

Air Quality Plans for UK zones and agglomerations that exceeded EU Air Quality Limit Values in 2008

December 2010

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1.0 Introduction

1.1 This report set outs the UK Plans to deliver EU ambient air quality limit values (LVs) for nitrogen dioxide (NO₂) and is intended to fulfil the requirements set out in Article 23 of the Ambient Air Quality Directive (2008/50/EC). The plans in this report relate to exceedences of NO₂ LVs plus margins of tolerance (MOT) recorded in 2008. This report is accompanied by further detail provided in excel-workbook forms.

2.0 UK exceedences reported in 2008 under Directive 2008/50/EC

2.1 The exceedences of EU LVs plus MOT in 2008 were reported to the European Commission in September 2009, and relate to LVs set under Directive 2008/50/EC. The NO₂ LVs and number of exceedences are set out in Table 1.

Table 1: Exceedences of limit values + margin of tolerance

Pollutant	Metric (LV + MOT)	Zones and agglomerations exceeding
NO ₂	Hourly mean concentration > 240 µgm ⁻³ (18 exceedences allowed)	2 (2 measured ¹)
NO ₂	Annual mean concentration >48 µgm ⁻³	40 (7 measured, 33 modelled ^{2,3})

2.2 The number of NO₂ exceedences in 2008 represents a small change from the number of exceedences in 2007 when 1 zone exceeded the hourly mean NO₂ concentration and 39 zones exceeded the annual mean NO₂ concentration. Plans for these zones were submitted in 2009 and are available online at: <http://cdr.eionet.europa.eu/gb/eu/aqpp/envsyokmq>.

2.3 The plans submitted in 2009 contained both national and local measures to tackle NO₂ pollution and these still apply to those zones that remained in exceedence of the NO₂ limit values in 2008. This document therefore sets out the plans for the one additional zone (Glasgow) exceeding the hourly mean NO₂ limit value and the one additional zone (Swansea) exceeding the annual mean NO₂ limit value in 2008. The national measures submitted in the plans last year also apply to these two additional exceedence situations.

2.4 Note that for practical reasons, the Swansea and Glasgow Plans have been completed using the time extension form templates rather than the forms originally provided under Commission Decision 2004/224/EC. **These plans are not time**

¹ No base year modelling available for this metric

² The complete explanation of the modelling methodology is presented in Grice et al (2010)

http://www.airquality.co.uk/reports/cat09/1007201636_dd122008mapsrep_v4.pdf

³ UK emissions data used to underpin air quality modelling is based on UK NAEI 2008 as detailed in Murrells et al (2010): http://www.airquality.co.uk/reports/cat07/1009030925_2008_Report_final270805.pdf

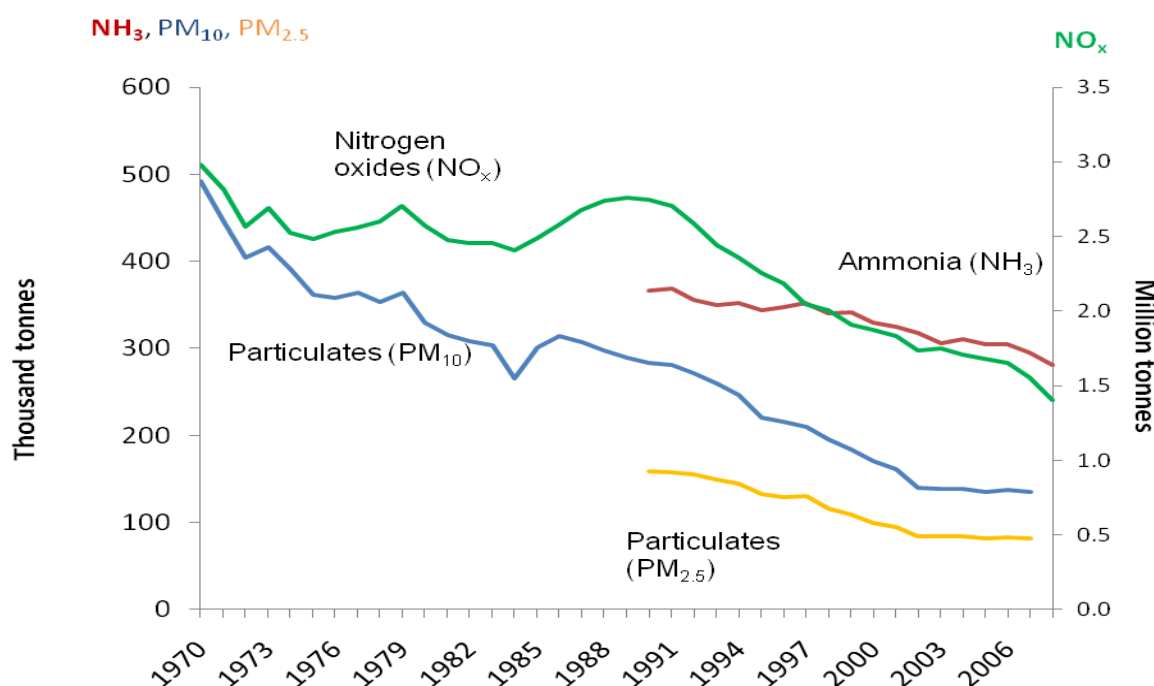
extension notifications. The UK will be submitting updated plans and forms as time extension notifications for NO₂ in September 2011 (see Section 6).

2.5 In relation to PM₁₀, one zone (Greater London) exceeded the 24 hour PM₁₀ limit value in 2008 and the relevant Air Quality Plan has been submitted to the Commission. In May 2010, the UK re-submitted a time extension notification to the European Commission under Article 22 of the Directive 2008/50/EC for additional time to meet the 24 hour PM₁₀ limit value in London⁴. Further information was provided to the Commission in July 2010 and the UK awaits the Commission's response to that notification.

3.0 Pollution Trends and Origin of Pollution

3.1 Figure 1 below shows that total UK NO_x emissions continue to show a downward trend, which has accelerated since 2006.

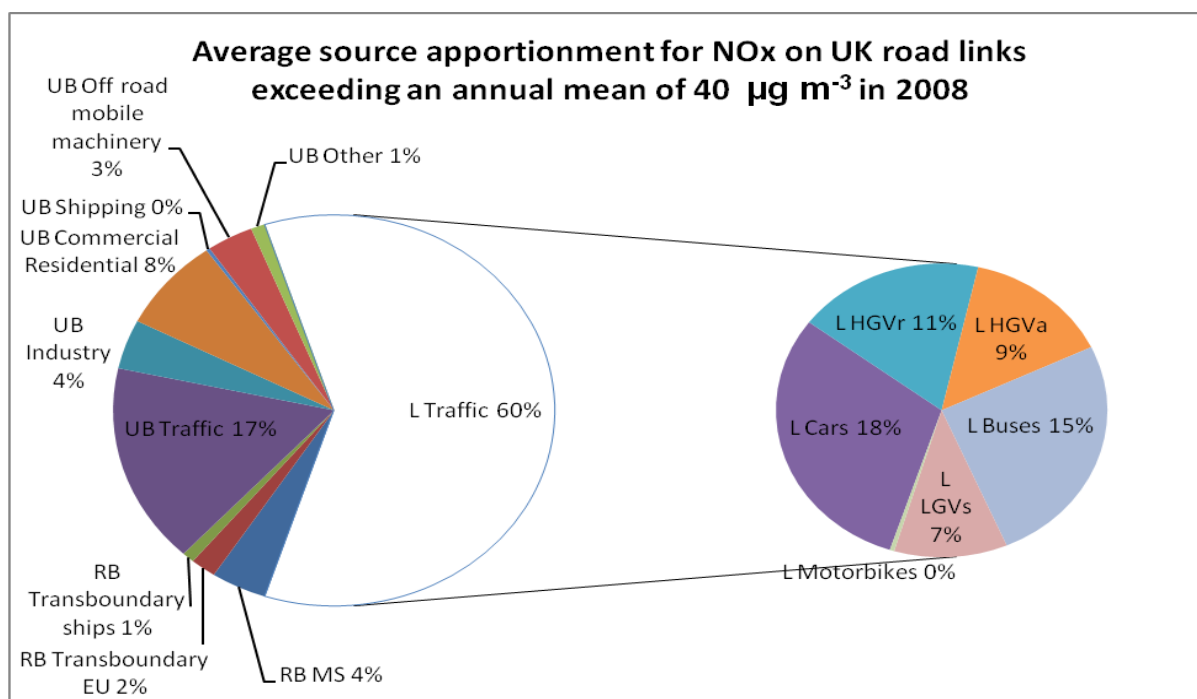
Figure 1: UK emissions of major air pollutants 1970-2008



