2010, 2015 and 2020 for each exceedance situation are presented in section 5. The baseline projections presented here include, where possible, the impact of measures that have already been taken and measures for which the relevant authority has made a firm commitment to take the measure(s). However, it has not been possible to quantify the impact of all measures. This section therefore also explains which measures have been quantified, and hence included in the model projections, and which measures have not been quantified.

Details of an LEZ scenario under consideration as part of our investigation of additional measures to achieve the NO_2 limit values is presented in section 6.

2. General Information about the Zone

2.1. Administrative information

Zone name: North East
Zone code: UK0036
Type of zone: non-agglomeration zone
Reference year: 2008
Extent of zone: Figure 1 shows the area covered by the North East non-agglomeration zone

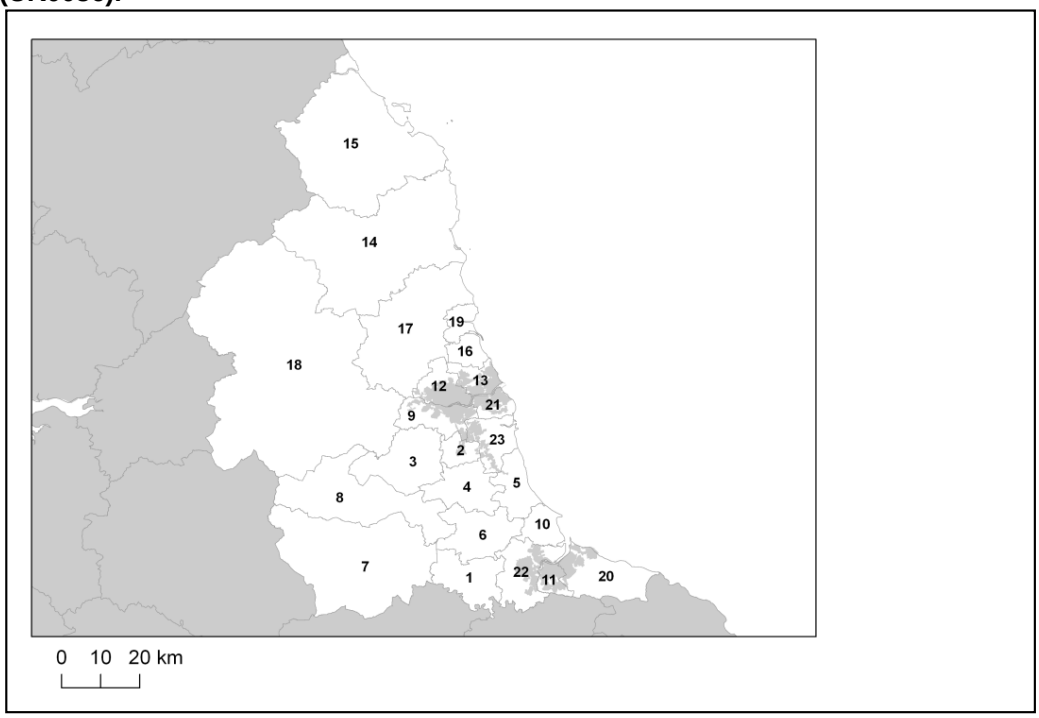
Local Authorities within the non-agglomeration zone: Figure 2 shows the location of Local Authorities within the non-agglomeration zone. A list of these Local Authorities is also given below. The numbers in this list correspond to the numbers in Figure 2.

1. Darlington Borough Council
Durham County Council (formerly 2. Chester-le-Street District Council, 3. Derwentside District Council, 4. Durham District Council, 5. Easington District Council, 6. Sedgefield District Council, 7. Teesdale District Council and 8. Wear Valley District Council)
9. Gateshead Metropolitan Borough Council
10. Hartlepool Borough Council
11. Middlesbrough Council
12. Newcastle upon Tyne City Council
13. North Tyneside Metropolitan Borough Council
Northumberland County Council (formerly 14. Alnwick District Council, 15. Berwick-upon-Tweed District Council, 16. Blyth Valley District Council, 17. Castle Morpeth District Council, 18. Tynedale District Council and 19. Wansbeck District Council)
20. Redcar and Cleveland Borough Council
21. South Tyneside Metropolitan Borough Council
22. Stockton-on-Tees Borough Council
23. Sunderland City Council

(Note: Local Authority boundaries do not necessarily coincide with zone boundaries. Hence Local Authorities may be listed within more than one zone plan.)

Figure 1. Map showing the extent of the North East non-agglomeration zone (UK0036).

Figure 2. Map showing Local Authorities within the North East non-agglomeration zone (UK0036).



2.2. Assessment details

Measurements
NO_2 measurements in this zone were available in 2008 from the following national network monitoring stations (NO_2 data capture for each station in 2008 shown in brackets):

• Stockton-on-Tees Yarm GB0734A (65.2%)
• Sunderland Silksworth GB0863A (96.3%)

Full details of monitoring stations within the North East non-agglomeration zone are available from http://uk-air.defra.gov.uk/networks/network-info?view=aurn.

Modelling
Modelling for the 2008 reference year has been carried out for the whole of the UK (see the UK technical report). This modelling covers the following extent within this zone:

• Total background area within zone (approx): 8439 km^2
• Total population within zone (approx): 1489985 people
• Total road length where an assessment of NO_2 concentrations have been made: 289.3 km in 2008 (and similar lengths in previous years).

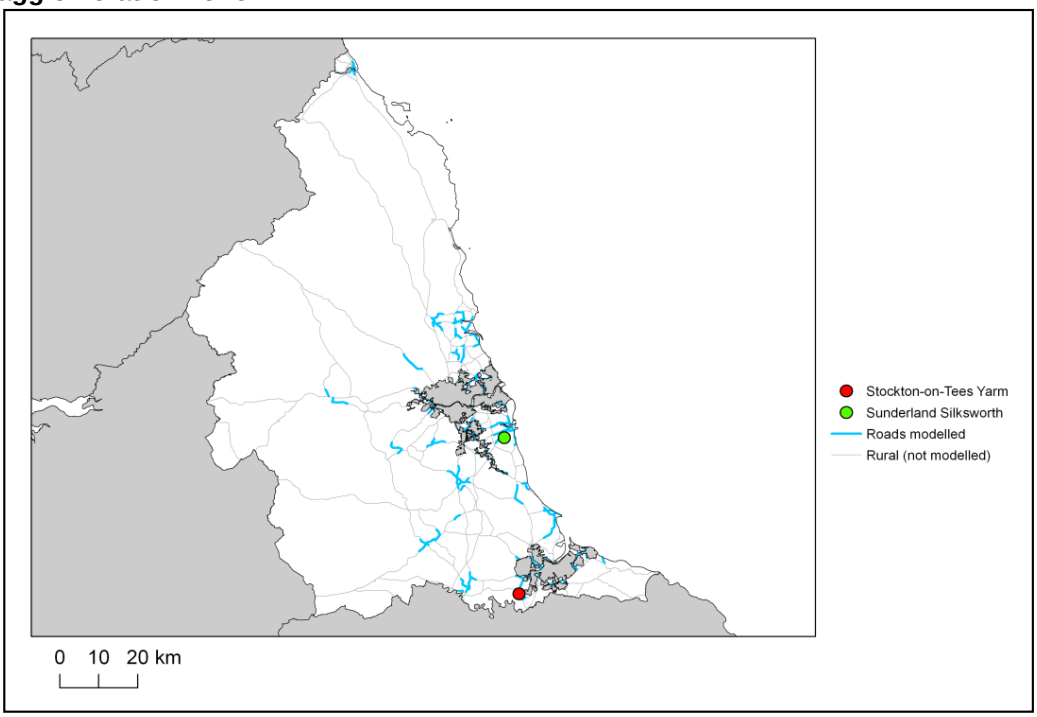
Zone maps
Figure 3 presents the location of the NO_2 monitoring stations within this zone for 2008 and the roads for which NO_2 concentrations have been modelled. NO_2 concentrations at background locations have been modelled across the entire zone at a 1 x 1 km^2 resolution.

2.3. Reporting Under European Directives

Since 2001 the UK has reported annually on air quality concentrations using a standard excel questionnaire (Decision 2004/461/EC). These questionnaires are available online from http://cdr.eionet.europa.eu/gb/eu/annualair

In addition, the UK has reported on air quality plans and programmes (Decision 2004/224/EC) on an annual basis depending on the reported concentrations in the previous year. Plans and programmes were first reported in this zone in 2004. Plans and programmes for 2004 and all other years for which they have been required are available from http://cdr.eionet.europa.eu/gb/eu/aqpp.

Figure 3. Map showing the location of the NO_2 monitoring sites with valid data in 2008 and roads where concentrations have been modelled within the North East (UK0036) non-agglomeration zone.



3. Overall Picture for 2008 reference year

3.1. Introduction

There are two limit values for the protection of health for NO_2. These are:

- The annual limit value (annual mean concentration of no more than 40 μgm^{-3})
- The hourly limit value (no more than 18 hourly exceedances of 200 μgm^{-3} in a calendar year)

Within the North East non-agglomeration zone only the annual limit value was exceeded in 2008. Hence, one exceedance situation for this zone has been defined, NO_2_UK0036_Annual_1, which covers the exceedance of the annual limit value. This exceedance situation is described below.

For both NO_2 limit values, a margin of tolerance for 2008 and other years has been defined in the Air Quality Directive (2008/50/EC). Data comparing assessed concentrations at locations within this non-agglomeration zone with the 2008 margin of tolerance are presented in the annual reporting questionnaire for 2008 (http://cdr.eionet.europa.eu/gb/eu/annualair).

3.2. Reference year: NO_2_UK0036_Annual_1

The NO_2_UK0036_Annual_1 exceedance situation covers all exceedances of the annual mean limit value in the North East non-agglomeration zone in 2008.

