



# Air Quality Plan for tackling roadside nitrogen dioxide concentrations in Leicester Urban Area (UK0011)

**July 2017** 









Llywodraeth Cymru Welsh Government



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### Contents

1	Intro	oduction	3
	1.1	This document	3
	1.2	Context	3
	1.3	Zone status	3
	1.4	Plan structure	4
2	Gen	neral Information About the Zone	4
	2.1	Administrative information	4
	2.2	Assessment details	6
	2.3	Air quality reporting	8
3	Ove	erall Picture for 2015 Reference Year	8
	3.1	Introduction	8
	3.2	Reference year: NO <sub>2</sub> _UK0011_Annual_1	8
4	Меа	asures	13
	4.1	Introduction	13
	4.2		
		Source apportionment	13
	4.3		13 13
		Measures	
5	4.3 4.4	Measures	13
5	4.3 4.4	Measures	13 14
5	4.3 4.4 <b>Bas</b> 5.1	Measures	13 14 <b>15</b> 15
_	4.3 4.4 <b>Bas</b> 5.1	Measures	13 14 <b>15</b> 15
_	4.3 4.4 <b>Bas</b> 5.1 5.2	Measures	13 14 <b>15</b> 15
_	4.3 4.4 <b>Bas</b> 5.1 5.2	Measures	13 14 <b>15</b> 15 15 <b>20</b>

# **1** Introduction

# 1.1 This document

This document is the Leicester Urban Area agglomeration zone (UK0011) updated air quality plan for tackling roadside nitrogen dioxide ( $NO_2$ ) concentrations. This is an update to the air quality plan published in December 2015 (https://www.gov.uk/government/collections/air-quality-plan-for-nitrogen- dioxide-no2-in-uk-2015).

This plan presents the following information:

- General information regarding the Leicester Urban Area agglomeration zone
- Details of NO2 exceedance situation 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 the Leicester Urban Area agglomeration zone should be read in conjunction with the separate UK Air Quality Plan for tackling roadside nitrogen dioxide concentrations (hereafter referred to as the overview document) which sets out, amongst other things, the authorities responsible for delivering air quality improvements and the list of UK and national measures that are applied in some or all UK zones. The measures presented in this zone plan, and the accompanying UK overview document show how the UK will ensure that compliance with the NO<sub>2</sub> limit values is achieved in the shortest possible time.

This plan should also be read in conjunction with the supporting UK Technical Report 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 mean limit value: an annual mean concentration of no more than 40  $\mu$ gm<sup>-3</sup>
- The hourly limit value: no more than 18 exceedances of 200  $\mu$ gm<sup>-3</sup> in a calendar year

The Air Quality Directive stipulates that compliance with the NO<sub>2</sub> limit values will be achieved by 01/01/2010.

## 1.3 Zone status

The assessment undertaken for the Leicester Urban Area agglomeration zone indicates that the annual limit value was exceeded in 2015 but is likely to be achieved by 2020 through the introduction of measures included in the baseline.

# 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  $NO_2$  levels in this agglomeration zone for the 2015 reference year of this air quality plan. This includes a 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 2015 is given in Section 4.

Baseline modelled projections for each year from 2017 to 2030 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 implement. However, it has not been possible to quantify the impact of all the 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: 2015 Extent of zone: Figure 1 shows the area covered by the Leicester Urban Area agglomeration zone. Local Authorities within the 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 the list correspond to the numbers in Figure 2.

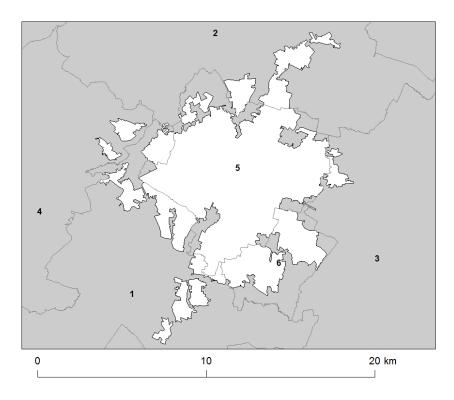
- 1. Blaby District Council
- 2. Charnwood Borough Council
- 3. Harborough District Council
- 4. Hinckley and Bosworth Borough Council
- 5. Leicester City Council
- 6. Oadby & Wigston District Council

(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 Leicester Urban Area agglomeration zone (UK0011).

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# 2.2 Assessment details

#### Measurements

 $NO_2$  measurements in this zone were available in 2015 from the following national network monitoring stations ( $NO_2$  data capture<sup>1</sup> for each station in 2015 shown in brackets):

- 1. Leicester University GB1026A (99%)
- 2. Leicester A594 Roadside GB1051A (58%)

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 2015 reference year has been carried out for the whole of the UK. This modelling covers the following extent within this zone:

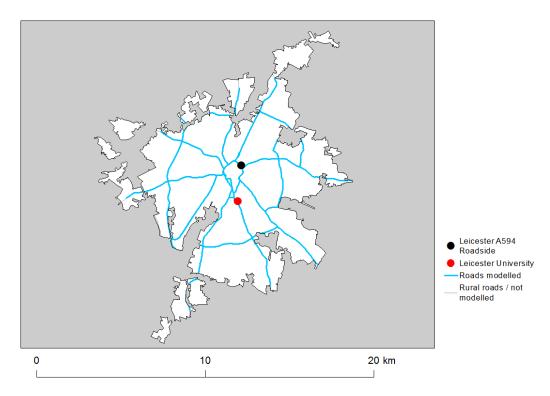
- Total background area within zone (approx): 101 km<sup>2</sup>
- Total population within zone (approx): 432,018 people

#### Zone maps

Figure 3 presents the location of the  $NO_2$  monitoring stations within this zone for 2015 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 km x 1 km resolution.

<sup>&</sup>lt;sup>1</sup>Annual data capture is the proportion of hours in a year for which there are valid measurements at a monitoring station, expressed in this document as a percentage. The Implementing Provisions on Reporting (IPR) guidance requires that a minimum data capture of 85% is required for compliance reporting (that is 90% valid data, plus a 5% allowance for data loss due to planned maintenance and calibration). Monitoring stations with at least 75% data capture have been included in the modelling analysis to ensure that a greater number of operational monitoring sites have been used for model calibration and verification purposes. For more information on compliance reporting under European Directives see Section 2.3.