3.2 A good understanding of the sources of pollution in a particular location is important in effective targeting of measures. Figure 2 shows the mean source apportionment across all UK roads with exceedences in 2008. On average, local traffic contributes 60% of any NO₂ exceedance, though urban background contributions from traffic, domestic and industry sources are also relevant. The variance on different road types across the UK is not insignificant and generally speaking source apportionment is unique for each road. This is illustrated in the individual zone plans for Swansea and Glasgow.

⁴http://circa.europa.eu/Public/irc/env/ambient/library?l=/application_extensions/uk/official_notifications/notification_20072010&vm=detailed&sb=Title

Figure 2: Average NOx source apportionment on UK road link exceeding an annual mean of $40 \mu\text{g}/\text{m}^3$ in 2008.



4.0 UK Climate and Topography

4.1 The United Kingdom has a temperate, maritime climate with typical annual average wind speeds around five metres per second. The topography of the UK is relatively flat with air pollution dispersion conditions in most large urban areas not significantly influenced by large scale topography such as mountain valleys.

5.0 Responsible Authorities

5.1 In the UK, responsibility for meeting air quality limit values is devolved to the national administrations in Scotland, Wales and Northern Ireland. The Secretary of State for Environment Food and Rural Affairs has responsibility for meeting the limit values in England and the Department for Environment, Food and Rural Affairs (Defra) co-ordinates assessment and air quality plans for the UK as a whole.

5.2 The UK Government and the devolved administrations are required under the Environment Act 1995 to produce a national air quality strategy. This was last reviewed and published in 2007⁵. The strategy sets out how responsibilities for meeting EU limits are effectively shared and recognises that action at national, regional and local level may be needed, depending on the scale and nature of the air quality problem.

5.3 Part IV of the Environment Act 1995 requires local authorities in the UK to review air quality in their area and designate air quality management areas if

⁵ <http://www.defra.gov.uk/environment/quality/air/airquality/strategy/index.htm>

improvements are necessary. Where an air quality management area is designated, local authorities must produce an air quality action plan describing the pollution reduction measures to be put in place in pursuance of air quality standards and objectives (generally the same as limit values). These plans contribute to the achievement of air quality limits at local level.

5.4 Within the UK there are over 400 local authorities. When the EU air quality regime was first introduced the UK Government for England, and the national administrations for Scotland, Wales and Northern Ireland determined how zones would be defined. UK zones and agglomerations do not generally comprise a single administrative authority. Rather they comprise a number of local authorities, each of which may have local air quality management plans.

5.5 In Greater London, the Mayor of London is required under the Greater London Authority Act 1999 to produce an air quality strategy that achieves air quality standards and objectives in London. An updated version of the Mayor's air quality strategy was published in draft form for public consultation in March 2010. That consultation closed in August 2010 with the finalised air quality strategy to be published by the end of 2010. The draft strategy⁶ includes details of measures to be deployed in the London area to ensure air quality limits including those for NO₂ are achieved as soon as possible.

5.6 Directive 2008/50/EC sets out detailed requirements for air quality plans and requires provision of quantifiable information on specific spreadsheet forms. For the purposes of reporting air quality plans, local plans are collated by the national administration and submitted to the European Commission by the UK Government.

6.0 Directive 2008/50/EC and provisions for additional time to meet NO₂ limit values

6.1 Council Directive on Ambient Air Quality and Cleaner Air for Europe (2008/50/EC) came into force on 11 June 2008, and includes in Article 22 provisions for extension of the compliance deadline to meet the LVs for NO₂ to 2015 at the latest. The directive was transposed into UK legislation in June 2010.

6.2 For those zones where some exceedence of the NO₂ limit value is expected in 2010 the UK is currently preparing NO₂ time extension notifications for submission to the European Commission by September 2011. This will require updating of plans for each zone and agglomeration to address exceedences in NO₂ limit values. In light of this, the measures outlined in this submission do not reflect that work which is currently in progress.

⁶ <http://www.london.gov.uk/publication/mayors-draft-air-quality-strategy>

7.0 Glasgow Zone: Air Quality Plan

Section 1: General Information

Zone name: Glasgow Urban Area

Zone code: UK0024

Type of zone: agglomeration zone

Total area within zone (approx): 366 km²

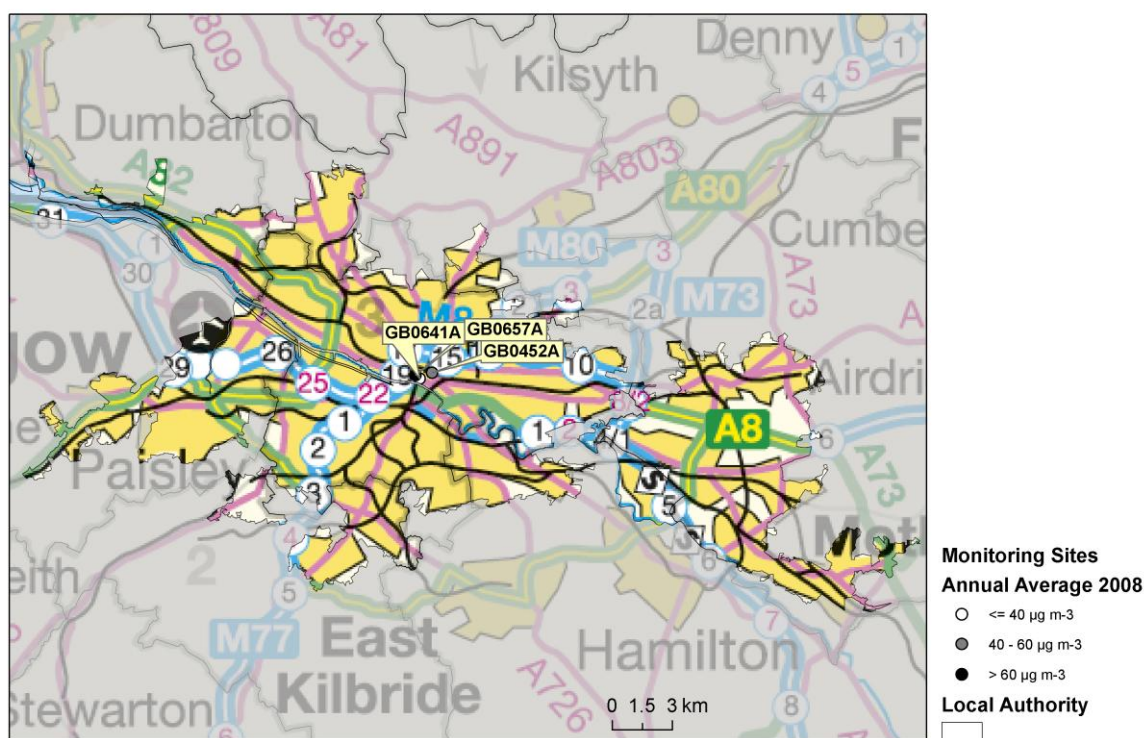
Total population within zone (approx): 1083323

Total road length where an assessment of NO₂ levels have been made: 300.6 km

NO₂ Measurements: valid measurement data (i.e. from sites with > 75% data capture) were available in 2008 from the following national networks sites: Glasgow Centre (GB0641A), Glasgow City Chambers (GB0452A) and Glasgow Kerbside (GB0657A)

Figure 1. Map showing the boundaries of the Glasgow Urban Area zone (UK0024) and the locations of the monitoring sites, which are labelled using the Eol codes. Areas outside the zone are shown in grey.