Compliance with the annual limit value in this exceedance situation has been assessed using a combination of air quality measurements and modelling. Table 1 presents measured annual mean concentrations at national network stations in this exceedance situation since the 1st Daughter Directive (1999/30/EC) came into force in 2001. This shows that there were no measured exceedances of the annual limit value in this zone in 2008. Table 2 summarises modelled annual mean NO_2 results in this exceedance situation for the same time period. This table shows that, in 2008, 52.7 km of road length was modelled to exceed the annual limit value. There were no modelled background exceedances of this limit value. Table 2 also shows that the maximum modelled annual mean NO_2 concentration in 2008 was 82.8 μgm^{-3}. Maps showing the modelled annual mean NO_2 concentrations for 2008 at background and at roadside locations are presented in Figures 4 and 5 respectively. All modelled exceedances of the annual limit value are coloured orange or red in these maps.

The maximum measured concentration in the zone varies due to changes emissions and varying meteorology in different years. However, the models are also updated each year to take into account the most up-to-date science, so the modelled results for different years may not be directly comparable.

The modelling carried out for this exceedance situation has also been used to determine the annual mean NO_X source apportionment for all modelled locations, along with an indicative annual mean NO_2 source apportionment. Table 3 presents summary source apportionment information in this exceedance situation for 2008, including:

- The modelled NO_X and indicative NO_2 source apportionment for the section of road with the highest modelled NO_2 concentration in this exceedance situation in 2008. This is important information because it shows which sources need to be tackled at the point with the largest compliance gap in the exceedance situation. It is not possible to calculate an unambiguous source apportionment for annual mean NO_2 concentrations for the reasons discussed in the UK Technical Report. We have, however, developed a method to provide an indicative source apportionment for annual mean NO_2 concentrations for these air quality plans. This method involves calculating the maximum and minimum possible contribution from each source to the NO_2 concentration. The final source apportionment has been calculated as the average of the minimum and maximum contributions for each source, with the results normalised so that the contributions sum to the total modelled NO_2 concentration. Further information on the methods used for source apportionment are provided in the UK Technical Report.

• The maximum NO_X contribution from each source from across all the roads included in this exceedance situation in 2008. This is important information because it highlights all the key sources that need to be tackled within the exceedance situation in order to achieve compliance across the entire area of the exceedance situation.

Figure A1.1 in Annex 1 presents the annual mean NO_X source apportionment for each section of road within the NO_2_UK0036_Annual_1 exceedance situation (i.e. the source apportionment for all exceeding roads only) in 2008. Roads have been grouped into motorways, trunk roads and primary road in this figure.

Table 1. Measured annual mean concentrations at national network stations in NO_2_UK0036_Annual_1 for 2001 onwards, μgm^{-3}. (Data capture shown in brackets) (a)

Site name (EOI code)	2001	2002	2003	2004	2005	2006	2007	2008	2009
Stockton-on-Tees Eaglescliffe (GB0956A)									18 (86%)
Stockton-on-Tees Yarm (GB0734A)	40 (99%)	39 (97%)	43 (89%)	37 (99%)	34 (99%)	38 (99%)	39 (99%)	34 (65%)	
Sunderland Silksworth (GB0863A)				17 (6%)	16 (93%)	18 (91%)	15 (88%)	14 (96%)	15 (70%)

(a) Annual Mean Limit Value = 40 μgm^{-3}

Table 2. Annual mean NO_2 model results in NO_2_UK0036_Annual_1 for 2001 onwards

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Road length exceeding (km)	31.4	6.6	122.3	77.2	70.9	75.0	68.4	52.7	57.8
Background area exceeding (km^2)	3	0	0	0	0	0	0	0	0
Maximum modelled concentration (μgm^{-3}) (a)	50.2	58.9	88.5	73.8	80.5	79.4	76.9	82.8	77.0

(a) Annual Mean Limit Value = 40 μgm^{-3}

Table 3. Source apportionment summary information for 2008 in NO_2_UK0036_Annual_1 (μgm^{-3}).

Spatial scale	Component	Highest road link (a)		Maximum (b)
		NOx	NO2 (d)	NOx
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	5.8	(c)	
	From within the UK	2.9	(c)	4.1
	From transboundary sources (includes shipping and other EU Member States)	2.9	(c)	3.3
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	27.3	13.3	-
	From road traffic sources	16.4	6.5	26.2
	From industry (including heat and power generation)	4.4	(c)	25.7
	From agriculture	0.0	(c)	0.0
	From commercial/residential sources	3.6	(c)	8.3
	From shipping	0.0	(c)	2.3
	From off road mobile machinery	2.6	(c)	10.7
	From natural sources	0.0	(c)	0.0
	From transboundary sources	0.0	(c)	0.0
	From other urban background sources	0.3	(c)	2.2
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	173.4	69.5	-
	From cars	50.1	19.3	51.0
	From HGV rigid	44.6	17.5	44.6
	From HGV articulated	51.5	20.1	62.8
	From Buses	5.4	2.2	56.4
	From LGVs	21.6	10.4	21.6
	From motorcycles	0.2	0.1	0.3
Total (i.e. regional background + urban background + local components)		206.5	82.8	-

(a) The road with the highest modelled annual mean NO_2 concentration in this exceedance situation in 2008 is a section of the A1, traffic count point id 36656 (OS grid (m): 420200, 562510).
(b) This column gives the maximum contribution for each component from all the roads included in the exceedence situation.
(c) The combined modelled annual mean NO_2 concentration contribution for these components is 6.8 μgm^{-3}. A more detailed NO_2 source apportionment is currently unavailable for these sectors.
(d) Source apportionment for NO_2 is indicative, see UK Technical Report.

Figure 4. Map of modelled background annual mean NO_2 concentrations 2008. Modelled exceedances of the annual limit value are shown in orange and red.

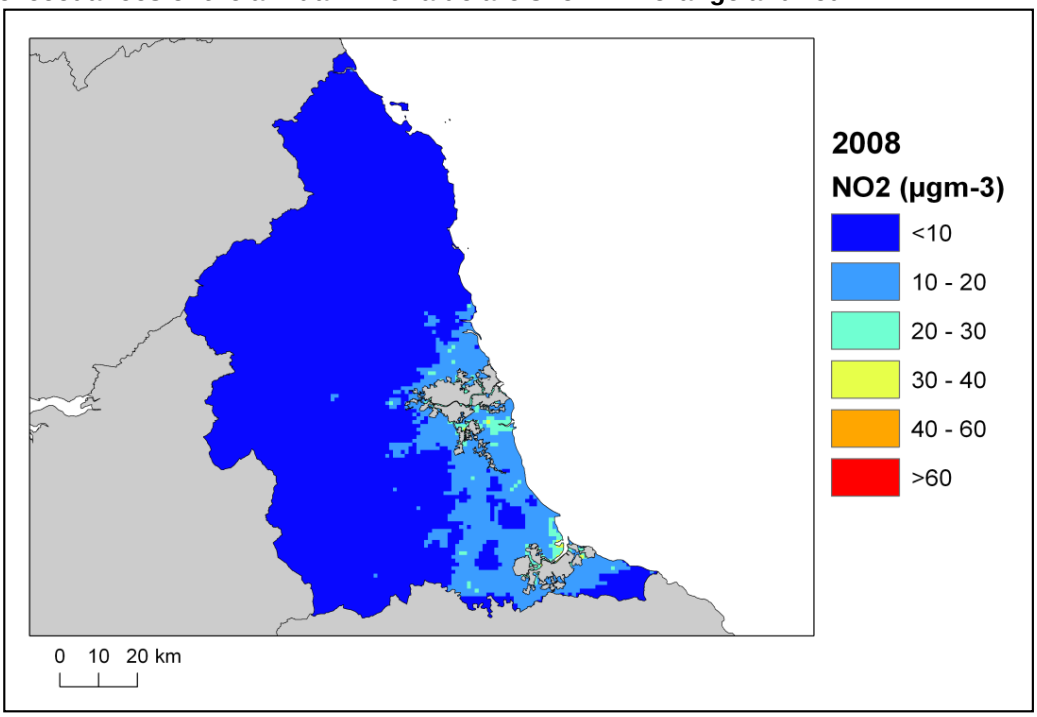
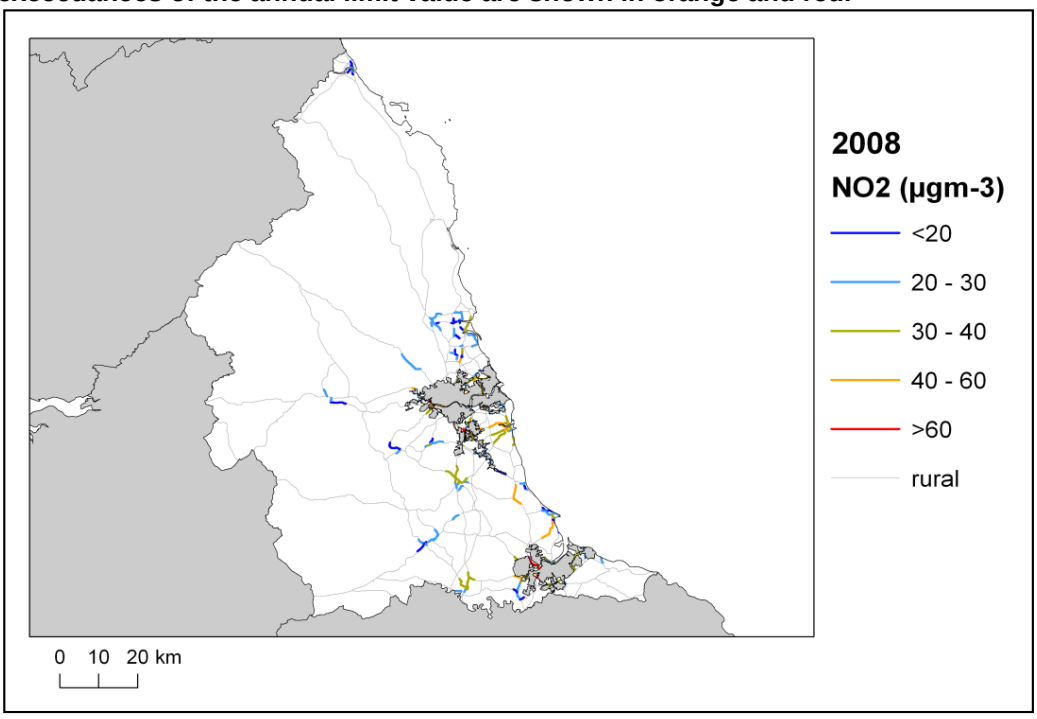


Figure 5. Map of modelled roadside annual mean NO_2 concentrations 2008. Modelled exceedances of the annual limit value are shown in orange and red.



