

Air Quality Plan for the achievement of EU air quality limit values for nitrogen dioxide (NO₂) in Leicester Urban Area (UK0011)

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1. Introduction

1.1. This document

This document is the Leicester Urban Area (UK0011) air quality plan for the achievement of the EU air quality limit values for nitrogen dioxide (NO₂).

This plan presents the following information:

- General information regarding the Leicester Urban Area agglomeration zone
- Details of NO₂ exceedance situation(s) within the Leicester Urban Area agglomeration zone
- Details of local air quality measures that have been implemented, will be implemented or are being considered for implementation in this agglomeration zone.

This air quality plan for Leicester Urban Area 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 NO₂ 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 NO₂ 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 µg m⁻³
- The hourly limit value: no more than 18 hourly exceedances of 200 µg m⁻³ in a calendar year

The Air Quality Directive stipulates that compliance with the NO₂ 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 Leicester Urban Area agglomeration zone indicates that the annual limit value is likely to be exceeded in 2010 but achieved by 2015 through introduction of the measures included in the baseline and the non-quantifiable local measures outlined in this plan. Postponement of the compliance date to 2015 is sought for this limit value in this zone.

The assessment undertaken for the Leicester Urban Area agglomeration zone indicates that the hourly limit value not exceeded in this agglomeration zone in 2008.

1.4. Plan structure

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

Section 3 then presents the overall picture with respect to NO₂ levels in this agglomeration zone for the 2008 reference year of this air quality plan. This includes the declaration of exceedance situations within the 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 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.

2. General Information about the Zone

2.1. Administrative information

Zone name: Leicester Urban Area

Zone code: UK0011

Type of zone: agglomeration zone

Reference year: 2008

Extent of zone: Figure 1 shows the area covered by the Leicester Urban Area agglomeration zone

Local Authorities within the agglomeration zone: Figure 2 shows the location of Local Authorities within the 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. Blaby District Council
2. Charnwood Borough Council
3. Harborough District Council
4. Hinckley and Bosworth Borough Council
5. Leicester City Council
6. Oadby and Wigston Borough 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 2. Map showing Local Authorities within the Leicester Urban Area agglomeration zone (UK0011).



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2.2. Assessment details

Measurements

NO₂ measurements in this zone were available in 2008 from the following national network monitoring stations (NO₂ data capture for each station in 2008 shown in brackets):

- Leicester Centre GB0597A (99.2%)

Full details of monitoring stations within the Leicester Urban Area 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): 102 km²
- Total population within zone (approx): 374314 people
- Total road length where an assessment of NO₂ concentrations have been made: 81.3 km in 2008 (and similar lengths in previous years).

Zone maps

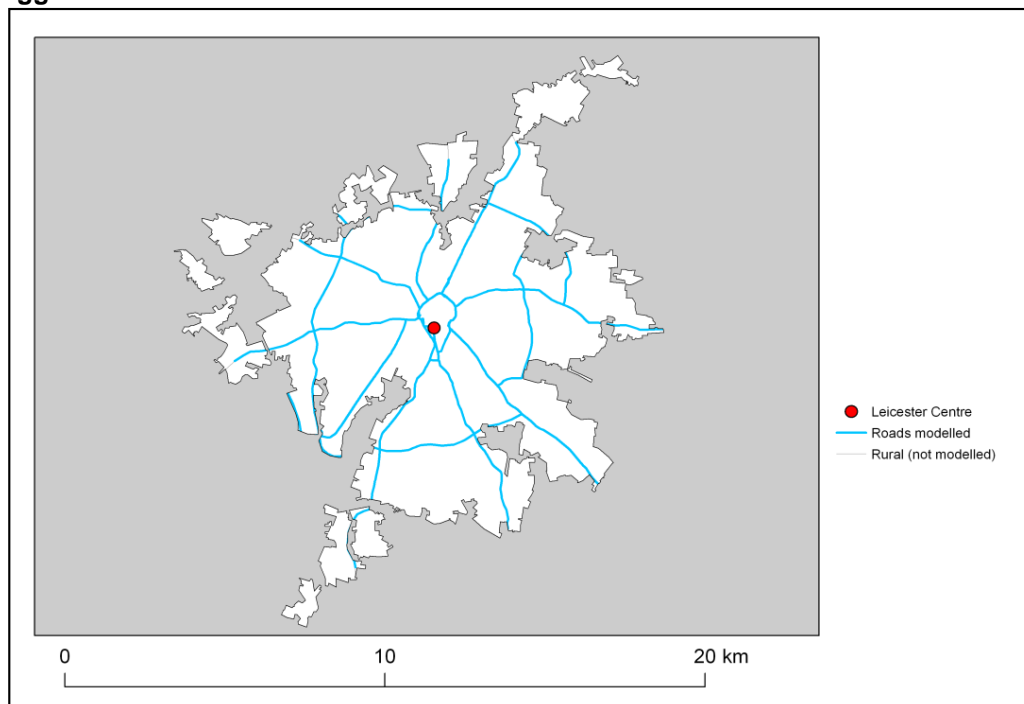
Figure 3 presents the location of the NO₂ monitoring stations within this zone for 2008 and the roads for which NO₂ concentrations have been modelled. NO₂ concentrations at background locations have been modelled across the entire zone at a 1 x 1 km² resolution.

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 2003. Plans and programmes for 2003 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 NO₂ monitoring sites with valid data in 2008 and roads where concentrations have been modelled within the Leicester Urban Area (UK0011) agglomeration zone.



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3. Overall Picture for 2008 reference year

3.1. Introduction

There are two limit values for the protection of health for NO₂. 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 Leicester Urban Area agglomeration zone only the annual limit value was exceeded in 2008. Hence, one exceedance situation for this zone has been defined, NO₂_UK0011_Annual_1, which covers the exceedance of the annual limit value. This exceedance situation is described below.

For both NO₂ 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 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: NO₂_UK0011_Annual_1

The NO₂_UK0011_Annual_1 exceedance situation covers all exceedances of the annual mean limit value in the Leicester Urban Area 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 NO₂ results in this exceedance situation for the same time period. This table shows that, in 2008, 24.1 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 NO₂ concentration in 2008 was 58.2 µgm⁻³. Maps showing the modelled annual mean NO₂ 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 increase in the maximum modelled annual mean NO₂ concentration between 2008 and 2009 (58.2 µgm⁻³ to 66.5 µgm⁻³) occurred because the location with the highest modelled concentration in this agglomeration zone moved between 2008 and 2009. This change in location occurred because there was a large increase in the traffic count data for buses at the location with the highest concentration in 2009.

