



Department
for Environment
Food & Rural Affairs

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Draft Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO₂) in West Midlands Urban Area (UK0002)

September 2015



Llywodraeth Cymru
Welsh Government



DOE

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1 Introduction

1.1 This document

This document is the West Midlands Urban Area agglomeration zone (UK0002) updated air quality plan for the achievement of the EU air quality limit values for nitrogen dioxide (NO₂). This is an update to the air quality plan published in September 2011 (<http://uk-air.defra.gov.uk/library/no2ten/>).

This plan presents the following information:

- General information regarding the West Midlands Urban Area agglomeration zone
- Details of the NO₂ exceedance situation within the West Midlands 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 West Midlands Urban Area agglomeration zone should be read in conjunction with the separate UK overview document. 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 document show how the UK will ensure that compliance with the NO₂ limit values is achieved in the shortest possible time.

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 mean limit value: an annual mean concentration of no more than 40 $\mu\text{g m}^{-3}$
- The hourly limit value: no more than 18 exceedances of 200 $\mu\text{g m}^{-3}$ in a calendar year.

The Air Quality Directive stipulates that compliance with the NO₂ limit values will be achieved by 01/01/2010.

1.3 Zone status

The assessment undertaken for the West Midlands Urban Area agglomeration zone indicates that the annual limit value was exceeded in 2013 but is likely to be achieved before 2025 through the introduction of measures included in the baseline. When combined with the measures outlined in the overview document for the UK we expect this zone to be compliant by 2020.

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 2013 reference year of this air quality plan. This includes 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 2013 is given in section 4.

Baseline modelled projections for 2020, 2025 and 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 take the measure(s). 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: West Midlands Urban Area

Zone code: UK0002

Type of zone: agglomeration zone

Reference year: 2013

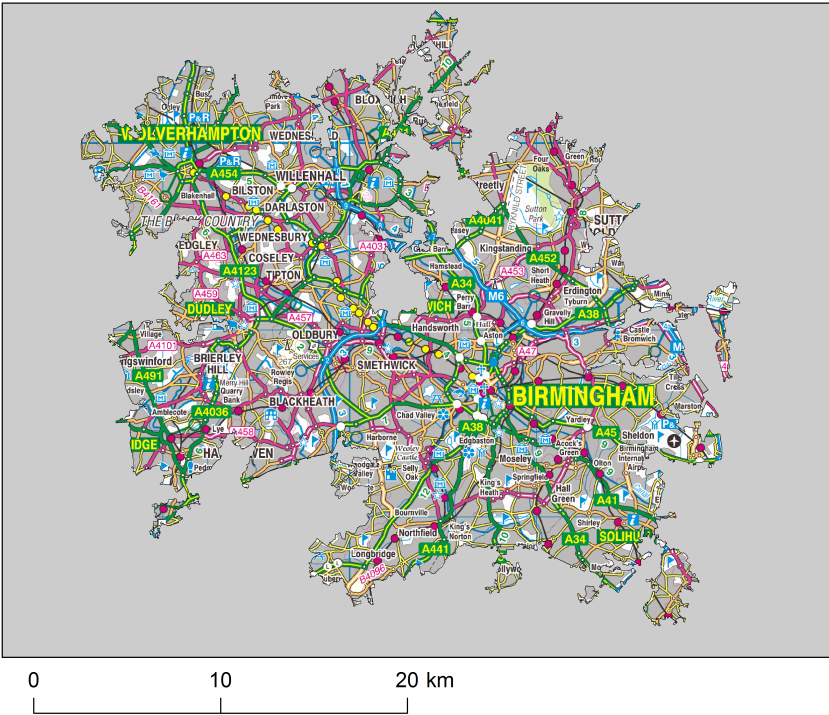
Extent of zone: Figure 1 shows the area covered by the West Midlands Urban Area agglomeration zone.

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. Birmingham City Council
2. Bromsgrove District Council
3. Dudley Metropolitan Borough Council
4. Lichfield City Council
5. North Warwickshire Borough Council
6. Sandwell Metropolitan Borough Council
7. Solihull Metropolitan Borough Council
8. South Staffordshire District Council
9. Walsall Metropolitan Borough Council
10. Wolverhampton City Council
11. Wyre Forest District Council

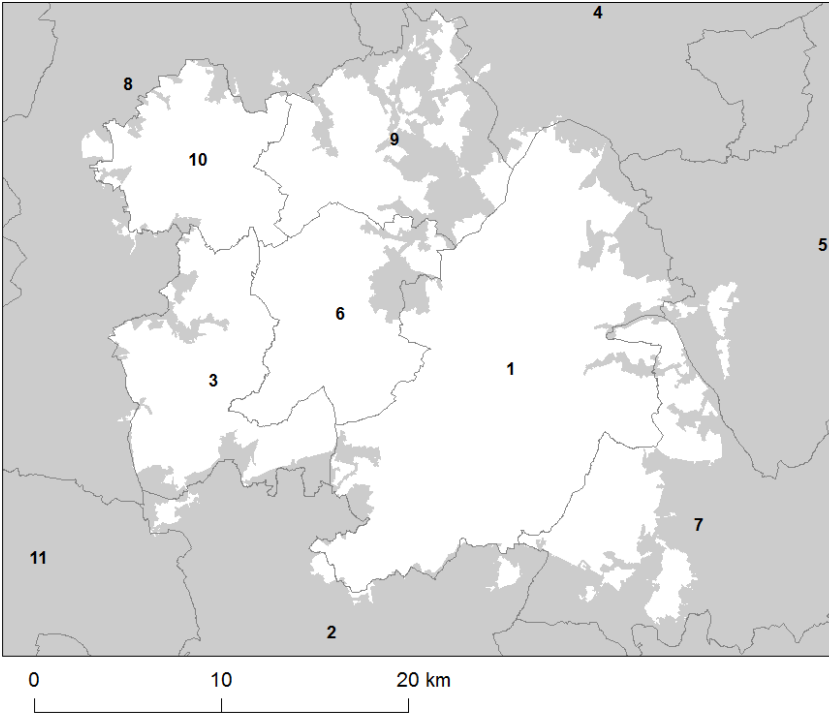
(Note: Local Authority boundaries do not necessarily coincide with zone boundaries. Hence Local Authorities may be listed within more than one zone plan.)

Figure 1: Map showing the extent of the West Midlands Urban Area agglomeration zone (UK0002).



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Figure 2: Map showing Local Authorities within the West Midlands Urban Area agglomeration zone (UK0002).



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2.2 Assessment details

Measurements

NO₂ measurements in this zone were available in 2013 from the following national network monitoring stations (NO₂ data capture for each station in 2013 shown in brackets):

1. Birmingham Acocks Green GB1013A (99%)
2. Birmingham Tyburn GB0851A (91%)
3. Birmingham Tyburn Roadside GB0960A (94%)
4. Walsall Woodlands GB1020A (91%)

Full details of monitoring stations within the West Midlands Urban Area agglomeration zone are available from <http://uk-air.defra.gov.uk/networks/network-info?view=aurm>.

Modelling

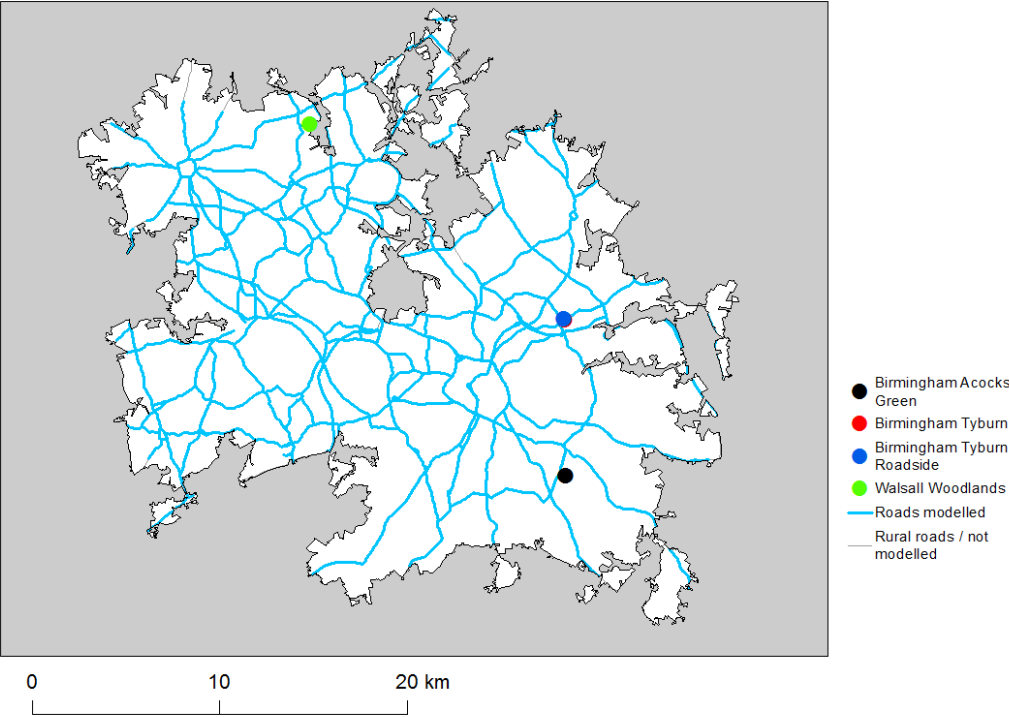
Modelling for the 2013 reference year has been carried out for the whole of the UK. This modelling covers the following extent within this zone:

- Total background area within zone (approx): 605 km²
- Total population within zone (approx): 2,295,744 people
- Total road length where an assessment of NO₂ concentrations have been made: 529 km in 2013 (and similar lengths in previous years)

Zone maps

Figure 3 presents the location of the NO₂ monitoring stations within this zone for 2013 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.

Figure 3: Map showing the location of the NO₂ monitoring stations with valid data in 2013 and roads where concentrations have been modelled within the West Midlands Urban Area (UK0002) agglomeration zone.



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2.3 Reporting Under European Directives

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 <http://cdr.eionet.europa.eu/gb/eu/annualair>. Since 2013 reporting has been via an e-reporting system (Decision 2011/850/EU) <http://cdr.eionet.europa.eu/gb/eu/>.

In addition, the UK has reported on air quality plans and programmes (Decision 2004/224/EC) <http://cdr.eionet.europa.eu/gb/eu/aqpp>.

3 Overall Picture for 2013 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 West Midlands Urban Area agglomeration zone the annual limit value was exceeded in 2013. Hence, one exceedance situation for this zone has been defined, NO₂_UK0002_Annual_1, which covers exceedances of the annual limit value. This exceedance situation is described below.

3.2 Reference year: NO₂_UK0002_Annual_1

The NO₂_UK0002_Annual_1 exceedance situation covers all exceedances of the annual mean limit value in the West Midlands Urban Area agglomeration zone in 2013.

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 measured exceedances of the annual limit value at Birmingham Tyburn Roadside (GB0960A) in 2013. Table 2 summarises modelled annual mean NO₂ concentrations in this exceedance situation for the same time period. This table shows that, in 2013, 189.9 km of road length was modelled to exceed the annual limit value. There were no modelled background exceedances of the annual limit value. Maps showing the modelled annual mean NO₂ concentrations for 2013 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 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.

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. Table 3 presents summary source apportionment information in this exceedance situation.

Table 3 summarises the modelled NO_x source apportionment for the section of road with the highest modelled NO₂ concentration in this exceedance situation in 2013. 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. It is not possible to calculate an unambiguous source apportionment for annual mean NO₂ concentrations for the reasons discussed in the UK Technical Report¹. Therefore no NO₂ source apportionment is provided.

Figure B.1 in Annex B presents the annual mean NO_x source apportionment for each section of road within the NO₂_UK0002_Annual_1 exceedance situation (i.e. the source apportionment for all exceeding roads only) in 2013. Roads have been grouped into motorways, primary roads and trunk roads in this figure.

¹Technical report to be finalised for the final plan.

