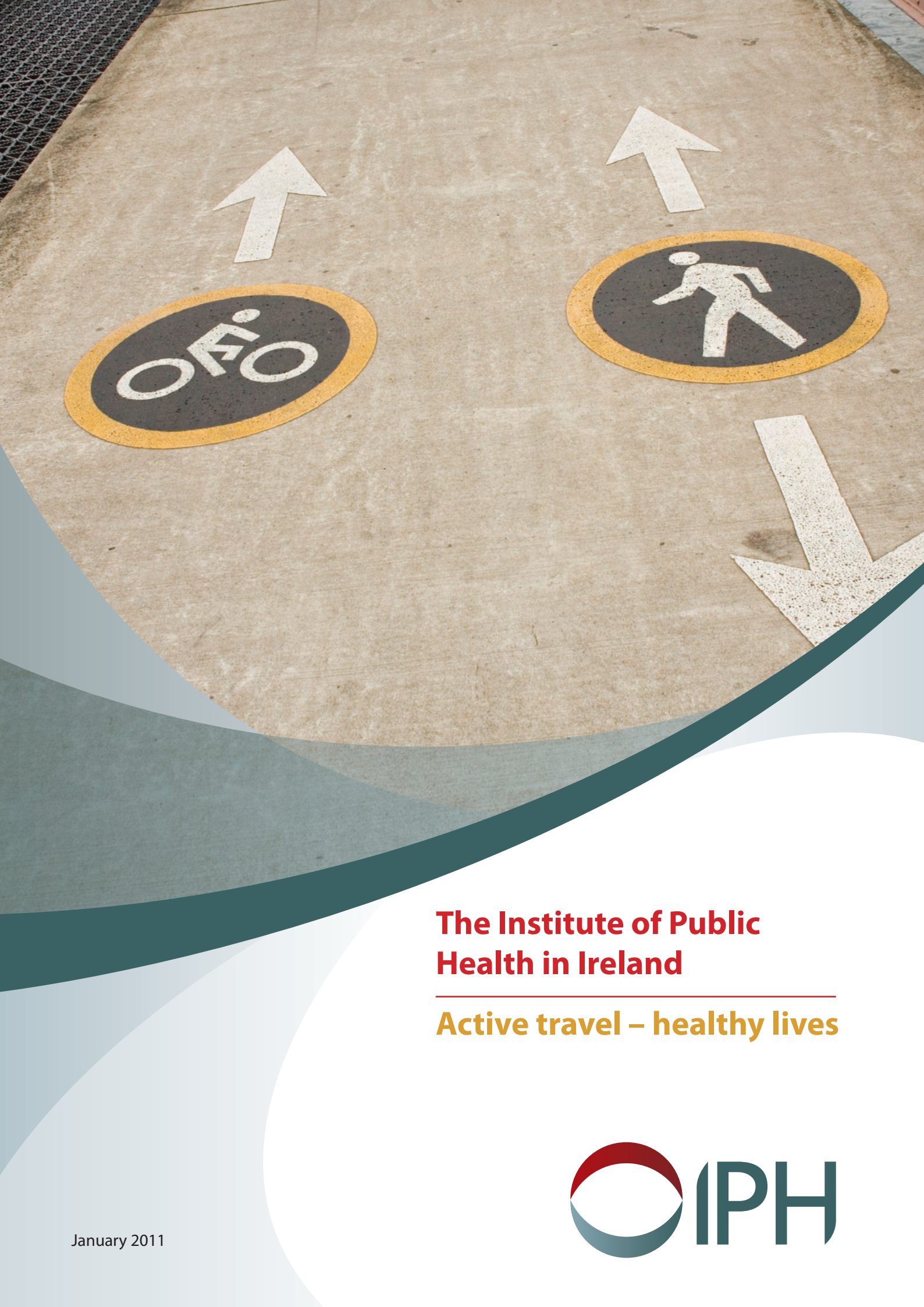




**The Institute of Public
Health in Ireland**

Active travel – healthy lives

January 2011



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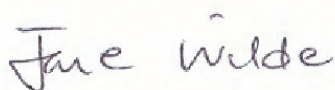
Foreword

The Institute of Public Health in Ireland (IPH) promotes cooperation in public health between Northern Ireland and the Republic of Ireland. It aims to improve health by working to combat health inequalities and influence public policies in favour of health.

IPH recognises that health starts where we live, learn, work and play. To support policy makers and practitioners working in both health and non health sectors, IPH has produced policy papers and evidence briefings in a range of areas including education, employment, fuel poverty, the built environment and transport.

This document builds on our 'Health impacts of transport' (2005) paper and focuses specifically on the importance of choosing physical activity to get to work, shop or visit people. It shows how active travel positively influences health and health inequalities and highlights its economic benefits.

Making active travel a viable, safe and attractive alternative to car use requires policies which incorporate health and equity into transport planning. The broad range of environmental and behavioural factors that influence people's choices about travel must be taken into account. An integrated policy approach is needed which includes legislation, planning, financing, implementation and monitoring. The overall aim of policy and intervention to increase active travel should be making the healthy choice the easy choice.



Jane Wilde
Chief Executive
Institute of Public Health in Ireland



Introduction

Active travel refers to journeys that use physical activity, such as walking and cycling, instead of motorised means to move between locations. These journeys are generally understood as travel for purposes such as going to work, the shops or visiting friends as opposed to recreational walking or cycling.

