



Public spaces for all

Create safe, attractive walking and cycling conditions

- ***Invest in high quality walking and cycling networks in rural and urban areas – re-allocating road space to provide safe routes to everyday destinations that are integrated with public transport***
- ***Redesign streets to reduce traffic speeds, and enforce speed limits of 20 mph or less in all residential and built-up areas***
- ***Create and enforce traffic laws to protect the most vulnerable users of public space.***

Designing walking and cycling networks and shared public space to meet the needs of all users can be seen as a challenge by transport planners. The success of Sustrans' National Cycle Network since its creation in 1995 demonstrates that where you build a safe, pleasant environment focused on the needs of those travelling by foot and bike, you will enable people to choose to walk and cycle for shorter journeys or as part of a longer journey and to leave their cars behind.

Questions and Answers

Q. What are the benefits of walking and cycling routes?

[Walking or cycling for short journeys has benefits for individuals in terms of their health](#), as well as benefits for communities with safer and more pleasant streets, better air quality, lower carbon emissions, and reduced congestion.

Q. Do people use walking and cycling routes to get to their everyday destinations or are they just for leisure?

The [National Cycle Network](#) carried 386 million journeys in 2008 with 23% of them commuting trips. [Our local streets and roads are where we take the majority of our exercise through walking and cycling](#). Additionally, the potential to change in our longer journeys is great, with 60% of the UK population living within a 15 minute cycle ride of a railway station.

Q. How much do walking and cycling routes cost?

Costs of walking and cycling routes vary enormously but generally have very high benefit to cost ratios. Using the Department for Transport in England's guidance on evaluating transport, [three case studies based on Sustrans' work demonstrate a benefit to cost ratio of 18, 22 and 38.1](#). The costs of not enabling people to travel sustainably have recently been estimated by the government in a study that detailed costs from our transport system. [Wider costs to our economy from congestion, road accidents, physical inactivity and poor air quality were each in the region of approximately £10 billion per annum in English urban areas alone.](#)



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Q. What impact have 20mph speed limits been shown to have?

Portsmouth City Council is the first English Local Authority to put in place a city-wide 20mph speed limit, set to cost £2 million over 5 years. The initiative has delivered many benefits, including an average 3% reduction in traffic and a 13% reduction in accidents. Other approaches have been taken across the UK such as in [Scotland, where 20mph zones are being put in place at schools](#) with up to a 70% reduction in child pedestrian accidents.

Q. Does the law have any role in encouraging people to walk, cycle or use public transport more?

More than 2,500 people were killed on UK roads in 2008. If a motor vehicle hits a pedestrian, cyclist, equestrian or disabled person, the non-motorised user is far more likely to be injured. This ought to mean that drivers have a greater duty of care for safety. However, this is not currently recognised in law. Although the current civil liability system requires negligence to be proven, this creates an inherent balance against people who are walking or cycling, who, due to their greater vulnerability, are far less likely to recall how the collision occurred with the clarity needed to be a “good witness” in court. [In a survey carried out by Sustrans, concerns about safety were the number one deterrent to women being able to cycle.](#)

Evidence

The following papers relate to all the three elements of this section

[Pucher et al, 2010 Infrastructure, programs and policies to increase bicycling: An international review, Preventive Medicine, 50](#)

This study provides an assessment of existing research on the effects of various interventions on levels of cycling. Interventions include infrastructure (e.g. bike lanes and parking), integration with public transport, education and marketing programmes, cycle access programmes and legal issues. 14 case studies show that almost all cities adopting comprehensive packages of interventions experienced increases in the number of cycle trips and share of people cycling.

[Elvik, 2009 The non-linearity of risk and the promotion of environmentally sustainable transport, Accident Analysis and Prevention, 41](#)

Several studies show that the risks of injury to pedestrians and cyclists are highly non-linear. This means that the more pedestrians or cyclists there are, the lower is the risk faced by each pedestrian or cyclist. The “safety in numbers” effect for pedestrians and cyclists would then combine favourably with the effect of a lower number of motor vehicles to produce a lower total number of accidents. This paper explores if such an effect is possible, relying on the findings of studies that show the non-linearity of injury risks for pedestrians and cyclists. It found that for very large transfers of trips from motor vehicles to walking or cycling, a reduction of the total number of accidents is indeed possible. This shows that the high injury rate for pedestrians and cyclists in the current transport system does not necessarily imply that encouraging walking or cycling rather than driving will lead to more accidents.