Table 1: Measured annual mean NO₂ concentrations at national network stations in NO2_UK0002_Annual_1 for 2001 onwards, μgm^{-3} (a). Data capture shown in brackets.

| Site name (EOI code) | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Birmingham Acocks Green (GB1013A) | | | | | | | | | | | 23 (74) | 32 (99) | 35 (99) |
| Birmingham Centre (GB0569A) | 34 (92) | 34 (93) | 33 (88) | 35 (89) | 33 (81) | 34 (94) | 34 (85) | 33 (97) | 49 (3) | | | | |
| Birmingham East (GB0595A) | 31 (94) | 29 (91) | 33 (93) | 31 (54) | | | | | | | | | |
| Birmingham Tyburn (GB0851A) | | | | 38 (36) | 34 (99) | 37 (87) | 33 (99) | 34 (98) | 32 (97) | 37 (99) | 34 (99) | 32 (99) | 29 (91) |
| Birmingham Tyburn Roadside (GB0960A) | | | | | | | | | 47 (84) | 51 (99) | 45 (99) | 46 (99) | 46 (94) |
| Sandwell West Bromwich (GB0698A) | 35 (95) | 29 (94) | 39 (86) | 27 (98) | 27 (96) | 25 (69) | 29 (99) | 27 (94) | 27 (99) | 31 (99) | 28 (99) | | |
| Walsall Alumwell (GB0455A) | 42 (96) | 37 (98) | 42 (95) | 42 (93) | 42 (99) | 38 (98) | 36 (73) | | | | | | |
| Walsall Willenhall (GB0674A) | 27 (92) | 27 (94) | 30 (97) | 27 (92) | 28 (70) | 31 (89) | 26 (95) | 24 (92) | 24 (95) | 36 (9) | | | |
| Walsall Woodlands (GB1020A) | | | | | | | | | | | | 20 (60) | 20 (91) |
| Wolverhampton Centre (GB0614A) | 32 (91) | 28 (97) | 34 (96) | 29 (80) | 28 (92) | 27 (95) | 24 (73) | | | | | | |

(a) Annual Mean Limit Value = $40 \mu\text{gm}^{-3}$

Table 2: Annual mean NO₂ model results in NO₂_UK0002_Annual_1 for 2001 onwards.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Road length exceeding (km) | 378.6 | 294.8 | 465.7 | 362.6 | 382.1 | 346.8 | 385.3 | 265.3 | 239.0 | 377.7 | 243.4 | 230.4 | 189.9 |
| Background exceeding (km ²) | 9 | 14 | 36 | 1 | 10 | 0 | 5 | 7 | 10 | 51 | 2 | 2 | 0 |
| Maximum modelled concentration (µgm ⁻³) (a) | 71.1 | 77.6 | 89.4 | 74.2 | 85.2 | 82.4 | 84.1 | 91.2 | 88.8 | 94.1 | 74 | 77 | 70 |

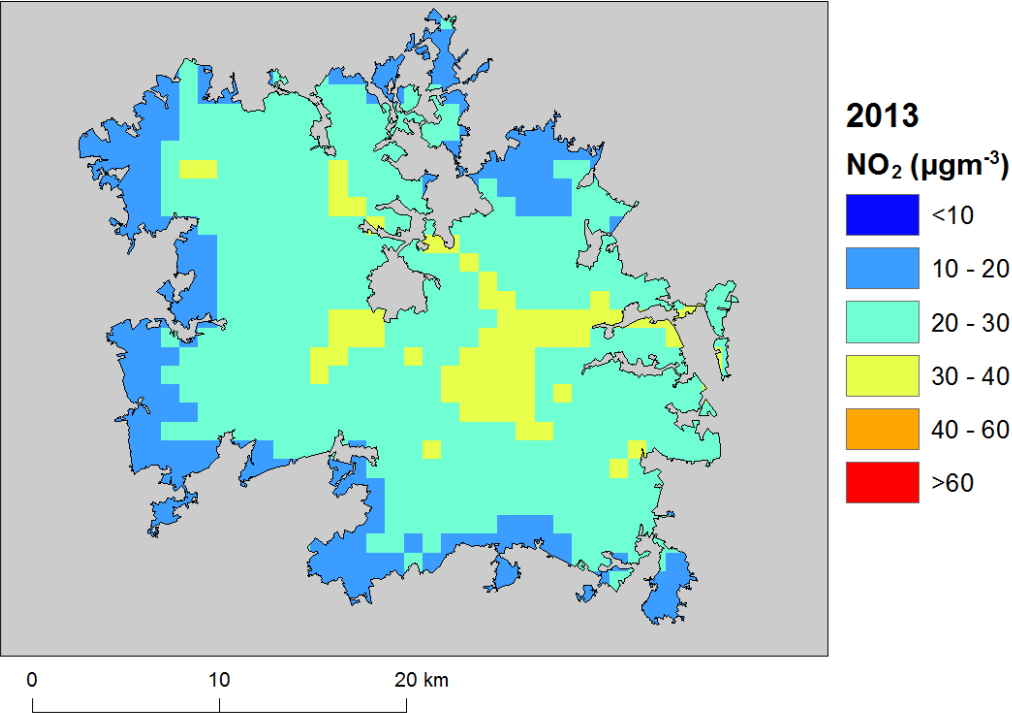
(a) Annual Mean Limit Value = 40 µgm⁻³

Table 3: Modelled annual mean NO_x source apportionment at the traffic count point with the highest modelled concentration in 2013 in NO₂_UK0002_Annual_1 (μgm^{-3}) (traffic count point 81488 on the A4400; OS grid (m): 406670, 286600).

| Spatial scale | Component | Concentration at highest road link (a) |
|---|---|--|
| Regional background sources NO _x (i.e. contributions from distant sources of > 30 km from the receptor). | Total | 10.5 |
| | From within the UK | 6.1 |
| | From transboundary sources (includes shipping and other EU member states) | 4.3 |
| | | |
| Urban background sources NO _x (i.e. sources located within 0.3 - 30 km from the receptor). | Total | 56.4 |
| | From road traffic sources | 29.0 |
| | From industry (including heat and power generation) | 4.4 |
| | From agriculture | NA |
| | From commercial/residential sources | 12.1 |
| | From shipping | 0.0 |
| | From off road mobile machinery | 3.6 |
| | From natural sources | NA |
| | From transboundary sources | NA |
| | From other urban background sources | 7.3 |
| Local sources NO _x (i.e. contributions from sources < 0.3 km from the receptor). | Total | 118.4 |
| | From petrol cars | 15.1 |
| | From diesel cars | 54.0 |
| | From HGV rigid | 13.5 |
| | From HGV articulated | 3.6 |
| | From buses | 10.7 |
| | From petrol LGVs | 0.3 |
| | From diesel LGVs | 21.1 |
| | From motorcycles | 0.1 |
| | From London taxis | 0.0 |
| Total NO _x (i.e. regional background + urban background + local components) | | 185.3 |
| Total NO ₂ (i.e. regional background + urban background + local components) | | 70 |

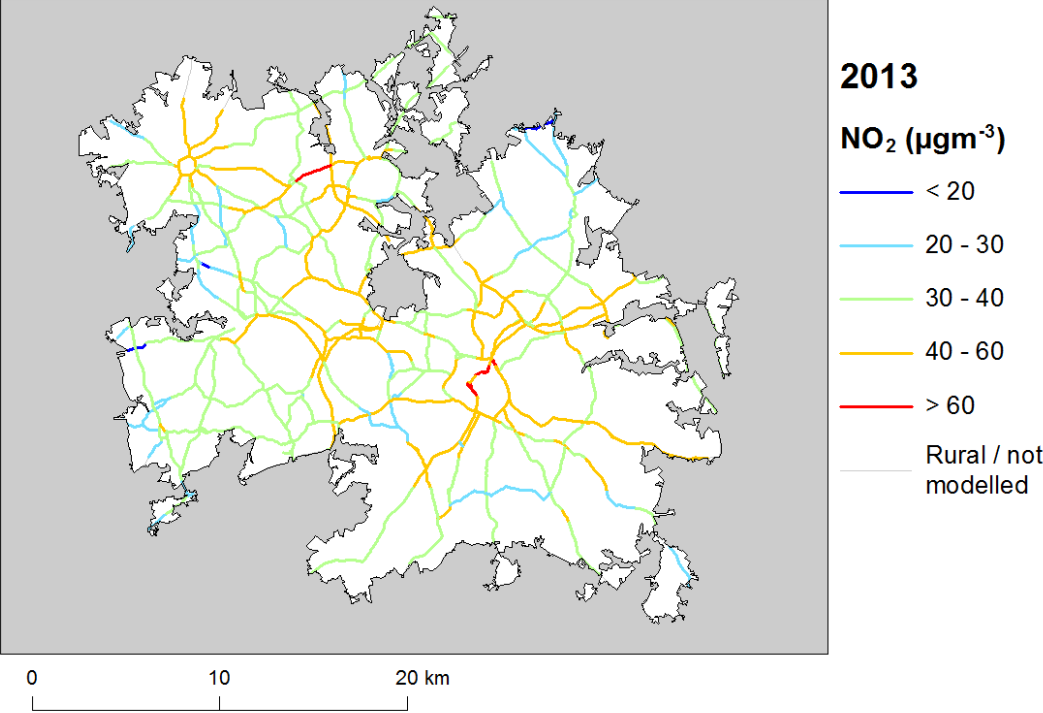
(a) Components are listed with NO_x concentration of NA when there is no source from this sector.

Figure 4: Map of modelled background annual mean NO₂ concentrations 2013. 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 2013. 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 West Midlands 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 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 69.1 μgm^{-3} of NOx out of a total of 185.3 μgm^{-3} of NOx. Articulated HGVs, cars, rigid HGVs and LGVs were important sources on the motorway roads with the highest concentrations in this exceedance situation. Cars, articulated HGVs, rigid HGVs, diesel LGVs and on some roads buses were important sources on the primary roads with the highest concentrations. Cars, articulated HGVs, rigid HGVs and diesel LGVs were important sources on the trunk roads with the highest concentrations. For all road links concentrations of NOx from diesel cars were approximately four times greater than NOx emissions from petrol cars. NOx concentrations from petrol LGVs are a small component of total NOx concentrations and less than 2% of total NOx from LGVs.

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.

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.

Overview²

The local authorities that make up the West Midlands Urban Area agglomeration zone have been working together to tackle poor air quality. They have put in place the Low Emission Towns and Cities Programme (LETCP) across the West Midlands urban area with the aim of promoting joint working to reduce regulated road transport emissions and reducing greenhouse gases and noise emissions where practicable.

The overarching aim of the Low Emission Strategy for West Midlands Authorities is to improve emissions and concentrations of NO₂ and particulates. It will exploit the synergies of CO₂ and noise reduction, where possible, through the transformation of the West Midlands vehicle fleet. The development of the strategy is ongoing and is due to be completed in 2015, with a view to implementation subject to adoption at Local Authority level.

The West Midlands LETCP will promote joint working to reduce regulated road transport emissions, primarily nitrogen oxides (NO_x) and particulate matter, as well as securing reductions in greenhouse gases and noise emissions where practicable. It will build on policies and measures to discourage vehicle use and encourage a shift to sustainable transport modes. The LETCP aims to achieve improvements in emissions from the vehicle fleet through the accelerated take-up of cleaner fuels and technologies and by discouraging the use of high emission vehicles. The LETCP Board comprise Walsall MBC, Birmingham, Coventry, Dudley, Sandwell, Solihull and Wolverhampton.

The LETCP is developing a regional Good Practice Planning Guidance which protects residents of future development schemes from exposure to air pollution. The guidance promotes a simplified assessment criteria and definition of sustainability, and incorporates mitigation as standard to help counter cumulative impacts. It applies a procedure for evaluating additional requirements for mitigation and compensation using cost damage analysis.

The group is also producing a technical study into the feasibility of creating a transferable Low Emission Zone model for the West Midlands. A range of scenarios have been selected (City Centre / Motorway / Street Canyon and Urban Corridor). The study assesses the benefits and disadvantages of emission control policies on key vehicle types for each scenario, including cost benefit analysis and potential costing for implementation, as well as Health Impact Assessment of the most effective intervention measures. The feasibility study is nearing completion and initial findings were published in early 2015. The study is awaiting publication and the intention is that it will be used as a transferable model for the West Midlands region and beyond.

The group is working on securing funding with the West Midlands Integrated Transport Authority, to encourage the take up of low emission vehicles, driver training and vehicle management and promoting low emission transport. This is due for completion by 2020/21.

Birmingham City Council

Birmingham City Council is the largest local authority in Europe following a reorganisation of boundaries in June 2004. The Council's mission is to achieve a safe, clean, green and fair trading city for residents, businesses and visitors by ensuring compliance with the National Air Quality Objectives.

The most significant source of NO₂ within the Birmingham City boundary stems from road traffic emissions. It is important to note that many improvements in Air Quality through the Action Plan process will only be accomplished via the success of the Local Transport Plan (LTP) and related transport initiatives covering comprehensive transport policies across the West Midlands. Birmingham City Council will fulfil the aims of the West Midlands LTP. The objectives of the plan are:

- Manage demand for travel effectively
- Maximise use of the existing transport infrastructure
- Support economic development

²This section has been informed by discussions with relevant local authorities and may contain information not presently in Table C.1 Any additional information will be incorporated into the table as part of the finalisation of the plan.

- Regeneration by improving access to the strategic centres and other key employment areas
- Improve connectivity to regional and international gateways

There are certain transport priorities within the plan e.g. public transport and sustainable travel and will help to:

- Improve road safety
- Widen travel choice
- Improve air quality
- Improve connectivity and access to jobs, housing and facilities
- Support the economic regeneration of the West Bromwich strategic centre and the Borough as a whole

Birmingham aims to:

- Increase the number of park and ride spaces at railway stations in a planned approach whilst recognising the benefits of opportunistic developments that might arise
- Ensuring that future metro proposals are fully supported by park and ride sites integrated within their development
- Developing a programme of strategic park and ride sites with the objective of delivering one new site every 2 years
- Developing the concept of bus-based park and ride where suitable opportunities exist

Birmingham City Council, along with 6 other West Midlands Local Authorities, is a member of the West Midlands Chief Officers Air Pollution Group under which a sub group sits to specifically discuss air quality matters.

In terms of specific actions being taken on roads which are anticipated to provide improved air quality benefits in the zone, there are a number of schemes planned.

The A452 Chester Road in Birmingham is part of the Region's "Primary Route Network". It occupies a strategic location between M6 Junction 5, the Heartlands and Castle Vale areas (which are home to some of the major production industries of the West Midlands), the A38 and Birmingham City Centre via the A47. Accessibility in the area has suffered due to the level of congestion which prevails at most times of the day. This creates poor access, environmental problems and a lack of reliable journey times for public transport, freight operations and private vehicle users. The scheme will provide an improved road layout which will help ensure reliability in traffic flow, and also improve conditions for pedestrians and cyclists. The scheme is presently ongoing.

There are also a number of schemes that will ease congestion and include controlled pedestrian crossings e.g. A45 Small Heath Highway to the A4540 Ring Road north arm (Watery Lane Middleway) is being developed. Where feasible roundabouts will be converted to signalised cross road junctions to improve traffic and connectivity between the city centre and the wider area.