Active travel has a key role to play in improving health and reducing health inequalities. [1] However, across Ireland, most journeys are made by car and this is increasing. In Northern Ireland, car travel accounted for 70% of all journeys made in 2007-2009. [2] 18% of journeys were made on foot but only 1% by bicycle. In the Republic of Ireland, almost two thirds of commuters travelled to work by car in 2006 while only 11% walked and 2% cycled. [3]

Table 1: Mode of travel for all journeys in Northern Ireland 1999-2009 [2, 4]

Mode of travel / Year	Car	Train or bus	Walk	Cycle
1999-2001	68%	6%	19%	1%
2001-2003	69%	5%	19%	1%
2003-2005	69%	6%	18%	1%
2005-2007	70%	5%	18%	1%
2007-2009	70%	5%	18%	1%

Table 2: Mode of travel to work in Republic of Ireland 1986-2006 [3]

Mode of travel / Year	Car	Train or bus	Walk	Cycle
1986	45%	10%	13%	6%
1996	55%	9%	11%	4%
2006	63%	9%	11%	2%

In Northern Ireland, half of all journeys less than 2 miles and almost two thirds of journeys less than 5 miles are made by car. [5] In the Republic of Ireland, half of all car owners in the Greater Dublin Area drive for trips of less than one mile. [6] There is considerable scope to replace these journeys with walking and cycling and doing so would bring about a range of benefits to health. Switching to more active modes of travel can also reap substantial economic benefits for individuals and for society as a whole.



Factors influencing current modes of travel

Personal, socio-cultural and environmental factors influence people's ability and preference for active travel.

Age and gender are significant predictors of choice of mode of transport. Across Ireland, younger people are more likely to walk or cycle than those in older age groups and men are more likely to cycle while women are more likely to walk. [5, 7] Physical location is also a factor. Rural populations are less likely to walk or cycle to work than people living in urban areas: 16% of rural dwellers in the Republic of Ireland walk or cycle to work compared with 28% of urban dwellers. [8]

Personal and community attitudes towards active travel are important influences. Subjective norms such as personality, attitude, information and experience of different modes of travel can influence travel mode choice [6] as can factors such as time allocation and activity scheduling. [7] Factors preventing people from making active travel choices include a lack of information (being unaware of public transport services or the existence of bike routes) as well as perceptions about different modes of travel (many people overestimate public transport cost and travel time, and underestimate these for their car). [9]

Fast vehicle traffic is commonly cited as a barrier to walking and cycling while the availability of paths and cycleways increases the likelihood of people walking and cycling to reach their destination. [10] Proximity of destination can also be an important factor in determining travel mode. [11, 12] For example, the further a young person lives from school the less likely they are to walk or cycle. [13-16] Based on research conducted amongst adolescents in Ireland, a suggested acceptable distance for active travel to school is 2.4kms for walking and 4kms for cycling which means that distance alone precludes many young people from choosing these modes. [13] Equally, commuting patterns show that the distance travelled between home and work often precludes active travel alone as a reasonable choice. Only 22% of workers in the Republic of Ireland commute 4kms or less while a further 15% travel between 5 and 9kms. [17]

In the UK, the Foresight report 'Tackling obesity' considered a wide range of influences on the walkability and cyclability of an area including measures that could be objectively measured as well as those subject to personal perceptions. Objective measures included area deprivation, availability and access to key destinations, urban form, aesthetics and quality, and supportiveness. Perceived measures included safety, availability and access, convenience, local knowledge and satisfaction, urban form, aesthetics, and supportiveness of neighbourhoods.



It was found that residents of highly walkable neighbourhoods and those living in areas with high land-use mix are more active than their counterparts in less walkable neighbourhoods. No consistent pattern of association was found between perceived measures and overall activity and the authors suggest that this may be because those already engaging in higher levels of physical activity perceive their environment differently to people who are more sedentary in their lifestyles. This raises the question of whether modifications to the environment will lead to more activity among sedentary people or if the main effects will be on those who are already active. [18]

Another issue to consider is whether trip purpose affects mode of travel. While much attention has been paid to journeys to work or school, these account for only a fraction of overall trips made. In Northern Ireland, commuting accounted for 16% of all journeys in 2007-2009 [2] while a survey conducted in the Greater Dublin Area¹ found that these journeys accounted for around one third of the total distance travelled per year. [6] Other journeys such as those made for shopping, leisure and accessing services make up the majority of travel. A study across four UK cities comparing the percentage of walking and cycling trips by distance and purpose found significant differences between rates of active travel for trips of the same distance but different purposes. For example, 80% of journeys to school of 800-1400m length were made by foot or bicycle while only 40% and 25% of the same length journey to outdoor recreation and food superstores respectively were undertaken by active means. [19]