4. Measures

4.1. Introduction

This section (section 4) gives details of measures that address exceedances of the NO_2 limit values within North East non-agglomeration zone. This includes both measures that have already been taken and measures for which there is a firm commitment that they will be taken.

Section 5 then explains the extent to which it has been possible to incorporate the impacts of these measures into the baseline modelling carried out for this assessment.

4.2. Source apportionment

It is important to understand which sources are responsible for causing the exceedance in order to most effectively tailor measures to address the NO_2 exceedance situation(s) described in section 3 above. This can be achieved by considering the source apportionment for the exceedance situation, also presented in section 3. A summary of what the source apportionment shows and the implications for which measures would therefore be appropriate is given here.

Local road traffic was the dominant source in this exceedance location in the reference year. The largest contribution was from articulated HGVs and cars contributing about 25% each of total NO_X on some of the roads with the highest concentrations. Articulated HGVs and cars were important sources on the motorway roads with the highest concentrations in this exceedance situation. Articulated HGVs, cars and Rigid HGVs were important sources on the trunk roads with the highest concentrations. Cars and rigid HGVs and on some roads buses or articulated HGVs were important sources on the primary roads with the highest concentrations.

This indicates that appropriate measures should impact on local road traffic sources in this zone. Other measures may also be beneficial depending on the source apportionment for the urban background.

4.3. Measures

Measures potentially affecting NO_2 in this non-agglomeration zone have been taken and/or are planned at a range of administrative levels. These are:

- European Union
- National (i.e. England, Scotland, Wales, Northern Ireland or whole UK)
- Local (i.e. UK Local Authorities)

Details of European Union measures (e.g. euro standards, fuel quality directives, integrated pollution prevention and control) can be found on the European Commission's website (http://ec.europa.eu/environment/air/index_en.htm). Details of national measures are given in the UK overview document and list of UK and National measures.

Relevant Local Authority measures within this exceedance situation are listed in Table A2.1 (see Annex 2). Relevant Local Authority measures are considered to be those measures which directly target, or are in close geographical proximity to roads and/or background grid squares in exceedance of one or other of the NO_2 limit values. Other Local Authority measures may also have been taken in this zone, but they are not listed in this table. All the measures listed in Table A2.1 have been carried out, are in the process of being carried out or a firm commitment had been made to carry them out on the timetables listed at the point at which information on local measures was collected.

4.4. Measures timescales

Timescales for national measures are given in the UK overview document and list of UK and National measures.

Information on local measures was collected in autumn 2009. Hence, any Local Authority action plans and measures adopted by Local Authorities after this time have not been included in this air quality plan. Many of the measures listed in Annex 2 will either have happened before autumn 2009 or have been planned for implementation before or during 2010. Others will be planned for after 2010. It should be noted that many of the measures taken before or during 2010 will continue to have a beneficial impact on air quality after the end of 2010.

Local Authorities report on progress with the implementation of their action plans annually and review action plan measures regularly. Where future Local Authority measures to improve air quality are under consideration these would be included in future local authority action plans and published by the local authority.

5. Baseline Model Projections

5.1. Overview of model projections

Baseline projections for 2010
Model projections for 2010, starting from the 2008 reference year described in section 3, have been calculated in order to determine whether compliance with the NO_2 limit values is likely to be achieved for each exceedance situation by the original deadline for compliance of 01/01/2010. Details of the methods used for the baseline emissions and concentration projections modelling are provided in the the UK technical report.

For national measures, it has not been possible to quantify the impact of all measures on emissions and ambient concentrations. The impact for all quantifiable measures has been included in the baseline projections.

The impacts of the individual Local Authority measures have not been explicitly included in the baseline model projections. However, measures may have been included implicitly if they have influenced the traffic counts for 2007 (used as a basis for the compilation of the emission inventory) or in the traffic activity projections to 2010 and beyond (used to calculate the emission projections). It should be recognised that these measures will have a beneficial impact on air quality, even if it has not been possible to quantify this impact here.

A number of the local measures in Table A2.1 can be considered to be 'smarter choices' measures (see http://www.dft.gov.uk/pgr/sustainable/smarterchoices/ctwwt/ for a detailed description of this type of measure). We have quantified the impact of this group of measures on a national scale within the projections. Details of how this has been done can be found in the UK technical report. Table A2.1 indicates which local measures we have considered to be 'smarter choices'.

Baseline projections for 2015
Model projections for 2015, starting from the 2008 reference year described above, have been calculated in order to determine whether compliance with the NO_2 limit values is likely to be achieved for each exceedance situation by the revised deadline for compliance of 01/01/2015 on the basis of EU-wide measures and the measures currently planned. This modelling is described in detail in the UK technical report. Many of the measures listed in annex 2 of this document and the supporting list of UK and national measures will continue or will continue to have an impact beyond the original deadline for compliance of 01/01/2010.

5.2. Baseline projections: NO_2_UK0036_Annual_1

Table 4 presents summary results for the baseline model projections for 2010, 2015 and 2020 for the NO_2_UK0036_Annual_1 exceedance situation. This shows that the maximum modelled annual mean NO_2 concentration predicted for 2010 in this exceedance situation is 70.4 μgm^{-3}. By 2015, the maximum modelled annual mean NO_2 concentration is predicted to drop to 45.9 μgm^{-3}. Hence, the model results suggest that compliance with the NO_2 annual limit value is unlikely to be achieved by 2015 under baseline conditions in this exceedance situation.

The projected modelled NO_X and indicative NO_2 annual mean source apportionments for 2010, 2015 and 2020 at the location with the biggest compliance gap in 2008 are presented in Table 5. The model results suggest that this location will continue to have the highest annual mean NO_2 concentration within this exceedance situation in 2010, 2015 and 2020.This source apportionment information is useful because it shows which sources need to be tackled at the point with the largest compliance gap in the exceedance situation.

Table 6 shows the maximum NO_X contribution from each source apportionment component from any road across the whole exceedance situation. This source apportionment information is useful because it highlights all the key sources that need to be tackled within the exceedance situation in order to achieve compliance across the entire area of the exceedance situation. It should be noted that this table only includes roads which continue to be in exceedance in the relevant year. Hence, for

example, the road with the largest contribution from cars in 2010 may no longer be included in the table in 2015 if the road is predicted to be compliant in 2015.

Figures 6 and 7 show maps of projected annual mean NO_2 concentrations in 2010, 2015 and 2020 at background and roadside locations respectively. Maps for 2008 are also presented here for reference.

It should be noted that the baseline projections presented here include the impacts of measures, where they can be quantified, that have already been or will be implemented.

Table 4. Annual mean NO_2 model results in NO_2_UK0036_Annual_1

	2008	2010	2015	2020
Road length exceeding (km)	52.7	30.0	5.0	0.0
Background area exceeding (km^2)	0	0	0	0
Maximum modelled concentration (μgm^{-3}) (a)	82.8	70.4	45.9	26.5

(a) Annual Mean Limit Value = 40 μgm^{-3}

Table 5. Modelled source apportionment for 2010, 2015 and 2020 under baseline conditions for traffic count point 36656 on the A1 (the road section with the maximum modelled annual mean NO_2 concentration in 2008 in NO_2_UK0036_Annual_1. OS grid (m): 420200, 562510). 2008 results are also presented here for reference (units: μgm^{-3}).

Spatial scale	Component	NOx				NO2 (indicative)			
		2008	2010	2015	2020	2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	5.8	5.1	4.4	3.6	(a)	(b)	(c)	(d)
	From within the UK	2.9	2.5	2.2	1.8	(a)	(b)	(c)	(d)
	From transboundary sources (includes shipping and other EU Member States)	2.9	2.6	2.2	1.8	(a)	(b)	(c)	(d)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	27.3	21.4	15.9	12.0	13.3	11.1	9.0	7.6
	From road traffic sources	16.4	11.3	7.5	4.4	6.5	6.1	5.6	5.4
	From industry (including heat and power generation)	4.4	3.9	3.7	3.5	(a)	(b)	(c)	(d)
	From agriculture	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From commercial/residential sources	3.6	3.6	3.2	3.0	(a)	(b)	(c)	(d)
	From shipping	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From off road mobile machinery	2.6	2.4	1.3	0.9	(a)	(b)	(c)	(d)
	From natural sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From transboundary sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From other urban background sources	0.3	0.2	0.2	0.2	(a)	(b)	(c)	(d)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	173.4	141.7	80.9	37.9	69.5	59.3	36.8	18.9
	From cars	50.1	33.7	23.2	15.4	19.3	14.0	10.7	7.7
	From HGV rigid	44.6	39.6	20.4	7.2	17.5	16.0	8.9	3.5
	From HGV articulated	51.5	44.9	22.6	7.4	20.1	18.0	9.8	3.5
	From Buses	5.4	4.8	2.8	1.3	2.2	2.0	1.3	0.6
	From LGVs	21.6	18.5	11.7	6.5	10.4	9.3	6.2	3.5
	From motorcycles	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Total (i.e. regional background + urban background + local components)		206.5	168.2	101.3	53.6	82.8	70.4	45.9	26.5

(a) The total annual mean NO_2 contribution for all components labelled (a) in 2008 was modelled to be 6.8 μgm^{-3}.
(b) The total annual mean NO_2 contribution for all components labelled (b) in 2010 is predicted to be 4.9 μgm^{-3}.
(c) The total annual mean NO_2 contribution for all components labelled (c) in 2015 is predicted to be 3.5 μgm^{-3}.
(d) The total annual mean NO_2 contribution for all components labelled (d) in 2020 is predicted to be 2.2 μgm^{-3}.

