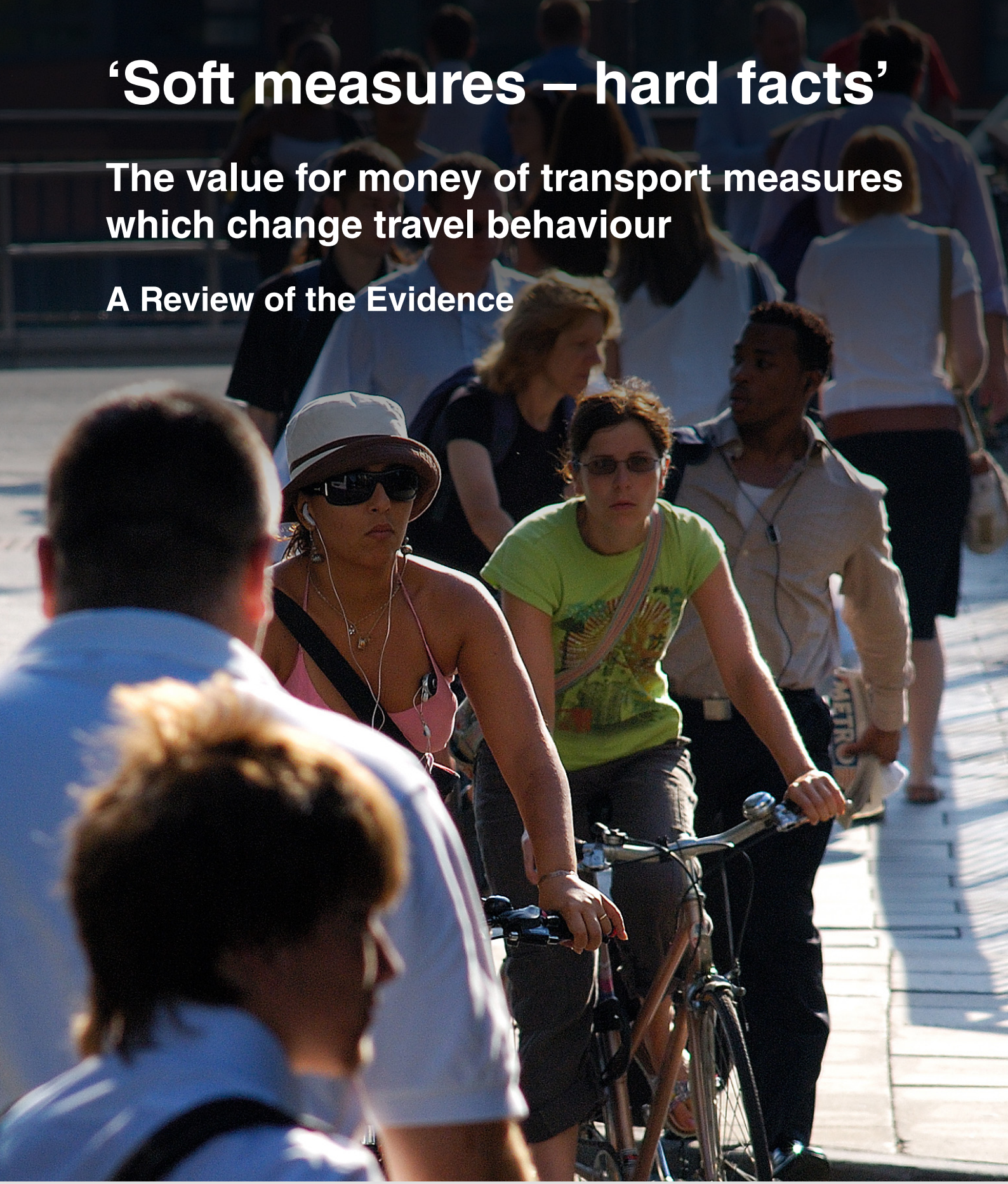
‘Soft measures – hard facts’

The value for money of transport measures which change travel behaviour

A Review of the Evidence



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PERSONALISED TRAVEL PLANNING

‘BIKE IT’

ADULT CYCLE TRAINING

‘WALKING FOR HEALTH’

ACTIVE TRAVEL TO SCHOOL

CAR CLUBS

ELECTRONICALLY ASSISTED BICYCLES

STEP-O-METERS

WALKING TO WORK

WORKPLACE CHALLENGES

CAR SHARING

WORKPLACE TRAVEL

TRAFFIC SPEED REDUCTIONS

TOWN/CITY WIDE PROGRAMMES

How well do they……..

Change travel behaviour?
Provide value for money?
Reduce carbon?
Improve health?

Read on to find out.....

Foreword

Reducing congestion and carbon emissions, whilst stimulating economic growth - that's the tough challenge transport planners now face. Accentuated, too, by the sustained period of funding restraint all face.

So, new approaches and fresh thinking are needed, including influencing the demand for travel.

Measures which change people's decisions about when they travel, where they go and the mode of travel they use will increasingly be important in off-setting the need for costly new transport capacity.

Many 'smarter choice' ideas have been developed over the last decade or so to encourage changes in travel behaviour. Typically the goal is a shift from relatively expensive and high energy car use towards lower carbon and more active travel.

But how effective are they? Do the reported changes last? How much do they cost to implement? In short - are they worth the investment?

The most robust available evidence is critical in helping transport planners and local authority members select the measures which give them the 'best buy' for their own situations.

This review of the evidence helps to answer these questions. We have critically appraised 16 travel behaviour change measures that have been evaluated, from schemes which encourage walking and cycling, to more complex programmes in workplaces and across whole towns and cities.

The findings can be used to shape the spending in the Local Transport Plans due for April 2011 as well as help support bids to the new Local Sustainable Transport Fund.

We need greater and more open sharing of evidence about what works. We call on everyone investing in travel and transport to contribute their own experiences and results for future versions of this review, which we hope will cover examples of 'smarter working' schemes which reduce the need to travel.

Dr Gabriel Scally
Regional Director for Public Health
Department of Health – South West

Mike Ginger
Influencing Travel Behaviour Regional Manager
Highways Agency

Ann O'Driscoll
Head of Business Development
South West RDA

"A good deal more net benefit could be generated by re-balancing the residual spend away from road capacity, to be focused instead on lower cost, high return schemes. These include road safety and travel behaviour changes through 'smarter choices'".

Transport Challenges and Opportunities: Getting More From Less, Commission for Integrated Transport, 2010

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Contents

Part 1: Introduction

Who is this for?

- Transport planners and managers in highway authorities, and their elected members with transport responsibilities.
- Developers and others who are preparing travel plans and associated budgets.

What can it be used for?

- To help make the case for new investment, in bids or business plans.
- To inform any re-assessment of existing programmes so that decisions can be based on the best evidence of effectiveness and value.
- As a benchmark to compare the effectiveness of local programmes with published evaluations and evidence.
- To encourage more sharing of evidence about what works.
- To act as a focal point for new evidence, with annual updates.

Key messages

- Travel behaviour change measures can provide very high benefits compared to costs, when measured by WebTAG, the Department for Transport's method for evaluating transport investment.
- Changing how we travel can reduce the need for expensive infrastructure.
- Behaviour change measures can be implemented much more quickly than infrastructure projects.
- All measures achieve genuine carbon reductions (from 5kgs to 1500 kgs per person per year).
- Greater impact is achieved from careful targeting of people likely to change their behaviour combined with multi-measure programmes across age groups.

Evidence findings:

Individuals

- Sustained reductions in car miles travelled (between 2 and 11%), and increases in walking and cycling, are achievable through personalised advice and support given to individuals (Department for Transport/Sustrans).
- Car club members drive around 5000 miles less than a car owner and save around 1500 kgs of carbon a year (Ledbury and Co).
- 60% of participants in adult cycle training go on to increase their levels of cycling (Lifecycle).
- 17-41% of people walk more for every day journeys when they are motivated to walk for leisure with walking groups or with information about places to walk (Walking for Health/Doorstep Walks).

Schools

- Thousands more young people are now walking to school, compared to 2 years ago across the South West, as a result of schools and local authorities successfully promoting active travel to school (School Travel Health Check).
- 'Bike It' can double the number of young people cycling to school (Sustrans).

Primary Care

- 71% of patients loaned a step-o-meter in their GP surgery were walking more for everyday journeys after 6 weeks (Walking for Health).

Workplaces

- Workplace challenges can be effective at motivating people to change behaviour. For example the cost of motivating an employee to take up cycling is around £270 (CTC).
- Each electrically assisted bike used for short distance business travel can save 500 kgs of carbon per year and considerably reduce company travel costs (Avon and Wiltshire Health Trust).
- Each car commute saved through car sharing reduces carbon by around 1000 kgs a year (Liftshare, Devon County Council).
- Individual employers can double the proportion of commuting by bus, train, cycling and walking by supporting and motivating their staff and at very low cost to them (Cairns, Newson & Davis).
- Area based workplace travel plans can attract small companies who are often missing from single employer schemes (Highways Agency).
- The benefit to cost ratios of saving car trips from the Strategic Road Network from area based travel plans, range from 3.5 to 13.1 (Highways Agency).

Town & City Wide

- Introducing a range of behaviour change measures at the town/city level concurrently can result in: car driver trips down by 9%, cycle trips up by 26-30%, walking trips up by 10-13% and carbon reduction per head of population by 50 kgs per year (Sustainable Travel Towns, Department for Transport).

Explaining the evidence

The evidence behind the 16 behaviour change measures is summarised in Part 2.

Each individual summary describes:

1. Changes in travel behaviour, showing the extent of modal shift.
2. Value for money in terms of congestion savings showing the costs of saving 1000 car kms, benefit to cost ratios and other information.
3. Carbon savings arising from reductions in car use.
4. Changes in physical activity and hence health value.
5. An overall assessment.

The quality of the evidence is also ranked and sources quoted.

The measures are presented under the following themes:

1. Individuals.
2. Schools.
3. Primary Care.
4. Workplace.
5. Town and City Wide.

Evidence Details in Part 3 provide more information about the nature and strength of the evidence, including our assumptions and workings made in calculating the congestion and carbon savings. References to primary research and other sources are given.

Benchmarking

The cost effectiveness of these measures in reducing car kms can be related to:

- the figures used by the Department for Transport to estimate the marginal external cost (of congestion) of 1000 car kms, which in 2007 was about £180.
- typical costs of removing 1000 car kms through infrastucture investment, which for park and ride range from £20 to £530, based on research carried out by Leeds University.