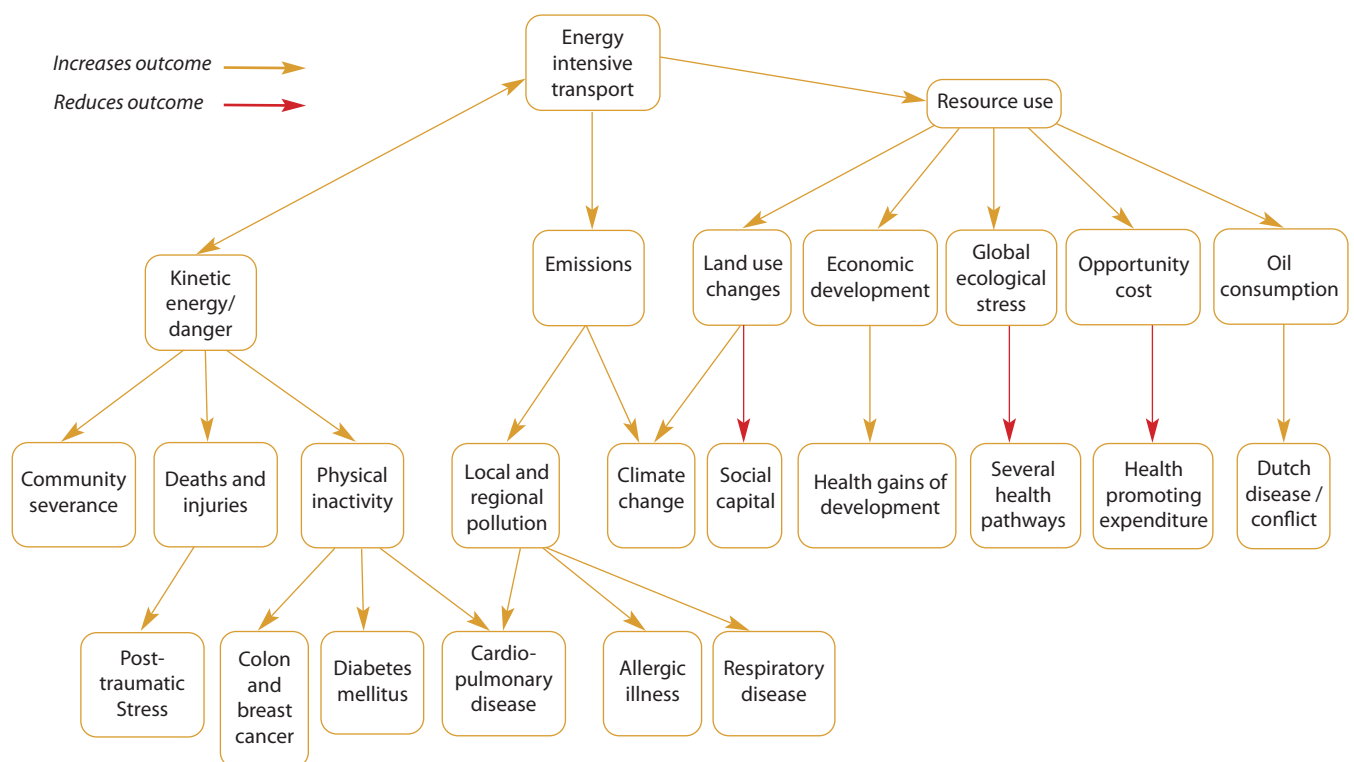
¹ This data is not routinely collected at the national level in the Republic of Ireland.



Health impacts of active travel

Choosing active forms of travel can bring about immediate health benefits for individuals primarily through increasing their levels of physical activity. Population level benefits accrue when more people switch from car travel to walking and cycling as this leads to less road traffic injuries and improved quality of life in neighbourhoods as well as increased safety from anti-social behaviour due to more people on foot or bicycle in the area. Less road traffic also reduces greenhouse gas emissions, improves general air quality and reduces noise all of which have associated health benefits. The health risks associated with energy intensive transport, such as travel by private car, are illustrated in Figure 1 while the benefits of active travel are described in subsequent sections.

Figure 1: Health risks associated with car travel [20].



Increased levels of physical activity

Physical activity guidelines suggest that adults should be at least moderately active for 30 minutes or more and children for 60 minutes or more 5 days per week for optimum health benefits. [21] Current levels of physical activity across the island of Ireland are much lower than this with only one in two children meeting the minimum amount of recommended activity while around one fifth of adults engage in exercise less than weekly.

Table 3: Levels of physical activity across the island of Ireland²

	Percentage of children who vigorously exercise four or more times weekly	Percentage of children who vigorously exercise less than weekly	Percentage of physically active adults ³	Percentage of sedentary adults ⁴
Republic of Ireland [22, 23]	53%	11%	55%	22%
Northern Ireland [24, 25]	47%	6%	30%	23%

Incorporating physical activity into everyday activities is considered to be one of the most sustainable ways of increasing activity. A significant association has been found between mode of commuting and physical activity. [26] Replacing short car trips with walking and cycling thus presents a major opportunity for improving levels of physical activity among children, adolescents and adults. Where longer trips are necessary, substituting car travel with public transport can help to achieve recommended levels of physical activity as such trips usually involve walking to and from transport interchanges. [27]

Children and adolescents who actively commute to school attain more minutes of daily physical activity than those who use motorised transport. [28] As well as being more active on the journey, walking to school has been shown to be associated with higher levels of activity throughout the school day. [29, 30] Analysis of national travel survey data has shown that countries with the highest levels of active travel have the lowest obesity levels. [31]

Being physically active everyday is one of the best ways to get healthy and stay healthy. Physical activity is a key factor in preventing obesity and obesity-related diseases such as diabetes, cardiovascular disease and some types of cancer. It can also help to improve mental health and maintain strong bones. [32, 33] Research also suggests that being physically active can help older people continue to live independently for longer. [34]

Less road traffic injuries and deaths

Despite improvements to road safety in recent years, road traffic collisions continue to account for a significant number of deaths and injuries across the island of Ireland.