Table 6. The maximum NO_X contribution from each source from across all the roads included in the exceedance situation on which exceedances remain in 2010, 2015 and 2020 under baseline conditions. Zeros indicate that there are no exceedances in the relevant year.

Spatial scale	Component	NOx			
		2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	From within the UK	4.1	3.6	3.0	0.0
	From transboundary sources (includes shipping and other EU Member States)	3.3	2.9	2.3	0.0
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	From road traffic sources	26.2	19.7	10.7	0.0
	From industry (including heat and power generation)	25.7	11.6	9.2	0.0
	From agriculture	0.0	0.0	0.0	0.0
	From commercial/residential sources	8.3	6.9	3.7	0.0
	From shipping	2.3	2.2	0.6	0.0
	From off road mobile machinery	10.7	10.1	3.6	0.0
	From natural sources	0.0	0.0	0.0	0.0
	From transboundary sources	0.0	0.0	0.0	0.0
	From other urban background sources	2.2	1.7	1.3	0.0
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	From cars	51.0	34.2	23.6	0.0
	From HGV rigid	44.6	39.6	20.4	0.0
	From HGV articulated	62.8	54.7	27.6	0.0
	From Buses	56.4	50.5	2.8	0.0
	From LGVs	21.6	18.5	11.7	0.0
	From motorcycles	0.3	0.2	0.1	0.0

Figure 6. Background baseline projections of annual mean NO_2 concentrations in 2010, 2015 and 2020. 2008 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.

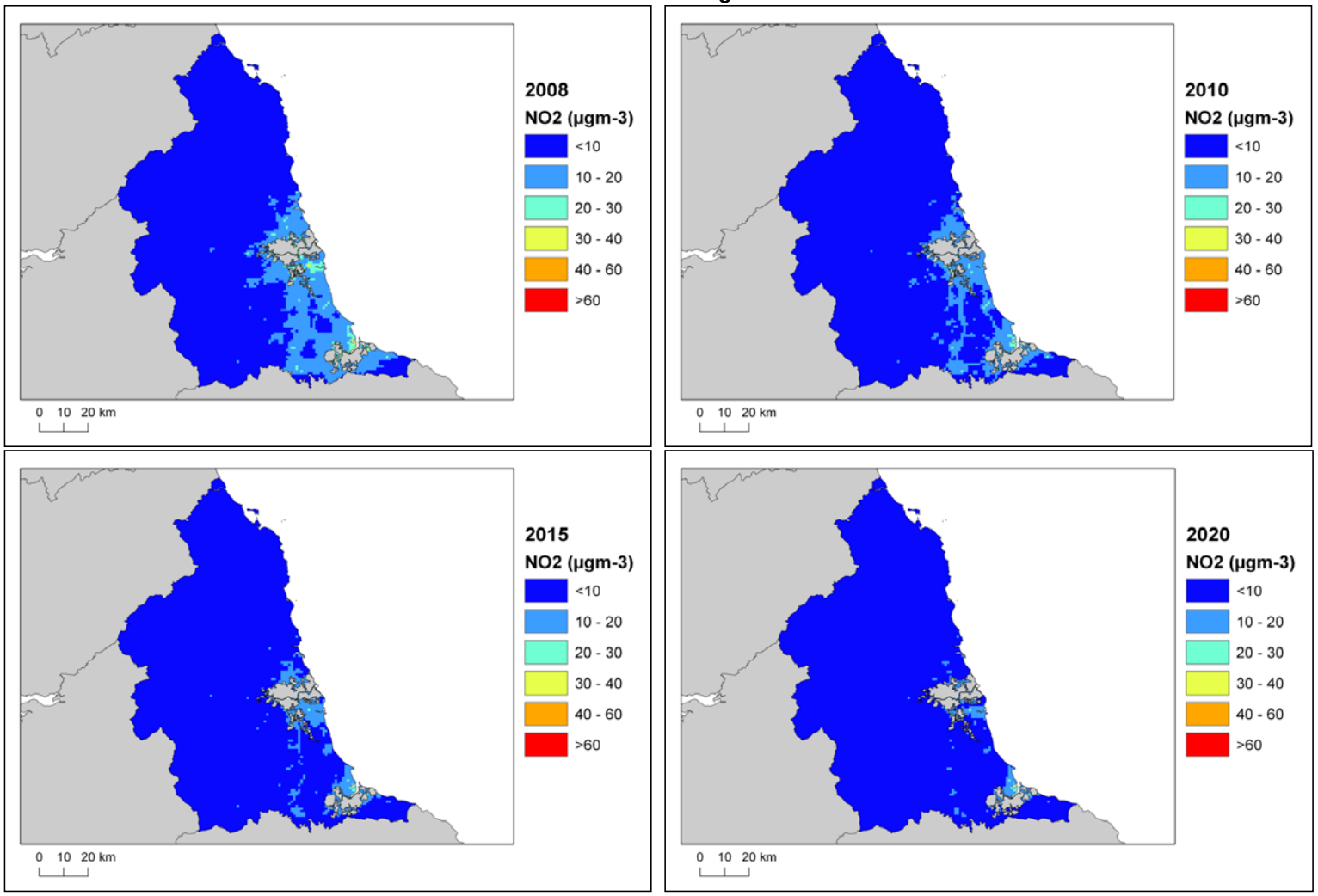
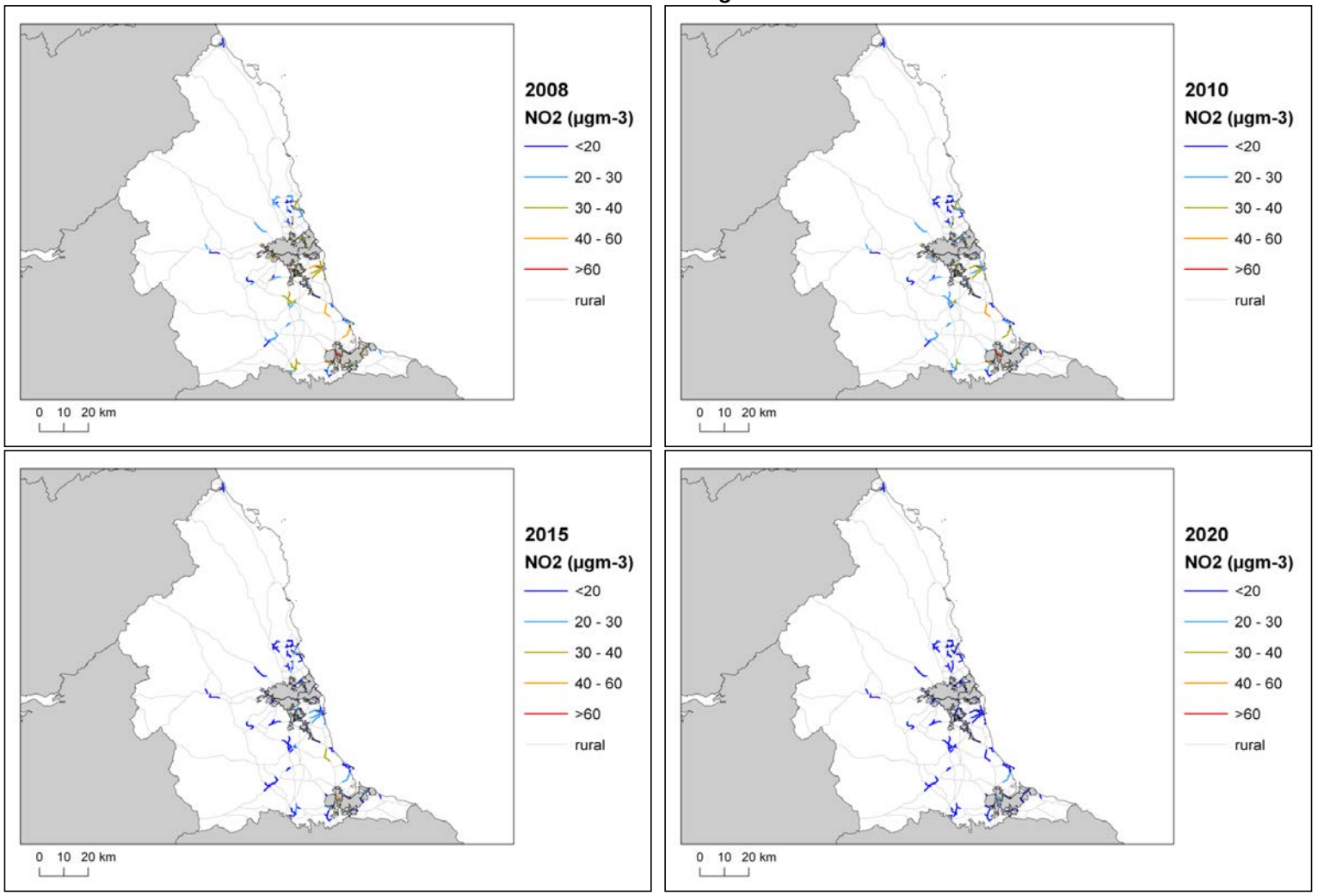


Figure 7. Roadside baseline projections of annual mean NO_2 concentrations in 2010, 2015 and 2020. 2008 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.



6. Projections including the impact of the low emissions zone (LEZ) scenario

6.1. Overview of model projections

Further model projections for 2015 and 2020 have also been calculated that include the impact of the LEZ scenario. This scenario is under consideration as part of our investigation of additional measures to achieve the NO_2 limit values. The scenario modelled here would require all HGVs and buses to meet at least Euro IV emission standards for NO_X and PM_{10} in 2015 in order to travel on roads other than the strategic long distance road network within the selected Local Authority boundaries. More details of the work underway to explore the feasibility and costs of a national LEZ framework are provided in the UK overview document and a description of the modelling assumptions included in the LEZ scenario is available in the UK technical report.

The LEZ scenario has been modelled for this zone because initial screening work indicated that, should it be applied, it would be effective at either reducing the gap to or achieving compliance with the limit value. The model results for these projections are presented in this section.

