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Air Quality Plan for the achievement of EU air quality limit values for nitrogen dioxide (NO_2) in Northern Ireland (UK0043)

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

Information about this publication and further copies are available from:

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

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Contents

1. Introduction

1.1. This document

This document is the Northern Ireland (UK0043) air quality plan for the achievement of the EU air quality limit values for nitrogen dioxide (NO_2).

This plan presents the following information:

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

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

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

1.2. Context

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

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

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

1.3. Zone status

The assessment undertaken for the Northern Ireland non-agglomeration zone indicates that the annual limit value is likely to be exceeded in 2010 but achieved before 2015 through introduction of the measures included in the baseline and the non-quantifiable local measures outlined in this plan. Postponement of the compliance date to 2015 is sought for this limit value for this zone.

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

1.4. Plan structure

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

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

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

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

2. General Information about the Zone

2.1. Administrative information

Zone name: Northern Ireland
Zone code: UK0043
Type of zone: non-agglomeration zone
Reference year: 2008
Extent of zone: Figure 1 shows the area covered by the Northern Ireland non-agglomeration zone

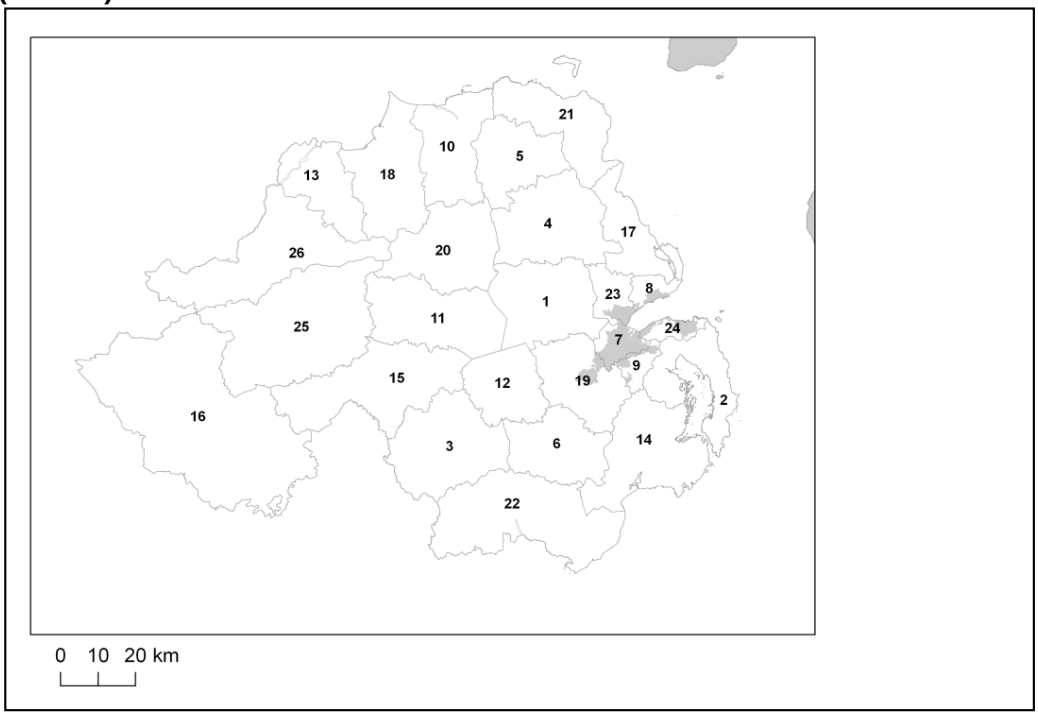
Local Authorities within the non-agglomeration zone: Figure 2 shows the location of Local Authorities within the non-agglomeration zone. A list of these Local Authorities is also given below. The numbers in this list correspond to the numbers in Figure 2.

1. Antrim Borough Council
2. Ards Borough Council
3. Armagh City and District Council
4. Ballymena Borough Council
5. Ballymoney Borough Council
6. Banbridge District Council
7. Belfast City Council
8. Carrickfergus Borough Council
9. Castlereagh Borough Council
10. Coleraine Borough Council
11. Cookstown District Council
12. Craigavon Borough Council
13. Derry City Council
14. Down District Council
15. Dungannon and South Tyrone Borough Council
16. Fermanagh District Council
17. Larne Borough Council
18. Limavady Borough Council
19. Lisburn City Council
20. Magherafelt District Council
21. Moyle District Council
22. Newry and Mourne District Council
23. Newtownabbey Borough Council
24. North Down Borough Council
25. Omagh District Council
26. Strabane 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 Northern Ireland non-agglomeration zone (UK0043).

Figure 2. Map showing Local Authorities within the Northern Ireland non-agglomeration zone (UK0043).



2.2. Assessment details

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

• Derry GB0673A (96.1%)

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

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

• Total background area within zone (approx): 14546 km^2
• Total population within zone (approx): 1167417 people
• Total road length where an assessment of NO_2 concentrations have been made: 337.5 km in 2008 (and similar lengths in previous years).

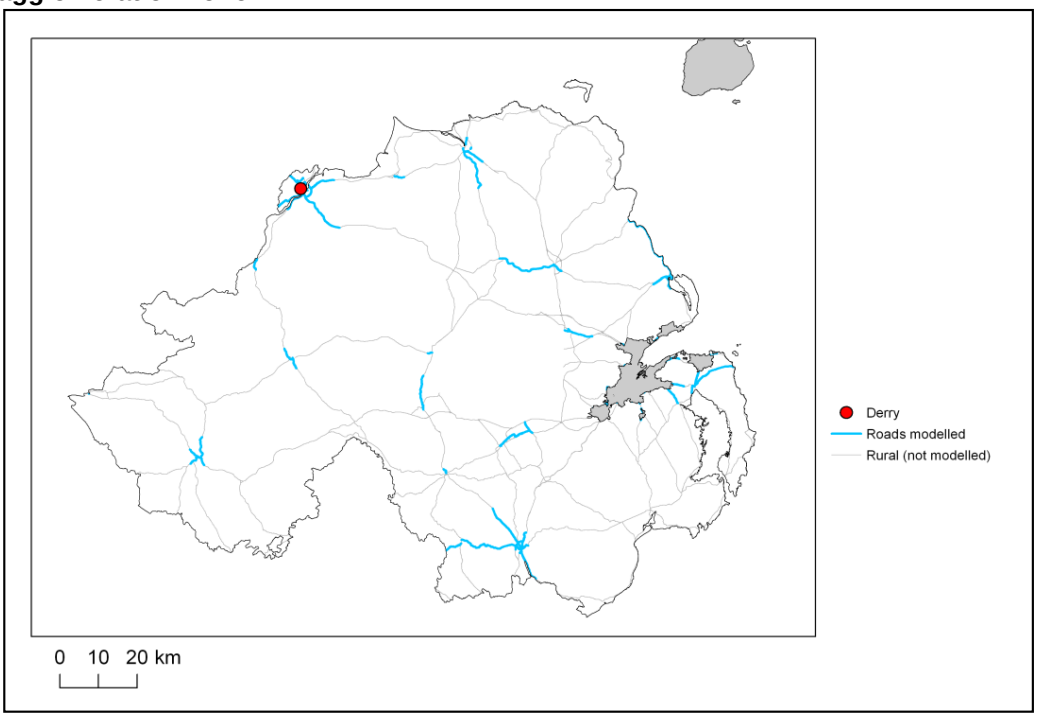
Zone maps
Figure 3 presents the location of the NO_2 monitoring stations within this zone for 2008 and the roads for which NO_2 concentrations have been modelled. NO_2 concentrations at background locations have been modelled across the entire zone at a 1 x 1 km^2 resolution.