For Haden Circus - A4540 Belgrave Middleway / A4540 Highgate Middleway / A4167 Highgate Road / A435 Haden Way, proposals to provide a segregated left slip lane from Belgrave Middleway to Highgate Middleway and maintaining a flow on the Ring Road are being developed. As part of the redevelopment of this part of the city centre the remodelling of the Paradise Circus gyratory will take place. A key change will be the changes to vehicle access to / from Broad Street which will be restricted to buses and Hackney Carriages. This work is expected to be completed by summer 2016.

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. Hence, any Local Authority action plans and measures adopted by Local Authorities after this time have not been included in this air quality plan.

The reference year for this air quality plan is 2013. Hence where measures started and finished before 2013, 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. Hence measures with a start date before 2013 and an end date after 2013 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 2020, 2025 and 2030, starting from the 2013 reference year described in section 3, have been calculated in order to determine when compliance with the NO₂ 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 2012 (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: NO₂_UK0002_Annual_1

Table 4 presents summary results for the baseline model projections for 2020, 2025 and 2030 for the NO₂_UK0002_Annual_1 exceedance situation. This shows that the maximum modelled annual mean NO₂ concentration predicted for 2020 in this exceedance situation is 47 µgm⁻³. By 2025, the maximum modelled annual mean NO₂ concentration is predicted to drop to 38 µgm⁻³. Hence, the model results suggest that compliance with the NO₂ annual limit value is likely to be achieved before 2025 under baseline conditions in this exceedance situation.

Figures 6 and 7 show maps of projected annual mean NO₂ concentrations in 2020, 2025 and 2030 for background and roadside locations respectively. Maps for 2013 are also presented here for reference.

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 NO₂ model results in NO₂_UK0002_Annual_1.

| | 2013 | 2020 | 2025 | 2030 |
|--|-------|------|------|------|
| Road length exceeding (km) | 189.9 | 4.3 | 0.0 | 0.0 |
| Background exceeding (km ²) | 0 | 0 | 0 | 0 |
| Maximum modelled concentration NO ₂ (μgm ⁻³) (a) | 70 | 47 | 38 | 35 |
| Corresponding modelled concentration NOx (μgm ⁻³) (b) | 185 | 118 | 93 | 84 |

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

(b) NOx is recorded here for comparison with the NOx source apportionment graphs for 2013 presented in Annex B of this plan. Limit values for EU directive purposes are based on NO₂.

Figure 6: Background baseline projections of annual mean NO₂ concentrations in 2020, 2025 and 2030. 2013 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.

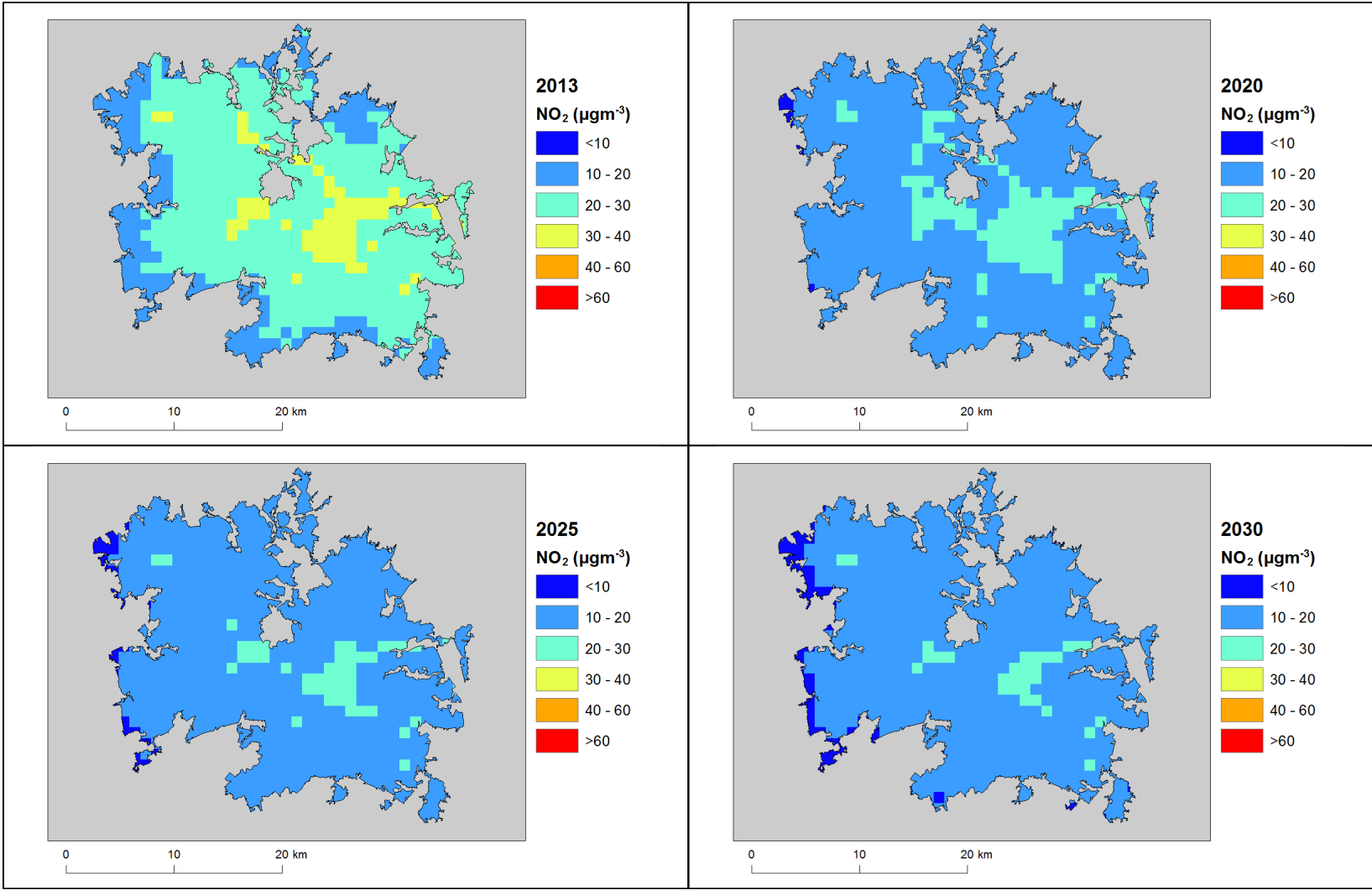
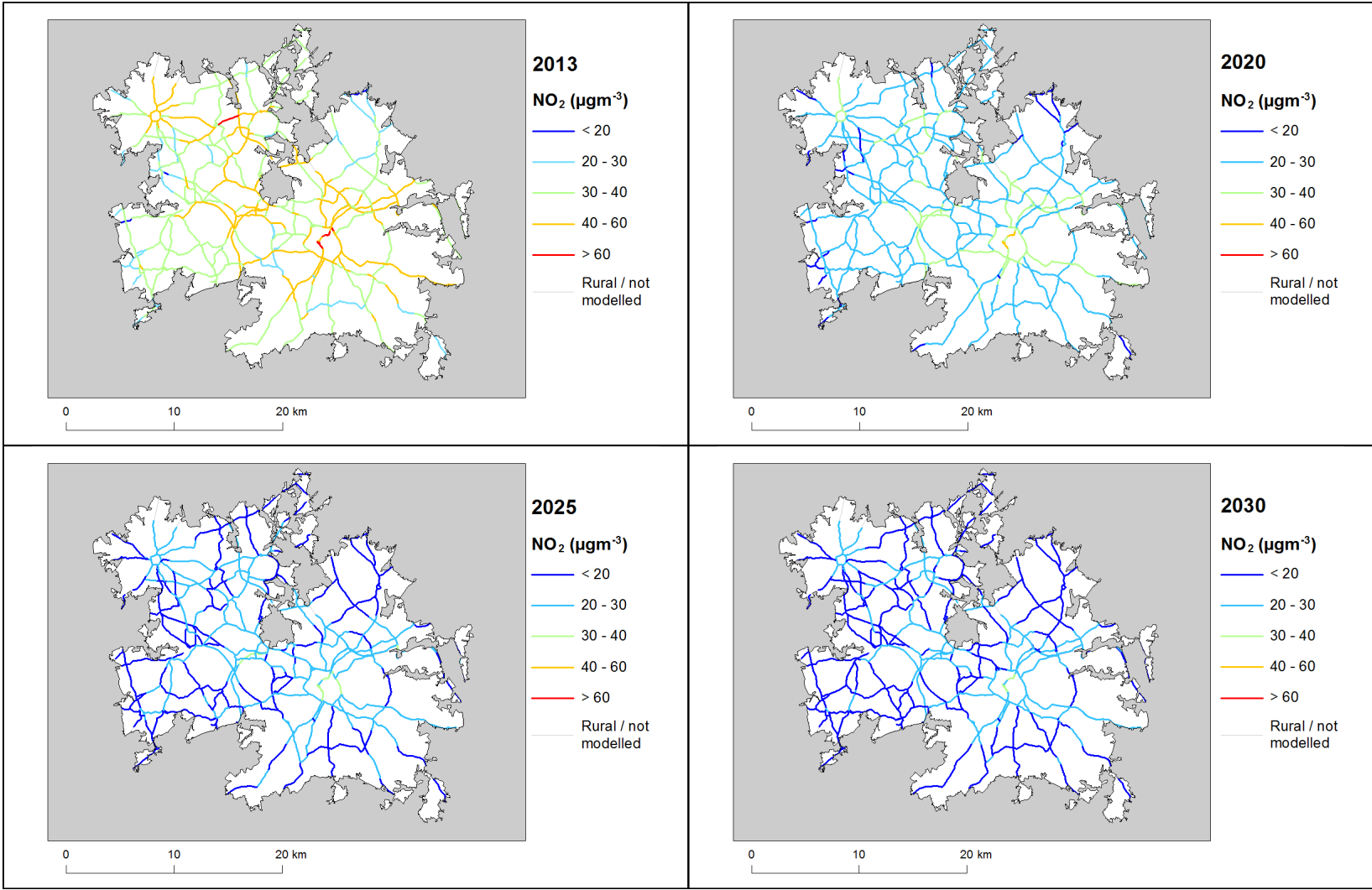


Figure 7: Roadside baseline projections of annual mean NO₂ concentrations in 2020, 2025 and 2030. 2013 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.



Annexes

A References

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

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

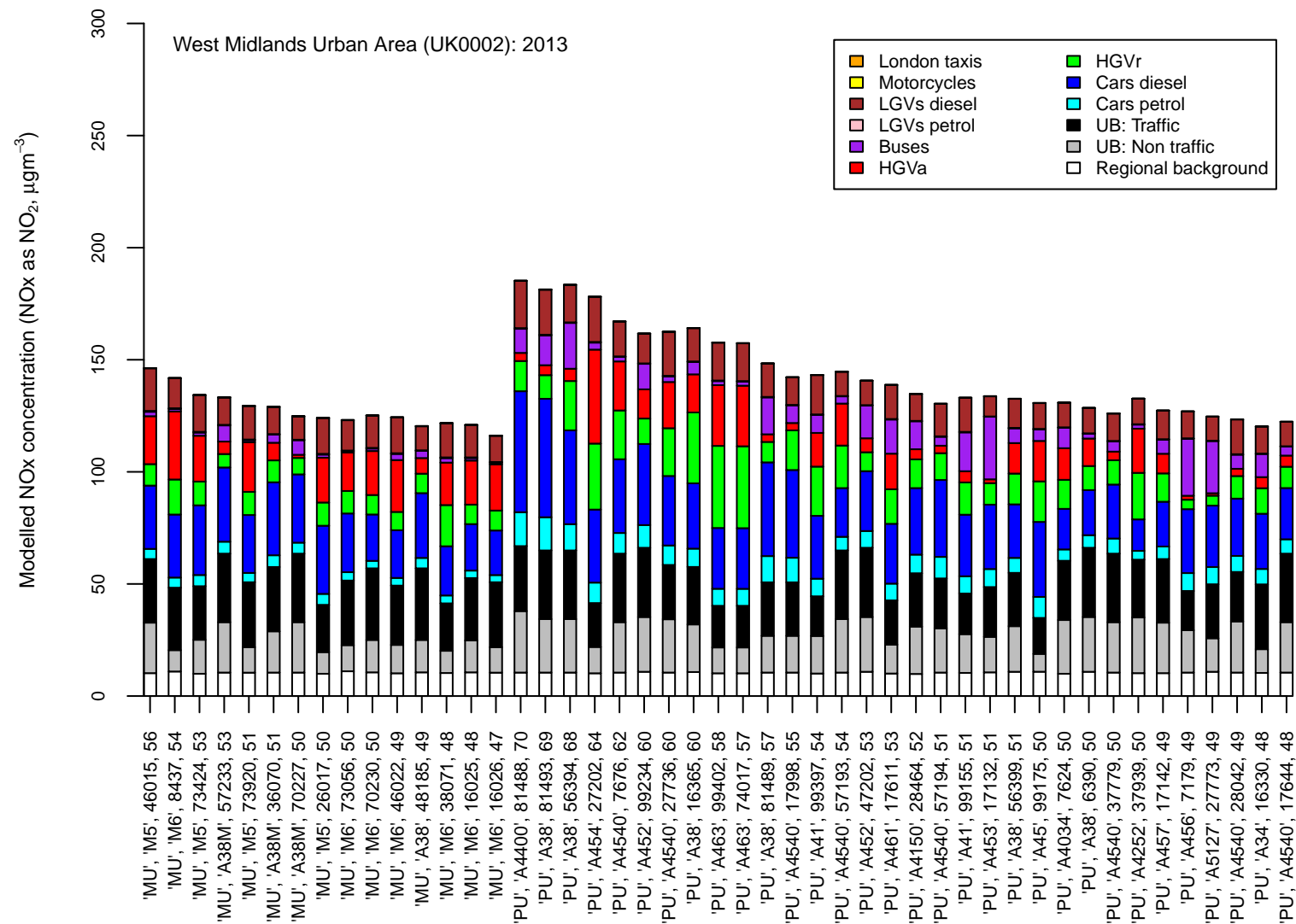
Air Quality Directive 2008/50/EC. Council Directive 2008/50/EC, of 21 May 2008. On ambient air quality and cleaner air for Europe. From the Official Journal of the European Union, 11.6.2008, En series, L152/1