Review Team

Peter Ashcroft, Adrian Davis, Mike Ginger, Helen Heat, Ian Miller, Adrian Roper, Becky Skinner & Neil Warren.

Part 2: Evidence Summaries

	Individuals
1 Personalised Travel Plans (PTP)	
Advice and support on travel options for individuals and households.	Lead Organisations: local authorities tend to commission PTP services from a range of suppliers.
Change in travel behaviour	Between 2 and 7 percentage point reductions in car miles are secured in most schemes. Sustrans' PTP projects have delivered an average relative reduction in car mileage of 11.6%. This is measured across the target population, so includes people who did not actively participate in projects. This is based on 19 projects with a combined target population of more than 200,000 households.
Value for money - congestion savings	The cost of reducing 1000 car kms (625 car miles) ranges from £20 for large scale projects engaging with up to 25,000 households, to upto £130 for smaller projects reaching around 1,500 households. Large scale schemes deliver a benefit to cost ratio of around 7:1.
Carbon savings from reductions in car use	Each person successfully accepting advice will save on average, 183 kgs of carbon a year.
Physical activity and health	Increase in walking trips by zero to 5 percentage points and an increase in cycling by zero to 1 percentage point. Sustrans' PTP projects have delivered an average relative increase in walking trips of 15%, and 35% for cycling. They typically see a 14.7% relative increase in use of all forms of active travel combined. These mode shifts equate to an average additional 2.7 minutes per person per day spent using active travel modes (including non-participants).

Assessment	Personal Travel Planning works best when targeted at people who are in a transitional point in their lives, such as going to university, moving house or changing job. At these stages people tend to be more receptive to changing behaviour. PTP is a proven technique for changing choice of mode in urban areas where people have a range of travel options for local trips and a range of amenities accessible without a car. Greater value is obtained when PTP schemes are delivered at the same time as infrastructure improvements.
Evidence quality and source	Medium[1]

1. For example: Sloman, L., Cairns, S., Newson, C., Anable, J., Pridmore, A. and Goodwin, P (2010). The Effects of Smarter Choice Programmes in the Sustainable Travel Towns. Accessed September 9, 2010 at http://www.dft.gov.uk/pgr/sustainable/smarterchoices/programmes. Also several final reports from TravelSmart projects available on Sustrans' website at http://www.sustrans.org.uk/what-we-do/travelsmart/travel-behaviour-research-and-evaluation

2 Car Clubs	
Membership based schemes enabling people to gain temporary use of a car without the need to own one.	Lead Organisation: local authorities or environmental groups and car club providers. Local authority involvement is temporary such as the provision and enforcement of parking spaces.
Change in travel behaviour	Each car club member is likely to reduce their car mileage by around 5000 miles, whilst transferring some travel to walking and cycling and tending to make fewer journeys overall. A car club with a single vehicle can significantly reduce the number of private cars owned, and lead to an annual reduction of around 125,000 car miles travelled per year.
Value for money - congestion savings	Saving 1000 car kms (625 car miles) can cost local authorities up to £66 in parking provision, but typically costs will be much lower.
Carbon savings from reductions in car use	Each member will save, on average, 1500 kgs of carbon a year.
Physical activity and health	Car Club members tend to cycle (at once a week) at twice the national average. Their levels of walking (for 20 minutes a week) are 18% higher than the national average.
Assessment	These schemes tend to perform best in denser urban areas. They can be useful in deterring second car ownership. A single-car club costs around £15,000 to £20,000, and potentially removes around 20 individually owned cars. There is the potential for schemes to be self-funding with local authorities just involved in facilitation in the early set up stage and providing dedicated parking places.
Evidence quality and source	Medium[2]

2. Ledbury, M. 2004 UK Car Clubs: an effective way of cutting vehicle usage and emissions? MSc Dissertation. Environmental Change Unit, University of London.

3 Adult Cycle Training	
One to one on road cycle training aimed at equipping individuals with the skills and confidence to cycle on today's roads.	Lead Organisations: local authorities using local providers such as Lifecycle UK.
Change in travel behaviour	60% of people who train increase their cycling a 'lot' after their training. The main journey purposes being commuting and leisure. Early pilots in Bristol suggested that approximately 25% of people reduced their car use to 'some extent'. 81% of people attending cycle maintenance courses also cycle more.
Value for money - congestion savings	The one-off cost of saving 1000 car kms in the first year is about £480. Providing accredited 'Bike-ability' level 3 adult cycle training costs £30 per session. The costs for each person who goes on to cycle a 'lot' more, is around £100-150.
Carbon savings from reductions in car use	24kg of carbon per person per year averaged across all participants trained.
Physical activity and health	More people cycling will reduce their dependence on the car for short journeys, leading to higher levels of physical activity.
Assessment	Many adults have lost the habit and confidence to cycle, so taking part in a training course is a good way to regain this confidence - a pre-requisite for getting back on the bike. Trainees tend to have already made a positive decision to cycle more.
Evidence quality and source	Low[3]

3. http://www.lifecycleuk.org.uk

Individuals

4 Walking for Health	
Walking groups who provide short, led walks for inactive people, using trained volunteers.	Lead Organisations: local authorities, primary care trusts, community groups.
Change in travel behaviour	Participants were asked, after 12 months, what types of walks they did more of since they joined. 17% of people said they did more everyday walking around their own neighbourhood and 9% walked more for shopping purposes.
Value for money - congestion savings	The one-off costs of saving 1000 car kms in the first year is about £740. Motivating 100 people to walk more costs typically £2000 pa in support costs.
Carbon savings from reductions in car use	13kg of carbon, per person per year averaged across all participants.
Physical activity and health	65% of the participants met the current recommended levels of physical activity and the amount of leisure walking that people did contributed substantially to their overall physical activity levels. People attending led walks for the first time were less physically active overall than other regular walk attenders.
Assessment	Giving people the opportunity to take part in led walks can encourage them to become more active and walk more for leisure and for everyday journeys. Popular with older people, and women, though can be tailored for other audiences.
Evidence quality and source	Medium[4]

4. Evaluation of Changes to Physical Activity amongst people who attend the walking the way to health initiative (WHI). Oxford Brookes University 2006.

5 Walks Information Packs	
Packs of information on local walks designed for inactive people, and carefully targeted via GP surgeries and libraries.	Lead organisation: local authorities, primary care trusts, community and environmental groups.
Change in travel behaviour	41% of people said they did more everyday walking in their local neighbourhood as a result of using the walking packs.
Value for money - congestion savings	The one-off costs of saving 1000 car kms in the first year is about £69. High value, as walking packs are cheap to produce (the Doorstep walks cost around £3 at 2010 prices). Distribution can be targeted and there is no ongoing cost.
Carbon savings from reductions in car use	13kg of carbon, per person per year averaged across all participants.
Physical activity and health	One in six people reported that they continued to use the resource 18 months after initial participation. The drop out rate of around 40% was less than the normal drop out rate for individuals who join exercise programmes. Only 3.3% of those previously inactive reported that they remained inactive.
Assessment	This low cost intervention, which was designed for relatively inactive people, showed that once people gained the confidence of leisure walking they begin to habitually walk more for other purposes.
Evidence quality and source	Medium[5]

5. Vernon, D., Brewin, M., Vernon, D. 2002 Sustainability and evidence of success: An 18-month follow-up study of the Doorstep Walks initiative, Health Education Journal, 61(1): 44-51.

6 Active Travel to School	
Encouraging young people who live within a realistic walking distance of their school to walk or cycle instead of being driven in a car.	Lead organisation: local authorities and individual schools.
Change in travel behaviour	A 3 percentage points increase in the number of young people walking to school across the South West was achieved in the 2 years between 2007/08 and 2009/10.[6]
Value for money - congestion savings	The one-off costs of saving 1000 car kms in the first year varies. A typical local authority can achieve a benefit to cost ratio of 4.6:1. The cost of having effective management of data on school travel costs around 16 pence per young person, per local authority, per year. Many behaviour change activities are low cost once the basic infrastructure is in place. The value of each additional young person walking to school has been estimated as £768.[7]
Carbon savings from reductions in car use	For every young person walking one mile to school and back, instead of being driven in a car, there is a saving of 57kg of carbon per year.
Physical activity and health	Young people who are active on the journey to school also tend to stay active after the school day[8], hence active travel can contribute to overall levels of physical activity.
Assessment	There is the potential for a further 12 percentage points increase in walking if we can encourage the majority of young people who still travel to school by car but live within a realistic walkable distance to school. For primary schools this is 800 metres (0.5 miles) and for secondary schools the limit is 2000 metres (one and a quarter miles).
Evidence quality and source	Medium[9]

6. Promoting Active Travel to School, Progress and Potential. Modeshift/Department of Health – South West, 2010.
7. Newland, T. Active Travel to School 2007/09 – Value for Money.
8. Cooper, A,. Page, A., Foster, L., Qahwaji, D. 2003 Commuting to School: Are Children Who Walk More Physically Active? American Journal of Preventive Medicine, 25(4):273–276) as best study showing the children who walk to school are more physically active across the day than those who travel by car.
9. http://www.sthc.org.uk

7 ‘Bike It’	
'Bike It' is a schools-based programme that aims to increase levels of cycling to school by giving pupils the skills, confidence and passion to do so.	Lead Organisations: Sustrans, local authorities, primary care trusts and individual schools.
Change in travel behaviour	The 2009/10 ‘Bike It’ programme achieved a more than doubling of the proportion of young people cycling every day from 3.7% to 8.7% of those surveyed. There was also a near doubling of the proportion of young people cycling to school once or twice a week from 10.6% to 18.2%.
Value for money - congestion savings	The main impact on congestion is through a 4.3% reduction in the proportion of pupils travelling to school every day by car in year 1 of a 'Bike It' scheme. Across the pupil population where ‘Bike It’ operates this is the equivalent to 25 car kms saved per pupil per year. Hence 40 pupils are needed to save 1000 kms pa. The typical operating cost of a ‘Bike It’ scheme in year 3 is around £13, per pupil. Hence the cost of saving 1000 car kms is 13*40 = £520.
Carbon savings from reductions in car use	5kg of carbon, per person per year averaged across all participants.
Physical activity and health	Cycling provides the opportunity for young people to take part in vigorous activity not just moderate intensity activity, such as walking, which can bring more health benefits including weight loss.
Assessment	Low levels of cycling offer the potential for large increases in cycling given the right culture and environmental conditions. While some new cyclists will have previously walked there is still a significant shift from car to bike. ‘Bike It’ also works to influence parents, people’s leisure cycling habits and promote long term behaviour changes towards sustainable travel.
Evidence quality and source	Medium[10]

10. 'Bike It' Value for Money, Sustrans 2010.