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 NO₂ source apportionment. Table 3 presents summary source apportionment information in this exceedance situation for 2008, including:

- The modelled NO_x and indicative NO₂ source apportionment for the section of road with the highest modelled NO₂ 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 NO₂ 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 NO₂ concentrations for these air quality plans. This method involves calculating the maximum and minimum possible contribution from each source to the NO₂ 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 NO₂

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 _UK0011_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 NO₂_UK0011_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
Leicester Centre (GB0597A)	35 (98%)	35 (95%)	37 (93%)	36 (86%)	33 (97%)	30 (98%)	32 (99%)	30 (99%)	29 (93%)

(a) Annual Mean Limit Value = 40 µgm⁻³

Table 2. Annual mean NO₂ model results in NO₂_UK0011_Annual_1 for 2001 onwards

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Road length exceeding (km)	77.2	36.4	71.4	46.3	47.8	46.5	51.6	24.1	25.3
Background area exceeding (km ²)	15	0	5	0	0	0	0	0	0
Maximum modelled concentration (µgm ⁻³) (a)	64.0	54.0	61.4	58.1	59.2	56.2	58.2	58.2	66.5

(a) Annual Mean Limit Value = 40 µgm⁻³

Table 3. Source apportionment summary information for 2008 in NO₂_UK0011_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	9.1	(c)	
	From within the UK	5.7	(c)	5.7
	From transboundary sources (includes shipping and other EU Member States)	3.4	(c)	3.5
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	45.9	21.9	-
	From road traffic sources	24.9	11.6	31.8
	From industry (including heat and power generation)	10.4	(c)	23.5
	From agriculture	0.0	(c)	0.0
	From commercial/residential sources	2.6	(c)	11.3
	From shipping	0.0	(c)	0.0
	From off road mobile machinery	7.8	(c)	14.9
	From natural sources	0.0	(c)	0.0
	From transboundary sources	0.0	(c)	0.0
	From other urban background sources	0.2	(c)	2.6
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	88.9	36.3	-
	From cars	33.2	13.1	43.6
	From HGV rigid	21.8	8.8	25.3
	From HGV articulated	21.2	8.6	21.2
	From Buses	1.3	0.6	32.3
	From LGVs	11.2	5.2	13.8
	From motorcycles	0.1	0	0.2
Total (i.e. regional background + urban background + local components)		144.0	58.2	-

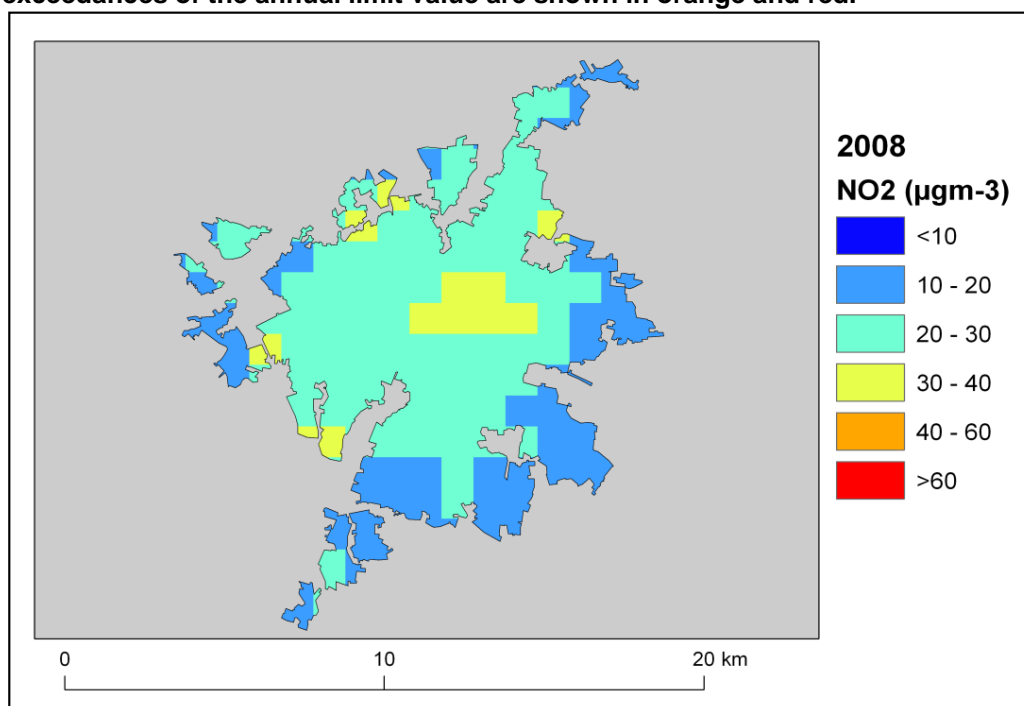
(a) The road with the highest modelled annual mean NO₂ concentration in this exceedance situation in 2008 is a section of the A563, traffic count point id 80463 (OS grid (m): 455210, 300350).

(b) This column gives the maximum contribution for each component from all the roads included in the exceedance situation.

(c) The combined modelled annual mean NO₂ concentration contribution for these components is 10.2 µgm⁻³. A more detailed NO₂ source apportionment is currently unavailable for these sectors.

