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Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO_2) in the UK

List of UK and National Measures

September 2011

Llywodraeth Cymru
Welsh Government

The Scottish Government

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This document is also available on the UK-AIR website at:

http://uk-air.defra.gov.uk/library/no2ten

Published by the Department for Environment, Food and Rural Affairs

AIR QUALITY PLANS FOR THE ACHIEVEMENT OF EU AIR QUALITY LIMITS FOR NITROGEN DIOXIDE (NO_2) IN THE UK: LIST OF UK AND NATIONAL MEASURES

Introduction

I. This document sets out over 90 key UK and National measures that have and will help to achieve the nitrogen dioxide (NO_2) limit values in the EU Ambient Air Quality Directive (2008/50/EC)[1] as soon as possible.

II. This list of measures supports and should be read alongside the UK overview of air quality plans for the achievement of the NO_2 limit values, the air quality plans themselves which cover the 40 UK air quality zones still to meet the NO_2 limits, and the technical report detailing the assessment methodology for the plans. All of these documents can be viewed on the UK-AIR website[2]. Together, they form the basis of the UK's submission to the European Commission in September 2011 setting out how the UK will meet the NO_2 limit values in the shortest time possible.

III. The measures in this document cover either whole or part of the UK or are specific to England, Scotland, Wales or Northern Ireland. The measures listed have been introduced since the NO_2 limit values were agreed in 1999 and also include measures that have either just taken effect or will be implemented shortly. Where possible, costs of the measures have been included and efforts have been made to quantify their impacts. Measures that have been included in the baseline modelling work underpinning the air quality plans are also identified in the list below.

[1] *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF*
[2] *http://uk-air.defra.gov.uk/library/no2ten*

LIST OF UK AND NATIONAL MEASURES IMPLEMENTED OR PLANNED. NOTE THAT THESE ARE ADDITIONAL TO IMPLEMENTATION OF EXISTING AND PLANNED EU DIRECTIVES/REGULATIONS.

ASTERISKED MEASURES WERE INCLUDED IN THE BASELINE MODELLING

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
UK MEASURES					
FREIGHT					
Mode Shift Revenue Support* **UK_G3**	1 April 2010 – 31 March 2015	Grant to offset the greater operating costs of transport by rail or inland waterway, compared to road, in order to encourage modal shift.	England - Approx. £20m a year budget to 2013. Indicative budget of approx. £19m/year for 2013/14 and 2014/15. Wales – approx. £100,000 to date.	Increasing volumes of traffic converting from road to rail / water. Grant paid only on delivery. Some routes have now become economically viable and no longer qualify for grant. Expect in the region of 800,000 lorry journeys to be removed in 2010-11. This is likely to significantly reduce emissions on roads and improve air quality.	Estimated 0.3% to 0.7% reduction in total road transport NO_X emissions per annum between 2011 and 2015
Rail Environmental Benefits Procurement Scheme* **UK_G4**	1 April 2007 – 31 March 2010	Grant to offset the greater operating costs of transport by rail, compared to road, in order to encourage modal shift.	England -2007/08 approx £17m. 2008/09 approx £18m. 2009/10 approx £19m.	Increasing volumes of traffic converting from road to rail / water with services becoming more productive and competitive over time. Grant paid only on delivery. Around 850,000 lorry journeys	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
				each year removed from the road. This is likely to significantly reduce emissions on roads and improve air quality.	
Company Neutral Revenue Support / Track Access Grant* **UK_G5**	Up to 31 March 2007	Grant to offset the greater operating costs of transport by rail, compared to road, in order to encourage modal shift.	Unknown.	Encouraged freight traffic to convert from road to rail / water. Grant paid only on delivery. Around 825,000 lorry journeys / year removed from road. This significantly reduced emissions on roads and improved air quality.	Not quantified but improvements in air quality expected.
Waterborne Freight Grant **UKexceptWales_G6**	2009-2015	Grant to offset the greater operating costs of transport by coastal and short sea shipping, compared to road, in order to encourage modal shift. Up until 31 March 2010, this grant also covered inland waterways which since 1 April 2010 come under the Mode Shift Revenue Support scheme. The scheme has State Aid approval to operate until 31 March 2015	Approx £76k in 2009-10. Budgeted to spend £440k in 2010-11 and £270k in 2011-12.	Increasing volumes of traffic converting from road to water and for these water services to be viable without grant support within 3 years. Grant paid only on delivery. Approximately 66,000 fewer lorry journeys between 2009-10 and 2011-12.	Not quantified but improvements in air quality expected.
Freight Facilities	1990-2010	Grant to offset the capital costs of rail or water freight handling	England -Recent budget 2007-08 £7m	Freight to be moved by road is instead taken by rail or water	Not quantified but improvements in air

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Grant* **UKnotNI_G7**	England, 1990 onwards Scotland and Wales.	facilities necessary to enable freight to move by rail or water, rather than by road.	2008-09 £4m 2009-10 £7m England - Recent spend 2007-08 £0.7m 2008-09 £0.5m 2009-10 £1.2m Since 2001 the Welsh Government has provided £4.8m.	using the new facilities. Number of HGV journeys removed differs by scheme. Each scheme is monitored over a 10 year period post grant being provided. In England approximately 70 schemes continue to be monitored with approximately 50% currently achieving 80% or more of the anticipated environmental benefits (s envisaged at the time of grant award), including those which are delivering more than 100%. A further 30% are delivering between 50-79% of the benefits envisaged, with the remainder delivering less than 50%. The Grants in Wales will enable 6.038 m tonnes of goods to be carried by rail, removing 5.8million lorry miles annually.	quality expected.
CleanUp Programme*	England 2000-2006.	The CleanUp initiative provided a number of incentives for business to improve environmental	£39.5m.	Funded 13,770 vehicles through the scheme which delivered reductions in emissions of NO_X	Not quantified but improvements in air quality expected

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
England andScotland _D1	Scotland 2002-2006.	performance by offering government grants to either fit emission reduction technologies or to convert large diesel vehicles to an alternative fuel. Grants of up to 75% were available to fit emission reduction technology or to convert diesel vehicles to CNG. The CleanUp initiative also established block grants with trap manufacturers, which helped speed up the process of applying for a grant and reduced the administrative burden on hauliers.		and Particulate Matter.	
Quiet Deliveries Demonstration Scheme (not in Wales) **UKnotWales _E1**	Jan 2010 – March 2011	Retail sector. Research to evaluate the scope for benefits for the local environment from rescheduling deliveries out of peak periods, based on six trial locations.	Approx. £256,000.	Expect environmental benefits in terms of reduction in congestion and therefore improved air quality and also noise. The value of these improvements in health terms would be worth at least double the cost to Government.	Not quantified but improvements in air quality expected
"Delivering the Goods" guide and toolkit	2006-07	Retail sector. Initial provision of guidance on how to enable deliveries out of peak periods	Not available.	Was taken forward by Freight Transport Association and underpinned "Silent Approach" developed by FTA and Noise	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
UK_E2				Abatement Society. "Silent Approach" trial in Wandsworth removed approx 700 lorries / year from peak traffic, with consequent reductions in congestion-related air pollution.	
Freight Consolidation Centre (FCC) research study **UK_F1**	Study reported in July 2010. Also see section on Wales only measures.	FCCs are distribution centres, situated close to a town centre, shopping centre or construction site, at which part loads are consolidated and from which a lower number of consolidated loads are delivered to the target area.	Study cost the Department for Transport (DfT) £43,000.	The FCCs can provide significant economic and social benefits to local areas by reducing the overall number of lorry journeys on the "final mile" and thus reducing congestion and emissions and improving air quality. A Dft study identified potentially significant AQ benefits – scale dependent on location, nature of consolidation centre and manner in which "final mile" deliveries affected. DfT has published a report to assist industry and local authorities in considering the application of FCCs as part of their strategic planning process. This is available at:	Not quantified but improvements in air quality demonstrated by trials.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
				http://www.dft.gov.uk/publications/freight-consolidation-centre-study/#	
RAIL					
Rail franchise requirements to improve air quality **UK_A3**	First introduced in 2006 and updated progressively. To be introduced in Wales in future.	Franchise bidders had to explain how they would reduce the environmental impacts of running trains including by managing air quality, noise and carbon emissions. Action due in specifying next (2018) Wales and Border Franchise.	Low cost - requirements would not have placed substantial burden on bidders or central Government.	For air quality, the main focus would be on reducing unnecessary diesel engine idling at stations and depots. Vehicle idling leads to higher emissions of pollutants. In Wales Train Operating Companies adopting "eco driving" techniques which may improve air quality.	Not quantified but improvements in air quality expected.
Passenger rail subsidy **UK_A4**	1991/2 onwards.	The Government heavily subsidises rail travel, keeping fare prices and freight costs down, and thereby encouraging modal shift to rail.	Government support increased from approx £1.5bn to £5bn from 2000-2006.	By subsidising rail fares more passengers will choose this mode of transport if it offers savings over the use of private vehicles. Removing vehicles from the road reduces emissions, congestion and improves air quality.	Not quantified but improvements in air quality expected.
Further electrification of the railway network	2011-2018	Electrification of lines in England, Wales and Scotland including the Great Western main line from London to Cardiff. Enables replacement of diesel trains.	£704 million for the electrification of the Great Western main line.	To enable faster, more reliable electric trains to run on the line. No air pollutants directly emitted.	Air pollution reductions in and around major urban train stations along route as diesel trains are replaced.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
UKNotNI_A17					
VEHICLE STANDARDS and TESTING					
UK In Service Conformity emissions test programme **UK_A5**	2004 onwards	UK programme of testing in-service cars and vans to assess compliance with vehicle standards.	£200k per annum.	Monitors effectiveness of vehicle manufacturers' measures to ensure in service conformity. Initiates corrective action where vehicle emissions control faults are identified. Ensures control over vehicle emissions and therefore air quality.	Not quantified but improvements in air quality expected.
BUSES AND HGVs					