8 Step-o-meters	
Patients at GP surgeries are loaned step-o-meters to encourage more active living.	Lead Organisations: primary care trusts, community groups.
Change in travel behaviour	71% of users who were loaned a step-o-meter said they walked more after 6 weeks.
Value for money - congestion savings	Motivating 100 people costs around £1000 (quality step-o-meters cost from £6 each plus support costs).
Carbon savings from reductions in car use	5kg of carbon, per person per year averaged across all participants.
Physical activity and health	Participants were walking 1500 steps a day more by the end of the 6 week programme.
Assessment	Step-o-meters provide low cost way of measuring walking levels. These devices can motivate certain groups to walk more.[11]
Evidence quality and source	Medium[12]

11. Bravata,D. et al, 2007 Using Pedometers to Increase Physical Activity and Improve Health. A Systematic Review. Journal of the American Medical Association 298 (19): 2296-2304
12. http://www.whi.org.uk/nsp

9 Walking to Work	
Schemes where employers encourage their staff to walk to work.	Lead organisation: employers and local authorities.
Change in travel behaviour	25% of the initial target group, who were contemplating or preparing to actively commute at baseline, were regularly walking to work one year later.
Value for money - congestion savings	The one-off costs of saving 1000 car kms in the first year is about £565. The main costs were print.
Carbon savings from reductions in car use	17kg of carbon, per person per year, averaged across all participants.
Physical activity and health	The target group achieved double the increase in walking compared to the control group, after six months.
Assessment	People who changed their behaviour reported a variety of methods of creating active journeys including: adding walking to bus journeys by getting off the bus early; declining a regular lift in others people's cars; using public transport more and parking further away from normal destinations.
Evidence quality and source	High[13]

13. Mutrie, N., Carney, C., Blamey, A., Crawford, F., Aitchision, T., Whitelaw, A. 2002 "Walk in to Work Out": A randomised controlled trial of a self help intervention to promote active commuting, J. of Epidemiology and Community Health, 56: 407-412.

10 Workplace Challenges	
A challenge competition across a town to see which employer can get the most staff cycling for just 10 minutes.	Lead organisation: local authorities in partnership with primary care trusts and large employers.
Change in travel behaviour	Non cyclists take up cycling: 34% of 'non cyclists' were cycling once a week or more, 3 months after the Challenge. Occasional cyclists start to cycle regularly: 31% of 'occasional cyclists' were cycling regularly 3 months after the Challenge. More people cycling for transport purposes: 28% of 'occasional cyclists' were cycling to work at least once a week, 3 months after the Challenge.
Value for money - congestion savings	The one-off costs of saving 1000 car kms in the first year is about £400. A positive behaviour change was achieved for an average cost of £25 per employee.
Carbon savings from reductions in car use	A comprehensive evaluation of the Manchester Cycle Challenge showed an annual saving of 206 kg of carbon per participant.
Physical activity and health	78% of participant respondents who before the Challenge were active for 30 minutes or more only once a week reported 3 months post Challenge that they were now physically active on three or more days a week.
Assessment	Delivers long term behaviour change and creates a valuable platform to continue this process, through targeted interventions and promotion to an engaged local community. Key benefits: Measurable outcomes Based on behaviour change theory Multiple benefits in single initiative Database of participants Comprehensive research tool to target future interventions Tackles congestion and parking difficulties
Evidence quality and source	Medium[14]

[14.] CTC Interim Evaluation, 2010

11 Electrically Assisted Bicycles

An alternative to car use for work or personal journeys. Local authorities can promote their use via 'try out' events; providing advice to potential users; introducing electric bikes into their own pool bike schemes and through wider travel awareness work.	Lead organisation: employers or individuals, no national champion except manufacturers.
Change in travel behaviour	Some people who are amenable to cycling, but are deterred by hills or concerns about fitness, maybe enticed to cycle with an electrically assisted bike.
Value for money - congestion savings	A typical cost for a bike is around £1000. When used for short distance work journeys an employer will soon make a full saving from reduced car mileage expenses. Running costs are very low.
Carbon savings from reductions in car use	Electrically assisted bikes used for short work journeys can save up to 500 kgs of carbon per year per bike.
Physical activity and health	The intensity of cycling on an electrically assisted bike is sufficiently high to contribute to better health.
Assessment	Electrically assisted bicycles can encourage people to cycle who would otherwise drive, especially people with limited mobility, and they can be very cost effective for short journeys.
Evidence quality and source	Low[15]

[15.] Avon and Wiltshire Health Trust.

12 Car Sharing	
Web-based matching of travellers for commuting and business purposes, which can be promoted via work place events, road signing and promotional campaigns.	Lead organisation: local authorities and large employers.
Change in travel behaviour	Awareness and use of schemes are increasing. For example, in Devon during 2010, an estimated 182 new people began sharing. Across the total Devon membership of over 7,500 people, 596 share journeys.
Value for money - congestion savings	Average benefit to cost ratio (BCR) for all car share schemes is very high (up to 72:1)[16] These high BCRs are partly explained by low operating costs - the average is less than £10,000 per local authority per year.
Carbon savings from reductions in car use	Each commuting car journey removed saves an estimated 960 kgs of carbon per year.
Physical activity and health	Car sharing can encourage small levels of increased walking, for example, to get to meeting points.
Assessment	Car sharing schemes work particularly well for people living in rural areas where alternatives to the car are few, and especially when fuel prices are high and incomes restrained. Most car sharing takes place informally but formal schemes remind people of the benefits and enable people to be put in touch with each other, and take into account a range of personal circumstances. There is scope for using social events at origins and destinations to generate further demand.
Evidence quality and source	Medium

16. http://www.Liftshare.co.uk

13 Workplace Travel: Single Businesses	
Employers take the initiative to reduce the use of the car for commuting in favour of walking, cycling, car sharing or use of public transport.	Lead Organisation: Individual companies.
Change in travel behaviour	Employers nearly doubled the proportion of staff commuting by bus, train, cycling and walking. There was also a reduction in the number of commuter cars by 14%, amounting to a reduction in commuter car journeys by 18%.
Value for money - congestion savings	Reductions in single occupancy vehicles of 16% have been achieved for costs of £2 per employee. Overall costs for a scheme promoting car sharing and cycling are around £30 to set up and £9 annually per employee.
Carbon savings from reductions in car use	204kg of carbon per person per year averaged across all employees based on car sharing alone.
Physical activity and health	The highest levels recorded for different organisations were 23% of staff commuting on foot, 21% cycling and 53% using public transport.
Assessment	Very low cost for employers. Incentives for employers include reduced parking costs, as a contribution to 'Corporate Social Responsibility' or by securing planning permission for new developments with travel planning being a condition of the permission.
Evidence quality and source	Medium[17]

[17] Cairns S, Newson C, Davis A, 2010 Understanding successful travel plan initiatives in the UK Transportation Research Part A: Policy and Practice,44: 473-494.

14 Workplace Travel: Multi-Business Sites	
Joint working across businesses in a single area to reduce traffic levels	Lead Organisation: Highways Agency, business parks, individual companies, plus dedicated providers such as Motiv8 and Easit.
Change in travel behaviour	Area Travel Plans can reduce the number of peak period cars on the Strategic Road Network by 50-150 vehicles.[18]
Value for money - congestion savings	Benefit to cost ratios (BCR) range from 3.5:1 to 13:1. The high BCRs are partly explained by the fact that existing road conditions are congested, and significant benefits accrue from small changes in demand.
Carbon savings from reductions in car use	Between 32 to 186 tonnes per site.
Physical activity and health	
Assessment	Multi-company schemes should be a good way of engaging with smaller employers who do not have the skills or resources to implement a scheme on their own.
Evidence quality and source	Medium

18. Monitoring from Highways Agency of supported multi-company schemes.

Town or City Wide

15 ‘Signs Only’ 20 mph Speed Limits	
Neighbourhood wide speed reduction	Lead Organisation: local authorities.
Change in travel behaviour	Average speed reduction of 1mph, but where average ‘before’ speed was greater than 24 mph then average speed reduced by 7mph.
Value for money: casualty savings	Accident reduction was 13% and the number of casualties fell by 15%. The value of preventing one accident is £52,000, on average.
Carbon savings from reductions in car use	Speed limits without engineering measures tend to keep speeds constant and avoid the accelerate/brake pattern of driving which consumes more energy.
Physical activity and health	Lower speeds create the right kind of safe and more pleasant environment on which the promotion of walking, cycling and children’s play, depends.
Assessment	Speeding is seen as one of the most anti-social of behaviours, as reported in the British Crime Survey. Evidence from early adopter local authorities shows these 20mph limits are popular, with demand from residents exceeding the scale of proposals.
Evidence quality and source	Medium[19]

[19.] http://www.dft.gov.uk/pgr/roadsafety/research/rsrrtheme4/inerimeval20mphspeedlimits.pdf

16 Town or City wide Programmes	
Comprehensive programmes of transport behaviour change measures across complete towns or cities.	Lead Organisation: local authorities.
Change in travel behaviour	Car driver trips per resident of the three towns taken together fell by 9% between 2004 and 2008, whilst car driver distance per resident fell by 5-7%. These are absolute reductions not percentage changes.
Value for money - congestion savings	Expenditure was around £40 for every 1000 car kms removed, compared to a congestion saving of about £180 per 1000 car kms. This gives a congestion only benefit cost ratio of 4.5:1. The Sustainable Travel Towns programme cost £15m over 5 years across 3 towns and shows what can be achieved with long term commitment.
Carbon savings from reductions in car use	The programme resulted in carbon savings of around 50kg per resident per year by 2008 compared to 2004.
Physical activity and health	Cycle trips per resident increased by 26%-30% compared to a national decline in the same period. Walking trips per resident increased by 10-13% compared to a national decline of 9% in the same period.
Assessment	Where a greater range and intensity of measures are implemented together an amplifier effect is created. Where neighbouring authorities are able to work in unison this can increase the overall impact of the individual measures by tackling cross boundary journeys that could otherwise not be addressed.
Evidence quality and source	High[20]

[20.] http://www.dft.gov.uk/pgr/sustainable/ltp3planning/travelguide/ accessed 15th November 2010

Part 3: Evidence Details

These details provide more background information about the evidence quoted in the Evidence Summaries in part 2, including assumptions made in the estimates of congestion and carbon savings.