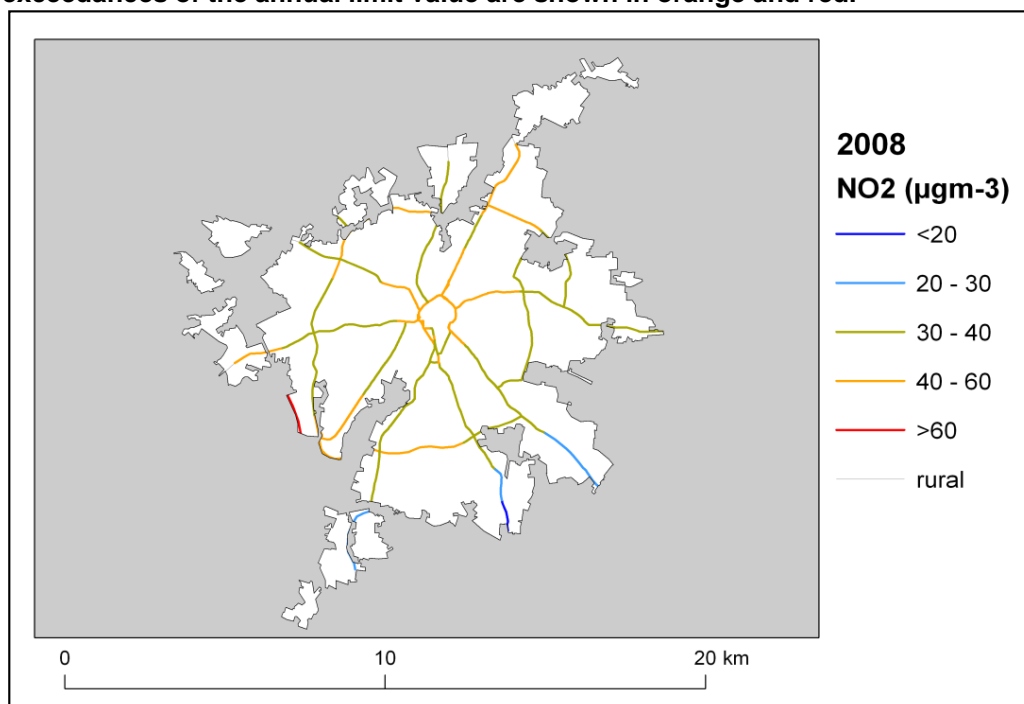
(d) Source apportionment for NO₂ is indicative, see UK Technical Report.

Figure 4. Map of modelled background annual mean NO₂ concentrations 2008. Modelled exceedances of the annual limit value are shown in orange and red.



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Figure 5. Map of modelled roadside annual mean NO₂ concentrations 2008. Modelled exceedances of the annual limit value are shown in orange and red.



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4. Measures

4.1. Introduction

This section (section 4) gives details of measures that address exceedances of the NO₂ limit values within Leicester Urban Area 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 NO₂ 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 cars at the location of maximum exceedance with a contribution of 33.2 $\mu\text{g m}^{-3}$ of NO_x out of a total of 144 $\mu\text{g m}^{-3}$ of NO_x. Cars and on some roads buses, articulated HGVs and Rigid 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 NO₂ in this 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 NO₂ 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 NO₂ 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 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 NO₂ 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: NO₂_UK0011_Annual_1

Table 4 presents summary results for the baseline model projections for 2010, 2015 and 2020 for the NO₂_UK0011_Annual_1 exceedance situation. This shows that the maximum modelled annual mean NO₂ concentration predicted for 2010 in this exceedance situation is 49.2 µg m⁻³. By 2015, the maximum modelled annual mean NO₂ concentration is predicted to drop to 34.4 µg m⁻³. Hence, the model results suggest that compliance with the NO₂ annual limit value is likely to be achieved by 2015 under baseline conditions in this exceedance situation. Postponement of the compliance date to 2015 is sought for this limit value this zone.

The projected modelled NO_x and indicative NO₂ annual mean source apportionments for 2010, 2015 and 2020 at the location with the biggest compliance gap in 2008 are presented in Table 5. In 2010, the model results suggest that this location will continue to have the highest annual mean NO₂ concentration within this exceedance situation. However, in 2015 and 2020 the model indicates that the location with the highest annual mean NO₂ concentration within this exceedance situation will be elsewhere. Information regarding the new location with the highest NO₂ concentration, including the source apportionment is given in Table 6. The locations of maximum concentration in each year are given in the footnote to this table. 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 7 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 NO₂ 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 NO₂ model results in NO₂_UK0011_Annual_1

	2008	2010	2015	2020
Road length exceeding (km)	24.1	8.2	0.0	0.0
Background area exceeding (km ²)	0	0	0	0
Maximum modelled concentration (µgm ⁻³) (a)	58.2	49.2	34.4	24.6

(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 80463 on the A563 (the road section with the maximum modelled annual mean NO₂ concentration in 2008 in NO₂_UK0011_Annual_1. OS grid (m): 455210, 300350). 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	9.1	7.9	6.8	5.5	(a)	(b)	(c)	(d)
	From within the UK	5.7	4.9	4.3	3.4	(a)	(b)	(c)	(d)
	From transboundary sources (includes shipping and other EU Member States)	3.4	3.0	2.6	2.1	(a)	(b)	(c)	(d)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	45.9	37.6	27.1	17.9	21.9	18.8	15.1	11.2
	From road traffic sources	24.9	18.7	12.1	6.9	11.6	10.7	9.5	7.8
	From industry (including heat and power generation)	10.4	8.8	8.5	5.8	(a)	(b)	(c)	(d)
	From agriculture	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From commercial/residential sources	2.6	2.6	2.4	2.2	(a)	(b)	(c)	(d)
	From shipping	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From off road mobile machinery	7.8	7.3	3.9	2.8	(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	0.2	0.2	0.2	0.2	(a)	(b)	(c)	(d)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	88.9	71.0	41.5	20.5	36.3	30.4	19.2	10.1
	From cars	33.2	22.3	15.4	10.2	13.1	9.4	7.1	5.0
	From HGV rigid	21.8	19.4	10.0	3.5	8.8	8.1	4.4	1.7
	From HGV articulated	21.2	18.5	9.3	3.1	8.6	7.7	4.1	1.5
	From Buses	1.3	1.2	0.7	0.3	0.6	0.5	0.3	0.2
	From LGVs	11.2	9.6	6.0	3.3	5.2	4.7	3.1	1.8
	From motorcycles	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total (i.e. regional background + urban background + local components)		144.0	116.5	75.5	43.9	58.2	49.2	34.3	21.3

(a) The total annual mean NO₂ contribution for all components labelled (a) in 2008 was modelled to be 10.2 µgm⁻³.

(b) The total annual mean NO₂ contribution for all components labelled (b) in 2010 is predicted to be 8.1 µgm⁻³.

(c) The total annual mean NO₂ contribution for all components labelled (c) in 2015 is predicted to be 5.6 µgm⁻³.

(d) The total annual mean NO₂ contribution for all components labelled (d) in 2020 is predicted to be 3.4 µgm⁻³.