<table>
<tr><th>NAME</th><th>DATES AND SCOPE</th><th>DESCRIPTION</th><th>COST TO GOVERNMENT</th><th>OBJECTIVE</th><th>AIR QUALITY BENEFITS</th></tr>
<tr>
<td>Reduced Pollution Certificate (RPC) Scheme*

UK_A1</td>
<td>1999 onwards.</td>
<td>Tax incentives to tackle pollution from road traffic. Operators of HDVS whose vehicles had either been modified by fitting an approved device to the exhaust system, had been re-engineered to a higher environmental standard or had been fitted or converted to run on petrol or gas were potentially eligible to be licensed in new taxation classes with lower (£500 less) rates of Vehicle Excise Duty (VED).

The environmental standard required for licensing in the new taxation class was changed on 5 January 2001 to fall in line with European Emissions Standards, and different procedures relate to vehicles first tested for compliance with the scheme before and after that date.

To obtain a Reduced Pollution Certificate after January 2001 a vehicle had to be constructed or adapted so as to achieve a considerably higher standard of particulate matter or gaseous</td>
<td>Unknown.</td>
<td>Reductions in VED are an incentive for operators to use lower emission vehicles. Lower emissions should lead to an observed decrease in pollutant concentrations for those pollutants being regulated under the scheme.

<table>
<tr><th>Euro-standard incentivised</th><th>Number of RPCs issued</th></tr>
<tr><td>Pre-Euro</td><td>221</td></tr>
<tr><td>Euro I</td><td>530</td></tr>
<tr><td>Euro II</td><td>6,998</td></tr>
<tr><td>Euro III</td><td>22,408</td></tr>
<tr><td>Euro IV</td><td>17,727</td></tr>
<tr><td>Euro V</td><td>33,155</td></tr>
</table>

The table above shows the figures for take up of the scheme:
For further details see:
http://www.businesslink.gov.uk/bdotg/action/layer?topicId=1081967657</td>
<td>Not quantified but should result in reduced emissions from diesel vehicles, and subsequent improvements in air quality.</td>
</tr>
</table>

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		pollutant emissions than the standard required by the EU emissions directive in force at the time of manufacture.			
Free bus travel for older and disabled people* **UK_G2**	2001 onwards in England and NI 2002 onwards in Wales 2006 - Scotland wide scheme	Eligible older and disabled people entitled to a bus pass giving access to free local bus travel anywhere in the country of issue. Over eleven million people are eligible for the concession. In Northern Ireland, eligible older and disabled people are entitled to a bus pass (SmartPass) which gives them access to free bus travel anywhere in NI. Over 280,000 people are eligible for the concession in NI. In Wales, disabled people who satisfy the issuing local authority that they require extra help to travel by bus, may apply for an escort pass to allow the escort to travel free when accompanying the disabled person. From 1 April 2011 eligibility was extended to seriously injured service personnel and veterans who are resident in Wales.	£1bn on travel concessions - the majority from Central Government. Wales - approximately £69 m per annum. Northern Ireland- £32m. Local authorities receive funding from Government for the statutory scheme through Formula Grant from the Department for Communities and Local Government (CLG) (not separately identifiable) and Special Grant from DfT of £223m in 2010/11.	A 35% increase in bus travel – evidence taken from a Passenger Focus Research Report. By increasing public transport usage among older and disabled people the scheme contributes to reducing congestion and emissions.	Not quantified but improvements in air quality expected from reduction in car use.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
SHIPPING					
Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 **UK_A2**	December 200 onwards.	Survey and inspection work, met through fees charged to the ship owner, is carried out to ensure implementation of the regulatory requirements. Applies to UK-flagged and foreign-flagged merchant ships.	No cost.	Reduction in marine air pollution by NO_X, SO_X and ozone depleting substances, in line with international commitments (contained in Annex VI to the MARPOL Convention). Health benefits, especially to coastal and port communities. The Impact Assessment for the Merchant Shipping Regulations estimated that implementing MARPOL Annex VI will result in 20 fewer deaths and a £26 million reduction in attendant economic loss annually. See: http://www.ialibrary.berr.gov.uk/uploaded/081114%20-%20EM%20-The%20merchant%20shipping%20(prevention%20of%20air%20pollution%20from%20ships)%20Regs%202008.doc.pdf	
SUSTAINABLE TRAVEL					
Smarter Choices and Sustainable Travel Towns*	2004-2009. Wales-2009 onwards.	Smarter Choice transport measures have been part of the local authority policy 'toolkit' for many years. Within the scope of these measures are so-called softer	Wales - £10m revenue funding. For all measures likely to be: approx £4m revenue for smarter choices, around	Estimate that a 'high intensity' introduction of these measures may deliver a nationwide reduction in traffic of 11% and a reduction in peak urban traffic	The DfT assessment of benefits did not include any specific assessment of air quality benefits but it