1 Personalised Travel Planning

Context

There is a growing body of evidence about the effectiveness of providing tailored travel advice, support, information and incentives to people who are open to considering sustainable travel options. Personal Travel Planning is well established as a travel demand management tool that is complementary to pricing, regulation and investments in infrastructure for walking, cycling and public transport.

Purpose of the intervention

To reduce car use and encourage sustainable methods of travel such as walking, cycling and public transport. The most consistent data on effectiveness has derived from the use of personalised travel planning in residential areas where travel options other than the car alone are available. Personal Travel Planning contributes to the establishment of new social norms and helps to build communities that are more able to use alternatives to the car.

Target population

The households of selected suburbs are the target population and they are usually segmented into three groups: those already using sustainable travel; those who have little or no interest and those who express interest in using sustainable travel options. In some contexts PTP is implemented in conjunction with a major improvement in the travel offer such as service improvements, bus reliability, fleet quality or infrastructure improvements. Alternatively it may be delivered in parallel with other packages of travel behaviour change interventions, as in the Cycling Demonstration Towns Exeter and Darlington.

Setting

The setting is households within selected residential areas, sometimes across a whole town or city (e.g. in Peterborough, Worcester and Darlington as an element of their Sustainable Travel Town programmes).

Duration (including time to follow up)

There is limited data on the longer term effects of PTP. However, research from Perth (Australia) and Gloucester indicate that increases in public transport use and reductions in car user modal shares respectively were maintained for 2-3 years following the intervention[1 2]. More recently in the UK there was a longitudinal element to the evaluation of PTP in Peterborough. This showed that three years after the first tranche of around 10,000 households had participated in PTP, there was still a 9% relative reduction in their car-as-driver trips compared to baseline levels (baseline measured in 2004; PTP delivered in 2005; final travel behaviour survey in 2008). So although there was some attrition, as would be expected due to population churn and a return to old habits as time passes after the intervention, this is an encouraging finding in terms of the longevity of change brought about by PTP.

Content and mode of delivery

PTP is usually provided on a face to face basis by a team of trained Travel Advisors. The 'conversation' though which PTP is delivered uses motivational interviewing techniques, is based around available travel options and reducing known barriers to change. By providing information and encouragement seeks to influence travel behaviours within the current supply of the infrastructure and services.

Method(s) of analysis/data Sources

A variety of methods but normally travel diaries are completed by people in the target area and by people not in the target area (control population). The data presented is largely drawn from DfT research published in late 2007[3 4] and a variety of Sustrans studies.

A separate review[5] found clear evidence that people can be encouraged to walk more by interventions tailored to their needs, targeted at the most sedentary or at the most motivated to change, and delivered either at the level of the individual or household or through group-based approaches. This study did not report on mode share but says that 'evidence from the most promising studies suggest that, among targeted participants, successful interventions could increase walking in general by up to 30-60 minutes a week on average'. Further evidence is emerging.[6]

Main physical activity measure

Based on the comprehensive DfT 2007 reports, across a range of projects walking increased by between 0 and 5% (percentage points).and cycling between 0 to 1% (percentage points). Car driver trips reduced from between 2 to 7% (percentage points).

Impact on car mileage and cost/benefit

The cost of reducing 1000 car kms (625 car miles) ranges from £20 for large scale projects engaging with up to 25,000 households, to up to £130 for smaller projects reaching around 1,500 households.

Large scale schemes deliver a benefit to cost ratio of around 7:1.Large scale schemes provide better value for money than small scale.

Carbon calculation

If people taking part reduce their car travel by on average 4.5 percentage points (average between 2-7%) then assuming that people travel 6000 miles by car each year this produces a carbon savings of around 6000x0.045 x03kg* = 183 kgs per year.

*www.transportdirect, see ‘check CO2 emissions’ (average of small and large car single occupancy)

Robustness of data

Medium.

1. http://www.transport.wa.gov.au/tsmart_southperthpilot3.PDF
2. http://www.dft.gov.uk/pgr/sustainable/travelplans/ptp/personalisedtravelplanningev5774?page=4
3. Making Personal Travel Planning Work: Research Report December 2007.
4. Making Personal Travel Plans Work: Case Studies December 2007.
5. Ogilvie et al 2008 Interventions to promote walking: systematic review, BMJ, 4th June.
6. Travel Demand Management - An International Comparison of Household Programs. (2010) MacGregor, F, & Ashton-Graham, C www.behaviourchange&solutions.com

2 Car Clubs

Context

There is growing evidence that people can maintain access to a car without the need for car ownership. This results in reduced car mileage and greater physical activity amongst car club members. Membership in the UK has grown from 20,000 in 2007 to 127,000 in 2010.

Purpose of the intervention

To reduce car ownership and use, and reduce the cost of access to a car. It is estimated that people using their car for less that 6000 miles per year will financially benefit from car club membership.

Target population

Car owners using their car for less that 6000 miles per year and non car owners.

Setting

Data is based on 46 locations in the UK (counting London as one location) mainly within large towns and cities. 80% of members are based in London.

Duration (including time to follow up)

There are annual member surveys available of the main car club providers eg Car Plus.

Content and mode of delivery

Through a range of operators ranging in size and level of public support they receive. Schemes are substantial self-funding although some schemes are provided initially though developer contributions.

Method(s) of analysis

Change in modal split including bicycle counts, and parent's perceptions.

Data sources used

Member surveys and annual reports[7]

Main physical activity measure

Typically, rates of cycling at least once a week are more than double the National Travel Survey level. Frequency of walking for more than 20 minutes at least once a week is 18% higher amongst car club members on average.

Car clubs and health

There is evidence to show that membership of a car club reduces levels of car use and changes in travel behaviour[8]. Ready access to a car through car
2 ownership can encourage individuals to become reliant on the car for all personal travel needs. More specifically it can encourage individuals to choose to make short distant journeys by car instead of more active modes or chose to substitute a longer journey when a shorter one was possible. Replacement of car ownership with car club membership is likely to give rise to greater consideration to how individual journeys are made. The withdrawal of ready access to a car could encourage members to undertake a (greater) proportion of short journeys (under 5 miles) by walking, cycling or

public transport. If so, it is plausible for this change in travel behaviour to result in an overall increase in physical activity. A trial in the USA reported that 40% of an intervention group of 300 adults who lived without a car for a month reported weight loss as the result of using public transport.[9] Other research also from the US shows that a significant minority of public transport users achieve five times 30 minute minimum of moderate physical activity a week a level of physical activity that is equivalent to the recommendation made by the Chief Medical Officer for England.[10]

With the current high level of concern over the rising prevalence of obesity and an associated commitment to promote active travel[11], robust evidence that joining a car club helps people become more physically active would strengthen the case for investment in car clubs. There is already a growing evidence base that car use and its substitution for active travel modes leads to reductions in total active travel time and also increases body weight.[12 13]

Impact on car mileage and cost/benefit

Car Plus data suggests that a car club vehicles 'removes' 24 private cars.

This amounts to a saving of 5-10, 000 miles per car saved and therefore 120,000-240,000 miles per car club vehicle.

Each car club member is likely to be travelling less than 5000 miles per year using a car club vehicle. It is reasonable to assume that a car club vehicle has a net saving of 60,000-120,000 miles per year

Typical costs to the car club provider are £6000 for the car (including insurance and maintenance); £1500 for telematics and admin/marketing costs. A top level cost of £20,000 per car seems reasonable.

Costs to a local authority that supports a car club scheme could include costs of providing on street bays (traffic regulation orders and signing) and promotion work. Provision of bays in a controlled parking zone may result in loss of parking revenue. A programme of 10 bays could be expected to cost £20-40,000 depending on circumstances where the local authority is proactively supporting the roll out of a scheme. In some cases local authorities recoup costs in part or in full from the operators.

For a successful scheme, 10 cars could be expected to save 600,000-1,200,000 miles per year. Under the most pessimistic assumptions saving 1000 car miles costs £66 i.e.£40,000/600. However a substantially lower figure is achievable.

Robustness of data

Medium.

Carbon calculation

If each car club member travels 5000 car miles less per year this would create carbon savings of around 5000x0.3kg* = 1500 kgs per year.

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy)

7. http://www.carplus.org.uk/wordpress/resources/reports/
8. Ledbury, M. 2004 UK car clubs: an effective way of cutting vehicle usage and emissions? MSc Dissertation. Environmental Change Unit, University of Oxford.
9. Zipcar's ";ow-car diet" produced fuel savings, weight, Boston Business Journal, 26th August 2008. http://washington.bizjournals.com/boston/stories/2008/08/25/daily20.html accessed 30th August 2008.
10. Beeser, L., Dannenberg, A. 2004 Walking to Public Transit Steps to Help Meet Physical Activity Recommendations, American Journal of Prevention of Medicine, 2005;29(4):273–280.
11. Department of Health, 2008 Healthy Weight, Healthy Lives: A cross-government strategy for England London: Dept. Health www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082378 accessed 24th January 2008.
12. Frank, L., Andresen, M., Schmid, T. 2004 Obesity relationships with community design, physical activity, and time spent in cars, American Journal of Preventive Medicine, 27(2): 87-96.
13. Bassett, D., Pucher, J., Buehler, R., Thompson, D., Crouter, S. 2008 Walking, cycling, and obesity rates in Europe, North America and Australia, Journal of Physical Activity and Health, 5: 795-814.

3 Adult Cycle Training

Context

People considering cycling after a long period of not cycling often perceive that road conditions are too 'dangerous'. There is some but limited scope for providing protected routes for door to door journeys. The objective of adult cycle training is to equip individuals with the confidence and skills to cycle safely in today's traffic conditions.

Purpose or objective of the intervention

To enable more people to cycle in everyday situations particularly as an alternative to driving short journeys alone.

Target population

The training is targeted at adults at all levels of ability and confidence. There have been a number of programmes aimed at people with particular needs such as learning difficulties.

In reality the majority of training (85% according to Life Cycle) is taken up by women, a section of the population that is currently under-represented in cycling.