2.3. Reporting Under European Directives

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

In addition, the UK has reported on air quality plans and programmes (Decision 2004/224/EC) on an annual basis depending on the reported concentrations in the previous year. Plans and programmes were first reported in this zone in 2005. Plans and programmes for 2005 and all other years for which they have been required are available from http://cdr.eionet.europa.eu/gb/eu/aqpp.

Figure 3. Map showing the location of the NO_2 monitoring sites with valid data in 2008 and roads where concentrations have been modelled within the Northern Ireland (UK0043) non-agglomeration zone.



3. Overall Picture for 2008 reference year

3.1. Introduction

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

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

Within the Northern Ireland non-agglomeration zone only the annual limit value was exceeded in 2008. Hence, one exceedance situation for this zone has been defined, NO_2_UK0043_Annual_1, which covers the exceedance of the annual limit value. This exceedance situation is described below.

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

3.2. Reference year: NO_2_UK0043_Annual_1

The NO_2_UK0043_Annual_1 exceedance situation covers all exceedances of the annual mean limit value in the Northern Ireland non-agglomeration zone in 2008.

Compliance with the annual limit value in this exceedance situation has been assessed using a combination of air quality measurements and modelling. Table 1 presents measured annual mean concentrations at national network stations in this exceedance situation since the 1st Daughter Directive (1999/30/EC) came into force in 2001. This shows that there were no measured exceedances of the annual limit value in this zone in 2008. Table 2 summarises modelled annual mean NO_2 results in this exceedance situation for the same time period. This table shows that, in 2008, 15.3 km of road length was modelled to exceed the annual limit value. There were no modelled background exceedances of this limit value. Table 2 also shows that the maximum modelled annual mean NO_2 concentration in 2008 was 49.1 μgm^{-3}. Maps showing the modelled annual mean NO_2 concentrations for 2008 at background and at roadside locations are presented in Figures 4 and 5 respectively. All modelled exceedances of the annual limit value are coloured orange or red in these maps.

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

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

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

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

Figure A1.1 in Annex 1 presents the annual mean NO_X source apportionment for each section of road within the NO_2_UK0043_Annual_1 exceedance situation (i.e. the source apportionment for all exceeding roads only) in 2008. Roads have been grouped into motorways, trunk roads and primary road in this figure.

Table 1. Measured annual mean concentrations at national network stations in NO_2_UK0043_Annual_1 for 2001 onwards, μgm^{-3}. (Data capture shown in brackets) (a)

Site name (EOI code)	2001	2002	2003	2004	2005	2006	2007	2008	2009
Derry (GB0673A)	16 (93%)	15 (95%)	17 (95%)	15 (92%)	12 (92%)	12 (88%)	13 (89%)	18 (96%)	16 (87%)
Armagh Roadside (GB0996A)									38 (23%)

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

Table 2. Annual mean NO_2 model results in NO_2_UK0043_Annual_1 for 2001 onwards

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Road length exceeding (km)	9.8	0.0	68.0	6.8	24.2	24.2	24.2	15.3	22.6
Background area exceeding (km^2)	0	0	0	0	0	0	0	0	0
Maximum modelled concentration (μgm^{-3}) (a)	42.2	40.0	59.8	43.4	47.4	51.1	50.5	49.1	52.8

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

Table 3. Source apportionment summary information for 2008 in NO_2_UK0043_Annual_1 (μgm^{-3}).

Spatial scale	Component	Highest road link (a)		Maximum (b)
		NOx	NO2 (d)	NOx
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	3.7	(c)	
	From within the UK	1.2	(c)	1.7
	From transboundary sources (includes shipping and other EU Member States)	2.4	(c)	2.4
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	7.6	4.9	-
	From road traffic sources	5.9	2.3	7.8
	From industry (including heat and power generation)	0.1	(c)	0.5
	From agriculture	0.0	(c)	0.0
	From commercial/residential sources	0.8	(c)	1.3
	From shipping	0.0	(c)	0.2
	From off road mobile machinery	0.8	(c)	1.6
	From natural sources	0.0	(c)	0.0
	From transboundary sources	0.0	(c)	0.0
	From other urban background sources	0.0	(c)	0.0
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	100.9	44.1	-
	From cars	14.4	6.6	26.3
	From HGV rigid	17.3	7.5	17.6
	From HGV articulated	50.9	21.3	50.9
	From Buses	1.5	0.6	2.5
	From LGVs	16.8	8.1	16.8
	From motorcycles	0.0	0	0.0
Total (i.e. regional background + urban background + local components)		112.2	49.1	-

(a) The road with the highest modelled annual mean NO_2 concentration in this exceedance situation in 2008 is a section of the A1, traffic count point id 902439 (OS grid (m): 115481, 483781).
(b) This column gives the maximum contribution for each component from all the roads included in the exceedence situation.
(c) The combined modelled annual mean NO_2 concentration contribution for these components is 2.6 μgm^{-3}. A more detailed NO_2 source apportionment is currently unavailable for these sectors.
(d) Source apportionment for NO_2 is indicative, see UK Technical Report.

