Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO₂) in the UK

Draft List of UK and National Measures

June 2011



Llywodraeth Cymru Welsh Government







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AIR QUALITY PLANS FOR THE ACHIEVEMENT OF EU AIR QUALITY LIMITS FOR NITROGEN DIOXIDE (NO₂) IN THE UK: DRAFT LIST OF UK AND NATIONAL MEASURES

Introduction

- I. This document sets out over 80 key UK and National measures that have and will help to achieve the nitrogen dioxide (NO₂) 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 overview² of air quality plans for the achievement of the NO₂ limit values, the air quality plans themselves³ which cover the 40 UK air quality zones still to meet the NO₂ limits, and the technical report⁴ detailing the assessment methodology for the plans. Together, these form the basis of the UK's notification to the European Commission in September 2011 setting out how the UK will meet the NO₂ 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 NO₂ 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.

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF

² For link to the UK overview see: <u>http://www.defra.gov.uk/environment/quality/air/air-quality/eu/</u>

³ To view the plans see: <u>http://uk-air.defra.gov.uk/library/no2ten</u>

⁴ For link to the technical report see: <u>http://uk-air.defra.gov.uk/library/no2ten</u>

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

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

ASTERISKED MEASURES WERE INCLUDED IN THE BASELINE MODELLING

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE				
				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 [*]	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	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		DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEEITS
	SCOPE				DENEITIS
Grant [*]	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 	quality expected.
CleanLin	England	The Clean In initiative provided a	f39 5m	5.8million lorry miles annually.	Not quantified but
Programme [*]	2000-	number of incentives for business	L.J.J.J.I.	the scheme which delivered	improvements in air
	2006.	to improve environmental		reductions in emissions of NOx	quality expected

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE				
	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 		and Particulate Matter.	
Quiet	lan 2010	administrative burden on nauliers.	Approx £256,000	Expect environmental henefits	Not quantified but
Deliveries	– March	the scope for benefits for the local	Approx. £256,000.	in terms of reduction in	improvements in air
Demonstrati	2011	environment from rescheduling		congestion and therefore	quality expected
on Scheme		deliveries out of peak periods,		improved air quality and also	
(not in		based on six trial locations.		noise. The value of these	
Wales)				improvements in health terms	
				would be worth at least double	
				the cost to Government.	
"Delivering	2006-07	Retail sector. Initial provision of	Not available.	Was taken forward by Freight	Not quantified but
the Goods"		guidance on how to enable		Iransport Association and	improvements in air
guide and		deliveries out of peak periods		underpinned "Silent Approach"	quality expected.
toolkit				developed by FTA and Noise	
				Abatement Society.	

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	
	SCOPE				BENEFIIS
				"Silent Approach" trial in Wandsworth removed approx 700 lorries / year from peak traffic, with consequent reductions in congestion- related air pollution.	
Freight Consolidatio n Centre (FCC) research study	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 DfT £43,000.	The FCCs can provide significant economic and societal benefits by reducing the overall number of lorry journeys on the "final mile" and thus reducing congestion and emissions and improving air quality. We hope to publish the research so that industry and local authorities can consider the application of FCCs as part of their strategic planning process. Study identified potentially significant AQ benefits – scale dependent on location, nature of consolidation centre and manner in which "final mile" deliveries affected.	Not quantified but improvements in air quality demonstrated by trials.
		L	RAIL	1	l
Rail	First	Franchise bidders had to explain	Low cost - requirements	For air quality, the main focus	Not quantified but

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
franchise requirement s to improve air quality	introduce d in 2006 and updated progressi vely. To be introduce d in Wales in future.	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.	would not have placed substantial burden on bidders or central Government.	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.	improvements in air quality expected.
Passenger rail subsidy	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.
		VEH	ICLE STANDARDS and TESTING		
UK In Service Conformity emissions test programme	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		

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE		
	SCOPE					BENEFITS
Reduced	1999	Tax incentives to tackle pollution	Unknown.	Reductions in V	ED are an	Not quantified but
Pollution	onwards.	from road traffic. Operators of		incentive for op	erators to use	should result in
Certificate		HDVS whose vehicles had either		lower emission	vehicles. Lower	reduced emissions
(RPC)		been modified by fitting an		emissions shoul	d lead to an	from diesel vehicles,
Scheme*		approved device to the exhaust		observed decrea	ase in pollutant	and subsequent
		system, had been re-engineered to		concentrations	for those	improvements in air
		a higher environmental standard or		pollutants being	g regulated	quality.
		had been fitted or converted to run		under the scher	ne.	
		on petrol or gas were potentially		Euro-	Number of	
		eligible to be licensed in new		standard	RPCs issued	
		taxation classes with lower (±500		incentivised		
				Pre-Euro	221	
				Euro I	530	
		The environmental standard		Euro II	6,998	
		required for licensing in the new		Euro III	22,408	
		taxation class was changed on 5		Euro IV	17,727	
		January 2001 to fall in line with		Euro V	33,155	
		European Emissions Standards, and				
		different procedures relate to		The table above	shows the	
		vehicles first tested for compliance		figures for take	up of the	
		with the scheme before and after		scheme:		
		that date.		For further deta	ils see:	
				http://www.bus	<u>sinesslink.gov.uk</u>	
		To obtain a Reduced Pollution		/bdotg/action/l	<u>ayer?topicId=10</u>	
		Certificate after January 2001 a		<u>81967657</u>		
		vehicle had to be constructed or				
		adapted so as to achieve a				
		considerably higher standard of				
		particulate matter or gaseous				