- 2 As different studies (see references) are used in the Republic and Northern Ireland for children and adults these figures may not be directly comparable.
- 3 The term physically active is used in the Republic of Ireland survey to describe adults who participate in vigorous exercise at least 2-3 times per week for a minimum of 20 minutes each time or in moderate exercise 4-5 times per week accumulating to at least 30 minutes per day. In the Northern Ireland survey it is used to describe adults who are at least moderately physically active for 30 minutes or more per day on 5 or more days per week.
- 4 In the Republic of Ireland, respondents were asked to state if they were or had been regularly physically active over the past six months. In Northern Ireland, respondents were categorised as sedentary if they had not participated in at least moderate exercise for more than 20 minutes in the last week.



Table 4: Road traffic deaths and injuries⁵

Year ⁶	Republic of Ireland [35]		Northern Ireland [36]	
	Deaths	Injuries	Deaths	Injuries
2005	396	9318	135	8024
2006	365	8575	126	9056
2007	338	7806	113	9323
2008	279	9758	107	9444
2009	239	NA	115	9652

Across the island, pedestrians and cyclists account for around one fifth of these deaths. Given the low numbers of pedestrians and cyclists in Ireland compared to other road users (see Tables 4 & 5), it is clear that using these modes of travel in a car-dominated environment carries an increased risk of injury. This correlates with data from elsewhere - walking and cycling generally carry a 5-10 times higher risk of injury per kilometre travelled than driving a car. [37, 38]

Table 5: Pedestrian and cycle deaths as a percentage of all road traffic deaths

Year	Republic of Ireland [35]	Northern Ireland [36]
2005	21.2%	21.6%
2006	22.2%	18.8%
2007	28.4%	19.1%
2008	22.2%	21.7%
2009	19.7%	18.8%

However as levels of active travel increase, rates of pedestrian, cyclist and overall road traffic injuries have been observed to decline, suggesting a 'safety in numbers' effect. [39] In countries such as Germany and the Netherlands where walking and cycling rates are high, pedestrian fatalities per billion kilometres walked are less than a tenth and bicyclist fatalities are only a quarter of those in the USA where travel by private car remains the dominant mode. [40] Elsewhere, it has been calculated that the risk of collision between motorist and pedestrian or cyclist declines by more than one third if walking and cycling double in an area. [41]

Motor vehicle speed is a key factor in both the frequency and severity of pedestrian and cyclist injury. Pedestrians have a 90% chance of surviving car crashes at 30km/h or less but less than a 50% chance of surviving an impact at 45km/h or above. [42] Among adult cyclists, frequency of brain injury rises from 17% at 30km/h impact to 66% for impact speed above 51km/h. [43] There is growing evidence to suggest that reducing vehicle speed in built up areas increases both the prevalence and safety of active travel. [44, 45]

⁵ Injuries include both serious and minor.

⁶ Data in Northern Ireland is collected from April to March. Data presented as 2009 in the table reflects all deaths from April 2009-March 2010.



Better air quality and reduced greenhouse gas emissions

Road transport is a significant contributor to air pollution across the island of Ireland. [46, 47] Motor vehicles emit a wide variety of pollutants, principally carbon monoxide (CO), oxides of nitrogen (NOx), volatile organic compounds (VOCs) and particulates (PM10), which have an increasing impact on urban air quality. [48] Vehicle emissions also contribute to the accumulation of greenhouse gases (GHG) in the atmosphere. In 2007, the transport sector accounted for 20.8% of GHG emissions in the Republic of Ireland and 22% in Northern Ireland. [49, 50] Short car trips generally produce a higher rate of emissions per mile than longer journeys therefore replacing just 5% of car travel with walking or cycling can reduce emissions by 4-8%. [51]

While pedestrians and cyclists produce no air pollution, they are exposed to poor air quality. [52] Transport-related air pollution contributes to an increased risk of death, particularly from heart and lung diseases and increases the risk of respiratory symptoms. [53] Urban air pollution has also been associated with poorer birth outcomes, child development and lower birth rate. [54-56]

GHG emissions exacerbate climate change. Health impacts of climate change can be seen in the short-term through flooding, heatwaves and other extreme weather events as well as more long-term impacts due to weather-related changes to food security, clean water and vector-borne illness. [57]

Less noise

Noise caused by road, rail and air transport is the most significant source of community noise throughout Europe. The World Health Organization's (WHO) guidelines on community noise limit outdoor residential area levels to 55 decibels (dB) during the day and to 40dB at night. [58, 59] Exposure is higher in dense urban areas and where people are located close to roads. In Northern Ireland, approximately 9% of the population living within the Belfast area are exposed to night time levels above 45dB while 6% are exposed to 24-hour levels above 55dB. [60] In the Republic of Ireland, 44% of residents in the Dublin area are exposed to night time levels above 55dB and 2% are exposed to 24-hour noise levels above 75dB. [59] Residents in Dublin city centre are particularly exposed to high night time traffic noise. [61]

Exposure to community noise affects people's health and well-being in various ways. It can disrupt communication, affect sleep quality, cause annoyance and reduce performance. Prolonged or excessive exposure to noise can cause hypertension and increased cardiovascular risk. Risk of stroke is also higher amongst elderly people exposed to high levels of traffic noise. Bronchitis and other respiratory symptoms may also increase and arthritic symptoms may also worsen for some vulnerable groups including elderly people and children. Noise exposure also affects children's ability to study and learn. [62-65]



Greater opportunities for social interaction and community cohesion

Social benefits can be difficult to quantify but evidence suggests that active travel promotes social cohesion and enhanced community life by increasing opportunities for social interaction within a neighbourhood. [66] Reduced vehicular traffic increases the likelihood of neighbourly interactions occurring while at the same time, pedestrians and cyclists have greater opportunities to interact with their surroundings than car users. [67, 68] Reduced traffic volumes also make streets safer for children thus increasing their opportunities for independent mobility, outdoor play and social interaction. [69-72] The benefits to health of increased social cohesion and social capital include both mental and physical effects. [73, 74]