Life Cycle report about 55% describing themselves as an 'improver' and 35% as complete beginner. Few describe themselves as advanced.

The schemes are widely publicised using printed and digital media. Adult cycle training is increasingly offered as part of workplace travel plan services and in conjunction with personalised travel planning. Lifecyle UK are predicting considerable take up in 2010/11 and forecast around 500 lessons at a subsidised rate to the user of £5.

Setting

Adult cycling training has been predominantly provided in urban settings. It was originally piloted in Bristol leading to the development Bikeability Level 3.

Duration (including time to follow up)

There is limited data on the longer term effects of adult cycle training although the skills and confidence acquired can be expected to be retained and be transferable to new journey contexts.

Content and mode of delivery

The training is provided on a one to one basis by a qualified Bikeability Level 3 trainer. The training often focuses on a particular journey that the trainee wishes to make, such as the journey to work. Training sessions normally last for an hour and individuals normally take one to three sessions.

Method(s) of analysis/data sources

A major survey of 2200 people was commissioned by Transport for London and carried out by provider CTUK in 2004. It asked about the impacts between 1-2 months after the training took place. Key findings, after training include:

- Cyclists made an average of 2.2 trips per week, an increase of 144%;
- There was a 40% increase in winter cycling.

More recently, Life Cycle UK has sought more systematic feedback from participants, about one month

after the training. Results are similar with reported confidence increasing translating into greater cycling rates. Results regularly indicate significant increases in reported cycling, typically with a tripling of people cycling more than once a week.

Main physical activity measure

Results from 2009/10 in Bristol indicate that 60% of those trained cycled 'a lot' more after their training. They cycled mainly for commuting 55% and for leisure 41%. Fitness/ health was a relatively low motivational factor in the decision to undertake training (10%). By far the greatest motivator was the wish to gain confidence in using a cycle (77%).

Impact on car mileage and cost/benefit

Direct questions about modal shift are not asked in the data so it is unclear if increases in cycling affect walking, use of public transport or car use. However, given the CTUK analysis that showed that there were journeys of 5 miles plus, there must be a presumption that at least some of these journeys are a switch from car use.

The results of the monitoring of the 2001/2 pilot schemes in Bristol showed that approximately 25% reduced their car mileage. If a quarter of trained people reduce their car travel by 500km, assuming a £60 public cost per person trained (2 sessions), this equates to a cost of saving 100 car kms of £480.

This shift in behaviour would reduce carbon amongst all participants by 24kgs p.a.

6. How much did you cycle before and after the training		
answered question		
skipped question		
	Before	**After**
less than once month	**100.0% (21)**	**23.8% (5)**
once month or more	**33.3% (4)**	**66.7% (8)**
once week	**33.3% (1)**	**66.7% (2)**
more than once a week	**35.7% (5)**	**92.9% (13)**
daily	**50.0% (1)**	**100.0% (2)**

Costs

Bikeability level 3 adult training costs £30 a session, and the cost for each person who goes on to cycle a 'lot more' is around £100-£150.

Robustness of data

Low.

4 Walking for Health

Context

Walking for Health was designed to encourage inactive people to walk more to benefit their health. It was set up in 2000 by the Countryside Agency and British Heart Foundation. It grew rapidly up to 2005 when there were around 500 community groups across England, Scotland and Wales leading walks and promoting walking, supported by 25,000 volunteers[14]. It continues to flourish.

Purpose of the intervention

To motivate people, especially those who take little exercise or live in areas of poor health, to walk more and so benefit their health by providing them with opportunities to take part in short led walks in and around their own community.

Target population

Inactive people who mainly self refer to walking schemes following local promotion by work of mouth or low key marketing activity.

Setting

Many community settings across England and Scotland.

Duration (including time to follow up)

Participants were interviewed on their first walk, then again after periods of 3 and 12 months.

Content and mode of delivery

A researcher attended each led walk and interviewed participants face to face and sought their permission to contact them for the follow ups.

Method(s) of analysis

741 participants were interviewed, and recruited from 85 different walking for health schemes at base line. Retention rates at 3 months were 80% and at 12 months were 74%.

Data sources used

At base line, data was collected by face to face interviews with participants. Follow ups were carried out by post.

Main physical activity measure

65% of the participants met the current recommended levels of physical activity and the amount of leisure walking that people did contributed substantially to their overall physical activity levels. People attending led walks for the first time were less physically active overall than other regular walk attenders.

After 12 months participants were asked what types of walks they did more of since the start of the evaluation. For around a third of participants, attending a health walk was the only type of walking they took part in. The next most common types of walking that people did more of was utility, short walks for example around their local neighbourhood (17% of people) and for shopping (9% of people).

Other comments on the outcomes

The age profile of participant was quite elderly with a mean age of 64 years. This was nearly twice the English (and Scottish) national average of 38 years. More than half (56%) of the study population was 65 or older. Around 75% of participants were female.

Robustness of data

High.

Value for money/carbon savings

17% of people said they did more everyday walking in their local neighbourhood.
So assuming these people walk more say, once a week on a 1 mile journey each way previously taken by car, this will produce carbon savings over a year of 0.17x2x52x(0.3kg*) = 5 kg per person per year.

A typical scheme involves 100 people and costs £2000 per year to support.
37 people in a scheme will save 1000 car kms a year, which would cost around £740 to support.

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy)

14. Evaluation of Changes to Physical Activity amongst people who attend the walking the way to health initiative (WHI). Oxford Brookes University 2006. http://www.wfh.naturalengland.org.uk/uploads/documents/2335/National%20evaluation%20-%20THE%20FULL%20THING.pdf

5 Walks Information Packs

Context

Walking is the most basic form of physical activity humans can undertake to maintain good health. Levels of walking for transport have been in decline for decades and walking for leisure has been largely undertaken by more affluent and healthy populations.

Purpose of the intervention

An initiative in Wiltshire to encourage home-based brisk walking as a means of increasing physical activity levels.[15]

Target population

Adults with low levels of physical activity.

Setting

Home-based.

Duration

Intervention of duration was 6 months.

Content and mode of delivery

Five hundred packs (unit cost £0.75 at 1997 prices, around £3 at 2010 prices) with details of ten local walks in and around Salisbury, and information on the benefits of regular exercise, were issued through public outlets including general practices. The packs were free at the point of issue.

Method(s) of analysis

The study adopted a pre- and post intervention design utilising a self-report administered postal questionnaire. The questionnaire was designed to examine the longer term impacts of the Doorstep Walks initiative. It was issued to all participants (322) 12 months after the initial evaluation, which is 18 months after the implementation of the initiative.

Data sources used

Self-reported changes in walking.

Main physical activity measure

Approximately one in six of the initial population reported that they continued to use the resource 18 months after initial participation. This degree of sustainability represents 18,300 individuals for a Primary Care Trust of 100,000.

A drop out rate in participation of 41% was less than the 50% drop out reported elsewhere of 50% for individuals who join exercise programmes (over similar levels of time).[16]

Other comments on the outcomes

There was a wider effect on everyday travel with 41% of participants saying that they were now walking short distances instead of driving.[17]

A quarter of respondents reported that the pack was a 'major feature' in their plans to improve or maintain their health. One in seven participants claimed that the initiative had encouraged them to go on alternative walks. Only 3.3% of those previously inactive claimed to have remained inactive. Of all respondents, 38 per cent got the pack from their GP, illustrating the potential of the primary care setting for such initiatives. The appeal of the initiative may be attributable to the enjoyable nature of this form of physical activity; it is non-competitive, sociable and educational.

Value for money/carbon savings

Beyond the cost of the walking pack there were no further cost implications.

41% of people said they did more everyday walking in their local neighbourhood. So assuming these people walk more say, once a week on a 1 mile journey each way previously taken by car, this will produce carbon savings over a year of 0.41x2x52x(0.3kg*) = 13 kg per person per year.

23 people walking more are needed to save 1000 car kms, which would cost around £69.

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy).

Robustness of data

Medium.

15. Vernon, D., Brewin, M., Vernon, D. 2002 Sustainability and evidence of success: An 18-month follow-up study of the Doorstep Walks initiative, Health Education Journal, 61(1): 44-51.
16. Dishman, R. 1994 Advances in exercise adherence. Champaign, Il Human Kenetics.
17. Vernon, D., Brewer, M. 1998 Doorstep walks; an evaluation of the impact of a low cost intervention to assist primary care teams in promoting physical activity, Health Education Journal, 57, 224-231.

6 Active Travel to School

Context

Promoting active travel to school is well established. Most schools now have plans to promote active travel to school and most local authorities have staff who support schools take action to motivate their young people to walk or cycle instead of travelling by car.

Rising car ownership, parental choice of school and the closure of small schools near to where families live makes progress challenging.

A realistic walking and cycling distance is considered to be 800 metres (half a mile) for primary schools and 2000 metres (one and a quarter miles) for secondary schools.

Purpose of the intervention

To encourage more young people to walk or cycle to school instead of travelling by car.

Target population

Young people between 5 and 18 in primary and secondary education.

Setting

Primary and secondary schools and Colleges.

Duration

Data taken from 2007/8 and 2009/10.

Content and mode of delivery

Many schools run campaigns such as walking to school weeks, restricted parking around schools and provide incentives for children. Targetting children who drive within a realistic walk threshold is most effective. Data showing where young people live, their mode of transport and their proximity to realistic walking thresholds are provided by the School Travel Health Check.[18]

Method(s) of analysis

Comparing all travel modes to school between the two survey years to identify changes in levels of walking. Data from the School Travel Health Check is also available annually.

Data sources used

The annual School Census as analysed by the School Travel Health Check covering 9 local authorities in the South West.

Main physical activity measure

There has been a 3 per cent increase in the number of young people walking to school in the last two years, amounting to an average around 600 young people extra per local authority, on most school days. This ranges from an extra 7.9% in North Somerset (1060 young people) to virtually no change in Torbay. This is the equivalent of around 230,000 more walking trips per local authority per year.[19]

There is the potential, in the short term, for a four fold increase on these achievements.

Other comments on the outcomes

The data cannot identify significant changes in levels of cycling although some individual schools have made good progress.

Young people who are active on the journey to school also tend to stay active after the school day[20] hence active travel can contribute to overall levels of physical activity.