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

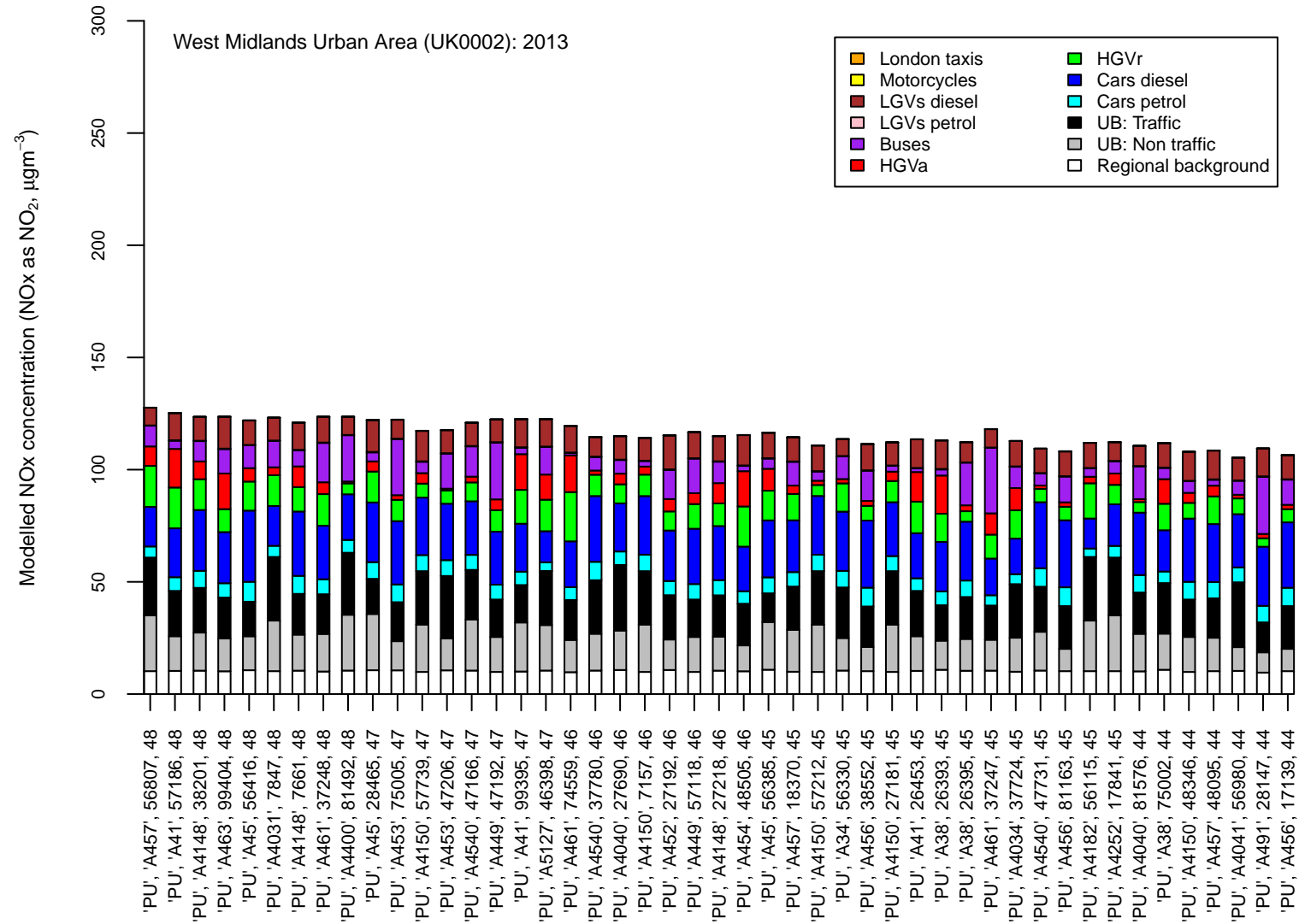
B Source apportionment graphs

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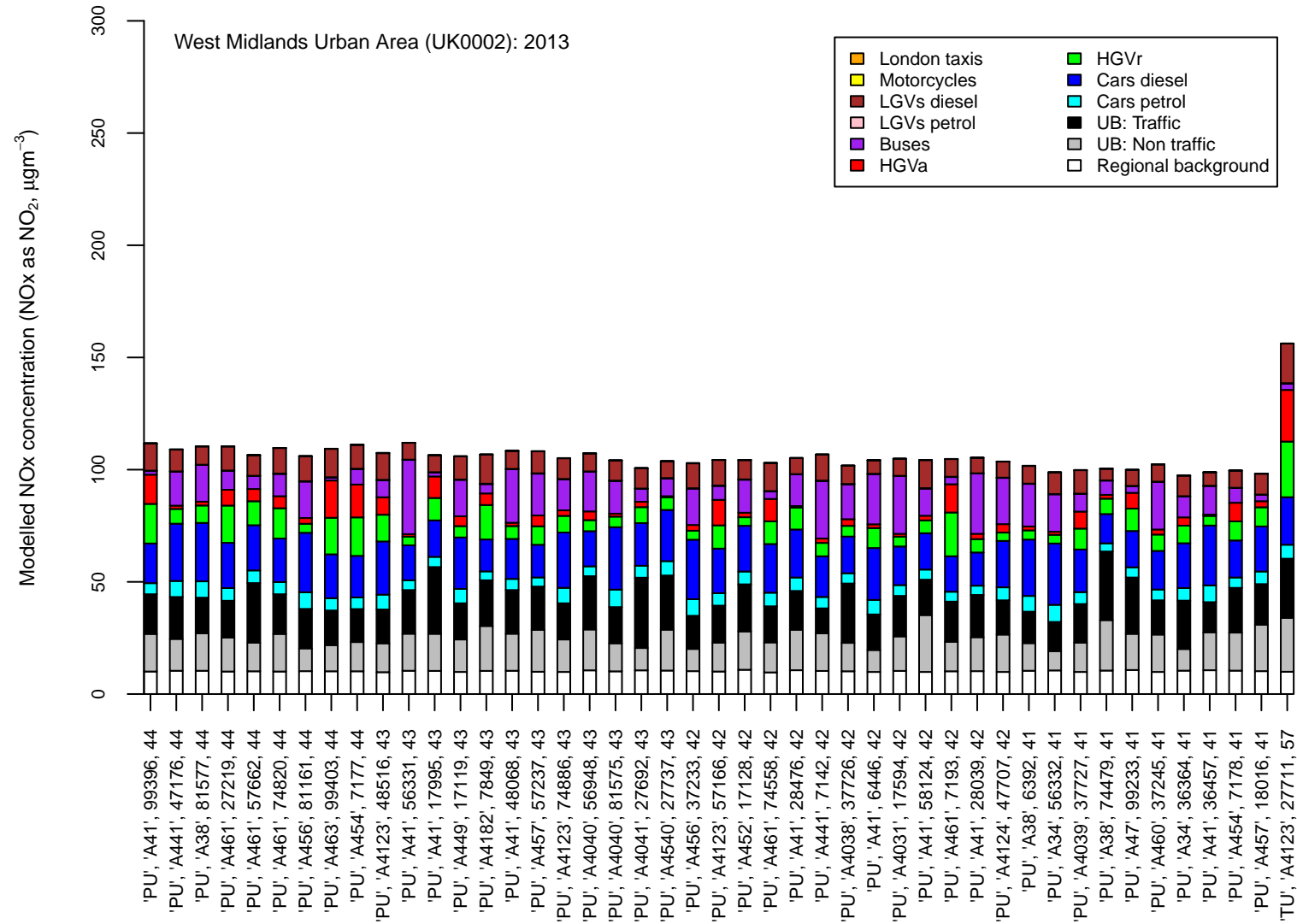
Figure B.1: Annual mean roadside NO_x source apportionment plots for all roads exceeding the annual mean NO₂ limit value in 2013.



Road class (MU = motorway, PU = primary road, TU = trunk road), road number, censusid 12 and modelled NO₂ concentration (μgm^{-3})



Road class (MU = motorway, PU = primary road, TU = trunk road), road number, censusid 12 and modelled NO₂ concentration (µgm⁻³)



Road class (MU = motorway, PU = primary road, TU = trunk road), road number, censusid 12 and modelled NO₂ concentration (µgm⁻³)

C Tables of measures

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Table C.1 Relevant Local Authority measures within West Midlands Urban Area (UK0002)