Table 6. Modelled source apportionment for 2010, 2015 and 2020 under baseline conditions for traffic count point with the highest concentration in these years in NO₂_UK0011_Annual_1 (a). 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	9.1	7.9	6.8	5.5	(b)	(c)	(d)	(e)
	From within the UK	5.7	4.9	4.3	3.4	(b)	(c)	(d)	(e)
	From transboundary sources (includes shipping and other EU Member States)	3.4	3.0	2.6	2.1	(b)	(c)	(d)	(e)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	45.9	37.6	28.8	23.8	21.9	18.8	15.9	13.8
	From road traffic sources	24.9	18.7	10.2	7.3	11.6	10.7	11.1	10.2
	From industry (including heat and power generation)	10.4	8.8	5.3	5.0	(b)	(c)	(d)	(e)
	From agriculture	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From commercial/residential sources	2.6	2.6	8.4	7.8	(b)	(c)	(d)	(e)
	From shipping	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From off road mobile machinery	7.8	7.3	4.5	3.2	(b)	(c)	(d)	(e)
	From natural sources	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From transboundary sources	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From other urban background sources	0.2	0.2	0.4	0.4	(b)	(c)	(d)	(e)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	88.9	71.0	39.4	22.1	36.3	30.4	18.5	10.9
	From cars	33.2	22.3	20.2	13.4	13.1	9.4	9.4	6.6
	From HGV rigid	21.8	19.4	5.8	2.1	8.8	8.1	2.6	1.0
	From HGV articulated	21.2	18.5	2.1	0.7	8.6	7.7	0.9	0.3
	From Buses	1.3	1.2	3.7	1.7	0.6	0.5	1.7	0.8
	From LGVs	11.2	9.6	7.4	4.1	5.2	4.7	3.9	2.2
	From motorcycles	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0
Total (i.e. regional background + urban background + local components)		144.0	116.5	75.0	51.4	58.2	49.2	34.4	24.6

(a) The road with the maximum annual mean NO₂ concentration in different years is as follows. 2008: A section of the A563 (count point id 80463). 2010: A section of the A563 (count point id 80463). 2015: A section of the A594 (count point id 48489). 2020: A section of the A594 (count point id 48489). (OS grid (m): 455210, 300350; 455210, 300350; 455210, 300350; 455210, 300350).

(b) The total annual mean NO₂ contribution for all components labelled (b) in 2008 was modelled to be 10.2 µgm⁻³.

(c) The total annual mean NO₂ contribution for all components labelled (c) in 2010 is predicted to be 8.1 µgm⁻³.

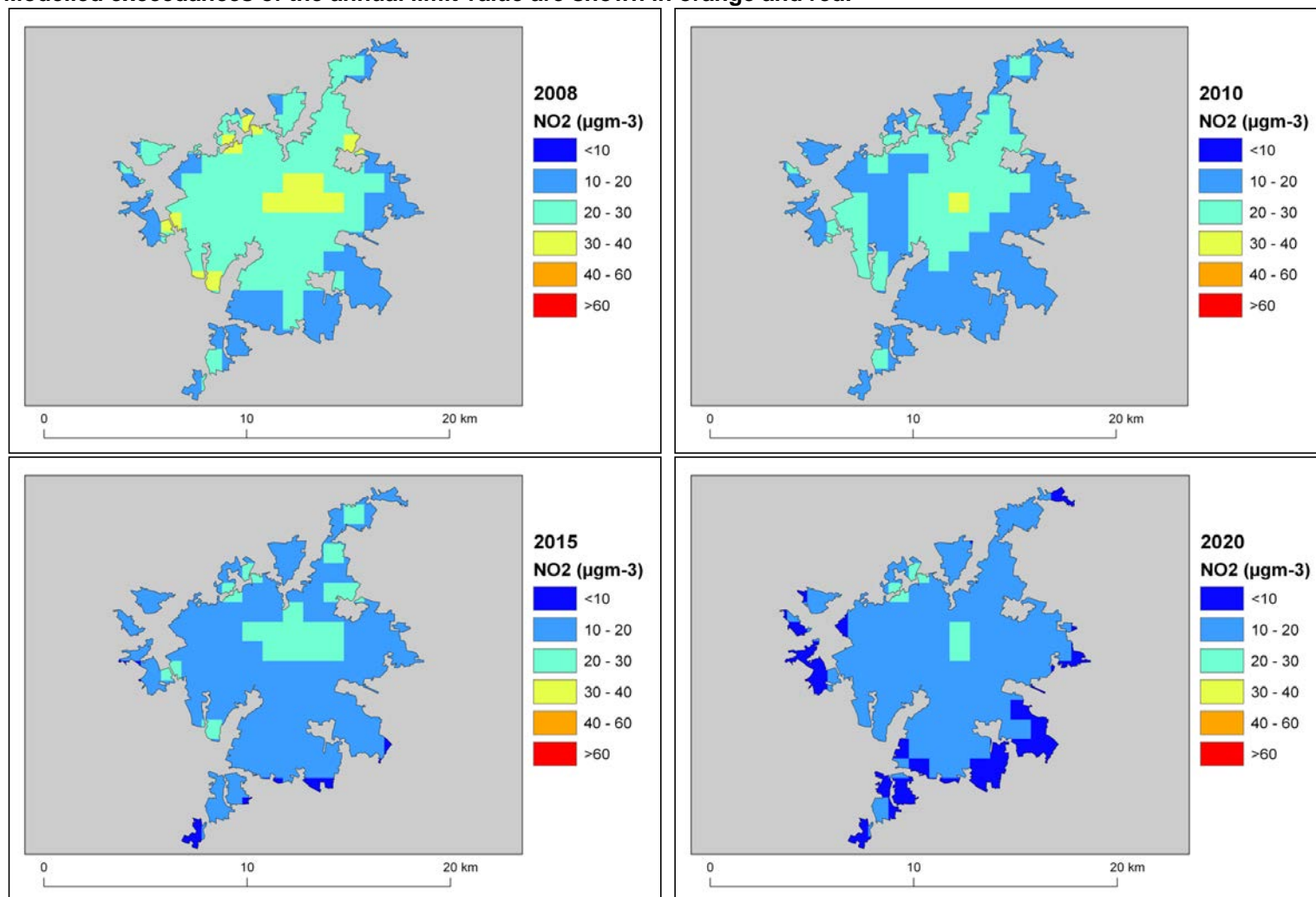
(d) The total annual mean NO₂ contribution for all components labelled (d) in 2015 is predicted to be 4.8 µgm⁻³.

(e) The total annual mean NO₂ contribution for all components labelled (e) in 2020 is predicted to be 3.6 µgm⁻³.