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

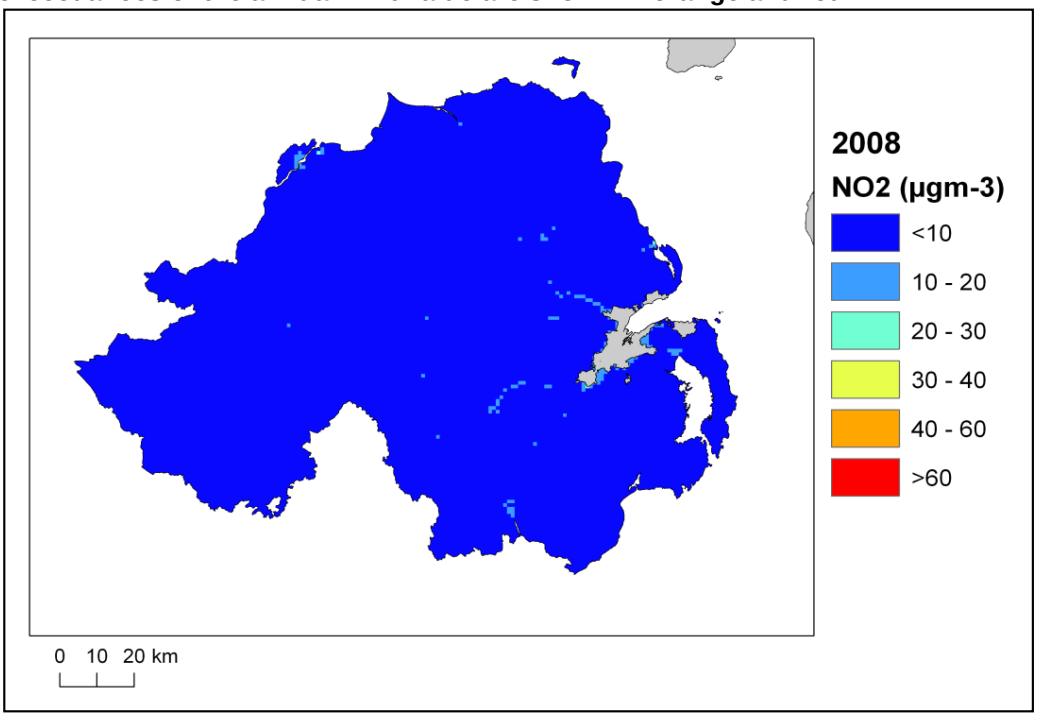
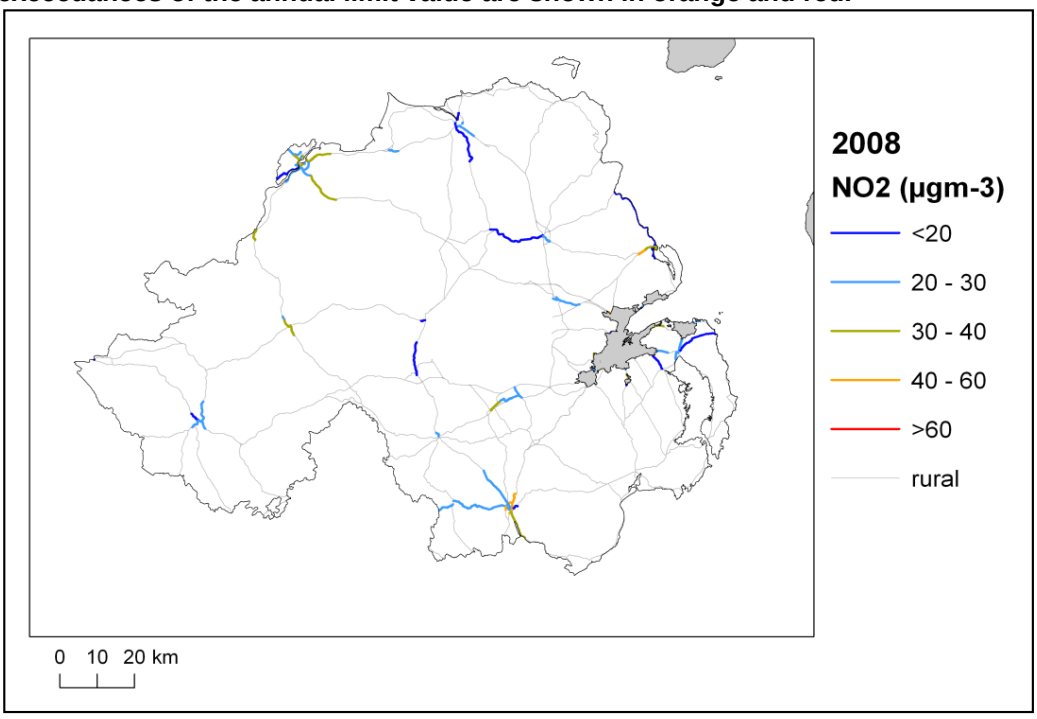


Figure 5. Map of modelled roadside annual mean NO_2 concentrations 2008. Modelled exceedances of the annual limit value are shown in orange and red.



4. Measures

4.1. Introduction

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

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

4.2. Source apportionment

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

Local road traffic was the dominant source in this exceedance location in the reference year. The largest contribution was from cars at the location of maximum exceedance with a contribution of 50.9 ugm^{-3} of NO_X out of a total of 112.2 ugm^{-3} of NO_X. Articulated HGVs, cars, rigid HGVs and LGVs were important sources on the primary roads with the highest concentrations.

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

4.3. Measures

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

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

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

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

4.4. Measures timescales

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

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

should be noted that many of the measures taken before or during 2010 will continue to have a beneficial impact on air quality after the end of 2010.

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

5. Baseline Model Projections

5.1. Overview of model projections

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

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

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

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

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

5.2. Baseline projections: NO_2_UK0043_Annual_1

Table 4 presents summary results for the baseline model projections for 2010, 2015 and 2020 for the NO_2_UK0043_Annual_1 exceedance situation. This shows that the maximum modelled annual mean NO_2 concentration predicted for 2010 in this exceedance situation is 42.9 μgm^{-3}. By 2015, the maximum modelled annual mean NO_2 concentration is predicted to drop to 26.1 μgm^{-3}. Hence, the model results suggest that compliance with the NO_2 annual limit value can be achieved by 2015 under baseline conditions in this exceedance situation. Postponement of the compliance date to 2015 is sought for this limit value in this zone.

The projected modelled NO_X and indicative NO_2 annual mean source apportionments for 2010, 2015 and 2020 at the location with the biggest compliance gap in 2008 are presented in Table 5. In 2010 and 2015, the model results suggest that this location will continue to have the highest annual mean NO_2 concentration within this exceedance situation. However, in 2020 the model indicates that the location with the highest annual mean NO_2 concentration within this exceedance situation will be elsewhere. Information regarding the new location with the highest NO_2 concentration, including the source apportionment is given in Table 6. The locations of maximum concentration in each year are given in the footnote to this table. This source apportionment information is useful because it shows which sources need to be tackled at the point with the largest compliance gap in the exceedance situation.