| Measure code | Description | Focus | Classification | Status | Other information |
|----------------------------------|---|--|---|----------------|---|
| Birmingham City Council_AQAP 1-1 | Feasibility Study into a Low Emission Zone within City Centre | Reduce emissions from vehicles within a geographically specified area | Traffic planning and management: Low emission zones | Evaluation | Start date: 2013 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Exclusion of all vehicles within a specific area that do not meet Euro 6 (or equivalent) emissions limits Target emissions reduction: No target |
| Birmingham City Council_AQAP 1-2 | LEZ Trial to demonstrate operations and define parameters | Reduce emissions from vehicles within a geographically specified area | Traffic planning and management: Low emission zones | Evaluation | Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: As above Target emissions reduction: No target |
| Birmingham City Council_AQAP 3 | Extend the network of Red Routes and assess effectiveness | Improve traffic management on busy routes into and out of city | Traffic planning and management: Management of parking places | Implementation | Start date: 2014 Expected end date: 2014 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved vehicle journey times and reliability. Less congestion in specific areas. Target emissions reduction: No target |
| Birmingham City Council_AQAP 4-1 | Highway Improvements to promote effective traffic management | Improve road capacity and traffic management within a specific area | Traffic planning and management: Other measure | Implementation | Start date: 2012 Expected end date: 2018 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved vehicle journey times. Less congestion in specific area Target emissions reduction: No target |
| Birmingham City Council_AQAP 5 | Development of Air quality & Planning policy | Planning applications assessed in a strategic manner for impact on local air quality | Other measure: Other measure | Implementation | Start date: 2005 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Strategic, consistent and transparent approach to assessing planning applications on AQ grounds Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|--|--|--|----------------|---|
| Birmingham City Council_AQAP 6 | Regulation of Industry under Environmental Permitting regime | Industry regulated under Environmental Permitting regime | Permit systems and economic instruments: Other measure | Implementation | Start date: 2005 Expected end date: 2030 Spatial scale: Local Source affected: Industry including heat and power production Indicator: Annual Defra return Target emissions reduction: No target |
| Birmingham City Council_AQAP 8 | To increase the number and use of park & ride schemes in accord with the CENTRO Environment Strategy 2009-2014 | Extend number of spaces at Kings Norton Car Park. | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2009 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Increase in Park & Ride usage Target emissions reduction: No target |
| Birmingham City Council_AQAP 9-1 | Improvement of the council fleet | To improve the council run fleet to electric/LPG or low emission vehicles through a procurement policy | Public procurement: Other measure | Implementation | Start date: 2012 Expected end date: 2014 Spatial scale: Whole town or city Source affected: Transport Indicator: Replacement of council fleet vehicles through procurement strategy Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-1 | Support the CABLED project as a staging point for the further development of ultra-low carbon vehicles and supporting infrastructure | To engage with partners to introduce the infrastructure for electric or LPG gas powered vehicles | Public procurement: Other measure | Implementation | Start date: 2012 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Infrastructure to encourage the use of electric and gas powered vehicles Target emissions reduction: No target |
| Birmingham City Council_AQAP 11 | Support the programme for replacement buses as outlined by CENTRO's Environmental Strategy 2009-2014 | To engage with partners to introduce a bus quality partnership. The aim of which will be the introduction of low emission vehicles over a period of time | Public procurement: Cleaner vehicle transport services | Implementation | Start date: 2012 Expected end date: 2022 Spatial scale: Whole town or city Source affected: Transport Indicator: Replacement of the bus fleet with low emitting vehicles Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|--|--|---|----------------|---|
| Birmingham City Council_AQAP 12-1 | Development of a Taxi Emission Strategy | To introduce a Taxi emission policy linked to emissions. | Public procurement: Cleaner vehicle transport services | Implementation | Start date: 2016 Expected end date: 2020 Spatial scale: Whole town or city Source affected: Transport Indicator: Replacement of taxi fleet with vehicles with low emissions Target emissions reduction: No target |
| Birmingham City Council_AQAP 9-2 | Improvement of the Council fleet - EV | Introduction of EV vehicles | Public procurement: New vehicles, including low emission vehicles | Preparation | Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Delivery of 7 new EV and associated infrastructure Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-2 | Feasibility study covering the development of gas infrastructure - 4 sites | Region wide gas infrastructure to support public and private sector via OLEV funding | Public procurement: Other measure | Preparation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-3 | Delivery of gas refuelling infrastructure - 4 sites | Region wide gas infrastructure to support public and private sector via OLEV funding | Public procurement: Other measure | Planning | Start date: 2016 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Delivery of 4 gas refuelling sites (dependent upon the FS) Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-4 | Engineering study into H2 supply and refuelling facilities for bus fleet | Feasibility into conversion of buses to H2 | Public procurement: Other measure | Planning | Start date: 2014 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-5 | Delivery of H2 refuelling infrastructure | H2 infrastructure to support bus fleet | Public procurement: Other measure | Planning | Start date: 2017 Expected end date: 2018 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Delivery of refuelling depot (dependent upon the FS) Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|---|--|-----------------------------------|----------------|--|
| Birmingham City Council_AQAP 10-6 | Climate KIC funded Engineering study into EV supply and refuelling facilities for bus fleet | Feasibility into infrastructure to support EV bus conversion / purchase | Public procurement: Other measure | Planning | Start date: 2015 Expected end date: 2016 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_LETCP1 | Development of a regional LES | To develop a regional LES to showcase good practice and provide a road map for future action | Other measure: Other measure | Preparation | Start date: 2012 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Completion of LES Target emissions reduction: No target |
| Birmingham City Council_LETCP2 | Development of a Best Practice Guidance on Air Quality and Procurement | To devise a policy for using the procurement power of a LA to incentivise the uptake of cleaner vehicle technology | Other measure: Other measure | Implementation | Start date: 2012 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Completion of BPG Target emissions reduction: No target |
| Birmingham City Council_LETCP3 | Development of a Best Practice Guidance on Air Quality and Planning | To devise a policy for using the planning process to reduce the impact from transport based emissions arising from new development | Other measure: Other measure | Implementation | Start date: 2012 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Completion of BPG Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-7 | OLEV City Scheme to fund regional charging infrastructure | To provide a WM wide charging infrastructure considering interoperability, universal access, park & ride, grid balancing. | Public procurement: Other measure | Planning | Start date: 2014 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Estimate strategic installation of 40 charging points (rapid / 4 hr combination) combined with park and ride facilities Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|---|--|---|-------------|---|
| Birmingham City Council_CENTRO1 | Develop a new Statutory Bus Quality Partnership Scheme | To update the existing SBQPS to improve the bus fleet entering the city centre in line with outputs from the LEZ TFS (AQAP1) | Public procurement: New vehicles, including low emission vehicles | Preparation | Start date: 2014 Expected end date: 2016 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Reduce the number of higher emitting buses entering the city centre focusing on Euro IV and Euro IV or converted Target emissions reduction: Comparison with existing SBQPS |
| Birmingham City Council_AQAP 10-8 | Feasibility Study to support the development of car clubs in employment areas for SME take up | Car clubs for SME in employment areas where access to parking infrastructure restricted. | Other measure: Other measure | Planning | Start date: 2015 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_Freight 1 | Feasibility Study under Horizon 2020 in partnership with IBM to identify sites suitable for freight consolidation centres | Consideration of 'crowd sourcing' technology to route plan HGV movements to show most suitable locations for freight centre | Traffic planning and management: Freight transport measure | Planning | Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_Rail 1 | HS2 rail development including new station in the City centre | HS2 rail | Traffic planning and management: Improvement of public transport | Planning | Start date: 2017 Expected end date: 2026 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of HS2 Target emissions reduction: No target |
| Birmingham City Council_Taxi 1 | Increase LPG refuelling infrastructure for Hackney Carriages | Double LPG refuelling depots for Hackney Carriages from 6 to 12 | Public procurement: Other measure | Planning | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase the number of LPG refuelling sites for Hackney Carriages Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|--|--|--|----------------|---|
| Birmingham City Council_Taxi 2 | Conversion of taxis to LPG | Conversion of 80 taxis from diesel to LPG | Public procurement: Other measure | Implementation | Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Convert 80 taxis from diesel to LPG Target emissions reduction: No target |
| Birmingham City Council_AQAP 10-9 | Installation of rapid recharging infrastructure in shopping centres | 8 new rapid recharging points in shopping centres | Public procurement: Other measure | Planning | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Delivery of 8 new rapid charging points Target emissions reduction: No target |
| Birmingham City Council_AQAP 12-2 | Incentivising cleaner taxi usage at New Street Station | Priority parking scheme for LE taxis at New Street Station | Public procurement: Other measure | Preparation | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Scheme established Target emissions reduction: No target |
| Birmingham City Council_Water 1 | Feasibility study to support the use of the waterways to transport waste to energy centres | Use of canals to transport waste for energy conversion | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2015 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of FS Target emissions reduction: No target |
| Birmingham City Council_AQAP 4-2 | Major scheme works (£26 million) to upgrade signalling to improve traffic flow. | Scoot & Mover projects. Consideration of further bus and freight prioritisation. | Traffic planning and management: Other measure | Implementation | Start date: 2015 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: Continued improvements Target emissions reduction: No target |
| Birmingham City Council_ROAD 1 | Trial of 20mph zones | Smooth traffic flow and promote safety | Traffic planning and management: Reduction of speed limits and control | Implementation | Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Completion of trials Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|--|---|--|----------------|--|
| Birmingham City Council_ROAD 2 | Workplace parking levy | Incentivise modal shift | Traffic planning and management: Management of parking places | Implementation | Start date: 2017 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: Introduction of scheme Target emissions reduction: No target |
| Birmingham City Council_POLICY 1 | Free on-street parking / charging for EV users | Incentivise the uptake of cleaner vehicle technology | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Policy position Target emissions reduction: No target |
| Birmingham City Council_POLICY 2 | Birmingham Connected | Umbrella policy for all transport planning activity across the city underpinned by the Birmingham Connected White Paper | Traffic planning and management: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Various indicators Target emissions reduction: No target |
| Birmingham City Council_LETCP 4 | Continuance of the LETCP across the WM Urban Area (7 local authorities) | Policy guidance and regional working across many different professional fields | Other measure: Other measure | Implementation | Start date: 2012 Expected end date: 2020 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Continued working Target emissions reduction: No target |
| Birmingham City Council_POLICY 3 | Midlands Connect Infrastructure Strategy covering the West & East Midlands | Lobbying of Government to promote investment in transport sectors to promote economic growth and sustainability | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Economic Growth as a result of strategic transport investment Target emissions reduction: N/A |
| Birmingham City Council_FREIGHT 2 | Development of freight partnership for city centre deliveries | Joint working with Colmore BID to consolidate deliveries and procurement to combine orders and reduce deliveries | Traffic planning and management: Freight transport measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Reduction in number of servicing and logistics vehicles entering BID. Reduced traffic flows, air quality benefits etc. Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|----------------------------------|--|--|---|----------------|--|
| Birmingham City Council_RAIL 2 | Reinstatement of Camp Hill and Sutton Park rail lines | Lobbying of DfT and Network Rail to reopen lines, including 7 new stations | Traffic planning and management: Improvement of public transport | Planning | Start date: 2014 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: Mode shift to rail. Target emissions reduction: N/A |
| Birmingham City Council_RAIL 3 | Upgrading of University and Longbridge stations | Improving the rail stations to promote modal shift | Traffic planning and management: Improvement of public transport | Preparation | Start date: 2016 Expected end date: 2019 Spatial scale: Local Source affected: Transport Indicator: Completion of upgrades Target emissions reduction: No target |
| Birmingham City Council_CYCLE 1 | Birmingham Cycle Revolution - £60 million to upgrade infrastructure | Improve infrastructure (new cycle routes) to promote cycling | Traffic planning and management: Encouragement of shift of transport modes | Preparation | Start date: 2015 Expected end date: 2019 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of BCR programme Target emissions reduction: No target |
| Birmingham City Council_CYCLE 2 | Big Birmingham Bikes | 5000 new bikes for deprived areas of city | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of BCR programme Target emissions reduction: No target |
| Birmingham City Council_POLICY 4 | Feasibility Study into mechanism for monitoring / enforcing workplace travel plans | Workplace travel plans monitoring and enforcement | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2017 Expected end date: 2017 Spatial scale: Whole town or city Source affected: Transport Indicator: Completion of Feasibility Study Target emissions reduction: No target |
| Birmingham City Council_WALK 1 | Walking Cities Fund of £2 million to promote walking | Engagement with schools to encourage walking and adjust travel patterns | 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: Various - number of walking trips and distance, air quality, CO2 Target emissions reduction: No target |

