Cycling cities / cycling demonstration towns initiative

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Author: Patrick Lingwood: 1999-2001 academic researching Government cycling policy; 2002-4 Regional Cycling Co-ordinator working to implement National Cycling Strategy; 2005 prepared Cycle Infrastructure Design Guide for DfT; 2006-9 LA cycling officer with successful Leighton Cycle Town bid; 2009-11 DfT managing Cycle City and Town programme funding and advising Minister on cycling policy and health.

Background: The challenge of promoting cycling has similarities with the challenges of tackling obesity. Since 1996, with the publication of the National Cycling Strategy, to varying degrees, central government has sought to halt and reverse the decline in cycling (Butcher 2009, Aldred 2011), but there was minimal success in achieving these outcomes for many years. The 1998 White Paper set out the policy background and through the local transport plan (LTP) provided ring fenced sustainable transport funding. However, the decline in cycling was not halted, which could be attributed to a lack of local political commitment, dispersed funding, lack of promotion and a reliance on a small number of expensive but inadequate infrastructure projects. LTP2 Guidance tried to tie local authorities by using a set of detailed performance indicators, but failed to overcome these local failings. After the demise of the National Cycling Strategy and its Board, Cycling England changed the approach, establishing the Cycle Demonstration Towns (CDT) project (£15m from 2005-8) with targeted funding at best European town levels (£5 a head per year), under the mantra of "work with the willing" and much more direct intervention and support. In 2008, the much larger 12 Cycle City and Towns (CCT) programme (£50m) was established and the CDT programme renewed for 3 years. Cycling England and the CDT and CCT programmes were ended in March 2011. This has now been replaced by the even larger £560m "Local Sustainable Transport Fund" (2011-14), but it is possible that this may repeat some of the errors of the initial LTP process and not learn from the lessons of the CDT/CCT programme.

Cycling and public health

Cycling to work is associated with significant health benefits (Anderson 2000). Ogilvie (nd) in a systematic review of cycling initiatives and their impact on health concluded that a small number of initiatives had demonstrated success in increasing levels of physical activity at a population level and therefore promoting cycling is a viable approach to improving health. Physical activity can improve health outcomes even where a person is overweight or obese (Tjonneland et al. 2008). In contrast, the use of car is associated with weight gain (Mason 2000).

Basset et al. 2008 found an association on a national scale and that countries with the highest levels of active transportation (walking and cycling) generally had the lowest obesity rates. The lower level of obesity in Netherlands has been linked to its high cycling levels (ASSO 1999)

One major focus of the CDT/CCT programme has been children. The evidence is that children who cycle to school are more active (Cooper et al. 2005). Even a small increase in weight gain

in children may change their future predisposition to heart attacks (BBC news report 2005) and active travel may represent a significant proportion of children's overall physical activity (Van sluis 2009). Doing just 15 minutes a day moderate exercise lowered a child's chances of being obese by 50% (Ness et al 2007). Currently many children do not meet recommended levels of physical activity and accelerometer data found that only 5% of 11 year old boys and 1% of 11 year old girls are meeting recommended levels of exercise.

Because cardiovascular diseases and obesity affect nearly all the population, prevention is better than later intervention. Cycling is one of the few potentially population wide, lifelong, regular activities which can be incorporated into people's lives. At the European level, the five most common activities include walking, gardening, cycling, keep fit and swimming. (Almeida et al.1999). Because more people walk, some researchers have seen walking as key to tackling obesity (Davis 2007). However, cycling has a number of distinct advantages. Cycling is a moderate to vigorous form of exercise, whereas walking is light to moderate (and the latter only if walking briskly). Studies suggest an association of cycling to work for men with lower levels of overweight and obesity, whereas no association was found with walking to work for either men or women (Wen 2007). In transport terms, in terms of distance, because of its range from 1-5 miles, cycling has a much greater realistic potential to replace car use than walking. Compared to rest of Europe, UK already has one of the highest levels of walking but very low levels of cycling (Bassett et al. 2008). Around 4% of UK adults compared to 42% of Dutch and 32% of Danish cycle every day at a level to give health benefits. More detailed NTS data shows that 35% of male children, 19% of female children (5-15 yrs), 8% of male and 3% of female adults cycle 3+ times a week.