Glasgow Urban Area UK0024, 2008



Section 2: Overall Picture for 2008 reference year

There are two limit values for the protection of health for NO₂. These are

- annual limit value (annual mean concentration of no more than 40 µg m⁻³, the limit value + margin of tolerance for 2008 was 44 µg m⁻³)
- hourly limit value (no more than 18 hourly exceedances of 200 µg m⁻³ in a

calendar year, the limit value + margin of tolerance for 2008 was $220 \mu\text{g m}^{-3}$).

Within the Glasgow Urban Area there were exceedances of both these limit values in 2008 and of the limit values plus margins of tolerance for 2008. Therefore, two exceedance situations have been declared in this zone, one for the annual mean limit value (NO2_UK0024_Annual_1) and one for the hourly limit value (NO2_UK0024_Hourly_1).

An air quality plan for the exceedance of the annual mean limit value was first reported to the Commission in 2003. The current air quality plan for this exceedance is the Annual Report to the European Commission on the UK's plans to meet limit values under the first air quality daughter directive (1999/30/EC) for exceedances reported for 2007. This plan is currently being reviewed and updated with a view to notifying for a time extension for the limit values for some zones in the UK. This plan remains valid until it is replaced by the air quality plan associated with the time extension notification.

2008 is the first year for which an exceedance of the hourly mean limit value plus margin of tolerance has been reported for this zone. This document is the air quality plan for this exceedance (NO2_UK0024_Hourly_1), which has been identified for the first time. Annual mean concentrations are also provided in this document for information.

Nature and Assessment of Pollution:

Exceedence situation NO2_UK0024_Hourly_1

- In 2008 in the Glasgow Urban Area, 75.9 km of road length was modelled to exceed the annual limit value. There were no modelled background exceedances of this limit value. The maximum modelled annual mean concentration was $83.1 \mu\text{g m}^{-3}$.
- There were measured exceedances of the annual limit value at Glasgow City Chambers (GB0452A) and Glasgow Kerbside (GB0657A) in 2008. The maximum measured annual mean concentration in this zone in 2008 was $82 \mu\text{g m}^{-3}$.

Table 1 summarises annual mean NO₂ model results since directive 1999/30/EC came into force. Table 2 presents measured concentrations at national network sites in this zone over the same period.

Table 1. Annual mean NO₂ model results in Glasgow Urban Area 2001 – 2008

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Road length exceeding (km)</i>	156	70	206	151	160	157	125	76
<i>Background area exceeding (km²)</i>	17	0	15	0	0	0	0	0
<i>Maximum modelled concentration ($\mu\text{g m}^{-3}$)</i>	65	62	78	74	78	87	85	83

Table 2. Measured annual mean concentrations at national network sites in Glasgow Urban Area 2001 - 2008 ($\mu\text{g m}^{-3}$)

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Glasgow Centre</i>	34	32		36	33	31	31	35
<i>Glasgow City Chambers</i>	46	47	50	49	46	47	47	48
<i>Glasgow Kerbside</i>	71	74	75	68	62	68	70	82

No modelling is available for the hourly limit value. Table 3 shows the number of measured exceedances of $200 \mu\text{g m}^{-3}$ (the LV) in each year since directive 1999/30/EC came into force and Table 4 shows the number of measured exceedances of $220 \mu\text{g m}^{-3}$, the LV + MOT for 2008. The highest measured number of hourly exceedances of $200 \mu\text{g m}^{-3}$ (the LV) in 2008 was 72. The highest measured number of hourly exceedances of $220 \mu\text{g m}^{-3}$ (the LV+MOT) in 2008 was 28.

Table 3. Measured number of hours with NO_2 concentration greater than $200 \mu\text{g m}^{-3}$ at national network sites in Glasgow Urban Area 2001 – 2008

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Glasgow Centre</i>	0	21		0	1	2	0	0
<i>Glasgow City Chambers</i>	8	5	0	0	0	0	2	0
<i>Glasgow Kerbside</i>	54	38	36	14	9	3	21	72

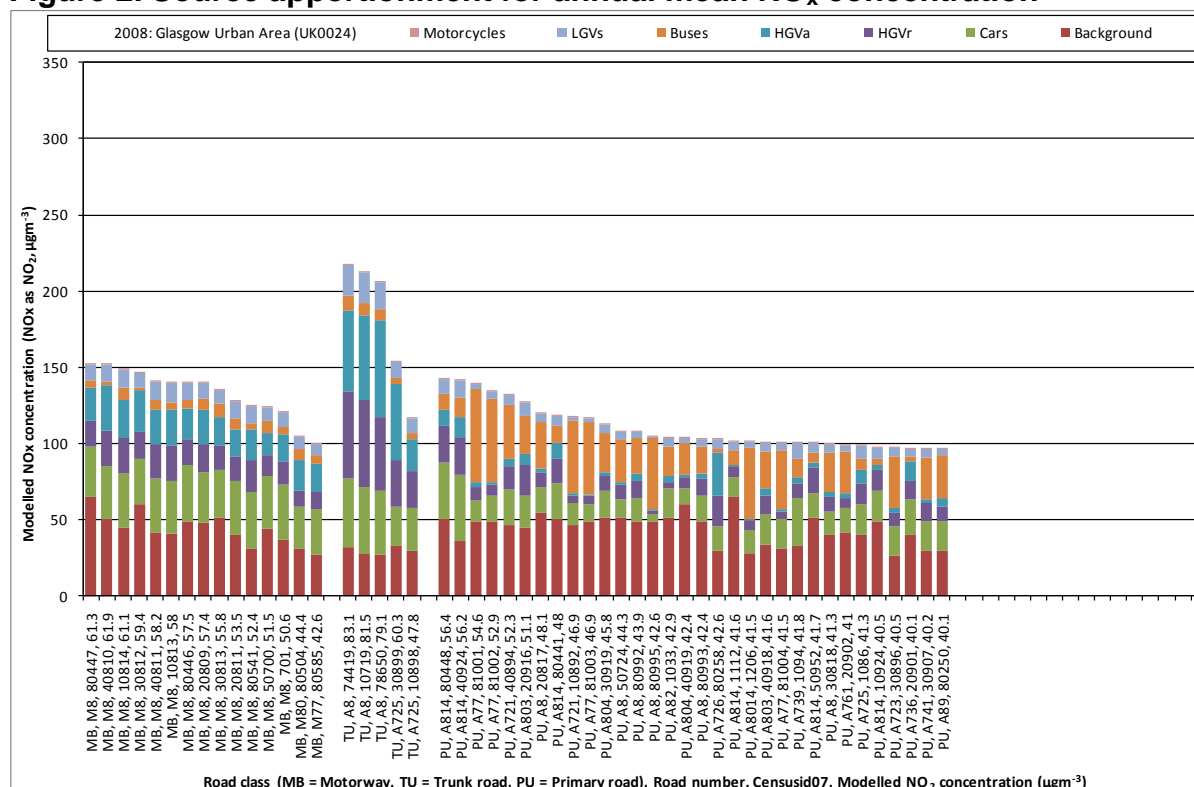
Table 4. Measured number of hours with NO_2 concentration greater than $220 \mu\text{g m}^{-3}$ at national network sites in Glasgow Urban Area 2001 – 2008

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Glasgow Centre</i>	0	13		0	1	2	0	0
<i>Glasgow City Chambers</i>	2	0	0	0	0	0	1	0
<i>Glasgow Kerbside</i>	39	32	15	4	3	2	3	28

Section 3. Source Apportionment

Figure 2 shows the source apportionment for the locations with a modelled exceedance of the annual mean limit value. The maximum NO_x contribution in $\mu\text{g m}^{-3}$ (NO_x as NO_2) from local traffic sources on roads with exceedances is as follows: Cars $45.2 \mu\text{g m}^{-3}$, HGVr (rigid heavy goods vehicles) $57.7 \mu\text{g m}^{-3}$, HGVa (articulated heavy goods vehicles) $63.3 \mu\text{g m}^{-3}$, buses $60.5 \mu\text{g m}^{-3}$, LGVs (light goods vehicles) $20 \mu\text{g m}^{-3}$, motorcycles $0.2 \mu\text{g m}^{-3}$. The maximum total background NO_x contribution is $65.2 \mu\text{g m}^{-3}$ (NO_x as NO_2).