Figure 3: Map showing the location of the  $NO_2$  monitoring stations with valid data in 2015 and roads where concentrations have been modelled within the Leicester Urban Area (UK0011) agglomeration zone.



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### 2.3 Air quality reporting

From 2001 to 2012 the UK has reported annually on air quality concentrations using a standard Excel questionnaire (Decision 2004/461/EC). These questionnaires are available online from <a href="http://cdr.eionet.europa.eu/gb/eu/annualair">http://cdr.eionet.europa.eu/gb/eu/annualair</a>. Since 2013 reporting has been via an e-reporting system (Decision 2011/850/EU) <a href="http://cdr.eionet.europa.eu/gb/eu/annualair">http://cdr.eionet.europa.eu/gb/eu/annualair</a>. Since 2013 reporting has been via an e-reporting system (Decision 2011/850/EU) <a href="http://cdr.eionet.europa.eu/gb/eu/annualair">http://cdr.eionet.europa.eu/gb/eu/annualair</a>. Since 2013 reporting has been via an e-reporting system (Decision 2011/850/EU) <a href="http://cdr.eionet.europa.eu/gb/eu/annualair">http://cdr.eionet.europa.eu/gb/eu/annualair</a>. Since 2013 reporting has been via an e-reporting system (Decision 2011/850/EU)

In addition, the UK has reported on air quality plans and programmes (Decision 2004/224/EC) since 2003. The most recent previous UK air quality plan for nitrogen dioxide was published in 2015. The plan and supporting documents are available at https://www.gov.uk/government/collections/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2015 and the submission of this plan via e-reporting is published at http://cdr.eionet.europa. eu/gb/eu/aqd/h/envvryhbq/. Historic plans and programmes are available on http://cdr.eionet.europa.eu/gb/eu/aqpp.

# **3 Overall Picture for 2015 Reference Year**

## 3.1 Introduction

There are two limit values for the protection of health for NO<sub>2</sub>. These are:

- The annual limit value (annual mean concentration of no more than 40  $\mu$ gm<sup>-3</sup>)
- The hourly limit value (no more than 18 hourly exceedances of 200  $\mu$ gm<sup>-3</sup> in a calendar year)

Within the Leicester Urban Area agglomeration zone the annual limit value was exceeded in 2015. Hence, one exceedance situation for this zone has been defined, NO<sub>2</sub>\_UK0011\_Annual\_1, which covers exceedances of the annual limit value. This exceedance situation is described below.

# 3.2 Reference year: NO<sub>2</sub>\_UK0011\_Annual\_1

The NO<sub>2</sub>\_UK0011\_Annual\_1 exceedance situation covers all exceedances of the annual mean limit value in the Leicester Urban Area agglomeration zone in 2015.

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 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 2015. Table 2 summarises modelled annual mean NO<sub>2</sub> concentrations in this exceedance situation for the same time period. This table shows that, in 2015, 8.0 km of road length was modelled to exceed the annual limit value. There were no modelled background exceedances of the annual limit value. The maximum measured concentration in the zone varies due to changes in 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. Maps showing the modelled annual mean NO<sub>2</sub> concentrations for 2015 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 the maps.

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. Emissions to air are regulated in terms of oxides of nitrogen

 $(NO_X)$ , which is the term used to describe the sum of nitrogen dioxide  $(NO_2)$  and nitric oxide (NO). Ambient  $NO_2$  concentrations include contributions from both directly emitted primary  $NO_2$  and secondary  $NO_2$  formed in the atmosphere by the oxidation of NO. As such, it is not possible to calculate an unambiguous source apportionment specifically for  $NO_2$  concentrations; therefore the source apportionment in this plan is presented for  $NO_X$ , rather than for  $NO_2$  (for further details please see the UK Technical Report). Table 3 summarises the modelled  $NO_X$  source apportionment for the section of road with the highest  $NO_2$  concentration in this exceedance situation in 2015. This is important information because it shows which sources need to be tackled at the location with the largest compliance gap in the exceedance situation.

Figure B.1 in Annex B 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 2015.

Table 1: Measured annual mean NO<sub>2</sub> concentrations at national network stations in NO2\_UK0011\_Annual\_1 for 2001 onwards,  $\mu$ gm<sup>-3</sup> (a). Data capture shown in brackets.

Site name (EOI code)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Leicester Centre (GB0597A) Leicester University (GB1026A) Leicester A594 Roadside (GB1051A)	35 (98)	35 (94)	37 (93)	36 (85)	33 (97)	30 (98)	32 (99)	30 (99)	29 (93)	42 (81)	30 (70)	30 (89)	25 (67) 32 (21)	27 (95)	27 (99) 40 (58)

(a) Annual Mean Limit Value = 40  $\mu$ gm<sup>-3</sup>

#### Table 2: Annual mean NO<sub>2</sub> model results in NO<sub>2</sub>\_UK0011\_Annual\_1 for 2001 onwards.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Road length exceeding (km)	77.2	36.4	71.4	46.3	47.8	46.5	51.6	24.1	25.3	43.4	18.6	18.5	19.4	16.8	8.0
Background exceeding (km <sup>2</sup> )	15	0	5	0	0	0	0	0	0	0	2	1	1	0	0
Maximum modelled concentration ( $\mu$ gm <sup>-3</sup> ) (a)	64.0	54.0	61.4	58.1	59.2	56.2	58.2	58.2	66.5	73.5	66	62	53	51	47

(a) Annual Mean Limit Value = 40  $\mu$ gm<sup>-3</sup>

Table 3: Modelled annual mean NO<sub>X</sub> source apportionment at the location with the highest NO<sub>2</sub> concentration in 2015 in NO2\_UK0011\_Annual\_1 ( $\mu$ gm<sup>-3</sup>) traffic count point 48489 on the A594; OS grid (m): 458290, 304630).