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

NAME		DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	SCOPE				DENEITIS
		L	SHIPPING		
Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008	Decembe r 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.u k/uploaded/081114%20- %20EM%20- The%20merchant%20shipping% 20(prevention%20of%20air%20	
				pollution%20from%20ships)%20	
				<u>Kegs%202008.doc.pat</u>	
Smarter	2004	Smarter Choice transport measures		Ectimate that a (high intensity)	
Choicos and	2004-	baye been part of the local	funding For all massures	introduction of those measures	of honofite did not
Sustainable	2009.	authority policy (toolkit' for many	likely to be:	may deliver a nationwide	
	vvales-	authority policy toolkit for many	nkely to be:	reduction in traffic of 110/ and	include any specific
Taver	2009	years. within the scope of these	approx ±4m revenue for	reduction in traffic Of 11% and a	assessment of air
Towns*	onwards.	measures are so-called softer	smarter choices, around	reduction in peak urban traffic	quality benefits but it

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
		actions to manage demand for	£21.5m capital.	of 21%. A low intensity	is anticipated that
		mobility father than more	C10 million over E vegre to	nationwide reduction in troffic	the measure has
		actions which sim to provide	E10 million over 5 years to	of 2.2% and a peak urban traffic	beneficied air quality
		infrastructure and managed flow of	Darington Peterborough and	of 2-3% and a peak urban trainc	as people chose not
		minastructure and managed now of	funding themselves) for the	illustrated to mean up to 50% of	to travel, or replaced
		this contact Smorter Chaises. III	Sustainable Travel	ampleyees engaged in travel	car trips with
		include a wide range of travel	Demonstration Towns	plans in urban areas 20% of the	modes
		management ontions including	programme	urban population engaged with	moues.
		institutional and individual travel	programme.	travel planning and 30% of the	A 2% to 11%
		nlanning to provide alternatives to	Wales - Cardiff Gwynedd and	nopulation involved in	reduction in
		the default ontion which is a car	Anglesev for infrastructure	teleworking and so on A	emissions across the
		journey or journeys.	improvements. Also some	maximum range of 2-11%	
			smaller scale measures in	appraised reduction in traffic	OK.
		Local authorities are implementing	Aberystwyth, Haverfordwest	emissions applies.	
		"smarter choices" measures in	and Carmarthen. Targeted		
		their action plans under local air	promotion of sustainable ways	Based on the Dft trials - a 7-9%	
		guality management. The UK	to travel to follow from mid	reduction in car trips or 5-7%	
		government is providing grants to	2011.	reduction in car distance for a	
		local authorities to implement		total annual reduction of	
		these measures.		84million car km was estimated.	
				This activity was transferred	
		The Department for Transport has		mostly to walking, cycling and	
		conducted a Sustainable Travel		bus modes. It is notable that the	
		Town study which has led to		benefit-cost ratio of the	
		further analysis and information on		programme was evaluated to be	
		best practice.		approximately 4.5, a good	
				indication that benefits do in	
				fact outweigh costs.	

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Local authority Cycle	2006/7 – 2010/11	Bikeability Level 2 is an approved cycle training course normally undertaken by children in years 5-	2006/7 0.656m 2007/8 1.190m 2008/9 2.986m	Encourages children to cycle – and therefore provides an alternative transport form and	Not quantified but improvements in air quality demonstrated
Grants [*]		6 (ages 10-11).	2010/11 6.043m	from exercise. Reduces car and bus travel to	by triais.
			Grant supplements LA funding of training.	school and therefore reduces emissions and concentrations of air pollution.	
Cycle City or Towns*	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	Encourages more people to cycle and therefore provides an alternative transport form and	Not quantified but improvements in air
			2008/9 9.576m 2009/10 26.797m	modal shift. Reduces car travel and	
			2010/11 18.990m	therefore reduces emissions and concentrations of air pollution	
			match funded by local authorities.		
Links to school (and cycle parking)*	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	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.	Not quantified but improvements in air quality expected.
			2010/11 £11,873m	Reduces car and bus travel, therefore reduced emissions and concentrations of pollution and helps to ease congestion at	

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Bike and Rail Funding*	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 [*]	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 [*]	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	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
		2000. For England and Wales, see:			
		http://www.defra.gov.uk/environm			
		ent/quality/industrial/las-			
		<u>regulations</u> ; for Northern Ireland,			
		see http://www.ni-			
		environment.gov.uk/pollution-			
		home/ippc.htm; for Scotland, see:			
		http://www.sepa.org.uk/air/proces			
		<u>s_industry_regulation/pollution_pr</u>			
		evention control/sepa_guidance.			
		aspx. 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.			
Local Air	Since	Local authorities are required to	The 2007 Air Quality Strategy	An assessment framework	
Quality	1996	assess their local air quality and	estimated the admin burden	targeting local hotspots which	