Further work is underway to investigate the feasibility and practicality of a national framework for LEZ as an additional measure to reduce concentrations of NO_2. These investigations include:

• the likely effectiveness of any scheme at controlling air pollutant emissions and delivering increased compliance with European air quality standards within the timescales specified by the EU Ambient Air Quality Directive;
• the effectiveness and reliability of available NO_X abatement equipment, taking into account evidence on the performance of Euro standards;
• the cost and resource such a measure might place upon national and/or local government;
• administrative and enforcement considerations for the scheme and the implications of this for Government Executive Agencies;
• the likely take-up of the scheme by local authorities and others;
• how any scheme would relate to ongoing certification work at EU and UNECE level.

These investigations will continue over the coming months and decisions will be made following the investigation as to whether or not it is feasible to introduce a national LEZ Framework and the details of any scheme. Should a local authority decide to introduce an LEZ, final decisions on the nature and extent of such a measure would be for the local authority to make taking into account local circumstances and any national arrangements put in place. These might not reflect what has been modelled in the scenario.

The LEZ scenario examines the impact of a LEZ applied within the selected local authorities listed in the supporting technical report. The local authorities relevant to this zone are

• Gateshead Metropolitan Borough Council
• Middlesbrough Council
• Newcastle upon Tyne City Council
• North Tyneside Metropolitan Borough Council
• Sunderland City Council

The impact of the LEZ scenario on projected NO_2 concentrations in 2015 will be greatest in these local authorities. There are also expected to be smaller benefits in other areas as a result of the changes to the national HGV fleets required to ensure LEZ compliance within the LEZ locations. The impact of these fleet changes on projected NO_2 concentrations in 2015 have been assessed in all zones for which the baseline projections do not show compliance with the annual mean limit value in 2015.

6.2. LEZ scenario projections: NO_2_UK0036_Annual_1

Table 7 presents summary results for the LEZ scenario model projections for 2015 and 2020 for the NO_2_UK0036_Annual_1 exceedance situation. This shows that the maximum modelled annual mean NO_2 concentration predicted for 2015 for the LEZ scenario in this exceedance situation is 44.6 μgm^{-3}. Hence, the model results suggest that compliance with the NO_2 annual limit value is unlikely to be achieved by 2015 for the LEZ scenario in this exceedance situation. The model results do, however, show that the NO_2 annual mean limit value is likely to be achieved in this exceedance situation in 2020, when the maximum modelled annual mean NO_2 concentration predicted to be 26.3 μgm^{-3}.

The projected modelled NO_X and indicative NO_2 annual mean source apportionments for 2010, 2015 and 2020 at the location with the biggest compliance gap in 2008 are presented in Table 8. The model results suggest that this location will continue to have the highest annual mean NO_2 concentration within this exceedance situation in 2010, 2015 and 2020. This source apportionment information is useful because it shows which sources need to be tackled at the point with the largest compliance gap in the exceedance situation.

Table 9 shows the maximum NO_X contribution from each source apportionment component from any road across the whole exceedance situation. This source apportionment information is useful because it highlights all the key sources that need to be tackled within the exceedance situation in order to achieve compliance across the entire area of the exceedance situation. It should be noted that this table only includes roads that continue to be in exceedance in the relevant year. Hence, for example, the road with the largest contribution from cars in 2010 may no longer be included in the table in 2015 if the road is predicted to be compliant in 2015.

Figures 8 and 9 show maps of projected annual mean NO_2 concentrations for the LEZ scenario in 2015 and 2020 at background and roadside locations respectively. Maps for 2008 and baseline projections for 2010 are also presented here for reference.

Table 7. Annual mean NO_2 model results in NO_2_UK0036_Annual_1. 2015 and 2020 results are for the LEZ scenario. Results for 2008 and baseline projections for 2010 are also shown

	2008	2010	2015	2020
Road length exceeding (km)	52.7	30.0	5.0	0.0
Background area exceeding (km^2)	0	0	0	0
Maximum modelled concentration (μgm^{-3}) (a)	82.8	70.4	44.6	26.3

(a) Annual Mean Limit Value = 40 μgm^{-3}

Table 8. Modelled source apportionment for 2015 and 2020 for the LEZ scenario for traffic count point 36656 on the A1 (the road section with the maximum modelled annual mean NO_2 concentration in 2008 in NO_2_UK0036_Annual_1 OS grid (m): 420200, 562510). 2008 and 2010 baseline projections results are also presented here for reference (units: μgm^{-3}).

Spatial scale	Component	NOx				NO2 (indicative)			
		2008	2010	2015	2020	2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	5.8	5.1	4.4	3.6	(a)	(b)	(c)	(d)
	From within the UK	2.9	2.5	2.2	1.8	(a)	(b)	(c)	(d)
	From transboundary sources (includes shipping and other EU Member States)	2.9	2.6	2.2	1.8	(a)	(b)	(c)	(d)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	27.3	21.4	14.9	11.9	13.3	11.1	8.6	7.5
	From road traffic sources	16.4	11.3	6.5	4.2	6.5	6.1	5.6	5.4
	From industry (including heat and power generation)	4.4	3.9	3.7	3.5	(a)	(b)	(c)	(d)
	From agriculture	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From commercial/residential sources	3.6	3.6	3.2	3.0	(a)	(b)	(c)	(d)
	From shipping	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From off road mobile machinery	2.6	2.4	1.3	0.9	(a)	(b)	(c)	(d)
	From natural sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From transboundary sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From other urban background sources	0.3	0.2	0.2	0.2	(a)	(b)	(c)	(d)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	173.4	141.7	78.8	37.9	69.5	59.3	36.0	18.9
	From cars	50.1	33.7	23.2	15.4	19.3	14.0	10.7	7.7
	From HGV rigid	44.6	39.6	19.3	7.2	17.5	16.0	8.4	3.4
	From HGV articulated	51.5	44.9	21.7	7.4	20.1	18.0	9.4	3.5
	From Buses	5.4	4.8	2.8	1.3	2.2	2.0	1.3	0.6
	From LGVs	21.6	18.5	11.7	6.5	10.4	9.3	6.2	3.5
	From motorcycles	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Total (i.e. regional background + urban background + local components)		206.5	168.2	98.1	53.3	82.8	70.4	44.6	26.3

(a) The total annual mean NO_2 contribution for all components labelled (a) in 2008 was modelled to be 6.8 μgm^{-3}.
(b) The total annual mean NO_2 contribution for all components labelled (b) in 2010 is predicted to be 4.9 μgm^{-3}.
(c) The total annual mean NO_2 contribution for all components labelled (c) in 2015 is predicted to be 3 μgm^{-3}.
(d) The total annual mean NO_2 contribution for all components labelled (d) in 2020 is predicted to be 2.1 μgm^{-3}.

Table 9. The maximum NO_X contribution from each source from across all the roads included in the exceedance situation on which exceedances remain in 2010, 2015 and 2020 under baseline conditions. Zeros indicate that there are no exceedances in the relevant year.

Spatial scale	Component	NOx			
		2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	From within the UK	4.1	3.6	3.0	0.0
	From transboundary sources (includes shipping and other EU Member States)	3.3	2.9	2.3	0.0
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	From road traffic sources	26.2	19.7	9.3	0.0
	From industry (including heat and power generation)	25.7	11.6	9.2	0.0
	From agriculture	0.0	0.0	0.0	0.0
	From commercial/residential sources	8.3	6.9	3.7	0.0
	From shipping	2.3	2.2	0.6	0.0
	From off road mobile machinery	10.7	10.1	3.6	0.0
	From natural sources	0.0	0.0	0.0	0.0
	From transboundary sources	0.0	0.0	0.0	0.0
	From other urban background sources	2.2	1.7	1.3	0.0
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	From cars	51.0	34.2	23.6	0.0
	From HGV rigid	44.6	39.6	19.3	0.0
	From HGV articulated	62.8	54.7	26.4	0.0
	From Buses	56.4	50.5	2.8	0.0
	From LGVs	21.6	18.5	11.7	0.0
	From motorcycles	0.3	0.2	0.1	0.0

Figure 8. Background projections of annual mean NO_2 concentrations in 2015 and 2020 for the LEZ scenario. 2008 and baseline projections for 2010 are also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.