Figure 2. Source apportionment for annual mean NO_x concentration



Hourly source apportionment is not available, so we have assumed that the annual average source apportionment also applies for the hourly limit value.

Section 4. Measures

Measures prior to 2010

National

The current UK air quality plan: Annual report to the European Commission on the UK's plans to meet limit values under the first air quality daughter directive (1999/30/EC) for exceedances reported for 2007 (<http://cdr.eionet.europa.eu/gb/eu/aqpp/envsyokmq>) describes the national measures taken. This plan is currently being reviewed and updated with a view to notifying for a time extension for the limit values for some zones in the UK.

Local

Local measures are listed in Table 5. The impacts of the local measures on emissions and ambient concentrations are not available. The measures are expected to have had a beneficial effect in reducing ambient concentrations of NO₂.

Table 5. Local measures taken in the Glasgow Urban Area (UK0024) zone prior to 2010

Code of the measure	Title	Description	Administrative level at which the measure could be taken	Type of measure	Is the measure regulatory? [y/n]	Time scale of reduction	Source sector(s) affected	Spatial scale of the sources affected	Reference(s)	Date of implementation
Local_Glasgow_A1;	Scheme of installing variable message signs linked to car parking space availability	Following a successful pilot project in the northern area of the City centre, the scheme of installing variable message signs linked to car parking space availability is to be extended to the remaining car parks in the City centre. This measure will assist the aims of reducing city centre congestion and improving air quality.	C	B	Y	B;C	A	LOCAL	Action Plan	2004
Local_Glasgow_A2;	Vehicle emission testing.	Glasgow City Council has adopted the powers introduced by the Scottish Government that enable local authorities to check vehicles at the roadside and ensure that they are not exceeding prescribed exhaust emission limits. Drivers whose vehicles exceed the emission limits during roadside tests may be issued with a fixed penalty notice of £60. This measure aims to reduce the number of polluting vehicles on the road and raise public awareness on the importance of vehicle maintenance to reduce emissions levels	B	B	N	B;C	A	LOCAL	Action Plan	2004
Local_Glasgow_A3;	Tackling emissions from stationary idling vehicles.	Leaving your engine running unnecessarily while stationary produces pollution. Glasgow City Council has been given the ability to tackle emissions from stationary idling vehicles, by requiring drivers to switch off engines when parked. Authorised Local Authority Officers can instruct motorists to switch off their engines while parked and issue fixed Penalty notices of £20 to those who do not co-operate.	C	A	N	B;C	A	LOCAL	Action Plan	2004

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Local_Glasgow_E1:	Development of cycle route network	Cycling and walking are important aids to fitness and can represent a viable alternative to the use of cars. Glasgow City Council has approved the development of a 375 km network of cycle routes, which aims to provide safe and direct access to city destinations. Cycling and walking are important aids to fitness and can represent a viable alternative to the use of cars. Glasgow City Council has approved the development of a 375 km network of cycle routes, which aims to provide safe and direct access to city destinations.	C	A	Y	B;C	A	LOCAL	Action Plan	2004
Local_Glasgow_G4:	School Travel Plans.	The number of children travelling to school by car has almost doubled over the last 20 years. This practice can cause localised congestion and associated pollution around schools, particularly around school starting and finishing times. Glasgow City Council has appointed a team of School Travel Plan Co-ordinators to help schools develop their own School Travel Plans to find alternative ways of travelling to and from school.	C	C	N	B	A	LOCAL	Action Plan	2004
Local_Glasgow_B1:	Enforcement of air quality legislation, including the Clean Air Act 1993 and the Environmental Protection Act 1990.	Glasgow City Council enforces air quality legislation, including the Clean Air Act 1993 and the Environmental Protection Act 1990. Glasgow has been designated a Smoke Control Area, making it an offence to emit smoke from a chimney, furnace or any fixed boiler in the area, or to burn unauthorised fuels. In addition, smoke from bonfires and the burning of waste often constitute a nuisance and can lead to complaints from members of the public. Fumes and smoke from such sources contribute to the air pollution problem in Glasgow and the Council will continue to proactively enforce legislation relating to smoke control, with strong emphasis on education.	C	C	N	C	A;B;D	LOCAL	Action Plan	2004
Local_Glasgow_A4:	Glasgow City Council - improving its own environmental performance and reducing the environmental impact of its staff/ activities.	Glasgow City Council is committed to improving its own environmental performance and reducing the environmental impact of its staff and their activities on air quality. Glasgow City Council strives to reduce emissions from its large fleet of vehicles and ensures that all its vehicles are properly serviced and maintained. An ongoing programme of vehicle emissions testing is also being carried out to make certain that polluting vehicles are not being used for council business.	C	B	Y	B;C	A;D	LOCAL	Action Plan	2004

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Local_Glasgow_F1;	Walk to School Week	International Walk to School Week is held each May to encourage children and their parents to adopt a healthier lifestyle by walking to school instead of using the car. Each May the Council raises awareness of the benefits of walking to school by inviting all primary schools to participate in Walk to School Week. Parents and guardians can improve their health and teach road safety simply by walking their child to school.	A	D	N	A	A	LOCAL	Action Plan	2004
Local_Glasgow_F1;	Leading by example	The Council will demonstrate best practice in the operation of its vehicle fleet. Glasgow City Council operates a fleet of over 2000 vehicles within the city. It is therefore essential that the council takes steps to cut harmful emissions from its own fleet where possible.	A	D	N	A	A	LOCAL	Personal communication	2009
Local_Glasgow_F1;	Car Clubs	The Council will make on-road spaces available for car club vehicles.	A	D	N	A	A	LOCAL	Personal communication	2009
Local_Glasgow_F1;	Low Emission Zones	The Council will undertake a detailed feasibility study with a view to introducing LEZs in Glasgow.	A	D	N	A	A	LOCAL	Personal communication	2009
Local_Glasgow_F1;	Public Service Vehicles	The Council will pursue the use of traffic regulation conditions to control bus emissions within AQMAs	A	D	N	A	A	LOCAL	Personal communication	2009
Local_Renfrewshire_A1	Minimise Bus Idling times	Enforcement of maximum idling period of 2 minutes, or requirement for drivers to switch off engines after 2 minutes.	A	C	N	A	A	Local	Air Quality Action Plan	2007