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Managemen t (LAQM) Framework [*]	SCOPE	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. For further details see: <u>http://www.defra.gov.uk/environm</u> <u>ent/quality/air/air-quality/laqm/</u>	of LAQM as £10m annually.	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 VEHICLES		
Plug-in Car Grant	Funding for the life of this parliamen t	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	March 2010 –	Government has allocated money to fund the development of	£30m.	Greater uptake of zero tailpipe emission vehicles. This should	Not quantified but improvements in air

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE March 2013	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.		reduce emissions from vehicles particularly in urban areas and improve air quality. Will help fund 9,700 electric car charging points	quality expected in urban areas.
Research and Developmen t	Life of this parliamen t	A range of research, development and demonstration projects are currently underway. To give just two examples, 243 ultra-low carbon cars (electric, plug-in and hydrogen) are being trialled across the country through the Technology Strategy Board's ULCV demonstrator programme; 201 all- electric and low-carbon vans are also being trialled in 21 public sector fleets (through the Low Carbon Vehicle Public Procurement Programme).	£80m.	Will help develop the market for ultra-low emission cars	Some positive short- term impacts due to use of ultra-low emission vehicles. Longer term impacts associated with development of ultra-low emission car market.

			OVERNIVIENT	OBJECTIVE		AIR QUALITY
AND						BENEFITS
SCOP	E					
PowerShift 1997/	98 The PowerShift programme had a					
programme	remit to reduce air pollution	Year	Policy Cost (f)	No. Vehicles	NOx/kg	
Enhan	iced emissions through the promotion				iter, ite	
in Aug	gust of cleaner alternative fuels, such as	; 				
2004	LPG and Natural Gas, and to	97-98	567,799	195	41,592	
Classe	promote new cleaner technologies	98-99	1,547,647	648	81,479	
2005/	06. Hybrids	99-00	2,833,931	1,665	109,841	
		00-01	6,180,617	4,243	342,213	
	It provided grants covering the	01-02	5,318,418	2,945	193,767	
	purchase of LPG, natural gas,	02-03	4,967,381	2,194	151,237	
	as grants towards the cost of	03-04	7,040,787	4,774	305,767	
	converting vehicles to LPG and	Total	28,456,580	16,664	1,225,896	
	 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. 	Total vehicl Total lifetim Total Power Total Power Funded prin Governmen	es funded – 24207 ne NOx saved - 2776 rShift grants costs - rShift management rShift programme c narily by the Depar t.	6 • £32m : costs - £14m :cost - £46m •tment for Transport (Df	٦), Scottish Ex	ecutive and Welsh

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
Traffic	April	The Traffic Officer Service was	Unknown.	By clearing incidents quickly,	Not quantified but
Officer	2004.	launched in 2004 in the West		Traffic Officers reduce the	improvements in air
Service		Midlands and now covers all 2025		impact of incident related	quality expected.
(England and	In Wales	miles of motorway in England from		congestion and also reduce the	
Wales only)	since	seven regional control centres and		risk of secondary incidents.	
	2009 on	32 outstations.			
	M4			Reduced emissions from idling	
	Motorwa	Traffic Officers patrol the whole of		vehicles caught up in	
	y and A55	England's motorway network.		congestion.	
	Expressw	There are around 1,500 Traffic			
	ay.	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			
05501141	2000	hours a day, seven days a week.			
CEEQUAL	2009	CEEQUAL is the assessment and	Unknown at this stage. The	Dependant on type of civil	Not quantified but
	onwards.	awards scheme for improving	range is between £2,995 for	engineering project. Different	improvements in air
Engineering		sustainability in civil engineering	projects up to £2 million, and	design concepts for waste water	quality expected
Environment		projects.	£2,700 per £100 million.	treatment works or road	
al Quality		The ask are size waysh, assessed		schemes.	
Awards)		The scheme rigorously assesses		Reduction in emissions during	
Scheme. For		performance across 12 areas of		site works and during operation	
iviajor Morke		environmental and social concern.		of facility / infrastructure.	
VVORKS		it rewards project teams in Which			
Projects.		clients, designers and constructors			
		go beyond the legal and			
		environmental minima to achieve			