Carbon savings

The carbon savings per young person based on a 1 mile return journey to school over the year would be 190x0.3kg* (average small/large car average figure for 1 mile from transport direct carbon calc)= 57kg per young person per year.

Value for money

The best value for money will be achieved by supporting schools with the most potential to change, which is where there are relatively large numbers of young people not walking within the walking or cycling thresholds. Analysis of the school census data costs 16 pence per young person, per local authority which, provides a pack of information for every school showing where the young people live, their mode of transport to school and their distance from school in relation to the realistic walking distance.

Changing the travel behaviour of 3 young people will save 1000 car kms p.a. Costs vary widely. A local authority employing a full time co-ordinator and purchasing the analysis of data on school travel could spend around £50,000. If 300 young people a year (the average for South West local authorities) change behaviour, this will deliver a benefit to cost ratio of 4.6:1, based on recent estimates that the value of each additional young person walking to school has been estimated as £768 from health, less congestion and carbon savings.[21]

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy).

Robustness of data

Medium.

18. http://www.sthc.org.uk
19. Promoting Active Travel to School, Progress and Potential, Modeshift/Department of Health – South West 2010
20. Cooper, A,. Page, A., Foster, L., Qahwaji, D. 2003 Commuting to School: Are Children Who Walk More Physically Active? American Journal of Preventive Medicine, 25(4):273–276) as best study showing the children who walk to school are more physically active across the day than those who travel by car
21. Tobias Newland, 2010.

7 ‘Bike It’

Context

Low levels of cycle use to school despite high levels of preference for cycling. Half of the schools previously did not permit cycling or had no pupils cycling.

Purpose of the intervention

Sustrans works directly with schools who want to increase levels of cycling. It helps schools to make the case for cycling in their school travel plans, supporting cycling champions in schools and demonstrating that cycling is a popular choice amongst children and their parents. The aim is to create a cycling culture in the school which continues long after the 'Bike It' officer has left.

Target population

School children 5-6 in primary and year 7 in secondary schools.

Setting

Schools in England, currently around 50 'Bike It' officers deliver schemes in hundreds of mainly, primary schools.

Duration (including time to follow up)

Before and after surveys were conducted annually in 2009/10.

Content and mode of delivery

Staff focused attention on: school travel plan coordination; cycle storage installation; cycle training promotion; classroom work, assemblies and after school clubs; Bike to School events; cycle incentive schemes; monitoring and reporting.

Method(s) of analysis

Change in modal split including bicycle counts, and parent’s perceptions.

Data sources used

Before and after surveys with pupils in years 5-7, before surveys with parents, after surveys with school champions, after surveys with local authorities. Hands up survey technique often used.

Main physical activity measure

The 2009/10 ‘Bike It’ programme achieved a more than doubling of the proportion of young people cycling every day to school from 3.7% to 8.7% of those surveyed. There was also a near doubling of the proportion of young people cycling once or twice a week to school from 10.6% to 18.2%.[22] By working with young children and their families 'Bike It' has the ability to change transport behaviours of whole families over time.

Other comments on the outcomes

Earlier similar results have also been reported for 'Bike It' schools in the Cycle Demonstration Towns and at other locations across England since the initial 40 schools were evaluated, in 2004/05.

Robustness of data

Medium[23]

Value for money/congestion savings

The main impact on congestion is through a 4.3% reduction in the proportion of pupils travelling to school every day by car in year 1 of a 'Bike It' scheme. Across the pupil population where 'Bike It' operates this is the equivalent to 25 car kms saved per pupil per year. Hence 40 pupils are needed to save 1000 kms pa.

The typical operating cost of a 'Bike It' scheme in year 3 is around £13, per pupil. Hence the cost of saving 1000 car kms is 13*40 = £520.

Carbon reduction.

A typical pupil in a 'Bike It' school saves about 25 car kms p.a., which equates to a carbon reduction of 5kgs on journeys to school only.

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy)

22. Data for all 'Bike It' pupils in England (including London), Sustrans 2011.
23. Sustrans, 2010 'Bike It' Value for Money.

8 Step-o-meters

Context

Step-o-meters have been increasingly used to motivate people to become more active. They are one of the few low cost, mass market devices available that enable people to monitor how much walking they do. Evidence suggests that people should walk around 10,000 steps a day, most people walk between 3-5,000.

This study reports on the National Step-o-meter Programme funded by the Department of Health.

Purpose of the intervention

To motivate people to walk more by enabling people to be more aware of their daily step count, to help them set targets to walk more and monitor their progress.

Target population

Inactive people identified by health professionals.

Setting

People attending clinics or GP consultations in primary care, or those on community walking schemes.

Duration (including time to follow up)

6 week programme for individuals, which was implemented across England during 2005 and 2006.

Content and mode of delivery

All 303 Primary Care Trusts in England were invited to participate and offered 30 free loan packs containing 10 step-o-meters each. Locally delivered training was provided for up to 30 health professionals to enable them to become familiar and confident in using them with patients.

Health staff then identified suitable inactive patients and offered them the chance to borrow the step-o-meter and record their daily step count.

Method(s) of analysis

A sample of 30 randomly selected PCTs were involved in the evaluation, Users were asked to record their step count each day on a form across the 6 week period.

Data sources used

Steps walked each day are counted by the Step-o-meter and recorded manually onto diaries.

Main physical activity measure (or other proxy measures)

71% of users said they walked more, resulting in an average increase in daily walking of up to 1500 steps per person by the end of the 6 week programme.

At a 3 month follow up 71% of health professionals said they were still using them with patients.

Evaluation carried out by University College, Worcester.

Other comments on the outcomes

This programme evaluated impact with users over 6 weeks[24]. A Separate systematic review[25] confirms there is evidence of effectiveness as a motivational tool which can improve physical activity levels at least over the short term.
Other programmes such as the Global Corporate Challenge show positive impacts over periods up to a year.

Robustness of data

Medium.

Value for money/carbon calculation

Each participant was walking 1500 steps a day by the end of the programme. Much of this was additional optional walking, contributing to their health.

If 5 out of 100 people given a step-o-meter walked 1500 steps a day (the equivalent to 1 mile) for everyday journeys the carbon savings over a year would be 0.05x1x365x(0.3kg*) = 5kgs per person per year.

*www.transportdirect, see 'check CO2 emissions' (average of small and large car single occupancy)

24. Full report http://www.whi.org.uk/nsp
25. Bravata, D, et al,, 2007 Using Pedometers to Increase Physical Activity and Improve Health; A Systematic Review, Journal of the American Medical Association; 298 (19): 2296-2304.

9 Walking to Work

Context

UK government white papers on public health and transport established targets to increase participation in regular physical activity and associated improvements in the environment. Physical activity targets aims to increase the percentage of the population accumulating 30 minutes of moderate physical activity on five or more days each week. Active commuting (part or all the way to work) can contribute to these targets.

Purpose of the intervention

A randomised controlled trial in Glasgow aimed to establish if a self help intervention, could increase active commuting behaviour in workplaces.

Target population

Employees targeted were those who were thinking about active commuting (contemplators) and those who were irregularly active commuters (preparers),

Setting

Four large organisations in central Glasgow.

Duration

1 year.

Content and mode of delivery

A pack contained a booklet with written interactive materials based on the trans-theoretical model of behaviour change, education, and practical information on: choosing routes, maintaining personal safety, shower and safe cycle storage information and useful contacts. The pack also included an activity diary in the form of a wall chart, a workplace map, distances from local stations, local cycle retailers and outdoor shops, contacts for relevant organisations, local maps, and reflective safety accessories. Packs were given to recruits after assignment to intervention group and then issued to control group after 6 months.

Method(s) of analysis

Randomly assigned participants. Statistical analysis was undertaken and the stages of change model of behaviour change utilised to assess progression.

Data sources used

Pre and 6 and 12 month post intervention surveys, diaries, and focus groups.[26]

Main physical activity measure

Twenty five per cent of the initial intervention group, who were contemplating or preparing to actively commute at baseline, were regularly walking to work one year post intervention. The intervention group achieved more than double the increase in walking achieved by the control group at six months. Cycling levels did not increase.

Other comments on the outcomes

There was also a significant increase in average time spent walking to work per week, in favour of the intervention group, among those who already walked to work. People who changed their behaviours reported a variety of methods of creating active journeys including: adding walking to bus journeys - getting off the bus early; declining a regular lift in others peoples; using public transport more; parking further away from normal destinations.

Robustness of data

High.

Value for money/carbon savings

The cost of the initial design and print was £12,000 for the printing of 1000 folders and 300 full sets of inserts after pre-testing with target groups. A revised pack was subsequently made available to all workplaces in Scotland free of charge.

There were 145 people in the intervention group and 25% of them became regularly active commuters. So assuming that half people walk more say, once a day on a 1 mile journey each way previously taken by car, the other half by public transport, this will produce carbon savings over a year of 0.25x2x220x(0.3kg*) = 17 kg per person averaged across all participants engaged in the programme, per year.

The one-off costs of saving 1000 car kms are based on the estimate that 113 employees need to be engaged at an assured cost of £5 per person, equalling £565.

*www.transportdirect, see 'check CO2 Emissions' (average of small and large car single occupancy)

[26] Mutrie, N. et al 2002 Walk in to Work Out a randomised control trial of a self help intervention to promote active commuting, Journal of Epidemiology and Community Health, 56;407-412.

10 Workplace Challenges

Context

The workplace is increasingly used as place to promote changes in travel behaviour.

Purpose or objective of the intervention

CTC have developed a challenge competition designed for individual towns to see which employer can get the most staff cycling for just 10 minutes during a 2-3 week challenge period. Specific aims include, to encourage:

people who are not currently cycling to start cycling;
infrequent and occasional cyclists to cycle more regularly; and
recreational cyclists to start cycling for transport purposes.

Target population

Employees in large organisations.

Duration (including time to follow up)

The challenge normally runs from May to September.

Content and mode of delivery

Awareness raising events are held in the lead up to the challenge including seminars and journey planning. Follow up events, such as leisure rides and maintenance lessons are used to promote further interest. Spot prizes and other incentives are also used to encourage non-cyclists.

A paid co-ordinator is normally employed to encourage individual employers to get involved.

Method(s) of analysis/data sources

Each challenge is managed through a website which allows organisations, departments and individuals to register their involvement and log their cycling activity while displaying live results and competition information to motivate further involvement.

A Base line survey identifies people's existing levels of cycle use and a post challenge survey up to 3 months afterwards is able to measure changes.