Table 7. 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.

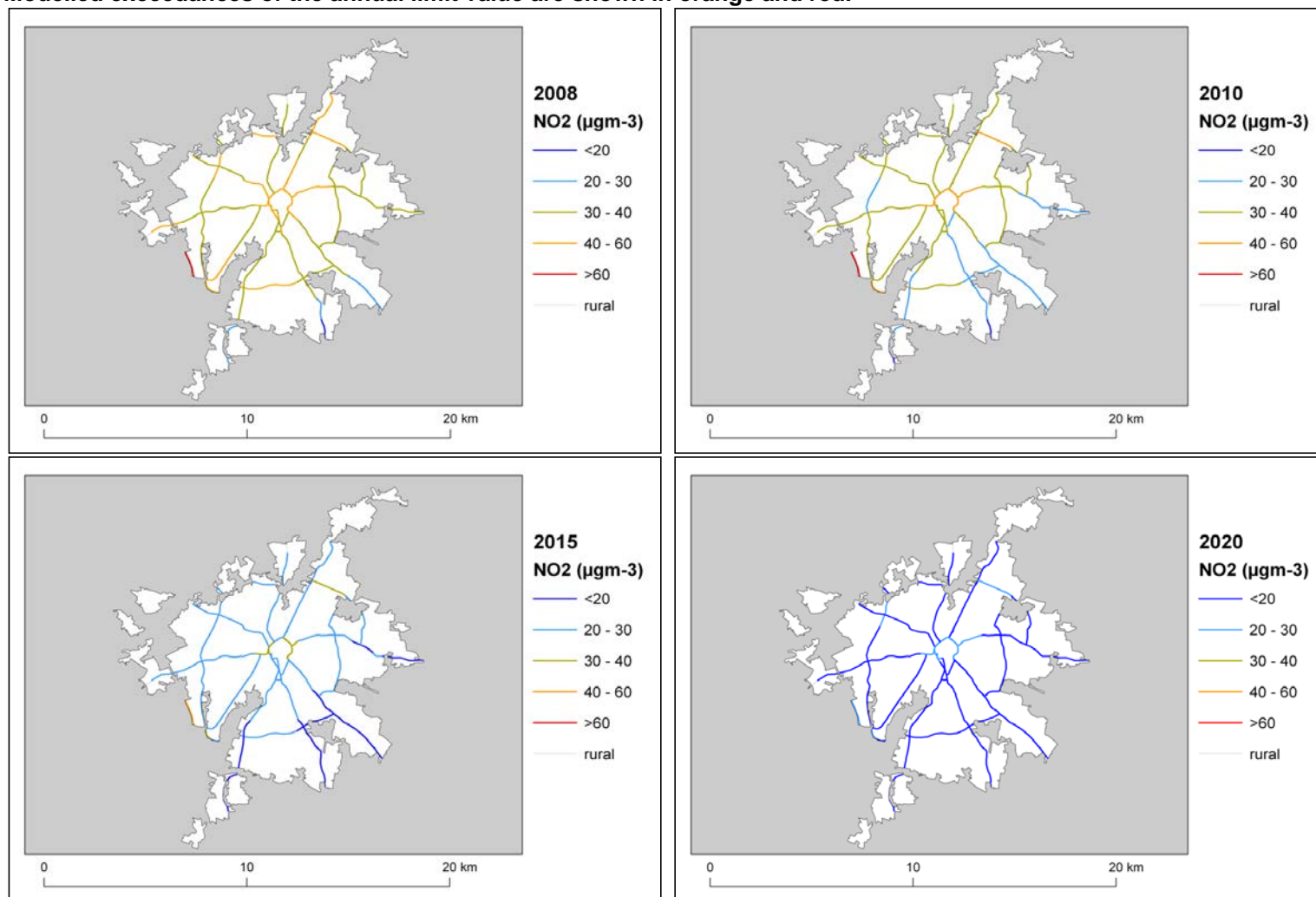
Spatial scale	Component	NO _x			
		2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	From within the UK	5.7	4.9	0.0	0.0
	From transboundary sources (includes shipping and other EU Member States)	3.5	3.0	0.0	0.0
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	From road traffic sources	31.8	18.7	0.0	0.0
	From industry (including heat and power generation)	23.5	15.5	0.0	0.0
	From agriculture	0.0	0.0	0.0	0.0
	From commercial/residential sources	11.3	10.8	0.0	0.0
	From shipping	0.0	0.0	0.0	0.0
	From off road mobile machinery	14.9	14.0	0.0	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	2.6	2.1	0.0	0.0
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	From cars	43.6	29.3	0.0	0.0
	From HGV rigid	25.3	22.5	0.0	0.0
	From HGV articulated	21.2	18.5	0.0	0.0
	From Buses	32.3	28.9	0.0	0.0
	From LGVs	13.8	11.8	0.0	0.0
	From motorcycles	0.2	0.2	0.0	0.0

Figure 6. Background baseline projections of annual mean NO₂ 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.



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Figure 7. Roadside baseline projections of annual mean NO₂ 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.



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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