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND SCOPE				BENEFITS
		distinctive environmental and			
		social standards.			
		C C	LEANER TRANSPORT FUELS		
Fuel duty incentives for ultra low sulphur diesel [*]	From 1999 (in advance of EU 2005 mandator y date for ULSD introducti on)		Unknown.	Led to an immediate market switch to ultra low (50mg/kg) sulphur fuels and therefore reduced SO ₂ emissions. The 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-NOx 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.	Reduced tailpipe emissions and lower concentrations of SO ₂ . Some positive impacts (not quantified) on NOx emissions,
Fuel duty	from		As above.	As above.	As above.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
incentives	2001 (EU				
for ultra low	mandator				
sulphur	y date				
petrol	was again				
	2005)				
	I	1	INDUSTRIAL POLLUTION	1	Γ
Industrial	From	The Department for Environment	Unknown.	Reduced emissions from	21% reduction in
Pollution	1997	Food and Rural Affairs (Defra), the		industry required to abate air	NOx emission
Prevention		Welsh Government, the Scottish		pollution with Best Available	between 2000 and
and Control		Environment Protection Agency		Technologies as a condition of	2009 estimated in
Implementat		(SEPA), and the Northern Ireland		their operating permit.	Wales.
ion *		Environment Agency have			
Guidelines		produced detailed guidance for		Cleaner air, notably in urban	
		regulators and operators to ensure		areas and a reduction in overall	
		effective implementation of the		UK emissions impacting human	
		IPPC Directive (2008/1/EC). For		health and the wider	
		IPPC guidelines relating to England		environment.	
		and Wales, see:			
		http://www.defra.gov.uk/environ			
		ment/quality/industrial/, for			
		guidelines concerning Scotland see:			
		http://www.sepa.org.uk/air/proces			
		<u>s_industry_regulation/ippc_directiv</u>			
		e.aspx; for guidelines concerning			
		Northern Ireland, see:			
		<u>nttp://www.ni-</u>			
		environment.gov.uk/pollution-			
		<u>nome/ippc.ntm</u> .		1	
	2011	CI			
The UK	2011-	The UK Carbon Plan, first	Still to be quantified.	TO SET OUT THE STEPS THE UK	iviany of the

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Carbon Plan	2015	published in March 2011, is a Government-wide plan of action on climate change, including domestic and international activity, which sets out actions and deadlines for the next 5 years. See: <u>http://www.decc.gov.uk/en/conten</u> <u>t/cms/what we do/lc uk/carbon</u> <u>plan/carbon plan.aspx</u>		Government will be taking to deliver a low carbon economy and meet the UK's statutory carbon budgets.	measures within the Carbon Plan will have positive impacts on air quality where 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) demonstratio n project	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	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.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
				energy mix.	
The	March	The Renewable Heat Incentive	£860 million 2011-15.	The RHI's objective is to	Reduced emissions
Renewable	2011-15.	policy to revolutionise the way		increase significantly the level	and air quality
Heat		heat is generated and used in		of renewable heat used in the	benefits as
Incentive		buildings and homes. This is the		UK. Increasing renewable heat	combustion
(RHI)		first financial support scheme for		is key to the UK meeting its	technologies are
(<u>http://www.d</u>		renewable heat of its kind in the		renewable energy targets,	replaced and
ecc.gov.uk/r		world.		reducing carbon emissions,	renewed by non-
<u>nı</u>)				ensuring energy security and	combustion
				helping to build a low carbon	renewable.
				economy. The Renewable Heat	
				Incentive (RHI) will help	
				accelerate deployment by	
				providing a financial incentive	
				to install renewable heating in	
Foodin	A			place of fossil fuels.	Deal and a set of a set
Feed In	April 2010	A system of feed-in tariffs to	The cost of the feed in tariff is	These feed-in tariffs work	Reduced emissions
	onwards.	Incentivise small scale (less than	not borne by Government. It is	alongside the Renewables	and air quality
oloctricity	Amended	5MW), low carbon electricity	a levy on Licensed Electricity	Obligation (RO), which will	benefits as
electricity	Order	generation.	Suppliers who pass this cost	remain the primary mechanism	compustion
	2011.	Flactricity Suppliars (FIT Licensed)	On to their customers.	to incentivise deployment of	replaced by low
		to pay a goneration tariff to	framework can be found here:	ange-scale renewable electricity	carbon and in some
		small scale low carbon generators	http://bm-	Heat Incontine (PHI) which will	carbon, and in some
		for electricity generated (whether	treasurv.gov.uk/psr_controlfra	incentivise generation of heat	compustion energy
		or not such electricity is exported	mework_decc.htm	from renewable sources at all	generation
		to the national grid) and an export		scales	techniques
		tariff to them where such			icenniques.
		electricity is also exported to the			
		national grid. It is intended that			

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	
	SCOPE				BENEFITS
		FITs will open up low-carbon electricity generation beyond the traditional energy companies by making it more cost effective for communities and householders to buy the units.			
Domestic energy efficiency measures – CERT	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 CO2 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.
Domestic energy efficiency	Late 2012 onwards.	The Green Deal will be a market led energy efficiency scheme with a new innovative financing mechanism in place for households	To be determined. Most costs will be met by energy companies or those consumers benefiting from	Improved domestic energy efficiency with consequent carbon emissions reductions and affordable warmth	Green Deal, including ECO, will help drive the uptake of measures which

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
measures – Green Deal and Energy Company Obligation (ECO)		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.	the energy saving measure.	improvements	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	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 Commitmen t Energy Efficiency Scheme (CRC)	From April 2010 with first allowance s 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. 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	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 CO2 emissions in large public and private sector organisations. These organisations are responsible for around 10% of the UK's CO2 emissions.	Improvements in energy efficiency will also have positive impacts on air quality.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		environment.			
Smart meters	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	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 boiler.	£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 in urban areas and therefore improve air quality. Scheme also increases efficiency so less fuel is used.	Not quantified but improvements in air quality expected.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
			RUSES		
Green Bus Fund	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	In conjunction with the Scottish Green Bus Fund it is estimated a 0.004% reduction in total road transport NOx emissions in 2011 and in 2015.
Smart and Integrated Ticketing	2009/10 2010/11	DfT paid £10m grant to the 9 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	£20m total - £10m each year.	emissions at the tailpipe. In terms of resultant air quality 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 <i>carbon dioxide</i> savings from smart ticketing due to reduced bus dwell times, reduced congestion and modal shift.	The reduction of bus dwell times and congestion are likely to have a positive benefit for air quality.