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
UK_G1		actions to manage demand for mobility rather than more traditional or so-called 'harder' actions which aim to provide infrastructure and managed flow of whatever travel demand arises. In this context Smarter Choices include a wide range of travel management options including institutional and individual travel planning to provide alternatives to the default option which is a car journey or journeys. Local authorities are implementing "smarter choices" measures in their action plans under local air quality management. The UK government is providing grants to local authorities to implement these measures. The Department for Transport has conducted a Sustainable Travel Town study which has led to further analysis and information on best practice.	£21.5m capital. £10 million over 5 years to Darlington Peterborough and Worcester (who added £5M funding themselves) for the Sustainable Travel Demonstration Towns programme. Wales - Cardiff, Gwynedd and Anglesey for infrastructure improvements. Also some smaller scale measures in Aberystwyth, Haverfordwest and Carmarthen. Targeted promotion of sustainable ways to travel to follow from mid 2011.	of 21%. A 'low intensity' introduction may deliver a nationwide reduction in traffic of 2-3% and a peak urban traffic reduction of 5%. Typically this is illustrated to mean up to 50% of employees engaged in travel plans in urban areas, 30% of the urban population engaged with travel planning, and 30% of the population involved in teleworking and so on. A maximum range of 2-11% appraised reduction in traffic emissions applies. Based on the Dft trials - a 7-9% reduction in car *trips* or 5-7% reduction in car *distance* for a total annual reduction of 84million car km was estimated. This activity was transferred mostly to walking, cycling and bus modes. It is notable that the benefit-cost ratio of the programme was evaluated to be approximately 4.5, a good indication that benefits do in fact outweigh costs.	is anticipated that the measure has benefitted air quality as people chose not to travel, or replaced car trips with sustainable travel modes. A 2% to 11% reduction in emissions across the UK.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Local authority Cycle Training Grants* **UK_D6**	2006/7 – 2010/11	Bikeability Level 2 is an approved cycle training course normally undertaken by children in years 5-6 (ages 10-11).	2006/7 0.656m 2007/8 1.190m 2008/9 2.986m 2009/10 5.528m 2010/11 6.043m Grant supplements LA funding of training.	Encourages children to cycle – and therefore provides an alternative transport form and modal shift. Health benefits from exercise. Reduces car and bus travel to school and therefore reduces emissions and concentrations of air pollution.	Not quantified but improvements in air quality demonstrated by trials.
Cycle City or Towns* **UK_G8**	2005/6-2010/11	Pioneer innovative ways to increase cycling in 18 cycle city and towns.	2005/6 1.362m 2006/7 2.949m 2007/8 3.178m 2008/9 9.576m 2009/10 26.797m 2010/11 18.990m Departmental funding is match funded by local authorities.	Encourages more people to cycle and therefore provides an alternative transport form and modal shift. Reduces car travel and therefore reduces emissions and concentrations of air pollution.	Not quantified but improvements in air quality expected
Links to school (and cycle parking)* **UK_G9**	2005/6-2010/11	Network of traffic-free and traffic calmed routes linking residential areas and schools to the National Cycle Network.	2004/5 8,818m 2005/6 £1,569m 2006/7 £2,702m 2007/8 £1,283m 2008/9 £2,482m 2009/10 £10,041m 2010/11 £11,873m	The purpose of the funding is to encourage children to walk and cycle to school. Altogether the grant will fund 250 safer links to approximately 500 schools. Reduces car and bus travel, therefore reduced emissions and concentrations of pollution and helps to ease congestion at peak times.	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Bike and Rail Funding* **UK_G10**	2009 - 2010/11	Cycle access, improved cycle parking at rail stations and cycle hubs.	£14 m package was launched to transform facilities for cyclists at rail stations.	Encourages more people to cycle and use train. Reduces car travel and therefore reduces emissions and concentrations of air pollution.	Not quantified but improvements in air quality expected.
Finding New Solutions Work and Leisure projects* **UK_G11**	2009-2010/11	Grants to large employers, local authorities and tourist destinations. Work projects demonstrate the interventions that encourage staff to cycle to and from work. Leisure projects explore whether it is possible to convert leisure cyclists to everyday cyclists.	£7.9m over two years for 3 leisure projects and 9 work projects.	Encouraging more people to cycle for everyday journeys thereby reducing congestion, pollution and improving people's health through exercise.	Project ongoing and will be evaluated for success and impacts in 2011.
LOCAL AUTHORITIES					
Local authority pollution prevention and control* **UK_B2**	Since 1991	England, Wales and Northern Ireland have a system of Local Authority Pollution Prevention and Control (LAPPC) which regulates installations known as Part Bs (and Part C installations in Northern Ireland), such as smaller foundries, many solvent-using processes, timber activities, crematoria, car refinishing establishments and service stations. Scotland has an equivalent system for which SEPA is the responsible authority under the Pollution Prevention and Control (Scotland) Regulations	Self funding.	Reduced emissions to air from businesses required to abate air pollution with Best Available Techniques as a condition of their operating permit.	Not quantified, but 19,000 installations upgraded in line with BAT.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		2000. For England and Wales, see: *http://www.defra.gov.uk/environment/quality/industrial/las-regulations*; for Northern Ireland, *see* http://www.ni-environment.gov.uk/pollution-home/ippc.htm*; for Scotland see:Scottish Environment Protection Agency : Process industry regulation.* These installations fall outside the scope of the IPPC Directive, but are in effect regulated following the same procedures, albeit only in relation to the control of air emissions, including releases of particulate matter. In England and Wales, the installations are regulated by local authorities having regard to national statutory guidance. Separate statutory guidance for each sector specifies emission limits, monitoring and other standards that constitute Best Available Techniques (BAT). There is equivalent guidance for Northern Ireland and Scotland.			

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Local Air Quality Management (LAQM) Framework* **UK_H3**	Since 1996	Local authorities are required to assess their local air quality and those which do not meet the national air quality objectives (which are equal to or more stringent than the Directive's limit values) are required to produce Action Plans containing measures to work towards meeting the objectives. Defra provides guidance and advice on measures to improve air quality including advice on low emission zones; retrofit of abatement equipment and promoting low emission vehicles; Defra also supports and promotes the use of low emission strategies to bring about reductions in NO_X emissions including through the control of land use planning and development. For further details see: *http://www.defra.gov.uk/environment/quality/air/air-quality/laqm/*	The 2007 Air Quality Strategy estimated the admin burden of LAQM as £10m annually.	An assessment framework targeting local hotspots which might not otherwise be detected by the national assessment. Measures undertaken at a local level will be specific to the local circumstances and must work towards meeting the UK air quality objectives. Having Air Quality Management Areas ensures a more robust assessment of developments by local authorities, cleaner air and a reduction in overall UK emissions impacting on human health and the wider environment. Low emission strategies and Land use planning policies reduce the need to travel; have potential to influence modal shift etc and help to improve building energy efficiency. These measures all support reductions in emissions of NO_X and other pollutants For further details see	

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
				http://www.lowemissionstrategies.org/downloads/LES_Good_Practice_Guide_2010.pdf	
LOW EMISSION VEHICLES					
Plug-in Car Grant **UK_D2**	Funding for the life of this parliament	Under the scheme, consumers will be able to apply for up to £5,000 to help purchase a qualifying electric, plug-in hybrid, or hydrogen fuel-cell vehicle.	£300m.	Greater uptake of zero tailpipe emission vehicles. This is likely to reduce emissions of pollutants in urban areas and improve air quality. When compared with a Euro 4 standard equivalent, an electric vehicle driving in an urban environment could provide average annual savings of 3000 grams of NO_x per annum.	Not quantified but improvements in air quality expected in urban areas.
Plugged-in Places **UK_D3**	March 2010 – March 2013	Government has allocated money to fund the development of recharging infrastructure needed to support usage of electric vehicles. LAs providing matched funding. Northern Ireland has been awarded funding under the Plugged in Places initiative and both the Department for Regional Development and the Department of Environment have jointly committed funding to this initiative.	£30m.	Greater uptake of zero tailpipe emission vehicles. This should reduce emissions from vehicles particularly in urban areas and improve air quality. Will help fund 9,700 electric car charging points	Not quantified but improvements in air quality expected in urban areas.

<table>
<tr><th>NAME</th><th>DATES AND SCOPE</th><th>DESCRIPTION</th><th>COST TO GOVERNMENT</th><th>OBJECTIVE</th><th>AIR QUALITY BENEFITS</th></tr>
<tr><td>PowerShift programme

UK_D4</td><td>1997/98

Enhanced in August 2004

Closed 2005/06.</td><td>The PowerShift programme had a remit to reduce air pollution emissions through the promotion of cleaner alternative fuels, such as LPG and Natural Gas, and to promote new cleaner technologies such as Electric Vehicles and Hybrids

It provided grants covering the purchase of LPG, natural gas, hybrid and electric vehicles, as well as grants towards the cost of converting vehicles to LPG and natural gas.

From FY 2003/4 LPG vehicles received a fixed £700 grant.

Hybrids were allocated a standard grant rate (originally £1,000, reduced to £700).

Electric Vehicles' grant values were historically based on battery leasing costs, but were changed in march 2003 to a fixed grant of £200-£1,500 depending on vehicle type and size.</td><td colspan="3">
<table>
<tr><th>Year</th><th>Policy Cost (£)</th><th>No. Vehicles</th><th>NO_X/kg</th></tr>
<tr><td>97-98</td><td>567,799</td><td>195</td><td>41,592</td></tr>
<tr><td>98-99</td><td>1,547,647</td><td>648</td><td>81,479</td></tr>
<tr><td>99-00</td><td>2,833,931</td><td>1,665</td><td>109,841</td></tr>
<tr><td>00-01</td><td>6,180,617</td><td>4,243</td><td>342,213</td></tr>
<tr><td>01-02</td><td>5,318,418</td><td>2,945</td><td>193,767</td></tr>
<tr><td>02-03</td><td>4,967,381</td><td>2,194</td><td>151,237</td></tr>
<tr><td>03-04</td><td>7,040,787</td><td>4,774</td><td>305,767</td></tr>
<tr><td>Total</td><td>28,456,580</td><td>16,664</td><td>1,225,896</td></tr>
</table>

Total vehicles funded – 24207
Total lifetime NO_X saved - 2776
Total PowerShift grants costs - £32m
Total PowerShift management costs - £14m
Total PowerShift programme cost - £46m
Funded primarily by the Department for Transport (DfT), Scottish Executive and Welsh Government.
</td></tr>
<tr><td colspan="6">ROADS</td></tr>
</table>