Table 7 shows the maximum NO_X contribution from each source apportionment component from any road across the whole exceedance situation. This source apportionment information is useful because it highlights all the key sources that need to be tackled within the exceedance situation in order to achieve compliance across the entire area of the exceedance situation. It should be noted that this table only includes roads which continue to be in exceedance in the relevant year. Hence, for example, the road with the largest contribution from cars in 2010 may no longer be included in the table in 2015 if the road is predicted to be compliant in 2015.

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

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

Table 4. Annual mean NO_2 model results in NO_2_UK0043_Annual_1

	2008	2010	2015	2020
Road length exceeding (km)	15.3	2.8	0.0	0.0
Background area exceeding (km^2)	0	0	0	0
Maximum modelled concentration (μgm^{-3}) (a)	49.1	42.9	26.1	15.0

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

Table 5. Modelled source apportionment for 2010, 2015 and 2020 under baseline conditions for traffic count point 902439 on the A1 (the road section with the maximum modelled annual mean NO_2 concentration in 2008 in NO_2_UK0043_Annual_1. OS grid (m): 115481, 483781). 2008 results are also presented here for reference (units: μgm^{-3}).

Spatial scale	Component	NOx				NO2 (indicative)			
		2008	2010	2015	2020	2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	3.7	3.2	2.8	2.3	(a)	(b)	(c)	(d)
	From within the UK	1.2	1.1	0.9	0.8	(a)	(b)	(c)	(d)
	From transboundary sources (includes shipping and other EU Member States)	2.4	2.1	1.9	1.5	(a)	(b)	(c)	(d)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	7.6	6.4	4.2	2.5	4.9	4.3	3.3	2.4
	From road traffic sources	5.9	4.7	2.9	1.5	2.3	2.1	1.9	1.7
	From industry (including heat and power generation)	0.1	0.1	0.1	0.1	(a)	(b)	(c)	(d)
	From agriculture	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From commercial/residential sources	0.8	0.8	0.7	0.6	(a)	(b)	(c)	(d)
	From shipping	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From off road mobile machinery	0.8	0.8	0.4	0.3	(a)	(b)	(c)	(d)
	From natural sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From transboundary sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
	From other urban background sources	0.0	0.0	0.0	0.0	(a)	(b)	(c)	(d)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	100.9	85.9	46.9	19.7	44.1	38.6	22.8	10.2
	From cars	14.4	10.4	6.7	4.2	6.6	5.0	3.4	2.2
	From HGV rigid	17.3	15.4	8.0	2.8	7.5	6.8	3.7	1.4
	From HGV articulated	50.9	44.3	22.4	7.3	21.3	19.1	10.5	3.7
	From Buses	1.5	1.3	0.8	0.4	0.6	0.6	0.4	0.2
	From LGVs	16.8	14.4	9.1	5.0	8.1	7.2	4.8	2.7
	From motorcycles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (i.e. regional background + urban background + local components)		112.2	95.5	53.9	24.6	49.1	42.9	26.1	12.6

(a) The total annual mean NO_2 contribution for all components labelled (a) in 2008 was modelled to be 2.6 μgm^{-3}.
(b) The total annual mean NO_2 contribution for all components labelled (b) in 2010 is predicted to be 2.1 μgm^{-3}.
(c) The total annual mean NO_2 contribution for all components labelled (c) in 2015 is predicted to be 1.4 μgm^{-3}.
(d) The total annual mean NO_2 contribution for all components labelled (d) in 2020 is predicted to be 0.8 μgm^{-3}.

Table 6. Modelled source apportionment for 2010, 2015 and 2020 under baseline conditions for traffic count point with the highest concentration in these years in NO_2_UK0043_Annual_1 (a). 2008 results are also presented here for reference (units: μgm^{-3}).

Spatial scale	Component	NOx				NO2 (indicative)			
		2008	2010	2015	2020	2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	Total	3.7	3.2	2.8	2.2	(b)	(c)	(d)	(e)
	From within the UK	1.2	1.1	0.9	0.6	(b)	(c)	(d)	(e)
	From transboundary sources (includes shipping and other EU Member States)	2.4	2.1	1.9	1.6	(b)	(c)	(d)	(e)
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	Total	7.6	6.4	4.2	14.4	4.9	4.3	3.3	8.3
	From road traffic sources	5.9	4.7	2.9	1.9	2.3	2.1	1.9	7.3
	From industry (including heat and power generation)	0.1	0.1	0.1	9.3	(b)	(c)	(d)	(e)
	From agriculture	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From commercial/residential sources	0.8	0.8	0.7	2.0	(b)	(c)	(d)	(e)
	From shipping	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From off road mobile machinery	0.8	0.8	0.4	1.1	(b)	(c)	(d)	(e)
	From natural sources	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From transboundary sources	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
	From other urban background sources	0.0	0.0	0.0	0.0	(b)	(c)	(d)	(e)
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	Total	100.9	85.9	46.9	12.9	44.1	38.6	22.8	6.7
	From cars	14.4	10.4	6.7	3.5	6.6	5.0	3.4	1.8
	From HGV rigid	17.3	15.4	8.0	1.0	7.5	6.8	3.7	0.5
	From HGV articulated	50.9	44.3	22.4	2.1	21.3	19.1	10.5	1.1
	From Buses	1.5	1.3	0.8	1.6	0.6	0.6	0.4	0.8
	From LGVs	16.8	14.4	9.1	4.7	8.1	7.2	4.8	2.5
	From motorcycles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (i.e. regional background + urban background + local components)		112.2	95.5	53.9	29.4	49.1	42.9	26.1	15.0

(a) The road with the maximum annual mean NO_2 concentration in different years is as follows. 2008: A section of the A1 (count point id 902439). 2010: A section of the A1 (count point id 902439). 2015: A section of the A1 (count point id 902439). 2020: A section of the A2 (count point id 902381). (OS grid (m): 115481, 483781; 115481, 483781; 115481, 483781; 115481, 483781).
(b) The total annual mean NO_2 contribution for all components labelled (b) in 2008 was modelled to be 2.6 μgm^{-3}.
(c) The total annual mean NO_2 contribution for all components labelled (c) in 2010 is predicted to be 2.1 μgm^{-3}.
(d) The total annual mean NO_2 contribution for all components labelled (d) in 2015 is predicted to be 1.4 μgm^{-3}.
(e) The total annual mean NO_2 contribution for all components labelled (e) in 2020 is predicted to be 1 μgm^{-3}.