Changes in travel behaviour

The following changes have been measured in the Leicester Challenge.[27]

Non-cyclists:

Forty-two percent (42%) of registrants (626 people) reported at baseline that they had not ridden a bike or had only ridden a bike a few times in the year prior to the Challenge. Five weeks after the Challenge, 77% of these 'new cyclists' reported that they intended to ride a bike more often in the following 6 months than they did before the Challenge, indicating a change in attitude towards cycling.

Occasional cyclists start to cycle regularly:

Twenty-one percent (21%) of participants (313 people) reported at baseline that they were cycling 1-3 times per month or once a week before the Challenge. Five-weeks after the Challenge, 60% of these

'occasional cyclists' reported that they intended to ride a bike more often in the next 6 months than they did before the Challenge, indicating a positive change in attitude and intentions towards cycling.

More people cycling for transport purposes:

Respondents who at baseline reported never cycling to work were asked if they had cycled to work during the three-months since the Challenge. Twenty-eight percent of new cyclist respondents reported that they were now cycling once a week or more to work. Likewise, 39% of occasional cyclists reported now cycling two or more days a week to work since taking part in the Challenge.

Physical activity and health

59% of participants who were only active for 30 minutes on two days as week at baseline had increased their activity levels 3 months after the challenge.

Carbon savings

A comprehensive evaluation of the Manchester Cycle Challenge showed an annual saving of 272,000 kg CO2, or 206 kg CO2 saving per participant.

Value for money

In a challenge across six towns in the South East of England during 2010 more than 5200 people took part at a cost of £40 per person, (or £272 per person new to cycling).[28]

Overall, a positive behaviour change was achieved for an average cost of £25 per employee.

The one-off costs of saving 1000 car kms are based on CTC data that shows that 22% of participants are cycling to work more, 3 months after the challenge, with costs per participant of £40. Needing 10 participants to save 1000 kms.

Assessment

Delivers long term behaviour change and creates a valuable platform to continue this process, through targeted interventions and promotion to an engaged local community.

Key benefits:

- Measurable outcomes
- Based on behaviour change theory
- Multiple benefits in single initiative
- Database of participants
- Comprehensive research tool to target future interventions
- Tackles congestion and parking difficulties

Robustness of data

Low.

27. Leicester Cycle Challenge, Evaluation Report, CTC October 2010
28. CTC, 2010

11 Electrically Assisted Bicycles

Context

The concept of the electrically assisted bicycle (EAB) has been promoted at the margins of sustainable transport for more than a decade. Recent technological advanced to increase EABs commercial viability have led to an increase in sales and interest potentially among those who would not otherwise be attracted to cycling. Electrical support reduces the intensity and exertion of cycling and could therefore take away barriers (eg hilly environments) for commuter cycling, which seems to discourage especially the less fit or older individuals. A peer reviewed assessment of the health value of EABs assessed their potential as a tool for meeting physical activity guidelines in terms of intensity.[29]

Purpose of the intervention

To test whether use of EABs can contribute to the recommendations for at least 5 x 30 minutes of moderate physical activity each week in promoting health.

Target population

Those interested in cycling.

Setting

Cycle track.

Duration

Single point in time study (cross-sectional).

Content and mode of delivery

Twelve habitually active adult subjects were requested to cycle a track of 4.3 km at an intensity they would normally choose for commuter cycling, using three different support settings: no support (NO), eco support (ECO), and power support (POW).

Method(s) of analysis

For estimating the intensity, the oxygen consumption was measured by using a portable gas-analyzing system, and heart rate was simultaneously measured. The bicycle was equipped to measure subjects' power output, pedalling rate, and the cycle velocity.

Data sources used

Travel speed compared at no support, eco-support and power support.

Main physical activity measure

The results showed that the intensity of cycling on an EAB, in all three measured conditions, was sufficiently high to contribute to the moderate-intensity standard energy expenditure. This means that the physical activity guidelines for adults of moderate intensity physical activity were met. The intensity of cycling with electrical support was not high enough to meet the vigorous-intensity standard. Only cycling on an EAB without support showed a mean intensity at the top end of the moderate physical activity level. In this condition, half of the subjects cycled at a mean intensity that was at the top end of the moderate physical activity spectrum. In the ECO and POW conditions, 33% and 17%, respectively, met the vigorous intensity standard.

To meet the current public health recommendation, moderate- and vigorous-intensity activities can be combined.

Other comments on the outcomes

While the evidence from this small scale study found that the intensity of physical effort was sufficient to meet the current internationally accepted physical activity guidelines, further study is needed to conclude whether these results still hold when using the EAB in regular daily life and in subjects with other fitness levels. Subjects would also need to cycle the distance used in this study (4.3 km) at least four times a week per round trip when using the ECO or the POW mode to meet the combined recommendations for physical activity expenditure of a minimum of 5 x 30 minutes of moderate physical activity per week.

Robustness of data

Low.

Carbon savings

A pool of 20 electrically assisted bikes In the Avon and Wiltshire Health Trust is expected to save a total of 10.9 tonnes of carbon dioxide, the equivalent of 500 kgs per bike.

29. Simons, M., Van Es, E., Hendriksen, I. 2009 Electrically assisted Cycling: A new mode for meeting physical activity guidelines? Medicine and Science in Sports and Exercise, 2097-2102.

12 Car Sharing

Context

Travel to work surveys at a number major non-central employment sites across the region show solo driver levels at 60-85%. Postcode analysis suggests that a large proportion of these drivers have limited public transport options and live too far away to walk and cycle. The analysis also shows substantial clusters of origins with similar destinations. Research on existing car sharing shows that the bulk of sharing occurs through informal arrangements, rather than formal schemes, although the latter is still more than significant.

Purpose or objective of the intervention

Most Counties and Unitary Authorities have procured access to car share websites which have the ability to match journeys together. The purpose of these is to enable more car sharing and reduce the level of solo driving.

Target population

Car drivers with common origins and destinations (or routes) with limited public transport options particularly over longer distances.

Setting

The car share websites are usually targeted via the workplace with differing degrees of intensity ranging from posters; emails and specific 'matching' events aimed at staff. This is sometimes undertaken as part of site or area based travel plans. There are very limited examples of car sharing being promoted and enabled at the origin end (e.g. at village fetes/town fayres).

Based on staff travel surveys as area travel plan sites in the south west awareness of car share web sites is fair with 35-40% being aware in Swindon, Taunton and Tewkesbury employment areas. However the proportion using the resource is low at 5-6% showing that there are significant barriers.

Duration (including time to follow up)

Campaigns are ongoing with focuses at particular times of the year (e.g. Green Transport Week; Liftshare Week)

Content and mode of delivery

The Websites are provided by a number of operators, the largest of which is Liftshare. Marketing is mainly provided by local authorities using a range of styles and resources. There have been limited attempts to co-ordinate marketing over wider geographically areas. Anecdotally the county based sites create the impression to potential users that they only match within the specific area, thereby discouraging cross boundary car sharing.

There is evidence that car sharing is effective when employers provide dedicated car sharing spaces and guarenteed lift home (e.g. Nationwide in Windmill Hill, Swindon where these provisions are made over 30% of staff car share).

In terms of barriers to car sharing, the most frequently indentified factors on in area travel plans in the South West are flexibility on hours and guaranteed lift home.

A recent AA populous panel survey (October 2010) received 15,903 responses. This found that for those respondents who do not car share, the main factors that would make them share the driving with someone else include:

- A guarantee of being able to get home – 25%,
- The opportunity to share with someone they know – 21%,
- Clear information showing other potential sharers – 20%,
- Reserved parking for car-sharers – 15%,
- A cash incentive – 13%.

Sharing appears to be highest in the 24-43 age group based on this survey.

Method(s) of analysis/data sources

Liftshare data on registrations and matches, coupled with the results of user surveys have been used to establish car mileage saved. This is converted into financial values for congestion; NOx and CO2 using DfT a using DfT assumed values. The formula used is:

Net Cost = License Fee + Marketing Cost + (Set up Cost/Scheme Age) + Staff Time Cost
Net Benefit = CO2 Value + NOx Value + Congestion Value
Cost per Mile Saved = Miles Saved / Net Cost
Benefit Cost Ratio = Net Benefit / Net Cost

Main physical activity measure

Car sharing can promote walking e.g. to meeting points compared with door to door driving and it seems likely that this occurs for some car sharing. There is no quantitative data on this.

Impact on car mileage and cost/benefit

Carsharedevon.com in 2010 resulted in an estimated 182 new people sharing. In total it is estimated that across the membership of nearly 8000, 596 share journeys across the Devon scheme. Devon achieves a high distance saved compared with the UK average (5,759,715 miles saved compared with 715,207). This is probably partly explained by Devon's higher than average marketing budget.

Based on the formula above the average BCR for all public car shares schemes is 72:1 (for Devon the BCR is calculated as 77:1)

The exceptionally high BCRs are explained by low scheme operating costs of £9300 (average across all LAs) and high levels of car mileage saved.

Carbon savings

For each commuting journey of 8 miles each way, based on 200 working days a year would save the following carbon 8x2x200x0.3kgs = 960kgs.

Robustness of data

Medium[30]

30. http://Liftshare.co.uk

13 Workplace Travel Plans: Single Businesses

Context

In 1997, the UK Minister for Transport launched national guidance on workplace travel plans. This was followed by subsequent requirements for Government departments, agencies and health organisations to introduce travel plans on their sites. In 2001, PPG13, the official planning policy guidance on transport was revised to say that travel plans should be submitted alongside all planning applications with significant transport implications. Further measures to encourage work place travel planned followed including analysis of effectiveness.[31]

Purpose of the intervention

A workplace travel plan can be defined as a package of measures that an employer puts in place to encourage and enable staff to travel to work more sustainably. Workplace travel plans may also address other travel affecting the work site, including business, visitor, customer or patient travel etc with a key focus often on reducing solo car occupancy journeys.

Target population

Adults employees of 20 large scale organisations in England.

Duration (including time to follow up)

At least 1 year from pre to post intervention surveys but most included data for more than 1 year post intervention.

Content and mode of delivery

Either a Travel Plan officer or champion and a series of travel plan measures including restrictions on parking through supply, priority and price, promotion of bus and rail, cycling, walking, and car-sharing. All had undertaken extensive marketing and communications programmes alongside these measures.