In contrast, land use planning and transport infrastructure that favours travel by private car can restrict access to services and facilities leading to community severance, i.e. the separation of residents from services and facilities used within a community. Many services and facilities are difficult to access for non-car users due to their location or a design which inhibits pedestrian or bicycle access, for example lack of footpaths, absence of safe road crossings or no secure facilities for bicycles. As well as the negative health impacts associated with reduced access, community severance can disrupt social networks and reduce social support and social cohesiveness. [75] Some groups, such as elderly and disabled people may be particularly vulnerable to these impacts. [76]



Reducing health inequalities through active travel

Health inequalities are differences in health outcomes and life expectancy between different population groups, for example socio-economic group, age or gender. Health inequalities can be affected by interventions to increase active travel in a number of ways. Some groups, such as children and older people, are more susceptible than the general population to negative health impacts associated with car travel thus interventions to increase active travel may benefit such groups more. At the same time population wide interventions that fail to take account of the different needs of different groups, may lead to a widening of inequalities especially in the short term.

Traffic, noise, crime, litter, poor street lighting and poor quality public transport discourage people from walking and cycling and these factors can be more prevalent in disadvantaged communities. [77] Air and noise pollution are also more common in deprived areas, largely due to higher road and traffic density. [78, 79] People from lower socioeconomic groups have higher cases of injury and deaths from traffic accidents. [80] Data from Northern Ireland shows that children living in the most deprived areas are almost five times more likely to be injured as a pedestrian in a road collision as children resident in the least deprived areas. [81] Also, those on low incomes are less likely to own a car which can limit access to services that are difficult to reach by other means such as walking or public transport. [82]

Children's exposure to and health effects of transport-related pollutants may differ from adults since their physiology differs, they spend time in different settings and they behave differently. [83, 84] Older people are more likely to suffer adverse outcomes from road traffic collisions and may also be more vulnerable to negative health impacts of transport related air and noise pollution. This is especially true for those with underlying illness. [53, 85] Safety concerns may be a higher priority for older people than the general population. Other factors such as limited ability to walk long distances and short term memory loss can decrease the likelihood of those affected by such impairments to choose active forms of travel. [86, 87] However the influence of culture and social norms should not be ignored, for example in countries such as the Netherlands and Germany, elderly people use active travel for around half of all their trips compared to the USA where active travel accounts for only 6% of all trips made by the same age group. [40]



Economic benefits of active travel

A population shift to active travel can bring substantial economic benefits through improved health. Savings may be made through reduced healthcare costs, better productivity and less time off work due to serious illness or disability. [88] For example in Scotland, it is estimated that if 40% of all short journeys were switched from car to bicycle, this would result in a saving of at least £2 billion per year due to reduced mortality and closer to £4 billion per year when improved health is included. [89]

At the same time it should be recognised that providing active and sustainable transportation infrastructure is much less expensive than building new roads. The Ontario Ministry of Transportation estimated that providing paved shoulders for cyclists costs between CAD\$50,000⁷ and \$100,000 per kilometre and \$250,000 per kilometre for paved pathways. The cost to widen an urban arterial road to four lanes, on the other hand, costs roughly \$1.3 million per kilometre. [90]

The age at which injury or ill-health occurs is significant from an economic perspective: death or serious injury in a young person yields a higher number of years of potential life lost (YPLL) than the same incident in an older person.

Assessing the health costs of transport

A range of tools have been developed to express costs of some transport-related health effects, such as road traffic collisions, air and noise pollution and physical inactivity, in monetary units. Other health impacts such as community severance, social isolation and mental health effects are more difficult to express in monetary terms.

Physical activity

An increasing amount of work is being done to measure in monetary terms the health effects of increased physical activity in active travel. However estimates vary widely, one study calculated such benefits at CAD\$0.05 per mile [88] while another estimated this to be as high as NZD\$4.27⁸ per kilometre.⁹ [91] A systematic review of approaches taken to including health effects of physical activity in economic analyses of transport projects found a wide variation in such approaches. It also noted a frequent lack of transparency of methods. [92]

An international project to develop guidance and tools for practitioners to quantify health effects of cycling and walking has, to date produced a health economic assessment tool (HEAT) for cycling. While the HEAT model focuses only on mortality (not morbidity), its application in several countries has suggested considerable savings can be made by increasing population levels of cycling. For example in Austria, cycling represents about 5% of travel with an



⁷ Canadian Dollars.

⁸ New Zealand Dollars.

⁹ NZD\$1 is equivalent to approximately CAD\$0.75.

average trip length of 2kms. Applying the model shows that the current level of cycling saves 412 lives per year in terms of reduced mortality from being regularly physically active. This reduced mortality translates to annual savings of €405 million. [93]

Road traffic collisions

Road traffic collisions may account for as much as 77% of all health costs attributed to motorised road transport. [94] Many countries now provide guidance on how to assess the costs of road traffic collisions. For example in the Republic of Ireland, the market price of one fatality in 2008 was €2,367,941¹⁰ which includes lost output, human costs and medical costs but excludes other accident-related costs such as damage to property and police costs. [95] Applying this to the total road traffic fatalities in 2008 (279 deaths) yields a cost of €660 million. In Northern Ireland, road traffic costs are based on the UK Department for Transport guidelines which in 2008 valued the prevention of one fatality at £1,683,810. [96, 97] 107 people were killed in road traffic collisions in Northern Ireland in 2008, with a cost to the economy of £180 million.