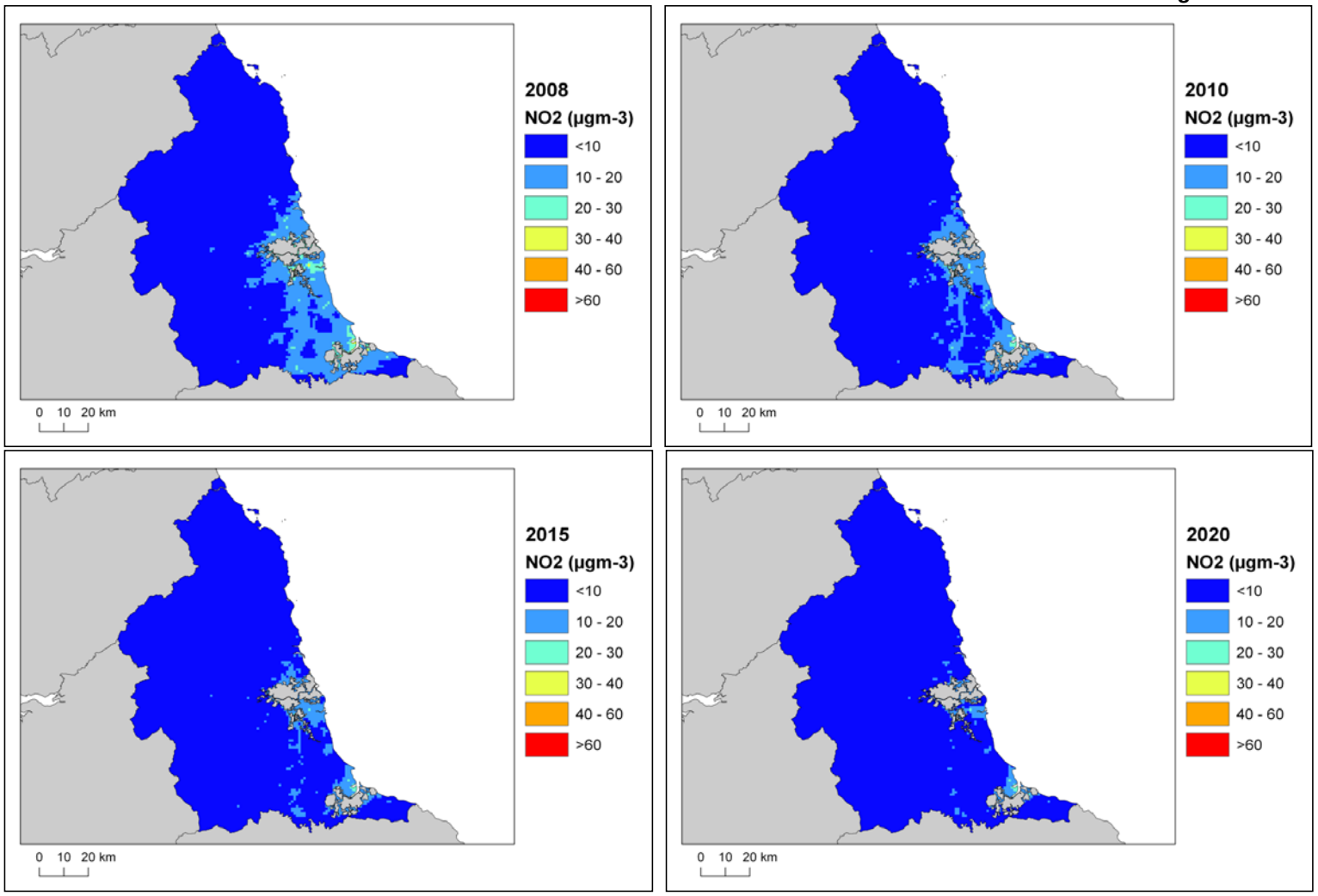
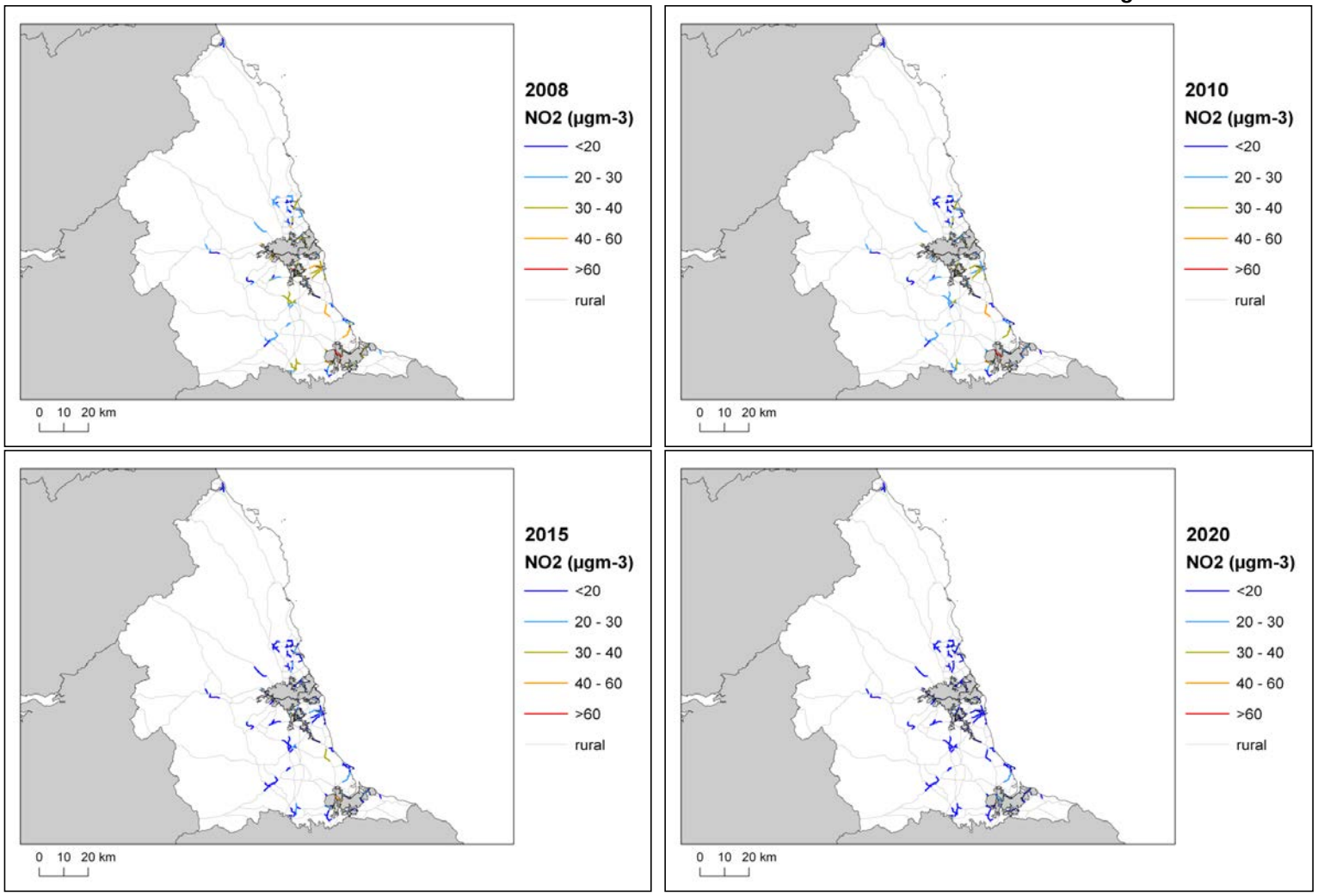


Figure 9. Roadside projections of annual mean NO_2 concentrations in 2015 and 2020 for the LEZ scenario. 2008 and baseline projections for 2010 are also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.



References

Air Quality Expert Group (AQEG, 2004). Nitrogen Dioxide in the United Kingdom. http://www.defra.gov.uk/environment/quality/air/airquality/publications/nitrogen-dioxide/index.htm

Decision 2004/224/EC. Commission Decision of 20 February 2004 laying down arrangements for the submission of information on plans or programmes required under Council Directive 96/62/EC in relation to limit values for certain pollutants in ambient air. From the Official Journal of the European Union, 6.3.2004, En series, L68/27

Decision 2004/461/EC. Commission Decision of 29 April 2004 laying down a questionnaire to be used for annual reporting on ambient air quality assessment under Council Directives 96/62/EC and 1999/30/EC and under Directives 2000/69/EC and 2002/3/EC of the European Parliament and of the Council. From the Official Journal of the European Union, 30.4.2004, En series, L 156/78

UK technical report, UK overview document and List of UK and National measures are available at http://www.defra.gov.uk/environment/quality/air/air-quality/eu/

CDR Central Data Repository. http://cdr.eionet.europa.eu/

Air Quality Directive 2008/50/EC. Council Directive 2008/50/EC, of 21 May 2008. On ambient air quality and cleaner air for Europe. From the Official Journal of the European Union, 11.6.2008, En series, L152/1

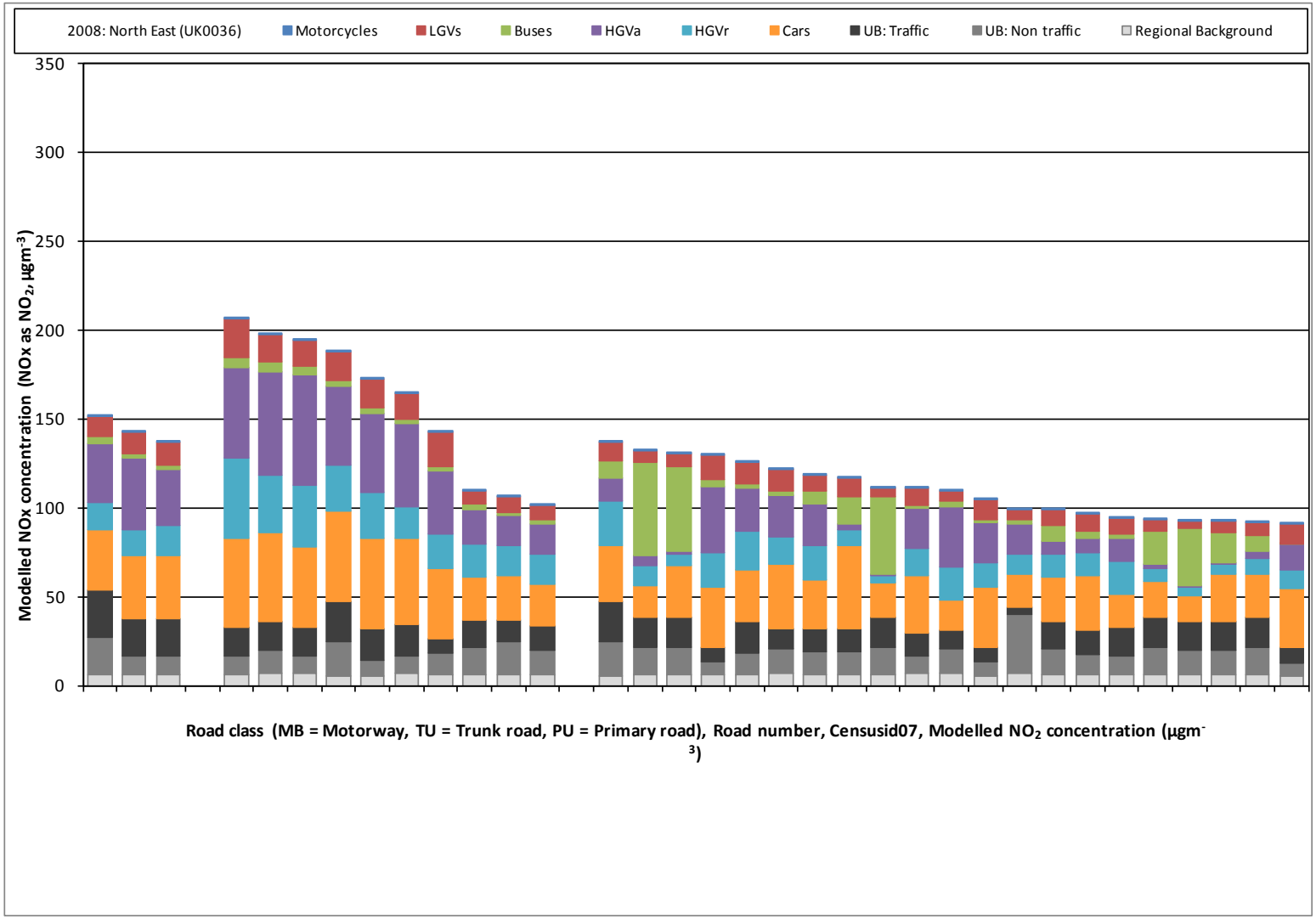
1st Daughter Directive 1999/30/EC. Council Directive 1999/30/EC, of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (The First Daughter Directive). From the Official Journal of the European Communities, 29.6.1999, En Series, L163/41.