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Traffic Officer Service (England and Wales only) **England and Wales_A6**	April 2004. In Wales since 2009 on M4 Motorway and A55 Expressway.	The Traffic Officer Service was launched in 2004 in the West Midlands and now covers all 2025 miles of motorway in England from seven regional control centres and 32 outstations. Traffic Officers patrol the whole of England's motorway network. There are around 1,500 Traffic Officers and team managers based on road and in the control rooms working to reduce incident related congestion, improve journey time, reliability, improve safety and free up police resources to focus on criminal activity, 24 hours a day, seven days a week.	Unknown.	By clearing incidents quickly, Traffic Officers reduce the impact of incident related congestion and also reduce the risk of secondary incidents. Reduced emissions from idling vehicles caught up in congestion.	Not quantified but improvements in air quality expected.
Extension of Traffic Regulations to cover the emissions standards of buses **England A_15**	Introduced in 2008	Introduced through The Public Service Vehicles (Traffic Regulation Conditions) Amendment Regulations. Allows local authorities to request the Traffic Commissioner for England to attach a Traffic Regulation Condition to a bus operator's licence requiring specified Euro standards.	No costs data available.	Reduced emissions from buses and therefore improved air quality.	Not quantified.
The Road	Introduce	The Regulations enable Local	No costs data available.	Reduce levels air pollution	Not quantified.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Traffic (Vehicle Emission) (Fixed Penalty) (England) Regs 2002 **England A_16**	d 2002 ongoing	Authorities with designated Air Quality Management Areas to test vehicles at the roadside and to issue fixed penalties to drivers whose vehicles fail to meet the prescribed emissions standards – the prescribed fixed penalty amount is £60. LA's can also issue a fixed penalty (£20) to drivers who leave their engines idling unnecessarily.		caused by poorly maintained vehicles and vehicles idling unnecessarily.	
CEEQUAL (Civil Engineering Environmental Quality Awards) Scheme. For Major Works Projects. **UK_H13**	2009 onwards.	CEEQUAL is the assessment and awards scheme for improving sustainability in civil engineering projects. The scheme rigorously assesses performance across 12 areas of environmental and social concern. It rewards project teams in which clients, designers and constructors go beyond the legal and environmental minima to achieve distinctive environmental and social standards.	Unknown at this stage. The range is between £2,995 for projects up to £2 million, and £2,700 per £100 million.	Dependant on type of civil engineering project. Different design concepts for waste water treatment works or road schemes. Reduction in emissions during site works and during operation of facility / infrastructure.	Not quantified but improvements in air quality expected.
CLEANER TRANSPORT FUELS					
Fuel duty incentives for ultra low sulphur	From 1999 (in advance of EU	To reflect concerns over local air quality, and to encourage the manufacture and use of ultra-low sulphur diesel, the tax (duty plus	Not quantified.	Led to an immediate market switch to ultra low (50mg/kg) sulphur fuels and therefore reduced SO_2 emissions. The	Reduced tailpipe emissions and lower concentrations of SO_2. Some positive

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
diesel* **UK_C1**	2005 mandatory date for ULSD introduction) to 2008 when duty was simplified	VAT) on diesel rose in 1998 to by 5.5 pence per litre, and on ultra-low sulphur diesel by 4.4 pence per litre. The duty differential between diesel and ultra-low sulphur diesel was increase to 3 pence per litre. In 1999. In 2008 the fuel duty rate structure was simplified to a single rate for diesel and petrol.		virtual removal of sulphur should improve the efficiency and prolong the life of exhaust catalysts. Additionally, sulphur-free petrol is "enabling technology" in that it can optimise the efficiency of new direct injection petrol engines that improve fuel efficiency and reduce emissions of carbon dioxide when combined with de-NO_X exhaust catalysts. Sulphur-free diesel should also slightly reduce nitrogen oxide emissions from diesel engines and assist the efficiency of vehicles fitted with re-generative particulate filters within the exhaust system.	impacts (not quantified) on NO_X emissions.
Fuel duty incentives for ultra low sulphur petrol* **UK_C2**	from 2001 (EU mandatory date was again 2005)		As above.	As above.	As above.

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INDUSTRIAL POLLUTION					
Industrial Pollution Prevention and Control Implementation Guidelines* **UK_B1**	From 1997	The Department for Environment Food and Rural Affairs (Defra), the Welsh Government, the Scottish Environment Protection Agency (SEPA), and the Northern Ireland Environment Agency have produced detailed guidance for regulators and operators to ensure effective implementation of the IPPC Directive (2008/1/EC). For IPPC guidelines relating to England and Wales, see: http://www.defra.gov.uk/environment/quality/industrial/, for guidelines concerning Scotland, see: *http://www.sepa.org.uk/air/process_industry_regulation/ippc_directive.aspx*; for guidelines concerning Northern Ireland, see: *http://www.ni-environment.gov.uk/pollution-home/ippc.htm*.	Unknown.	Reduced emissions from industry required to abate air pollution with Best Available Technologies as a condition of their operating permit. Cleaner air, notably in urban areas and a reduction in overall UK emissions impacting human health and the wider environment.	29% reduction in NO_X emissions between 2000 and 2009.
CLIMATE CHANGE MEASURES					
The UK Carbon Plan **UK_H1**	2011-2015	The UK Carbon Plan, first published in March 2011, is a Government-wide plan of action on climate change, including domestic and international activity, which sets	Still to be quantified.	To set out the steps the UK Government will be taking to deliver a low carbon economy and meet the UK's statutory carbon budgets.	Many of the measures within the Carbon Plan will have positive impacts on air quality where

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		out actions and deadlines for the next 5 years. See: *http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_plan/carbon_plan.aspx*			energy use can be reduced and energy efficiency improved, and where a shift to non-combustible energy sources can be achieved.
The Carbon Capture and Storage (CCS) demonstration project **UK_B4**	2010-2014	The main source of learning and experience about the different carbon capture and storage technologies in the UK. Focus on how best to construct these plants, what they will cost (to build, maintain and operate), what their operational reliability and flexibility will be, as well as identifying the main areas for improvement.	Up to £1bn of capital funding has been made available for the first CCS demonstration project. This is the largest public funding contribution in the world to a single CCS project, ensuring that the UK will continue to lead the way on large-scale demonstration. The Coalition Government is committed to providing public support for 4 CCS commercial-scale demonstrations.	Carbon Capture & Storage is a mitigation technology essential in tackling global climate change, and ensuring a secure energy supply. Without CCS, limiting a rise in global temperature to 2°C will be that much more difficult and costly; up to 70% more according to the International Energy Agency (IEA). The development and deployment of CCS is critical in allowing us to reduce carbon dioxide emissions from the power sector, given the need to maintain fossil fuels as part of a diverse and secure low-carbon energy mix.	Impacts through changes in energy generation/use as a result and air quality benefits as a result where there is a reduction in use of energy from combustion.
The Renewable Heat	March 2011-15.	The Renewable Heat Incentive policy to revolutionise the way heat is generated and used in	£860 million 2011-15.	The RHI's objective is to increase significantly the level of renewable heat used in the	Reduced emissions and air quality benefits as

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Incentive (RHI) (*http://www.decc.gov.uk/rhi*) **UKnotNI_B5**		buildings and homes. This is the first financial support scheme for renewable heat of its kind in the world.		UK. Increasing renewable heat is key to the UK meeting its renewable energy targets, reducing carbon emissions, ensuring energy security and helping to build a low carbon economy. The Renewable Heat Incentive (RHI) will help accelerate deployment by providing a financial incentive to install renewable heating in place of fossil fuels.	combustion technologies are replaced and renewed by non-combustion renewable.
Feed in tariffs for renewable electricity **UKnotNI_B6**	April 2010 onwards. Amended Order 2011.	A system of feed-in tariffs to incentivise small scale (less than 5MW), low carbon electricity generation. The scheme will require Licensed Electricity Suppliers (FIT Licensees) to pay a generation tariff to small scale low-carbon generators for electricity generated (whether or not such electricity is exported to the national grid) and an export tariff to them where such electricity is also exported to the national grid. It is intended that FITs will open up low-carbon electricity generation beyond the traditional energy companies by making it more cost effective for	The cost of the feed in tariff is not borne by Government. It is a levy on Licensed Electricity Suppliers who pass this cost on to their customers. Further information on this framework can be found here: *http://hm-treasury.gov.uk/psr_controlframework_decc.htm*	These feed-in tariffs work alongside the Renewables Obligation (RO), which will remain the primary mechanism to incentivise deployment of large-scale renewable electricity generation, and the Renewable Heat Incentive (RHI) which will incentivise generation of heat from renewable sources at all scales.	Reduced emissions and air quality benefits as combustion technologies are replaced by low carbon, and in some cases non combustion energy generation techniques.