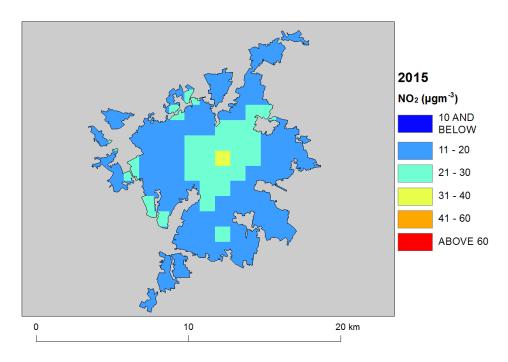
Spatial scale	Component	Concentration at highest road link (a)
Designal background courses NOv (i.e. contributions from	Total	7.2
Regional background sources NOx (i.e. contributions from	From within the UK	4.5
distant sources of > 30 km from the receptor).	From transboundary sources (includes shipping and other EU	2.7
	member states)	
	Total	35.9
	From road traffic sources	20.2
	From industry (including heat and power generation)	2.5
	From agriculture	NA
Urban background sources NOx (i.e. sources	From commercial/residential sources	6.2
located within 0.3 - 30 km from the receptor).	From shipping	0.0
	From off road mobile machinery	4.1
	From natural sources	N
	From transboundary sources	N
	From other urban background sources	1.9
	Total	73.
	From petrol cars	7.
	From diesel cars	32.
	From HGV rigid (b)	6.
Local sources NOx (i.e. contributions from sources	From HGV articulated (b)	1.
< 0.3 km from the receptor).	From buses	10.3
	From petrol LGVs (c)	0.
	From diesel LGVs (c)	14.
	From motorcycles	0.
	From London taxis	0.
Total NOx (i.e. regional background + urban background + lc	cal components)	116.
Total NO <sub>2</sub> (i.e. regional background + urban background + lo	cal components)	47

(a) Components are listed with  $NO_X$  concentration of NA when there is no source from this sector.

(b) HGV = heavy goods vehicle

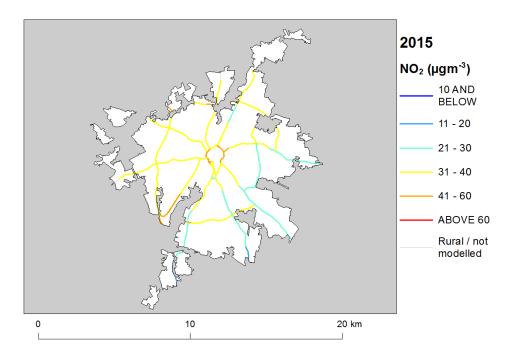
(c) LGV = light goods vehicle

Figure 4: Map of modelled background annual mean  $NO_2$  concentrations 2015. 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  $NO_2$  concentrations 2015. Modelled exceedances of the annual limit value are shown in orange and red.



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# 4 Measures

# 4.1 Introduction

This section gives details of measures that address exceedances of the  $NO_2$  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  $NO_2$  exceedance situation 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 diesel cars at the location of maximum exceedance with a contribution of 32.9  $\mu$ gm<sup>-3</sup> of NO<sub>X</sub> out of a total of 116.5  $\mu$ gm<sup>-3</sup> of NO<sub>X</sub>. Diesel cars, diesel LGVs and on some roads rigid HGVs or buses 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 to address the urban background sources may also be beneficial.

### 4.3 Measures

Measures potentially affecting  $NO_2$  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.

Relevant Local Authority measures within this exceedance situation are listed in Table C.1 (see Annex C). Table C.1 lists measures which a local authority has carried out or is in the process of carrying out, plus additional measures which the local authority is committed to carrying out or is investigating with the expectation of carrying out in the future.

#### Overview

Leicester's Local Transport Plan aims to reduce the negative impact of traffic on air quality and deliver improvements to access to key services by public transport, walking and cycling that will help improve air quality.

The Leicester North West Major Transport Scheme, with attributed funding of £19.2 million, is run jointly by Leicester City Council and Leicestershire County Council and is intended to produce significant network improvements. The scheme consists of a wedge broadly around the transport corridors of the A50 (Groby Road) and the A6 (Loughborough Road). It will be constructed over three years beginning in 2015/16. There will be a phased approach to delivering the construction elements of the scheme mainly to minimise disruption to road users during the three years of construction. Typically the works are improved junctions and roads, improved signal control, cycle and pedestrian route improvements. Buses will also benefit from continued development of real-time information and smart ticketing.

The Healthier Air for Leicester action plan, adopted in November 2015, concentrates on improving air quality through sixteen actions grouped into four themes: reducing transport emissions; promoting sustainable transport; improving traffic management; and, enhancing planning and the environment. A number of actions or projects have been completed or are in progress, including:

- the opening of the new Haymarket Bus Station to encourage uptake of public transport;
- procurement of 15 electric council vehicles to replace diesel ones. A further 95 vehicles are likely to be replaced over the next two years;
- ongoing delivery of the multi-million pound "Connecting Leicester" walking and cycling improvements;
- consultation with Leicester hackney cab drivers on proposals to make ultra-low emission vehicles a condition within new licensing applications.

The action plan includes a Low Emission Zone which requires all hackney cabs and buses to meet a minimum of Euro IV emission standards by the end of 2017. The plan also includes an Ultra-Low Emission Zone which will extend the emission requirements to cars, light and heavy goods vehicles, subject to more detailed feasibility studies.

The policies that have been adopted within the area will help improve air quality by reducing the level of emissions. As part of this, a number of buses have been retrofitted and taxi and freight operators have been encouraged to change vehicles to achieve emission reductions. For example, there is a 50% reduction on the license fee for taxis to go to the Euro VI standard. To help encourage a shift away from using private cars for travelling, a number of cycling routes have also been implemented that will reduce congestion and an initiative to engage 100 small businesses to carry out staff cycle training.

In January 2017 Leicester City Council was awarded £3.2 million from the Access Fund for Sustainable Travel to continue the "Choose How You Move" initiative which encourages businesses and residents to increase their walking, cycling and sustainable transport activities. The Council was also awarded funding in January 2017 from the Air Quality Grant programme for a work-based active travelling local campaign.

## 4.4 Measures timescales

Timescales for national measures are given in the UK overview document.

Local Authorities report on progress with the implementation of their action plans annually and review action plan measures regularly. Information on local measures was collected in February/March 2015. Local authorities

were asked to review and, where necessary, provide updates to measures in March/April 2017. Hence, any Local Authority action plans and measures adopted by Local Authorities after this time have not been included in this air quality plan, unless additional information was provided during the consultation process.