Local Sustainable Transport Fund	SCOPE 2011- 2015	interoperable smart ticketing specification). Fund for local authorities to invest	SUS				
Local Sustainable Transport Fund	2011- 2015	interoperable smart ticketing specification). Fund for local authorities to invest	SUS				
Local Sustainable Transport Fund	2011- 2015	specification). Fund for local authorities to invest	SUS				
Local Sustainable Transport Fund	2011- 2015	Fund for local authorities to invest	SUS				
Local Sustainable Transport Fund	2011- 2015	Fund for local authorities to invest		TAINABL	E TRAVEL		
Sustainable Transport Fund	2015		£560	Omillion.		Changes in travel behaviour.	Not quantified but
Transport Fund		in measures that deliver economic				Increased awareness and use of	improvements in air
Fund		growth and carbon reduction,				more environmentally friendly	quality expected.
		however, proposals which bring				travel modes. Reduced	
		about improvements to public and				emissions from switch to	
		environmental health will be				cleaner vehicles and fewer road	
		viewed favourably.				vehicle journeys. Reduced idling	
		Massures might include promotion				and congestion.	
		of walking and cycling initiatives to					
		improve integration between					
		travel modes and and to and					
		iourney experiences better public					
		transport and improved traffic					
		management schemes					
		management schemes.					
Integrated	2000	A capital grant allocated to local		Year		Improved traffic management	Not guantified but
Transport	2000-	transport authorities in England		i cui	Funding (£m)	hottor public transport and an	improvements in air
Plack Capital	2013	autsida London		2000-01	250.0	onbanced travel environment	auality expected
Grant				2001-02	542.7	for podestrians and evolists	quality expected.
Grant		Funding is distributed through a	-	2002-03	564.6	for pedestrians and cyclists.	
		poods based formula, with a	-	2003-04	658.0	Local authorities produced	
		weighting of 5% given to air		2005-06	552.6	progress reviews of their	
		quality although in practice		2006-07	547.0	second Local Transport Plans in	
		measures to reduce congestion		2007-08	576.8	autumn 2008 outlining	
		(25%) and social exclusion $(20%)$		2009-10	589.4	progress against their air quality	
		or to improve public transport				targets from 2006-08	
Integrated Transport Block Capital Grant	2000- 2015	 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. 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 		CAL AUTH Year 2000-01 2002-03 2003-04 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10	Formula Funding (£m) 250.0 542.7 564.6 612.5 658.0 552.6 547.0 571.0 576.8 589.4	 vehicle journeys. Reduced idling and congestion. 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 	Not quantified b improvements ir quality expected

NAME	DATES AND SCOPE	DESCRIPTION	COS	ST TO GO	VERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		(30%) will often be beneficial for air quality as well.		2010-11	450 (after £150m 10/11 in year savings)		
		Funding is not ring-fenced. Areas		11/12	£300m		
		management (such as road signs		12/13	£320m		
		and markings, road layout,		13/14	£320m		
		calming), public transport		14/15	£450m		
		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).			<u> </u>		
Local Transport Plan Framework	2001- 2016	The concept of Local Transport Plans was introduced in the 1998 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	Con	siderable	time resource.	Improved transport and spatial planning taking account of air 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.	Not quantified but improvements in air quality expected.

Noto Determs SCOPE 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. 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. Interest in the Plan – this makes authorities and poly index 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, with references to good practice and policy information for local authorities on air quality. Attaches increased importance to air quality amongst local authorities and encourages local air quality improvement. Not quantified but improvements in air quality expected. National Indicator from local authorities on as the basis for one of up operations Unknown. Attaches increased importance to air quality improvement. Not quantified but improvements in air quality expected.	NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	
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National IndicatorUntilThe air quality indicator, N1194, operations, with the option for the to 35 improvement targets, AllUnknown.Attaches increased importance to air quality amongs local authorities and encourages local air quality improvement.Not quantified but improvement.National authorityUntilThe air quality to use this authority to use this to 35 improvement targets, AllUnknown.Attaches increased importance to air quality improvement.Not quantified but improvement targets, All			interest in the Plan – this makes			
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Image: Second			to statutory Guidance produced by			
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194 on PM10 on emissions of NOx and primary authorities and encourages quality expected. and NOx PM10 from their own estates and local air quality improvement. local air quality improvement. emissions operations, with the option for the top-tier authority to use this local air quality improvement. authority indicator as the basis for one of up to 35 improvement targets. All local air quality improvement	Indicator	2010	requires local authorities to report		to air quality amongst local	improvements in air
and NOx operations, with the option for the local air quality improvement. emissions operations, with the option for the local air quality improvement. from local top-tier authority to use this local air quality improvement. authority indicator as the basis for one of up local air quality improvement. operations to 35 improvement targets. All local air quality improvement.	194 ON PIVI ₁₀		on emissions of NO _x and primary		authorities and encourages	quality expected.
from local top-tier authority to use this authority indicator as the basis for one of up operations to 35 improvement targets. All			Pivi ₁₀ from their own estates and		liocal air quality improvement.	
authority indicator as the basis for one of up operations to 35 improvement targets. All	from local		top tion authority to use this			
operations to 35 improvement targets. All	authority		indicator as the basis for one of up			
	operations		to 25 improvement targets All			
local authorities not just those	operations		local authorities not just those			