Air pollution

A range of approaches have been taken to quantify the costs associated with transport related air pollution. Factors to be considered include the travel environment and the type of motor vehicle. In Canada, it has been estimated that air pollution costs CAD\$0.10 per mile for urban peak driving, \$0.05 for urban off-peak and \$0.01 for rural driving. [91] In the UK, shifting from motorised to non-motorised transport in urban areas could save £0.06 per kilometre if switching from a petrol car and £0.32 from a diesel car. [98] The healthcare costs of treating illnesses attributed to transport related air pollution together with costs to the economy associated with premature death from these causes has been calculated in several countries. In Australia, air pollution from cars causes between 900 and 2,000 early deaths and between 900 and 4,500 cases of bronchitis, cardiovascular and respiratory disease, costing between AUD¹¹ \$1.5 and \$3.8 billion. [99] A figure of US\$50-\$80 billion has been calculated in the USA. [100]

Noise

Noise reduction benefits from car travel shifted to nonmotorised modes are estimated to average CAD\$0.03 per mile for urban-peak driving, \$0.02 for urban off-peak and \$0.01 for rural driving. [91]

10 This is based on the 2002 market price of €2,018,126 and annual inflation of 2.7% as advised in the Guidelines.

11 Australian Dollars.



Key messages for action on active travel

There is considerable scope for changing travel behaviour across the island of Ireland. To make active travel a viable, safe and attractive alternative to car use requires policies which incorporate health and equity into transport planning. The broad range of environmental and behavioural factors that influence people's travel choices must be taken into account. An integrated approach to policy and intervention including legislation, planning, financing, implementation and monitoring is urgently needed. Its aim must be to make active travel the easy choice.

1. Health should be a central component of active travel planning

- IPH welcomes recent action in both the Republic and Northern Ireland to reduce dependency on private transport by encouraging more sustainable travel patterns (see Appendix 1). To help make the full potential of active travel modes more explicit, health impacts should be systematically considered in all transport proposals and assessments by undertaking Health Impact Assessment.¹²
- Health outcomes must be included in cost assessments of transport policy. Economic appraisals should use existing tools and develop new tools where needed that accurately measure the health impacts associated with active travel.
- The health sector has an opportunity to show leadership by ensuring its own transport solutions facilitate and support an active travel culture.

2. Equity must be a key consideration in all interventions to increase active travel

- Interventions to increase active travel must be universal. However some groups may require additional interventions to ensure they are not further disadvantaged by measures to bring about population-wide changes.
- Health Impact Assessment should be undertaken to examine the potential for differential impacts on different groups within the population. Such groups may include those on a low income, people who belong to an ethnic minority as well as young, elderly and disabled people.
- IPH recommends a lifecourse approach to transport planning which considers the needs of young children through to elderly people so that solutions can respond to specific needs.



¹² Further information on Health Impact Assessment is available at <http://www.publichealth.ie>.

3. Intersectoral collaboration should ensure the benefits of active travel are realised across a broad range of sectors

- Cross sector working between health, transport, planning, education, community, business and other sectors is needed to ensure that shared interests are explored and achieved. Communication, leadership and capacity building are needed to promote dialogue and exchange good practices between responsible bodies, authorities and stakeholders in different sectors.

4. Continued investment in pedestrian and cycle infrastructure is essential

- IPH welcomes the Republic of Ireland's transport policy 'Smarter Travel' and particularly the establishment of a fund to support local authorities in improving the walkability and cyclability of neighbourhoods [101, 102] as well as developments in Northern Ireland including the establishment of a sustainable transport department in the Department for Regional Development and a cross-sectoral Active Travel Forum.
- The scale of investment should be in proportion to targets set for increasing physical activity in health policy guidance such as the National Guidelines on Physical Activity, the National Cardiovascular Health Policy and the intersectoral work of the National Task Force on Obesity in the Republic of Ireland as well as the Cardiovascular Service Framework and the Obesity Prevention Framework in Northern Ireland. [21, 103-106]
- Factors such as high connectivity and land-use mix which improve walkability of neighbourhoods should be prioritised in new design and in retrofitting existing areas. Local facilities, shops and services should be convenient and accessible through pedestrian and cycle networks.
- International best practice promotes the creation of networks of safe walking and cycling infrastructure rather than spot treatments and designated routes. Guidance from the National Institute for Health and Clinical Excellence (NICE) states that transport planners should 'ensure pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads'. [107]
- Pedestrian and cyclist safety should be a key focus of infrastructural investment. As safety concerns include both dangers from road traffic as well as from anti-social and criminal behaviour, it is clear that the work of a broad range of government and other agencies is involved in promoting and maintaining a safe environment for active travel.
- Cycling infrastructure extends to the availability of secure, weather-protected parking facilities at workplaces, schools, public transport interchanges, shops and services as well as the provision of changing rooms and shower facilities. IPH supports recommendations made regarding such infrastructure in Northern Ireland's Planning Service Planning Policy Statement 3 and the Republic of Ireland's National Cycle Policy Framework. [108, 109]



5. Develop a culture of walking and cycling by addressing negative perceptions associated with active travel

- IPH supports all current efforts to promote active travel to school and work. The learning from these programmes could be extended to target other local journeys such as visiting friends, shopping and accessing services.
- Programmes to raise awareness of and encourage active travel must take into account all of the barriers challenging negative perceptions and attitudes and provide realistic solutions. This may include providing better information about the options available, better publicising the advantages of active travel and giving motivational support.
- The work of non-governmental organisations promoting cycling and walking should be recognised and supported.