Table 7. The maximum NO_X contribution from each source from across all the roads included in the exceedance situation on which exceedances remain in 2010, 2015 and 2020 under baseline conditions. Zeros indicate that there are no exceedances in the relevant year.

Spatial scale	Component	NOx			
		2008	2010	2015	2020
Regional background sources (i.e. contributions from distant sources of > 30 km from the receptor)	From within the UK	1.7	1.1	0.0	0.0
	From transboundary sources (includes shipping and other EU Member States)	2.4	2.1	0.0	0.0
Urban background sources (i.e. sources located within 0.3 - 30 km from the receptor)	From road traffic sources	7.8	4.7	0.0	0.0
	From industry (including heat and power generation)	0.5	0.1	0.0	0.0
	From agriculture	0.0	0.0	0.0	0.0
	From commercial/residential sources	1.3	0.8	0.0	0.0
	From shipping	0.2	0.0	0.0	0.0
	From off road mobile machinery	1.6	0.8	0.0	0.0
	From natural sources	0.0	0.0	0.0	0.0
	From transboundary sources	0.0	0.0	0.0	0.0
	From other urban background sources	0.0	0.0	0.0	0.0
Local sources (i.e. contributions from sources < 0.3 km from the receptor)	From cars	26.3	10.4	0.0	0.0
	From HGV rigid	17.6	15.4	0.0	0.0
	From HGV articulated	50.9	44.3	0.0	0.0
	From Buses	2.5	1.3	0.0	0.0
	From LGVs	16.8	14.4	0.0	0.0
	From motorcycles	0.0	0.0	0.0	0.0

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

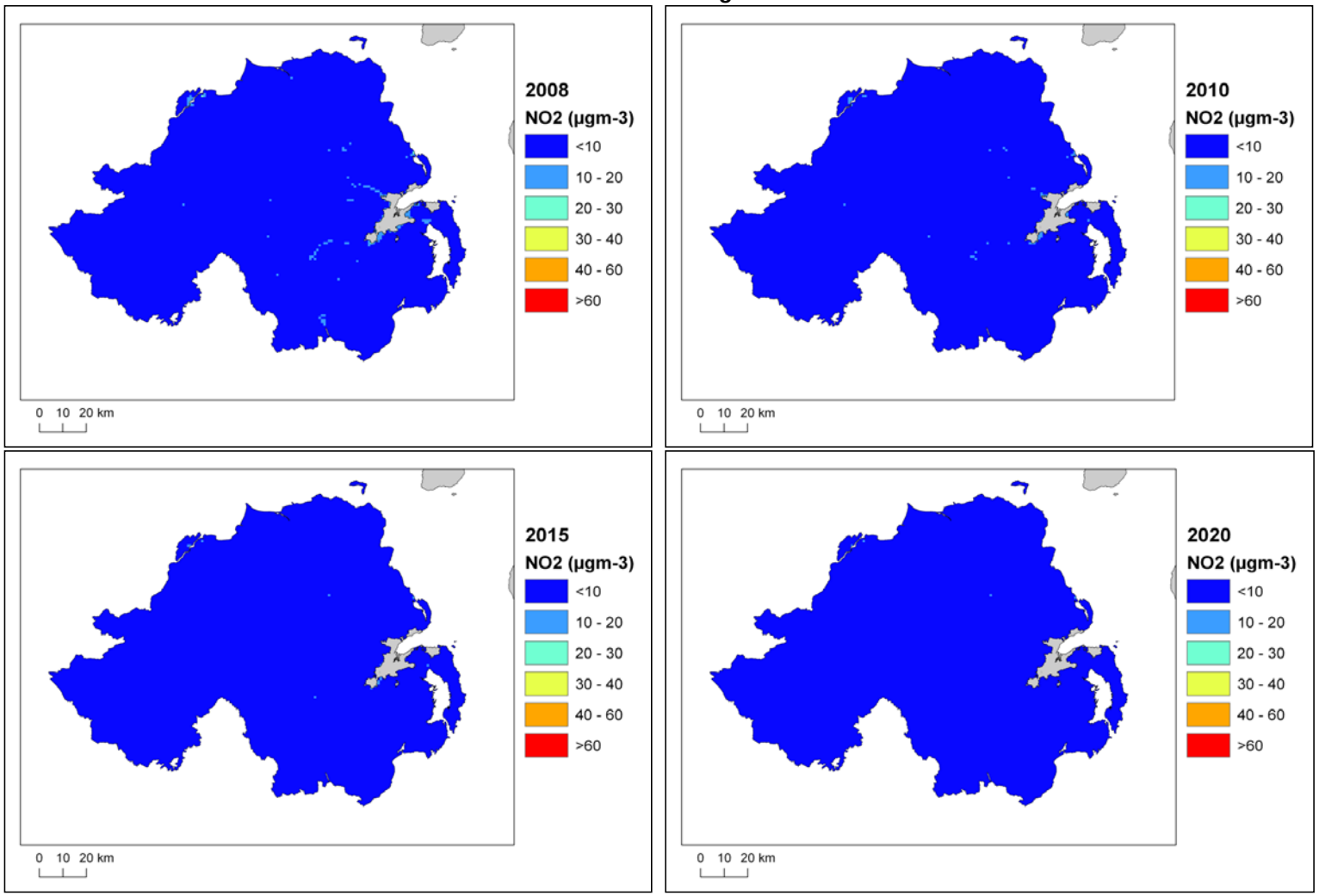
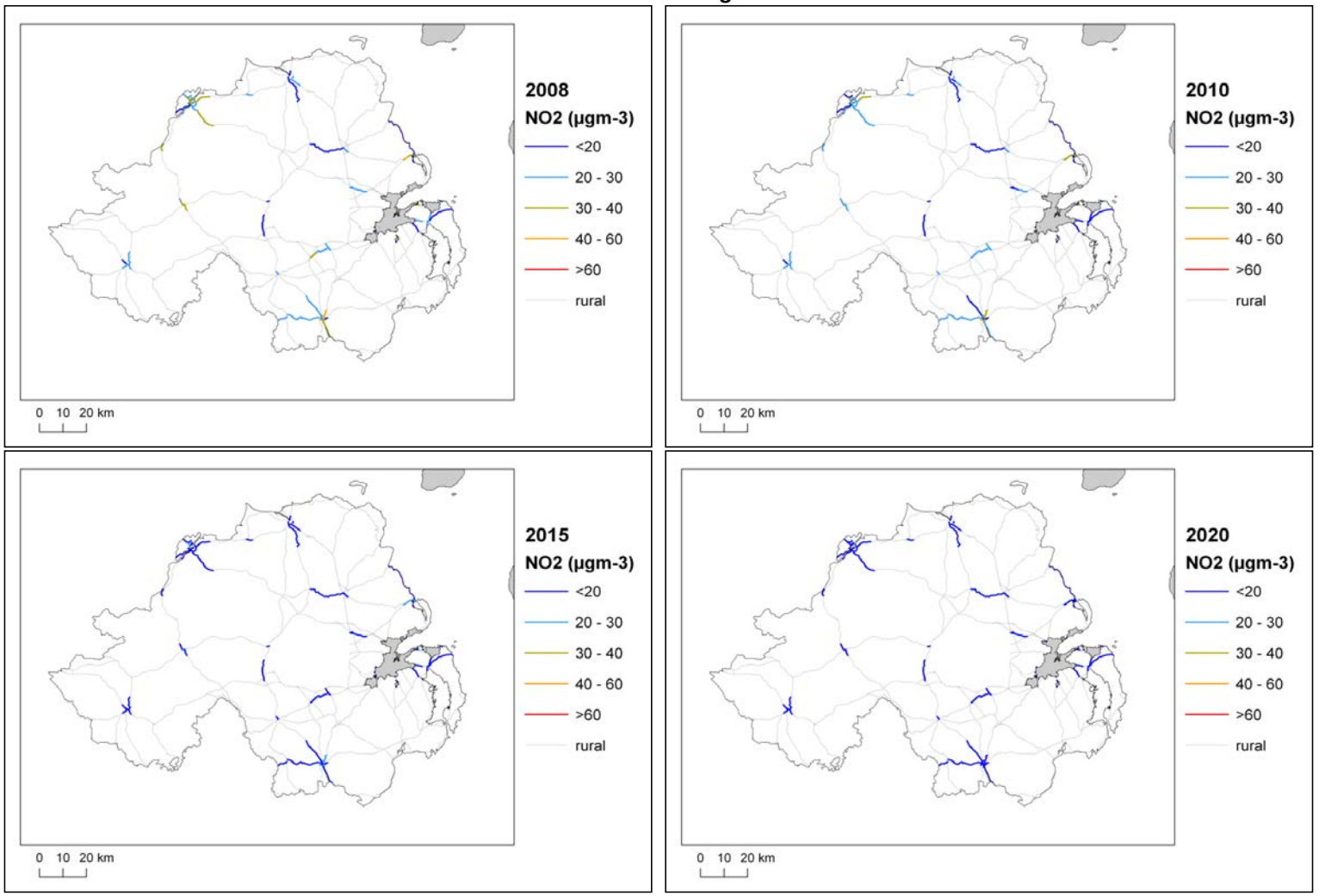