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Jacobsen, 2003 Safety in numbers: more walkers and bicyclists, safer walking and bicycling, Injury Prevention, 9

This paper examines the relationship between the numbers of people walking or bicycling and the frequency of collisions between motorists and walkers or bicyclists. The common wisdom holds that the number of collisions varies directly with the amount of walking and bicycling. However, three published analyses of collision rates at specific intersections found a non-linear relationship, such that collision rates declined with increases in the numbers of people walking or bicycling. In summary, a motorist is less likely to collide with a person walking and bicycling if more people walk or bicycle. Policies that increase the numbers of people walking and bicycling appears to be an effective route to improving the safety of people walking and bicycling.

Elvik, 2000 Area-wide urban traffic calming schemes a meta-analysis of safety effects, Accident Analysis and Prevention, 33

This paper presents a meta-analysis of 33 studies (covering period 1971-1994) that have evaluated the effects on road safety of area-wide urban traffic calming schemes across eight different countries. The meta-analysis shows that area-wide urban traffic calming schemes on average reduce the number of injury accidents by about 15%. The largest reduction in the number of accidents is found for residential streets (about 25%), a somewhat smaller reduction is found for main roads (about 10%). Similar reductions are found in the number of property damage only accidents.

Invest in high quality walking and cycling networks in rural and urban areas – re-allocating road space to provide safe routes to everyday destinations that are integrated with public transport

Evidence

Vandenbulke et al, 2009 Mapping bicycle use and the risk of accidents for commuters who cycle to work in Belgium, Transport Policy, 16

This paper focuses on commuters in Belgium and explores cycle use and the risk of accidents. Most cycling occurs in regional cities: in larger cities there is better public transport provision, plus people are more likely to walk given the shorter distances between facilities (or combine walking with public transport); in more rural areas, cycling decreases as distance between facilities increases.

Woodcock et al, 2009 Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport, The Lancet, 374

A Comparative Risk Assessment method was used to estimate the health effects of alternative urban land transport scenarios for two settings—London, UK, and Delhi, India. For each setting, the authors compared a business-as-usual 2030 projection (without policies for reduction of greenhouse gases) with alternative scenarios—lower-carbon-emission motor vehicles, increased active travel, and a combination of the two. They developed separate models that linked transport scenarios with physical activity, air pollution, and risk of road traffic injury. Policies to increase the acceptability, appeal, and safety of active urban travel,



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and discourage travel in private motor vehicles would provide larger health benefits than would policies that focus solely on lower-emission motor vehicles.

Parkin et al, 2007 Models of perceived cycling risk and route acceptability, Accident Analysis and Prevention, 39

This study successfully extends previous work on the perception of the risk of cycling by considering a whole journey, including junctions, and by covering a wide range of independent variables based on 20 different route and junction types using a novel means of presentation based on video taken from a moving bicycle which clearly conveys the situations that cyclists might possibly experience.

Saelensminde, 2004 Cost benefit analyses of walking and cycling track networks taking into account insecurity, health effects and external costs of motorised traffic, Transportation Research Part A, 38

The study presents cost-benefit analyses of walking and cycling track networks in three Norwegian cities. The cost-benefit analyses take into account the benefit of reduced insecurity and the health benefits of the improved fitness the use of non-motorised transport provides. In addition to reductions in health costs, the analyses also take into account that a change from travel by car to cycling or walking means reduced external costs (e.g. air pollution and noise) from motorised traffic and reduced parking costs. The benefits of investments in cycle networks are estimated to be at least 4-5 times the costs. Such investments are thus more beneficial to society than other transport investments.

Wardman et al, 2007 Factors influencing the propensity to cycle to work, Transportation Research Part A, 41

This paper describes the development of a mode choice model for the journey to work with special emphasis on the propensity to cycle. The most effective policy would combine improvements in en-route facilities, a daily payment to cycle to work and comprehensive trip end facilities and this would also have a significant impact on car commuting.

Page et al, 2009 Independent mobility in relation to weekday and weekend physical activity in children aged 10-11 years: The PEACH project, International Journal of Behavioural Nutrition and Physical Activity, 6

Children's independent mobility has fallen in recent years and may in part explain reported declines in physical activity in young people. This cross-sectional study investigated whether independent mobility in boys and girls was related to objectively measured physical activity. The study concludes that independent mobility appears to be an important independent correlate of weekday physical activity for both boys.