The reference year for this air quality plan is 2015. Where measures started and finished before 2015, then the improvement in air quality resulting from these measures will have already taken place before the reference year and the impact of these measures will have been included in the assessment where the measure has had an impact on the statistics used to compile the emission inventory. Many measures started before the reference year and will continue to have a beneficial impact on air quality well beyond the reference year. Measures with a start date before 2015 and an end date after 2015 may have an impact on concentrations in the reference year and a further impact in subsequent years. Where the Status column in Annex C is 'Implementation', this shows that this measure is already underway or that there is a commitment for this measure to go ahead. Where the Status is 'Planning', 'Preparation' or 'Other' the level of commitment is less clear and it is possible some of these measures may not go ahead.

# **5 Baseline Model Projections**

# 5.1 Overview of model projections

Model projections for each year from 2017 to 2030, starting from the 2015 reference year described in Section 3, have been calculated in order to determine when compliance with the  $NO_2$  limit values is likely to be achieved on the basis of EU, regional and local measures currently planned. Details of the methods used for the baseline emissions and 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 2015 (used as a basis for the compilation of the emission inventory) or in the traffic activity projections to 2020 and beyond (used to calculate the emissions 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.

# 5.2 Baseline projections: NO<sub>2</sub>\_UK0011\_Annual\_1

Table 4 presents summary results for the baseline model projections for each year from 2017 to 2030 for the NO<sub>2</sub>\_UK0011\_Annual\_1 exceedance situation. This shows that the maximum modelled annual mean NO<sub>2</sub> concentration predicted for 2020 in this exceedance situation is 40  $\mu$ gm<sup>-3</sup>. Hence, the model results suggest that compliance with the NO<sub>2</sub> annual limit value is likely to be achieved by 2020 under baseline conditions.

Figure 6 and 7 presents maps of projected annual mean  $NO_2$  concentrations at background and roadside locations respectively in 2020, the year at which compliance is achieved. For reference Figures 8 and 9 show maps of projected annual mean  $NO_2$  concentrations in 2020, 2025 and 2030 for background and roadside locations respectively.

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

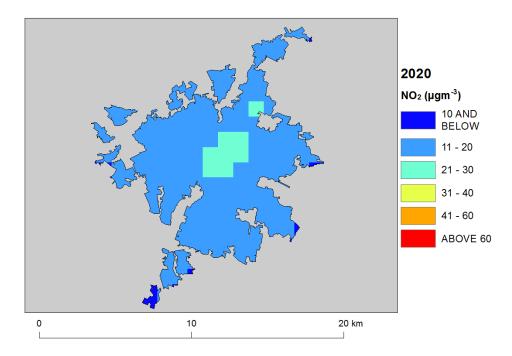
Table 4: Annual mean NO<sub>2</sub> model results in NO<sub>2</sub>\_UK0011\_Annual\_1.

	2015	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	2015	2017	2010	2019	2020	2021	2022	2023	2024	2025	2020	2021	2020	2029	2030
Road length exceeding (km)	8.0	5.9	4.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Background exceeding (km <sup>2</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum modelled concentration NO <sub>2</sub> (µgm <sup>-3</sup> ) (a)	47	45	44	42	40	38	36	35	33	32	31	30	29	28	28
Corresponding modelled concentration NOx ( $\mu$ gm <sup>-3</sup> ) (b)	117	109	104	98	92	86	83	79	75	72	69	66	64	62	60

(a) Annual Mean Limit Value = 40  $\mu$ gm<sup>-3</sup>

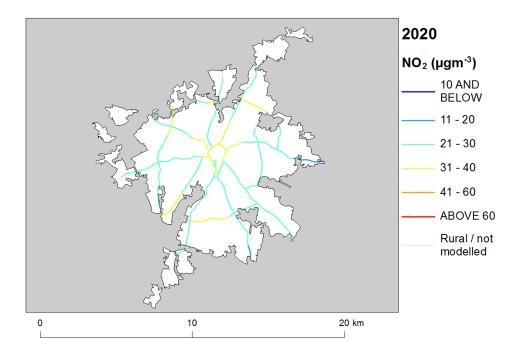
(b) NO<sub>X</sub> is recorded here for comparison with the NO<sub>X</sub> source apportionment graphs for 2015 presented in Annex B of this plan. Limit values for EU directive purposes are based on NO<sub>2</sub>.

Figure 6: Background baseline projections of annual mean  $NO_2$  concentrations in 2020, the year at which compliance is achieved under baseline conditions. 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  $NO_2$  concentrations in 2020, the year at which compliance is achieved under baseline conditions. Modelled exceedances of the annual limit value are shown in orange and red.



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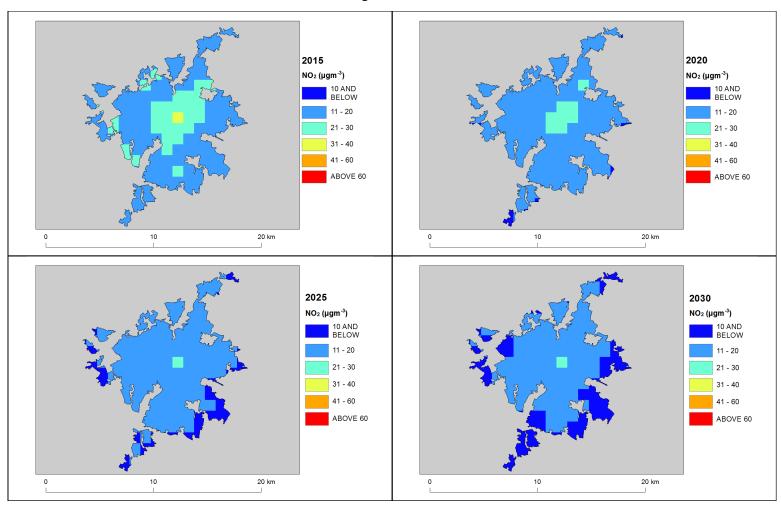


Figure 8: Background baseline projections of annual mean  $NO_2$  concentrations in 2020, 2025 and 2030. 2015 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.