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Local_East_Dunbartonshire_H1	Supporting national government to reduce atmospheric pollution at a national level	Action 1 includes lobbying the Scottish and UK governments on policies to <ul style="list-style-type: none"> • improve green vehicle technologies; • encourage a reduction in road traffic at a national level; • promote greener transport options; • improve access to affordable public transport through the use of student, carer and senior travel cards; and • remove monopoly regulations on public transport operators i.e. to allow operators to have dialogue to encourage co-operation and closer working. 	C	C; D	N	C	A	Local	Air Quality Action Plan, pg 17	2008
Local_East_Dunbartonshire_G1	Raising awareness of air quality issues within East Dunbartonshire	East Dunbartonshire Council will also support a wide range of national and regional promotional events to generate interest and provide better awareness of: <ul style="list-style-type: none"> • the presence of poor air quality in Bishopbriggs town centre; • health implications of poor air quality; • work being undertaken by the Council to reduce population exposure to poor air quality; • promote active travel (walking and cycling); 	C	C	N	C	A	Local	Air Quality Action Plan, pg 17	2008
Local_East_Dunbartonshire_E1	Support the completion of the Kirkintilloch Link Road (KLR)	Support the completion of the Kirkintilloch Link Road (KLR) and ensure that appropriate signage is installed for the KLR to encourage Glasgow commuter traffic away from the Bishopbriggs A803 corridor.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 18	2008
Local_East_Dunbartonshire_E2	Support the construction of Bishopbriggs Relief Road (BRR)	Support the construction of phases 3 to 5 of the Bishopbriggs Relief Road (BRR) to the east of Bishopbriggs.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 18	2008
Local_East_Dunbartonshire_G2	A803 quality bus corridor (QBC)	Support and facilitate implementation of the A803 quality bus corridor (QBC) through Bishopbriggs to Kirkintilloch.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 18	2008

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Local_East_Dunbartonshire_A1	Maximise network efficiency	Maximise network efficiency by requiring appropriate improvements to junctions affected by new development in line with high environmental and design standards.	C	B	N	C	A	Local	Air Quality Action Plan, pg 19	2008
Local_East_Dunbartonshire_G3	Investigation of options in Bishopbriggs town centre to improve access to Bishopbriggs station and opportunities for active travel.	East Dunbartonshire Council intends to investigate options around Bishopbriggs town centre to make active travel i.e walking and cycling, more attractive and to improve access to Bishopbriggs Station.	C	D	N	C	A	Local	Air Quality Action Plan, pg 19	2008
Local_East_Dunbartonshire_A2	Investigate options for a Bishopbriggs East / Westerhill transport hub comprising a bus terminus, rail halt and park and ride facility.	Investigate options for a Bishopbriggs East / Westerhill transport hub comprising a bus terminus, rail halt and park and ride facility.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 19	2008
Local_East_Dunbartonshire_G4	Where possible encourage the establishment of partnerships between public transport operators to provide more joined up inter-modal transport options.	In order to make public transport more acceptable and facilitate the use of all public transport, East Dunbartonshire will work with operators to encourage any partnership working across the region. In particular the Council will support schemes to offer multi-journey tickets or multi-modal tickets.	C	C; D	N	C	A	Local	Air Quality Action Plan, pg 20	2008
Local_East_Dunbartonshire_H2	Survey and upgrade all bus stops	East Dunbartonshire Council plan to survey and upgrade all bus stops in order to facilitate travel by bus and provide greater access to information on bus services available in the area.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 20	2008
Local_East_Dunbartonshire_G5	Produce a public transport access map	In conjunction with bus operators and SPT, East Dunbartonshire Council plan to produce a public transport access map which will be updated regularly.	C	C	N	C	A	Local	Air Quality Action Plan, pg 20	2008

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Local_East_Dunbartonshire_H3	Assess appropriateness of bus services and network within East Dunbartonshire.	East Dunbartonshire Council plan to regularly analyse gaps and over provision in the bus network and develop Quality Bus Partnerships with SPT and other operators to address the issues identified. The aim of this action is to ensure accessibility of key services is available to all as a sensible travel option.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 21	2008
Local_East_Dunbartonshire_H4	Continue to work with SPT and NHS Greater Glasgow (NHS Greater Glasgow) to improve community transport in East Dunbartonshire.	East Dunbartonshire Council will continue to work with SPT and NHSGGC to improve community transport across the Council area. The aim of this action is to assist with the process of ensuring that adequate access to services is available to all East Dunbartonshire residents.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 21	2008
Local_East_Dunbartonshire_G6	Support Network Rail in increasing and improving rail services to and from Bishopbriggs and other stations in East Dunbartonshire.	East Dunbartonshire Council will support Network Rail in increasing and improving rail services to and from Bishopbriggs and other stations within East Dunbartonshire.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 21	2008
Local_East_Dunbartonshire_G7	Improve the walking and cycling infrastructure within Bishopbriggs	East Dunbartonshire Council intend to carry out improvements to the walking and cycling infrastructure at three key locations within Bishopbriggs: • Westerhill Business Park; • routes to Bishopbriggs station; and • routes to key bus stops.	C	B	N	C	A	Local	Air Quality Action Plan, pg 22	2008
Local_East_Dunbartonshire_E3	Assess requirements for and implement additional traffic management on the A803 corridor.	In order to encourage use of the KLR, BRR and public transport East Dunbartonshire Council will investigate the requirements for additional traffic management measures along the A803 Kirkintilloch Road through Bishopbriggs.	C	C	N	C	A	Local	Air Quality Action Plan, pg 22	2008

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Local_East_Dunbartonshire_A3	Increase vehicle emissions testing and enforcement of vehicle emission limits in and around the AQMA.	East Dunbartonshire Council intend to continue their programme of vehicle emissions testing of private vehicles and when possible increase the frequency of testing at the site on the A803 north of Bishopbriggs.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 23	2008
Local_East_Dunbartonshire_A4	Investigate preferential licensing for taxis with low emissions	The Council is responsible for issuing taxi licences within the East Dunbartonshire Council area and therefore has the authority to issue and recall taxi licences for taxi companies based within the Council area. The Council will therefore investigate a scheme for issuing licences to taxis with low emissions as a method for encouraging taxi firms to improve vehicle fleets.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 23	2008
Local_East_Dunbartonshire_A5	Enforce switch-off of parked vehicles in areas with public access	East Dunbartonshire Council currently has powers to enforce and issue fines to owners of vehicles which continue to use their engines whilst parked. The Council will therefore continue to utilise these powers to reduce the presence of idling vehicles within the AQMA.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 23	2008
Local_East_Dunbartonshire_D1	Continue to review and enforce parking/loading restrictions within the AQMA	East Dunbartonshire Council will continue to review and enforce parking and loading restrictions within the AQMA to ensure that vehicles that are inappropriately parked do not cause unnecessary congestion and emissions of PM10 and NO2.	C	B	N	C	A	Local	Air Quality Action Plan, pg 24	2008
Local_East_Dunbartonshire_H5	Encourage companies within the AQMA, particularly those with service bays in the area to the rear of the Triangle, to reduce idling from delivery vehicles on private property.	East Dunbartonshire Council intends to discuss emissions from idling vehicles with the businesses within the AQMA to encourage switch off of vehicle engines during loading and deliveries.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 24	2008

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Local_East_Dunbartonshire_A6	Undertake regular maintenance checks and upgrades of the Council's vehicle fleet	In recognition that the Council is one of the largest employers within the area and operates a large fleet of vehicles it is intended that the Council continues to maintain and upgrade vehicles on a regular basis.	C	B	N	C	A	Local	Air Quality Action Plan, pg 24	2008
Local_East_Dunbartonshire_C1	Encourage the uptake of green fuel and new low emissions vehicles within the Council fleet	Encouraging a faster uptake of new low emissions technology where suitable will lead to a general reduction of vehicle emissions in the area.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 24	2008
Local_East_Dunbartonshire_C2	Support local fuel stations to provide alternative/green fuels e.g. electric chargers / bio-diesel	East Dunbartonshire Council will support local fuel stations to introduce alternative and green fuel provision.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 25	2008
Local_East_Dunbartonshire_G8	Ensure effective travel plans exist for all Council buildings and that all large developments include a travel plan as a planning condition.	The use and development of travel plans for all large developments and government buildings will encourage staff and site users to consider the available transport options and provide information on sustainable modes of transport.	C	C	N	C	A	Local	Air Quality Action Plan, pg 25	2008
Local_East_Dunbartonshire_G9	School Travel Plans	East Dunbartonshire Council is currently upgrading school travel plans to include provisions for the new school developments within the area.	C	B; C	N	C	A	Local	Air Quality Action Plan, pg 26	2008