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND SCOPE				BENEFITS
		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.			
	•		ROADS		
Managed Motorways	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 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.	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. 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 	Active Traffic Management (ATM) at 50 mph reduced emissions of PM ₁₀ by 10% and NOx by 5% <i>per vehicle</i> ; however, the capacity of the roads is increased under ATM.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
				of traffic management	
				elsewhere on the network.	
Controlled Motorways	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). 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	Unknown.	 elsewhere on the network. 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 consumption. 	No specific studies, but expected to have similar per vehicle effects as Managed Motorways.
		Use of the system to assist in			
		controlling traine in special			

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
					BENEFITS
	SCOPE	circumstances (for example, during			
		long-term roadworks or special			
		events).			
Vehicle	2008 -	The Removal and Disposal of	Unknown.	Reduces road congestion and	Not quantified but
Recovery	onwards	Vehicles (Traffic Officers) (England)		the associated emissions from	improvements in air
		Regulations 2008, came into force		vehicle tailbacks and idling.	quality expected
		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			
		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	Current	This guidance and air quality tool is	Unknown.	Air quality impacts properly	Not quantified but
Manual for	version -	produced by the Highways Agency		accounted for in road design	improvements in air
Roads and	2007	for air quality assessments of road		and mitigated appropriately.	quality expected
Bridges		schemes, multi-modal studies. It is		This includes local	through proper
(DMRB) -		also used by local authorities		concentrations as well as	appraisal and
Revised		carrying out their second phase		regional emissions.	mitigation.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
Guidance for		review and assessments and			
Air Quality		consultants in planning and			
Assessments		development control assessments.			
TIO ₂ Barrier	2008 -	The HA has undertaken a trial of	Unknown.	Laboratory trials had shown	None overall.
(not Wales –	2009	noise barriers painted with IIO ₂ to		that the NOxer© material was	
as research		remove NOx along a section of the		capable of removing up to 80%	
led by HA)		M60 in Manchester.		of oxidized nitrogen pollutants	
				from the air.	
				The results of this trial indicated	
				that the barrier did remove NOv	
				at the barrier face under	
				at the barrier face under	
				However, these conditions	
				occurred so infrequently that	
				over the course of the trial the	
				barrier had no overall effect	
			COTLAND ONLY MEASURES	barrier had no overall effect.	
			BUSES		
Extension of	Introduce	Introduced through The Public	No costs to date, as no local	Reduced emissions from buses	None to date as
Traffic	d in	Service Vehicles (Traffic Regulation	authority has made a request	and therefore improved air	powers have not vet
Regulation	2008-	Conditions) Amendment (Scotland)	vet.	quality.	been used.
Conditions	ongoing	Regulations.	,		
to cover					
emissions		Allows local authorities to request			
standards		the Traffic Commissioner for			
for buses.		Scotland to attach a Traffic			
		Regulation Condition to a bus			
		operator's licence requiring			
		specified Euro standards to be			

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE				
		achieved in defined areas for the purposes of improving air quality.			
Scottish Green Bus Fund.	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 NOx 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 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.	An increase in the percentage of journeys made by bicycle.	Too early for any outcomes to be determined.
Smarter Choices, Smarter Places.	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.

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
			WALES ONLY MEASURES		
			SUSTAINABLE TRAVEL		
Sustainable Travel Centres Initiative	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
Personalised Workplace and School Travel Planning Programme	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*	2010-11	Smarter Choices refers to a variety of initiatives aimed at encouraging people to use more healthy and sustainable travel through the	£21.5 million.	Expecting increased use of more sustainable travel, and therefore modal shift leading to reduced congestion, reduced	Not quantified but improvements in air quality expected.

NAME E	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		 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 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 		emissions and improved air quality. Increased awareness of healthy and sustainable choices/lifestyles.	