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		communities and householders to buy the units.			
Domestic energy efficiency measures – CERT **UKnotNI_B7**	2008-2012	The Carbon Emissions Reduction Target (CERT) is one of the Government's key mechanisms for improving energy efficiency in homes. The Carbon Emissions Reduction Target (CERT) requires all domestic energy suppliers with a customer base in excess of 50,000 customers to make savings in the amount of CO_2 emitted by householders. Suppliers meet this target by promoting the uptake of low carbon measures thereby assisting householders to reduce the carbon footprint of their homes.	Nil (costs met by energy suppliers which can be passed onto energy consumers).	The primary aim of CERT is to make a contribution to the UK's legally binding target under the Kyoto protocol (to cut greenhouse gas emissions by 12.5% below 1990 levels by 2008-2012) and the Climate Change Act 2008 requirement (to cut emissions of green house gas emissions by 80% below 1990 levels by 2050).	CERT aims to deliver a target of 293million lifetime tonnes of CO_2. Installed measures help to improve comfort, reduce energy bills and have improved local environmental benefits resulting from the reduction in emissions. The decision to the extend CERT from April 2011-December 2012 will lead to air quality benefits of approx £989 million.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Domestic energy efficiency measures – Green Deal and Energy Company Obligation (ECO) **UK_B11**	Late 2012 onwards.	The Green Deal will be a market led energy efficiency scheme with a new innovative financing mechanism in place for households and small businesses. As part of the Green Deal framework a new supporting household obligation on larger energy suppliers (replacing CERT and CESP) will be introduced in late 2012.	To be determined. Most costs will be met by energy companies or those consumers benefiting from the energy saving measure.	Improved domestic energy efficiency with consequent carbon emissions reductions and affordable warmth improvements.	Green Deal, including ECO, will help drive the uptake of measures which improve air quality. The potential scale of ECO and thus benefits are subject to further decisions and analysis. Green Deal will be market led.
Domestic energy efficiency measures – Warm Front **UKnotNI_B8**	2000 onwards.	A range of heating and insulation measures to private sector households that are in receipt of particular income related benefits.	£110 million for the Warm Front scheme and associated activities.	The aim of the scheme is to alleviate fuel poverty and improve thermal efficiency of customer's property. Assuming a linear rate of installation and savings since the start of Warm Front in June 2000, this equates to a total saving of approximately 1.90 Mt CO_2 by 2008.	Reduced emissions as reduced reliance on combustion for heating/power.
Carbon Reduction Commitment Energy Efficiency Scheme	From April 2010 with first allowances from 2012.	The scheme features a range of reputational, behavioural and financial drivers which aim to encourage organisations to develop energy management strategies that promote a better understanding of energy usage.	For 2010/11, the cost is £710K which is to cover enforcement costs. Year 2011/12 is in the process of being finalised at present.	To improve energy efficiency and therefore cut CO_2 emissions in large public and private sector organisations. These organisations are responsible for around 10% of the UK's CO_2 emissions.	Improvements in energy efficiency will also have positive impacts on air quality.

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(CRC) **UK_B9**		Revenue from the sale of CRC allowances, totalling £1 billion a year by 2014/15, will be used to support the public finances, including spending on the environment.			
Smart meters **UKnotNI_B10**	Under current plans, by 2019.	Installation of energy meters in over 30 million households and smaller non-domestic sites. Smart meters will provide consumers with near real-time information about energy use, enabling them to monitor and manage their energy use.	Energy suppliers will be responsible for the rollout of smart metering equipment. Estimated £7.3 billion net benefit from the Programme.	The information provided by smart meters will help consumers to better manage and reduce energy use. Smart meters will also be an important step towards the development of a smart grid, delivering improved network efficiency and responsiveness.	Reduced energy use, therefore reduction emissions from combustion and improvements to air quality.
Community Energy Saving Programme **UKNotNI_B12**	CESP – 2009 to 2012.	The Community Energy Saving Programme (CESP) has been created as part of the government's Home Energy Saving Programme. It requires gas and electricity suppliers and electricity generators to deliver energy saving measures to domestic consumers and meet a carbon reduction target.	Expected investment by obligated companies over the life of the programme - £350 million. Administration costs (paid by Government): 2010/11 - £0.35m 2011/12 - £0.70m 2012/13 - £0.70m 2013/14 - tbc	CESP requires all licensed gas and electricity suppliers that have at least 50,000 domestic customers and all licensed electricity generators that have generated on average 10 TWh/yr or more in a specified three year period to meet a carbon reduction obligation.	Total saving of around 2.9mt CO_2 by December 2012 Reduced energy use, therefore reduction emissions from combustion and improvements to air quality.
Boiler Scrappage Scheme	2010-2011	Grant scheme with vouchers for residents to assist with boiler scrappage and upgrading old G rated boilers for a new A rated	£57.5 million (£50m in England, £2.5m in Wales, £3m in Scotland, £2m Northern Ireland).	Scheme's objective was to tackle fuel poverty but it will also reduce emissions of combustion product pollutants	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
UK_B3		boiler.		in urban areas and therefore improve air quality. Scheme also increases efficiency so less fuel is used.	
Domestic Energy Research Projects Various at *http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/saving_energy/analysis/analysis.aspx* **UK_H16**	2006 to 2010	• Trials of advanced heating controls • In-situ monitoring of efficiencies of condensing boilers • Study on hard to fill cavity walls in domestic dwellings in Great Britain • Measuring peak electricity demand in non-domestic buildings • Reducing peak electricity demand in UK buildings • The impact of changing energy use patterns in buildings on peak electricity demand in the UK • The impacts of distributed generation on the wider UK energy system – extension • The hidden costs and benefits of domestic energy efficiency and carbon saving measures • Condensing boiler trials • In situ monitoring of efficiencies of condensing boilers and use of secondary heating	Unknown.	Research to support policy making and reduce emissions.	Research projects will support move to a low carbon economy and more efficient/reduction in combustion which is beneficial for air quality.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		• Disaggregation of the energy savings achieved from insulation in EESoP 3 and the Energy Efficiency Commitment • Monitoring energy savings achieved from insulation measures installed in gas heated homes in SoP3 and EEC schemes • Effectiveness of cavity wall insulation • Domestic energy fact file.			
ENGLAND ONLY MEASURES					
BUSES					
Green Bus Fund **England_A7**	2009-March 2011	Bus operators and local authorities in England compete for funds to help them buy new low carbon, Euro 5, buses (mainly hybrids and electric buses). Most buses will be used to replace older (usually pre Euro 3) buses and so there is an air quality gain.	Round one had a budget of £30m. Round two has a budget of £15m.	350 new buses are being purchased (with a similar number of older buses being replaced) under round one. We expect that round two will result in around 200 additional new buses. No assessment has been made, but most of the Euro 5 buses will replace older (mainly pre Euro 3) buses. Some of the new buses being purchased are electric buses, with zero emissions at the tailpipe.	In conjunction with the Scottish Green Bus Fund (Scotland_A11), it is estimated a 0.004% reduction in total road transport NO_X emissions in 2011 and in 2015.
Smart and	2009/10	DfT paid £10m grant to the 9	£20m total - £10m each year.	In terms of resultant air quality	The reduction of bus

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Integrated Ticketing **England_A8**	2010/11	largest English urban areas outside London (£1.1m each) in both 2009/10 and 2010/11 to encourage the roll-out of smart ticketing, and is also incentivising smart and integrated ticketing through a range of other measures (including a Bus Services Operator Grant uplift, inclusion of conditions within rail franchises and support to ITSO Ltd for development/ implementation of an interoperable smart ticketing specification).		benefits, this is difficult to quantify. In more general terms, the indicative business cases prepared as part of the former administration's 'Smart & Integrated Ticketing Strategy' identified *carbon dioxide* savings from smart ticketing due to reduced bus dwell times, reduced congestion and modal shift.	dwell times and congestion are likely to have a positive benefit for air quality.
SUSTAINABLE TRAVEL					
Local Sustainable Transport Fund **England_D5**	2011-2015	Fund for local authorities to invest in measures that deliver economic growth and carbon reduction, however, proposals which bring about improvements to public and environmental health will be viewed favourably. Measures might include promotion of walking and cycling, initiatives to improve integration between travel modes and end-to-end journey experiences, better public transport and improved traffic management schemes.	£560million.	Changes in travel behaviour. Increased awareness and use of more environmentally friendly travel modes. Reduced emissions from switch to cleaner vehicles and fewer road vehicle journeys. Reduced idling and congestion.	Not quantified but improvements in air quality expected.