UK Air Quality Plans for Exceedences in 2008 under Directive 2008/50/EC

Local_East_Dunbartonshire_E4	Undertake regular reviews of road traffic flows and public transport capacity and usage	East Dunbartonshire Council will continue to monitor road traffic flows and, in collaboration with public transport operators, undertake passenger surveys to determine usage of local networks	C	B	N	C	A	Local	Air Quality Action Plan, pg 27	2008
Local_East_Dunbartonshire_H6	Ensure all developments within or impacting upon the AQMA are reviewed for air quality impacts and all practicable emission mitigation options are considered and implemented	Minimising the impact of emissions from additional road traffic that will use the local road network as a result of a new development is crucial if other actions taken by East Dunbartonshire Council are to be effective in reducing pollutant concentrations within the AQMA.	C	B; D	N	C	A	Local	Air Quality Action Plan, pg 27	2008
Local_East_Dunbartonshire_A7	Introduce measures to reduce the impact on air quality likely to result from the redevelopment of Bishopbriggs town centre	The town centre action plan for Bishopbriggs will include measures to reduce the impact of road vehicles and an increased space for people to circulate and linger to improve the ambience of the town and increase its economic viability.	C	B	N	C	A	Local	Air Quality Action Plan, pg 28	2008
Local_East_Dunbartonshire_E5	Introduce supplementary air quality planning guidance for developments within East Dunbartonshire	Introduce supplementary local planning guidance for developments within the East Dunbartonshire area, which outlines the potential air quality issues and possible mitigation measures associated with each development type (industrial, commercial, housing, quarries, transport and other)	C	B; C; D	N	C	A;B	Local	Air Quality Action Plan, pg 28	2008
Local_East_Dunbartonshire_E6	Continue to promote sustainable developments and encourage use of planning to reduce the need for travel to reach amenities and services	Developing sustainable communities and using planning as a tool to create local centres where the reduced need to travel to reach local amenities will help to decrease the number of vehicle trips within the area.	C	C; D	N	C	A;B	Local	Air Quality Action Plan, pg 28	2008

UK Air Quality Plans for Exceedences in 2008 under Directive 2008/50/EC

Local_East_Dunbartonshire_E7	Use planning guidance and conditions to maximise developer commitments to reducing air quality impacts	Where practicable, East Dunbartonshire Council will use planning regulations and guidance to obtain developer commitments to fund new public transport services and encourage use of sustainable transport options.	C	C; D	N	C	A	Local	Air Quality Action Plan, pg 28	2008
Local_East_Dunbartonshire_E8	Ensure compliance with construction guidelines and implementation of proposed mitigation measures for each development	East Dunbartonshire Council will continue to ensure that all developments within the area comply with construction guidelines and any proposed mitigation measures to reduce emissions both during construction of the development and during the life-time of the development.	C	C; D	N	C	A;B	Local	Air Quality Action Plan, pg 28	2008
Local_East_Dunbartonshire_E9	Ensure that air quality is included as a priority topic in the next revision to the East Dunbartonshire Local Plan	East Dunbartonshire Council will include air quality as a key topic in the East Dunbartonshire Council Local Plan which will be revised in the next year. Inclusion of air quality as a key topic will help raise awareness of the issue both within the Council and to local residents.	C	D	N	C	A;B	Local	Air Quality Action Plan, pg 29	2008
Local_East_Dunbartonshire_B1	Promote the use of energy efficient domestic heating systems	The Council will encourage local residents to install efficient domestic heating systems and ensure that all heating systems in new developments comply with the required national energy efficiency requirements.	C	C	N	C	D	Local	Air Quality Action Plan, pg 29	2008
Local_East_Dunbartonshire_F1	Support any local or national campaigns to raise awareness on a range of issues including, litter, pollution and other environmental concerns	East Dunbartonshire Council will continue to support anti-litter, environmental awareness and antipollution campaigns.	C	C	N	C	A;B;D	Local	Air Quality Action Plan, pg 29	2008

Administrative level at which the measure could be taken: A: local; B: regional; C: national.

Type of measure: A: economic/fiscal; B: technical; C: education/information; D: other.

Time scale of the concentration reduction achieved by the measure: A.: short term; B: medium term (about a year); C: long term.

Source sector affected by the measure: A: transport; B: industry including heat and power production; C: agriculture; D: commercial and residential sources; E: other.

Section 5. Summary of baseline and projection data

Baseline Data 2008

- The highest measured number of hourly exceedances of $200 \mu\text{g m}^{-3}$ (the LV) was 72. The highest measured number of hourly exceedances of $220 \mu\text{g m}^{-3}$ (the LV+MOT) was 28.

Baseline Projections 2010 - deadline for compliance- taking all committed measures into account pre 2010

- The highest projected number of hourly exceedances of $200 \mu\text{g m}^{-3}$ (the LV) is 24.

Additional Measures

Q: Are any measures beyond those resulting from existing legislation needed to ensure that the limit value will be met by the extended compliance date (2015)?

A: No, the existing measures which have been put in place to tackle this exceedence as quickly as possible will achieve compliance.

Baseline Projections 2015 – extended deadline for compliance- taking all committed measures into account pre 2010 not post 2010.

- The highest projected number of hourly exceedances of $200 \mu\text{g m}^{-3}$ is 3 and thus compliant with the hourly limit value of no more than 18 hours.

Section 6. Conclusions

Zone UK0024 Glasgow Urban Area is not expected to be compliant with the hourly mean limit value by 2010.

Zone UK0024 Glasgow Urban Area is expected to be compliant with the hourly mean limit value by 2015 as a result of measures resulting from existing legislation and of local measures taken before 2010.

An assessment of likely compliance with the annual mean limit value is included in the existing air quality plan. This plan is currently being reviewed and updated with a view to notifying for a time extension for the limit values for some zones in the UK. This plan remains valid until it is replaced by the air quality plan associated with the time extension notification.

8.0 Swansea Zone: Air Quality Plan

Section 1: General Information

Zone name: Swansea Urban Area

Zone code: UK0027

Type of zone: agglomeration zone

Total area within zone (approx): 88 km².

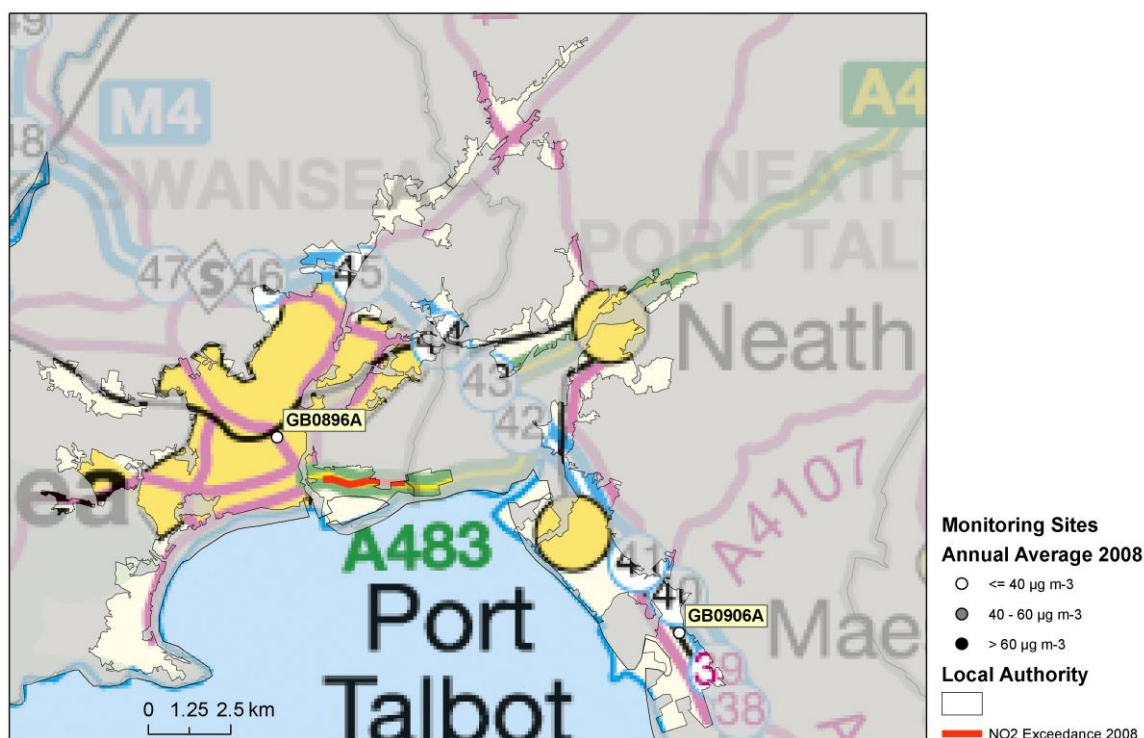
Total population within zone (approx): 191717