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100

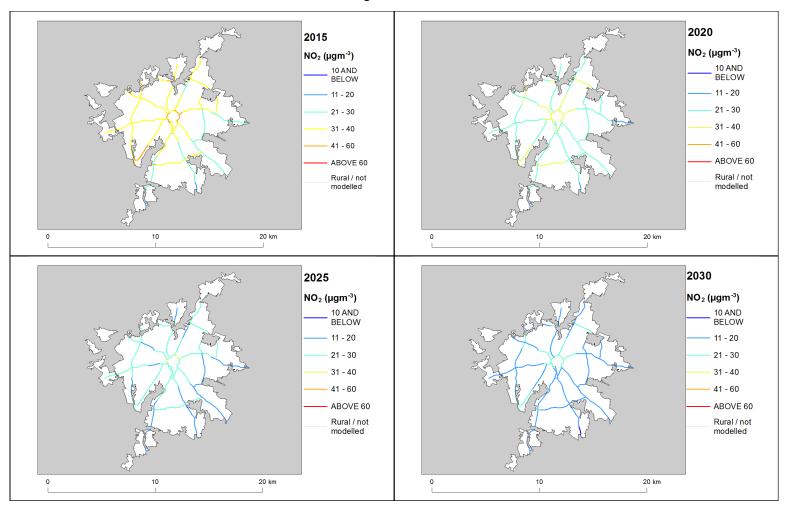


Figure 9: Roadside baseline projections of annual mean  $NO_2$  concentrations in 2020, 2025 and 2030. 2015 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.

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19

# Annexes

# A References

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.

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Air Quality Expert Group (AQEG, 2004). Nitrogen Dioxide in the United Kingdom. http://uk-air.defra.gov.uk/ library/aqeg/publications

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

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, L156/78

Decision 2011/850/EU. Commission Implementing Decision of 12 December 2011 laying down rules for Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council as regards the reciprocal exchange of information and reporting on ambient air quality. From the Official Journal of the European Union, 17.12.2011, En Series, L335/86

IPR 2013. Guidance on the Commission Implementing Decision laying down rules for Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council as regards the reciprocal exchange of information and reporting on ambient air (Decision 2011/850/EU). http://ec.europa.eu/environment/air/quality/ legislation/pdf/IPR\_guidance1.pdf

UK Air Quality Plan for tackling roadside nitrogen dioxide concentrations and the UK technical report are available at: http://www.gov.uk/defra.

# **B** Source apportionment graphs

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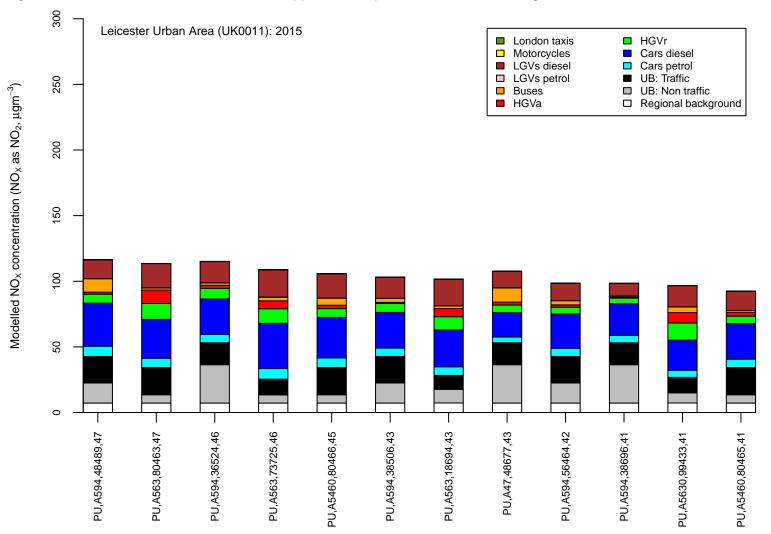


Figure B.1: Annual mean roadside NO<sub>X</sub> source apportionment plots for all roads exceeding the annual mean NO<sub>2</sub> limit value in 2015.

Road class (MU = motorway, PU = primary road, TU = trunk road), road number, census id 15 and modelled NO<sub>2</sub> concentration ( $\mu$ gm<sup>-3</sup>)

22

# **C** Tables of measures

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Measure code	Description	Focus	Classification	Status	Other information
Blaby District Council_1	Smart Motorways	Sections of M1	Traffic planning and management: Other measure	Preparation	Start date: 2016 Expected end date: 2025 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_2	Painted chevrons	Sections of M1	Traffic planning and management: Other measure	Preparation	Start date: 2016 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_3	Noise barriers	Sections of M1	Traffic planning and management: Other measure	Preparation	Start date: 2016 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_4	VMS	Sections of M1	Public information and Education: Other mechanisms	Preparation	Start date: 2016 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_5	Ecodriving	Sections of M1	Other measure: Other measure	Preparation	Start date: 2016 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_6	Traffic management measures	Certain junctions in AQMAs	Traffic planning and management: Other measure	Preparation	Start date: 2017 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/
Blaby District Council_7	Ramp Metering	Sections of M1	Traffic planning and management: Other measure	Preparation	Start date: 2016 Expected end date: 2025 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/

#### Table C.1 Relevant Local Authority measures within Leicester Urban Area (UK0011)

Measure code	Description	Focus	Classification	Status	Other information
Blaby District Council_8	Integration of Air Quality into planning policy	District	Other measure: Other measure	Planning	Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_1	Eastern Gateway Project:	Construction of a new link road [combined with the closure of Ratcliffe Road (currently in an AQMA) to through-traffic], from Nottingham Road to Meadow Lane on derelict land around Loughborough Rail Station. Enabling much improved access to the station, reducing delay and congestion in the area. Improvements to the station forecourt area, combined with the new link road has enabled greatly improved and consolidated public transport interchange facilities at the station i.e. integrated bus hub, taxi ranks, cycle racks. Associated traffic management improvements to surrounding narrow residential streets, including removing lorries from unsuitable routes and introducing a residents parking scheme.	Traffic planning and management: Improvement of public transport	Evaluation	Start date: 2011 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_2	Loughborough Inner Relief Road	Construction of an inner relief road to redirect all traffic away from the arterial A6 (High Street and Swan Street) allowing for pedestrianisation of the town centre. The scheme incorporates new bus stops and travel information 'waypoints' in the pedestrianised area, consolidated taxi ranks, improved traffic management (control and signage),	Traffic planning and management: Improvement of public transport	Evaluation	Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_3	Epinal Way Junction	parking restrictions Alterations made to junction layout, providing extra lanes and improved traffic signals to aid traffic flow.	Traffic planning and management: Other measure	Evaluation	Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: N/A