<table>
<tr><th>NAME</th><th>DATES AND SCOPE</th><th>DESCRIPTION</th><th>COST TO GOVERNMENT</th><th>OBJECTIVE</th><th>AIR QUALITY BENEFITS</th></tr>
<tr><td colspan="6">LOCAL AUTHORITIES</td></tr>
<tr>
<td>Integrated Transport Block Capital Grant

England_E5</td>
<td>2000-2015</td>
<td>A capital grant allocated to local transport authorities in England outside London.

Funding is distributed through a needs based formula, with a weighting of 5% given to air quality, although in practice measures to reduce congestion (25%) and social exclusion (20%), or to improve public transport (30%) will often be beneficial for air quality as well.

Funding is not ring-fenced. Areas of investment include traffic management (such as road signs and markings, road layout, pedestrian facilities, traffic calming), public transport initiatives (such as bus lanes and bus stops), the pedestrian environment (such as pedestrian crossings and footpaths), sustainable travel, and cycling (such as cycle lanes and secure cycle parking facilities).</td>
<td>
<table>
<tr><th>Year</th><th>Total ITB Funding (£m)</th></tr>
<tr><td>2000-01</td><td>250.0</td></tr>
<tr><td>2001-02</td><td>542.7</td></tr>
<tr><td>2002-03</td><td>564.6</td></tr>
<tr><td>2003-04</td><td>612.5</td></tr>
<tr><td>2004-05</td><td>658.0</td></tr>
<tr><td>2005-06</td><td>552.6</td></tr>
<tr><td>2006-07</td><td>547.0</td></tr>
<tr><td>2007-08</td><td>571.0</td></tr>
<tr><td>2008-09</td><td>576.8</td></tr>
<tr><td>2009-10</td><td>589.4</td></tr>
<tr><td>2010-11</td><td>450 (after £150m 10/11 in year savings)</td></tr>
<tr><td>11/12</td><td>£300m</td></tr>
<tr><td>12/13</td><td>£320m</td></tr>
<tr><td>13/14</td><td>£320m</td></tr>
<tr><td>14/15</td><td>£450m</td></tr>
</table>
</td>
<td>Improved traffic management, better public transport and an enhanced travel environment for pedestrians and cyclists.

Local authorities produced progress reviews of their second Local Transport Plans in autumn 2008, outlining progress against their air quality targets from 2006-08.</td>
<td>Not quantified but improvements in air quality expected.</td>
</tr>
<tr>
<td>Local Transport</td>
<td>2001-2016</td>
<td>The concept of Local Transport Plans was introduced in the 1998</td>
<td>Considerable time resource.</td>
<td>Improved transport and spatial planning taking account of air</td>
<td>Not quantified but improvements in air</td>
</tr>
</table>

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Plan Framework **England_H4**		Integrated Transport White Paper and implemented from 2001. The first set of local authority LTPs ran from 2001-06, the second set from 06-11, and the third set (no longer required to be 5 years long) will start in April 2011. Local transport authorities are required by statute to produce a Local Transport Plan and to keep it under review. They are also required to consult those with an interest in the Plan – this makes authorities accountable to their local communities and stakeholders - and to have regard to statutory Guidance produced by the Department. DfT's 2004 statutory LTP guidance emphasised the importance of integrating Air Quality Action Plans into Local Transport Plans. This was reiterated in the 2009 Guidance, which contained further references to the importance of air quality and its links with spatial planning and health, for instance. The 2009 guidance included a separate non-statutory Handbook,		quality issues. Where air quality benefits can be an objective of delivery, measures to reduce emissions, congestion and idling are encouraged which will deliver air quality benefits.	quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		with references to good practice and policy information for local authorities on air quality.			
National Indicator 194 on PM_{10} and NO_x emissions from local authority operations **England_H2**	Until 2010	The air quality indicator, NI194, requires local authorities to report on emissions of NO_x and primary PM_{10} from their own estates and operations, with the option for the top-tier authority to use this indicator as the basis for one of up to 35 improvement targets. All local authorities, not just those that select NI194 for an improvement target, are required to develop a baseline of emissions from their own estates and operations, and then report on total emissions and percentage reduction in emissions against this indicator by each year.	Unknown.	Attaches increased importance to air quality amongst local authorities and encourages local air quality improvement.	Not quantified but improvements in air quality expected.
ROADS					
Managed Motorways **England_E3**	Sept. 2006 trial on the M42.	Eight schemes have planned 'start of works' dates scheduled to begin in the next two years or so. Affects motorway road users in certain locations. The scheme directs drivers to use the hard shoulder during times of peak congestion using electronic	Unknown.	The scheme has had great success in reducing congestion on the M42. The pilot has been extremely positive, resulting in: • road users' ability to accurately predict journey time increasing by 22%. • reduced accident rates.	Active Traffic Management (ATM) at 50 mph reduced emissions of PM_{10} by 10% and NO_X by 5% *per vehicle*; however, the capacity of the roads is increased under ATM.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		signs above each lane together with variable speed limits, which help smooth the flow of traffic. There are 35 schemes in total making up the nationwide delivery of the Managed Motorway network.		• 4% reductions in fuel consumption within the scheme's operating area. These are not the only positives from the pilot. Alongside the technical data are high levels of customer satisfaction with 68% of surveyed road users saying they felt more informed during their journeys and 60% stating they would welcome this type of traffic management elsewhere on the network.	
Controlled Motorways **England_E4**	1995 onwards.	The western section of the M25 is one of the busiest sections of motorway in Europe carrying in excess of 200,000 vehicles per day. To help manage this, a variable speed limit and incident detection control system has been operational on this section since 1995. Extension of current successful system on the M25 to other motorways with similar stop-start congestion problems (for example, the M20 junctions 4 to 7).	Unknown.	• Less congestion and improved traffic flows. • More reliable, smoother journeys . • Less aggressive driving such as tailgating. • Better use of lanes and less lane changing. • Reduction in accidents • Increased throughput of vehicles. • Environmental improvements i.e. reduced traffic noise, vehicle emissions and fuel	No specific studies, but expected to have similar per vehicle effects as Managed Motorways.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		Uses variable speed limits, which help smooth the flow of traffic. Controlled Motorways work in a very similar fashion to Managed Motorways. The main difference being that the Controlled Motorway System does not allow for the use of the hard shoulder at times of peak congestion. Use of the system to assist in controlling traffic in special circumstances (for example, during long-term roadworks or special events).		consumption.	
Vehicle Recovery **England_A9**	2008 - onwards	The Removal and Disposal of Vehicles (Traffic Officers) (England) Regulations 2008, came into force in early October 2008. January 2009 rollout started. July 2009 rollout complete. In the past, vehicles that are abandoned, broken-down or damaged on our roads were removed either by the owner making their own appropriate private arrangements, or where the police need to intervene using	Unknown.	Reduces road congestion and the associated emissions from vehicle tailbacks and idling.	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		their powers and supporting vehicle recovery contracts. New powers to allow Traffic Officers to remove abandoned and broken down vehicles from the strategic road network.			
Design Manual for Roads and Bridges (DMRB) - Revised Guidance for Air Quality Assessments **England_F8**	Current version - 2007	This guidance and air quality tool is produced by the Highways Agency for air quality assessments of road schemes, multi-modal studies. It is also used by local authorities carrying out their second phase review and assessments and consultants in planning and development control assessments.	Unknown.	Air quality impacts properly accounted for in road design and mitigated appropriately. This includes local concentrations as well as regional emissions.	Not quantified but improvements in air quality expected through proper appraisal and mitigation.
TiO_2 Barrier (not Wales – as research led by HA) **England_F2**	2008 - 2009	The HA has undertaken a trial of noise barriers painted with TiO_2 to remove NO_X along a section of the M60 in Manchester.	Unknown.	Laboratory trials had shown that the NO_Xer© material was capable of removing up to 80% of oxidized nitrogen pollutants from the air. The results of this trial indicated that the barrier did remove NO_X at the barrier face under optimum weather conditions. However, these conditions occurred so infrequently that over the course of the trial the	None overall.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
				barrier had no overall effect.	
SCOTLAND ONLY MEASURES					
BUSES					
Extension of Traffic Regulation Conditions to cover emissions standards for buses. **Scotland_A10**	Introduced in 2008-ongoing	Introduced through The Public Service Vehicles (Traffic Regulation Conditions) Amendment (Scotland) Regulations. Allows local authorities to request the Traffic Commissioner for Scotland to attach a Traffic Regulation Condition to a bus operator's licence requiring specified Euro standards to be achieved in defined areas for the purposes of improving air quality.	No costs to date, as no local authority has made a request yet.	Reduced emissions from buses and therefore improved air quality.	None to date as powers have not yet been used.
Scottish Green Bus Fund. **Scotland_A11**	Launched in July 2010.	Scheme to support and hasten the introduction of low emission buses in Scotland.	£4.4 million for 2010/11.	50 new buses are being purchased by seven operators, which will result in lower emissions and therefore improved air quality.	In conjunction with the England's Green Bus Fund, it is estimated a 0.004% reduction in total road transport NO_X emissions in 2011 and in 2015.
SUSTAINABLE TRAVEL					
Cycling Action Plan for Scotland.	Launched in June 2010.	Contains a range of actions for improving and promoting cycling in Scotland.	Funding in 2010/11 - 300K to establish a Cycle Training Standards and Delivery Support Group, 150K to	An increase in the percentage of journeys made by bicycle.	Too early for any outcomes to be determined.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Scotland_G12			support community cycling projects and 150K to encourage employers to become Cycle Friendly Employers. Additionally funding of £5.65 million to complete part of the National Cycle Network.		
Smarter Choices, Smarter Places. **Scotland_G13**	March 2008 – March 2011.	A scheme to increase active travel and public transport use, and tackle transport emissions.	£15 million of funding over three years to seven local authorities and one Regional Transport Partnership for a range of sustainable transport projects.	Increased awareness and use of sustainable transport modes. Therefore reduced emissions and improved air quality.	Evaluation of the impacts to be done on completion.
WALES ONLY MEASURES					
SUSTAINABLE TRAVEL					
Sustainable Travel Centres Initiative **Wales_G19**	2009-11, 2011-12	In 2009 the Welsh Government launched the Sustainable Travel Centres initiative, which involves better integration at transport interchanges, between bus services and railway stations for example, linked to access to park-and-ride and park-and-share facilities, and cycling routes. STCs in Wales include Cardiff, Môn a Menai. Aberystwyth and the combined area of Carmarthen and Haverfordwest.	Around £21.5m capital.	More sustainable travel, change in behaviour away from cars. Improved health and reduced emissions from fewer car journeys and improvements to air quality.	Not quantified but improvements in air quality expected