Total road length where an assessment of NO₂ levels have been made: 65.1 km

NO₂ Measurements: valid measurement data (i.e. from sites with > 75% data capture) were available in 2008 from the following national networks sites: Port Talbot Margam (GB0906A) and Swansea Roadside (GB0896A)

Figure 1. Map showing the boundaries of the Swansea Urban Area zone (UK0027) and the locations of the monitoring sites, which are labelled using the Eol codes, and modelled exceedance situation. Areas outside the zone are shown in grey.

Swansea Urban Area UK0027, 2008



Section 2: Overall Picture for 2008 reference year

There are two limit values for the protection of health for NO₂. These are

- annual limit value (annual mean concentration of no more than 40 µgm⁻³, the limit value + margin of tolerance for 2008 was 44 µgm⁻³)
- hourly limit value (no more than 18 hourly exceedances of 200 µgm⁻³ in a calendar year, the limit value + margin of tolerance for 2008 was 220 µgm⁻³).

Within Swansea Urban Area only the annual limit value plus margin of tolerance was exceeded in 2008. Hence, one exceedance situation for this zone has been declared, NO₂_UK0027_Annual_1, which covers the exceedance of the annual limit value.

Nature and Assessment of Pollution:

Exceedence situation NO₂_UK0027_Annual_1

- In 2008 in Swansea Urban Area, 2.5 km of road length was modelled to exceed the annual limit value plus margin of tolerance. There were no modelled background exceedences of this limit value. The maximum modelled annual mean concentration was 44.2 $\mu\text{g m}^{-3}$.
- There were no measured exceedences of the annual limit value in this zone in 2008. The maximum measured annual mean concentration in this zone in 2008 was 32 $\mu\text{g m}^{-3}$.

Table 1 summarises annual mean NO₂ model results in this zone since directive 1999/30/EC came into force. Table 2 presents measured concentrations at national network sites in this zone in over the same period.

Table 1. Annual mean NO₂ model results in Swansea Urban Area for 2001 - 2008

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Road length exceeding LV (km)</i>	0	3	11	0	0	0	3	3
<i>Background area exceeding LV (km²)</i>	0	0	0	0	0	0	0	0
<i>Maximum modelled concentration ($\mu\text{g m}^{-3}$)</i>	38	50	73	39	37	38	42	44

Table 2. Measured annual mean concentrations at national network sites in Swansea Urban Area 2001- 2008 ($\mu\text{g m}^{-3}$)

	2001	2002	2003	2004	2005	2006	2007	2008
<i>Port Talbot</i>	22	19	22	21	19	18		
<i>Port Talbot Margam</i>								18
<i>Swansea</i>	36	31	34	37	34			
<i>Swansea Roadside</i>							31	32

No modelling is available for the hourly limit value. The hourly limit value was not exceeded at monitoring sites in this zone in 2008.

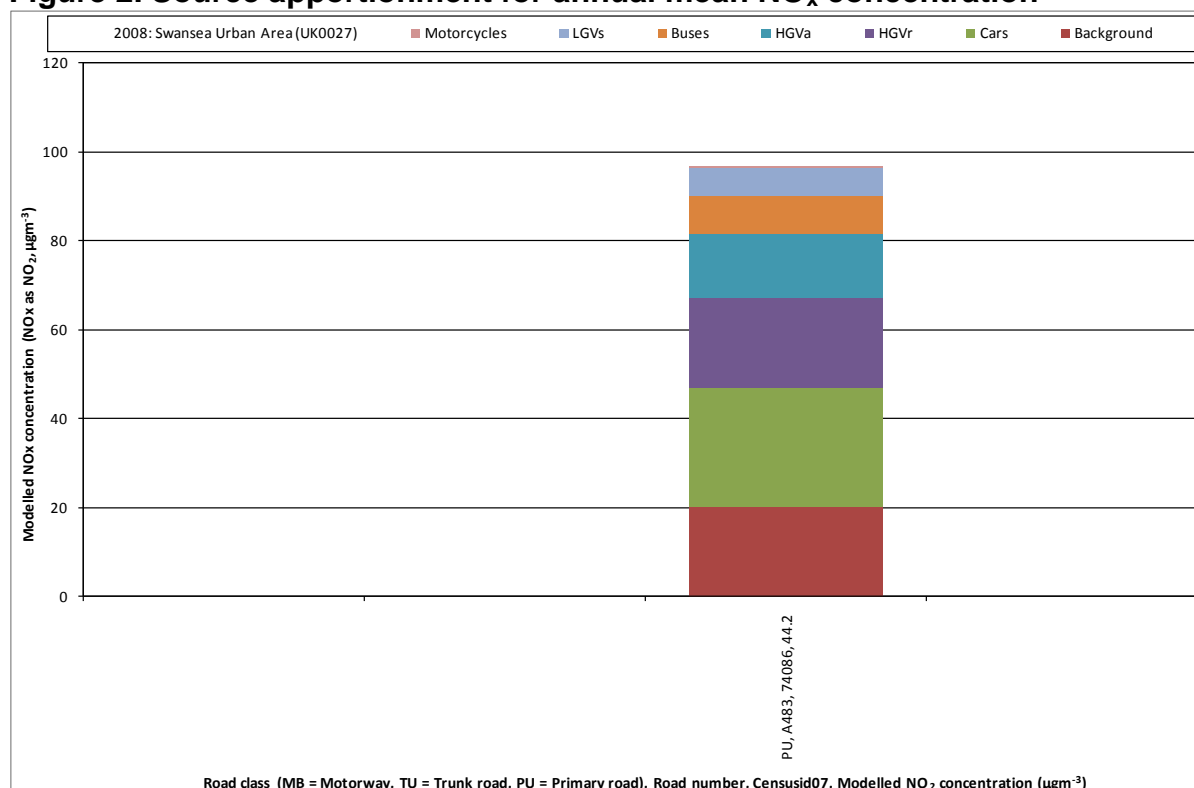
Section 3. Source Apportionment

Figure 2 shows the source apportionment for the road links with a modelled exceedance of the annual mean limit value in this zone.

The maximum NO_x contribution in $\mu\text{g m}^{-3}$ (NO_x as NO₂) from local traffic sources on roads with exceedances is as follows: Cars 26.7 $\mu\text{g m}^{-3}$, HGVr (rigid heavy goods vehicles) 20.3 $\mu\text{g m}^{-3}$, HGVa (articulated heavy goods vehicles) 14.5 $\mu\text{g m}^{-3}$, buses

8.6 $\mu\text{g m}^{-3}$, LGVs (light goods vehicles) 6.3 $\mu\text{g m}^{-3}$, motorcycles 0.1 $\mu\text{g m}^{-3}$. The maximum total background NO_x contribution is 20.2 $\mu\text{g m}^{-3}$ (NO_x as NO₂). In this instance there is only one road link with a modelled exceedance.