List of Annexes

Annex 1: Source apportionment graphs
Annex 2: Tables of measures

Annex 1: Source apportionment graphs

Figure A1.1 Annual mean roadside NO_X source apportionment plots for all roads exceeding the annual mean NO_2 limit value in 2008



Annex 2: Tables of measures

Table A2.1 Relevant Local Authority measures taken before or during 2010 within North East (UK0036)

LA (a)	Measure code (b)	Title	Description	Other information
Gateshead	Local_Gateshead_H1	Home Zones	Home Zones are residential streets in which the road space is shared between drivers of motor vehicles and other road users, with the wider needs of residents (including people who walk and cycle, and children) in mind. The aim is to change the way that streets are used and to improve the quality of life in residential streets by making them places for people, not just for traffic.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_E1	Better Traffic Light Signal Coordination (SCOOT)	TIF study on Intelligent Transport Systems (ITS) now completed	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_F1	Information and Education	Promotional activities implemented through the first round of the LTP have consisted of six co-ordinated events across Tyne and Wear. These include initiatives such as 'Bike2work', 'leg-it day' and 'In town without my car'. LTP2 will build on these promotional activities. Some of the measures below will be bid for through the LTP, others, such as provision of air quality information to the public, will be undertaken by environmental health colleagues. Travel awareness campaigns, such as 'Travelwise' or 'In town without my car' use a wide range of media aimed at improving general public understanding of problems resulting from transport choices and possible solutions.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_D1	Parking Strategy	A parking strategy for the central area is one of the outputs of the Regeneration Delivery Strategy (RDS)	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d):

LA (a)	Measure code (b)	Title	Description	Other information
				Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H2	Specific Bus Corridors including Bus Lanes, or segregation of buses	Corridor improvement schemes carried out for town centre approaches on Old Durham, Road, Durham Road and Bensham Road.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G1	Higher priority for pedestrians (in terms of highway space)	To be implemented through the town centre pedestrian/cycle strategy. Subways at Arthur Street, Chandless and Bensham Road removed, improvements to Coulthards Lane implemented. Removal of Sunderland Road subways now under consideration	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G2	Higher priority for cyclists (in terms of highway space)	Part of town centre pedestrian/cycle strategy	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_D2	Decriminalised parking enforcement	Implemented July 2007	• Type: Economic/fiscal; Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H3	Coordination of road works	Implemented under the Traffic Management Act 2004 – Network Management Duty	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
				• Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_A1	Encouragement of low emission/ zero emission vehicles	Low emission QuayLink buses in operation on town centre-Quays service	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_A2	Emissions standards for buses	Go Ahead now has relatively modern fleet. Being pursued in Newcastle which should have some knock on improvements in Gateshead	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_A3	Taxis – use licensing system to improve emissions	The Council has brought in an age policy for Hackney Carriages and Private Hire Vehicles. This will have the added bonus of reducing emissions.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H4	Target HGVs – freight consolidation (freight node/ hub), encourage use of rail freight	Tyne and Wear Freight Quality Partnership (FQP) may investigate in the future as part of its remit	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_D3	Park and Ride	To be implemented through both bus and metro. Potential major scheme bid identified as regional	• Type: Technical; Education/information • Sources affected: Transport

LA (a)	Measure code (b)	Title	Description	Other information
			priority.	• Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G3	Promotion of Cycling	To be implemented through cycle strategy. Ongoing implementation through annual LTP programme	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H5	Annual Travel Card Discount	To be implemented by Nexus. Also introduced for Council employees. Council scheme is self funding. Costs of travel cards are recovered from staff salary deductions.	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G4	Travel Plans for businesses/ schools	Programme of school travel plans in progress. Council travel plan approved. TIF smarter choices identifies potential in relation to future strategy	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G5	Increase Pedestrian Areas	Trinity Square redevelopment is likely to include predominantly pedestrian areas within the site. Regeneration Delivery Strategy (RDS) will investigate opportunities for pedestrians as part of the strategy.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d):

LA (a)	Measure code (b)	Title	Description	Other information
				Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G6	Subsidise public transport	Significant subsidy already in place through PTA, principally concessionary fares.	• Type: Economic/fiscal; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H6	Flexible work times/school hours/ home working	Within council already implemented (could be better marketed), externally to be implemented as part of travel plan initiatives	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G7	Provision of real time information at bus stops	Real time information pilot now operational in Coatsworth Road area. System for QuayLink currently being tested.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_F2	Education regarding safety on public transport	LTP is committed to improve actual and perceived levels of security thought proactive use of more staffing and CCTV	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_F3	Information about car parking on VMS	Initial system in place in Quays area. Potential to extend to town centre	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term

LA (a)	Measure code (b)	Title	Description	Other information
				• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_E2	Development Planning	Travel Plans routinely required for all major developments. Developers who have to create a Travel Plan are required to provide information to end-users	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_G8	Include cycle facilities in new developments	Adopted cycling strategy, and considered within UDP	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_D4	Local Development Frameworks need to identify AQMAs	Through timescale of the development of Local Development Frameworks Planning and Environmental Strategy	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_E3	Encourage mixed use developments	Already being implemented – town centre redevelopment currently looking at mixed use	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2008 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Gateshead	Local_Gateshead_H7	Undertake air quality	NSCA guidance update considered at pre-application stage and for applications. Possible incorporation into	• Type: Technical; Education/information • Sources affected: Transport

LA (a)	Measure code (b)	Title	Description	Other information
		assessments of relevant new developments	LDF.	• Spatial scale: local • Implementation date: 2008 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Gateshead_AQActionplan_1
Newcastle	Local_Newcastle_E1	Local Transport Strategy	Local Transport Plan for Tyne and Wear for the period of 2005/6-2010/11	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2001 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H1	CarbonNeutral Newcastle Campaign	In Newcastle, The CarbonNeutral Newcastle Campaign11 was launched at the end of 2002, as a major new contribution towards the reduction of global warming. The purpose of the campaign is that participants can have their greenhouse gas emissions calculated, receive help and advice regarding reduction, and contribute financially to carbon-reduction projects to offset anavoidable emissions.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2002 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A1	Emissions standards for buses	There are currently minimum standards set for Superoutes. The success of the Superoute network has seen an influx of newer buses, more so than on the rest of the bus network in Tyne and Wear. Further expansion of the Superoute network is planned which will see further improvements in the bus fleet in Newcastle.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A2	taxi emissions	The five Councils in Tyne and Wear currently operate separate policies in relation to the licensing and operation of taxis and private hire vehicles within the framework of national legislation. Discussions are taking place to harmonise these policies, with the potential to include tighter emissions standards (or enforcement of current emissions standards) for taxis and private hire vehicles across Tyne and Wear.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d):

LA (a)	Measure code (b)	Title	Description	Other information
				Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A3	Quality bus contracts	Quality Bus Partnerships incorporate a variety of measures such as bus lanes, other bus priority measures, low-floor buses, more frequent services, real time information, marketing and higher parking charges. Newcastle City Council will build on existing partnerships with bus operators to improve facilities and services further throughout the LTP2 period.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2006 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E2	HGV route enforcement	The Government has recognised the benefits to be gained from local authorities and industry working together to share responsibility for and better understand freight distribution issues at both regional and local levels. Freight Quality Partnerships are already being developed in the North East, including the Northern Freight Group and at the Tyne and Wear level, the Tyne and Wear Freight Quality Partnership. These partnerships are currently developing freight strategies. Newcastle City Council will seek to ensure that air quality is a consideration in the development of these strategies.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A4	Delivery time controls and delivery emission improvement	In Newcastle, there is restricted access on some of the key shopping streets in the city centre and around the recently renovated Grainger Town and other traffic sensitive streets. These restrictions permit deliveries up to 9.30am and after 5.30pm or 6.30pm. Where possible, Newcastle City Council is also considering rear access for deliveries to maintain the flow around the city centre and elsewhere on the strategic road network	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A5	Target reduced emissions from HGVs	Some of the large businesses such as M&S do have freight consolidation and distribution centres around Tyne and Wear. Further freight consolidation areas will be considered within the duration of the second Local Transport Plan (LTP2).	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_G1	Cycle facilities new	Planning conditions to require the provision of adequate cycle facilities for new developments is key	• Type: Technical; Education/information • Sources affected: Transport

LA (a)	Measure code (b)	Title	Description	Other information
		development	to encouraging a modal shift to cycling. Such conditions might include the provision of cycle lanes and safe and secure cycle parks, or the improvement of existing facilities.	• Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H2	Tree planting	Although planting trees and expanding on 'green spaces' does not reduce local concentrations of air pollutants significantly, increased planting has a positive impact on local environmental quality and amenity, if done sensitively. Plants and trees provide carbon traps in the urban environment, and can provide a sense of pollution screening (not least visually), thereby making tree planting a sensible and costeffective additional condition of appropriate planning applications.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H3	Greater planning controls in AQMA	Local planning policy and development control policy should recognise the need for more sensitive decision-making in locations where air quality management areas (AQMAs) are formally designated. Where a proposed development has the potential to pose a significant health risk to members of the public, more stringent planning controls will need to be applied, with strict conditions to control direct or indirect emissions or to mitigate their impact.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H4	AQ Assessments for planning applications	The provision of an air quality assessment, either as part of a wider environmental statement or as a stand-alone report, should be a consistent requirement of planning applications that satisfy certain 'significant impact' criteria. Local authorities, or groups of local authorities working in collaboration, should agree on the criteria against which to judge whether or not a proposal is likely to impact significantly or otherwise on local air quality. Such criteria could be set out in a protocol or supplementary planning guidance.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E3	Supplementary planning guidance	Consistency in local decision-making in respect to proposed developments is vital in providing an effective planning control system that strives to minimise environmental impacts from development. The development of a Supplementary Planning Document for the Tyne and Wear region is a way to	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No