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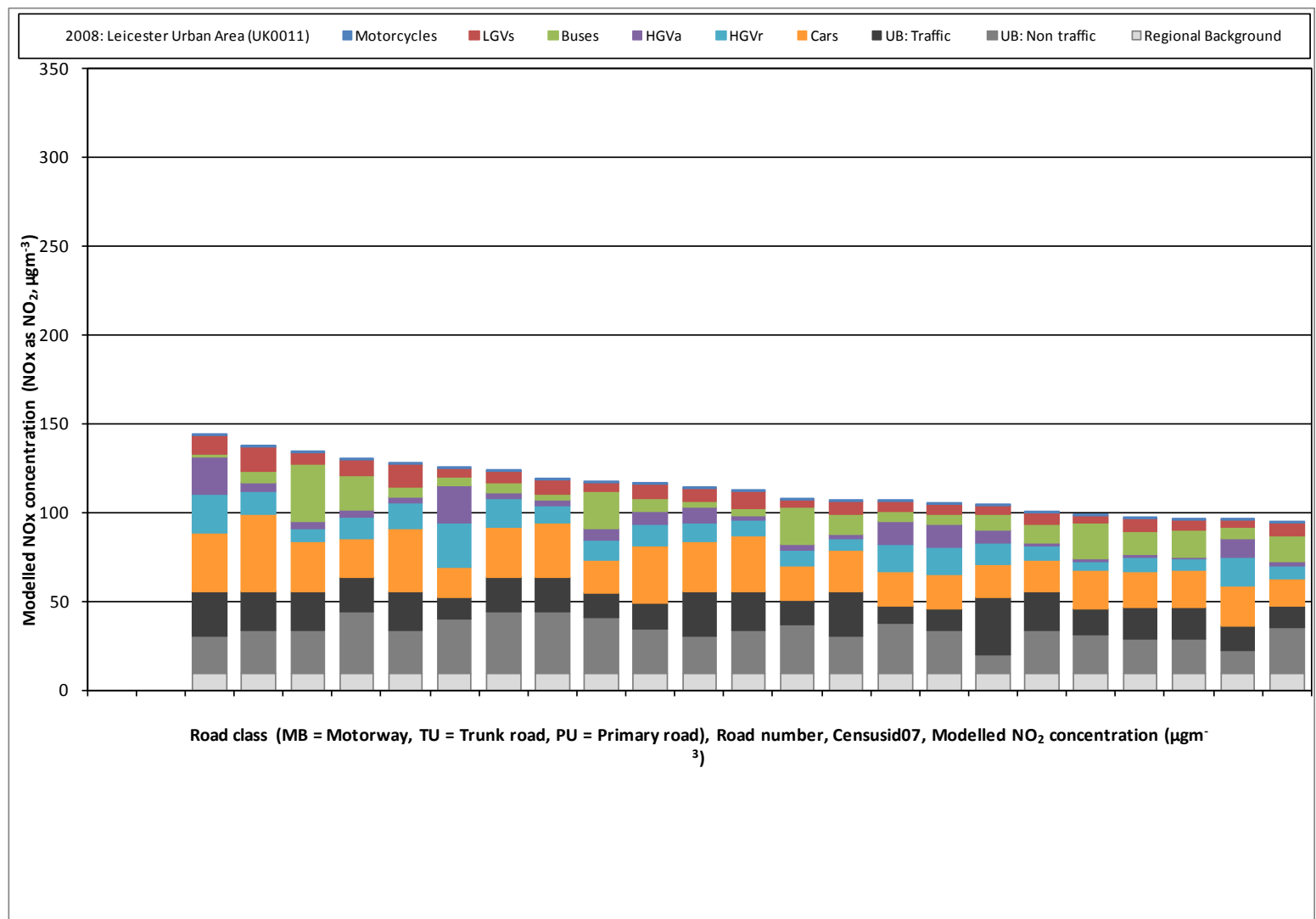
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Annex 2: Tables of measures

Annex 1: Source apportionment graphs

Figure A1.1 Annual mean roadside NO_x source apportionment plots for all roads exceeding the annual mean NO₂ limit value in 2008



Annex 2: Tables of measures

Table A2.1 Relevant Local Authority measures taken before or during 2010 within Leicester Urban Area (UK0011)

LA (a)	Measure code (b)	Title	Description	Other information
Blaby	Local_Blaby_B1	Nuisance Policy	Ban bonfires - if 'significant problem in the area'.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Industry including heating and power production • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C1	Access Control & Clear Zones	Home Zones.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_G1	Development of Cycling and Walking	Improved facilities for cyclists.	<ul style="list-style-type: none"> • Type: Economic/fiscal • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C2	Fleet Management & clean fuels	Purchase of less polluting vehicles.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C3	Fleet Management & clean fuels	Target cleaner vehicles for use in AQMA.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term

LA (a)	Measure code (b)	Title	Description	Other information
				<ul style="list-style-type: none"> • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C4	Fleet Management & clean fuels	Driver training.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C5	Fleet Management & clean fuels	Use of alternative fuels.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C6	Fleet Management & clean fuels	Retrofitting traps.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C7	Fleet Management & clean fuels	Low/zero emission school buses.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_C8	Fleet Management & clean fuels	Account for emissions in vehicle purchase decisions.	<ul style="list-style-type: none"> • Type: Economic/fiscal • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No

LA (a)	Measure code (b)	Title	Description	Other information
Blaby	Local_Blaby_C9	Fleet Management & clean fuels	Diversion of freight from road to rail.	<ul style="list-style-type: none"> • Reference (d): Local_zone11_Blaby_AQActionplan_1 • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_E1	Land Use Planning	Use planning to encourage more sustainable communities	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A2	Low Emission Zones	Consider declaration of Low emission zone	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: regional • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_F1	Partnership & Travel Plans	Green travel plans	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Short term • Regulatory: Yes • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_F2	Partnership & Travel Plans	Individual travel plans	<ul style="list-style-type: none"> • Type: Other • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Blaby_AQActionplan_1

LA (a)	Measure code (b)	Title	Description	Other information
Blaby	Local_Blaby_A3	Physical Traffic Management	M1 speed limit reduction; traffic reduction on the M1	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A4	Physical Traffic Management	Ramp metering	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A5	Physical Traffic Management	Use of hard shoulder	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A6	Physical Traffic Management	Use of physical barriers to obstruct air flow and reduce noise to neighbouring houses.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: regional • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A7	Physical Traffic Management	Junction re-design	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A8	Physical Traffic Management	Variable speed limits	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Industry including heating and power

LA (a)	Measure code (b)	Title	Description	Other information
				<ul style="list-style-type: none"> production • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A9	Physical Traffic Management	Road re-design on A-road	<ul style="list-style-type: none"> • Type: Other • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A10	Physical Traffic Management	Improved signing on A-road	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local & regional • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A11	Public Transport Initiatives - Bus	improvement to bus services	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_F3	Public Transport Initiatives - Bus	Better public transport information	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_D1	Public Transport Initiatives - Bus	Subsidise bus services	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: regional