Target emissions reduction: N/A

Measure code	Description	Focus	Classification	Status	Other information
Charnwood Borough Council_4	Put in two electric charge points at Beehive Lane car park Loughborough for public use	N/A	Public procurement: Other measure	Implementation	Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Equipment on site and contract in place with contractor to supply to public Target emissions reduction: Not known
Charnwood Borough Council_5	Renew 3 no. street wardens fleet vehicles with 2 electric charge vehicles and one Diesel. Currently have 3 diesel vehicles	N/A	Public procurement: New vehicles, including low emission vehicles	Implementation	Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: New vehicles on site including 2 electric charge vehicles Target emissions reduction: Not known
Charnwood Borough Council_6	Driver assessments	N/A	Other measure: Other measure	Planning	Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Reduction in fuel consumption Target emissions reduction: Not Known
Charnwood Borough Council_7	Investment in cycle route network to reach all parts of Loughborough	N/A	Traffic planning and management: Expansion of bicycle and pedestrian infrastructure	Other	Start date: 2007 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Monitoring of %age increase in cycling at counting points across Loughborough Target emissions reduction: Not known
Charnwood Borough Council_8	Evaluation of fewer parking spaces or differentiation of parking fees	N/A	Traffic planning and management: Management of parking places	Other	Start date: 2007 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Incorporating the effectiveness of Civil Parking Enforcement (CPE) Target emissions reduction: Not known
Charnwood Borough Council_9	Staff Car sharing scheme	N/A	Other measure: Other measure	Other	Start date: 2005 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A

Measure code	Description	Focus	Classification	Status	Other information
Charnwood Borough Council_10	CO2 banding for staff car parking allowance / permits	N/A	Traffic planning and management: Differentiation of parking fees	Other	Start date: 2005 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_11	Increasing bus travel through work on Quality Bus Partnership (QBP)	N/A	Traffic planning and management: Improvement of public transport	Other	Start date: 2007 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_12	Birstall 'Park & Ride'	N/A	Traffic planning and management: Improvement of public transport	Other	Start date: 2011 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_13	Voluntary public emission testing with VOSA	N/A	Public information and Education: Other mechanisms	Other	Start date: 2006 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_14	Increasing travel by train with bus connections to town centre and key destinations	N/A	Traffic planning and management: Improvement of public transport	Other	Start date: 2006 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_15	Personalised Travel Planning and Accessibility Team set up to promote sustainable travel choices	N/A	Traffic planning and management: Encouragement of shift of transport modes	Other	Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_16	Network management for roadworks, incidents, and planned events	N/A	Traffic planning and management: Other measure	Other	Start date: 2007 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A

Target emissions reduction: N/A

Measure code	Description	Focus	Classification	Status	Other information
Charnwood Borough Council_17	School Travel Planning	N/A	Traffic planning and management: Encouragement of shift of transport modes	Other	Start date: 2007 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Schools with travel plans in place and monitoring the % of journeys to school as the only pupil Target emissions reduction: N/A
Charnwood Borough Council_18	Providing more consistent and reliable journey times	N/A	Traffic planning and management: Other measure	Evaluation	Start date: 2014 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Average vehicle speeds (weekday morning peak) Target emissions reduction: N/A
Charnwood Borough Council_19	Following completion of Town Centre Improvement Scheme, review TRO arrangements and signal operations at key junctions in / around town	N/A	Traffic planning and management: Other measure	Planning	Start date: 2017 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Charnwood Borough Council_20	Programme of network signing improvements (including de-cluttering)	N/A	Traffic planning and management: Other measure	Planning	Start date: 2017 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A
Leicester City Council_1	Air Quality Action Plan	Upgraded Air Quality Plan for Leicester	Other measure: Other measure	Implementation	Start date: 2015 Expected end date: 2025 Spatial scale: Whole town or city Source affected: Transport Indicator: Review in 2018 and 2023 Target emissions reduction: < 1%
Leicester City Council_2	AQGS LestAIR	Low Emission Strategy study for Leicester	Other measure: Other measure	Evaluation	Start date: 2012 Expected end date: 2012 Spatial scale: Whole town or city Source affected: Transport Indicator: Final report delivered Target emissions reduction: <0.1 %
Leicester City Council_4	Reduction of bus emissions _Breathe I	Retrofitting of 32 buses on Melton road corridor	Public procurement: Other measure	Implementation	Start date: 2013 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: No of buses retrofitted Target emissions reduction: <0.5%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_5	Reduction of bus emissions _Breathe II	Retrofitting 5 buses from Centerbus fleet on Melton road corridor	Other measure: Other measure	Implementation	Start date: 2014 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: No of buses retrofitted Target emissions reduction: <0.1%
Leicester City Council_6	Low emission zone for buses	Emission standards for buses using new Haymarket Bus Station	Traffic planning and management: Low emission zones	Evaluation	Start date: 2017 Expected end date: 2018 Spatial scale: Whole town or city Source affected: Transport Indicator: LEZ Buses in place Target emissions reduction: <0.1%
Leicester City Council_7	Ultra Low emission zone	LestAir AQGS project	Traffic planning and management: Low emission zones	Evaluation	Start date: 2022 Expected end date: 2025 Spatial scale: Whole town or city Source affected: Transport Indicator: ULEZ in place Target emissions reduction: <0.1%
Leicester City Council_8	Investigation to introduce gas powered buses	AQGS bid - business case to investigate an introduction of gas powered buses in Leicester	Public procurement: Other measure	Preparation	Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Delivery of final report Target emissions reduction: <0.0%
Leicester City Council_9	Encourage bus, taxi and freight operators to introduce LEV's	OLEV bids to introduce LEVs to Leicester - taxis, buses	Public procurement: New vehicles, including low emission vehicles	Planning	Start date: 2015 Expected end date: 2025 Spatial scale: Whole town or city Source affected: Transport Indicator: Obtaining grant for LEVs Target emissions reduction: <0.1%
Leicester City Council_10	FQP - Improved freight operations	Freight operators in Leicester and Leicestershire	Other measure: Other measure	Implementation	Start date: 2001 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Dialog between LCC and freight operators Target emissions reduction: <0.01%
Leicester City Council_11	Investigate urban freight consolidation centre	AQGS project : Revised air quality action plan interventions	Traffic planning and management: Freight transport measure	Evaluation	Start date: 2017 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Final report delivered Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_12	Partnership with bus operators	Quality Bus Partnership with bus operators in Leicester	Public procurement: Other measure	Implementation	Start date: 2001 Expected end date: 2023 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Dialog between LCC and bus operators Target emissions reduction: <0.1%
Leicester City Council_13	Greener driving training for LCC and others	Cleaner driving aimed at reducing pollution	Other measure: Other measure	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Ongoing project Target emissions reduction: <0.1%
Leicester City Council_14	Promote ULEV infrastructure (OLEV)	Electric cars -Plugged In Places, installation of charging points for electric vehicles	Public procurement: New vehicles, including low emission vehicles	Planning	Start date: 2012 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of electric sockets installed Target emissions reduction: <0.1%
Leicester City Council_15	Fuelling Infrastructure incl. shared arrangements	AQGS study for gas powered buses	Public procurement: Other measure	Planning	Start date: 2015 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Final report delivered Target emissions reduction: <0.1%
Leicester City Council_16	Progressive reduction in emissions from LCC fleet	LCC fleet reviews	Public procurement: Other measure	Implementation	Start date: 2001 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Annual reports Target emissions reduction: <0.1%
Leicester City Council_17	Electric vehicles trial	Trial of 2 electric vehicles in LCC fleet	Other measure: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Uptake of 2 electric vehicles Target emissions reduction: <0.1%
Leicester City Council_18	Essential user status review	Reduce the no of vehicles used by staff	Other measure: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Assessment completed Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_19	LCC Fleet Review	Review of council fleet	Other measure: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Finished assessment of the whole fleet Target emissions reduction: <0.1%
Leicester City Council_20	Reduce harmful emissions from taxis	Licensing Policy - taxis to Euro IV standard receive 50% discount on licensing fee	Permit systems and economic instruments: Introduction/increase of environment taxes	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: No of licences issued Target emissions reduction: <0.2%
Leicester City Council_21	Support electrification of Midland Main Line	Electrification of Midland Mainline through Leicester	Public procurement: Other measure	Other	Start date: 2012 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: Electrification complete Target emissions reduction: <0.1%
Leicester City Council_22	Implement Sustainable Public Procurement Guide	LCC Procurement Guide	Other measure: Other measure	Preparation	Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: New guide delivered Target emissions reduction: <0.1%
Leicester City Council_23	Phase II Connecting Leicester - Walking & Cycling	A scheme to create connections to provide a safe, family and pedestrian orientated city centre. Connecting the different parts of the city centre and reducing the dominance of roads to create an attractive environment for local people to enjoy their historic city. It will also help businesses to flourish and attract new visitors.	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2015 Expected end date: 2019 Spatial scale: Whole town or city Source affected: Other, please specify Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_24	Cycling routes	Connecting Leicester	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2012 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: No of Cycling routes implemented Target emissions reduction: <0.5%
Leicester City Council_25	Carbon action planning and the behavioural change	Planning for addressing the behavioural change	Other measure: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of actions implemente Target emissions reduction: <0.019