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Personalised Workplace and School Travel Planning Programme **Wales_G14**	Jan 2011 – Jan 2015	The Welsh Government has let a four year framework contract to take forward a programme of personalised, workplace and school travel planning as part of the Sustainable Travel Centres initiative, to encourage people to walk, cycle and use public transport for more of their local, everyday journeys.	Around £4m.	The project could cut car trips by around ten per cent in targeted areas, leading to potential improvements in air quality in areas where change in travel habits occur. Improved health will also be a positive outcome of this measure.	Not quantified but improvements in air quality expected. An alternative means of travel is expected to lead to less congestion on our roads and a reduction in vehicle emissions and a healthier nation.
Smarter Choices* **Wales_G15**	2010-11	Smarter Choices refers to a variety of initiatives aimed at encouraging people to use more healthy and sustainable travel through the provision of better and more accessible information about sustainable transport services and facilities. Initiatives include: • Commitment to introduce a Wales Entitlement smartcard for bus and rail services, which will include integrated ticketing to make it easier for people to use public transport and transfer between services and operators – proposals for 2011-12 include implementing a number of pilot schemes to	£21.5 million.	Expecting increased use of more sustainable travel, and therefore modal shift leading to reduced congestion, reduced emissions and improved air quality. Increased awareness of healthy and sustainable choices/lifestyles.	Not quantified but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		trial e-purse and rail smartcard validating systems. • Funding for Traveline Cymru, which provides information to passengers making public transport easier to use. • Funding for Travel Plan Coordinators in each of the four Regional Transport Consortia, who promote and provide information on sustainable travel including car-sharing and work with large employers to develop and implement travel plans.			
Travel Planning and provision of personalised travel information **Wales_F4**	2010-11, 2011-12	Part of the Climate Change Strategy for Wales: Delivery Plan for Emission reduction. To strengthen the role of transport planning, with view to reducing the overall need to travel. Group and personal travel planning roll out. Travel Plan Coordinator, Traveline Cymru and Sustrans Cymru delivery of Travel Champion Training	The Welsh Government funds the Regional Travel Plan Coordinators. Approx £200k per year.	More sustainable travel, change in behaviour away from cars. Improved health and reduced emissions from fewer car journeys and improvements to air quality.	Not quantified but improvements in air quality expected.
Change 4 Life	2010-11	To preventing ill health and fight obesity, this will in turn free up our	The Change4Life budget for 9/10 and 10/11 was £280k per	A behavioural in lifestyle (e.g. Modal change from using card	Not quantified but improvements in air

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Campaign **Wales_F3**		health service to treat unavoidable disease. Promotes the importance of general healthy lifestyle messages covering physical activity, nutrition, alcohol and smoking. Small changes in health behaviour could lead to significant increases in life expectancy. Health Challenge Wales has been developed to help contribute towards this aim. It signposts members of the public to information or activity to help them improve their own health.	annum.	to using bikes) that will prevent ill health and could lead to significant increases in life expectancy.	quality expected, with less vehicle use.
Walking and Cycling Action Plan 2009 – 2013 **Wales_ G18**	2010-11, 2011-12	The Welsh Government aims to encourage more people to walk and cycle more safely and more often. This Action Plan explains how the Welsh Government and our partners are supporting walking and cycling in Wales.	£18 million.	More sustainable travel, to create a behavioural change from cars. Improved health and reduced emissions from fewer car journeys and improvements to air quality.	Not quantified but improvements in air quality expected.
Bwbca Bus Project **Wales_G16**	2009-12	An innovative demand responsive transport scheme that provides community bus services in rural Carmarthenshire. Looking at plans for expansion of the operational	£350,000.	Project has seen an increase of around 37% in the number of passengers using the service. This has helped more people to travel sustainably and	Not quantified but improvements in air quality expected.

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		area. *http://www.traveline-cymru.info/bwcabus/*		encouraged model shift away from the private car. Reducing emissions from cars will improve air quality.	
Support for Local Bus Services* **Wales_G17**	2000-01 and 2008-2011	Financial support for local bus services through Bus Service Operators' Grant (BSOG) and Local Transport Services Grant (LTSG) that help support commercial and socially desirable bus services. In 2010-11 increased the rate of BSOG for bio fuels. Looking at changes to the BSOG scheme to better target broader outcomes such as reducing emissions. Also taking forward measures in the Traffic Management Act 2004 that provides local authorities civil enforcement powers to control inconsiderate car parking as well as bus priority and moving traffic contraventions.	The Welsh Government is providing around £11m for LTSG in 2011-12. Has provided around £21.5m in BSOG to bus operators in 2010-11.	Encourage more people to travel by public transport. Reducing emissions from cars from having fewer cars on the road and reduced idling will improve air quality.	Not quantified but improvements in air quality expected.
Regional Transport Plans **Wales_H5**	2011-12	Regional Transport consortia in Wales have a delivery plan of integrated transport schemes detailing walking and cycling, road safety schemes, smaller highways improvements	£27 million	Sustainable living, healthier lifestyle.	Not quantified but improvements in air quality expected.
M4	Jan 2010-	The M4 Variable Speed Limit	£20 million	VSL has the effect of reducing	Observations from

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Motorway Variable Speed Limit Scheme (VSL) **Wales_E9**	June 2011	operates between Junction 24 at Coldra and Junction 29 at Castleton and specifically aims to reduce congestion, improve safety and improve air quality along the M4 motorway corridor near Newport.		fuel consumption, congestion and air pollution by improving traffic flow, reducing stop-start driving and improving compliance with speed limits. This has a corresponding positive impact on vehicle emissions. The introduction of the speed limit restrictions is an opportunity to help mitigate poor air quality within adjacent residential areas of Newport. We anticipate that additional more detailed monitoring from Summer 2011 will strengthen the air quality and traffic flow data collected so far. This will help build a case for air quality to be considered during the development of future traffic management schemes.	similar VSL schemes (e.g. M25 and M42 motorway) have shown overall emissions have reduced between 2% and 8%, with overall NO_x reduction of approximately 5%. Additional monitoring will be sited in the areas of maximum exceedence and high resolution traffic flow data will be used to track and report emission reductions against these estimates.
The M4 Magor to Castleton Corridor Engagement Strategy	2010- 12	The M4 Corridor Enhancement stakeholder engagement is a work area under development, which plans to relieve congestion on the M4 motorway around Newport in South East Wales. It Includes a number of Transport Planning	Cost unavailable as of April 2011.	Expected to improve traffic flows along the M4 around Newport and reduce traffic flow through the Brynglas tunnels. Better travel planning will also further reduce demand for car journeys by offering tailor-made	Improvements expected to reduce vehicle congestion and reduce traffic numbers. Vehicle emissions expected to reduce with