Method(s) of analysis

To compare case studies, the headline indicator for each case study was taken to be the number of commuter cars arriving per 100 staff. The number of commuter cars arriving per 100 staff was identified for each organisation at the time of the earliest and latest monitoring. The change was then calculated, and used to produce the percentage reduction in the proportion of commuter journeys made as a car driver.

Main physical activity measure

On average the organisations nearly doubled the proportion of staff commuting by bus, train, cycling and walking. The highest levels recorded for different organisations were 23% of staff commuting on foot, 21% cycling and 53% using public transport.

Other comments on the outcomes

Averaged overall, the travel plans had managed to reduce the number of commuter cars arriving by more than 14 per 100 staff, representing more than an 18% reduction in the proportion of commuting journeys being made as a car driver. This translated into significantly more journeys being made by active travel – including in accessing public transport.

Robustness of data

Medium.

Value for money

A study[32] of 17 workplace travel plans showed that costs to employers, both initial set up costs and ongoing annual costs, were low as shown below.

Action	Initial Cost	Annual Cost
Car-Sharing	£1.61	£1.00
Cycling	£26.54	£5.92
Promotion & Publicity	£3.07	£1.93

A full study, conducted on behalf of the Department for Transport, estimated that the average cost of running a workplace travel plan is around £47 per annum per employee.

All these costs are considerably cheaper than the £300-500 which the Department for Transport estimates is the annual cost of running a parking space at the time of the study (2002 prices.)

Carbon savings

An 18% reduction in the proportion of commuting journeys being made as a car driver equates to a carbon savings of 0.18x2x8.6x220x0.3kgs = 204 kgs per person averaged across all employees, per year.

31. This includes the work reported in Cairns, S., Newson, C. Davis, A. 2010 Understanding successful travel plan initiatives in the UK, Transportation Part A, 44: 473-494.
32. JMP Consultants, undated Travel Plans and Cost.

14 Workplace Travel: Multi-Business Sites

Context

There is significant experience of implementation of individual site based travel plans. There is also growing experience of area travel plans where groups of employers and other traffic generators come together to implement joint travel plans with common objectives and targets. This can occur on a voluntary basis or in the context of new developments. Where area travel plans are adopted initially on a voluntary basis, subsequent new development can be linked into it. In some cases area travel plans act as an umbrella for individual site travel plans.

Purpose of the intervention

A principal objective is usually to reduce single occupancy vehicle use. This can be particularly important where sites are close to congested parts of the local and strategic road network. There are normally other objectives running alongside network efficiency relating to CO2; promoting methods of active travel and influencing the wider transport planning context and transport providers.

Target population

The primary target population are employees and their journey to work. Business travel and visitors can also form a component of the target population.

Setting

Large multi-occupied employment areas which generate substantial traffic onto strategic and local road networks. There needs to be good evidence of employer buy in and an initial set-up resource to enable businesses to come together an act in a co-operative way.

Duration (including time to follow up)

The Highways Agency runs an annual programme to deliver at least 14 new ATPs or similar schemes each year supporting joint implementation. These projects are normally set up in partnership with local authorities. Typically the projects are monitored for impact after 2 or 3 years. At that stage, the intention is that the steering group is relatively self sufficient, possibly with the support of the local authority.

Content and mode of delivery

The Highways Agency schemes focus on bringing businesses together to establish a steering group; establishing the baseline using traffic surveys and staff travel surveys; developing and adopting a travel plan and supporting joint implementation including communication with employees. These projects are normally set up in partnership with local authorities.

Method(s) of analysis/data sources

Traffic counts and staff travel survey data are used to estimate the numbers of journeys removed from the Strategic Road Network and local network and value of time savings to user road users is estimated. CO2 savings have been estimated as 32-187 tonnes per year depending on location and reduction in single occupancy vehicles. This analysis does not include wider benefits such as health benefits though active travel. Area travel plans are sometimes introduced at locations where individual site travel plans have already been in operation for a period of time. In other cases they are introduced where there have been little site specific travel planning. Whilst there isn't clear evidence on this, it is reasonable to assume that the measured benefits are largely resulting from area travel plan implementation.

Traffic counts and staff travel survey data are used to estimate the numbers of journeys removed from

the Strategic Road Network and value of time savings to user road users is estimated. CO2 savings are also estimated. This analysis does not include wider benefits such as health benefits though active travel and congestion savings on local road networks.

Main physical activity measure

The monitoring data includes information on any increased levels of walking and cycling.

Benefit cost ratios

The below table sets out estimated BCRs relating to trips removed from the Strategic Road Network following 2 - 3 years monitoring.

Employment site	Peak hour vehicles removed	Cost	BCR
Cambridge Science Park	88	£207K	13:1
Whitely, Hampshire	52	£133K	3.7:1
Northampton General Hospital	76	£67k	5.5:1
Team Valley Estate-worst case	76	£118K	3.5:1
Team Valley Estate-best case	152	£154K	6.9:1

Robustness of data

Medium (Highways Agency monitoring).

15 ‘Signs-Only’ 20mph Speed Limits

Context

Due to the relatively high cost of implementing self-enforcing area-wide traffic calming schemes more emphasis has been given to signs-only in recent years. Portsmouth City Council became the first UK highway authority to commence implementation of a 20mph blanket speed limit across residential areas in 2007.

Purpose of the intervention

Implemented to support low driving speeds adopted by many motorists and to encourage less aggressive driving from those who drove at inappropriate speeds.

Target population

Local community.

Setting

Residential streets.

Duration (including time to follow up)

18 months 2007-2008.

Content and mode of delivery

Post mounted traffic signs on entry and exit and repeater signs, and roundel markings on roads. Required Traffic Regulation Orders (£250,000). Public information disseminated via media and community involvement.

Method(s) of analysis

‘Before’ surveys for previous 36 months and ‘after’ for 12 months.

Data sources used

Average speeds monitored at 159 sites. Classified vehicle counts. Casualty data.

Main physical activity measure (or other proxy measures)

None. The average speed after the 20 mph speed limits were imposed was 0.9 miles per hour lower than the average speed before the speed limits were imposed. At sites where the average “Before” speed was greater than 24 mph the average speed reduced by 7 mph. Total accident reduction was 13% and the number of casualties fell by 15% although not statistically significant.

Value for Money

The cost savings from reduced accidents can be significant as the DfT estimate[33] the value of prevention to be as follows, fatal: £1,683,000; serious: £189,200; slight: £14,600; average: £52,600.

Other comments on the outcomes

Initially started as a Safe Routes to Schools scheme it 'grew' into a larger area scheme. Interim report by Atkins for Department for Transport in 2009.[34]

Robustness of data

High.

33. Department of Transport, 2009 Road Casualties GB 2008, London: DfT.
34. http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme4/interimeval20mphspeedlimits.pdf

16 Town or City wide Programmes

Context

Three medium-sized, towns were selected under competition, as Sustainable Travel Towns', implementing a 5 year programme of transport behaviour change measures. Taken together they spent £15 million, of which £10 million was from the Department for Transport.

Purpose of the intervention

To reduce the use of the car by implementing a range of soft measures to change behaviour.

Target population

Residents, both adults and children, in the towns of Darlington, Peterborough and Worcester.

Settings

Town wide.

Duration

2004 to 2009

Content and mode of delivery

The main focus was on personal travel planning (taking from a third to nearly half of revenue spending), followed by travel awareness campaigns, promoting walking and cycling promotion public transport information and marketing. Smaller amounts were spent on workplace and school travel plans. The programmes were implemented by teams of 6-10 staff located in each town.

Method of analysis

A dedicated household travel survey was carried out in Autumn 2004 and repeated in Autumn 2008 in all three towns, with over 4,000 respondents in each town. This identified changes in people's travel patterns.

Smaller interim household surveys were also undertaken in connection with the to personal travel planning activities. The sample of people represented 3-5% of the study area populations and was sufficient to provide 95% confidence intervals of around +/- 2% in each town for each date.

Supplementary transport data was also collected included automatic vehicle counts and manual car and taxi counts in all three towns, bus passenger boarding data for all three towns, automatic and manual counts of cyclists in all three towns plus manual counts of pedestrians crossing a town centre cordon in Darlington and several screenlines in Peterborough.

Workplace travel surveys at employers engaged in travel planning and school travel surveys were also carried out.

Finally, comparison was made with national trends from the National Travel Survey and National Road Traffic Estimates.

Main physical activity measures

Between 2004 and 2008 the proportion of respondents to the household travel survey who did not walk or cycle fell by 11% (or 2% points from 23.4% to 20.9%). Whereas the proportion who reported that they walked or cycled 'almost daily' increased by 6% (or 3% points from 46.6% to 49.4%).
Cycle trips per resident increased by 26%-30% compared to a national decline in the same period in similar sized towns.

Walking trips per resident increased by 10-13% compared to a national decline of 9% in the same period in similar sized towns.

Reduction in car use

Car driver trips per resident of the three towns taken together fell by 9% between 2004 and 2008, whilst car driver distance per resident fell by 5-7%. National trends in similar sized towns during the same period showed a reduction of only 1.2% in trips and 0.9% in distance. Reductions were more marked in inner areas than outer areas.

Journeys that showed the largest percentage reduction in distance travelled as a car driver were education (25%), work related business (14%) and leisure (12%). However as education trips accounted for only a small proportion of total overall distance, the largest contribution to the reduction in total car driver distance came from leisure (45% of miles reduced), shopping (30%) and work related business (21%).

Bus trips per resident increased by 10-22% compared to a national decline of 0.5% in the same period in similar sized towns.

Carbon savings

The programme resulted in annual per capita carbon savings of around 50kg of carbon dioxide in 2008, compared to 2004. Grossing this up to town-wide level and accounting for increases in population, there was a combined saving of 17,510 tonnes of carbon dioxide per annum in 2008, across all three towns.

The per capita figure only reflects reductions in car driver distance on journeys of less than 50km, but it is equivalent to a reduction in annual per capita emissions from car driving of approximately 4.6% for journeys of all lengths.

Value for money

Expenditure was in the order of £40 for every 1000 vehicle km removed (at 2009 prices), compared to a congestion saving of about £180, which gives a congestion only benefit cost ratio of 4.5.

Robustness of data

High.

More details from:
http://www.dft.gov.uk/pgr/sustainable/smarterchoices/smarterchoiceprogrammes/pdf/summaryreport.pdf

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