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
		car-sharing and work with large			
		employers to develop and			
		implement travel plans.			
Travel	2010-11,	Part of the Climate Change	The Welsh Government funds	More sustainable travel, change	Not quantified but
Planning and	2011-12	Strategy for Wales: Delivery Plan	the Regional Travel Plan	in behaviour away from cars.	improvements in air
provision of		for Emission reduction. To	Coordinators. Approx £200k	Improved health and reduced	quality expected.
personalised		strengthen the role of transport	per year.	emissions from fewer car	
travel		planning, with view to reducing the		journeys and improvements to	
information		overall need to travel. Group and		air quality.	
		personal travel planning roll out.			
		Travel Plan Coordinator, Traveline			
		Cymru and Sustrans Cymru delivery			
		of Travel Champion Training			
Change 4	2010-11	To preventing ill health and fight	The Change4Life budget for	A behavioural in lifestyle (e.g.	Not quantified but
Life		obesity, this will in turn free up our	9/10 and 10/11 was £280k per	Modal change from using card	improvements in air
Campaign		health service to treat unavoidable	annum.	to using bikes) that will prevent	quality expected,
		disease.		ill health and could lead to	with less vehicle use.
		Promotes the importance of		significant increases in life	
		general healthy lifestyle messages		expectancy.	
		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.			

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE				
Walking and	2010-11,	The Welsh Government aims to	£18 million.	More sustainable travel, to	Not quantified but
Cycling	2011-12	encourage more people to walk		create a behavioural change	improvements in air
Action Plan		and cycle more safely and more		from cars. Improved health and	quality expected.
2009 – 2013		often. This Action Plan explains		reduced emissions from fewer	
		how the Welsh Government and		car journeys and improvements	
		our partners are		to air quality.	
		supporting walking and cycling in			
		Wales.			
Bwbca Bus	2009-12	An innovative demand responsive	£350,000.	Project has seen an increase of	Not quantified but
Project		transport scheme that provides		around 37% in the number of	improvements in air
		community bus services in rural		passengers using the service.	quality expected.
		Carmarthenshire. Looking at plans		This has helped more people to	
		for expansion of the operational		travel sustainably and	
		area. <u>http://www.traveline-</u>		encouraged model shift away	
		<u>cymru.info/bwcabus/</u>		from the private car.	
				Reducing emissions from cars	
				will improve air quality.	
Support for	2000-01	Financial support for local bus	The Welsh Government is	Encourage more people to	Not quantified but
Local Bus	and	services through Bus Service	providing around £11m for	travel by public transport.	improvements in air
Services*	2008-	Operators' Grant (BSOG) and Local	LTSG in 2011-12. Has	Reducing emissions from cars	quality expected.
	2011	Transport Services Grant (LTSG)	provided around £21.5m in	from having fewer cars on the	
		that help support commercial and	BSOG to bus operators in	road and reduced idling will	
		socially desirable bus services. In	2010-11.	improve air quality.	
		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			

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		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.			
Regional Transport Plans	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 Motorway Variable Speed Limit Scheme (VSL)	Jan 2010- June 2011	The M4 Variable Speed Limit 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.	£20 million	VSL has the effect of reducing 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	Observations from 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

NAME	DATES AND	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
	SCOPE				
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 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	Cost unavailable as of April 2011.	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. 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 information and support to households, enabling people to walk, cycle and use public transport more often.	emission reductions against these estimates. Improvements expected to reduce vehicle congestion and reduce traffic numbers. Vehicle emissions expected to reduce with improvements in air quality.
Upgrading of	2009-	To upgrade the existing Steelworks	Phase One	To provide a relief route for the	To reduce
the existing	2011	Access Road through Tata's	£2 million	M4 motorway.	congestion. Not

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
Steelworks		Llanwern Site. Phase 1			quantified but
Access road		Work between Newport's	Phase Two		improvements in air
		Distributor Road at Lliswery and	£11 million		quality expected.
		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			
		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	Start/end	M4 Motorway junction	Cost not available as of April	To reduce congestion.	To reduce
Tredegar	dates	improvement work.	2011.		congestion. Not

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND SCOPE				BENEFITS
Park Area	unknown				quantified but
	at present				improvements in air
Churcheneile	2010 11	Dout of the Oliverte Change	C20 willing for this and for		quality expected.
Strategic	2010-11,	Strategy for Wales: Delivery Plan	±20 million for this and for	in behaviour away from cars	improvements in air
Intorchanges	2011-12	for Emission reduction. Broyiding		In behaviour away from cars.	auality expected
Interchanges		"nark and share" opportunities	ineasure.	emissions from fewer car	quanty expected.
		increasing vehicle occupancy		journeys and improvements to	
		enhanced provision for walking and		air quality.	
		cycling at the modal interchange			
		sites.			
Promotion	2010-11,	Part of the Climate Change	£300k	More sustainable travel through	Not quantified but
of eco	2011-12	Strategy for Wales: Delivery Plan		increased awareness of	improvements in air
driving		for Emission reduction. Support for		optimum vehicle driving, should	quality expected.
		Programmes that promote eco-		lead to improved air quality.	
		driving in a safe and fuel-efficient			
Curren outline of	2010 11	Way	C2 million		Increased boots
Supporting	2010-11,	Part of the Climate Change	±3 million	whore sustainable travel, model	improved nealth
industry to	2011-12	for Emission reduction. Bange of		operations untake of cleaner	emissions freight
reduce		measures to reduce emissions from		vehicles – improved AO	sector
emissions		the freight sector – best practice		venieles improved rig	
		programme			
Alternative	2010-11,	Part of the Climate Change	Approx £20 million in total for	More sustainable travel, switch	Not quantified but
fuels	2011-12	Strategy for Wales: Delivery Plan	this and strategic modal	to sustainably sourced less	some improvements
infrastructur		for Emission reduction. Programme	interchanges measure.	polluting fuels e.g. electricity	in air quality
e		of activities aimed at using		and hydrogen should lead to	expected.
		alternative fuels and development		improved air quality Improved	
		of technologies.		health and reduced emissions	
				from combustion of cleaner	