Figure 7. Roadside baseline projections of annual mean NO_2 concentrations in 2010, 2015 and 2020. 2008 is also included here for reference. Modelled exceedances of the annual limit value are shown in orange and red.



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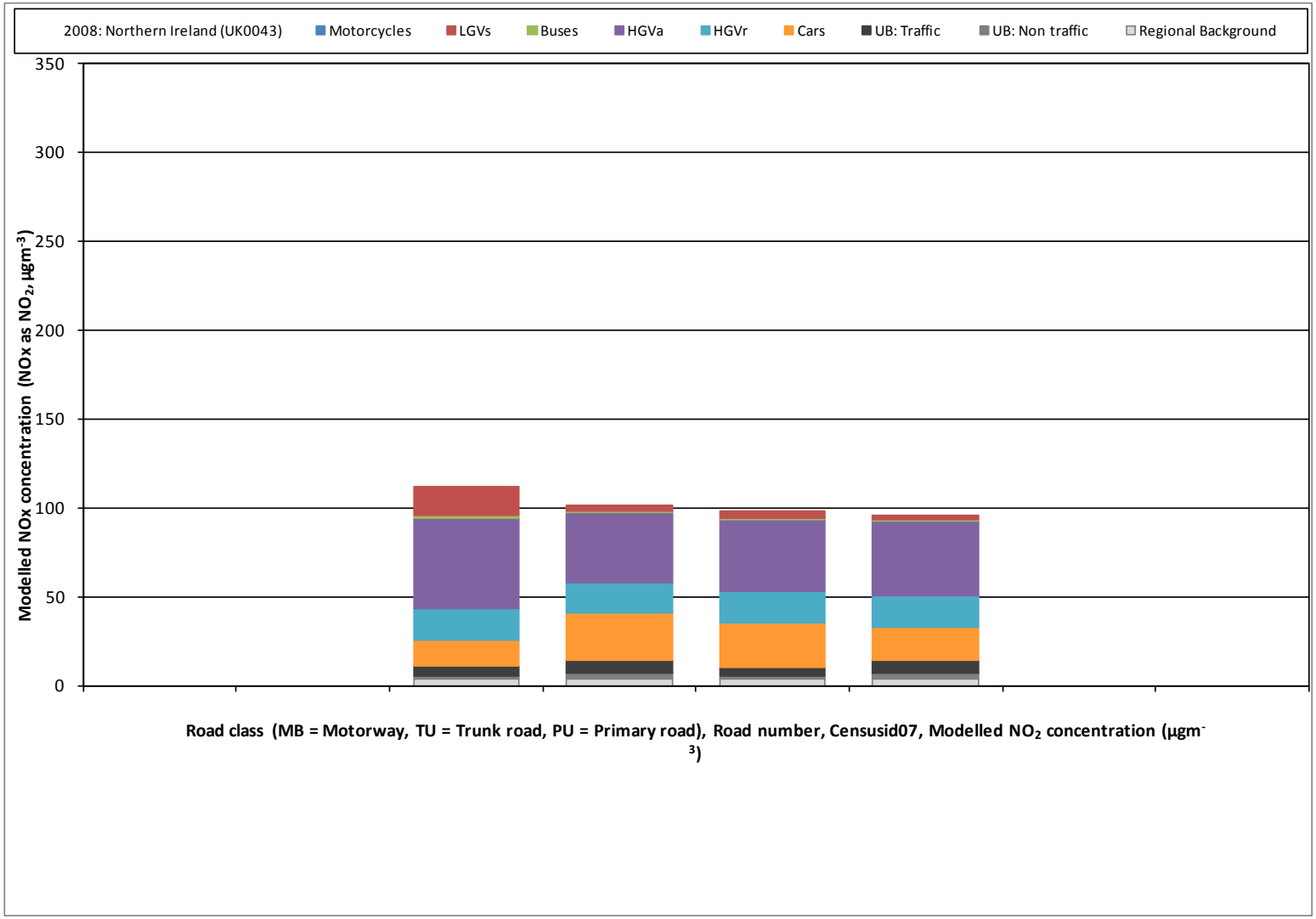
1st Daughter Directive 1999/30/EC. Council Directive 1999/30/EC, of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (The First Daughter Directive). From the Official Journal of the European Communities, 29.6.1999,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