Dill, 2009 Bicycling for Transportation and Health: The Role of Infrastructure, Journal of Public Health Policy, 30

This paper aims to provide insight on whether bicycling for everyday travel can help US adults meet the recommended levels of physical activity and what role public infrastructure may play in encouraging this activity. The study collected data on bicycling behaviour from 166 regular cyclists in the Portland, Oregon metropolitan area using global positioning system (GPS) devices. Sixty percent of the cyclists rode for more than 150 minutes per week during the



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study and nearly all of the bicycling was for utilitarian purposes, not exercise. A disproportionate share of the bicycling occurred on streets with bicycle lanes, separate paths, or bicycle boulevards. The data supports the need for well-connected neighbourhood streets and a network of bicycle-specific infrastructure to encourage more bicycling among adults.

Sustrans information

Sustrans, 2009 The National Cycle Network Route User Monitoring Report to end of 2008

This report shows the number of journeys on the Network increased for the ninth year in succession, to 386 million walking and cycling trips, an increase of 9% on the previous year.

Sustrans, undated Economic Appraisal of local walking and cycling routes

This report assesses the economic benefits of transport schemes and applies them to a number of local walking and cycling routes. The results show them to have a benefit to cost ratio of 20:1. This is in stark contrast to the typical ratio of just 3:1 for other transport schemes such as rail and roads. Sustrans' analysis shows how money spent on creating the right environment to encourage more walking and cycling could result in massive cost savings for the Treasury and major benefits to public health.

Sustrans, 2007 Creating the environment for active travel

This evidence-based information sheet looks at how the built environment and public space can facilitate healthy living

Policies from other organisations

Department of Health, 2009 be active, be healthy: a plan for getting the nation moving

Be active, be healthy sets out new ideas for Local Authorities and Primary Care Trusts to help determine and respond to the needs of their local populations, providing and encouraging more physical activity, which will benefit individuals and communities, as well as delivering overall cost savings.

Welsh Assembly Government, 2008 A walking and cycling action plan for Wales 2009 - 2013

The plan summarises the key steps planned to secure a walking and cycling culture in Wales.

Department for Transport, 2010 Transport Analysis Guidance, Guidance on the Appraisal of Walking and Cycling Schemes

This Transport Analysis Guidance Unit contains guidance on various aspects of the analysis of cycling and walking schemes. This guidance was written to help in certain aspects of the analysis of schemes aimed primarily at improving conditions for cyclists and walkers, such as the development of a cycle route. However, it can also be used where public transport or road schemes are likely to have a significant impact on cycling and walking trips.



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Further reading

Department for Transport, 2005 Encouraging walking and cycling: success stories

This guide contains 50 examples of successful walking and cycling schemes from across England. They have all achieved significant results with often modest, but always well-chosen, initiatives which have improved local conditions for walking and cycling and encouraged people to get around on foot and by bike. These schemes illustrate clear benefits in terms of reduced congestion, improved public health and enhanced quality of local streets and spaces.

National Heart Forum, Living Streets and CABI, 2007 Building Health: Creating and enhancing places for healthy, active lives: what needs to be done

A collection of papers by leading experts and campaigners which examine how the design of towns, cities and buildings might encourage physical activity. Building Health covers issues ranging from strategic and urban planning, to walking and cycling, to urban green space and building design.

Commission for Architecture and the Built Environment, 2004 Building a healthier future: the built environment and public health

Adrian Harvey, head of policy at CABI, explores measures taken to promote public health in the built environment.

Redesign streets to reduce traffic speeds, and enforce speed limits of 20 mph or less in all residential and built-up areas

Evidence

Grundy et al, 2009 Effect of 20mph traffic speed zones on road injuries in London 1986-2006: controlled interrupted time series analysis, British Medical Journal, 339

This paper set out to quantify the effect of the introduction of 20 mph traffic speed zones on road collisions, injuries, and fatalities in London. The results show that the introduction of 20 mph zones was associated with almost a 42% (95% confidence interval 36.0% to 47.8%) reduction in road casualties, after adjustment for underlying time trends. The paper concludes that 20 mph zones are effective measures for reducing road injuries and deaths.