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
	AND				BENEFITS
	SCOPE				
				fuels.	
	P		RESEARCH		1
Climate	2011-	The universities of Aberystwyth,	£4 million initiative from	Better integrated research on	Improved air quality
Change	2015	Bangor, Cardiff and Swansea have	Welsh Government through	links between climate change	through increased
Consortium		joined together to launch the	the Higher Education Funding	and air quality.	knowledge/actions.
of Wales		research consortium climate	Council for Wales (HEFCW).		
(C3W).		change research in Wales to world-			
		class standards.			
		NORTI	HERN IRELAND ONLY MEASURES		
	I		ROADS	1	
New traffic	Launched	A system that monitors the speed	£10 million	Reduced traffic congestion and	Not quantified but
control	Septembe	and flow of traffic. As congestion		emissions and therefore	improvements in air
system on	r 2010.	starts to occur, the traffic control		improvements in air quality.	quality expected.
the		system will automatically adjust			
M1/Westlink		the speed limit accordingly.			
in Belfast.					
	I		SUSTAINABLE TRAVEL	1	
Regional	To 2025	Sets out the spatial development	Costs not available.	Expecting a move to more	Not quantified but
Developmen		framework for Northern Ireland.		sustainable travel and therefore	improvements in air
t Strategy				reduced transport emissions	quality expected.
for Northern				and improvements in air	
Ireland				quality.	
Regional		A Review of the Regional	Costs not available.	Expecting a move to more	Not quantified but
Developmen		Development Strategy for		sustainable travel and therefore	improvements in air
t Strategy		Northern Ireland - currently out to		reduced transport emissions	quality expected.
for Northern		consultation.		and improvements in air	
Ireland – 10				quality.	
year Review					
Regional	2002-	Identification of strategic	Costs not available.	Expecting a move to more	Not quantified but

NAME	DATES	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY
					BENEFITS
Transportati	2012	transportation investment		sustainable travel and therefore	improvements in air
on Strategy		priorities and considers potential		reduced transport emissions	quality expected.
for Northern		funding sources and affordability of		and improvements in air	
Ireland		planned initiatives.		quality.	
Draft		High level strategic planning	Costs not available.	Expecting a move to more	Not quantified but
Regional		document to set a new direction		sustainable travel and therefore	improvements in air
Transportati		for transportation – currently at		reduced transport emissions	quality expected.
on Strategy		discussion stage.		and improvements in air	
2011 – A				quality.	
Sustainable					
Transport					
Future					
Belfast	To 2015	A plan to encourage more	Costs not available.	Modal shift away from private	Not quantified but
Metropolita		sustainable transport		road transport, reductions in	improvements in air
n Transport		system with high priority given to		congestion and vehicle activity	quality expected.
Plan		public transport, walking and		and therefore reduced	
		cycling.		emissions and concentrations.	
Regional	To 2015	How the network will be developed	Costs not available.	More sustainable traffic	Not quantified but
Strategic		and maintained across a range of		management and therefore	improvements in air
Transport		transport modes.		reductions in emissions and	quality expected.
Network				improvements in air quality.	
Transport					
Plan					
Sub-	To 2015	A balanced set of proposals for	Costs not available.	Modal shift away from private	Not quantified but
Regional		improvements in local transport.		road transport, reductions in	improvements in air
Transport				congestion and vehicle activity	quality expected.
Plan				and therefore reduced	
				emissions and concentrations.	
Walking		Series of actions that will help	Not possible to identify costs	Modal shift away from private	Not quantified but
Northern		guide the delivery of the RTS	of implementation of	road transport, reductions in	improvements in air

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
Ireland Action Plan		walking measures on the ground and provide complementary improvements to assist in the achievement of targets.	measures across a range of delivery agencies.	congestion and vehicle activity and therefore reduced emissions and concentrations.	quality expected.
Cycling Strategy	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		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.		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.
Freight Forum		The Department for Regional Development (Northern Ireland) and the Department of Transport	In-kind for staff resources.	A series of measures to enhance the competitiveness and sustainability of the domestic	As yet unknown but improvements in air quality expected.

NAME	DATES AND SCOPE	DESCRIPTION	COST TO GOVERNMENT	OBJECTIVE	AIR QUALITY BENEFITS
		Ireland have jointly set up an All Island Freight Forum structured around the themes of sustainability, competitiveness and connectivity.		freight sector. Should reduce vehicle journeys, emissions and improve air quality.	