LA (a)	Measure code (b)	Title	Description	Other information
				<ul style="list-style-type: none"> • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A12	Re-Routing and Road hierachy	Diversion of vehicles to alternative routes	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A13	Roadside Emissions Testing	Roadside emission testing	<ul style="list-style-type: none"> • Type: Other • Sources affected: Transport • Spatial scale: regional • Implementation date: Ongoing • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A14	Roadside Emissions Testing	Vehicle idling bans	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Blaby	Local_Blaby_A15	UTMC Systems	SCOOT system	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: Ongoing • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Blaby_AQActionplan_1
Leicester	Local_Leicester_G1	Pedestrian and cycle priority	During the LTP period we plan to extend the cycle network to reach all areas of Loughborough. Loughborough is the principal focus of our funding for cycling infrastructure outside Central Leicestershire. In 2006/07 nine schemes to encourage walking or	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
			cycling were completed in Leicestershire.	<ul style="list-style-type: none"> • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_A1	Minimum emission standards for buses (Bus Quality Partnership)	The two largest bus operators in the county either have or are developing strategies that include initiatives to reduce the time engines are left idling.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_A2	Fleet Purchase favouring low emissions vehicles for City Council Fleet	The feasibility is being investigated of incorporating the requirement of low emission vehicles as part of the new District Council contract fleet.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_H1	Partnerships with (and advice for) other fleet operators	Leicester City Council is in a position to facilitate and provide advice and support for other local fleet operators through printed material and seminars to encourage 'greener' fleets to operate in the city. Existing partnerships such as Leicester Environment Partnership will be used and new links developed where necessary, with large fleet operators to promote reduced emissions. Small to medium sized businesses will also be targeted.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_C1	Promotion of alternative fuels	A feasibility study and report is to be undertaken into the use of renewable energy in the Council's transport fleet. Encouragement of licensed taxis / PHVs to use less environmentally damaging fuels through provision of advice, grants and other incentives.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_E1	Input into strategic/ area	Land use planning to reduce impact of new development on AQMAs and eliminate unnecessary	<ul style="list-style-type: none"> • Type: Technical; Education/information • Sources affected: Transport

LA (a)	Measure code (b)	Title	Description	Other information
		planning guidance (SPGs)	additional traffic through town centres.	<ul style="list-style-type: none"> • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_H2	Development Control procedures: Protocol for AQ assessment where development adversely affects air quality or development is sensitive to air quality	This action is already underway in that environmental health maintain a good working relationship with planners and have pre-planning application involvement in significant major developments, and it is these that are most likely to have an air quality impact. It is therefore extremely important that air quality professionals are involved in such discussions.	<ul style="list-style-type: none"> • Type: 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_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_D1	Increase parking restrictions / costs	The Loughborough Parking Strategy includes a common charging policy to discourage 'cruising' for cheaper spaces, and parking concessions for lower-emission vehicles for borough-council issued tickets and permits	<ul style="list-style-type: none"> • 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_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_H3	VMS parking guidance	The County Council's ongoing transport improvement programme includes schemes which are aimed at improving traffic flows through improvements to traffic signal and Intelligent Transport Systems, and major and minor junctions.	<ul style="list-style-type: none"> • Type: 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_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_G2	Green travel plans	A district 'green travel plan' is being developed, exploring the options for alternative modes of transport, with tasks and milestones to be developed in future years.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007

LA (a)	Measure code (b)	Title	Description	Other information
				<ul style="list-style-type: none"> • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Leicester_AQActionplan_1
Leicester	Local_Leicester_H4	Enforcement of speed limits and access restrictions	Fast driving and hard acceleration greatly increases vehicle emissions. Enforcement of speed limits would encourage more moderate driving, which would reduce NO _x emissions as well as improve safety on the roads for drivers, cyclists and pedestrians and therefore potentially making alternative modes of transport more appealing.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_2
Leicester	Local_Leicester_F1	Various education campaigns for public	Real time air quality and transport information provided via the web. Information campaigns targeted at general groups · Promote and reward car free days· Target short journeys· Health and air quality· Driving style	<ul style="list-style-type: none"> • 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_zone11_Leicester_AQActionplan_2
Leicester	Local_Leicester_F2	Education campaigns for schools	Environmental education is already covered in the school curriculum, and by addressing local issues and problems, the subject becomes more relevant for children. Information as part of the school curriculum can therefore be made relevant to the location of the school.	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_2
Leicester	Local_Leicester_G3	Improved buses	Newer buses, level access and improved bus stops and with traffic signal priority.	<ul style="list-style-type: none"> • Type: 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_zone11_Leicester_AQActionplan_2
Leicester	Local_Leicester_G4	Public transport	The system has been introduced as part of a package	<ul style="list-style-type: none"> • Type: Technical; Education/information

LA (a)	Measure code (b)	Title	Description	Other information
		information (real time)	of measures including newer buses, level access and improved bus stops and with traffic signal priority. Passenger numbers on these improved routes have increased in the range of 8-26%.	<ul style="list-style-type: none"> • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_2
Leicester	Local_Leicester_A3	Roadside emissions testing	In 2003, Leicester became the first local authority to use statutory powers to enforce vehicle emission standards within the AQMA, with other local authorities nationally later adopting the same powers. Emission Testing is an important element in the package of measures contained in the AQAP.	<ul style="list-style-type: none"> • Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2007 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Leicester_AQActionplan_2
Charnwood	Local_Charnwood_D 1	Parking Control Policies	The Loughborough Parking Strategy includes a common charging policy to discourage 'cruising' for cheaper spaces, and parking concessions for lower-emission vehicles for Borough Council issued tickets and permits. Civil Parking Enforcement (CPE) was introduced in Leicestershire from July 2007. This has seen the enforcement of parking regulations pass from the Police to the County and District Councils. The Loughborough Parking Strategy identified that a lack of enforcement regulations was a concern. The introduction of CPE is expected to greatly improve enforcement of parking and therefore assist demand management in Loughborough Town Centre by freeing road space for through traffic. We are undertaking a data gathering exercise to allow us to monitor the effectiveness of CPE, although no detailed analysis of the data has been completed to date. Initial observations have however identified that for the first 18 months of the CPE operation, there has been a steady decline in the number of Penalty Charge Notices issued on street, indicating a higher level of compliance with parking restrictions.	<ul style="list-style-type: none"> • 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_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_G 1	Improved access for cyclists and	Improvements have been made to cycleways across Loughborough both on and off the highway to help reduce congestion within the town. This has	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local