Sauter & Hautenmosser, 2008 Liveable streets and social inclusion, URBAN DESIGN International, 13

This article discusses how street design and traffic affect social relations in urban neighbourhoods. Three street types in the city of Basel, Switzerland were studied: a 50 km/h street, a 30 km/h street and three encounter zones (20 km/h and pedestrian priority, also known as woonerven or home zones). The effects were measured in terms of neighbourhood interactions, use of public space and the personal feelings of belonging of residents. The results show that urban neighbourhoods are (still) very lively social places, despite their often lamented anonymity and individualisation. Streets with slow moving traffic, limited space for parking and good environmental qualities offer a large potential for personal development, contentment and social integration. Neighbourhood contacts in such streets are more



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frequent and more intensive and the separation effects are substantially smaller. Liveable streets in urban neighbourhoods can be great places for public life and social inclusion.

Morrison et al, 2004 Evaluation of the health effects of a neighbourhood traffic calming scheme, *Journal of Epidemiology Community Health*, 58

This paper assesses the secondary health impacts of a traffic calming scheme on a randomly selected sample of the local community. Postal questionnaires were used together with pedestrian counts on the affected road six months before and six months after the implementation of the scheme. Results showed increases in observed pedestrian activity in the area after the introduction of the traffic calming scheme. The paper concludes that the introduction of a traffic calming scheme is associated with improvements in health and health related behaviours. It is feasible to prospectively evaluate broader health impacts of similar transport interventions although poor response rates may limit the validity of results.

Webster & Mackie, 1996 Review of traffic calming schemes in 20mph zones

This report reviews the effect of traffic calming using 20mph zones. Since December 1990 local authorities have been able to apply to the Department of Transport for authorisation of 20mph speed limit zones. While older, it is the largest UK review of the evidence for environmental interventions for speed reduction in residential areas. The research showed that 20mph zones reduce injury collisions of all severities by 60 per cent and sometimes by more.

Policies from other organisations

Welsh Assembly Government, 2009 Guidelines for Setting Local Speed Limits in Wales

This guidance encourages Local Authorities to review their speed limits on urban and rural roads particularly through communities.

Further reading

World Health Organization, 2008 A healthy city is an active city: a physical activity planning guide

With this guide, city leaders can create a plan for physical activity, active living and sport in their city or community. It describes how the approach relates to the Healthy Cities movement, why people need active living opportunities and who to involve; how to create, implement and evaluate the plan; and what tools, good examples and other sources to use.

Department for Transport, 2008 Mixed Priority Routes: Practitioners' Guide

This report provides guidance for project managers and senior technical staff who might be involved in the development and delivery of Mixed Priority Route schemes, building on the experience of those that have already been through the process and understand the organisation and delivery issues involved.

Department for Transport, 2007 Manual for Streets

Manual for Streets provides guidance for practitioners involved in the planning, design, provision and approval of new residential streets, and modifications to existing ones. It aims



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to increase the quality of life through good design which creates more people-orientated streets.

Scottish Government, 2009 Designing Streets: Consultation Draft

The consultation seeks views on the draft of Designing Streets as a new planning policy. It incorporates the principles of PAN 76 (New Residential Streets) as well as more comprehensive information and guidance and therefore will supersede PAN 76. The intended outcome is streets that are better.

Mayor of London, 2009 Better Streets: Practical Steps

This document on streets is one of a small number of practical guides that are intended to help make the vision for great spaces a reality. In it the Mayor of London sets out how we can create better streets and propose a series of actions to deliver them.

20's Plenty for us

A network of local campaign groups across the UK who are calling for the implementation of 20 mph as the default speed limit on residential roads.

Portsmouth City Council, undated 20mph speed limit on residential roads in Portsmouth

Portsmouth has become the first city in Britain to have a 20mph safety limit on almost all residential roads.

Parliamentary Advisory Council for Transport Safety, 2007 Beyond 2010 - a holistic approach to road safety

This report explores issues that will shape future road safety policy in Great Britain. The report is designed to highlight key areas where action may be needed to continue the United Kingdom's efforts to reduce death and injury on its roads. PACTS is an associate Parliamentary group and registered charity, advising and informing Members of Parliament and peers on road, rail, and air safety issues.

Bradwell et al, 2007 Seen and heard: Reclaiming the public realm with children and young people

Seen and heard draws on six in-depth case studies to explore the everyday experiences of children in public places. It argues that we need a paradigm shift in the way we think about the built environment – one which addresses the deepening segregation between generations. The needs of the young are not opposed to those of other users of public spaces, but closely aligned. With a range of recommendations designed to empower frontline professionals and young people, this pamphlet offers practical steps to create places that are welcoming for all.