6. There should be a balanced approach to the provision of incentives for active travel and disincentives for sedentary travel

- Regulatory measures such as congestion charging, traffic restrictions and increased car parking fees should be considered when realistic and attractive alternatives to car use are available.
- Measures to slow down traffic and to help pedestrians negotiate busy streets can be effective in increasing physical activity and improving safety. Motor vehicle speed should be limited to 20mph/30kph in residential areas and near schools to improve pedestrian and cycle safety. Where possible, speed should be controlled by the provision of road surfaces and markings which indicate shared space between all road users.

7. Better information on current journeys can establish baselines and indicate where action is needed

- Particularly in the Republic of Ireland, routinely collected data on modes of travel for journeys other than commuting is needed to better understand travel behaviour in a broader context including factors such as travel times, convenience and financial costs.
- There needs to be greater awareness and understanding of the different factors that influence opportunities for physical activity for the whole community and for specific groups within that community.



Appendix 1: Transport policy and plans for active and sustainable travel

The Department of Transport (DT) has primary responsibility for transport in the Republic of Ireland including roads, maritime, aviation, sustainable travel and public transport. Agencies under the aegis of DT include the Road Safety Authority (RSA), Railway Safety Commission, the National Transport Authority (NTA) as well as organisations responsible for delivery of public transport including CIÉ, Bus Éireann, Bus Átha Cliath and Iarnród Éireann. The National Roads Authority (NRA) is an independent statutory body responsible for planning and maintenance of national roads. The Department of Environment, Heritage and Local Government (DEHLG) has responsibility for regional planning.

Two government departments and a range of associated agencies share responsibility for issues related to transport planning and delivery in Northern Ireland. The Department for Regional Development (DRD) has responsibility in a range of transport areas including transport and regional planning, accessible transport and air and sea ports. It provides financial and administrative support for public transport services through the Northern Ireland Transport Holding Company (Translink). Northern Ireland Roads Service is an Executive Agency within DRD with responsibility for building and maintenance of roads as well as other road related issues. Transport related responsibilities of the Department of the Environment (DOE) primarily fall within its Road Safety Division and, more broadly, through the Northern Ireland Planning Service which is an agency within DOE.

Planning and development

'Shaping our Future' is a Regional Development Strategy (RDS) which offers a strategic and long term perspective on the future development of Northern Ireland. Its vision for transport is "...to have a modern, sustainable, safe transportation system which benefits society, the economy, and the environment and which actively contributes to social inclusion and everyone's quality of life". [110] A 10 year review of the RDS is currently taking place. Planning Policy Statement (PPS) 13 'Transportation and Land Use' is intended to assist in the implementation of the RDS through guiding the integration of transportation and land use in development plans and transport plans prepared respectively by DOE Planning Service and DRD Roads Service. [111]

In the Republic of Ireland, the National Spatial Strategy is a 20 year planning framework which aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning. [112] An update and outlook report has been published in 2010. The National Development Plan 2007-2013 aims to integrate strategic development frameworks for regional development, rural communities, all-island co-operation and protection of the environment with common economic and social goals. [113]



Supporting sustainable travel

The Regional Transportation Strategy (RTS) for Northern Ireland supports the RDS by setting out a strategic framework for the future planning, funding and delivery of transportation throughout the region. [114]

A proposed bus-based Belfast Rapid Transit system requires new regulatory arrangements to enable DRD to proceed. Policy proposals detailing the required changes to legislation have been subject to public consultation. [115]

A walking action plan and cycling strategy have been produced for Northern Ireland. 'Walking Northern Ireland' identifies a series of actions to guide the delivery of the RTS walking measures to improve conditions for both pedestrians and recreational walkers. [116] The Northern Ireland Cycling Strategy highlights the important contribution cycling can make in an integrated transport system and has set a target to quadruple the number of trips by cycle by 2015. [117]

In the Republic of Ireland, 'Smarter Travel A Sustainable Transport Future' recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development but also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport. [79]

The Public Transport Regulation Bill made changes to the licencing of public bus passenger services, broadened the responsibility of the former Dublin Transport Authority to a national remit and renamed it the National Transport Authority (NTA) and integrated the Commission for Taxi Regulation into the NTA. [118]

The National Cycle Policy Framework outlines a comprehensive package of interventions to make cycling easier and safer. [119] A walking strategy is currently being developed.

Road safety

Northern Ireland's Road Safety Strategy 2002-2012 seeks to promote an integrated approach to the planning, co-ordination and delivery of the Government's road safety activities over the next decade, aimed at a one third reduction in the number of people killed or seriously injured each year on Northern Ireland roads by 2012. [120] The strategy is currently being updated.

In the Republic of Ireland, the Road Safety Strategy 2007-2012 seeks to build on the progress and understanding provided by earlier strategies with the objective of radically and sustainably improving safety on Irish roads. [121]



Supporting accessible transport

In Northern Ireland, the Accessible Transport Strategy Action Plan 2009-2012 aims to provide an accessible transport system that enables older people and people with disabilities to participate more fully in society, enjoy greater independence and experience a better quality of life. [122]

In the Republic of Ireland, the Department of Transport has produced a Sectoral Plan for Accessible Transport in keeping with the requirements of the Disability Act 2005. [123]



Appendix 2: What works?