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Wales_E6		objectives: to modify and improve existing motorway junctions, improve public transport by creating opportunities for transfer between modes, investigate improvements to the M4 west of the Brynglas Tunnels, developing an access road into public highway and linking to M4 motorway and the Newport South Distributor Route and will consider other further schemes to help tackle future congestion and improve traffic flow along this section of the M4.		information and support to households, enabling people to walk, cycle and use public transport more often.	improvements in air quality.
Upgrading of the existing Steelworks Access road **Wales_E10**	2009-2011	To upgrade the existing Steelworks Access Road through Tata's Llanwern Site. Phase 1 Work between Newport's Distributor Road at Lliswery and the M4 motorway junction at Magor Phase One includes major maintenance to Queensway Meadows, the remodelling of Longditch roundabout and starting the upgrading of the SAR. Phase One works were also extended out to the Southern Distributor Road in response to a request from	Phase One £2 million Phase Two £11 million	To provide a relief route for the M4 motorway.	To reduce congestion. Not quantified but improvements in air quality expected.

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		Newport City Council. - Construction work should be complete in June 2011 Phase Two will complete the upgrading of the SAR and include limited improvements to M4 Junction 23A (Magor) and the installation of traffic signals at the B4245 junction. Construction contract will be awarded in the near future and the total cost is approximately £11m. Construction work is due to start in about July 2011			
Junction 28 Tredegar Park Area **Wales_E11**	Start/end dates unknown at present	M4 Motorway junction improvement work.	Cost not available as of September 2011.	To reduce congestion.	To reduce congestion. Not quantified but improvements in air quality expected.
Strategic Modal Interchanges **Wales_G20**	2010-11, 2011-12	Part of the Climate Change Strategy for Wales: Delivery Plan for Emission reduction. Providing "park and share" opportunities, increasing vehicle occupancy, enhanced provision for walking and cycling at the modal interchange sites.	£20 million for this and for alternative fuels infrastructure measure.	More sustainable travel, change in behaviour away from cars. Improved health and reduced emissions from fewer car journeys and improvements to air quality.	Not quantified but improvements in air quality expected.
Promotion of eco	2010-11, 2011-12	Part of the Climate Change Strategy for Wales: Delivery Plan	£300k	More sustainable travel through increased awareness of	Not quantified but improvements in air

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driving **Wales_F5**		for Emission reduction. Support for Programmes that promote eco-driving in a safe and fuel-efficient way		optimum vehicle driving, should lead to improved air quality.	quality expected.
Supporting the freight industry to reduce emissions **Wales_A13**	2010-11, 2011-12	Part of the Climate Change Strategy for Wales: Delivery Plan for Emission reduction. Range of measures to reduce emissions from the freight sector – best practice programme	£3 million	More sustainable travel, model shift to rail, more efficient lorry operations, uptake of cleaner vehicles – improved AQ	Improved health through reduced emissions freight sector.
Alternative fuels infrastructure **Wales_C3**	2010-11, 2011-12	Part of the Climate Change Strategy for Wales: Delivery Plan for Emission reduction. Programme of activities aimed at using alternative fuels and development of technologies.	Approx £20 million in total for this and strategic modal interchanges measure.	More sustainable travel, switch to sustainably sourced less polluting fuels e.g. electricity and hydrogen should lead to improved air quality Improved health and reduced emissions from combustion of cleaner fuels.	Not quantified but some improvements in air quality expected.
RESEARCH					
Climate Change Consortium of Wales (C3W). **Wales_F6**	2011-2015	The universities of Aberystwyth, Bangor, Cardiff and Swansea have joined together to launch the research consortium climate change research in Wales to world-class standards.	£4 million initiative from Welsh Government through the Higher Education Funding Council for Wales (HEFCW).	Better integrated research on links between climate change and air quality.	Improved air quality through increased knowledge/actions.
NORTHERN IRELAND ONLY MEASURES					
ROADS					

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New traffic control system on the M1/Westlink in Belfast. **NI_E8**	Launched September 2010.	A system that monitors the speed and flow of traffic. As congestion starts to occur, the traffic control system will automatically adjust the speed limit accordingly.	£10 million	Reduced traffic congestion and emissions and therefore improvements in air quality.	Not quantified but improvements in air quality expected.
SUSTAINABLE TRAVEL					
Regional Development Strategy for Northern Ireland **NI_H6**	To 2025	Sets out the spatial development framework for Northern Ireland.	Costs not available.	Expecting a move to more sustainable travel and therefore reduced transport emissions and improvements in air quality.	Not quantified but improvements in air quality expected.
Regional Development Strategy for Northern Ireland – 10 year Review **NI_H7**		A Review of the Regional Development Strategy for Northern Ireland - currently out to consultation.	Costs not available.	Expecting a move to more sustainable travel and therefore reduced transport emissions and improvements in air quality.	Not quantified but improvements in air quality expected.
Regional Transportation Strategy for Northern Ireland	2002-2012	Identification of strategic transportation investment priorities and considers potential funding sources and affordability of planned initiatives.	Costs not available.	Expecting a move to more sustainable travel and therefore reduced transport emissions and improvements in air quality.	Not quantified but improvements in air quality expected.

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NI_H8					
Draft Regional Transportation Strategy 2011 – A Sustainable Transport Future **NI_H9**		High level strategic planning document to set a new direction for transportation – currently at discussion stage.	Costs not available.	Expecting a move to more sustainable travel and therefore reduced transport emissions and improvements in air quality.	Not quantified but improvements in air quality expected.
Belfast Metropolitan Transport Plan **NI_H10**	To 2015	A plan to encourage more sustainable transport system with high priority given to public transport, walking and cycling.	Costs not available.	Modal shift away from private road transport, reductions in congestion and vehicle activity and therefore reduced emissions and concentrations.	Not quantified but improvements in air quality expected.
Regional Strategic Transport Network Transport Plan **NI_H11**	To 2015	How the network will be developed and maintained across a range of transport modes.	Costs not available.	More sustainable traffic management and therefore reductions in emissions and improvements in air quality.	Not quantified but improvements in air quality expected.
Sub-Regional Transport Plan **NI_H12**	To 2015	A balanced set of proposals for improvements in local transport.	Costs not available.	Modal shift away from private road transport, reductions in congestion and vehicle activity and therefore reduced emissions and concentrations.	Not quantified but improvements in air quality expected.

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Walking Northern Ireland Action Plan **NI_G21**		Series of actions that will help guide the delivery of the RTS walking measures on the ground and provide complementary improvements to assist in the achievement of targets.	Not possible to identify costs of implementation of measures across a range of delivery agencies.	Modal shift away from private road transport, reductions in congestion and vehicle activity and therefore reduced emissions and concentrations.	Not quantified but improvements in air quality expected.
Cycling Strategy **NI_G22**	2002-2010	A range of measures that will seek to improve conditions for cyclists and establish a pro-cycling culture. Due to the current financial climate. Possible to fund this function at the same levels as in previous years. Spending on new strategic road schemes has where possible incorporated cycling facilities.	£8M+ of capital expenditure.	Expecting a move to more sustainable travel. Reduced emissions from fewer car journeys.	Not quantified but improvements in air quality expected.
Travelwise NI **NI_F7**		An initiative to encourage the use of sustainable transport options such as walking, cycling, public transport or car sharing.	Expenditure of approx. £445k annually.	Expecting a move to more sustainable travel.	Reduced emissions from fewer car journeys.
Draft Active Travel Strategy for Northern Ireland. **NI_H14**		High level strategic planning document to increase active travel and reduce overdependence on the private car.	Strategy still being developed. Costs not available.	Increased awareness of the health, environmental and economic benefits of active travel and opportunities to engage in active travel. Should encourage modal shift and therefore reduction in car journeys leading to lower emissions and concentrations.	As yet unknown but improvements in air quality expected.

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Freight Forum **NI_H15**		The Department for Regional Development (Northern Ireland) and the Department of Transport Ireland have jointly set up an All Island Freight Forum structured around the themes of sustainability, competitiveness and connectivity.	In-kind for staff resources.	A series of measures to enhance the competitiveness and sustainability of the domestic freight sector. Should reduce vehicle journeys, emissions and improve air quality.	As yet unknown but improvements in air quality expected.