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Create and enforce traffic law to protect the most vulnerable users of public space

Policies from other organisations

Department for Transport, 2009 A Safer Way: Consultation on Making Britain's road the Safest in the World

This consultation document seeks views on the vision, targets and measures for improving road safety in Great Britain beyond 2010.

Scottish Government, 2008 Go Safe on Scotland's Roads it's Everyone's Responsibility: Scotland's Road Safety Framework to 2020

The Scottish Road Safety Framework provides a comprehensive and sustainable framework for dealing with the many challenges facing the Scottish Police Service and partners in road safety.

This document identifies the major threats to casualty reduction, recognises the many varied measures that are already in place, seeks to enhance those existing measures and provides guidance in other important areas.

Welsh Assembly Government, 2009 Road Safety Strategy for Wales

The purpose of this strategy is to ensure that everyone, either as individuals or organisations, plays a part in implementing the actions needed to improve safety on our roads.

World Health Organization, 2009 Global status report on road safety: time for action

This global status report on road safety is the first broad assessment of the status of road safety in 178 countries, using data drawn from a standardised survey conducted in 2008. Importantly, the report highlights that pedestrians, cyclists and motorcyclists make up almost half of those killed on the roads, highlighting the need for these road users to be given more attention in road safety programmes.

Further reading

Department for Transport, 2006 Transport Statistics Bulletin Vehicle Speeds in Great Britain 2005

National administrations in England, Scotland and Wales are responsible for setting speed limits on motorways and trunk roads. Local authorities have the power to impose or vary speed limits on principal roads and on all other local roads. In order to monitor the compliance of drivers with these speed limits the Department collects speed data from traffic counting sites around Great Britain.

Department for Transport, undated 20mph speed limits and zones

The purpose of this leaflet is to provide advice on how and where to implement 20 mph speed limits and 20 mph zones, to help in meeting the objectives of the Government White Paper, "A New Deal for Transport: Better for Everyone" and the requirements for Local Transport Plans.

Police Service of Northern Ireland, Road Traffic Statistics Archive

Here you can find statistical information relating to road traffic for the years prior to 2007/08.



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[The City of Edinburgh Council, undated 20mph zones website](#)

This website provides information about the Council's 20mph zones programme.

[Department for Transport, 2008 Road Safety Research Report No.93 Understanding Inappropriate High Speed: A Quantative Analysis](#)

An interview survey of a representative quota sample of 1,005 drivers from across the United Kingdom was undertaken to explore driver knowledge, attitudes and behaviour regarding speed choice. Marked individual differences were found in preferred speeds, frequency and extent of speeding and speed choice around speed cameras. These differences related to driver sex, age, motivations and collision involvement but not to knowledge about the effects of higher speeds.

[BBC, 2009 Crash: Death on Britain's roads](#)

For an everyday activity, travelling by road is probably the riskiest thing many of us do on a regular basis. On average, some seven people are killed every day on the roads in Great Britain. Hundreds more are injured, many of them seriously, often with life changing consequences.

In 2008 alone, 2,538 people died and nearly a quarter of a million were injured. In the past 10 years, the death toll has amounted to 32,298. As such road crashes are the largest single cause of accidental death for people aged between 5 and 35 years.

[European Transport Safety Council, 2009 SPEED Fact Sheet Section Control: towards a more efficient and better accepted enforcement of speed limits](#)

Section control is a method of speed enforcement involving a series of cameras installed over a stretch of road. An image and data are recorded for each vehicle as they enter and leave two points in the system (a section of road). The data are then used to calculate the average speed of the vehicle by dividing the distance between to points by the time taken to travel through them.

The experience gathered so far indicates that Section Control is an efficient speed enforcement method, leading to reductions in speeds across entire sections of roads and reductions in the number of collisions and casualties.

[Hillman & Plowden, 1996 Speed Control and Transport Policy](#)

Speed Control and Transport Policy will be of interest to policy makers with an interest in transport, the environment and road safety; academics, researchers and students on a range of planning, environmental studies and transport studies courses; transport engineers, planners and economists, environmental consultants and professionals; and anyone concerned about the effects of traffic on the community.