List of Annexes

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

Annex 1: Source apportionment graphs

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



Annex 2: Tables of measures

Table A2.1 Relevant Local Authority measures taken before or during 2010 within Northern Ireland (UK0043)

LA (a)	Measure code (b)	Title	Description	Other information
Belfast	Local_Belfast_B1	Regulate under the Public Health (Ireland) Act 1878 and the Pollution Control and Local Government (NI) Order 1978.	Regulate under the Public Health (Ireland) Act 1878 and the Pollution Control and Local Government (NI) Order 1978.	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_B2	Enforcement control under the Clean Air (NI) Order	Enforcement control under the Clean Air (NI) Order – introduction of programmed inspections in the winter months for domestic smoke emissions.	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_B3	Pollution Control (NI) Order 1997 & Pollution Prevention & Control Regs.(NI) 2003	Regulation of Part A , B, and C processes under the Industrial Pollution Control (NI) Order 1997 & Pollution Prevention & Control Regs.(NI) 2003	• Type: Economic/fiscal; Technical; Education/information • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: Yes • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_B4	Switching the electricity tariff in Council buildings to an environmentally friendly tariff	Reduce pollution levels by switching the electricity tariff in Council buildings to an environmentally friendly tariff based upon renewable energy.	• Type: Technical • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H1	Adoption of the carbon	Adoption of the carbon reduction programme and implementation of recommendations.	• Type: Technical • Sources affected: Industry including heating and power

LA (a)	Measure code (b)	Title	Description	Other information
		reduction programme and implementation of recommendations.		production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_B5	Introduce combined heat and power plants at selected Council facilities.	Introduce combined heat and power plants at selected Council facilities.	• Type: Technical • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_B6	Switching the electricity tariff at Translink properties - renewable energy.	Reduce pollution levels by switching the electricity tariff at Translink properties / locations to an environmentally friendly tariff based upon renewable energy.	• Type: Technical • Sources affected: Industry including heating and power production; Commercial and residential sources • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G1	Promote and support cycling initiatives.	Promote and support cycling initiatives.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G2	Promote Walk and Bike to Work days.	Promote Walk and Bike to Work days.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G3	Promote	Promote availability of Belfast by Bike map.	• Type: Education/information

LA (a)	Measure code (b)	Title	Description	Other information
		availability of Belfast by Bike map.		• Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G4	Install cycle parks at Council buildings.	Install cycle parks at Council buildings.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G5	Promote the availability of Cycle Usage Mileage for Council employees.	Promote the availability of Cycle Usage Mileage for Council employees.	• Type: Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G6	Secure and promote enhanced cycle mileage allowance for Council employees.	Secure and promote enhanced cycle mileage allowance for Council employees.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Medium term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G7	Install cycle shelters at Translink locations.	Install cycle shelters at Translink locations.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G8	The integration of walking and cycling	The integration of walking and cycling considerations in the planning process.	• Type: Education/information • Sources affected: Transport • Spatial scale: local

LA (a)	Measure code (b)	Title	Description	Other information
		considerations in the planning process.		• Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G9	Enhanced facilities for walking and cycling – quality and comprehensive networks	Enhanced facilities for walking and cycling – quality and comprehensive networks	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A1	Test fleet vehicle emissions whenever routine servicing is carried out.	Test fleet vehicle emissions whenever routine servicing is carried out.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A2	Fitting of Oxidation Catalysts to older vehicles - to be concentrated on bus replacement.	Fitting of Oxidation Catalysts to older vehicles - to be concentrated on bus replacement.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C1	LPG fuelled light duty vehicles for Council use.	Initial purchase of 2 LPG fuelled Ford Connect light duty vehicles for Council use.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C2	Purchase new hybrid petrol cars to replace existing vehicles and evaluate	Purchase new hybrid petrol cars to replace existing vehicles and evaluate the resulting emission reductions and fuel consumption savings.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
		the resulting emission reductions and fuel consumption savings.		• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C3	Evaluate the feasibility of introducing biodiesel across the bus fleet.	Evaluate the feasibility of introducing biodiesel across the bus fleet.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C4	Investigate the use of Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG).	Investigate the use of Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG).	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C5	Investigate use of LPG	Investigate use of LPG when purchasing new works vehicles.Translink will consider the use of LPG fuelled vehicles when purchasing new works vans and other vehicles.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A3	Introduce requirement to purchase vehicles complying with the prevailing Euro standards.	Introduce requirement to purchase vehicles complying with the prevailing Euro standards.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H2	Seek a contractor to decommission end of life	Seek a contractor to decommission end of life vehicles.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009

LA (a)	Measure code (b)	Title	Description	Other information
		vehicles.		• Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A4	Council fleet fuel surveys	Purchase software to enable a baseline survey to be undertaken and subsequent fuel usage logging to be introduced.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H3	Conduct review of current fuel monitoring procedures and establish recommendations.	Conduct review of current fuel monitoring procedures and establish recommendations.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H4	Improve procedures for recording and monitoring fuel usage.	Improve procedures for recording and monitoring fuel usage.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H5	Establish a baseline study of fuel usage by mobile plant used within Belfast City Council's Parks & Cemeteries Service Section.	Establish a baseline study of fuel usage by mobile plant used within Belfast City Council's Parks & Cemeteries Service Section.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A5	Establish a baseline study of fuel usage by mobile plant / infrastructure	Establish a baseline study of fuel usage by mobile plant / infrastructure plant used within Translink's Infrastructure & Property Department.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term

LA (a)	Measure code (b)	Title	Description	Other information
		plant used within Translink's Infrastructure & Property Department.		• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_C6	Monitor and trial fuel additives or additional devices to reduce fuel consumption and emissions.	Monitor and trial fuel additives or additional devices to reduce fuel consumption and emissions.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A6	Latest technology engines used, meeting most stringent emission legislation. First vehicles now in service.	Latest technology engines used, meeting most stringent emission legislation. First vehicles now in service.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E1	Include air quality considerations in responses to the Planning Service.	Include air quality considerations in responses to the Planning Service.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E2	Produce guidance for Belfast City Council staff on air quality and land use planning in line with recommendations contained within the	Produce guidance for Belfast City Council staff on air quality and land use planning in line with recommendations contained within the National Society for Clean Air 2004 document – Development Control: Planning for Air Quality.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1