There is a lot of research into the barriers to cycling. One key barrier is the perception that cycling carries unacceptable risks. However, the evidence is cyclist risk is very low, similar to many other forms of activity, the risk is much lower in many European countries, decreases with higher levels of cycling (Pucher 2003) and that the benefit of more cycling may be felt by other modes, such as pedestrians and motor car users, as well (Lingwood 2005), whilst the risks are far outweighed by the benefits (Hillman 1992). In spite of a wealth of Government, practitioner and research literature, there is however no proven method of increasing cycle participation locally. Nevertheless, the broad outlines and elements of a successful strategy can be recognised in various initiatives. These are exemplified in the findings from the CDT and CCT programmes.

Findings of CDT/CCT programme

Issues 1 Essential elements of community-wide approach to preventing obesity
2 Barriers and facilitators
3 Key leaders, actors and partners

The findings of the first 4 years of CDT programme are summarised in "Making a Cycling Town" (DfT 2010). The purpose of this publication was itself recognition that a key barrier to successfully promoting cycling was a lack of understanding by the very people who were responsible for implementing the initiatives. The document was designed to be a practical and very readable guide to help Council members and LA officers plan and develop their own initiatives to implement cycling. The publication was just as importantly based on practical experience of what did not work as well as what worked. What did not work could be summarised as:

- Lack of political backing and lack of consistent funding
- Lack of understanding of key elements in successfully planning for cycling, leading to poorly linked and inappropriate facilities, funding not targeted on groups likely to change, a reliance on isolated infrastructure coupled with insufficient marketing or promotion
- Lack of consistent message across the activities of local authorities so that decisions by other departments within a local authority undermined policies to promote cycling.

The document based its premise on the need for a coherent plan, based on 4 apparently simple ideas (4 Ps):

- People – recognising which groups were likely to change – the "low hanging fruit", in terms of demography, age, car ownership and in more sophisticated form, ACORN profiles. Behind the simple message lay an understanding of the Theory of Change and work by DfT on behaviour change and the development of a policy development toolkit (Christmas 2009, DfT Behaviour Change Think Pieces).
- Place and Purpose: recognising that there is a need to focus on places with short journeys and a real incentive to change mode (e.g. work, station and school journeys) and that the quality of the cycle journey matters
- Package: recognising that to change behaviour that you need to put all the elements together and get them right. The idea behind "Bike It" is one example. For each "but I can't because …", you need to find a solution, e.g. cycle parking at school, cycle training, a safe route, how to carry school bags and lockers for storing cycle gear, ways of allaying parental anxieties etc etc.

The publication then sets out Ten Top Tips. Whilst these were aimed at cycling, many would apply to any similar behavioural change initiative.

1. Senior political support is the key to success. With the cycle towns, the major problems developed when there was a change of political control leading to a lack of top political support. This matters because ultimately organisations are hierarchical and therefore funding, policy decisions, and support from other departments depend on senior political support.
2. Sustained investment: behavioural change depends on changing systems and building up change over a number of years. In effect, the withdrawal of Government funding for CCTs in 2011 after 3 years exemplifies the "stop start" nature of much sustainable transport planning.
3. Professional expertise: analogous perhaps to the dichotomy between public health and medical practice, many transport engineers are trained to think in terms of catering for car use, not sustainable travel or promotion and tend to use national trunk road guidance inappropriately for local roads.
4. Building support within the organisation: too often funding sustainable transport promotion is undermined by funding and decisions from other Council departments, whereas when working together, there are pooled resources.
5. Wider support from stakeholders: there are many other organisations operating within the transport environment who can support or hinder cycling programmes
6. Providing not only cycling infrastructure but also promotion. A historical failure has been the "build it and they will come" mentality, whereas the evidence is that moving

from walking or car use to cycling represents a major behavioural change decision. Most local authorities have not traditionally seen this as their role or have the necessary expertise or funding streams.