| Measure code | Description | Focus | Classification | Status | Other information |
|--------------------------------|---|---|---|----------------|--|
| Birmingham City Council_WALK 2 | Improvement to public rights of way | Mapping to identify required improvement to public rights of way | 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: Various - number of walking trips and distance, air quality, CO2 Target emissions reduction: No target |
| Wolverhampton City Council_1 | Wolverhampton Interchange project phase 1 | Improve access into the main bus station. Provision of new access road directly from the ring road. Reduction in the number of buses in Lichfield Street, Princess St, Queen St and Stafford St | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2010 Expected end date: 2011 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: West Midlands Local Transport Plan 3 performance aim: "A net reduction of Nitrogen Dioxide (NO2) in those areas, as confirmed by each local authority within the West Midlands, where the annual average NO2 values are predicted to exceed 40µg/m3 between 2008 (baseline) and 2015". |
| Wolverhampton City Council_2 | Midland Metro city centre extension. | Part of the interchange project the Midland Metro system will be extended from its current terminus at Bilston Street to link with the main line railway station. | Traffic planning and management: Improvement of public transport | Planning | Start date: 2015 Expected end date: 2017 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_3 | Wolverhampton City Centre Scheme | Creation of a new one way system, pedestrian zones, rationalisation of on street parking, bus lanes and new bus stops along Princess Street, Market Street and Queen Street | Traffic planning and management: Improvement of public transport | Other | Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_4 | Railway station access improvement | Creation of a new access road to the railway station off Horesley Fields. Current access is from inside the ring road leading to high levels of traffic within the city centre. | Traffic planning and management: Improvement of public transport | Other | Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-------------------------------|---|--|---|----------------|--|
| Wolverhampton City Council_5 | Conduct a feasibility study of roadside emission testing. | The City Council (WCC) will evaluate the viability of the testing of vehicle emissions at the roadside. If testing proves to be viable, drivers whose vehicles fail the test could be issued with a fixed penalty notice. | Other measure: Other measure | Evaluation | Start date: 2006 Expected end date: 2008 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_6 | Improve the WCC Fleet. | The City Council will continue to favour low emission vehicles in its own fleet. | Other measure: Other measure | Implementation | Start date: 2006 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_7 | Discourage drivers from allowing their engines to idle unnecessarily when parked. | WCC to undertake a programme of driver awareness/ecodriving. | Other measure: Other measure | Implementation | Start date: 2006 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_8 | Showcase route extension and improvements. | The Council will implement a programme of enhanced bus routes featuring real time information at bus stops, improved bus shelters and lighting at stops and bus priority at junctions. | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2006 Expected end date: 2011 Spatial scale: Whole town or city Source affected: Transport Indicator: non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_9 | Increased bus lane enforcement. | Fixed roadside cameras for bus lane enforcement. | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2014 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_10 | Increase in passenger capacity of rail network. | The City Interchange Project (see points 1 & 2) forms a major new transport interchange, based upon the existing rail station and bus station. It will provide new linkages and encourage modal shift, enhancing and improving City Centre access. | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2007 Expected end date: 2016 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-------------------------------|---|--|---|----------------|---|
| Wolverhampton City Council_11 | The investigation of 'Red Routes' to ease congestion. | WCC has completed a demonstration red route scheme on the A449 Stafford Road. | Traffic planning and management: Improvement of public transport | Other | Start date: 2006 Expected end date: 2008 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_12 | Improvement of Urban Traffic Control Systems designed to reduce congestion. | WCC will participate in development of Urban Traffic Control arrangements for the West Midlands. This has identified the best enhancement linkages between the existing centres and between the urban systems and the Highways Agency systems. | Traffic planning and management: Other measure | Implementation | Start date: 2005 Expected end date: 2014 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_13 | Wolverhampton Car Share (WCS). | WCC will facilitate a Car Share Coordinator which aims to give those travelling to work an alternative travel option. | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_14 | Promotion of walking. | The City Council has adopted a Walking Strategy as a requirement of Government and the LTP. The Strategy promotes facilities to encourage people to walk for more journeys. It covers all aspects from the provision of pedestrian friendly facilities in new developments, education and promotion of walking as a mode of transport, as well as the maintenance of existing facilities. | 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: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_15 | Promotion of cycling. | WCC has adopted a Cycle Strategy and has an annual rolling programme for cycle facilities. These provide a framework for the City Council to promote and provide additional safe cycle routes, secure cycle parking and training initiatives. The Council will also continue to ensure that new residential and commercial developments provide secure cycle storage facilities and contribute to the cycle network. | 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: Non set Target emissions reduction: See point 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
|--------------------------------|--|---|------------------------------|----------------|--|
| Wolverhampton City Council_16 | West Midlands Low Emissions Towns & Cities Program (LETCP) | The LETCP seeks to promote joint working to reduce regulated road transport emissions, primarily oxides of nitrogen (NOx) and particulate matter, as well as securing reductions in greenhouse gases and noise emissions where practicable. Building on policies and measures to discourage vehicle use and encourage a shift to sustainable transport modes, the LETCP aims to achieve improvements in emissions from the vehicle fleet through the accelerated take-up of cleaner fuels and technologies and by discouraging the use of high emission vehicles. | Other measure: Other measure | Implementation | Start date: 2007 Expected end date: 2017 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Delivery of work streams Target emissions reduction: See point 1 |
| Wolverhampton City Council_16a | Low Emission Strategy | Overarching Low Emission Strategy for the 7 West Midlands Authorities to improve emissions and concentrations of NO2 and particulates while also seeking to exploit the synergies of CO2 and noise reduction, where possible, through the transformation of the West Midlands vehicle fleet | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Adoption of the Low Emission Strategy within each Local Authority area. Target emissions reduction: N/A |
| Wolverhampton City Council_16b | Planning Guidance | Develop a regional Good Practice Planning Guidance which protects residents of future development schemes from exposure to air pollution. The guidance promotes a simplified assessment criteria and definition of sustainability, and incorporates mitigation as standard to help counter cumulative impacts. It applies a procedure for evaluating additional requirements for mitigation and compensation using cost damage analysis. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: See point 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
|--------------------------------|--------------------------------------|---|-----------------------------------|----------------|---|
| Wolverhampton City Council_16c | Procurement Guidance | Develop a regional Good Practice Procurement document with the following key policies and benefits: Local sourcing (reduced vehicle mileage), Sustainable fleet demonstration, specification and contract award criteria, including Government Buying Standards considerations. Development of Whole Life Cost model, including damage costs of environmental impact. Innovative procurement. Development of public private partnerships. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: See point 1 |
| Wolverhampton City Council_16d | Low Emission Zone Feasibility | A technical study into the feasibility of creating a transferable LEZ model for the West Midlands. A range of scenarios were selected (City Centre / Motorway / Street Canyon and Urban Corridor). The study assesses the benefits and disadvantages of emission control policies on key vehicle types for each scenario, including cost benefit analysis and potential costing for implementation, as well as Health Impact Assessment (HIA) of the most effective intervention measures | Other measure: Other measure | Evaluation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of feasibility study and adoption of measures capable of improving emissions/pollutant concentrations. Target emissions reduction: See point 1 |
| Wolverhampton City Council_17 | OLEV Go Ultra Low City Status Scheme | Submission of a bid for promotion of low emission vehicles and establishment of charging infrastructure | Public procurement: Other measure | Preparation | Start date: 2014 Expected end date: 2021 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Success of the bid Target emissions reduction: See point 1 |
| Wolverhampton City Council_18 | Green Fleet Review | Carry out Green Fleet Review of council's liveried and grey fleets. Plugged In Fleet Initiative (PIFI) review of potential for ULEV vehicles including the introduction of staff pool vehicles. | Other measure: Other measure | Preparation | Start date: 2014 Expected end date: 2021 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
|---|---|--|--|----------------|--|
| Wolverhampton City Council_19 | Local sustainable transport initiatives | Support the broader aims of OLEV by promoting alternative modes of transport to single car occupancy of ICE vehicles, thereby improving air quality & facilitating behaviour change | Public procurement: Other measure | Preparation | Start date: 2014 Expected end date: 2020 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Non set Target emissions reduction: See point 1 |
| Wolverhampton City Council_20 | Encouragement of City Centre living | Wolverhampton City Council will continue its strategy to encourage city centre living | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Non set Target emissions reduction: N/A |
| Wolverhampton City Council_21 | Energy efficiency | WCC will pursue the uptake of alternative energy sources in council buildings. WCC will work with Wolverhampton Homes to continue its energy efficiency strategy for residential properties. | Other measure: Other measure | Implementation | Start date: 2004 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Commercial and residential sources Indicator: Non set Target emissions reduction: See point 1 |
| Sandwell Metropolitan Borough Council_1 | Birmingham Road (A457) Oldbury - Possible Relocation of Existing Residential Receptors | Removal of residents from identified NO2 exceedance area | Other measure: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Other, please specify Indicator: Reduction in residential exposure Target emissions reduction: No Reduction identified |
| Sandwell Metropolitan Borough Council_2 | Birmingham Road (A457) Oldbury - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Reduction in NO2 and PM10 Concentrations Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_3 | Dudley Road East /Roway Lane Oldbury - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Reduction in NO2 and PM10 Concentrations Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|---|---|---|---|------------|---|
| Sandwell Metropolitan Borough Council_4 | M5 J1-J2, Oldbury & West Bromwich & M6 J7-J8/M5, Great Barr & Yew Tree | Improvements to traffic flow on M6 through implementing a programme to reduce incident response times to 20 minutes (from 60 minutes) 24 hours a day, seven days a week | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2011 Spatial scale: Whole town or city Source affected: Transport Indicator: Reduction in Incident Response Time Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_5 | M5 J1-J2, Oldbury & West Bromwich & M6 J7-J8/M5, Great Barr & Yew Tree | An improved system of contingency planning for the motorway network to improve traffic flows | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2011 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved planning - Regular review of procedures and policies Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_6 | M5 J1-J2, Oldbury & West Bromwich & M6 J7-J8/M5, Great Barr & Yew Tree | Evaluate the suitability of active traffic management to improve traffic flows on the M6 | Traffic planning and management: Other measure | Evaluation | Start date: 2011 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Improved Traffic Flows and Emission Reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_7 | Regional Motorway Improvements | A planned link between the M54 and M6/M6 Toll to relieve congestion on M6 Junctions 8-10A | Traffic planning and management: Other measure | Planning | Start date: 2013 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Improved Traffic Flows and Emission Reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_8 | M5 J1-J2, Oldbury & West Bromwich & M6 J7-J8/M5, Great Barr & Yew Tree | Ramp metering of junctions 1&2 M5 and junctions 11&16 M6 | Traffic planning and management: Other measure | Evaluation | Start date: 2008 Expected end date: 2008 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_9 | Newton Rd / Birmingham Rd (A34) Great Barr - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2010 Spatial scale: Local Source affected: Transport Indicator: Improved Traffic Flows and Emission Reduction Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|--|---|---|------------|--|
| Sandwell Metropolitan Borough Council_10 | Metro Extension (Phase 2 Varsity North) | Enlarging Metro network and increasing patronage | Traffic planning and management: Improvement of public transport | Other | Start date: 2014 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: New route introduced and increase in patronage. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_11 | Bearwood Road - Bus Showcase | Upgrade bus infrastructure to improve patron experience and patronage. | Traffic planning and management: Improvement of public transport | Evaluation | Start date: 2008 Expected end date: 2009 Spatial scale: Local Source affected: Transport Indicator: Increases bus patronage Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_12 | Metro Extension (Birmingham West route - Hagley Road) | Enlarging Metro network and increasing patronage | Traffic planning and management: Improvement of public transport | Evaluation | Start date: 2014 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Reduction in congestion due to extra routes and patronage Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_13 | Hagley Road (A456) Bearwood - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_14 | Blackheath Bypass | New bypass, plus implementation of scheme to maximise use of bypass. Potential 40% reduction in emission may be achieved in town centre | Traffic planning and management: Other measure | Evaluation | Start date: 2005 Expected end date: 2006 Spatial scale: Local Source affected: Transport Indicator: Reduction in vehicles in Town Centre Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_15 | Blackheath - 'In Town Without My Car Day' | Encourage Town centres users to travel by alternative methods. | Traffic planning and management: Encouragement of shift of transport modes | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Reduction in vehicles in Town Centre Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|---|---|---|------------|---|
| Sandwell Metropolitan Borough Council_16 | High Street / Powke Lane Blackheath - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_17 | Bromford Lane (Inc Kelvin Way / Brandon Way) West Bromwich - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2012 Expected end date: 2012 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_18 | Trinity Way / Kenrick Way West Bromwich - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2012 Expected end date: 2012 Spatial scale: Local Source affected: Transport Indicator: Improved Traffic Flows and Emission Reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_19 | All Saints Way / Expressway (A41) West Bromwich junction improvements | Construction of an underpass beneath existing junction. | Traffic planning and management: Other measure | Evaluation | Start date: 2010 Expected end date: 2012 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_20 | All Saints Way / Expressway (A41) West Bromwich - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Evaluation | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_21 | Sedgley Road East /Dudley Port Tipton - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|---|--|---|----------------|--|
| Sandwell Metropolitan Borough Council_22 | Soho Way /Grove Lane / Cranford Street - Red Route treatment including the control of parking to ease congestion. | Improving traffic flow | Traffic planning and management: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_23 | Reducing Council Vehicle Emissions | Purchased vehicles to meet progressively tighter emission controls | Other measure: Other measure | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved Vehicle Fleet Makeup Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_24 | Promotion of Eco -Driving | Develop strategy to encourage drivers to drive economically | Public information and Education: Other mechanisms | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_25 | Anti -Idling | Encourage drivers to switch off engines when stationary | Traffic planning and management: Other measure | Other | Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved vehicle emissions Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_26 | Vehicle Emission Testing | Establish a programme of vehicle emission testing | Other measure: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: Improved vehicle emissions Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_27 | Improving Public Transport | Showcase Bus Route Improvements | Traffic planning and management: Improvement of public transport | Evaluation | Start date: 2007 Expected end date: 2009 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 |
|--|--|--|--|----------------|--|
| Sandwell Metropolitan Borough Council_28 | Improving Public Transport Branding | Ongoing programme of brand improvement and public awareness including Safer Network, Improved Connections, Signage and Access. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2008 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Improved user patronage / user surveys Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_29 | Improving Public Transport Information | Implementation of the CENTRO Network 'N' Brand increases awareness of transport availability, interconnectivity of transport types, information available online and at transport stops. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Improved user patronage / user surveys Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_30 | Expansion of Midland Metro | Midland Metro Extension Wednesbury to Brierly Hill | Traffic planning and management: Improvement of public transport | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Implementation of route and increasing patronage. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_31 | Expansion of Midland Metro | Midland Metro Extension '5W's line Wednesbury to Walsall | Traffic planning and management: Improvement of public transport | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Implementation of route and increasing patronage. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_32 | Increased Bus Lane Enforcements | Increased number of bus lane enforcement cameras | Traffic planning and management: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Increased enforcement actions Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_33 | Urban Traffic Control Systems | UTC System aimed at reducing congestion | Traffic planning and management: Other measure | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Improved traffic flows and emission reduction. Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|---|--|---|----------------|---|
| Sandwell Metropolitan Borough Council_34 | Burnt Tree Junction Improvements | Traffic light controlled junction replacing existing roundabout. | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows, reduced queue lengths / trip times and emission reduction. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_35 | Owen Street Railway Crossing | Closure of level crossing and construction of alternative road route including tunnel. | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and congestion / emission reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_36 | Cradley Heath Bypass | Construction of bypass to re-route through traffic away from High Street | Traffic planning and management: Other measure | Evaluation | Start date: 2006 Expected end date: 2007 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flows and emission reduction Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_37 | Air Quality considerations to be included in the Local Development Framework. | Policies seek to reduce the need to travel and promote the use of alternative travel modes | Other measure: Other measure | Implementation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Reduction in emissions and recorded pollutant concentrations Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_38 | Section 106 Agreements | Investigate practicality of section 106 agreements to secure monitoring for funding and mitigation where Air Quality issues are identified | Other measure: Other measure | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Other, please specify Indicator: Section 106 Agreements secured Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_39 | Air Quality Guidance for Developers | Air Quality Guidance for Developers to follow when submitting planning applications | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Other, please specify Indicator: Production of Guidance and ongoing use by developers Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|-------------------------------------|--|--|----------------|--|
| Sandwell Metropolitan Borough Council_40 | Stourbridge to Walsall Freight Line | Council to support the reopening of the line for freight | Traffic planning and management: Freight transport measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Re-opening of the line Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_41 | Congestion Charging | Council to continue to monitor the implications and effectiveness of congestion charging proposals | Traffic planning and management: Low emission zones | Evaluation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: N/A Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_42 | Energy Efficiency Advice | Continuation of Sandwell's Energy Efficiency Advice Centre | Public information and Education: Other mechanisms | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Local Source affected: Commercial and residential sources Indicator: Uptake of advice Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_43 | Promotion of Walking | Development of a Walking Strategy to encourage uptake of walking as a positive alternative to private car use. Improved health and reduction in pollutant emissions. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2013 Expected end date: 2014 Spatial scale: Whole town or city Source affected: Transport Indicator: Adoption of Walking strategy and increase in walking initiatives Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_44 | Promotion of Cycling | Developemnt of a Cycling Strategy to improve cycling update | 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: Adoption of Cycling Strategy and uptake of cycling Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_45 | Travel Plans | Encourage Travel Plans for Employers, Schools and Hospitals | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2006 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Development and Adoption of Travel Plans Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|---------------------------------|---|--|----------------|--|
| Sandwell Metropolitan Borough Council_46 | Website Air Quality Information | Update Council website to publish and promote air quality information | Public information and Education: Internet | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Update of website at regular intervals Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_47 | Car Sharing | Promote Car Sharing for Sandwell residents and businesses | Other measure: Other measure | Implementation | Start date: 2009 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Number of members signed up and using carsharing scheme Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_48 | Sustainable School Travel | Provide air quality information and promote sustainable travel in schools | Traffic planning and management: Encouragement of shift of transport modes | Other | Start date: 2009 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Uptake of advice in schools Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_1 | Low Emission Strategy | Overarching Low Emission Strategy for the 7 West Midlands Authorities to improve emissions and concentrations of NO2 and particulates while also seeking to exploit the synergies of CO2 and noise reduction, where possible, through the transformation of the West Midlands vehicle fleet | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Adoption of the Low Emission Strategy within each Local Authority area. Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_2 | Planning Guidance | Develop a regional Good Practice Planning Guidance which protect residents of future development schemes from exposure to air pollution. The Guidance promote a simplified assessment criteria and definition of sustainability, Incorporates mitigation as standard to help counter cumulative impacts. Applies a procedure for evaluating additional requirements for mitigation and compensation using cost damage analysis. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
|---|--|--|--|----------------|---|
| Sandwell Metropolitan Borough Council_3 | Procurement Guidance | Develop a regional Good Practice Procurement document with the following key policies and benefits: Local sourcing (reduced vehicle mileage), Sustainable fleet demonstration, specification and contract award criteria, including Government Buying Standards considerations. Development of Whole Life Cost model, including damage costs of environmental impact. Innovative procurement. Development of public private partnerships. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: N/A |
| Sandwell Metropolitan Borough Council_4 | Low Emission Zone Feasibility | A technical study into the feasibility of creating a transferable LEZ model for the West Midlands. A range of scenarios were selected (City Centre / Motorway / Street Canyon and Urban Corridor). The study assess the benefits and dis-benefits of emission control policies on key vehicle types for each scenario, including cost benefit analysis and potential costing for implementation, as well as Health Impact Assessment (HIA) of the most effective intervention measures | Traffic planning and management: Low emission zones | Evaluation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of feasibility study and adoption of measures capable of improving emissions/pollutant concentrations. Target emissions reduction: N/A |
| Wyre Forest District Council_WG4 | Normal length buses block road in narrow bends | Buses cause blockage in road leading to back up of traffic not being able to pass. Encourage bus companies through Bus Quality partnership to use shorter length buses on route. | Traffic planning and management: Improvement of public transport | Preparation | Start date: 2015 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: More shorter length buses seen in AQMA area Target emissions reduction: 0.02 |
| Wyre Forest District Council_5.1.1 | Alteration to phasing of traffic light systems | Two sets of traffic lights (pedestrian crossings) seen to affect traffic build up in AQMA. | Traffic planning and management: Other measure | Other | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Decrease in congestion within AQMA area Target emissions reduction: 0.03 |