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_26	Continue to increase the number of children walking and cycling to school walking and cycling to school through the Walk to School and Bike It programmes, further to the 16.7% overall increase achieved last year	Promoting walking and cycling to schools	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of children engaged Target emissions reduction: <0.01%
Leicester City Council_27	Council home working and flexible hours	N/A	Other measure: Other measure	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_28	Leicester City Council website	Air Quality information - updated website	Public information and Education: Internet	Implementation	Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Other, please specify Indicator: Updated website Target emissions reduction: <0.1%
Leicester City Council_29	Engage 100 small businesses to carry out staff cycle training charity B-Inspired, providing staff cycle training and advice on how to reduce business travel by car	Promoting alternative modes of transport	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of businesses engaged Target emissions reduction: <0.01%
Leicester City Council_30	Host a number of green events at Curve theatre throughout the year including National Recycling Week by promoting recycling to both staff and visitors, and Earth Hour	Public Information	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of events organised Target emissions reduction: <0.01%
Leicester City Council_31	Involve 40,000 employees through the Large Employers' engagement programme Employers Engagement Programme, running travel roadshows to encourage behavioural change	Promoting alternative modes of transport	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Engagement with employers Target emissions reduction: <0.1%
Leicester City Council_32	Involve over 25,000 people in organised bike rides cycling activity events through our Summer of Cycling programme. This will include the Ride Leicester Festival which will have the Castle Classic race and family-friendly Sky Ride	Annual bike rides organised - Skyride	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Engagement of general public Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_33	JOAQUIN European Project	EU funded project, information to general public about AQ - website. Also information to policy makers about improving AQ through various schemes and tools	Other measure: Other measure	Evaluation	Start date: 2011 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Website for general public, Decision making tool for AQ specialists Target emissions reduction: <0.1%
Leicester City Council_34	Leicestershire Sustainable Travel Challenge web site	Promoting walking, cycling , public transport and care share	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2016 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of people who joined the website Target emissions reduction: <0.1%
Leicester City Council_35	Personal route planner	Individual travel plans	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2007 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of plans completed Target emissions reduction: <0.1%
Leicester City Council_36	Provide local businesses with grants of up to 5,000 to put towards sustainable transport methods for staff such as pool bike systems and shuttle buses	Promoting alternative modes of transport	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Grants provided Target emissions reduction: <0.01%
Leicester City Council_37	Secure funding to complete an Area Wide Travel Plan Travel Plan for the creative industries in the Cultural Quarter to promote car sharing, cycling and cut congestion	Travel plan	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of the travel plan Target emissions reduction: <0.01%
Leicester City Council_38	Sign up a further 1,500 people to Leics. Car Share Scheme Leicestershire, a car sharing scheme aiming to reduce the number of single occupancy vehicles in the city	Promoting car sharing	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of people signed for the scheme Target emissions reduction: <0.1%
Leicester City Council_39	Travel Planning	Plans in place to reduce single vehicle occupancy, increase the number of sustainable modes of travel and raise awareness	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2001 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: % of change in mode of travel Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_40	Walking promotion	Promoting walking : Ramblers, Livingstreets, Sustrans	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2011 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: No of people joining walks, walking to school, % shift in behavioural change Target emissions reduction: <0.1%
Leicester City Council_41	Improved bus facilities and circulation	New Bus Station - Haymarket	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_42	Improved buses	Lower floor buses	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2001 Expected end date: 2014 Spatial scale: Whole town or city Source affected: Transport Indicator: No of buses with low floors Target emissions reduction: <0.1%
Leicester City Council_43	Park and Ride schemes	2 new Park and Ride car parks opened since 2008	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2001 Expected end date: 2011 Spatial scale: Whole town or city Source affected: Transport Indicator: 2 new park and ride car parks implemented Target emissions reduction: <0.1%
Leicester City Council_44	Subsidised bus fares	Subsidised bus fares for elderly, disabled and jobseekers	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2001 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of concessionary bus pass card holders Target emissions reduction: 0.001
Leicester City Council_45	Public Transport Information	Real time information system	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2015 Expected end date: 2016 Spatial scale: Whole agglomeration Source affected: Transport Indicator: City wide system available Target emissions reduction: <0.1%
Leicester City Council_46	Off bus ticketing	Smart ticketing project	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: City wide system in place Target emissions reduction: <0.01%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_47	Bikebility	Cycle training for children	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: 1800 children to participate Target emissions reduction: <0.1%
Leicester City Council_48	Bike parks at events	To provide bike parts at festivals	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: 50 bike parking spaces at events Target emissions reduction: <0.1%
Leicester City Council_49	Ride Festival in Leicester	Castle classic bike ride	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: 500 participants per ride Target emissions reduction: <0.1%
Leicester City Council_50	Led Rider Programme	Organised bike rides	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2008 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: 35 public rides Target emissions reduction: <0.1%
Leicester City Council_51	Enforcing speed limits	Leicester and Leicestershire Road Safety Partnership	Traffic planning and management: Other measure	Implementation	Start date: 2001 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: No of schemes introduced Target emissions reduction: <0.1%
Leicester City Council_52	Junction improvements	Pork Pie scheme	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_53	Junction improvements	The Ravensbridge Drive junction improvement	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_54	Junction improvements	Melton Road/Troon way junction improvement	Traffic planning and management: Other measure	Evaluation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_55	Junction improvements	St Nicholas Place junction improvement	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_56	Junction improvements	Ayelstone Road/ A426 improvements	Traffic planning and management: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_57	Junction improvements	A47 Humberstone Road - 4 major junctions improvements	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_58	Junction improvements	Safron lane /Sturdee Road improvements	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_59	Management of congestion from works /events	There are 3 groups that manage this measure (which also forms part of the TMA Action Plan). Events Advisory Group - meets monthly with organisers & stakeholders e.g. the emergency services to plan events in detail to minimise disruption. Managed with the support Transport Systems which advise on traffic management & the Area Traffic Control room is used for large events e.g. Diwali, Caribbean Carnival etc. NRSWA Co-ordination Group - meets quarterly & discusses programme of works which include Council, Utility, Developers & County Council works which may have an effect on the City. Work programmes are agreed to avoid clashes & reduce disruption. Monthly Traffic Management Meetings - includes the bus companies, emergency services & other agencies discuss traffic management in detail of projects that affect the highway network. The Council employs a Utilities NRSWA Co-ordinator who manages the Street Work Register [a statutory requirement]. This enables all proposed works to be effectively co-ordinated in the short & medium	Traffic planning and management: Other measure	Implementation	Start date: 2007 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: No of roadworks and events Target emissions reduction: <0.1%
Leicester City Council_60	Reallocation of road space	term. A426 Aylestone road - bus priority lane	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2011 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: No of schemes complete Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_61	Reallocation of road space	The Pedestrian Preference Zone order has been completed and is in operation. Gallowtree Gate, Market Street and Hotel Street have been completed. The next and final stages of the project include: Belvoir Street, Clock Tower / East Gates, High Street, Granby Street, Market Place. This will be completed by September 2008. This work is being carried out to support the huge investment in regeneration and construction, and in conjunction with the development of Highcross Leicester (the extended Shires Shopping Centre); creating a large traffic free area, which will be safe and pollution free - making visiting the city centre a pleasure and complementing the new shopping	Traffic planning and management: Encouragement of shift of transport modes	Implementation	Start date: 2014 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: No of schemes completed Target emissions reduction: <0.1%
Leicester City Council_62	Reallocation of road space	centre. Quality Bus Corridors: Saffron Lane - Phase 1; Pork Pie Island scheme completed in 2007/08. Abbey Lane - Ravensbridge Drive junction improvements complete in 2007/08. Melton Road - Melton Road/Troon Way junction improvement scheme complete. Improvements to the A47 Humberston Road QBC Phase 1 complete. City Centre bus, pedestrian and cycle improvements - From early 2006, Leicester City Council has been working on its 'Streets + Spaces' and Connecting Leicester programmes to develop the streets and spaces in the city centre. Streets + Spaces include creating a new bus corridor to the north of the city centre; pedestrianising High Street, Clock Tower, Market Place approach the Lanes area and Market Street. Many streets will also be rebuilt to a new high quality standard, using granite paving, new street furniture and designs which will create clean, uncluttered streets and spaces.	Traffic planning and management: Improvement of public transport	Implementation	Start date: 2007 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: No of schemes completed Target emissions reduction: <0.1%