7-9 Context, audience and place: these develop the comments on “people, place and purpose” above.

10. New users need support: another theme from behaviour change is that there is a need to establish a new behaviour until it becomes habitual.

The rest of the document (DfT 2010) gives practical details of the 6 CDT programmes, with helpful details such as the level of funding and staff used in each town for each programme. This list of top ten tips was developed by practical experience rather than academic research. The CDT programme was essentially practical. The much bigger CCT programme included a £1 million+ research programme which sought to back up these heuristic findings with more academic rigour. However, this element of the CCT research programme was struggling to elucidate any deeper insights, which to a large extent exemplifies the difficulty of identifying the relative inputs and outcomes in such complex programmes.

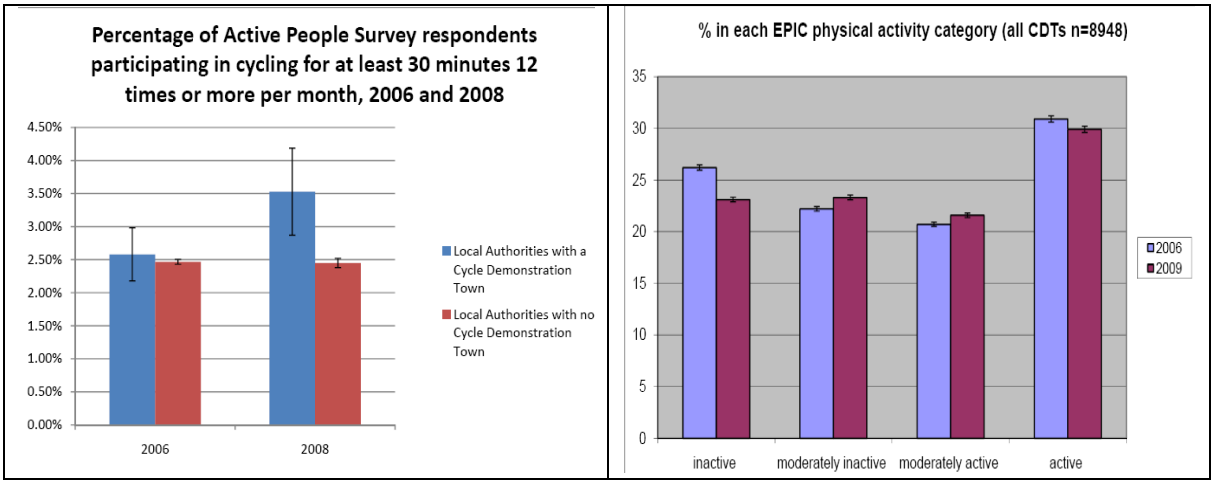
Achieving behavioural change and increasing cycling and physical activity levels are the real test of success of whether these top tips are applicable. It should be noted that for the moment results are provisional - there is only before and after data for the CDTs over 3 years (2006-2009). The final surveys for CDTs and CCTs will not be available until 2012 at the earliest. The interim CDT results, however, indicate that the programme was successful both in promoting greater levels of cycling and physical activity at a population level. Key sources of data are Cavill et al. 2010 and Cope et al. 2010.

Outcomes:

Cavill et al. 2010 presents the results from the 2006 and 2009 CDT surveys of cycling and physical activity levels including secondary analysis of Sport England’s Active People Survey. A survey was conducted among random samples of the population of each CDT in 2006 (before programme activity began), and again in 2009. 1,500 residents were interviewed in each town in each wave of research (total sample size approx 9,000 per wave). The core of the questionnaire was the physical activity measure taken from the European Prospective Investigation into Cancer (EPIC) study.