LA (a)	Measure code (b)	Title	Description	Other information
		pedestrians	delivered an increase in cycle usage, most notably on the A512 which saw a 14% increase in 2007 Members of the Charnwood Cycle User Group (CCUG) have assisted in the work providing input to route audits that have helped inform the programme of works, most notably on the A6, A512 and the A6004. A sub-group of the CCUG has provided positive feedback on the work undertaken to date. Existing tracks have been upgraded to current standards, cycle links have been provided to new housing developments in the town and new toucan crossings and improved signing have been provided across Loughborough to encourage people to cycle safely. The improvements have been funded by the County Council, Charnwood Borough Council, Sustrans and Cycling England.	<ul style="list-style-type: none"> • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_G 2	Improved bus services and facilities	<p>Work has taken place in the first two years of LTP2 to improve bus priority on the A6 into Loughborough. Upgrades have also been made to bus stops facilities and bus vehicles on routes into Loughborough.</p> <p>A number of bus operators in the County either have or are developing strategies that include initiatives to improve fuel efficiency. Both First Bus and Arriva are introducing driving training to reduce fuel consumption. One of the schemes involves the fitting of economy driving style LED indicators which will rate driving style as green, amber and red in relation to hard acceleration and harsh braking. This will have a positive benefit of also increasing customer comfort. Another example is the provision of information on timetables for drivers to turn off engines if they will be at bus stops for longer than 2 minutes.</p> <p>Bus operators are working to modernise their fleets. By working in partnership over a number of areas Arriva invested £9.6m in 54 new vehicles in 2006/07 which has significantly reduced the average age of their vehicle fleet. Older vehicles have been replaced with new vehicles containing lower emission Euro 4 engines.</p>	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1

LA (a)	Measure code (b)	Title	Description	Other information
			<p>Meynells Gorse Park and Ride vehicles were upgraded to EEV emission standards in mid 2008. In addition to this, the new Enderby Park and Ride service, introduced in November 2009 makes use of EEV vehicles.</p> <p>Outcome to date: ON TRACK. Bus patronage has increased in Loughborough from 2.86m in 2006/07 to 3.06m in 2007/08, and 3.69m in 2008/9.</p>	
Charnwood	Local_Charnwood_E1	Bus/rail interchange at Loughborough Station	<p>Planning Permission has been granted to build 122 dwellings and a new link road from Nottingham Road to Meadow Lane on derelict land around Loughborough Rail Station. This will enable a much improved access to the station, reducing delay and congestion in the area. Charnwood Borough Council are continuing to work with Network Rail to bring forward improvements to the station forecourt area, which combined with the new link road will enable greatly improved public transport interchange facilities at the station. Leicestershire County Council are facilitating construction of the link road and are also progressing traffic management improvements to surrounding narrow residential streets, including removing lorries from unsuitable routes and introducing a residents parking scheme.</p> <p>An Action Plan has been developed and the following initiatives have already been implemented:</p> <ol style="list-style-type: none"> 1. Introduction of Plus Bus scheme for Loughborough (May 09). 2. Production of sustainable travel information map for Loughborough Station (August 09). 3. Customer service staff trained to provide onward sustainable travel information to passengers (June 09). 4. Additional 20 secure cycle storage facilities installed. (March 09). 5. Interim improvements for bus access to station 	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Charnwood_AQActionplan_1

LA (a)	Measure code (b)	Title	Description	Other information
			<p>(March 09).</p> <p>Monitoring surveys on mode of travel to the station will be carried out in autumn 2010 and again in autumn 2011 to assess the impact of the initiatives.</p>	
Charnwood	Local_Charnwood_G3	Development of travel plans for new sites	<p>The LCC highways, transportation and development guide for developers requires a travel plan for new developments over a certain area or number of dwellings.</p> <p>Furthermore, national planning guidance (PPG13) specifies that even smaller developments will require travel plans where they might generate significant amounts of traffic in, or near to, air quality management areas.</p> <p>Work continues to encourage major employers across the County to put workplace travel plans in place to reduce congestion. We are working closely with District Councils where planning applications are involved.</p> <p>Currently CBC are consulting LSPs with a Travel Plan Survey</p>	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_F1	Fines for stationary idling vehicles	<p>Following a public consultation exercise held during 2006 Charnwood residents expressed concerns over such punitive measures.</p> <p>Although no further consideration has been given to this action, it should be noted that following the withdrawal of support from Nottingham and Derby City Councils the 6Cs study into the feasibility of other "economic charges" in respect to a congestion management package (to deal with the economic consequences of congestion in the 6Cs area) this has also been discontinued.</p>	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_B	Improve fuel	Improve fuel quality	<ul style="list-style-type: none"> • Type: Technical

LA (a)	Measure code (b)	Title	Description	Other information
	1	quality		<ul style="list-style-type: none"> • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_F2	CBC will promote the local use of VOSAs 'dirty diesel hotline' to enable public intervention to address poorly maintained HGV fleet operators.	Contact information for the 'hotline' is included within the Environmental Protection pages of the Council's website.	<ul style="list-style-type: none"> • Type: Other • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_E 2	Development control	CBC works closely with all partners to ensure air quality is taken into account in respect of air quality issues during the planning process	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_E 3	Development of supplementary planning guidance.	Whilst no formal supplementary planning guidance has been introduced, core policy links are being achieved within the Local Development Framework in respect of matters in relation to air quality assessments and development proposals.	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_H 1	LAQM	<p>Charnwood fulfil their duties under the Environment Act 1995 in respect of monitoring and reviewing current air quality within the Borough.</p> <p>Our air quality monitoring network is frequently</p>	<ul style="list-style-type: none"> • Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
			reviewed and tailored towards areas of air quality concern. All data is regularly published on the Council website for public consumption	<ul style="list-style-type: none"> • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_F3	Provision of information	All LAQM documents that have been accepted by CBC Cabinet/Regulatory Committee/Councillors (where applicable) are made available on the Council's webpages	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_F4	Awareness Raising	Promotional activities have included; vehicle emission testing days held at local supermarkets within the Borough in conjunction with VoSA Officers, and regular articles for inclusion in the Borough's periodical "Charnwood News"	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_AQActionplan_1
Charnwood	Local_Charnwood_F5	Energy Awareness	<p>Charnwood Borough Council has introduced an Environmental Management System (EMS) for its own activities as well as promoting energy awareness throughout the Borough.</p> <p>The EMS has been introduced across the Council's sites and services with a number of Council's sites achieving certification under ISO14001.</p> <p>As part of this EMS the Council has adopted an Environmental Policy which sets out the council's overall direction in terms of environmental performance. A copy of the policy can be downloaded from http://www.charnwood.gov.uk/files/documents/environmental_policy/charnwoodboroughcouncilenvironmentalpolicy.pdf</p>	<ul style="list-style-type: none"> • Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone11_Charnwood_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/NO₂ten/>