A range of measures have been implemented across the island of Ireland and internationally to increase levels of active travel. Table 6 presents findings from a recent review of international evidence of the impact of a range of specific active travel interventions. Table 7 presents a summary of the impact of programmes aimed at increasing active travel in Northern Ireland and the Republic of Ireland. The concept of Sustainable Travel Towns is highlighted in the last section.

Table 6: Impact of different interventions to increase walking and cycling [124]

Intervention	Walking for transport	Cycling for transport
Urban planning policies	Community design features such as density and street pattern, or linkages to public transport, may have more effect on walking than pedestrian infrastructure, amenities, and general aesthetics. Findings about footpaths are mixed.	Pro-cycling transportation provision has a greater impact on cycling than urban density, street patterns and mixed land use per se.
Policies that restrict car use including congestion charging, limited car parking, car free zones, comprehensive traffic calming and lower overall speed limits	Increased walking	Increased cycling
Traffic calming	Increased walking	Increased cycling
Traffic safety policies that emphasise driver responsibility for avoiding crashes with pedestrians and cyclists	May be effective as part of a package of pro pedestrian policies	May be effective as part of a package of pro-cycling policies
Public transport provision	Increased walking	Under-researched but likely to have a smaller impact on cycling than walking
Active transport infrastructure in general	Increased walking	Increased cycling



Separated facilities such as off road paths	Little evidence due to lack of research. Many walking studies do not distinguish between recreational and transport walking	Some evidence of increased cycling, provided facilities enable relatively direct access to trip destinations
On street bicycle lanes, wide curb (sic) lanes, and other non intersection specific treatments	Not applicable	Inconsistent evidence. Perceptions of increased safety may be an important factor.
Bicycle loan programs	Not applicable	Some evidence of increased cycling
Improving access and safe bicycle parking at train stations	Not applicable	Some evidence of increased cycling
Behaviour change programs, including 'one off' ride or walk to work days	Some, but not all, effective in short term. 'One off' events effective on the specified day(s). Some evidence of sustained changes.	Some, but not all, effective in short-term. 'One-off' events effective on the specified day(s). Some evidence of sustained changes. For programs directed at reduced car use (eg TravelSmart), increases in public transport use and walking exceed increases in cycling.
Skills training	Not applicable	Some evidence of increased cycling
Integrated multi-component strategy including infrastructure and facility improvements, pricing policies and education programs	Increased walking at population level	Increased cycling at population level



Table 7: Impact of programmes aimed at increasing walking and cycling across the island of Ireland

Intervention	Evaluation to date
Green Schools Travel Programme The nationwide roll-out of this programme is supported by the Department of Transport and the National Transport Authority. Participating schools set their own travel targets with the ultimate aim of increasing the number of pupils walking, cycling or using public transport to school. [125]	This reached 144,000 schoolchildren in 482 schools in the Republic of Ireland by the end of 2009 yielding an average reduction of 18% in children travelling to school by car (equates to a saving of 100,000 car trips per annum). It aims to reach 260,000 schoolchildren by 2012. [126]
Safer Routes to School Sustrans' School Travel team encourages children to walk and cycle to school through a range of practical and educational measures. [127] The Travelwise Schools team provides support to schools and individuals in Northern Ireland who want to walk or cycle to school. [128]	The Travelwise programme has been delivered to 227 schools and approximately 72,000 schoolchildren. [129]
Smarter Travel Workplaces This programme managed by the National Transport Authority assists large employers (with over 250 employees) to manage their commuting and business travel in a more sustainable and cost effective manner. It promotes walking, cycling, public transport, car-sharing and trip reduction as part of a Workplace Travel Plan. [130]	65,000 employees in 30 organisations were covered by Smarter Travel Workplaces resulting in a 16% reduction in car use. A national programme is in place to target 250,000 employees by 2012. [126]
Travelwise Northern Ireland Workplace Travel Planning This programme markets and promotes workplace travel planning to all sectors. [131]	To date, Travelwise has supported the implementation of Workplace Travel Plans in 13 organisations with almost 28,000 employees. [129]
Bike to Work Scheme This scheme launched in January 2009 provides tax relief on the purchase of bicycles and cycle equipment. [132]	



Cycle to Work Scheme The UK Government introduced this scheme in 1999 which provides tax relief on the purchase of bicycles and cycle equipment. [133]	The scheme is running very successfully in many public and private sector organisations in the North, including Belfast City Council, Belfast Health and Social Care Trust, Allstate Northern Ireland, Belfast and Langford Lodge Engineering in Crumlin. [129]
Dublin Bikes This scheme launched in September 2009 is a self-service bike rental system operating in 40 locations throughout Dublin city centre. [134]	Since its launch the scheme has attracted more than 47,000 subscribers. [135]

Sustainable Travel Towns

The UK Department for Transport funded a 5 year project (2004-2009) which aimed to demonstrate the effect a sustained package of 'Smarter Choice' measures can have when coupled with infrastructure improvements. Darlington, Peterborough and Worcester were selected from more than 50 local authorities in England who expressed an interest in becoming 'showcase' demonstration towns. Evaluations conducted at the end of the project showed increases in use of sustainable transport modes and decreases in travel by private car. [136]

In the Republic of Ireland, the Department of Transport launched a national competition for Smarter Travel Areas in 2009. Local authorities across the country were invited to submit proposals for developing sustainable travel systems in rural areas or towns. To date, 11 areas have been shortlisted. [137]



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