In all towns across the project period, cycling activity increased by 28.1% with the range of increase in town was from +9.8% to +56.8%. The proportion of respondents cycling once a month in CDTs increased by 3.3% between 2006 and 2008. This equates to approximately 26,000 people in the local authorities with a CDT who have increased their cycling since the CDT programme began [= 4% of total population around 600,000]. In all the towns combined, there was a significant increase in the proportion of people doing any cycling in the last year (from 24.3% in 2006 to 27.7% in 2009). Respondents who said they cycled in a usual week in the last year were asked about their cycling in the last week. There was a significant increase in the proportion of cyclists who had cycled in the last week, from 41.7% in 2006 to 49.4% in 2009. These increases were compared against matched towns and showed a statistical increase in cycling and a statistical decrease in inactivity which was not found in the matched towns. The inference is that the increase in the cycle towns was due to the CDT programme. In particular, the reduction in the proportion classed as inactive is important as this is where

there is the largest reduction in risk of all cause mortality (Paffenberger 1993, Khaw et al, 2006). Further analysis in Sloman et al. 2009 showed indicative if non-significant increases in cycling across both gender, across all age groups from 16 – 74 and across all social grades, implying that, unlike many health initiatives, the benefits were felt by all groups, including higher priority groups (eg older people and lower social grades).



This data was supplemented by data collection of cycling numbers both on-road by quarterly manual counts and off-road using automatic counters (Cope et al. 2010). The data showed a 27% increase in cycling at automatic count sites. Because of seasonal changes and the problems of accurately measuring cycling, these figures should still be treated as provisional, but an analysis of the various data collection figures suggests a real increase in cycling levels. If the 3 year increase continues to the end of the programme, this would put the towns on the same trendline as London (Sloman et al. 2009) which has demonstrably doubled cycling over the last 10 years. This is an important finding because it counteracts the generally negative perception among many decision makers that expenditure on cycling was a waste of money because it achieved no increase.

Monitoring

Issue 5 effective monitoring and evaluation and issue 6 cost effectiveness

The programme was evaluated (Cope et al. 2011) using the DfT WebTAG analysis (DfT 2008). This incorporated an analysis (Cavill et al. 2009) using the WHO HEAT (Health Economic Assessment Tool) for cycling (Cavill et al 2007). The HEAT analysis estimated the economic value of the reduced mortality associated with the increase in cycling to be in the region of £4.5 million per year. Over ten years, if these new cyclists continued to cycle regularly, the value of reduced mortality would amount to £45 million. For each £1 invested, the value of decreased mortality is £2.59. A benefit to cost ratio of this magnitude is classed as 'high' by DfT. The wider WebTAG analysis including other benefits (such as journey ambience; absenteeism; congestion; pollution) found that depending on how changes in cycling casualties were treated the benefit to cost ratio lay in the range 2.6-3.5:1. This is possibly conservative given the level of capital infrastructure delivered in the Cycling Demonstration Towns and the fact that benefits in terms of morbidity and to children were not counted. The benefit to cost ratio range increases to 4.7-6.1:1 if the benefits could be sustained for 30 years assuming some on-going investment in behavioural change programmes and training.

The WebTAG analysis of the Cycle Demonstration Towns highlighted a number of important gaps in the calculation of BCR. These were:

- a calculation of the morbidity benefits of cycling i.e. the benefits in better health as opposed to the mortality benefits, in reducing premature deaths
- an uncertainty in the duration of benefits, whether it should be 10 years or longer
- the impact of benefits to children

The AECOM baseline survey of CCTs (AECOM 2010 and 2011) with around 30,000 interviews, 10,000 7 day travel diaries and 10,000 self completed attitude surveys, represents one of the most detailed surveys ever of cycling near the start of the CCT programme. Whilst the survey cannot track changes, the depth of data and a comparison between low cycling towns like Stoke and high cycling towns like Cambridge allow some inferences to be made, if done with care, as to what the likely impacts of increasing cycling levels are on travel and physical activity patterns.

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