LA (a)	Measure code (b)	Title	Description	Other information
		National Society for Clean Air 2004 document – Development Control: Planning for Air Quality.		
Belfast	Local_Belfast_D1	Implementation of a parking policy focused on central Belfast to include a Controlled Parking Zone, improved enforcement, regulation and planning measures.	Implementation of a parking policy focused on central Belfast to include a Controlled Parking Zone, improved enforcement, regulation and planning measures.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G10	Adoption and implementation of a travel plan for the Council owned Gasworks Business Park.	Adoption and implementation of a travel plan for the Council owned Gasworks Business Park.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G11	Investigate options for more effective travel planning for Council employees and for other public sector organisations.	Investigate options for more effective travel planning for Council employees and for other public sector organisations.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E3	Route Management Strategies, supported by ITS,	Route Management Strategies, supported by ITS, progressively implemented on the strategic network including minor improvement measures to improve efficiency and safety.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
		progressively implemented on the strategic network including minor improvement measures to improve efficiency and safety.		• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_F1	Participate in Active Living Weeks in conjunction with the Investing for Health Strategy.	Participate in Active Living Weeks in conjunction with the Investing for Health Strategy.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : Yes • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E4	Lobby for the development of a memorandum of understanding between the Planning Service and Belfast City Council.	Lobby for the development of a memorandum of understanding between the Planning Service and Belfast City Council.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Short term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E5	Development and implementation of a Master Plan for Belfast based on sustainable development principles.	Development and implementation of a Master Plan for Belfast based on sustainable development principles.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G12	Implementation of a new Metro bus operation for the Greater Belfast Area.	Implementation of a new Metro bus operation for the Greater Belfast Area.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
				• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G13	Introduction of improved ticketing services including Smartlink cards and improved Integrated Ticketing.	Introduction of improved ticketing services including Smartlink cards and improved Integrated Ticketing.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G14	Introduction of new orbital bus routes to complement the radial QBC network.	Introduction of new orbital bus routes to complement the radial QBC network.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G15	Implementing bus priority measures.	Implementing bus priority measures.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A7	The creation of a bus rapid trans network EWAY on the Upper Newtownards Road corridor.	The creation of a bus rapid trans network EWAY on the Upper Newtownards Road corridor.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G16	The introduction of Demand Responsive Transport – including variable route	The introduction of Demand Responsive Transport – including variable route and dial-a-ride services, both integrated with conventional fixed route bus services and community transport services.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No

LA (a)	Measure code (b)	Title	Description	Other information
		and dial-a-ride services, both integrated with conventional fixed route bus services and community transport services.		• Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_D2	Bus Revenue Support to include funding for Concessionary fares Fuel duty rebate and bus replacement programme.	Bus Revenue Support to include funding for Concessionary fares Fuel duty rebate and bus replacement programme.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E6	Implementation of an extensive Quality Bus Corridor network.	Implementation of an extensive Quality Bus Corridor network.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G17	Develop Park & Ride Schemes.	Develop Park & Ride Schemes. Kennedy Way Park and Ride on the Lisburn Corridor	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E7	Intelligent Transport Systems measures	Intelligent Transport Systems measures expected to be implemented including: • Real time passenger information and integrated ticketing system. • Variable Message Signing (VMS) in conjunction with park and ride and parking provision • Linking of syste	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1

LA (a)	Measure code (b)	Title	Description	Other information
Belfast	Local_Belfast_H6	Providing improved facilities for taxis at major bus and rail stations in the BMA.	Providing improved facilities for taxis at major bus and rail stations in the BMA.	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G21	Providing bus priority as part of the rollout of the Quality Bus Corridor network .	Providing bus priority as part of the rollout of the Quality Bus Corridor network .	• Type: Technical; Education/information • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G18	Improvements to make transport more accessible to people unable to use conventional public transport services, including those with disabilities.	Improvements to make transport more accessible to people unable to use conventional public transport services, including those with disabilities.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G19	Increase in service frequencies up to 50% with additional trains focused on providing more express services. (Translink).	Increase in service frequencies up to 50% with additional trains focused on providing more express services. (Translink).	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_G20	New or re-located rail stations.	New or re-located rail stations.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term

LA (a)	Measure code (b)	Title	Description	Other information
				• Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E8	Sites have been identified for provision of park and ride facilities.	Sites have been identified for provision of park and ride facilities.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_D3	Increase in parking provision at stations by formalising existing parking arrangements.	Increase in parking provision at stations by formalising existing parking arrangements.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_H7	Railways Task Force, considerations to include provision for rolling stock, infrastructure and safety measures.	Railways Task Force, considerations to include provision for rolling stock, infrastructure and safety measures.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_E9	Develop and implement integrated regeneration plans for designated Arterial Routes across the City.	Develop and implement integrated regeneration plans for designated Arterial Routes across the City.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_1
Belfast	Local_Belfast_A8	Non-strategic highway network capacity enhancements.	Construction of Bankmore Link	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No

LA (a)	Measure code (b)	Title	Description	Other information
				• Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_H8	Strategic highway network traffic management.	Route Management Strategies on the Upper Newtownards Road.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_H9	Strategic highway network traffic management.	Route Management Strategies on the Saintfield Road.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E10	Strategic highway network capacity enhancements.	Route Management Strategies on the A55 outer ring.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E11	Non-strategic highway network capacity enhancements.	Implementation of traffic calming measures on local roads and in residential areas.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E12	Non-strategic highway network capacity enhancements.	Traffic management measures on local and distributor roads to improve the flow of traffic.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2

LA (a)	Measure code (b)	Title	Description	Other information
Belfast	Local_Belfast_E13	Non-strategic highway network capacity enhancements.	Traffic management measures in Belfast City Centre comprising the reduction of existing road capacity within the core of the city centre.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E14	Advanced Traffic Control strategy.	Introduce Variable Message signs.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E15	Advanced Traffic Control strategy.	Introduce telematics to manage highway speeds, headway and incidents.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2
Belfast	Local_Belfast_E16	Advanced Traffic Control strategy.	Operate CCTV traffic flow monitoring.	• Type: Technical • Sources affected: Transport • Spatial scale: local • Implementation date: 2009 • Reduction timescale: Long term • Regulatory: No • Smarter Choices (c) : No • Reference (d): Local_zone43_Belfast_AQActionplan_2

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