| Measure code | Description | Focus | Classification | Status | Other information |
|------------------------------------|---|---|---|-------------|--|
| Wyre Forest District Council_5.1.5 | Loading and unloading restrictions during peak traffic times | Restrictions are already in place but further enforcement believed to improve traffic flow with AQMA. | Traffic planning and management: Management of parking places | Preparation | Start date: 2015 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: Decrease in illegally parked vehicles Target emissions reduction: 0.02 |
| Wyre Forest District Council_5.1.3 | HGV or weight restriction on affected roads | Encourage HGVs to avoid AQMA and find alternative routes | Traffic planning and management: Other measure | Preparation | Start date: 2015 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: Less HGV's travelling through AQMA Target emissions reduction: 0.02 |
| Wyre Forest District Council_5.5.4 | Encourage developers to provide sustainable transport facilities and links serving new developments | Encourage and facilitate uptake of sustainable modes of transport where new developments are proposed | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Greater provision of sustainable transport facilities and links servicing new developments Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.3.2 | Encourage car sharing | Promote car sharing services within Wyre Forest | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in number of people car sharing Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.2.5 | Greening Council and Business Fleets | Secure use of "cleaner" fuels/higher Euro standard vehicles for Council and Business fleets. Support bid for installation of CNG facility in Worcestershire | Traffic planning and management: Other measure | Planning | Start date: 2016 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: Increase in number of Council and business fleet vehicles of higher Euro Standard and/or utilising alternative fuels Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-------------------------------------|--|--|--|-------------|--|
| Wyre Forest District Council_5.2.10 | Installing electric vehicle charging points | Encourage and facilitate use of electric vehicles through provision of charging points in city | Other measure: Other measure | Preparation | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Increase in availability of EV charging points and corresponding increase in use of electric vehicles Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.5.3 | Encourage uptake of employer and residential travel plans for major employers and new developments to area | Promotion of alternative modes of transport through organistaion and personal travel planning | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.3.1 | Travel Planning | Promotion of alternative modes of transport through organistaion and personal travel planning | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.4.5 | Raise the profile and increase awareness of air quality within the region | Publication campaign relating to air quality to publicise nd raise awareness of air quality and its implications | Public information and Education: Other mechanisms | Evaluation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Increased awareness at Distict, County and general public levels of air quality issues across the County Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.3.9 | Smarter Choices - Choose How You Move marketing initiatives | Use of marketing and information methods to encourage use of sustainable travel modes and typically include workplace, school, residential, community, travel planning, car sharing and clubs, and awareness raising campaigns | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|------------------------------------|--|---|--|----------------|---|
| Wyre Forest District Council_5.4.4 | Make air quality information more available and accessible | WRS to make all air quality documents available to the general public for access from the website | Public information and Education: Internet | Evaluation | Start date: 2013 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved availability of air quality information. More information proactively published on website. Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.5.1 | Produce Air Quality Supplementary Planning Document | Document providing transparent and consistent advice to development control departments and developers relating to air quality | Other measure: Other measure | Preparation | Start date: 2015 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Formally adopted and utilised AQ SPD at all six LPAs across Worcestershire Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.6.3 | Air Quality Networks | Group of councils working in partnership to address air quality issues across those areas | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved cross boundary working between local authorities in Worcestershire Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.6.8 | Forge closer links with local health agencies | Aiming to forge partnership with local health authorities such as Public Health England to improve knowledge and understanding of local air quality and associated health risks | Other measure: Other measure | Implementation | Start date: 2015 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Participation of relevant health agencies in the Worcestershire Air Quality Steering Group Target emissions reduction: 0.01 |
| Wyre Forest District Council_5.3.4 | Promote flexible working arrangements | Promoting flexible working arrangements with local businesses | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in use of flexible working arrangements with local businesses. Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|------------------------------------|---|--|---|-------------|--|
| Wyre Forest District Council_5.2.2 | Freight Quality Partnership | Encourage freight vehicles to avoid AQMA and find alternative routes | Traffic planning and management: Freight transport measure | Planning | Start date: 2015 Expected end date: 2017 Spatial scale: Whole town or city Source affected: Transport Indicator: Decreased in freight movements through AQMA Target emissions reduction: 2-5% |
| Wyre Forest District Council_5.3.8 | Promote and support walking and cycling initiatives in Worcestershire | Initiative to encourage the uptake of walking and cycling by promoting the benefits using various packages such as The Chose How You Move Initiative | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Change in behaviour to more sustainable modes of transport e.g. walking, cycling, public transport Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.1.1 | Alteration to phasing of traffic light systems | Traffic exiting from junction causes delays in traffic flow in both directions along the A38. Proposed action is to make junction no right turn. | Traffic planning and management: Other measure | Preparation | Start date: 2015 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: Decrease in obstruction to traffic flow Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.2.2 | Freight Quality Partnership | Encourage freight vehicles to avoid AQMA and find alternative routes | Traffic planning and management: Freight transport measure | Planning | Start date: 2015 Expected end date: 2017 Spatial scale: Whole town or city Source affected: Transport Indicator: Decreased in freight movements through AQMA Target emissions reduction: 2-5% |
| Bromsgrove District Council_KR5 | Significant queuing traffic observed in both directions on A456 heading for A491 Stourbridge Road. Action - junction review | Propose WCC undertake a junction review to ascertain improvements to current and future predicted flows | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Reduction in number of queuing vehicles Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.1.8 | Introduction of traffic signals at roundabouts | Introduction of traffic signals at roundabouts to improve traffic flow. Traffic flow held at more strategic point to improve flow through the AQMA. | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flow Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|------------------------------------|--|---|---|-------------|--|
| Bromsgrove District Council_5.1.4 | Variable Message Signage (include traffic info, car park info, bus and rail connection info etc.) Could be used in combination with Park and Ride schemes etc. | Use of VMS to encourage use of alternative modes of transport or direct drivers to car parks with spaces to avoid unnecessary journeys between car parks | Traffic planning and management: Other measure | Other | Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Decreased in traffic movements through AQMA Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.5.4 | Encourage developers to provide sustainable transport facilities and links serving new developments | Encourage and facilitate uptake of sustainable modes of transport where new developments are proposed | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Greater provision of sustainable transport facilities and links servicing new developments Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.3.2 | Encourage car sharing | Promote car sharing services within Bromsgrove | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in number of people car sharing Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.2.5 | Greening Council and Business Fleets | Secure use of "cleaner" fuels/higher Euro standard vehicles for Council and Business fleets. Support bid for installation of CNG facility in Worcestershire | Traffic planning and management: Other measure | Planning | Start date: 2016 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: Increase in number of Council and business fleet vehicles of higher Euro Standard and/or utilising alternative fuels Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.2.10 | Installing electric vehicle charging points | Encourage and facilitate use of electric vehicles through provision of charging points in city | Other measure: Other measure | Preparation | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Increase in availability of EV charging points and corresponding increase in use of electric vehicles Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|--|--|--|------------|---|
| Bromsgrove District Council_5.5.3 | Encourage uptake of employer and residential travel plans for major employers and new developments to area | Promotion of alternative modes of transport through organistaion and personal travel planning | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.3.1 | Travel Planning | Promotion of alternative modes of transport through organistaion and personal travel planning | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.4.5 | Raise the profile and increase awareness of air quality within the region | Publication campaign relating to air quality to publicise nd raise awareness of air quality and its implications | Public information and Education: Other mechanisms | Evaluation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Increased awareness at Distrtict, County and general public levels of air quality issues across the County Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.3.9 | Smarter Choices - Choose How You Move marketing initiatives | Use of marketing and information methods to encourage use of sustainable travel modes and typically include workplace, school, residential, community, travel planning, car sharing and clubs, and awareness raising campaigns | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Change in behaviour towards more sustainable modes of transport. Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.4.4 | Make air quality information more available and accessible | WRS to make all air quality documents available to the general public for access from the website | Public information and Education: Internet | Evaluation | Start date: 2013 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved availability of air quality information. More information proactively published on website. Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|---|---|--|----------------|---|
| Bromsgrove District Council_5.5.1 | Produce Air Quality Supplementary Planning Document | Document providing transparent and consistent advice to development control departments and developers relating to air quality | Other measure: Other measure | Preparation | Start date: 2015 Expected end date: 2016 Spatial scale: Whole town or city Source affected: Transport Indicator: Formally adopted and utilised AQ SPD at all six LPAs across Worcestershire Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.6.3 | Air Quality Networks | Group of councils working in partnership to address air quality issues across those areas | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Improved cross boundary working between local authorities in Worcestershire Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.6.8 | Forge closer links with local health agencies | Aiming to forge partnership with local health authorities such as Public Health England to improve knowledge and understanding of local air quality and associated health risks | Other measure: Other measure | Other | Start date: 2015 Expected end date: 2030 Spatial scale: Whole town or city Source affected: Transport Indicator: Participation of relevant health agencies in the Worcestershire Air Quality Steering Group Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.3.4 | Promote flexible working arrangements | Promotion of flexible working arrangements with local businesses to include working from home opportunities, staggered start times etc. | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2015 Expected end date: 2015 Spatial scale: Whole town or city Source affected: Transport Indicator: Increase in use of flexible working arrangements with local businesses. Target emissions reduction: 0.01 |
| Bromsgrove District Council_5.3.8 | Promote and support walking and cycling initiatives in Worcestershire | Initiative to encourage the uptake of walking and cycling by promoting the benefits using various packages such as The Chose How You Move Initiative | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2015 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: Change in behaviour to more sustainable modes of transport e.g. walking, cycling, public transport Target emissions reduction: 0.01 |

| Measure code | Description | Focus | Classification | Status | Other information |
|-----------------------------------|---|---|---|----------|---|
| Bromsgrove District Council_LE6 | Traffic exiting Barnsley Hall Road right. Action - no right turn restriction | Traffic exiting from junction causes delays in traffic flow in both directions along the A38. Proposed action is to make junction no right turn. | Traffic planning and management: Other measure | Other | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Decrease in obstruction to traffic flow Target emissions reduction: 0.01 |
| Bromsgrove District Council_LE7 | Turning right into Harvester PH from A38 south. Action - no right turn restriction | Traffic turning right into Harvester PH from the A38 causes a delay in traffic flow | Traffic planning and management: Other measure | Other | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flow and reduction in NO2 Target emissions reduction: 0.01 |
| Bromsgrove District Council_LE4 | Narrowing of two lanes into one causes bottleneck at top of A38 south. Action - junction review | Two lanes changing into one at the top of the A38 southbound causing bottleneck and slowing of traffic. Action is to review and improve traffic system. | Traffic planning and management: Other measure | Other | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flow and reduction in NO2 Target emissions reduction: 0.03 |
| Bromsgrove District Council_NABD1 | Expansion of motorway junction | Major expansion to junction to accommodate volume of traffic | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Expansion of junction Target emissions reduction: 5-10% |
| Bromsgrove District Council_NABD2 | Investment in capacity enhancement of the A38 (Bromsgrove Eastern Bypass) Corridor | As part of the Bromsgrove District Plan and Worcestershire Strategic Economic Plan, it has been identified that major investment will be required in the A38 Bromsgrove Eastern Bypass to support development growth and improve the efficiency of this corridor. | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Improvement of A38 Bromsgrove Eastern Bypass Target emissions reduction: 5-10% |
| Bromsgrove District Council_NABD3 | Stopping up of the B4096 (Alcester Road/Old Birmingham Road) | The B4096 leads to residential areas either side of Junction 1 of the M42. Stopping up these accesses could significantly improve the efficiency of this junction, by reducing the accesses to the roundabout to only four arms. | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Removal of B4096 from Junction 1 of the M42 Target emissions reduction: 2-5% |