Measure code	Description	Focus	Classification	Status	Other information
Leicester City Council_63	Replace further 11,000 sodium street lights with LEDs	Road infrastructure	Traffic planning and management: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of lamps replaced Target emissions reduction: <0.01%
Leicester City Council_64	Replace traffic signals at 129 sites with more efficient LEDs	Road infrastructure	Traffic planning and management: Other measure	Implementation	Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: No of lights replaced Target emissions reduction: <0.01%
Leicester City Council_65	Traffic calming/diverting rat runs	Traffic calming schemes are implemented in 20 mph zones to ensure the enforcement	Traffic planning and management: Reduction of speed limits and control	Implementation	Start date: 2001 Expected end date: 2023 Spatial scale: Local Source affected: Transport Indicator: Scheme implemented Target emissions reduction: <0.1%
Leicester City Council_66	Deliver programme of 20 MPH zones	80 zones to be implemented in areas around schools and residential areas	Traffic planning and management: Reduction of speed limits and control	Implementation	Start date: 2001 Expected end date: 2023 Spatial scale: Local Source affected: Transport Indicator: No of schemes implemented Target emissions reduction: <0.1%
Leicester City Council_67	Discounted parking charges for LEV's	Reduced charges for LEV	Traffic planning and management: Differentiation of parking fees	Implementation	Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Scheme in place Target emissions reduction: <0.1%
Leicester City Council_68	Preparation of new Leicester Local Plan	Leicester Local Plan	Other measure: Other measure	Preparation	Start date: 2015 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Plan in place Target emissions reduction: <0.1%