Figure 2. Source apportionment for annual mean NO_x concentration



Section 4. Measures

Measures prior to 2010

National

The current UK air quality plan: Annual report to the European Commission on the UK's plans to meet limit values under the first air quality daughter directive (1999/30/EC) for exceedances reported for 2007

(<http://cdr.eionet.europa.eu/gb/eu/aqpp/envsyokmq>) for exceedances reported for 2007 describes the national measures taken. This plan is currently being reviewed and updated with a view to notifying for a time extension for the limit values for some zones in the UK.

Local

Local measures are listed in Table 3. The impacts of the local measures on emissions and ambient concentrations are not available. The measures are expected to have had a beneficial effect in reducing ambient concentrations of NO₂.

Table 3. Local measures taken in the Swansea Urban Area (UK0027) zone prior to 2010

Date of implementation	Reference(s)	Spatial scale of the sources affected	Source sector(s) affected	Time scale of reduction	Is the measure regulatory? (y/n)	Type of measure	Administrative level at which the measure could be taken	Description	Title	Code of the measure
2008	Personal Communication	Local	A	C	N	B	A	Provision of some bus stops and shelters Gateway treatment to entrance to Neath Road from the Normandy Road roundabout Creation of traffic control point	Traffic management measures on Neath Road	Local_Swansea_E1
2008	Personal Communication	Local	A	C	N	B	A	Landore and Port Tennant Park and Ride sites are now fully operational. Fforestfach Park & Ride was opened during November/December 2006 and works are now complete with the site becoming fully operational during February 2008. Phase 1 of the dedicated express bus route serving the Landore Park and Ride site has been completed. Phase 2 was due to commence during September 2005 but did not commence until April 2008. <input type="checkbox"/> The construction of a new dedicated express bus route into the city centre from the Fabian Way Park and Ride site has been completed during 2007/early 2008.	Park and Ride provision	Local_Swansea_E2
2008	Personal Communication	Local	A	C	N	B	A	Promote bus priority routes Fund a local concessionary bus fares scheme for certain categories of people Provide free unlimited bus travel within the authorities area for elderly people	Improved Bus Provision	Local_Swansea_G1
2008	Personal Communication	Local	A	C	N	B	B	Transport Grant funded improvements to A48 Bus priority Demonstration Corridor completed during early 2005. Bus priority proposals for Neath Road being reviewed. Works have commenced for a new concept Metro service linking Morriston Hospital with the city centre and Singleton Hospital (see 6.7.4 above). The aim is to provide advantages of modern tram at modest costs. Envisaged that the service will use the Landore express bus route, thereby avoiding much of Neath Road and that bus priority will be introduced at key junctions along the route. Variable Message displays installed along a number of trial routes to improve dissemination of travel information to passengers. Bus shelters upgraded on a number of routes	Bus Corridor Enhancements	Local_Swansea_G2

Local_Swansea_G3	Enhancements of Bus and Rail Stations	Swansea High Street Transport Interchange was completed during March 2004. Funded through a combination of Transport Grant and Objective 1 funding, this scheme has provided improved access to the railway station by bus, taxi, and on foot, together with a new public realm, improved security and improved parking facilities. Discussion ongoing with network rail and Arriva Trains Wales on how to improve passenger facilities at the station itself.	B	B	N	C	A	Local	Personal Communication	2008
Local_Swansea_G4	Safe Routes to School	Safe Routes to School has been delivered in Swansea for the last 6 years with numerous schemes undertaken. • Currently, Safe Routes to school schemes have been developed at: <input type="checkbox"/> Clydach, <input type="checkbox"/> Brynhyfryd, <input type="checkbox"/> Pennard, <input type="checkbox"/> Birchgrove. <input type="checkbox"/> Gowerton Comprehensive and its Primary feeder schools Penllergaer <input type="checkbox"/> Whitestone Primary	A	B; C	N	C	A	Local	Personal Communication	2008
Local_Swansea_A1	City & County of Swansea Vehicle Fleet	Improvements are ongoing within the fleet of vehicles operated by the authority. With 40% of the potential green fleet vehicles converted to L.P.G., other bespoke solutions have been implemented to assist in managing down the environmental impact of a 750 vehicle fleet operation within the Council's area.	A	B	N	C	A	Local	Personal Communication	2008
Local_Swansea_E3	Traffic Management Systems with Air Quality Monitoring Feedback	Considerable efforts are being made to ensure that all data feeds into the system under development operate reliably. The major data feeds are: ♦ Vehicle by Vehicle Traffic flow ♦ Ambient Air Quality Monitoring data ♦ Meteorological forecast	A	B	N	C	A	Local	Personal Communication	2008
Local_Neath_Port_Talbot(HA)_E1	New Peripheral Distributor Road to relieve traffic from A48.	Two sections completed and remaining part expected finished by 2012.	A	B	N	B	A	Local	Neath Port Talbot Personal Communication	2008

Local_Neath_Port_Talbot_G1	Green Transport Plans	Ongoing through South West Wales Integrated Transport Consortium and planning system. Plans intended to promote the use of alternative forms of transport, reduce traffic flow volume and congestion.	C	C	N	B	A	Local	Neath Port Talbot Personal Communication	2008
Local_Neath_Port_Talbot_G2	School Travel Plans	Implemented in 15 schools. Plans intended to promote the use of alternative forms of transport, reduce traffic flow volume and congestion.	C	C	N	B	A	Local	Neath Port Talbot Personal Communication	2008
Local_Neath_Port_Talbot_A1	Reducing Council fleet vehicle emissions	Council fleet management promotes the replacement of older fleet vehicles with greener alternatives. All vehicles now at least Euro IV. Also one hybrid vehicle.	C	B	N	A	A	Local	Neath Port Talbot Personal Communication	2008
Local_Neath_Port_Talbot_A2	Transport in the community	Currently being piloted outside the AQMA.	A	D	N	A	A	Local	Neath Port Talbot Personal Communication	2008
Local_Neath_Port_Talbot_F1	New air quality website to be launched shortly with more information that will be useful for interested parties and those sensitive to pollution.	New air quality website to be launched shortly with more information that will be useful for interested parties and those sensitive to pollution.	A	C	N	A	A	Local	Neath Port Talbot Personal Communication	2008

Local_Neath_Port_Talbot(Environment Agency)_B2	Commercial/ Industrial Permits	Reduce pollution through permit systems and economic instruments. to reduce the risk that a relevant air quality limit value or alert threshold will be exceeded; or where it is not possible to prevent the occurrence, to limit its duration or severity.	A	B	Y	C	B	Local	Neath Port Talbot Personal Communication	2008
<p>Administrative level at which the measure could be taken: A: local; B: regional; C: national.</p> <p>Type of measure: A: economic/fiscal; B: technical; C: education/information; D: other.</p> <p>Time scale of the concentration reduction achieved by the measure: A.: short term; B: medium term (about a year); C: long term.</p> <p>Source sector affected by the measure: A: transport; B: industry including heat and power production; C: agriculture; D: commercial and residential sources; E: other.</p>										
Section 5. Summary of baseline and projection data <p>Baseline Data 2008</p> <ul style="list-style-type: none"> The highest measured or modelled annual mean NO₂ concentration in this zone in 2008 was the modelled concentration of 44.2 µgm⁻³ (an exceedance of the annual mean limit value). 2.5 km of road length was modelled to exceed the annual limit value. There were no reported exceedances of the hourly mean limit value. <p>Baseline Projections 2010 – deadline for compliance- taking all committed measures into account pre 2010.</p> <ul style="list-style-type: none"> The highest modelled annual mean NO₂ concentration in this zone for 2010 is projected to be 36.5 µgm⁻³ (compliant with the annual mean limit value). There were no reported exceedances of the hourly mean limit value. 										
Section 6. Conclusions <ul style="list-style-type: none"> Zone UK0027 Swansea Urban Area is expected to be compliant with the annual mean limit value by 2010. Zone UK0027 Swansea Urban Area was already compliant with the hourly mean limit value in 2008. 										