| Measure code | Description | Focus | Classification | Status | Other information |
|--|--|---|--|----------------|--|
| Bromsgrove District Council_RR7 | Two in road bus stops on carriageway either side of central street canyon | Move to further along the road with more desirable pull in places | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: New location of bus stops, reduction in queing traffic Target emissions reduction: 0.01 |
| Bromsgrove District Council_WR3 | Zebra crossing at Hanover Street/Worcester Road causes congestion | Replace zebra crossing with footbridge if considered feasible | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flow in area. Increased number of pedestrians using footbridge. Target emissions reduction: 0.02 |
| Bromsgrove District Council_WR9 | Local and school traffic causes congestion exiting Shrubbery Road junction. Action - junction review | Propose WCC undertake a junction review to ascertain improvements to current and future predicted flows. Also relates to generic action of school travel plan | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: Improved traffic flow in area of Shrubbery Road junction. Target emissions reduction: 0.01 |
| South Staffordshire District Council_1 | Manage bus emissions | Reduce unit emissions in the AQMA using Bus Quality Partnership Agreements (BQPA) | Public procurement: Cleaner vehicle transport services | Implementation | Start date: 2014 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Elimination of Euro I and II buses by 2014 Target emissions reduction: 0.02 |
| South Staffordshire District Council_2 | Manage HGV emissions | Sign up to ECO Strats | Other measure: Other measure | Implementation | Start date: 2015 Expected end date: 2030 Spatial scale: National Source affected: Commercial and residential sources Indicator: Reduction in emissions of Nox Target emissions reduction: 14t / yr |
| Lichfield City Council_1 | Muckley Corner Improvement Scheme | Reducing congestion at Muckley Corner roundabout | Traffic planning and management: Other measure | Other | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Muckley Corner AQMA Target emissions reduction: 0.025 |

| Measure code | Description | Focus | Classification | Status | Other information |
|--------------------------|--|---|--|-------------|--|
| Lichfield City Council_2 | A5/A5148 Wall Island Roundabout Improvement Scheme | Reducing congestion at the A5/A5148 roundabout. This will also reduce congestion at the Muckley Corner roundabout | Traffic planning and management: Other measure | Preparation | Start date: 2014 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Muckley Corner AQMA Target emissions reduction: 0.025 |
| Lichfield City Council_3 | Completion of the Lichfield Southern Bypass (link between the A5206 London Road and the A461 Walsall Road) - Phase 3 | Reducing congestion in Lichfield. | Traffic planning and management: Other measure | Preparation | Start date: 2013 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA Target emissions reduction: 0.005 |
| Lichfield City Council_4 | New or extended bus services to the City | Reducing congestion in Lichfield (inc. Fradley) | Traffic planning and management: Improvement of public transport | Preparation | Start date: 2013 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.005 |
| Lichfield City Council_5 | Local walking and cycling links | Reducing congestion in Lichfield (inc. Fradley) | Traffic planning and management: Expansion of bicycle and pedestrian infrastructure | Preparation | Start date: 2013 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.005 |
| Lichfield City Council_6 | Reopening of the Walsall to Lichfield rail line and provision of rail services between Lichfield, Burton and Derby with a new station at Alrewas | Reducing congestion in Lichfield (inc. Fradley) | Traffic planning and management: Improvement of public transport | Preparation | Start date: 2013 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.005 |

| Measure code | Description | Focus | Classification | Status | Other information |
|---------------------------|--|--|---|-------------|--|
| Lichfield City Council_7 | Urban traffic control and junction improvements on A5127 | Reducing congestion in Lichfield (inc. Fradley) | Traffic planning and management: Other measure | Preparation | Start date: 2013 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.005 |
| Lichfield City Council_8 | Electric charging points | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Other measure | Preparation | Start date: 2013 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.005 |
| Lichfield City Council_9 | Carry out regular emissions testing of Council vehicle fleet to ensure that all vehicles comply with the law | Reducing transport emissions in Lichfield (inc. Fradley) | Other measure: Other measure | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_10 | Fit pollution abatement equipment if necessary to older Heavy Goods Vehicles to help minimise pollution | Reducing transport emissions in Lichfield (inc. Fradley) | Retrofitting: Retrofitting emission control equipment to vehicles | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_11 | Promote the use of cleaner or alternative fuels where possible including the introduction of electrically powered vans | Reducing transport emissions in Lichfield (inc. Fradley) | Public procurement: Cleaner vehicle transport services | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Lichfield City Council_12 | Improve the Council's vehicle fuel consumption efficiency by better management of fleet activities | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Freight transport measure | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_13 | Investigate options for better travel planning amongst Lichfield District Council employees | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Freight transport measure | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_14 | Staffordshire ECO Stars scheme | Reducing transport emissions in Lichfield (inc. Fradley) | Other measure: Other measure | Preparation | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_15 | Implement initiatives to educate communities on air pollution issues and ways to minimise impacts on air quality | Reducing transport emissions in Lichfield (inc. Fradley) | Public information and Education: Internet | Preparation | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_16 | Encourage Lichfield District Council employees to consider the use of bicycles in their daily duties by providing cycle usage mileage | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Lichfield City Council_17 | Provide public with 'real time' travel and air quality information | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Other measure | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Lichfield City Council_18 | Work in partnership with the County Council to increase uptake and implementation of School Travel Plans, Workplace Travel Plans and Residential Travel Plans | Reducing transport emissions in Lichfield (inc. Fradley) | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2016 Expected end date: 2028 Spatial scale: Local Source affected: Transport Indicator: Annual mean NO2 concentrations in Lichfield including AQMA and Fradley area Target emissions reduction: 0.001 |
| Dudley Metropolitan Borough Council_1 | AP1 Road Network Improvements | Netherton, Traffic Signal Improvements | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_2 | AP1 Road Network Improvements | Windmill Hill, Highway and Pedestrian Improvements | Traffic planning and management: Reduction of speed limits and control | Implementation | Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_3 | AP1 Road Network Improvements | Pensnett, High Street Highway Improvements | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2017 Expected end date: 2020 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_4 | AP1 Road Network Improvements | Traffic Signal Improvements and Upgrade of Pedestrian Crossing Facilities in the Quarry Bank Area | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_5 | AP1 Road Network Improvements | The Installation of Urban Traffic Control CCTV Cameras at Key Junctions | Traffic planning and management: Other measure | Evaluation | Start date: 2009 Expected end date: 2012 Spatial scale: Whole agglomeration Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_6 | AP1 Road Network Improvements | The Installation of a Right Turning Lane at the Junction between Dudley St and Vicar St., Sedgley | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2012 Expected end date: 2012 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_7 | AP1 Road Network Improvements | The Installation of a Pedestrian Crossing in Priory Road, Dudley | Traffic planning and management: Improvement of public transport | Evaluation | Start date: 2013 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_8 | AP1 Road Network Improvements | Upgrade of Traffic Signals at the B4175/B4176 Junction | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2014 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_9 | AP1 Road Network Improvements | Minor Road and Junction Improvements at Stourbridge Road, Halesowen and Vicarage Road, Amblecote | Traffic planning and management: Encouragement of shift of transport modes | Evaluation | Start date: 2010 Expected end date: 2012 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_10 | AP1 Road Network Improvements | Major Junction Improvement at Burnt Tree Island | Traffic planning and management: Other measure | Evaluation | Start date: 2011 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_11 | AP1 Road Network Improvements | Completion of Minor Elements Associated With the Brierley Hill Sustainable Access Network (BHSAN) | Traffic planning and management: Other measure | Evaluation | Start date: 2008 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_12 | AP 2 Improving Public Transport & Rail Freight Facilities | Developing and Delivering Bus Infrastructure Improvements via Implementation of Voluntary Bus Partnership Commitments. | Traffic planning and management: Improvement of public transport | Implementation | Start date: 2010 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_13 | AP 2 Improving Public Transport & Rail Freight Facilities | Extending the WM metro link to Merry Hill | Traffic planning and management: Other measure | Planning | Start date: 2015 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_14 | AP 2 Improving Public Transport & Rail Freight Facilities | Improving Rail Freight Capabilities | Traffic planning and management: Freight transport measure | Other | Start date: 2014 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_15 | AP 2 Improving Public Transport & Rail Freight Facilities | Provision of Better Information for Passengers at Key Railway Interchange Facilities, e.g. Cradley | Public information and Education: Other mechanisms | Implementation | Start date: 2014 Expected end date: 2018 Spatial scale: Local Source affected: Transport Indicator: 1,2,3 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_16 | AP 3 Reducing Vehicle Emissions | Roadside Emission Testing (RET) | Other measure: Other measure | Other | Start date: 2014 Expected end date: 2014 Spatial scale: Local Source affected: Transport Indicator: 4 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_17 | AP 3 Reducing Vehicle Emissions | Improving the DMBC Fleet | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: N/A Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_18 | AP 3 Reducing Vehicle Emissions | Reducing Idling Emissions | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 5,5a Target emissions reduction: N/A |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_19 | AP 3 Reducing Vehicle Emissions | Encouraging the Uptake of Low Emissions Vehicles | Traffic planning and management: Differentiation of parking fees | Other | Start date: 2011 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 6 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_20 | AP 3 Reducing Vehicle Emissions | Reporting Smoky Vehicles | Traffic planning and management: Other measure | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 7 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_21 | AP4 Land Use Planning Initiatives | Revision of Planning Obligations Supplementary Planning Document | Other measure: Other measure | Implementation | Start date: 2010 Expected end date: 2011 Spatial scale: Local Source affected: Transport Indicator: 8 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_22 | AP4 Land Use Planning Initiatives | Member and Officer Training | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: 9 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_23 | AP4 Land Use Planning Initiatives | Monitoring the Effectiveness of Air Quality Planning Recommendations | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 10 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_24 | AP4 Land Use Planning Initiatives | Providing Professional Advice to Development Control | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 11 Target emissions reduction: N/A |
| Dudley Metropolitan Borough Council_25 | AP6 Information & Awareness Raising | Publicity for Air Quality & Effective Use of Websites | Public information and Education: Internet | Implementation | Start date: 2011 Expected end date: 2013 Spatial scale: Local Source affected: Transport Indicator: 16, 17 Target emissions reduction: Target 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_26 | AP6 Information & Awareness Raising | Awareness Raising Of Air Quality Issues at Schools within Dudley | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 18 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_27 | AP 7 Encouraging Changes in Travel Behaviour | DMBC Travel Plans for Employees. Increase the number of employees working in companies with a Travel Plan to 18%- The amended Traffic and Transportation Service Plan. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2014 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 19 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_28 | AP 7 Encouraging Changes in Travel Behaviour | New Developments and Voluntary Uptake by Businesses. Increase the number of employees working in companies with a Travel Plan to 18%- The amended Traffic and Transportation Service Plan. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 19 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_29 | AP 7 Encouraging Changes in Travel Behaviour | Cycle Purchase Scheme for DMBC Employees | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2010 Expected end date: 2030 Spatial scale: Local Source affected: Transport Indicator: 20 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_30 | AP 7 Encouraging Changes in Travel Behaviour | Travelwise for the General Public Schools and Businesses. 100% of schools to have travel plans by 2011 and to at least maintain the proportion of children (aged 5 to 15) travelling to school by non-car modes between 09/10 and 15/16. | Traffic planning and management: Encouragement of shift of transport modes | Implementation | Start date: 2007 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: 21 Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_31 | Low Emission Strategy- West Midlands LETC Programme | Overarching Low Emission Strategy for the 7 West Midlands Authorities to improve emissions and concentrations of NO2 and particulates while also seeking to exploit the synergies of CO2 and noise reduction, where possible, through the transformation of the West Midlands vehicle fleet | Other measure: Other measure | Preparation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Adoption of the Low Emission Strategy within each Local Authority area. Target emissions reduction: Target 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_32 | Planning Guidance - West Midlands LETC Programme | Develop a regional Good Practice Planning Guidance which protect residents of future development schemes from exposure to air pollution. The Guidance promote a simplified assessment criteria and definition of sustainability, Incorporates mitigation as standard to help counter cumulative impacts. Applies a procedure for evaluating additional requirements for mitigation and compensation using cost damage analysis. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2014 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_33 | Procurement Guidance - West Midlands LETC Programme | Develop a regional Good Practice Procurement document with the following key policies and benefits: Local sourcing (reduced vehicle mileage), Sustainable fleet demonstration, specification and contract award criteria, including Government Buying Standards considerations. Development of Whole Life Cost model, including damage costs of environmental impact. Innovative procurement. Development of public private partnerships. | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of Guidance and implementation across the West Midlands Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_34 | Low Emission Zone Feasibility - West Midlands LETC Programme | A technical study into the feasibility of creating a transferable LEZ model for the West Midlands. A range of scenarios were selected (City Centre / Motorway / Street Canyon and Urban Corridor). The study assess the benefits and dis-benefits of emission control policies on key vehicle types for each scenario, including cost benefit analysis and potential costing for implementation, as well as Health Impact Assessment (HIA) of the most effective intervention measures | Traffic planning and management: Low emission zones | Evaluation | Start date: 2013 Expected end date: 2015 Spatial scale: Whole agglomeration Source affected: Transport Indicator: Publication of feasibility study and adoption of measures capable of improving emissions /pollutant concentrations. Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_35 | Parking standards SPD | Requirement for EV charging | Other measure: Other measure | Implementation | Start date: 2011 Expected end date: 2030 Spatial scale: Whole agglomeration Source affected: Transport Indicator: EV charging installed Target emissions reduction: Target 1 |

| Measure code | Description | Focus | Classification | Status | Other information |
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| Dudley Metropolitan Borough Council_36 | Black country AQ SPD | Mitigation for development proposals | Other measure: Other measure | Implementation | Start date: 2014 Expected end date: 2015 Spatial scale: Local Source affected: Transport Indicator: SPD Adopted Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_37 | CVTF | Lower emissions from school and college transport | Retrofitting: Retrofitting emission control equipment to vehicles | Implementation | Start date: 2015 Expected end date: 2017 Spatial scale: Local Source affected: Transport Indicator: Coaches retrofitted Target emissions reduction: Target 1 |
| Dudley Metropolitan Borough Council_38 | Defra AQ grant 2014/15 | The encouragement of cycling and walking and traffic management issues | Traffic planning and management: Encouragement of shift of transport modes | Planning | Start date: 2015 Expected end date: 2016 Spatial scale: Local Source affected: Transport Indicator: Crossing and cycle way installed Target emissions reduction: Target 1 |