LA (a)	Measure code (b)	Title	Description	Other information
			ensure development control processes operate uniformly across the region. This might include how to address air quality as a material planning consideration, the consideration of cumulative impacts, low-polluting development and appropriate impact mitigation. Such Supplementary Planning Guidance at a regional-scale will provide a framework for addressing air quality and planning policy integration consistently across the region, for the benefit of local government and government agencies alike.	• Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E4	Standard protocols in planning	A standard protocol for use in addressing individual planning application received by a local authority provides a formal, unified and more effective way of ensuring consistency in the processing of an application is maintained.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H5	LEZ in Clear zone	Newcastle City Council formalised their Clear Zone in March 2005. The Clear Zone brings together a number of traffic management measures to improve air quality, reduce noise and improve road safety. It is feasible that this initiative could be extended to incorporate emissions standards.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2006 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_D1	Residents parking permits	In areas close to the city centre, people are likely to be encouraged to drive if free parking in adjacent residential areas is available. Residents parking permit schemes, in conjunction with fiscal disincentives for city centre car parking, discourage people commuting into town and parking all day.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_D2	Decriminalise parking enforcement	Decriminalised parking enforcement means that most non-endorsable parking offences become enforceable by the local authority rather than the police, with local authorities able to retain the penalties collected. The	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005

LA (a)	Measure code (b)	Title	Description	Other information
			changes are available under powers available to Local Authorities under the Road Traffic Act 1991. Sunderland City Council has already undertaken decriminalised parking enforcement, and Newcastle City Council has a view to take on this responsibility.	• Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_D3	Increase parking charges, car parking VMS	The introduction of different levels of charges for car parking across all the main centres of Tyne and Wear is currently being tested within the strategic transport model amongst the various scenarios for LTP2. By either reducing car parking availability, or increasing parking charges for certain sectors, the modal shift to public transport could be encouraged through relative economic benefit of public transport. use.	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_G2	Travel plans (workplace & school)	The plan partners in Tyne and Wear are working toward a Workplace Travel Plan Strategy with objectives, and strategies that are applicable to the whole of Tyne and Wear. Travel Plan Co-ordinators have been appointed for each of the partners including Nexus.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2006 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A6	Car clubs	Car loan schemes, or car club initiatives can reduce both car ownership and car usage in limited areas. Car clubs are a way of being able to use a car without having to own one and for many people they can offer a cheaper alternative to buying a car, or running a second car. Newcastle City Council currently operates a pool car and is investigating the benefits of car clubs as part of the travel plan strategy.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H6	Co-ordination roadworks	The Traffic Management Act 2004 has given all local authorities in the UK additional powers. The Act adds the network management duty, which requires local traffic authorities to do all that is reasonably practicable to manage the network effectively to keep traffic moving. As part of the Act, Newcastle have appointed a Traffic Manager who is responsible for delivering the requirements laid down in the Act, including coordination of road works.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H7	Speed	Emissions are related to speed. At the lower traffic	• Type: Technical

LA (a)	Measure code (b)	Title	Description	Other information
		restriction in clear zone	speeds within the city centre area, slower speeds will generally give rise to higher emissions of nitrogen oxides (NOx). However, where slower speeds reduce 'stop-start' traffic, this may lower emissions. Impacts will be dependent on the local situation but are unlikely to have a significant impact on emissions. Smoothing traffic flow will have some impact on overall emissions. With the formalisation of the Clear Zone in central Newcastle, a speed limit of 20 mph applies to all vehicles in the zone. This zone may be extended in the future to meet the shared priorities for road safety and air quality.	• Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A7	Encourage low emission vehicles	Newcastle City Council could also provide advice and support for other local fleet operators through printed material and seminars to encourage 'greener' fleets to operate in the city. Newcastle City Council has a close working relationship with One North East and the EST North East advice centre, and is involved in the Tyne and Wear Freight Quality Partnership.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A8	Enforce idling emissions legislation	The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 (Statutory Instrument 2002 No. 1808) enables authorised individuals to issue a fixed penalty notice to vehicles stationery on a road and can require them to switch off their engine. In some circumstances, for example where buses congregate, this may provide localised improvements in air quality. As part of the Clear Zone initiative, fixed penalty notices will be issued by council enforcement officers to bus drivers who leave their engines running at bus stops or in bus stations and for taxis where they have left their engines running while stationary for more than a few minutes. The notice carries a penalty of £40, reduced to £20 if paid within 28 days. This action is therefore already in place.	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_A9	Encourage flexible working	Newcastle City Council operates a `work life' balance system where there are no core hours of operation for individual members of staff. Staff have the flexibility to work between the hours of 7.00am and 7.00pm. Rolled out across most large employers, this could relieve congestion in the morning and afternoon peak	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No

LA (a)	Measure code (b)	Title	Description	Other information
			periods which would improve air quality.	• Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_F1	Target schools - Air Quality Education	This element of information and education should be implemented along with Travel Plans for schools to make a real impact on travel behaviour.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_F2	Target businesses - Air Quality Education	Providing information to businesses should be undertaken in conjunction with Travel Plans for those businesses in order that real changes occur.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H8	Health promotion	Promotion of good health can be related to both the links between air pollution and health, and in also in encouraging people to cycle and walk, especially for short journeys. Collaboration with external organisations such as the local Primary Care Trust could explored as a way of increasing the number of people which the information and education on both health impacts of pollution, and encouragement away from private vehicles to healthier modes of walking and cycling.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H9	One off events	Travel awareness campaigns, such as ‘Travelwise’ or ‘In town without my car’ use a wide range of media aimed at improving general public understanding of problems resulting from transport choices, and what can be done to solve these problems including changing their own behaviour. As well as focusing on local environmental and health impacts, travel awareness campaigns also aim to improve informed knowledge of the facilities available for walking, cycling and public transport use.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_F3	Education on	A reason often cited for not using public transport is	• Type: Education/information

LA (a)	Measure code (b)	Title	Description	Other information
		Public Transport safety	safety, either real or perceived. Where a safety issue is perceived, education may persuade people to use public transport more often, thus cutting down on car trips. Education coupled with (for example) CCTV cameras in safety hot spots may encourage more people to use public transport.	• Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E5	Target developers	Developers of large developments could be encouraged to provide better infrastructure (cycle paths, bus routes etc.) as part of a planning obligation or condition.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_F4	Provision of info on high pollution days	Provision of information on high pollution days, for example as people are driving into Newcastle to urge them to leave their car at a Park and Ride, may persuade some motorists to change their behaviour.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_F5	Produce newsletters and posters	As a method to get some of these above concepts over to the public, the use of newsletters and posters has been suggested as a way forward. Methods of increasing awareness could include posters on buses, billboards, production of newsletters to go out with free council papers.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H10	Bus corridors	Within Project Orpheus, bus corridors are currently being assessed for priority measures. These are largely selective vehicle detection at traffic signals, new signal installations, or bus priority or 'no-car' lanes.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No

LA (a)	Measure code (b)	Title	Description	Other information
				• Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_G3	Express commuter buses	On the Superoute network in Tyne and Wear, there have been some positive results which have seen patronage growth on some of the routes. These routes are associated with a more reliable service, with shorter waiting intervals, and better quality 'low-floor' buses. Phase One of Project Orpheus (the bus based solution) will look to build on the success of the Superoutes.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_H11	Guided buses	Guided buses are proposed as part of the first phase of Project Orpheus, a ten-year period from 2006.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2006 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_D4	Park & Ride	A Park and Ride strategy is included in the public strategy section in the appendix to the LTP. This proposes enhanced Park and Ride for Tyne and Wear with new sites proposed and expansions to existing sites.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E6	High Occupancy Vehicle lanes	High occupancy vehicle lanes, (HOV's), are reserved for buses, taxis and cars with more than one occupant. These vehicles are given an advantage over the single occupancy vehicles, for example, by being given greater priority at junctions. In Newcastle, and across the rest of Tyne and Wear, `no-car lanes' will continue to be implemented. These permit buses, taxis, HGV's and vans to use the lanes to promote sustainable public transport modes whilst supporting the economy by also giving advantage to freight transport. Newcastle is at the forefront in the UK for this form of traffic management.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1
Newcastle	Local_Newcastle_E7	Intelligent	ITS is a collective name for a number of technology	• Type: Technical

LA (a)	Measure code (b)	Title	Description	Other information
		transport systems (ITS)	based approaches that are designed to improve the quality, safety and efficiency of public transport. ITS most frequently deployed at local level includes travel information (real time information for public transport as well as drivers), Urban Traffic Control (co-ordinated traffic signals), car park management (signs telling drivers where there are spaces in order that they do not drive round a town centre unnecessarily looking for parking spaces), and bus priority (changing traffic signals in order that buses have quicker journey times).	• Sources affected: Transport • Spatial scale: local • Implementation date: 2005 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone36_Newcastle_AQActionplan_1

(a) Name of responsible Local Authority.
(b) The Letter in the measure code indicates the main source sector that will be affected by the measure. Letters are assigned as follows: A - measures to reduce emissions from mobile sources, B - measures to reduce emissions from stationary sources, C - fuels and petrol stations, D - Economic incentives to reduce emissions (e.g. congestion charging, controlled parking zones), E - measures related to traffic planning/redesigning infrastructure, F - information/educational measures, G - change of transport mode (e.g. scheme to encourage people out of cars and onto bikes), H - Other.
(c) Measures have been classified as 'smarter choices' or not based on expert judgement
(d) References available for download from: http://uk-air.defra.gov.uk/library/NO_2ten/